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Description:	This document replaces in full TN 257925. Revisions made address CEC data requests CUL/TRI-1 through CUL/TRI-21. This Section evaluates the direct, indirect and cumulative impacts the Project may have on cultural resources and identifies any required Applicant-Proposed Measures (APM) and any required Mitigation Measures.
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3.5 CULTURAL RESOURCES

This section evaluates impacts to cultural resources (including archaeological and built environment resources) that may result directly or indirectly from the project. The analysis in this section describes the applicable regulations, presents an overview of existing conditions, identifies the thresholds used for determining the significance of environmental impacts, lists applicant-proposed measures (APMs) that would be incorporated into the project to avoid or substantially lessen potentially significant impacts to the extent feasible, and assesses the proposed project's potential impacts on cultural resources. The analysis is based on a review of existing resources, technical data, and applicable laws, regulations, plans, and policies, as well as the following technical reports prepared for the project:

- Addendum Archaeological Resources Assessment of the Soda Mountain Solar Project for an Environmental Impact Report, San Bernardino County, California, SWCA Environmental Consultants (2024) (Appendix F)
- Historical Resources Assessment Report for the Soda Mountain Solar Project, San Bernardino County, California, SWCA Environmental Consultants (2024) (Appendix G)

The proposed project was previously analyzed for potential effects/impacts to cultural resources under Section 106 of the National Historic Preservation Act (NHPA), NEPA, and CEQA during an initial right-of-way grant application with BLM. As part of this effort, Class III cultural resources inventories were completed for the project by Far Western Anthropological Research Group, Inc. (Far Western) in 2009 and 2012 (Duke and Patterson 2009; McCabe 2013). Copies of the Far Western reports are included in Appendix C of SWCA's Archaeological Resources Assessment (Appendix F).

3.5.1 Regulatory Setting

A summary of applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) is provided in Table 3.5-1.

LORS	Requirements/Applicability	Administering Agency	Section Explaining Conformance
Federal			
Section 106 of the NHPA	Issuance of a ROW grant from the BLM.	California Office of Historic Preservation/BLM	Section 3.5.1.1
Archaeological Resources Protection Act	Protects archaeological resources from vandalism and unauthorized collecting on federal land	BLM	Section 3.5.1.1
Native American Graves Protection and Repatriation Act	Assigns ownership of human remains, funerary objects, sacred objects, and items of cultural patrimony on federal land to Native American descendants or culturally affiliated organizations.	BLM	Section 3.5.1.1
State			
CEQA Guidelines	Project construction may encounter archaeological and/or historical resources.	CEC	Section 3.5.1.2
Health and Safety Code Section 7050.5	Construction may encounter Native American graves; coroner calls the Native American Heritage Commission (NAHC).	State of California	Section 3.5.1.2

LORS	Requirements/Applicability	Administering Agency	Section Explaining Conformance
PRC Section 5097.98	Construction may encounter Native American graves; NAHC assigns Most Likely Descendant.	State of California	Section 3.5.1.2
PRC Section 5097.5/5097.9	Section 5097.5/5097.9 Applies to portion of project located on state land (California Department of Transportation [Caltrans] ROW).		Section 3.5.1.2
Local			
Cultural Resources Element of the San Bernardino County General Plan	Sets policies to protect and preserve tribal cultural resources and historically and archaeologically significant resources.	San Bernardino County	Section 3.5.1.3

3.5.1.1 Federal

NATIONAL HISTORIC PRESERVATION ACT OF 1966

The principal federal law addressing historic properties is the NHPA, as amended (16 USC §470), and its implementing regulations (36 CFR Part 800). Section 106 of the NHPA requires a federal agency with jurisdiction over a proposed federal action (referred to as an "undertaking" under the NHPA) to take into account the effects of the undertaking on historic properties, and to provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking (16 USC §470f). The Soda Mountain Solar Project is an undertaking with the potential to affect historic properties (36 CFR 800.3(a)), and therefore is subject to compliance with the requirements of the Section 106 process.

The term "historic properties" refers to "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register" (36 CFR 800.16(1)(1)). The implementing regulations (36 CFR Part 800) describe the process for identifying and evaluating historic properties, for assessing the potential adverse effects of federal undertakings on historic properties, and seeking to develop measures to avoid, minimize, or mitigate adverse effects. The Section 106 process does not require the preservation of historic properties; instead, it is a procedural requirement mandating that federal agencies take into account effects to historic properties from an undertaking prior to approval.

The steps of the Section 106 process are accomplished through consultation with the State Historic Preservation Officer (SHPO), federally recognized Indian tribes, local governments, and other interested parties. The goal of consultation is to identify potentially affected historic properties, assess effects to such properties, and seek ways to avoid, minimize, or mitigate any adverse effects on such properties. The agency also must provide an opportunity for public involvement (36 CFR 800.1(a)). Consultation with Indian tribes regarding issues related to Section 106 and other authorities (such as NEPA and Executive Order No. 13007) must recognize the government-to-government relationship between the Federal government and Indian tribes, as set forth in Executive Order 13175, 65 FR 67249 (Nov. 9, 2000), and Presidential Memorandum of Nov. 5, 2009 (74 FR 57881).

National Register of Historic Places

The National Register of Historic Places (NRHP) was established by the NHPA, as "an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment" (36 CFR 60.2). The National Register recognizes both historical-period and prehistoric archaeological properties that are significant at the national, state, and local levels. As

indicated in NHPA Section 101(d)(6)(A) (16 USC §470a(d)(6)(A)), properties of traditional religious and cultural importance to a tribe are eligible for inclusion in the NRHP.

