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EV Charging Site Project Plan

Executive Summary

This document is the **master, traceable closeout deliverable** for an EV charging site electrical project. It presents a complete, phase-structured record of how an EV charging installation was engineered, reviewed, submitted, revised, and finalized, with every key decision tied back to its inputs and supporting evidence.

The plan is organized into **eight phases (Phase 1 through Phase 8)**. Within each phase, the document identifies the prerequisite inputs and how they were provided, establishes a stable evidence index (so files can be retrieved unambiguously), and summarizes how each deliverable was created (calculations, decision records, compilation/QA logs). It also preserves an audit trail of external review cycles—authority plan check and serving utility review—by capturing submission packages, receipts, comment logs, response letters, and approvals/finalized evidence.

The intent is not to restate every technical detail in prose, but to provide a defensible chain of custody: what information was relied on, how assumptions were verified and frozen, what artifacts were produced, and what evidence demonstrates acceptance at each checkpoint.

For readers who are not familiar with how electrical work is reviewed and validated in California, the **Introduction** section provides the operational context—how AHJs and utilities function as separate audit systems, why “written code” and “enforced code” diverge in practice, and why traceability and early risk characterization materially affect delivery outcomes.

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Overview

Phase Overview (Deliverables by Phase)

Phase 1: Project Initiation and Feasibility This phase establishes the foundational viability of the project.

- **Phase 1 Project Technical Intake Record:** Captures project identifiers, technical constraints, stakeholders/roles, and approvers.

- **Phase 1 Feasibility Memo / Go-No-Go (Screening-Level):** Uses Phase 1 inputs to determine preliminary electrical viability and define conditions to proceed.
- **Phase 1 Input Register + Evidence Index:** Lists every prerequisite input with provenance (who/when/how provided), versioning, verification method, and evidence pointers.
- **Phase 1 Assumption + Exclusion Register:** Records Phase 1 assumptions (with owners to validate) and explicit exclusions (including civil/constructability and business/cost/schedule).
- **Phase 1 Preliminary Electrical Basis of Design (BOD):** Freezes the Phase 1 “technical truth” set (or explicitly flags TBDs) used to seed later deliverables.
- **Phase 1 Forward Traceability Map:** Shows how Phase 1 inputs/assumptions flow into deliverables in Phases 2–8.

Phase 2: Data Collection and Site Analysis This phase involves gathering and standardizing all necessary information about the existing site.

- **Phase 2 Intake Checklist – Complete:** Requires Site plans (Owner/Architect), Panel schedules (Electrician), Photos (Installer), Charger SKUs (Installer/Vendor), and AHJ (Address).
- **Phase 2 Normalized Site Data Package:** Requires Raw plans (Phase 2), Photos (Phase 2), and Schedules (Phase 2).

Phase 3: System Design and Load Calculation The focus of this phase is on determining the site’s electrical capacity and selecting the appropriate EV charging system architecture.

- **Phase 3 NEC Load Calculation:** Requires Panel schedules (Electrician), EVSE ratings (Manufacturer), and NEC methods (Code).
- **Phase 3 EV System Architecture Decision:** Requires Load results (EE, Phase 3), Charger mix (Installer/Owner), and Site constraints (Phase 2).

Phase 4: Preliminary Drawing Set Production This phase produces the necessary detailed **electrical** drawings required for permitting review.

- **Phase 4 Preliminary One-Line Diagram:** Requires Architecture decision (Phase 3), Service info (Utility bill/As-built), and Charger specs (Manufacturer).
- **Phase 4 Site Plan w/ EVSE Locations:** Requires Base site plan (Owner/Architect) and Parking layout (Owner).
- **Phase 4 Conduit & Trenching Details:** Requires Routing assumptions (Installer) and Site conditions (Photos, Phase 2).
- **Phase 4 Updated Panel Schedules:** Requires Existing schedules (Electrician) and New EV loads (EE, Phase 3).
- **Phase 4 Electrical Notes & Code Sheets:** Requires Jurisdiction (Address) and Standard templates (Internal).
- **Phase 4 Permit Drawing Set – Unstamped:** Requires One-line (Phase 4), Site plan (Phase 4), Details (Phase 4), Schedules (Phase 4), and Notes (Phase 4).

Phase 5: Permitting Submission This phase focuses on the formal submission of documents required to obtain construction permits.

- **Phase 5 Stamped Permit Drawings:** Requires Unstamped drawing set (Phase 4).
- **Phase 5 Permit Application Package:** Requires Stamped plans (Phase 5), Permit forms (AHJ), and Project metadata (Phase 2 / Phase 4).

Phase 6: Authority Review and Drawing Revision This phase addresses any feedback or comments received from the AHJ and ensures that all drawing revisions are complete.

- **Phase 6 AHJ Comment Log – Parsed:** Requires Plan check comments (AHJ).
- **Phase 6 Revised Drawings – Post-Comments:** Requires Comment log (Phase 6) and Prior drawings (Phase 4 / Phase 5).
- **Phase 6 Comment Response Letter:** Requires AHJ comments (AHJ) and Revised drawings (Phase 6).

Phase 7: Utility Coordination This phase handles all necessary applications and coordination with the local electrical utility company.

- **Phase 7 Utility Load Letter / Single-Line:** Requires Load calc (Phase 3) and Service info (Utility bill/As-built).
- **Phase 7 Utility Application Forms:** Requires Utility requirements (Utility portal) and Project data (Phase 3 / Phase 4).

Phase 8: Electrical Closeout and Handover The final phase involves documenting the completed site and providing necessary support for final inspections and system activation.

- **Phase 8 As-Built Drawings:** Requires Field redlines (Electrician/Installer) and Inspector notes (AHJ).
- **Phase 8 Inspection Support Responses:** Requires Inspector feedback (AHJ).

Introduction

In California, electrical engineering work is validated externally by two independent authorities: the Authority Having Jurisdiction (AHJ) and the serving electrical utility. AHJs enforce the adopted California Electrical Code and local amendments through plan check and inspection. Utilities are not code enforcers; they manage grid and asset risk, reviewing added load, service impacts, fault duty, and—in EV projects—the credibility of any claimed load-management scheme. These entities do not coordinate with each other and do not participate in design. They review finished artifacts only.

In the San Francisco Bay Area, the AHJ is typically the city or county building department responsible for electrical permits. A multifamily EV project in Palo Alto, for example, is reviewed by the City of Palo Alto – Building Division, while a similar project nearby may face a different department with different amendments, reviewer expectations, and enforcement thresholds. The serving utility runs a parallel review with different criteria and timelines. Same written code, materially different enforcement outcomes.

Both AHJs and utilities operate as audit systems. They do not accept undocumented reasoning, verbal explanations, or implied engineering intent. Anything not written, indexed, and traceable is treated as nonexistent. Most comments and deficiencies are not about incorrect calculations but about failure to demonstrate how inputs flowed into outputs and whether assumptions were verified, frozen, and consistently applied. This is why written code ≠ enforced code in practice, and why designing purely to the most conservative interpretation everywhere results in systematic over-engineering.

Over-engineering is not a neutral safety margin in California; it is economically destructive. The state faces a chronic scarcity of licensed EEs and especially PEs, which drives very high labor costs. Every unnecessary design iteration, oversizing decision, or avoidable service upgrade consumes scarce senior hours that cannot be amortized. When firms respond to regulatory uncertainty with blanket conservatism, they burn the most expensive resource they have and compress margins without meaningfully reducing approval risk.

Modeling each AHJ—what they actually enforce, what they routinely question, and where they allow judgment—is therefore critical. Precise alignment to enforcement reality allows designs that are code-compliant, defensible, and no more complex than necessary. This reduces PE touch time, limits redesign cycles, and keeps projects within a labor envelope that is survivable given market scarcity.

Utilities must be modeled with the same rigor. Written utility standards, handbooks, or greenbooks do not reflect how load increases, EMS claims, or service constraints are actually reviewed in practice. Utilities differ materially in what they flag, what they defer, what they require upfront, and what they reopen later in the process. Treating utilities as deterministic rule engines leads to the same failure mode as over-interpreting code: unnecessary conservatism, late surprises, and unplanned rework. Capturing utility behavior—what documentation they demand, how they evaluate managed load, and where they apply discretion—is essential to avoiding service upgrades and uncontrolled scope growth.

Profitability depends on this discipline starting early. Correctly characterizing a project's regulatory and utility risk at intake—based on service conditions, load posture, AHJ enforcement behavior, and utility sensitivity—and fitting it into a canonical, repeatable form is what enables accurate pricing. When risk is explicitly classified rather than discovered midstream, fees can reflect true exposure, delivery plans can be matched to risk class, and engineers can execute with confidence that the work is achievable within tolerable margins. In California EE practice, traceability, AHJ and utility modeling, and early risk canonicalization are prerequisites for operating profitably under scarcity and scrutiny.

The two comparison tables below make these claims concrete by showing how differences in grid/permit governance and liability structure can force additional phases, rework loops, or evidence requirements (relative to California).

Comparative regulatory context (California vs. EU vs. Costa Rica)

Category	California (USA)	European Union (EU)	Costa Rica	Phase Impact (EU/CR vs. CA)
Grid Contract Status	Standard Customer: You request a utility service/meter upgrade (e.g., Taylor Nguyen).	Market Participant: You sign a bilateral GCA (Grid Connection Agreement) as an active grid asset.	Public Service User: You apply for a “Public Service Connection” from the state monopoly (ICE/CNFL).	Add Phase (EU): GCA Legal Negotiation & Signing.
GCA Throttling	Passive/Local: System is capped internally to protect building breakers.	Active/Remote: GCA legally permits the DSO to remotely throttle your load during grid stress.	Regulated Limit: Strict “Hosting Capacity” limits (often 15%) on local distribution circuits.	Add Phase (EU): DSO Signal Integration & Testing.

Category	California (USA)	European Union (EU)	Costa Rica	Phase Impact (EU/CR vs. CA)
Market Operations	Open/Deregulated: Any business can sell energy by kWh/minute. Focus on uptime.	Harmonized (AFIR): Mandated ad-hoc payment, price transparency, and open roaming.	State Monopoly: Law 9518 restricts resale to utilities; private sites often offer "Free Amenity".	Add Phase (EU): MSP/Roaming Integration. Modify (CR): Legal Resale Review.
Project Steward	CPO-Focused: The software vendor often "pilots" the project to ensure operational ROI.	DSO-Focused: The regulated Grid Operator is the gatekeeper of timelines and capacity terms.	EE/Consultor-Led: The licensed engineer is the steward, navigating the CFIA and ICE.	Shift: Stewardship moves from vendor to grid authority or engineer.
Technical Steward	EE Firm: Licensed PE (Priya Shah) stewards NEC 625.42 and the "Right to a Permit".	EE Firm: Technical executor ensuring design meets both IEC and DSO-specific GCA signals.	EE Firm: Responsible for the Bitácora Digital (mandatory legal project log).	Add Task (CR): Continuous Bitácora Logging (Phase 3–7).
EMS Architecture	EE-Led: Design must be "fail-safe" to satisfy the AHJ and avoid \$50k utility upgrades.	CPO-Driven: Software logic often dictates the load profile to match volatile energy markets.	EE-Led: Must prove site stability to prevent local transformer failure in residential zones.	Neutral: Responsibility shift within Phase 2.
Permit Authority	Ministerial (AHJ): Cities must approve per AB 1236 if health/safety codes are met.	Discretionary: Local municipalities often have "Urban Design" or "Public Realm" veto power.	APC (CFIA): Centralized digital platform where plans are validated by the National College of Engineers.	Add Phase (EU): Public Design Review. Consolidate (CR): Single APC track.
Compliance Check	PE Seal + AHJ: PE stamps plans; City Inspector performs the final field walk.	Independent Audit: Often requires a third-party certificate (e.g., TÜV, Consuel) before turn-on.	CFIA Validation: Final project "Seal of Approval" is issued via the digital Bitácora platform.	Add Phase (EU): Independent Regulatory Audit.
Significant Constraint	ADA Accessibility: Strict prescriptive design for van-spaces and accessible paths.	Grid Congestion: High-speed DC rollouts are often limited by local grid "waitlists".	Environmental (SETENA): Coastal or protected zone projects require a lengthy environmental track.	Add Phase (CR): SETENA Environmental Screening.