To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (36 CFR 60.4):

- A. Are associated with events that have made a significant contribution to the broad patterns of our history;
- B. Are associated with the lives of persons significant in our past;
- C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional importance, it must be at least 50 years old to be eligible for NRHP listing (36 CFR 60.4).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as "the ability of a property to convey its significance" (National Park Service [NPS] 1995). The National Park Service recognizes seven qualities that, in various combinations, define integrity: location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance (36 CFR 60.4). National Register Bulletin 15 defines these seven aspects of integrity as follows:

- Location: the place where the historic property was constructed or the place where the historic event occurred;
- Design: the combination of elements that create the form, plan, space, structure, and style of a property;
- Setting: the physical environment of a historic property;
- Materials: the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property;
- Workmanship: the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
- Feeling: a property's expression of the aesthetic or historic sense of a particular period of time; and
- Association: the direct link between an important historic event or person and a historic property.

ARCHAEOLOGICAL RESOURCES PROTECTION ACT

If federal or Indian lands are involved, the Archaeological Resources Protection Act may impose additional requirements on an agency. The act (1) prohibits unauthorized excavation on federal and Indian lands, (2) establishes standards for permissible excavation, (3) prescribes civil and criminal penalties, (4) requires agencies to identify archeological sites, and (5) encourages cooperation between federal agencies and private individuals.

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT

Requirements for responding to discoveries of Native American human remains and associated funerary objects on federal land are addressed under the NAGPRA (Public Law 101-601, 25 USC §3001) and its implementing regulations found at 43 CFR Part 10. If a planned activity may result in the excavation of Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony on federal or tribal lands, a federal agency must prepare a written Plan of Action (POA), in consultation with Indian tribes, which outlines the planned treatment, care, handling, and disposition of human remains, funerary objects, or objects of cultural patrimony (43 CFR 10.3(c)(2)). Should human remains, funerary objects, sacred objects, or objects of cultural patrimony be inadvertently discovered on federal lands, activity must immediately cease, and a reasonable effort be made to protect the discovery. The implementing regulations of NAGPRA (43 CFR 10.4) describe the procedures to be undertaken in such an event, which include notification of and consultation with Indian tribes, and proper disposition of the human remains or funerary objects, sacred objects, or objects of cultural patrimony.

3.5.1.2 State

CALIFORNIA ENVIRONMENTAL QUALITY ACT GUIDELINES

Under CEQA (Public Resources Code §21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. CEQA Guidelines Section 15064.5 recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in Public Resources Code Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of Public Resources Code Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register. The fact that a resource does not meet the three criteria outlined above does not preclude the CEQA lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1.

If a CEQA lead agency determines that an archaeological site is a historical resource, the provisions of Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.5 apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, then the lead agency must identify potentially feasible measures to mitigate these effects (CEQA Guidelines §§15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the CEQA Guidelines, then the site may be treated as a unique archaeological resource in accordance with the provisions of CEQA (Pub. Res. Code §21083). As defined in Section 21083.2, a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;

- 2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- 3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Pub. Res. Code §21083.1(a)). If preservation in place is not feasible, mitigation measures are required.

If an archaeological resource does not meet the criteria as a unique archaeological nor a historical resource, then the effects of the project on those resources are not considered to be a significant effect on the environment for purposes of CEQA (CEQA Guidelines 15064.5(c)(4)).

California Register of Historical Resources

The California Register of Historical Resources (CRHR) is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (Public Resources Code §5024.1(a)). The criteria for eligibility for the CRHR are based upon NRHP criteria. Certain resources are determined by the statute to be automatically included in the CRHR, including California properties formally determined eligible for, or listed in, the NRHP.

To be eligible for the CRHR, a prehistoric or historical-period resource must be significant at the local, state, and/or national level under one or more of the following criteria:

- 1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- 2. Is associated with the lives of persons important in our past;
- 3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- 4. Has yielded, or may be likely to yield, information important in prehistory or history (14 Cal. Code Regs. §4852(a-b); Public Resources Code §5024.1(c)).

A resource eligible for the CRHR must meet one of the criteria of significance described above and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance (14 Cal. Code Regs. §4852(c)). It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the NRHP, but it may still be eligible for listing in the CRHR.

Additionally, the CRHR consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The CRHR automatically includes the following:

- 1. California properties listed on the NRHP and those formally Determined Eligible for the NRHP;
- 2. California Registered Historical Landmarks from No. 770 onward; and

3. Those California Points of Historical Interest that have been evaluated by the Office of Historic Preservation (OHP) and have been recommended to the State Historical Commission for inclusion in the CRHR (Public Resources Code §5024.1(d)).

Other resources that may be nominated to the CRHR include:

- 1. Historical resources with a significance rating of Category 3 through 5 (Those properties identified as eligible for listing in the NRHP, the CRHR, and/or a local jurisdiction register);
- 2. Individual historical resources;
- 3. Historical resources contributing to historic districts; and
- 4. Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone (Public Resources Code §5024.1[e]).

Secretary of the Interior Standards

Under CEQA, a project that follows the Secretary of the Interior (SOI)'s Standards for the Treatment of Historic Properties (Standards) is considered "as mitigated to a level of less than a significant impact on the historical resource" (14 CCR 15064.5). Thus, an impact may be adverse if the project is inconsistent with the Standards. The Standards were codified in 1995 (36 Code of Federal Regulations [CFR] 68) and provide professional guidance for four treatment approaches to historic properties: preservation, rehabilitation, restoration, and reconstruction. While the project does not propose direct alterations to any historical resources, within the SOI Standards, consideration of the project against the relevant Standards for Rehabilitation is an accepted method for determining whether the project may indirectly cause adverse impacts to historical resources. The ten Standards for Rehabilitation are listed below (although not all apply to the proposed project):

- 1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
- 2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
- 3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
- 4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
- 5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
- 6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

- 7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
- 8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
- 9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
- 10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

TREATMENT OF HUMAN REMAINS

The disposition of burials falls first under the general prohibition on disturbing or removing human remains under California Health and Safety Code 7050.5. More specifically, remains suspected to be Native American are treated under CEQA in CCR 15064.5, and PRC 5097.98 illustrates the process to be followed in the event that remains are discovered. If human remains are discovered during construction, no further disturbance to the site shall occur, and the County Coroner must be notified (CCR 15064.5 and PRC 5097.98).

PUBLIC RESOURCES CODE SECTION 5097.5

California PRC Section 5097.5 prohibits "knowing and willful" excavation or removal of any historic or prehistoric historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, or other historical features on public land without express permission from the public agency having jurisdiction over such lands. Public lands are defined to include lands owned by or under the jurisdiction of the State or any city, county, district, authority, or public corporation, or any agency thereof. If human remains determined to be Native American are recovered as a result of an action brought pursuant to this section, then the requirements of PRC Section 5097.9 will apply to those remains.

3.5.1.3 Local

The project is located on federally owned land managed by the BLM. While it is not subject to County of San Bernardino land use plans and ordinances, local plans were reviewed for informational purposes.

SAN BERNARDINO COUNTY GENERAL PLAN

San Bernardino County's goals and policies pertaining to historical, paleontological, and archaeological resources are described in the Cultural Resources Element of the *Countywide Plan, County Policy Plan, September 2022* (San Bernardino County 2022). The relevant policies are provided below.

• Goal CR-2 Historic and Paleontological Resources Historic resources (buildings, structures, or archaeological resources) and paleontological resources that are protected and preserved for their cultural importance to local communities as well as their research and educational potential.

- **Policy CR-2.1 National and state historic resources**. We encourage the preservation of archaeological sites and structures of state or national significance in accordance with the Secretary of Interior's standards.
- **Policy CR-2.2 Local historic resources**. We encourage property owners to maintain the historic integrity of resources on their property by (listed in order of preference): preservation, adaptive reuse, or memorialization.
- **Policy CR-2.3 Paleontological and archaeological resources**. We strive to protect paleontological and archaeological resources from loss or destruction by requiring that new development include appropriate mitigation to preserve the quality and integrity of these resources. We require new development to avoid paleontological and archeological resources whenever possible. If avoidance is not possible, we require the salvage and preservation of paleontological and archeological resources.

3.5.2 Natural Setting

The project site is located within the central Mojave Desert, a region that occurs between the southern, low-elevation, hot Sonoran Desert and the northern, high-elevation, relatively cool Great Basin. This approximately 25,000-square-mile region encompasses portions of southeastern California and adjacent areas of Arizona, Nevada, and Utah. The Mojave Desert is characterized by a broad elevation range, including peaks that exceed 11,000 feet above mean sea level (amsl) and Death Valley, which has the lowest recorded elevation in North America, at 282 feet below mean sea level.

Much of the Mojave Desert consists of typical mountain and basin topography where basin-to-mountain transition zones support high levels of biodiversity and endemic species. Flatter portions of the desert floor are characterized by expansive playas, dry lakes, and other ephemeral waters interspersed with dunes. The project site occupies a small alluvial valley that divides the northern and southern portions of the Soda Mountains. Elevations within the project site fall between approximately 1,200 and 1,600 feet amsl with the Soda Mountains reaching a maximum elevation of 3,615 feet amsl. The project site is drained by several northwest-southeast-trending washes that come together in the southern portion of the project area to feed a larger north-south-trending wash.

The project area lies approximately 3.5 miles west of the dry lakebed of Soda Lake, north of the terminus of the Mojave River. Soda Lake, along with Silver Lake farther to the north, represents the remnants of Lake Mojave, one of several large pluvial lakes that were present in the Mojave Desert during the late Pleistocene. Paleohydrological studies indicate that an incipient lake formed the central Soda Lake basin by at least 25,0000 calibrated (cal.) Before Present (B.P.) with the fully developed Lake Mojave present between 20,500 and 12,800 cal B.P. (Honke et al. 2019). As the Pleistocene transitioned to the Holocene, environmental changes resulted in the recession of Lake Mojave and the creation of playa conditions. Sediment samples taken from the playa margins along Soda Lake suggest spring-fed wetlands persisted in the area long after Lake Mojave had regressed (Honke et al. 2019). The basin remains relatively dry through most of the Holocene though wetland areas were present along the margins of Soda Lake between 730 and 180 cal B.P.

Geologically, much of the project area is characterized by Holocene to late Pleistocene young alluvial fan deposits (Qyf) and late Holocene alluvial fan deposits (Qf) (Bedrossian et al. 2012). Qyf and Qf contain unconsolidated to slightly consolidated, undissected to slightly dissected boulder, cobble, gravel, sand, and silt deposits that were recently deposited from fluvial and alluvial processes in a confined valley or canyon. This sediment is typically deposited in a fan-shaped cone where gravelly sediment is generally more dominant near the apex, but generally becomes finer-grained at the distal end (or toe) of the fan and grade to finer-grained deposits at depth. The results of the preliminary geotechnical investigation (Diaz

Yourman & Associates 2010) indicate that sediment in this geological unit also tends to be become finer in grain with depth starting at approximately 7 to 10 feet below the ground surface.