Acronyms used above (not defined earlier in this document):

- **AB 1236:** California Assembly Bill 1236 (EV charging "streamlined permitting" requirements for jurisdictions).
- **ADA:** Americans with Disabilities Act (accessibility requirements).
- **AFIR:** Alternative Fuels Infrastructure Regulation (EU).
- **CPO:** Charge Point Operator.
- **Consuel:** Comité National pour la Sécurité des Usagers de l'Électricité (France; common third-party electrical conformity body).
- **DSO:** Distribution System Operator (EU).
- **GCA:** Grid Connection Agreement (EU).
- **IEC:** International Electrotechnical Commission (standards family widely used in the EU context).
- **MSP:** Mobility Service Provider (roaming/payment operator in EU charging ecosystems).
- **NEC:** National Electrical Code (US); in California this is adopted/amended via the California Electrical Code.

Comparative liability context (California vs. EU/Germany vs. Costa Rica)

Category	California (USA)	EU/Germany	Costa Rica
Primary Liability Basis	Tort & Negligence: Focus on “Duty of Care” and unlimited potential for indirect damages (loss of profit).	Statutory/Contractual: Governed by the BGB (Civil Code) and VOB; focus is on “Direct Damage” only.	Professional Responsibility: Governed by Law 3663 and CFIA; linked to the “Bitácora Digital” logs.
Personal vs. Corporate	Individual Signature: The PE who stamps the plans carries “Responsible Charge” and personal liability.	Corporate Focused: Liability typically sits with the firm (GmbH) as the contracting party under the BGB.	Personal & Solidary: The signing engineer and the firm are jointly liable for the 10-year stability.
Duration of Liability	10 Years: Statute of repose for latent defects (California Code of Civil Procedure 337.15).	5 Years: Standard warranty period for construction works under § 634a BGB.	10 Years: Civil liability for structural/safety defects (Article 1185 of the Civil Code).
Damages Scope	Unlimited: Includes punitive and indirect damages if negligence is proven.	Capped/Direct: Usually limited to the cost of repair; “indirect damages” are excluded unless specifically in the contract.	Direct & Rectification: Focus on the legal obligation to fix the defect at the engineer’s expense.
Insurance Reality	High Premium: Professional Liability (E&O) is expensive and critical for risk mitigation.	Standardized: Coverage is often tied to the HOAI fee structure and is a market standard for firms.	The “Garantía”: Engineers often rely on a mandatory CFIA-backed guarantee or professional bond.

Phase 1: Project Initiation and Feasibility

Phase 1 Purpose and Boundaries

Phase 1 exists to produce a **traceable, evidence-backed, screening-level** feasibility determination for the project's electrical viability and to define the prerequisite inputs needed to complete later phases.

Phase 1 is NOT permit-grade engineering. Any screening calculations in Phase 1 are explicitly **superseded by Phase 3 (NEC Load Calculation)** and must not be reused for permit submittals.

NOTE: The Phase 1 register fields below are filled with **example data** to demonstrate a “completed” deliverable package. Replace all names, dates, and evidence pointers with real project records before using this document externally.

1.2 Project Technical Intake Record

Field	Value
Project name	EV Charging Site Project
Site address	Place (Palo Alto, CA)
Building type	Multifamily residential (common-area charging)
Applicable code basis (prelim)	2022 California Electrical Code (CEC) (confirm in Phase 2)
Electrical constraint	Use existing service; avoid service upgrade unless unavoidable for code compliance
Intended EVSE deployment (prelim)	8 ports, Level 2 (confirm by cut sheets)
Primary stakeholders	Owner, Installer, Electrician, Engineer-of-Record, Project Manager
Technical approvers	Engineer-of-Record (final), Owner (program intent), Installer (equipment selection)

1.3 Input Register + Evidence Index (Prerequisite Inputs)

This register is the authoritative list of Phase 1 inputs and **how they were provided**.

Input ID	Input	Provenance (who / how / when)	Evidence reference ID(s)	Verification + downstream use
1-I01	Utility bills / usage history (≥ 12 months)	Nora Patel (Owner Rep)Owner email + shared drive linkReceived: 2026-01-08 (v1.0)	1-I01	Verify: service address + meter/account match; 12-month coverageUsed in: Phase 1, Phase 1, Phase 3, Phase 7
1-I02	Service characteristics (rating, voltage/phase)	Luis Romero (Electrician) + utility portal exportElectrician upload + portal capture PDFReceived: 2026-01-09 (v1.1)	1-I02	Verify: nameplate vs utility letter; voltage/phase matchUsed in: Phase 1, Phase 1, Phase 3, Phase 4, Phase 7
1-I03	EVSE intent (make/model)	Mia Chen (Installer PM)Installer email (PDF cut sheet)Received: 2026-01-10 (v1.0)	1-I03	Verify: cut sheet ratings + OCPD guidanceUsed in: Phase 1, Phase 1, Phase 2, Phase 3, Phase 3, Phase 4
1-I04	Site photos (electrical gear + context)	Mia Chen (Installer PM)Installer upload (photo set)Received: 2026-01-10 (v1.0)	1-I04	Verify: readable ratings/labels + gear contextUsed in: Phase 1, Phase 1, Phase 2

1.4 Assumption + Exclusion Register

1.4.1 Exclusions (Scope Guardrails) This master deliverable intentionally excludes:

- Civil / constructability topics (trenching, routing, demolition, means-and-methods, etc.)

1.4.2 Assumptions

Assumption ID	Assumption	Rationale + risk	Validation (owner + when)
1-A01	EV charging loads treated as continuous per applicable code	Rationale: standard EVSE treatmentRisk: under/over-sizing; feasibility error	Owner: Engineer-of-RecordValidate by: Phase 3
1-A02	Service rating and voltage/phase match evidence	Rationale: screening requires best-available verified dataRisk: Phase 1 conclusions invalid	Owner: Electrician / EORValidate by: Phase 2 + Phase 3
1-A03	EVSE may be provisional in Phase 1; frozen in Phase 2	Rationale: SKU selection often finalizes after feasibilityRisk: Phase 1 estimates diverge materially	Owner: InstallerValidate by: Phase 2

1.5 Preliminary Electrical Basis of Design (BOD)

This BOD is the **single source of truth for Phase 1** and is the seed for later deliverables. Any “TBD” items must be closed in Phase 2.

BOD Item	Value	Evidence (Input ID)	Status
Service rating	800A	1-I02	Verified (nameplate + utility letter)
Service voltage/phase	208Y/120V, 3-phase	1-I02	Verified (nameplate + utility letter)
EVSE quantity (ports)	8	1-I03	Verified (installer intent + cut sheet basis)

BOD Item	Value	Evidence (Input ID)	Status
EVSE electrical characteristics	208V, 3-phase; 32A continuous per port; 40A OCPD recommended	1-I03	Verified (cut sheet revA)
Load management posture	Required (aggregate cap to ≤250A service headroom)	1-I01 + 1-I03	Screening-level: confirm method/justification in Phase 3/Phase 3

1.6 Feasibility Memo / Go-No-Go (Screening-Level)

1.6.1 Project Intent and Goal The goal of this project is to deploy shared, common-area Level-2 EV charging for a multifamily residential building. The deployment must utilize existing electrical infrastructure without triggering a service upgrade, while preserving operational headroom and future expandability.

1.6.2 Project Scope

- Install 8 Level-2 EVSE (approximately 7.6 kW each) in the garage common area.
- Serve all EV loads from a dedicated EV subpanel fed from the existing 800A service.
- Size all electrical infrastructure per NEC continuous-load requirements.

1.6.3 Required Inputs Checklist (Phase 1) The Phase 1 inputs are controlled by the **Phase 1 Input Register + Evidence Index** above. This memo references those inputs by ID to maintain provenance and traceability.

1.6.4 Input Summaries and Analysis

1.6.5 Utility Bills Summary (Owner) The provided utility bills/usage history were analyzed to estimate existing service utilization. This is a screening-level assessment and must be cross-checked using the formal NEC methodology in Phase 3 (), using verified panel schedules and EVSE ratings.

Key Metric	Value
Main Service Size	800 Amps @ 208Y/120V
Peak Demand (Past 12 Mo.)	550 Amps
Average Demand (Past 12 Mo.)	380 Amps
Service Capacity Utilization (Peak)	68.75%
Available Headroom (Peak)	250 Amps

The existing service has a **250 Amp** capacity margin based on the historical peak demand of 550 Amps (out of 800 Amps total).

1.6.6 Service Size (Utility Bill) The existing service is confirmed to be an **800 Amp, 208Y/120V, 3-Phase** service. This matches the data used in the utility bill analysis.

1.6.7 Charger Intent (Installer/Owner) The project intent is the installation of **8 Level-2 EVSE ports**. At Phase 1, the EVSE electrical characteristics may be provisional until manufacturer cut sheets are provided and frozen in Phase 2 ()�.

Phase 1 screening approach: to avoid false certainty, Phase 1 uses a bounded estimate based on available intent data and clearly states the conditions under which the result changes.

1.6.8 Feasibility Memo / Go-No-Go Date: 2026-01-12

To: Project Stakeholders (Owner, Installer, Electrician, Engineering)

From: Jordan Lee, Project Manager

Subject: Feasibility and Recommendation for Multifamily EV Charging Project

Based on the preliminary data collection and analysis (Phase 1.1), this memo assesses the viability of the proposed scope against the project goal of deploying 8 Level-2 EVSE without a service upgrade.

1.6.9 Screening Calculation Basis (Not Permit-Grade) Per applicable code requirements, EV charging loads are typically treated as continuous for feeder and equipment sizing. The **formal** load calculation methodology, demand factors (if applicable), and any load management justification must be documented in **Phase 3 ()** using verified inputs.

1.6.10 Inputs used (by ID)

- Utility usage history: **1-I01**
- Service characteristics: **1-I02**
- EVSE intent (provisional): **1-I03**

1.6.11 Method Phase 1 computes a screening current envelope using best-available intent data and applies a continuous-load factor where appropriate. If EVSE cut sheets later show a higher continuous current than assumed here, Phase 1 conclusions must be revisited and may require load management or other architecture changes (Phase 3).

Parameter	Calculation	Result
EVSE cut sheet continuous current (per port)	Per manufacturer cut sheet (revA)	32 A
Unmanaged continuous feeder current (8 ports)	$8 * (32 \text{ A} * 125\%)$	320 A
Target managed aggregate cap	Service headroom basis (see below)	250 A (cap)

1.6.12 Existing Service Headroom Analysis

Parameter	Value (Amps)
Existing Service Size	800 A
Historical Peak Demand	550 A
Available Headroom	250 A
Unmanaged EV load (continuous)	320 A
Headroom deficit (unmanaged)	-70 A
Feasible path	Load management to cap EV demand at ≤250 A

1.6.13 Go/No-Go Criteria (Phase 1) GO is valid only if all conditions below remain true after Phase 2 validation:

- Verified service characteristics (1-I02) match the screening basis (rating and voltage/phase).
- Verified EVSE cut sheets (1-I03 → frozen in Phase 2) do not materially increase the continuous current beyond the screening assumptions.
- Formal NEC/CEC load calculation (Phase 3) confirms compliance; if unmanaged loading exceeds headroom, a compliant load-management architecture must be adopted (Phase 3).

1.6.14 Conclusion and Recommendation GO (Conditional – Managed Load Required)

Based on screening-level inputs **1-I01 / 1-I02 / 1-I03**, the unmanaged code-continuous EV load for 8 ports is **320 A**, which exceeds the estimated **250 A** historical service headroom by **70 A**.

This is a **conditional GO** that requires a compliant **load management / EMS** approach in Phase 3 (/Phase 3) to cap aggregate EV demand at or below the available headroom, or an alternate approach (e.g., fewer ports or different EVSE ratings) to be validated by the Engineer-of-Record.

1.7 Next Steps

Proceed to **Phase 2: Data Collection and Site Analysis** to (a) freeze EVSE cut sheets and electrical characteristics in the intake package (Phase 2) and (b) verify service/gear data. Then proceed to **Phase 3** to complete the formal load calculation (Phase 3) and system architecture decision (Phase 3).

1.8 Forward Traceability Map (Phase 1 → Later Deliverables)

This map explains how Phase 1 inputs are used to craft deliverables in later phases.

Later deliverable	Crafted from Phase 1 items	Notes
Phase 2 Intake Checklist – Complete	Phase 1 (Input Register)	Phase 1 defines required evidence and provenance fields that Phase 2 must complete/verify.
Phase 2 Normalized Site Data Package	Phase 1 (BOD) + Phase 1 (Assumptions)	Phase 1 sets the “truth set” that Phase 2 must confirm and normalize.

Later deliverable	Crafted from Phase 1 items	Notes
Phase 3 NEC Load Calculation	1-I02 + 1-I03 + Phase 1	Phase 3 supersedes Phase 1 screening; Phase 1 documents what was assumed and what must be validated.
Phase 3 EV System Architecture Decision	Phase 1 (criteria) + Phase 3 results	Phase 1 defines the decision constraint (use existing service unless unavoidable) and conditions that trigger load management.
Phase 4 Preliminary One-Line Diagram	1-I02 + Phase 1	Phase 1 establishes service basis and initial BOD identifiers; Phase 4 depicts the engineered architecture selected in Phase 3.
Phase 7 Utility Load Letter / Single-Line	1-I01 + 1-I02	Phase 1 records usage history and service basis; Phase 7 uses the validated versions.

Phase 2: Data Collection and Site Analysis

This section documents the completion of **Phase 2: Data Collection and Site Analysis** for the Electric Vehicle (EV) Charging Project. Phase 2 gathers, verifies, and normalizes the **electrical design prerequisites** into a controlled package suitable for engineering (Phase 3).

NOTE: The Phase 2 fields below are filled with **example data** to demonstrate a “completed” master deliverable package (provenance, evidence pointers, and logs). Replace all names, dates, and evidence pointers with real project records before using this document externally.

2.1 Phase 2 Boundaries (Electrical-Only)

Phase 2 captures information required to perform electrical engineering and code compliance tasks. It intentionally excludes:

- **Civil / constructability** topics (routing/trenching/means-and-methods, installation sequencing, etc.)

2.2 Intake Checklist – Complete

This checklist confirms the acquisition of required Phase 2 inputs and links each item to an evidence record in **Phase 2**. Acceptance criteria are included to make “Complete” auditable.

Input ID	Input	Source	Status	Acceptance criteria (electrical-only)	Verified by	Date
2-I01	Site plans (electrical context excerpts)	Owner/Architect	Complete	Includes service room location and electrical-room plan excerpts; revision/date visible	Priya Shah (Project Engineer)	2026-01-18
2-I02	Panel schedules (MDP + relevant subpanels)	Electrician	Complete	Legible; identifies main breaker rating, bus rating, voltage/phase, spare spaces; latest revision noted	Priya Shah (Project Engineer)	2026-01-18

Input ID	Input	Source	Status	Acceptance criteria (electrical-only)	Verified by	Date
2-I03	Photo set (service gear + nameplates + breaker labels)	Installer	Complete	Nameplates readable; includes context + closeups; photos indexed/annotated	Priya Shah (Project Engineer)	2026-01-18
2-I04	EVSE cut sheets (final for design basis)	Installer/Vendor	Complete	Includes electrical ratings, continuous current, OCPD guidance; revision identified; matches program intent	Priya Shah (Project Engineer)	2026-01-18
2-I05	AHJ + adopted electrical code edition	Owner/Address + AHJ website	Complete	Electrical permitting authority identified; code edition and amendments source recorded	Jordan Lee (Project Manager)	2026-01-18

2.3 Input Register + Evidence Index (Stable Filenames)

This register records **how inputs were provided** and where they are stored. File names are stable and referenced throughout the master deliverable.

Input ID	Input	Provenance (who / how / when)	Evidence reference ID(s)	Verification + downstream use
2-I01	Site plans (electrical context excerpts)	Nora Patel (Owner Rep)Owner email + shared drive linkReceived: 2026-01-15 (v2.0)	2-I01	Verify: revision/date + title block + electrical-room locationDerived from: 1-I04 (context)Used in: Phase 2, Phase 2, Phase 4
2-I02	Panel schedules (MDP + relevant subpanels)	Luis Romero (Electrician)Electrician upload (PDF)Received: 2026-01-16 (v1.0)	2-I02	Verify: cross-check MDP ratings vs 1-I02; legibility; spare spacesDerived from: 1-I02Used in: Phase 2, Phase 2, Phase 3, Phase 4
2-I03	Photo set (service gear + nameplates + labels)	Mia Chen (Installer PM)Installer upload (photo set + index)Received: 2026-01-16 (v1.0)	2-I03	Verify: nameplates readable; photos correspond to MDP + meter/service gearDerived from: 1-I02 + 1-I04Used in: Phase 2, Phase 2, Phase 4

Input ID	Input	Provenance (who / how / when)	Evidence reference ID(s)	Verification + downstream use
2-I04	EVSE cut sheets (final for design basis)	Mia Chen (Installer PM)Installer email (PDF)Received: 2026-01-16 (revA)	2-I04	Verify: voltage/phase + continuous current + OCPD; matches Phase 1 intentDerived from: 1-I03Used in: Phase 2, Phase 2, Phase 3, Phase 3, Phase 4
2-I05	AHJ + code basis evidence	Jordan Lee (PM)AHJ website capture + notesReceived: 2026-01-17 (v1.0)	2-I05	Verify: AHJ name + adopted code edition + capture metadataDerived from: N/AUsed in: Phase 2, Phase 2, Phase 4, Phase 5

2.4 Key Excerpts (Electrical-Only)

To satisfy master-deliverable traceability, the following excerpts capture the **minimum critical information** needed to proceed. Full documents remain indexed in **Phase 2**.

2.4.1 Site Plans – Electrical Context Excerpts (2-I01) Excerpted findings (from plan title block and electrical-room plan excerpt):

- Building address and revision/date shown on drawings (Rev 2, 2026-01-15).
- Electrical service room identified on plan (label: “Electrical Room / Main Switchgear”).
- Service entry point and main electrical gear room boundary shown for reference (no routing/constructability assumptions made here).

2.4.2 Panel Schedules – MDP Excerpt (2-I02) Excerpted data (MDP schedule header and key fields):

- Panel designation: **MDP**
- Main device: **800A main**
- Bus rating: **800A**
- System: **208Y/120V, 3-phase**
- Available spaces: **4 (3-pole)**

2.4.3 Photo Set – Nameplate/Label Verification Excerpts (2-I03) Excerpted verifications (from annotated photo index):

- MDP nameplate confirms **800A, 208Y/120V, 3-phase**.
- Meter/service labeling matches the service characteristics used in Phase 1.
- Breaker labeling is legible for engineering validation of schedules (no field-modification assumptions made).

2.4.4 EVSE Cut Sheet – Electrical Rating Excerpt (2-I04) Excerpted electrical basis (from cut sheet revA):

- Model: **ElectriCharge L2-7.6-G**
- Supply: **208V, 3-phase**
- Continuous current: **32A**
- Recommended OCPD: **40A**

2.4.5 AHJ / Code Basis – Evidence Excerpt (2-I05) Excerpted jurisdiction basis:

- Electrical permitting authority (AHJ): **City of Palo Alto – Building Division (Electrical Permits)** (as documented in evidence capture)
- Adopted code basis: **2022 California Electrical Code (CEC)** (source captured in 2-I05)

2.5 Required Input Details

2.5.1 Site Plans The site plans confirm the location of the primary service/electrical room and provide electrical-context plan excerpts for engineering reference. Phase 2 does not assert installation routing, trenching, or constructability.

2.5.2 Panel Schedules (Electrician) The schedules below are for the Main Distribution Panel (MDP), confirming the service details and available space.

- **Panel Designation:** MDP
- **Main Service:** 800A Main
- **Bus Rating:** 800A
- **Service Voltage:** 208Y/120V, 3-Phase
- **Connected Load:** 550A
- **Available Spaces:** 4 (Three-Pole)

2.5.3 Photos (Installer) Photos were taken to document the existing main service gear and the physical conditions of the proposed installation location.

2.5.4 Charger SKUs (Installer/Vendor) The selected EVSE model specifications are detailed below.

Parameter	Value
Model Name	ElectriCharge L2-7.6-G
Output Power	7.6 kW (Nominal)
Voltage	208V, 3-Phase
Continuous Current Draw	32A @ 208V
Required OCPD Size	40A

2.5.5 Authority Having Jurisdiction (AHJ) The electrical permitting jurisdiction and adopted code basis are confirmed (see 2-I05 evidence capture).

Data Point	Value
Jurisdiction (Electrical)	City of Palo Alto – Building Division (Electrical Permits)
Site Address	Place (Palo Alto, CA)
Applicable Code	2022 California Electrical Code (CEC)

2.6 Normalized Site Data Package

The raw inputs from **Phase 2/Phase 2** have been processed, cross-referenced, and standardized into a controlled package for engineering use. This ensures all teams reference consistent, verified figures and stable filenames.

2.7 Normalization Rules (Document Control)

The following rules were applied to create a consistent engineering package:

- **File naming:** P1.2_<Category>_<Descriptor>_<YYYY-MM-DD>.<ext>
- **PDF standard:** all PDFs normalized to portrait orientation where feasible, searchable text (OCR applied when needed), and bookmarks added for long sets
- **Redactions:** personal information removed where present (non-technical)
- **Revisions:** latest revision is used; superseded versions retained but marked “Superseded” in filenames
- **Extraction:** key electrical data extracted into tables for engineering use; extraction sources are cited back to Phase 2 evidence pointers

2.8 Normalization / Validation Log (Raw → Normalized)

Log ID	Raw → Normalized (evidence IDs)	Transformation performed	Validated (by/date)
P1-N01	Raw: 2-I01 → Out: Phase 2 Electrical-context plan excerpts	Extracted electrical-room/service-context sheets; bookmarks; OCR verified	Priya Shah / 2026-01-18
P1-N02	Raw: 2-I02 → Out: Phase 2 Normalized panel schedules	Cleaned scan; OCR; standardized order; header callouts	Priya Shah / 2026-01-18
P1-N03	Raw: 2-I03 → Out: Phase 2 Annotated photo index	Selected nameplate/label photos; annotated; created index	Priya Shah / 2026-01-18

Log ID	Raw → Normalized (evidence IDs)	Transformation performed	Validated (by/date)
P1-N04	Raw: 2-I04 → Out: Phase 2 EVSE cut sheet (frozen for design)	Marked “Frozen for design basis”; extracted ratings summary	Priya Shah / 2026-01-18
P1-N05	Raw: 2-I05 → Out: Phase 2 AHJ/code basis evidence	Verified AHJ naming; standardized capture; recorded metadata	Jordan Lee / 2026-01-18

The following table summarizes standardized data points derived from Phase 2 inputs and their normalized outputs.

Data Element	Standardized Value	Notes
Electrical context plan excerpts	P1.2_SitePlans_ElectricalContext_Excerpts	Electrical context only; no routing assumptions.
Panel schedule package (MDP + relevant)	P1.2_PanelSchedules_Normalized_MDP_Schedule	Used for Phase 3 load calc and Phase 4 schedule updates.
EVSE design-basis cut sheet	P1.2_EVSE_CutSheet_FrozenForDesign_rev2026-01-18	Frozen for Phase 3 design basis.
AHJ/code basis evidence	P1.2_AHJ_CodeBasis_Normalized_2026-01-18	Supports code sheets and permit application package.
Service gear photo index	P1.2_Photos_Annotated_Index_2026-01-18	Includes ratings/labels used in Phases 1, 3, and 4.
Utility coordination contact (technical)	Utility account rep: Taylor Nguyen	Technical point of contact for Phase 7 coordination.

2.9 Data Standardization Certification

The data package is formally certified for completeness and integrity.

Certification Point	Status	Certified By	Date
Data Integrity	Certified	Priya Shah (Project Engineer)	2026-01-18
File Format Standardization	Certified	Ethan Brooks (Document Control)	2026-01-18
Completeness Check	Certified	Jordan Lee (Project Manager)	2026-01-18

2.10 Next Steps

Phase 2 is complete. The **Normalized Site Data Package (Phase 2)** is finalized and is the required input for all subsequent design and engineering activities.

The project proceeds to **Phase 3: System Design and Load Calculation**, using the certified data package (Phase 2) to perform the NEC Load Calculation (Phase 3) and determine the final EV System Architecture (Phase 3).

Phase 3: System Design and Load Calculation

3.1.1 EV Charging Project Plan: Phase 3 Documentation This section formalizes the outputs of **Phase 3: System Design and Load Calculation** for the Electric Vehicle (EV) Charging Site Project. Phase 3 uses the controlled Phase 2 package (Phase 2) to produce a **permit-relevant electrical load calculation** and an **architecture decision record** suitable to seed the drawing set in Phase 4.

NOTE: The Phase 3 fields below are filled with **example data** to demonstrate a “completed” master deliverable package (provenance, stable evidence pointers, and decision logs). Replace all names, dates, and evidence pointers with real project records before using this document externally.

3.2 Phase 3 Boundaries (Electrical-Only)

Phase 3 captures information required to perform electrical engineering and code compliance tasks. It intentionally excludes:

- **Civil / constructability** topics (routing/trenching/means-and-methods, installation sequencing, etc.)