Late to middle Pleistocene old alluvial fan deposits (Qof) are found in some of the higher elevation areas of the project area. These sediments are slightly to moderately consolidated, moderately dissected boulder, cobble, gravel, sand, and silt deposits (Bedrossian et al. 2012). Although mapped only along the periphery of the project area, these deposits may be present at shallow depth across the project site, underlying relatively younger alluvial deposits (Akesson et al. 2024). Finally, Holocene to late Pleistocene eolian and dune deposits (Qye) are mapped in the southwest corner of the project site; these deposits are composed of unconsolidated to slightly consolidated, undissected to slightly dissected windblown sands. In general, eolian deposits consist of fine-grained sands deposited by wind that can form either broad sheets or localized dunes.

Vegetation within the project site is generally sparse and consistent across the desert pavement and floodcarved, dry drainage cuts. Dominant species include creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia salsola*) with blackbrush (*Coleogyne ramosissima*) and Mormon tea (*Ephedra viridis*) found at higher elevations along the alluvial slopes. Desert milkweed (*Asclepias erosa*) and cottontop cactus (*Echinocactus polycephalus*) are located along the larger ephemeral washes. Common wildlife species include desert bighorn sheep (*Ovis canadensis nelsoni*), coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail rabbit (*Sylvilagus audubonii*), desert tortoise (*Gopherus* spp.), sagebrush lizard (*Sceloporus graciosus*), desert horned-lizard (*Phrynosoma platyrhinos*), rattlesnakes, hawks, and owls.

3.5.3 Cultural Setting

The following section provides a summary of the prehistoric and historic periods in the project area. More detailed cultural contexts for the Project are included in the *Addendum – Archaeological Resources Assessment of the Soda Mountain Solar Project for an Environmental Impact Report, San Bernardino County, California,* SWCA Environmental Consultants (Appendix F) and *Historical Resources Assessment Report for the Soda Mountain Solar Project, San Bernardino County, California,* SWCA Environmental Consultants (Appendix F) and *Historical Resources Assessment Report for the Soda Mountain Solar Project, San Bernardino County, California,* SWCA Environmental Consultants (Appendix F) and *Historical Resources Assessment Report for the Soda Mountain Solar Project, San Bernardino County, California,* SWCA

3.5.3.1 Prehistoric Context

Warren and Crabtree's (1986) chronology serves as the best overall regional sequence for the southwestern Great Basin and Mojave Desert regions. The sequence consists of five temporal units: Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Shoshonean (Warren and Crabtree 1986). The first four periods are encompassed by the Archaic, while the Shoshonean period represents the late precontact and ethnographic era, herein termed the Protohistoric period.

LAKE MOJAVE PERIOD (PALEOINDIAN AND EARLY ARCHAIC; CA. 12,000–7000 B.P.)

The Lake Mojave period represents the earliest human occupation in the Mojave Desert region, beginning at about 12,000 years B.P. (Grayson 1993; Wallace 1962). Considered a Paleoindian assemblage, it is thought to be ancestral to the Early Archaic cultures of the subsequent Pinto period (Warren and Crabtree 1986:184). Claims for archaeological assemblages dating to periods earlier than the Lake Mojave period, such as those from Tule Springs (Harrington and Simpson 1961), China Lake (Davis 1978), and Manix Lake (Simpson 1958, 1960, 1961), are controversial and, even if eventually proven to be authentic, these manifestations appear to have no relationship to later cultural developments in the region (Warren and Crabtree 1986). This period, at the close of the Pleistocene, was a time of extreme environmental change

as the relatively cool and moist conditions of the terminal Wisconsin glacial age were gradually replaced by the warmer and drier conditions of the Holocene (Spaulding 1990), with desertification prevalent throughout the period and mesquite appearing by ca. 8000 B.P. (DuBarton et al. 1991).

Artifacts characteristic of the period include Lake Mojave, Parman, Silver Lake projectile points, and the rare California fluted (e.g., Clovis or Clovis-like) projectile points. Other artifacts typically found in these assemblages include lunate and eccentric crescents, small flake engravers, technical scrapers, leaf-shaped knives, drills, and heavy choppers or hammer stones. Milling equipment prevalent in later periods is generally absent during the Lake Mojave period in the Mojave Desert (Campbell et al. 1937; Warren and Crabtree 1986). Artifact assemblages during this period are typically (but not exclusively) found in association with late Pleistocene/early Holocene lake stands and outwash drainages, although the role of the lakes in the overall adaptation remains in dispute (e.g., Bedwell 1970, 1973; Davis 1978; Warren 1967; Willig 1988). Some researchers have argued that lacustrine resources were the subsistence focus, while others suggest that grasslands suitable for the grazing of late Pleistocene megafauna would have surrounded the lakes, and that these were the primary subsistence focus of the Lake Mojave cultures. Warren (1967) postulated that the assemblages are the remains of a widespread, generalized hunting adaptation seen throughout the western Great Basin. Bedwell (1970, 1973), Hester (1973), and others interpret the same assemblages as indicating a specialized exploitation of the lacustrine resources of the pluvial lakes and call the complex the "Western Pluvial Lakes Tradition." Davis (1978) proposes a combination of these models positing a generalized hunting and collecting economy, in which lakeside sites represent the seasonal exploitation of marsh resources.

PINTO PERIOD (MIDDLE ARCHAIC; CA. 7000-4000 B.P.)