The goal of Phase 3 is to confirm that the proposed EV charging system is electrically viable and compliant with the applicable code basis (CEC/NEC as adopted by the AHJ), and to select a compliant system architecture that satisfies the project’s electrical constraint of avoiding a service upgrade unless unavoidable.

3.3 Phase 3 Evidence Index + Engineering Work Products

Item ID	Work product	Provenance (who / how / when)	Evidence reference ID(s)	Inputs + downstream use
3-W01	Load calculation workbook + summary	Priya Shah, PE Spreadsheet + PDF exportDate: 2026-01-22 (v1.0)	phases/P2/Outputs/P2.1	Inputs: Phase 2 panel schedules + EVSE cut sheet + AHJ/code basisUsed in: Phase 3, Phase 4, Phase 5, Phase 7
3-W02	Independent load calc check memo	Alex Kim, EE Redline review + sign-offDate: 2026-01-22 (v1.0)	phases/P2/Outputs/P2.1	Inputs: 3-W01 used in_2026-Phase 3
3-W03	Architecture decision record	Priya Shah, PE Engineering memo + diagramDate: 2026-01-22 (v1.0)	phases/P2/Outputs/P2.2	Inputs: 3-W01 + Phase 2 evidenceUsed in: Phase 3, Phase 4, Phase 4, Phase 4
3-W04	EMS technical brief	Mia Chen (Installer PM)Vendor PDFDate: 2026-01-21 (revB)	phases/P2/Inputs/P2-W04	Inputs: 3-W01 used in_brief_revB Phase 3, Phase 4, Phase 4

3.4 Key Excerpts (Electrical-Only)

3.4.1 Load Calc Summary Excerpt (3-W01) Excerpted results:

- EVSE continuous current basis: **32A per port** (from Phase 2 EVSE cut sheet)
- Continuous load factor applied per code basis: **125%**
- Aggregate unmanaged EV continuous load: **320A**
- Available historical headroom basis (screening, from Phase 1): **250A**
- Outcome: unmanaged load **exceeds headroom**; a compliant load-management method is required to avoid service upgrade

3.4.2 Independent Check Excerpt (3-W02) Excerpted check outcome: "Calculation logic and arithmetic verified; inputs align to Phase 2 evidence pointers; conclusions supported."

3.4.3 Architecture Decision Excerpt (3-W03) Excerpted decision: "Proceed with a 400A bus-rated EV subpanel with feeder sized for the full unmanaged continuous load, combined with a listed EMS/load management method to cap aggregate demand to ≤250A."

3.5 NEC Load Calculation

The NEC Load Calculation confirms the exact electrical capacity required for the new EV charging infrastructure. This calculation is mandatory for permitting (Phase 5) and utility coordination (Phase 7).

Input	Source (evidence ID)
Panel schedules	2-I02 (normalized in Phase 2)
EVSE ratings	2-I04 (frozen for design in Phase 2)
AHJ/code basis	2-I05 (normalized in Phase 2)

3.5.1 Load Calculation Summary (NEC 625.42 - Continuous Load) Based on the required 8 Level-2 EVSE and the NEC 625.42 requirement for 125% continuous loading:

Parameter	Calculation	Result
Single EVSE Continuous Load	32A * 125%	40 A
Total New Connected Load	8 EVSE * 40 A	320 A
Required Subpanel Bus Rating	320 A	400 A
Required Subpanel Feeder Breaker	320 A	350 A

Conclusion: The total NEC continuous load is **320 Amps**. This confirms that the previously available **250 Amps** of service headroom (Phase 1) is *insufficient* to support the full, unmanaged, NEC-mandated continuous load.

3.5.2 Service Headroom Re-Evaluation Phase 1 () established that an unmanaged, code-continuous EV load for 8 ports would exceed the available historical headroom and therefore requires a managed load approach. The formal Phase 3 calculation confirms **320 Amps** unmanaged continuous load versus **250 Amps** available headroom, necessitating an **Energy Management System (EMS)** (or another compliant demand/management method) per NEC 625.42(A)(2).

Parameter	Value (Amps)
Existing Service Size	800 A
Historical Peak Demand	550 A
Available Headroom (Unmanaged)	250 A
Required New EV Load (Unmanaged)	320 A
Load Deficit (Triggering Service Upgrade)	-70 A

The project must proceed with an EMS, or the core project goal of avoiding a service upgrade (Phase 1) is invalid.

3.6 EV System Architecture Decision

This phase selects the system components and architecture to manage the required 320A load within the 250A service headroom using a Load Management System.

Input	Source
Load results	EE (Phase 3)
Charger mix	Installer/Owner (Phase 2 EVSE basis)
Existing electrical conditions	Phase 2 (panel schedules + photos)
Load management technical basis	3-W04 (EMS technical brief)

3.6.1 System Architecture Proposal To reconcile the 320A required load with the 250A available headroom, the system must incorporate an EMS that limits the total current draw of the EV subpanel to **250 Amps**.

Element	Specification	Rationale
Subpanel Feeder	350A feeder OCPD (3-pole)	Sized for the full 320A continuous load per NEC.
EV Subpanel Bus	400A Rated	Sized for the full 320A continuous load per NEC.
EMS System	Integrated Panel-level EMS	Limits total current draw to 250 Amps to fit within service headroom.
Charger Count	8 Level-2 EVSE	No change to the original project scope.
Charger Circuits	40A OCPD, 8 circuits	Individual circuits are sized per the NEC for each charger's continuous load.

3.6.2 Decision EV System Architecture Decision: Managed Load System (Go)

The project will utilize a 400A bus-rated EV subpanel fed by a 350A breaker, integrated with an EMS to dynamically limit the total demand to **250 Amps**. This meets all requirements: NEC compliance (via subpanel rating) and project goal (via EMS management to avoid service upgrade).

3.7 Phase 3 Engineering Certification

Certification Point	Status	Certified By	Date
Load calculation prepared	Certified	Priya Shah, PE	2026-01-22
Independent check completed	Certified	Alex Kim, EE	2026-01-22
Architecture decision documented	Certified	Priya Shah, PE	2026-01-22
Inputs traceable to Phase 2 evidence pointers	Certified	Ethan Brooks (Document Control)	2026-01-22

3.8 Next Steps

Phase 3 is complete. The system architecture and exact load requirements are confirmed.

The project proceeds to **Phase 4: Preliminary Drawing Set Production**. The outputs of Phase 3, including the Phase 3 Load Calculation and the Phase 3 Architecture Decision, are the mandatory inputs for all drawings in Phase 4.

Phase 4: Preliminary Drawing Set Production

4.1.1 EV Charging Project Plan: Phase 4 Documentation This section formalizes the outputs of **Phase 4: Preliminary Drawing Set Production** for the Electric Vehicle (EV) Charging Site Project. Phase 4 translates the approved system design (Phase 3) into an **unstamped electrical permit drawing set** suitable for engineering stamp (Phase 5) and AHJ electrical review.

NOTE: The Phase 4 fields below are filled with **example data** to demonstrate a “completed” master deliverable package (provenance, stable filenames, and compilation logs). Replace all names, dates, and evidence pointers with real project records before using this document externally.

4.2 Phase 4 Boundaries (Electrical-Only)

Phase 4 captures permit-drawing content required for electrical engineering and code compliance. It intentionally excludes:

- **Civil / constructability** topics (routing/trenching/means-and-methods, installation sequencing, etc.)

The goal of Phase 4 is to produce the **unstamped electrical permit drawing set** that incorporates the electrical design and code requirements confirmed in Phases 1 and 2.

4.3 Evidence Index + Drawing Work Products (Stable Filenames)

Item ID	Work product	Provenance (who / how / when)	Evidence reference ID(s)	Inputs + downstream use
4-W01	Preliminary one-line diagram (sheet)	Sam Ortega (CAD Tech,) + Priya Shah, PE CAD + PDF exportDate: 2026-01-26 (v1.0)	phases/P3/Outputs/P3.1	Inputs_Phase_3_im_Unstamped decision; Phase 2 schedules; Phase 2 EVSE; Phase 2 code basisUsed in: Phase 4, Phase 4
4-W02	Site plan w/ EVSE locations (electrical-impacting)	Sam Ortega (CAD Tech,)CAD + PDF exportDate: 2026-01-26 (v1.0)	phases/P3/Outputs/P3.2	Inputs_Phase_3_ESite_plans_(owner/architect) + parking layout (owner) + Phase 2 contextUsed in: Phase 4, Phase 4
4-W03	Conduit & trenching details (electrical-impacting)	Priya Shah, PE + Sam Ortega (CAD Tech,)CAD notes + PDF exportDate: 2026-01-26 (v1.0)	phases/P3/Outputs/P3.3	Inputs_routing_trenching_Detailed assumptions (installer) + Phase 2 photos + code basisUsed in: Phase 4, Phase 4
4-W04	Updated panel schedules (MDP + EVSP-1)	Priya Shah, PE Spreadsheet + PDF exportDate: 2026-01-26 (v1.0)	phases/P3/Outputs/P3.4	Inputs_Phase_2_schedules + Phase 3 + Phase 3Used in: Phase 4, Phase 4
4-W05	Electrical notes & code sheets	Priya Shah, PE Template + PDF exportDate: 2026-01-26 (v1.0)	phases/P3/Outputs/P3.5	Inputs_Phase_2_codeSheets basis + P2 decision + EMS briefUsed in: Phase 4, Phase 4
4-W06	Permit drawing set (unstamped, compiled)	Ethan Brooks (Document Control)PDF compilationDate: 2026-01-26 (v1.0)	phases/P3/Outputs/P3.6	Inputs_Set_Unstamped_2026-01-26 4-W01..4-W05Used in: Phase 4, Phase 5

4.4 Key Excerpts (Electrical-Only)

4.4.1 One-Line Diagram Excerpt (4-W01) Excerpted design basis:

- Existing service: **800A, 208Y/120V, 3Φ** (Phase 2 evidence)
- New EV subpanel: **400A bus**; feeder OCPD: **350A, 3-pole**
- EVSE branch circuits: **8 circuits**, each **40A OCPD** for **32A continuous** ports
- Load management: **EMS caps aggregate EV demand to ≤250A** per Phase 3 decision

4.4.2 Site Plan w/ EVSE Locations Excerpt (4-W02) **Excerpted content:** EVSE locations are shown based on owner/parking layout inputs, along with electrical equipment identifiers. Only items that affect electrical design are called out (equipment locations, electrical room reference, and design-relevant constraints).

4.4.3 Conduit & Trenching Details Excerpt (4-W03) **Excerpted content:** Electrical-impacting routing assumptions and site-condition constraints are documented for engineering use (e.g., feeder length basis for voltage drop/derating), without specifying construction means-and-methods.

4.4.4 Drawing Set Compilation Excerpt (4-W06) **Excerpted compilation rule:** “Phase 4 includes Phase 4–Phase 4 in the sheet order defined below; filenames and sheet titles must match the evidence pointers exactly.”

4.5 Preliminary One-Line Diagram

This one-line diagram depicts the complete electrical system from the utility source to the EV charging equipment. It defines major equipment, ratings, overcurrent protection, grounding intent, and the Energy Management System (EMS) used to manage aggregate EV load.

4.5.1 Inputs (traceable)

- Architecture Decision: 3-W03 (see Addendum A for filenames)
- Service / MDP information: 2-I02 + 2-I03 (see Addendum A for filenames)
- EVSE cut sheet (design basis): 2-I04 (see Addendum A for filenames)

4.5.2 System Description (summary) The one-line diagram shows a new **400A, 120/208V, 3-phase EV subpanel** connected to the existing **800A MDP** via a **350A, 3-pole feeder OCPD**. A listed **Energy Management System (EMS)** is shown controlling aggregate EV demand to **≤250A** in accordance with the managed-load approach documented in Phase 3.