The transition from pluvial to arid conditions at the end of the early Holocene appears to have been an extreme environmental change in the southern Great Basin during post-Pleistocene times. Increasingly arid conditions prevailed throughout the region between about 7500 and 5000 B.P. (Hall 1985; Spaulding 1991). Woodland environments reached their approximate modern elevations and the modern desert scrub communities appeared with the migration of species such as creosote bush into the region. Warren (1984) sees the cultural manifestations of this period as indicative of adaptation to increasing aridity. As the Pleistocene lakes and rivers dried up and plant and animal life changed, human populations adapted or withdrew to more desirable areas. Pinto period populations appear to have withdrawn to desert margins and scattered oases, undergoing the changes as the Pinto Basin Complex assemblages gradually replace those of the preceding Lake Mojave period (Warren 1984:414). As in the Lake Mojave period, Pinto period sites are usually found in open settings in relatively well-watered locales representing isolated oases of high productivity. Artifacts dating to the Pinto period include Pinto Series projectile points, leafshaped points, and knives, domed and elongated keeled scrapers, and occasional Lake Mojave and Silver Lake points. Simple flat milling stones, occasional shallow-basined milling stones, and hand stones also occur in Pinto period sites (Warren and Crabtree 1986:184–187). Warren (1990) attributes the latter development to the exploitation of hard seeds, which is viewed as part of a process of subsistence diversification brought on by increased aridity and reduced ecosystem carrying capacity. Big-game hunting probably continued as an important focus during this time, but the economic return of this activity likely decreased as artiodactyl populations declined in response to increased aridity (Warren and Crabtree 1986).

The appearance of Pinto projectile points in the archaeological record is indicative of this period in the Mojave Desert, although their dating remains controversial (Lyneis 1982:176; Schroth 1994; Warren 1984). Warren and Crabtree (1986) and Warren (1984:414) postulate that the Pinto Complex represents a continuation and evolution from the hunting complexes of the Lake Mojave period. During this period, small, mobile populations continued to be dependent on hunting and gathering. The use of grinding implements is expanded; however, these were poorly developed as might be expected in a newly acquired technology. This development suggests that the processing of hard seeds was becoming more important in

the subsistence system, although it is believed that Pinto period people maintained a mobile subsistence strategy focused primarily on the hunting of highly ranked large game (Elston 1982). The question of how people adjusted to environmental change is central to varying interpretations of the Pinto period (Warren 1984:410–411). Some (Donnan 1964; Kowta 1969; Wallace 1962) argue the desert was essentially abandoned between 7000 and 5000 B.P., while others (Susia 1964; Tuohy 1974; Warren 1980) argue that no evidence of an occupational hiatus exists in the archaeological record. The ongoing debate revolves around the definition and dating of Pinto projectile points (Schroth 1994; Warren and Crabtree 1986:184).

GYPSUM PERIOD (LATE ARCHAIC; CA. 4000–1500 B.P.)

Gradual improvement of the climate began by around 5000 B.P., culminating in the Neoglacial at about 3600 B.P. A period of greater effective moisture emerged in the latter part (by 3000–4000 B.P.) of the middle Holocene (for an overview of Neoglacial and Little Ice Age environments in the Mojave Desert (see Enzel et al. 1992; Enzel et al. 1989; Spaulding 1995). At this time, the barren pans in the Mojave Sink intermittently held perennial water (Enzel et al. 1992), although it is not known if this was the case for other closed basins in the region. The Gypsum period is characterized by a notable population increase and broadening of economic activities as technological adaptation to the environment evolved. Hunting continued to be an important subsistence activity, but the increase in the occurrence and diversity of ground stone artifacts indicates that plant foods were becoming important food sources. Of particular note during this period is the reduction in the size of projectile points around 1350 B.P., and the introduction of the bow and arrow (Bettinger and Eerkins 1999), which increased the efficiency of hunting and may indicate a shift in focus from larger to smaller game. It is thought that perhaps because of these adaptive mechanisms, the increase in aridity during the late Gypsum period (after ca. 2500 B.P.) had little effect on the distribution and increase in human populations (Warren 1984:418–420; Warren and Crabtree 1986:189).

Use of rockshelters appears to have increased during this period, although the occupation of open sites continues. Base camps with extensive midden development are a prominent site type in well-watered valleys and near concentrated subsistence resources, as are special purpose sites in upland settings (Warren and Crabtree 1986). Artifact assemblages are characterized by medium- to large-stemmed and notched projectile points (i.e., Elko Series, Humboldt Concave Base, and Gypsum types). The assemblages also include rectangular-based knives, flake scrapers, infrequently large scraper planes, choppers, and hammer stones. Milling equipment becomes more common and the mortar and pestle appear for the first time.

Considerable evidence is present indicating increased contact with the California coast and the Southwest, and the presence of split-twig figurines and zoomorphic petroglyphs, thought to date to this period, provide evidence for a rich ritual life (Fowler and Madsen 1986). Evidence of this increased ritual life is clearly seen in the archaeological record at Newberry Cave (Davis and Smith 1981), where split-twig figurines, ritual bows, arrows, pictographs, and what was interpreted as a wand were recovered, supporting what was interpreted as ritual hunting magic. The Gypsum period appears to be a time when human populations adapted to the desert environments through technological innovations, ritual activities, and increased socioeconomic ties.

SARATOGA SPRINGS PERIOD (CA. 4000-1500 B.P.)

Sometime after 2000 B.P., Eastgate and Rose Spring projectile points begin to dominate artifact assemblages in parts of the Mojave Desert (Lyneis 1982). These points characterize assemblages of Warren and Crabtree's (1986) Saratoga Springs period. Considered a time of marked regional diversification throughout the region, cultural developments south of the Mojave River and Providence Mountains diverge from those in the northern area, reflecting influence from Patayan groups residing along the Colorado River and using the desert region. These developments coincide with the emergence of ceramic technology and the beginnings of agriculturally based subsistence strategies practiced along the lower Colorado River. Many of these developments have been attributed to Hohokam influence from Arizona (McGuire and Schiffer 1982:216–222). However, Schroeder (1975, 1979) sees this cultural phenomenon as part of the Hakataya tradition that was separate from the Hohokam. According to Schroeder (1975, 1979), the Hakataya inhabited much of western Arizona, the western extent of the Sonoran Desert, the Mojave Desert, and northern Baja California. This cultural development included all the Yuman-speaking people as well as some non-Yuman speakers in western Arizona. Schroeder (1975, 1979) characterized their villages as "rock-outlined jacales, gravel or boulder alignments, rock filled roasting pits, rock-pile shrines, thick dry-lain, low walled rock or boulder structures, rock-shelters, and bedrock milling stones. . . and crudely decorated pottery." Rogers (1945) separated those people along the Colorado River and called them the Yuman culture. The term Patayan used in this document is interchangeable with Yuman. The Patayan Tradition has been divided into three phases, identified as Patayan I (A.D. 500-1050), Patayan II (A.D. 1050-1500), and Patayan III (A.D. 1500-present). The division of these temporal phases is based on changes in ceramic styles, settlement patterns, and the presence of trade wares. Most researchers consider the Mohave, Quechan, and Cocopa people as descendants of the Lowland Patayan.

In the northern Mojave Desert region, evidence of Ancestral Puebloan influences or occupation has been documented, but is limited to the occurrence of pottery, which has been found as far west as the Halloran Spring (Blair 1985; Blair and Winslow 2004; Leonard and Drover 1980; Rogers 1929; Warren 1980) and the Cronise Basin (Larson 1981; Rogers 1929). It is unclear whether the pottery was left by small foraging or hunting parties (Berry 1974:83-84; Fowler and Madsen 1986:180; James 1986:114-115; Rafferty 1984:30-35; Shutler 1961:7; Warren and Crabtree 1986:191), the result of Ancestral Puebloan people working the turquoise mines near Halloran Springs (Blair 1985:2–4; Blair and Winslow 2004; Leonard and Drover 1980:251; Rogers 1929:12–13; Warren 1980:81–84), or if it was being traded along the Mojave trading route along with shells, obsidian, and salt (Harrington 1927:238–239; Heizer and Treganza 1944; Hughes and Bennyhoff 1986; Morrissey 1968; Pogue 1915:46–51; Ruby 1970; Shutler 1961:58–66). Overall, the nature of the Ancestral Puebloan presence in the Mojave Desert is poorly understood and warrants future research. In contrast, a strong Ancestral Puebloan influence is seen in the northeastern Mojave Desert, where this horticultural people (termed the Lowland Virgin Branch Anasazi) resided in residential communities along the Muddy and lower Virgin Rivers in southeastern Nevada and adjacent portions of Utah and Arizona (Fowler and Madsen 1986:175-181; Lyneis 1982, 1995; Lyneis et al. 1978:178–179; Warren and Crabtree 1986:191; Winslow 2003a, 2003b).

In the remainder of the Mojave Desert region, the period seems to exhibit general continuity with the Gypsum period. One of the most conspicuous changes from the earlier period is the reduction in size of projectile points. Rose Spring and Cottonwood Series projectile points dominate assemblages of the period and are morphologically similar to Gypsum period points apart from their smaller size. Late in prehistory (approximately 1000 B.P.), it is theorized, groups of people speaking Numic languages expanded from somewhere in the Death Valley area across the Great Basin. The Numic Expansion hypothesis gained widespread support in the years following its introduction by Sydney Lamb in 1958 (Lamb 1958). Bettinger and Baumhoff (1982:485) suggest that the Numa were able to displace the previous inhabitants because of low-cost adaptive strategies oriented around the exploitation of diverse plant resources. This hypothesis is supported by similarities in artifact types and glottochronological theory advanced by Lamb (1958:99). Young and Bettinger (1992:85), supporting Bettinger and Baumhoff (1983), propose that a competitive interaction existed between the Numic and pre-Numic groups in the Great Basin. However, the hypothesis has been challenged, remains controversial, and is currently not well supported by regional archaeologists.

PROTOHISTORIC PERIOD (CA. 750 B.P. TO CONTACT)

The Protohistoric is a transitional period occurring between precontact and historic times, dating from ca. 700 B.P. and continuing until first contact with Euro-American people in the region (Warren 1980; Warren and Crabtree 1986). Cultural developments established earlier during the Saratoga Springs period continue with some modifications. Diagnostic artifacts for this period are Desert Side-notched projectile points and various brown ware ceramics. Regional diversity continues during this period (Warren and Crabtree 1986:191). South of the Mojave River, the Patavan influence continues. It is clear that by around A.D. 600, Patayan groups occupied a wide area in western Arizona, southeastern California, and southern Nevada (Schroeder 1952). The Patayan were centered primarily on the lower Colorado River; however, their assemblages, characterized by brown ware, buff ware, and red-on-buff ware pottery, and Desert Side-notched and Cottonwood Triangular points, are found along the length of the Mojave River to the Mojave Sinks (Drover 1979; Rogers 1929; Smith 1963). Archaeological evidence of Patayan occupation includes the ceramics wares and projectile point types noted above, floodplain farming along the Colorado River, and a variety of features of stone construction, such as rock alignments, stone-lined roasting pits, and walled structures built with rocks or boulders (Schroeder 1952). The full extent of the Patayan influence is unclear, but the discovery of a Lower Colorado River Buff Ware vessel in a cave near Temple Bar, Arizona, attests to its extension upriver along the Colorado to what is now upper Lake Mead (Rogers 1995).