4.5.3 Technical Specifications Shown on the Diagram (excerpt list)

4.5.4 Utility Source and Fault Data (design inputs)

- Utility transformer identifier: TX-485-A
- Available fault current at MDP bus: 42 kA (utility-provided short-circuit data)
- Calculated available fault current at EV subpanel bus: 38 kA (based on feeder impedance)

4.5.5 Panel and Protection Ratings

- MDP bus rating: 800 A
- EV subpanel bus rating: 400 A
- EV feeder OCPD: 350 A, 3-pole
- Breaker interrupting rating: 65 kAIC minimum at 120/208 V

4.5.6 Feeder Conductors (design basis)

- Phase conductors: three (3) parallel sets per phase of 250 kcmil copper, THHN/THWN-2 (design basis)
- Neutral conductor: not required (EVSE loads are line-to-line only)
- Equipment grounding conductor: one (1) 4/0 AWG copper (design basis)
- Ampacity basis: sized at 75°C terminal rating per applicable code requirements; final conductor sizing to be confirmed in stamped set

4.5.7 Wiring Method (electrical-only)

- Wiring method is specified as a code-compliant raceway system sized per NEC Chapter 9 and applicable articles. **No routing/trenching/constructability means-and-methods are specified in this master deliverable.**

4.5.8 Grounding and Bonding (intent)

- Equipment grounding conductor routed with feeder conductors in all raceways
- Bonding jumpers provided where required by wiring method and transitions
- EV subpanel grounding bar bonded to the building grounding electrode system (referenced on details sheet)

4.5.9 Energy Management System (EMS)

- EMS device identified on the diagram as "Schlage / ChargePoint EMS Unit"
- Dedicated EMS symbol legend included
- Control interface shown between EMS and EV feeder/EVSE branch circuits
- Fail-safe behavior note: on EMS fault/loss of comms, system defaults to a safe state that prevents EV feeder demand from exceeding the configured cap

4.5.10 Coordination and Selectivity

- Coordination note: verify time-current coordination between feeder OCPD and downstream branch OCPD in final stamped set

This one-line diagram is intended to be code-complete for permit review, subject to final PE stamp and any jurisdiction-specific refinements identified during Phase 5.

4.6 Site Plan w/ EVSE Locations

This plan overlays EVSE and electrical equipment identifiers onto the base plan to show EVSE locations provided by the owner/parking layout inputs and to capture any **site placement constraints that affect electrical design** (equipment adjacency, electrical-room reference, and plan-check clarity). It intentionally does **not** provide constructability means-and-methods.

Input	Source
Base site plan	2-I01 (normalized in Phase 2)
Parking layout	P3-PARK (see Addendum A)
Photo context (verification)	2-I03 (normalized in Phase 2)

Electrical-impacting plan outputs (excerpt):

- EVSE locations labeled **EVSE-01** through **EVSE-08** per owner parking layout input
- EV subpanel identified as **EVSP-1** relative to the existing **MDP** room (reference only)
- Notes call out placement constraints that affect electrical design only (e.g., maximum assumed feeder path length basis for voltage drop checks; any “no-penetration” zones that constrain electrical routing)

4.7 Conduit & Trenching Details (Electrical-Impacting)

This detail sheet documents **routing assumptions** and **site-condition constraints** that affect electrical design outcomes (feeder length basis, voltage drop basis, conductor derating basis, separation requirements, and transition points), using installer-provided assumptions and Phase 2 site photos. It intentionally avoids non-electrical constructability means-and-methods.

Input	Source
Routing assumptions	4-I03 (see Addendum A)
Site conditions	2-I03 (normalized in Phase 2)
Code basis (separation/wiring method references)	2-I05 (normalized in Phase 2)

Electrical-impacting detail content (excerpt):

- **Feeder length basis:** 165 ft electrical path length used for voltage-drop checks and fault/impedance assumptions (final field-verified)
- **Wiring method basis:** raceway system sized per NEC Chapter 9 and applicable articles; conductor temperature/termination basis 75°C unless equipment requires otherwise
- **Derating basis:** parallel conductors and conduit fill assumptions documented for engineering sizing; final installation must comply with applicable adjustment factors
- **Separation:** power/communications separation and grounding/bonding intent documented for electrical compliance (final routing by installer)
- **Transitions/constraints:** identifies electrical-impacting transition points (e.g., “MDP room exit point” and “EVSP-1 entry point”) and any photo-identified constraints impacting electrical routing decisions

4.8 Updated Panel Schedules

The existing panel schedule for the MDP is updated to reflect the new downstream load (the 350A breaker for the EV subpanel), and a new schedule for the EV subpanel is created.

Input	Source
Existing schedules	2-I02 (normalized in Phase 2)
New EV loads (calc + decision)	3-W01 + 3-W03

The updated MDP schedule shows:

Slot	Breaker	Load	Amps	Notes
40, 42, 44	3-Pole, 350A	EV Subpanel	250A Managed	Connection to New EV Subpanel

The New EV Subpanel schedule shows:

Slot	Breaker	Load	Amps	Notes
1, 3, 5	3-Pole, 40A	EVSE #1	40A	Dedicated Circuit for Continuous Load
7, 9, 11	3-Pole, 40A	EVSE #2	40A	Dedicated Circuit for Continuous Load
13, 15, 17	3-Pole, 40A	EVSE #3	40A	Dedicated Circuit for Continuous Load
19, 21, 23	3-Pole, 40A	EVSE #4	40A	Dedicated Circuit for Continuous Load
25, 27, 29	3-Pole, 40A	EVSE #5	40A	Dedicated Circuit for Continuous Load
31, 33, 35	3-Pole, 40A	EVSE #6	40A	Dedicated Circuit for Continuous Load
37, 39, 41	3-Pole, 40A	EVSE #7	40A	Dedicated Circuit for Continuous Load
43, 45, 47	3-Pole, 40A	EVSE #8	40A	Dedicated Circuit for Continuous Load

4.9 Electrical Notes & Code Sheets

This document compiles the necessary general and project-specific notes, ensuring the construction documents clearly articulate the applicable codes, standards, and installation methods.

Input	Source
AHJ/code basis	2-I05 (normalized in Phase 2)
Architecture decision	3-W03
Standard templates	Internal

The notes sheet explicitly references the **2022 California Electrical Code (CEC)** and the use of the **NEC 625.42(A)(2)** method (EMS) to justify the 250A managed load. Key notes include:

- **A. Load Management:** The EV subpanel utilizes a listed Energy Management System (EMS) to cap the maximum aggregate demand at 250 Amps to prevent exceeding the available service headroom.
- **B. Continuous Loads:** All EV loads are calculated at 125% demand factor per NEC 625.42.
- **C. Wiring:** All conductors shall be sized per NEC 310 and rated for 75°C minimum.

4.10 Permit Drawing Set – Unstamped

This deliverable is the compiled **electrical permit drawing set** (unstamped), finalized and ready for the engineer of record's final stamp.

Input	Source
One-line	Phase 4
Site plan	Phase 4
Details	Phase 4

Input	Source
Schedules	Phase 4
Notes	Phase 4

This complete set, reserved as a File, is the primary output of Phase 4 and serves as the input for Phase 5.

4.11 Compilation / QA Log

QA Item	Check performed	Result	Checked by	Date
Sheet inclusion	Phase 4–Phase 4 present in compiled PDF	Pass	Ethan Brooks (Document Control)	2026-01-26
Stable filenames	Output filenames match Phase 4 evidence pointers	Pass	Ethan Brooks (Document Control)	2026-01-26
Title block consistency	Sheet titles/IDs consistent across set	Pass	Sam Ortega (CAD Tech,)	2026-01-26
Cross-references	Notes reference correct sheet IDs	Pass	Priya Shah, PE	2026-01-26

4.12 Phase 4 Drawing Package Certification

Certification Point	Status	Certified By	Date
Drawing set compiled (unstamped)	Certified	Ethan Brooks (Document Control)	2026-01-26
Electrical content aligns to Phase 3 decision	Certified	Priya Shah, PE	2026-01-26
Inputs traceable to Phase 2 evidence pointers	Certified	Priya Shah, PE	2026-01-26

4.13 Next Steps

Phase 4 is complete. The **Unstamped Permit Drawing Set (Phase 4)** is finalized.

The project proceeds to **Phase 5: Permitting Submission** to obtain the **Stamped Permit Drawings (Phase 5)** and assemble the permit application package (Phase 5).

Phase 5: Permitting Submission

5.1 Phase 5 Purpose

Phase 5 documents the formal submission of the electrical permit package to the AHJ, including the stamped drawing set, required forms, and submission receipts/tracking.

NOTE: The Phase 5 fields below are filled with **example data** to demonstrate a “completed” master deliverable package (provenance, stable filenames, and submission logs). Replace all names, dates, and evidence pointers with real project records before using this document externally.

5.2 Phase 5 Boundaries (Electrical-Only)

Phase 5 captures the electrical permitting submission artifacts. It intentionally excludes:

- **Civil / constructability** topics (routing/trenching/means-and-methods, installation sequencing, etc.)

5.3 Evidence Index + Submission Work Products (Stable Filenames)

Item ID	Work product	Provenance (who / how / when)	Evidence reference ID(s)	Inputs + downstream use
5-W01	Stamped permit drawings (electrical set)	Priya Shah, PE (EOR)Stamp + PDFDate: 2026-01-29 (v1.0)	phases/P4/Outputs/P4.1_PermitSet_Stamped_2026-01-29.pdf	Inputs Phase 4 unstamped setUsed in: Phase 5, Phase 5
5-W02	AHJ permit application form(s)	Jordan Lee (PM)AHJ portal form + PDF exportDate: 2026-01-29 (v1.0)	phases/P4/Outputs/P4.2_AHJ_PermitApplicationForms_2026-01-29.pdf	Inputs AHJ Application Forms requirements + project metadataUsed in: Phase 5
5-W03	Permit application package (compiled)	Ethan Brooks (Document Control)PDF compilationDate: 2026-01-29 (v1.0)	phases/P4/Outputs/P4.2_PermitApplication_Package_2026-01-29.pdf	Inputs Phase 5 5-W02 + supporting attachmentsUsed in: Phase 5, Phase 6
5-W04	Supporting attachments bundle (electrical)	Ethan Brooks (Document Control)PDF compilationDate: 2026-01-29 (v1.0)	phases/P4/Outputs/P4.3_SupportingAttachments_Electrical_2026-01-29.pdf	Inputs Phase 3+1 Phase 3+ EVSE/EMS + code basisUsed in: Phase 5
5-W05	AHJ submission receipt / confirmation	Jordan Lee (PM)Portal download + screenshot PDFDate: 2026-01-29 (v1.0)	phases/P4/Outputs/P4.5_AHJ_SubmissionReceipt_2026-01-29.pdf	Inputs portal submissionUsed in: Phase 5, Phase 6
5-W06	Permit tracking log (submission metadata)	Jordan Lee (PM)SpreadsheetDate: 2026-01-29 (v1.0)	phases/P4/Outputs/P4.6_PermitTrackingLog_2026-01-29.xlsx	Inputs portal submission dataUsed in: Phase 6

5.4 Key Excerpts (Electrical-Only)

5.4.1 Submission Confirmation Excerpt (5-W05) Excerpted receipt fields:

- AHJ: City of Palo Alto – Building Division (Electrical Permits)
- Submission method: Online portal upload
- Permit application number: **EL-2026-01472**
- Submission date/time: **2026-01-29 14:18 PT**
- Submitted by: **Jordan Lee (PM)**

5.4.2 Stamped Set Excerpt (5-W01) Excerpted stamp fields:

- Engineer-of-Record: **Priya Shah, PE**
- Stamp date: **2026-01-29**
- Set: **P4.1_PermitSet_Stamped_2026-01-29.pdf** derived from **Phase 4** with no content changes other than stamp block and any required administrative cover sheet

5.5 Stamped Permit Drawings

This deliverable is the Phase 4 compiled set (Phase 4) reviewed and stamped by the Engineer-of-Record for submission to the AHJ.

Input	Source
Unstamped permit set	4-W06
EOR review notes	P4-EOR (see Addendum A)

Output (reference ID): 5-W01

5.6 Permit Application Package

This deliverable is the complete electrical permit submission package as provided to the AHJ, including forms, stamped drawings, and electrical support documents commonly required for plan check.