North of the Mojave River, the Saratoga Springs artifact assemblage continues, with the addition of Desert Side-notched and Cottonwood Triangular points and Great Basin Brown Ware pottery. Also present in these assemblages are steatite beads, large triangular knives, unshaped manos and milling stones, mortars and pestles, incised stones, slate pendants, and shell beads (Warren and Crabtree 1986). Bettinger (1975, 1976, 1977) attributes the beginning of regular pinyon exploitation to this period, as shown by the appearance of camps in the pinyon-juniper woodlands (Warren 1984:424–427; Warren and Crabtree 1986:191–192). Warren and Crabtree (1986:191–192) remark that the initial occurrence of this assemblage is linked with the ancestors of the historic Southern Paiute people and is roughly contemporaneous with the terminal date for the Ancestral Puebloan in the region (Warren 1984:427). Occupation by the hunter-gatherer groups present earlier, however, appears to have continued relatively unchanged.

3.5.3.2 Ethnographic Setting

The project site is in the northeastern extent of the traditional territory of the Mojave and Serrano and approaches the traditional territories of the Kawaiisu and the Southern Paiute/Chemehuevi. A brief discussion of the four groups is presented below.

MOJAVE

The Mojave were river agriculturalists who lived along the lower Colorado River and spoke a Yuman language of the Hokan linguistic stock; their traditional territory encompassed the river valley that now spans California, Nevada, and Arizona (Kroeber 1925; Moratto 2004). Hunting and collecting wild plant foods was practiced along with agricultural activities centered on the seasonal flooding of the Colorado River from May to June, and small settlements were established along the riverbank with adjacent agricultural fields. Dwellings consisted of semi-subterranean winter houses made of cottonwood log frames and arrow-weed wattling covered with earth, along with flat-topped ramadas that were used for shade in the summer months. The Mojave had a strong tribal identity with patrilineal clans, thus residences were patrilocal (Kroeber 1925; Moratto 2004). Their material culture was more complex than some of their neighboring desert groups, and they had a significant influence on their neighbors in the California deserts, introducing new ideas and technologies (Moratto 2004). Farming implements

consisted of a hard, heavy stick similar to the common California root-digging stick, though it was larger and flattened at the sharp end, along with a cultivator consisting of another stick with broad piece of wood where the square edge was pushed flat on the ground to cut weeds (Kroeber 1925). Large wooden pestles were used by the Mojave, and fish were caught with seines and scoops. Pottery was the primary type of container fashioned by the Mojave, who had myths associating pottery with agriculture, though coiled and twined basketry items were also crafted (Kroeber 1925).

Kroeber (1925:727) notes a primary difference between the Mojave and nearby California groups in that the Mojave placed primary importance on tribal identity with the tribe as a larger unit and their land as a country, perceiving "themselves as a national entity, the *Hamakhava*." The Mojave clan system most closely resembles that of other Yuman groups who inhabited the lower Colorado region, being composed of patrilinear, exogamous groups with totemic reference. The status of chief was inherited through the male line, though the exact role of the chief, compared with a war leader or shaman, is not well understood (Kroeber 1925). Dreaming is an integral component of Mojave culture as it is believed that dreams form the basis for everything in life and it is through dreams that special powers of healing and foresight are received (Butler 1994; Kroeber 1925).

At the time of Spanish arrival in the region (sixteenth century), the Mojave had one of the largest native populations in the area, estimated at 7,000 members (Butler 1994; Fort Mojave Indian Tribe 2021). Mojave guides were instrumental to travelers on their way to the Pacific Coast, leading them through the harsh mountain and desert terrain via springs located along the Mojave Trail (Butler 1994). In 1859, a U.S. military outpost was established on the banks of the Colorado River to provide safe passage for immigrants moving into the west (Fort Mojave Indian Tribe 2021). When the fort was closed in 1981, the buildings were used as a boarding school until 1930. Remains of Fort Mojave are situated on a bluff overlooking the Colorado River, south of Bullhead City (Fort Mojave Indian Tribe 2021).

The Fort Mojave are a federally recognized tribe. The Fort Mojave Reservation was established by the War Department General Order No. 19 in 1870, and by Executive Order in 1911 (Butler 1994). The reservation is situated along the Colorado River and stretches across California, Arizona, and Nevada, making the Mojave one of the few tribes still residing on their traditional lands today, although they inhabit only a small fraction of their traditional territory. They call themselves Ahamakav, or Pipa Aha Macav, meaning "the people who live along the river," or "the people by the river" (Butler 1994; Fort Mojave Indian Tribe 2021). The tribe maintains its own police force and courts with jurisdiction over civil and some criminal cases. Housing is provided through the Fort Mojave Tribal Housing authority, and as of the mid-1990s, there were more than 180 homes on the reservation (Butler 1994). Agriculture remains a prominent tribal business, with agricultural lands comprising roughly 40 percent of reservation lands (Butler 1994).

SERRANO/VANYUME

The Serrano people once occupied the southwestern Mojave Desert and Inland Empire region of San Bernardino and Los Angeles Counties. The Serrano language is part of the Serran branch of the Takic family of the Uto-Aztecan linguistic stock (Mithun 2004). The two Serrano languages, Kitanemuk and Serrano, are closely related, with the traditional lands of the Kitanemuk located to the northwest of the Serrano. The term "Serrano" appears to have acquired an ethnic definition during the ethnohistoric period as pertaining to the Indigenous people who inhabited the San Bernardino Mountains, with the term "Serrano" meaning "mountaineers, or those of the Sierras" (Kroeber 1925:611). The traditional territory of the Serrano is believed to have encompassed much of the Mojave Desert and San Bernardino Mountains, including the base and north of the San Bernardino Mountains east of Cajon Pass near Victorville, east to Twentynine Palms, and south to the Yucaipa Valley, with the Vanyume territory extending northward along the Mojave River (Bean and Smith 1978; Bean and Vane 1994). The Serrano called themselves the Maara'yam, with multiple clans, including the Yuhaaviatam, or "People of the Pines" (San Manuel Band of Mission Indians 2021).