5.6.1 Package contents (electrical-only)

- **Stamped drawings:** 5-W01
- **AHJ application forms:** 5-W02
- **Supporting attachments (electrical):** 5-W04
 - Load calculation summary (Phase 3): 3-W01
 - Architecture decision record (Phase 3): 3-W03
 - EVSE cut sheet (design basis): 2-I04
 - EMS technical brief: 3-W04
 - AHJ/code basis evidence: 2-I05

Output (reference ID): 5-W03

5.7 P4 Submission / QA Log

QA Item	Check performed	Result	Checked by	Date
Stamped set included	Phase 5 stamped drawings included in package	Pass	Ethan Brooks (Document Control)	2026-01-29
Stable filenames	Package references match evidence pointers	Pass	Ethan Brooks (Document Control)	2026-01-29
Attachment completeness	Load calc, EVSE, EMS, and code basis included	Pass	Jordan Lee (PM)	2026-01-29
Portal upload verification	Receipt downloaded; application number captured	Pass	Jordan Lee (PM)	2026-01-29

5.8 Phase 5 Certification

Certification Point	Status	Certified By	Date
Stamped drawings issued (Phase 5)	Certified	Priya Shah, PE	2026-01-29
Permit application package submitted (Phase 5)	Certified	Jordan Lee (PM)	2026-01-29
Submission receipt archived and traceable	Certified	Ethan Brooks (Document Control)	2026-01-29

5.9 Phase 5 Closeout Confirmation (Completed)

Phase 5 is considered **complete** and closed out because all submission artifacts are archived under stable filenames:

- **Stamped drawing set issued:** [phases/P4/Outputs/P4.1_PermitSet_Stamped_2026-01-29.pdf](#)
- **Permit forms archived:** [phases/P4/Outputs/P4.2_AHJ_ApplicationForms_2026-01-29.pdf](#)
- **Supporting attachments bundle archived:** [phases/P4/Outputs/P4.SupportingAttachments_Electrical_2026-01-29.pdf](#)
- **Compiled submission package archived (as-submitted):** [phases/P4/Outputs/P4.2_PermitApplication_Package_Compiled](#)
- **Submission receipt archived:** [phases/P4/Outputs/P4.SubmissionReceipt_AHJ_Confirmation_2026-01-29.pdf](#)
- **Permit tracking log started:** [phases/P4/Outputs/P4.PermitTrackingLog_2026-01-29.xlsx](#)

Phase 6: Authority Review and Drawing Revision

6.1 Phase 6 Purpose

Phase 6 documents the AHJ plan check review, parses all AHJ comments into an auditable log, produces revised drawings addressing those comments, and records responses in a formal comment response letter. It explicitly captures the **rework loop caused by AHJ pushback** (comment intake → disposition → drawing changes → resubmission → approval evidence) so the revision path is traceable and defensible.

NOTE: The Phase 6 fields below are filled with **example data** to demonstrate a “completed” master deliverable package (provenance, stable filenames, and revision logs). Replace all names, dates, and evidence pointers with real project records before using this document externally.

6.2 Phase 6 Boundaries (Electrical-Only)

Phase 6 captures electrical plan-check comments and electrical drawing revisions. It intentionally excludes:

- **Civil / constructability** topics (routing/trenching/means-and-methods, installation sequencing, etc.)

6.3 Evidence Index + Review/Revision Work Products (Stable Filenames)

Item ID	Work product	Provenance (who / how / when)	Evidence reference ID(s)	Inputs + downstream use
6-W01	AHJ plan check comments (raw)	AHJPortal downloadDate: 2026-02-06 (v1.0)	phases/P5/Inputs/P5-AHJComments_Raw_2026-02-06_v1.0	Inputs_AHJComments_Raw_2026-02-06_v1.0 portalUsed in: Phase 6
6-W02	AHJ comment log (parsed + tracked)	Jordan Lee (PM)SpreadsheetDate: 2026-02-06 (v1.0)	phases/P5/Outputs/P5.1Inputs_CommentLog_Parsed_2026-02-06_v1.0	Inputs_CommentLog_Parsed_2026-02-06_v1.0 Phase 6, Phase 6, Phase 6
6-W03	Revised drawings (post-comments, stamped)	Priya Shah, PE (EOR)CAD update + stamp + PDFDate: 2026-02-12 (Rev 1)	phases/P5/Outputs/P5.2Inputs_Phase5_Revised_Stamps_2026-02-12_v1.0	Inputs_Phase5_Revised_Stamps_2026-02-12_v1.0 stamped set + 6-W02Used in: Phase 6, Phase 6
6-W04	Redline set (internal review)	Priya Shah, PE (EOR)PDF markupsDate: 2026-02-10 (v1.0)	phases/P5/Outputs/P5.3Inputs_Phase5_FinalReview_2026-02-10_v1.0	Inputs_Phase5_FinalReview_2026-02-10_v1.0 stamped set + 6-W02Used in: Phase 6
6-W05	Comment response letter	Priya Shah, PE (EOR)Letter PDFDate: 2026-02-12 (Rev 1)	phases/P5/Outputs/P5.3Inputs_Phase5_ConseLetter_Rev1_2026-02-12_v1.0	Inputs_Phase5_ConseLetter_Rev1_2026-02-12_v1.0 6-W03Used in: Phase 6
6-W06	Resubmission receipt / confirmation	Jordan Lee (PM)Portal download + screenshot PDFDate: 2026-02-12 (v1.0)	phases/P5/Outputs/P5.4Inputs_AHJReceipt_AHJ_2026-02-12_v1.0	Inputs_AHJReceipt_AHJ_2026-02-12_v1.0 portalUsed in: Phase 6 closeout
6-W07	AHJ approval / permit issuance confirmation	AHJPortal downloadDate: 2026-02-19 (v1.0)	phases/P5/Outputs/P5.4Inputs_AHJApproval_Notice_2026-02-19_v1.0	Inputs_AHJApproval_Notice_2026-02-19_v1.0 portalUsed in: Phase 6, Phase 6 closeout

6.4 Key Excerpts (Electrical-Only)

6.4.1 AHJ Comment Themes Excerpt (6-W01) Excerpted themes:

- Request clarification of **EMS/load management method** and fail-safe behavior.
- Request confirmation of **available fault current / AIC** selection basis.
- Request additional **code notes** (EVSE continuous load, labeling, disconnecting means references as applicable).

6.4.2 Revision Summary Excerpt (6-W03) Excerpted revision summary:

- Updated one-line notes to clarify EMS cap logic and fail-safe state.
- Added fault current basis note and verified minimum AIC rating statement.
- Updated notes sheet with explicit NEC/CEC references and labeling notes.

6.4.3 AHJ Approval Excerpt (6-W07) Excerpted approval fields:

- Status: **Approved**
- Permit application number: **EL-2026-01472**
- Approval date/time: **2026-02-19 10:07 PT**

6.5 AHJ Comment Log – Parsed

This deliverable converts the AHJ's raw plan-check comments into a structured, trackable log with owners, dispositions, and references to revised sheets.

Input	Source
AHJ comments (raw)	6-W01
Prior submitted set	5-W01

Input	Source

Output (reference ID): 6-W02

Parsed comment log (excerpt):

AHJ Comment ID	Location + comment	Required action + owner	Resolution
C-01	E-001 (One-Line): Clarify EMS method/fail-safe; cite code basis	Add EMS control note + fail-safe statement + code refOwner: Priya Shah, PE	Disposition: AcceptedRevised in: Rev 1Response: Phase 6 §2.1
C-02	E-001 (One-Line): Provide fault current basis; confirm OCPD AIC	Add short-circuit basis note + minimum AIC statementOwner: Priya Shah, PE	Disposition: AcceptedRevised in: Rev 1Response: Phase 6 §2.2
C-03	E-003 (Notes): Add EVSE continuous-load factor + labeling requirement	Expand notes with NEC/CEC refs + labeling languageOwner: Priya Shah, PE	Disposition: AcceptedRevised in: Rev 1Response: Phase 6 §2.3
C-04	General: Confirm EV subpanel designation and schedule consistency	Standardize nomenclature "EVSP-1" across setOwner: Sam Ortega (CAD)	Disposition: AcceptedRevised in: Rev 1Response: Phase 6 §2.4

6.6 Revised Drawings – Post-Comments

This deliverable is the revised electrical permit set addressing AHJ comments. Revisions are tracked by revision number and traceable back to comment IDs.

Input	Source
Comment log (parsed)	6-W02
Prior stamped set	5-W01
Internal redlines (optional)	6-W04

Output (reference ID): 6-W03

6.6.1 Revision log

Revision	Date	Summary	Addressed comments
Rev 1	2026-02-12	EMS notes clarified; fault-current/AIC basis added; notes expanded; nomenclature normalized	C-01, C-02, C-03, C-04

6.6.2 How changes were crafted (traceable mapping)

Change ID	From (prior set)	To (revised set)	Change description	Driven by AHJ comment
CH-01	E-001	E-001	Added EMS cap statement + fail-safe note + code reference	C-01
CH-02	E-001	E-001	Added available fault current basis note; confirmed minimum AIC	C-02
CH-03	E-003	E-003	Added explicit EVSE continuous load and labeling notes	C-03
CH-04	E-002/E-004	E-002/E-004	Standardized equipment ID "EVSP-1" across plan and schedules	C-04

6.7 Comment Response Letter

This deliverable provides point-by-point responses to each AHJ comment and cross-references the revised sheets where changes were made.

Input	Source
Comment log (parsed)	6-W02
Revised stamped set	6-W03

Output (reference ID): 6-W05

Response letter (excerpt):

- **C-01 (EMS clarification):** Added EMS control narrative and fail-safe behavior note on Sheet E-001; see Rev 1 clouded note “EMS-1.”
- **C-02 (fault current / AIC):** Added fault-current basis statement and confirmed minimum breaker AIC on Sheet E-001.
- **C-03 (notes/labeling):** Updated Sheet E-003 to explicitly state EVSE continuous load treatment (125%) and labeling notes.
- **C-04 (nomenclature):** Standardized EV subpanel designation to “EVSP-1” across all sheets and schedules.

6.8 Phase 6 Resubmission Log

Field	Value
Resubmission date/time	2026-02-12 16:42 PT
Submitted by	Jordan Lee (PM)
Permit application number	EL-2026-01472
Receipt evidence	6-W06

6.9 AHJ Acceptance / Approval Confirmation (100% Closeout)

This deliverable records that the AHJ has accepted all comments and has approved the revised electrical permit set (or issued the permit). Phase 6 is not considered complete until this evidence is archived.

Input	Source
Resubmission receipt	6-W06
Revised stamped set	6-W03
AHJ approval notice / permit issuance	6-W07

Closeout criteria:

- All AHJ comments in P5.1_AHJ_CommentLog_Parsed_2026-02-06.xlsx have disposition **Accepted/Resolved**
- AHJ status is **Approved** (or **Permit Issued**) as evidenced by P5.4_AHJ_Approval_Note_2026-02-19.pdf

6.10 Phase 6 Certification

Certification Point	Status	Certified By	Date
AHJ comments parsed and tracked (Phase 6)	Certified	Jordan Lee (PM)	2026-02-06
Revised set addresses all comments (Phase 6)	Certified	Priya Shah, PE	2026-02-12
Comment response letter issued (Phase 6)	Certified	Priya Shah, PE	2026-02-12
Resubmission receipt archived	Certified	Ethan Brooks (Document Control)	2026-02-12
AHJ approval / permit issuance archived (Phase 6)	Certified	Ethan Brooks (Document Control)	2026-02-19

6.11 Phase 6 Closeout Confirmation (Completed)

Phase 6 is considered **complete** and closed out because AHJ comments are resolved and approval evidence is archived:

- **Raw plan check comments archived:** [phases/P5/Inputs/P5-AHJ_PlanCheckComments_Raw_2026-02-06.pdf](#)
- **Parsed comment log archived:** [phases/P5/Outputs/P5.1_AHJ_CommentLog_Parsed_2026-02-06.xlsx](#) (all items dispositioned **Accepted/Resolved**)

- Internal redlines archived: [phases/P5/Outputs/P5.Redlines_InternalReview_2026-02-10.pdf](#)
- Revised stamped set issued (Rev 1): [phases/P5/Outputs/P5.2_PermitSet_Revised_Stamped_Rev1_2026-02-12.pdf](#)
- Point-by-point response letter issued: [phases/P5/Outputs/P5.3_CommentResponseLetter_Rev1_2026-02-12.pdf](#)
- Resubmission receipt archived: [phases/P5/Outputs/P5.ResubmissionReceipt_AHJ_2026-02-12.pdf](#)
- AHJ approval/permit issuance archived: [phases/P5/Outputs/P5.4_AHJ_Approval_Note_2026-02-19.pdf](#)

Phase 7: Utility Coordination

7.1 Phase 7 Purpose

Phase 7 documents coordination with the local electrical utility to communicate the planned EV load addition and any load-management method, submit required utility application forms, and archive all utility correspondence/receipts. It also records the **utility-driven rework cycle** when the initial submission receives pushback (deficiency notice → rework package → resubmission → final acknowledgment) so utility concerns and responses remain auditable.

NOTE: The Phase 7 fields below are filled with **example data** to demonstrate a “completed” master deliverable package (provenance, stable filenames, and coordination logs). Replace all names, dates, and evidence pointers with real project records before using this document externally.

7.2 Phase 7 Boundaries (Electrical-Only)

Phase 7 captures technical utility coordination artifacts (load letters, single-line/one-line as requested by the utility, and utility portal forms). It intentionally excludes:

- Civil / constructability topics (routing/trenching/means-and-methods, installation sequencing, etc.)

7.3 Evidence Index + Utility Coordination Work Products (Stable Filenames)

Item ID	Work product	Provenance (who / how / when)	Evidence reference ID(s)	Inputs + downstream use
7-W01	Utility requirements capture	Jordan Lee (PM)Utility portal capture + PDFDate: 2026-02-20 (v1.0)	phases/P6/Inputs/P6.UtilityRequirements_Capture	Inputs/UtilityRequirements_Capture portalUsed in: Phase 7
7-W02	Utility load letter + single-line	Priya Shah, PE (EOR)Letter + PDFDate: 2026-02-21 (v1.0)	phases/P6/Outputs/P6.1.UtilityLoadLetter_SingleLine	Inputs/Phase3Letter_SingleLine Phase 3 + service info (+ stamped set if required)Used in: Phase 7, Phase 7
7-W03	Utility application forms (completed)	Jordan Lee (PM)Portal form + PDF exportDate: 2026-02-21 (v1.0)	phases/P6/Outputs/P6.2.UtilityApplicationForms_Created	Inputs/7-W01_UtilityApplicationForms_Created project technical metadataUsed in: Phase 7
7-W04	Utility submission receipt	Jordan Lee (PM)Portal download + screenshot PDFDate: 2026-02-21 (v1.0)	phases/P6/Outputs/P6.5.UtilitySubmissionReceipt	Inputs/utilitySubmissionReceipt submissionUsed in: Phase 7 closeout
7-W05	Utility correspondence log	Jordan Lee (PM)SpreadsheetDate: 2026-02-24 (v1.0)	phases/P6/Outputs/P6.6.UtilityCorrespondenceLog	Inputs/utilityCorrespondenceLog_2026-02-24 commsUsed in: Phase 7 closeout
7-W06	Utility deficiency / additional info required	UtilityPortal message + PDFDate: 2026-02-25 (v1.0)	phases/P6/Inputs/P6.UtilityDeficiencyLog	Inputs/utilityDeficiencyLog_2026-02-25 initial submissionUsed in: Phase 7
7-W07	Utility rework package	Priya Shah, PE + Jordan Lee (PM)PDF compilationDate: 2026-02-27 (v1.0)	phases/P6/Outputs/P6.3.UtilityReworkPackage	Inputs/7-W06_UtilityReworkPackage_2026-02-27 evidence from Phases 2, 3, and 4 + EMS briefUsed in: Phase 7
7-W08	Utility resubmission receipt	Jordan Lee (PM)Portal download + screenshot PDFDate: 2026-02-27 (v1.0)	phases/P6/Outputs/P6.8.UtilityResubmissionReceipt	Inputs/utilityResubmissionReceipt_2026-02-27 resubmissionUsed in: Phase 7 closeout

Item ID	Work product	Provenance (who / how / when)	Evidence reference ID(s)	Inputs + downstream use
7-W09	Utility approval / acknowledgment (final)	UtilityEmail/portal letterDate: 2026-03-03 (v1.0)	phases/P6/Outputs/P6.UInputs_Utility_Acknowledgment	Inputs_Utility_Acknowledgment reviewUsed in: Phase 7 closeout

7.4 Key Excerpts (Electrical-Only)

7.4.1 Utility Load Letter Excerpt (7-W02) Excerpted technical content:

- Service: **800A, 208Y/120V, 3Φ** (verified in Phase 2)
- EVSE: **8 ports, 32A continuous** each (design basis)
- Unmanaged continuous EV load: **320A**
- Load management: **EMS caps aggregate EV demand to ≤250A**
- Reference documents included: Phase 3 load calc summary + architecture decision record

7.4.2 Utility Submission Receipt Excerpt (7-W04) Excerpted receipt fields:

- Submission method: Utility online portal
- Application/reference number: **UTIL-EV-2026-00831**
- Submitted by: **Jordan Lee (PM)**
- Submission date/time: **2026-02-21 11:05 PT**

7.4.3 Utility Deficiency Notice Excerpt (7-W06) Excerpted status:

- Status: **Incomplete / Additional Information Required**
- Reason: EMS documentation insufficient for utility review; request clarification of monitoring point and fail-safe cap behavior
- Response due: N/A (utility queue-based)

7.5 Utility Load Letter / Single-Line

This deliverable packages the technical load information for the utility, including a single-line/one-line diagram excerpt as required by the utility and a narrative describing any load-management method (EMS) used to limit service impact.

Input	Source
Load calculation summary	3-W01
Architecture decision record	3-W03
Service characteristics evidence	2-I02 + 2-I03
EVSE cut sheet (design basis)	2-I04
EMS technical brief	3-W04

Output (reference ID): 7-W02

7.6 Utility Application Forms

This deliverable captures the completed utility application forms and any required attachments. The submission receipt and correspondence log are archived to preserve full traceability.

Input	Source
Utility requirements	7-W01
Utility load letter/single-line	7-W02
Stamped permit drawings (if requested by utility)	5-W01

Output (reference ID): 7-W03

7.7 Utility Deficiency Response / Rework + Resubmission

This deliverable documents the utility's "incomplete/additional info required" outcome and the technical rework performed to satisfy the utility's request, followed by resubmission and approval.

7.7.1 Deficiency received

Input	Source
Utility deficiency notice	7-W06

7.7.2 Rework package (electrical-only)

Rework component	Evidence pointer
EMS clarification memo (monitoring point + cap + fail-safe)	7-W07 (Section 1)
EMS technical brief (revB)	3-W04
Load calc summary (Phase 3)	3-W01
Architecture decision record (Phase 3)	3-W03
Stamped permit set (reference, if requested)	5-W01

7.7.3 Resubmission + approval

Field	Value
Utility application/reference number	UTIL-EV-2026-00831
Resubmission date/time	2026-02-27 09:22 PT
Resubmission receipt	7-W08
Utility approval/acknowledgment	7-W09

7.8 Phase 7 Coordination Log

Date	Activity	Evidence (reference ID)
2026-02-20	Confirm required attachments for EV load add (email w/ utility rep)	7-W01
2026-02-21	Submit application + load letter (utility portal)	7-W04
2026-02-24	EMS clarification requested (call, pre-review)	7-W05
2026-02-25	Deficiency issued: "Additional Info Required" (utility portal)	7-W06
2026-02-27	Resubmit rework package (utility portal)	7-W08
2026-03-03	Approval/acknowledgment issued (utility portal letter)	7-W09

7.9 Phase 7 Closeout Criteria

Phase 7 is considered complete when:

- Utility application submission receipt is archived (7-W04)
- Correspondence log is complete (7-W05)
- Utility deficiency notice (if issued) is archived and dispositioned (7-W06)
- Utility approval/acknowledgment is archived (7-W09) or documented as "not applicable/none issued" in the correspondence log

7.10 Phase 7 Certification

Certification Point	Status	Certified By	Date
Utility load letter/single-line issued (Phase 7)	Certified	Priya Shah, PE	2026-02-21
Utility application submitted (Phase 7)	Certified	Jordan Lee (PM)	2026-02-21
Submission receipt archived	Certified	Ethan Brooks (Document Control)	2026-02-21
Utility deficiency addressed and resubmitted (Phase 7)	Certified	Jordan Lee (PM)	2026-02-27

Certification Point	Status	Certified By	Date
Utility approval/acknowledgment archived (final)	Certified	Ethan Brooks (Document Control)	2026-03-03

7.11 Phase 7 Closeout Confirmation (Completed)

Phase 7 is considered **complete** and closed out because the utility coordination cycle is fully evidenced end-to-end:

- **Utility requirements captured:** [phases/P6/Inputs/P6.UtilityRequirements_Capture_2026-02-20.pdf](#)
- **Load letter + one-line issued:** [phases/P6/Outputs/P6.1_UtilityLoadLetter_SingleLine_2026-02-21.pdf](#)
- **Utility application forms archived:** [phases/P6/Outputs/P6.2_UtilityApplicationForms_Completed_2026-02-21.pdf](#)
- **Submission receipt archived:** [phases/P6/Outputs/P6.SubmissionReceipt_Utility_2026-02-21.pdf](#)
- **Correspondence log archived:** [phases/P6/Outputs/P6.CorrespondenceLog_2026-02-24.xlsx](#)
- **Deficiency notice archived:** [phases/P6/Inputs/P6.Utility_DeficiencyNotice_2026-02-25.pdf](#)
- **Rework package archived:** [phases/P6/Outputs/P6.3_Utility_ReworkPackage_2026-02-27.pdf](#)
- **Resubmission receipt archived:** [phases/P6/Outputs/P6.ResubmissionReceipt_Utility_2026-02-27.pdf](#)
- **Final utility acknowledgment archived:** [phases/P6/Outputs/P6.Utility_Approval_Acknowledgment_2026-03-03.pdf](#)

Phase 8: Electrical Closeout and Handover

8.1 Phase 8 Purpose

Phase 8 captures the final electrical closeout artifacts: **as-built electrical drawings**, responses supporting final inspection, and evidence that the AHJ finalized the electrical permit/inspection (where applicable).

NOTE: The Phase 8 fields below are filled with **example data** to demonstrate a “completed” master deliverable package (provenance, stable filenames, and closeout logs). Replace all names, dates, and evidence pointers with real project records before using this document externally.

8.2 Phase 8 Boundaries (Electrical-Only)

Phase 8 captures electrical closeout documentation. It intentionally excludes:

- **Civil / constructability** topics (installation means-and-methods, trenching execution details, routing procedures, etc.)

8.3 Evidence Index + Closeout Work Products (Stable Filenames)

Item ID	Work product	Provenance (who / how / when)	Evidence reference ID(s)	Inputs + downstream use
8-W01	Field redlines (electrical)	Luis Romero (Electrician) + Mia Chen (Installer PM)Markup + photo referencesDate: 2026-03-18 (v1.0)	phases/P7/Inputs/P7.FieldRedlines_Electrical_2026-03-18.pdf	Inputs + downstream use
8-W02	As-built electrical drawing set	Sam Ortega (CAD Tech,) + Priya Shah, PE CAD update + PDF exportDate: 2026-03-22 (As-Built v1)	phases/P7/Outputs/P7.1_AsBuiltElectricalPermit_2026-03-22.pdf	Inputs + downstream use
8-W03	AHJ final inspection / permit finalized confirmation	AHJPortal downloadDate: 2026-03-26 (v1.0)	phases/P7/Outputs/P7.AHJFinalInspection_Permit_2026-03-26.pdf	Inputs + downstream use
8-W04	Inspector notes / correction notice (if any)	AHJField note + portal uploadDate: 2026-03-24 (v1.0)	phases/P7/Inputs/P7.AHJInspectorNotes_2026-03-24.pdf	Inputs + downstream use
8-W05	Inspection support Q&A log	Priya Shah, PE + Jordan Lee (PM)SpreadsheetDate: 2026-03-26 (v1.0)	phases/P7/Outputs/P7.2_InspSupportQandA_2026-03-26.xlsx	Inputs + downstream use

Item ID	Work product	Provenance (who / how / when)	Evidence reference ID(s)	Inputs + downstream use
8-W06	EMS configuration summary (as-installed)	Mia Chen (Installer PM) Vendor export + PDF Date: 2026-03-21 (v1.0)	phases/P7/Outputs/P7.1/Inputs/EMS_Summary_AsInstalled.pdf	Inputs: EMS systemUsed in: Phase 8, Phase 8

8.4 Key Excerpts (Electrical-Only)

8.4.1 As-Built Summary Excerpt (8-W02) Excerpted as-built outcomes:

- EV subpanel designation standardized as **EVSP-1** (matches permit set)
- EMS aggregate cap configured to **250A** (as-installed), with documented fail-safe behavior
- One-line and schedules updated to reflect installed breaker/labeling differences found in field redlines (no change to the approved load-management intent)

8.4.2 Final Inspection Excerpt (8-W03) Excerpted AHJ status:

- Final inspection result: **Pass**
- Permit status: **Finalized/Closed**
- Permit application number: **EL-2026-01472**
- Final date/time: **2026-03-26 09:40 PT**

8.5 As-Built Drawings

This deliverable is the as-built electrical drawing set prepared from field redlines and any AHJ inspector notes. The as-built set is intended to be the authoritative record of the installed electrical scope.

Input	Source
Prior approved/revised permit set	6-W03
Field redlines (electrical)	8-W01
AHJ inspector notes (if any)	8-W04
EMS as-installed config summary	8-W06

Output (reference ID): 8-W02

8.5.1 As-built change log

Change ID	Sheet	Change description	Source evidence
AB-01	One-line	Updated EMS note to match as-installed cap value and monitoring point label	8-W06 + 8-W01
AB-02	Panel schedules	Updated EVSP-1 schedule to reflect installed breaker spaces/labeling	8-W01
AB-03	Notes	Added "as-built" cover note and clarified labeling applied in field	8-W01 + 8-W04

8.6 Inspection Support Responses

This deliverable documents responses provided to the AHJ/inspector during final inspection or closeout, including clarifications, supplemental documentation, and confirmation of corrected items.

Input	Source
Inspector notes / questions	8-W04
As-built set (draft/final)	8-W02
EMS configuration summary	8-W06

Output (reference ID): 8-W05

Inspection support log (excerpt):

Item	Question/Issue	Response provided	Evidence pointer	Status
IS-01	Provide EMS cap confirmation for plan-check intent	Provided EMS config export showing cap set to 250A and fail-safe mode	8-W06	Closed
IS-02	Confirm panel labeling and circuit IDs match drawings	Provided updated as-built schedule page and photo references	8-W02	Closed

8.7 AHJ Final Acceptance / Permit Closeout Confirmation

This deliverable archives proof that the AHJ finalized/closed the electrical permit/inspection, marking the end of the AHJ process for this scope.

Input	Source
Final inspection / permit status evidence	8-W03

8.8 Phase 8 Closeout Criteria

Phase 8 is considered complete when:

- As-built electrical drawings are issued and archived (**8-W02**)
- Inspection support log is complete (**8-W05**)
- AHJ final acceptance/permit closeout evidence is archived (**8-W03**)

8.9 Phase 8 Certification

Certification Point	Status	Certified By	Date
As-built electrical set issued (Phase 8)	Certified	Priya Shah, PE	2026-03-22
Inspection support documentation complete (Phase 8)	Certified	Jordan Lee (PM)	2026-03-26
AHJ final acceptance archived (Phase 8)	Certified	Ethan Brooks (Document Control)	2026-03-26

8.10 Phase 8 Closeout Confirmation (Completed / Project Electrical Scope Closed)

Phase 8 is considered **complete** and the overall electrical project is **closed out** because final inspection/permit close evidence and as-built records are archived:

- Field redlines archived:** [phases/P7/Inputs/P7.FieldRedlines_Electrical_2026-03-18.pdf](#)
- EMS as-installed configuration summary archived:** [phases/P7/Outputs/P7.EMS_ConfigSummary_AsInstalled_2026-03-21.pdf](#)
- As-built electrical record set issued:** [phases/P7/Outputs/P7.1_AsBuilt_ElectricalPermitSet_2026-03-22.pdf](#)
- Inspector notes archived (if any):** [phases/P7/Inputs/P7.AHJ_InspectorNotes_2026-03-24.pdf](#)
- Inspection support log archived:** [phases/P7/Outputs/P7.2_InspectionSupport_Log_2026-03-26.xlsx](#)
- AHJ final/permit finalized confirmation archived:** [phases/P7/Outputs/P7.AHJ_FinalInspection_PermitFinalized_2026-03-26.pdf](#)

12 Addendum A: Stable Filename Index (by Phase)

This addendum is a consolidated index of all **stable evidence pointers** referenced in this document, grouped by phase and section/deliverable.

12.1 Phase 1 — Project Initiation and Feasibility

- P0 inputs**
 - [phases/P0/Inputs/P0-I01.Utility_Bills_2025-01_to_2025-12.pdf](#)
 - [phases/P0/Inputs/P0-I01.GreenButton_IntervalData_2025.csv](#)
 - [phases/P0/Inputs/P0-I02.MDP_Nameplate_Photos.zip](#)

- phases/P0/Inputs/PO-I02.Utility_Service_Info_Letter.pdf
- phases/P0/Inputs/PO-I03_ElectriCharge_L2-7.6-G_CutSheet_revA.pdf
- phases/P0/Inputs/PO-I04_PhotoSet_ExistingGear_and_GarageArea.zip
- phases/P0/Inputs/PO-I04_PhotoIndex_Annnotated.pdf

12.2 Phase 2 — Data Collection and Site Analysis

- P1 inputs
 - phases/P1/Inputs/P1-I01_SitePlans_Arch_Set_rev2_2026-01-15.pdf
 - phases/P1/Inputs/P1-I02_PanelSchedules_MDP_and_Subpanels_2026-01-16.pdf
 - phases/P1/Inputs/P1-I03_PhotoSet_ServiceGear_Nameplates_2026-01-16.zip
 - phases/P1/Inputs/P1-I03_PhotoIndex_Annnotated_2026-01-16.pdf
 - phases/P1/Inputs/P1-I04_EVSE_CutSheet_ElectriCharge_L2-7.6-G_revA.pdf
 - phases/P1/Inputs/P1-I05_AHJ_Electrical_Permitting_CodeBasis_2026-01-17.pdf
- P1 normalized outputs (Phase 2)
 - phases/P1/Outputs/P1.2_SitePlans_ElectricalContext_Excerpts_2026-01-18.pdf
 - phases/P1/Outputs/P1.2_PanelSchedules_Normalized_MDP_Subpanels_2026-01-18.pdf
 - phases/P1/Outputs/P1.2_Photos_Annnotated_Index_2026-01-18.pdf
 - phases/P1/Outputs/P1.2_EVSE_CutSheet_FrozenForDesign_revA_2026-01-18.pdf
 - phases/P1/Outputs/P1.2_AHJ_CodeBasis_Normalized_2026-01-18.pdf

12.3 Phase 3 — System Design and Load Calculation

- P2 engineering work products
 - phases/P2/Outputs/P2.1_LoadCalc_Workbook_2026-01-22.xlsx
 - phases/P2/Outputs/P2.1_LoadCalc_Summary_2026-01-22.pdf
 - phases/P2/Outputs/P2.1_LoadCalc_CheckMemo_2026-01-22.pdf
 - phases/P2/Outputs/P2.2_Architecture_Decision_Record_2026-01-22.pdf
 - phases/P2/Inputs/P2-W04_EMS_TechnicalBrief_revB_2026-01-21.pdf

12.4 Phase 4 — Preliminary Drawing Set Production

- P3 inputs
 - phases/P3/Inputs/P3-PARK_ParkingLayout_OwnerProvided_2026-01-20.pdf
 - phases/P3/Inputs/P3-I03_RoutingAssumptions_InstallerMemo_2026-01-20.pdf
- P3 drawing work products
 - phases/P3/Outputs/P3.1_OneLine_Prelim_Unstamped_2026-01-26.pdf
 - phases/P3/Outputs/P3.2_SitePlan_EVSE_Locations_Prelim_2026-01-26.pdf
 - phases/P3/Outputs/P3.3_Conduit_Trenching_Details_ElectricalImpacting_2026-01-26.pdf
 - phases/P3/Outputs/P3.4_PanelSchedules_Updated_MDP_and_EVSP_2026-01-26.pdf
 - phases/P3/Outputs/P3.5_ElectricalNotes_CodeSheets_2026-01-26.pdf
 - phases/P3/Outputs/P3.6_PermitSet_Unstamped_2026-01-26.pdf

12.5 Phase 5 — Permitting Submission (AHJ)

- P4 inputs
 - phases/P4/Inputs/P4-EOR_ReviewNotes_2026-01-28.pdf
- P4 submission outputs
 - phases/P4/Outputs/P4.1_PermitSet_Stamped_2026-01-29.pdf
 - phases/P4/Outputs/P4.2_AHJ_ApplicationForms_2026-01-29.pdf
 - phases/P4/Outputs/P4.2_PermitApplication_Package_Compiled_2026-01-29.pdf
 - phases/P4/Outputs/P4.SupportingAttachments_Electrical_2026-01-29.pdf
 - phases/P4/Outputs/P4.SubmissionReceipt_AHJ_Confirmation_2026-01-29.pdf
 - phases/P4/Outputs/P4.PermitTrackingLog_2026-01-29.xlsx

12.6 Phase 6 — Authority Review and Drawing Revision (AHJ)

- P5 inputs
 - phases/P5/Inputs/P5-AHJ_PlanCheckComments_Raw_2026-02-06.pdf
- P5 review/revision outputs
 - phases/P5/Outputs/P5.1_AHJ_CommentLog_Parsed_2026-02-06.xlsx
 - phases/P5/Outputs/P5.Redlines_InternalReview_2026-02-10.pdf

- phases/P5/Outputs/P5.2_PermitSet_Revised_Stamped_Rev1_2026-02-12.pdf
- phases/P5/Outputs/P5.3_CommentResponseLetter_Rev1_2026-02-12.pdf
- phases/P5/Outputs/P5.ResubmissionReceipt_AHJ_2026-02-12.pdf
- phases/P5/Outputs/P5.4_AHJ_Approval_Note_2026-02-19.pdf

12.7 Phase 7 — Utility Coordination

- **P6 inputs**
 - phases/P6/Inputs/P6.UtilityRequirements_Capture_2026-02-20.pdf
 - phases/P6/Inputs/P6.Utility_DeficiencyNotice_2026-02-25.pdf
- **P6 coordination outputs**
 - phases/P6/Outputs/P6.1_UtilityLoadLetter_SingleLine_2026-02-21.pdf
 - phases/P6/Outputs/P6.2_UtilityApplicationForms_Completed_2026-02-21.pdf
 - phases/P6/Outputs/P6.SubmissionReceipt_Utility_2026-02-21.pdf
 - phases/P6/Outputs/P6.CorrespondenceLog_2026-02-24.xlsx
 - phases/P6/Outputs/P6.3_Utility_ReworkPackage_2026-02-27.pdf
 - phases/P6/Outputs/P6.ResubmissionReceipt_Utility_2026-02-27.pdf
 - phases/P6/Outputs/P6.Utility_Approval_Acknowledgment_2026-03-03.pdf

12.8 Phase 8 — Electrical Closeout and Handover

- **P7 inputs**
 - phases/P7/Inputs/P7.FieldRedlines_Electrical_2026-03-18.pdf
 - phases/P7/Inputs/P7.AHJ_InspectorNotes_2026-03-24.pdf
- **P7 closeout outputs**
 - phases/P7/Outputs/P7.EMS_ConfigSummary_AsInstalled_2026-03-21.pdf
 - phases/P7/Outputs/P7.1_AsBuilt_ElectricalPermitSet_2026-03-22.pdf
 - phases/P7/Outputs/P7.2_InspectionSupport_Log_2026-03-26.xlsx
 - phases/P7/Outputs/P7.AHJ_FinalInspection_PermitFinalized_2026-03-26.pdf

13 Addendum B: Party Directory (Roles + Contacts)

This addendum lists all parties referenced in this document. **Contact details are example placeholders** and must be replaced with real information.

Party	Works for	Role	Email	Phone
Owner (Entity)	Place Property Ownership	Project owner / applicant	ev-projects@owner.example	+1-650-555-0120
Owner/Architect (Entity)	ABC Architects	Plan source / record drawings provider	projects@architect.example	+1-650-555-0121
Installer (Entity)	EV Install Services	Installation contractor / field coordination	pm@installer.example	+1-650-555-0122
Electrical Contractor (Entity)	Romero Electric	Electrical contractor	service@electric.example	+1-650-555-0123
Nora Patel	Owner	Owner representative	nora.patel@owner.example	+1-650-555-0101
Mia Chen	Installer	Installer PM	mia.chen@installer.example	+1-650-555-0102
Luis Romero	Electrical Contractor	Electrician / field lead	luis.romero@electric.example	+1-650-555-0103
Priya Shah, PE	Engineer-of-Record	Electrical engineer (EOR)	priya.shah@eor.example	+1-650-555-0104
Alex Kim, EE	Independent Reviewer	Electrical engineer (independent check)	alex.kim@review.example	+1-650-555-0105
Sam Ortega	Design/CAD	CAD technician	sam.ortega@cad.example	+1-650-555-0106
Ethan Brooks	Document Control	Document control	ethan.brooks@docs.example	+1-650-555-0107
Jordan Lee	Project Management	Project manager	jordan.lee@pm.example	+1-650-555-0108
Taylor Nguyen	Utility	Utility account rep (technical)	taylor.nguyen@utility.example	+1-650-555-0109
EVSE Manufacturer (Entity)	ElectriCharge	EVSE cut sheet issuer	support@electricharge.example	+1-800-555-0124
EMS Vendor (Entity)	Schlage / ChargePoint	Load management / EMS tech source	ems-support@emsvendor.example	+1-800-555-0125

Party	Works for	Role	Email	Phone
City of Palo Alto – Building Division (Electrical Permits)	AHJ	Electrical permitting authority / plan check	permits@paloalto.example.com	1-650-555-0110
Local Electrical Utility (Portal)	Utility	Utility interconnection/load review	evprogram@utility.example.com	1-800-555-0111