The Vanyume lived along the Mojave River and associated Mojave Desert areas and are also referred to as the Desert Serrano. Whether they spoke a dialect of Serrano or a separate Takic language is unclear from the few known words (Mithun 2004); however, Kroeber (1925) placed the Vanyume language closer to the Kitanemuk than to the Serrano of the San Bernardino Mountains. The traditional territory of the Vanyume was only vaguely known during the ethnohistoric period and no clear delineation was recorded, but it was suggested to begin several miles east of the Mojave River sink and continue to Daggett or Barstow (Kroeber 1925).

According to the records of Fr. Francisco Garcés, the first European to travel in this region in 1776, the name *Vanyume* is derived from the term for "them" (*Beñeme*) used by the Mojave (Coues 1900:240). Very little is known of the Vanyume-speaking people because their cultural traditions and lifeways were severely disrupted by Spanish missionaries beginning in the early 1820s. By the 1900s, reports indicated that very few Vanyume people remained in their traditional territory (Bean and Smith 1978:570; Kroeber 1925:614). Therefore, much of what we know about the Vanyume is derived from accounts of the larger Serrano group. Kroeber (1925:614–615), however, suggests there were political distinctions between the Serrano and Vanyume as the Vanyume were friendly with the Chemehuevi and Mohave to the east, whereas the Serrano maintained mutual animosity with these groups. The area of combined Serrano/Vanyume occupation—the San Bernardino Mountains, the southwestern portions of the Mojave Desert, and the Mojave River area—has become known as the Serrano area, though this distinction may be a result of early historical disruptions to the Vanyume as a distinct culture group and inherent biases of ethnographers and historians during the Historic period.

Most Serrano lived in small village-hamlets in the foothills, though some resided out on the desert floor near water sources (Bean and Smith 1978:571). Kroeber (1925:617–618) considered the organization of Serrano lineage sets similar to that of political groups. He defined a lineage set as occupying one village, representing at least two moieties, and coordinating its hunting and gathering activities according to the religious deliberations and scheduling determined by two leaders (one from each of the moieties), with one leader occupying the ceremonial house and the other possessing the ceremonial bundle. Often, a lineage set had the exclusive power to forge and maintain economic ties to other villages of neighboring Serrano, Cahuilla, Chemehuevi, Gabrielino, and Cupeño. Desert Serrano villages are mentioned in the 1776 account of the Spanish Franciscan missionary Fr. Francisco Garcés and in the records dating to the early 1800s by Fr. Joaquín Nuez. Fr. Garcés mentions villages along the Mojave River near today's city of Barstow and the community of Daggett (Coues 1900:241–248). Beattie (1955) suggests the average village population was around 70 people and that these settlements were generally spaced at 10-mile (16-kilometer [km]) intervals along the river.

The fundamental economy of the Serrano was one of subsistence hunting and collecting plant goods, with occasional fishing (Bean and Smith 1978). Serrano territory was a trade nexus between inland tribes and coastal tribes, and trade and exchange were important aspects of the Serrano economy. Those living in the lower-elevation desert floor villages traded foodstuffs with people living in the foothill villages who had access to a different variety of edible resources due to the considerable topographic variation and resultant differences in bio-geographic zones in the vicinity. In addition to intervillage trade, ritualized communal food procurement events, such as rabbit and deer hunts and piñon, acorn, and mesquite nut-gathering events, integrated the economy and helped distribute resources that were locally available in different ecozones.

A variety of materials were used for hunting, gathering, and processing food, many of which were also used for shelter, clothing, and ceremonial items. Technological similarities have been noted between the Serrano and their neighbors, particularly the Cahuilla (Bean and Smith 1978). Shell, wood, bone, stone, and plant fibers were used to make a variety of implements, along with highly decorated baskets (Smith and Simpson 1964). The Serrano made pottery and used it daily to carry and store water or foodstuffs; and ceramics were also used as ceremonial objects. They also made bone awls, sinew-backed bows, arrows, arrow straighteners, throwing sticks (for hunting), traps, fire drills, stone pipes, musical instruments of various types (rattles, rasps, whistles, bull-roarers, and whistles), yucca fiber cordage (for snares, nets, and carrying bags), and clothing (Bean and Smith 1978; Bean and Vane 2002). A strong tradition of basket weaving incorporated the use of multiple materials, including juncus sedge, deergrass, and yucca fiber.

Mainly due to the inland territory that the Serrano occupied beyond Cajon Pass, contact between the Serrano and Euro-Americans was relatively minimal prior to the early 1800s, though European diseases began decimating Native populations in the Mojave Desert and Antelope Valley beginning in the late 1700s (San Manuel Band of Mission Indians 2021). As early as 1790, the Serrano began to be drawn into mission life and were involuntarily marched to the Asistencia in Redlands, an outpost of the San Gabriel Mission (Bean and Vane 2002; San Manuel Band of Mission Indians 2021). More Serrano were relocated to Mission San Gabriel Arcángel in 1811 after a failed Indigenous attack on that mission. In the 1860s, a smallpox epidemic decimated many Indigenous people from southern Californian, including the Serrano (Bean and Vane 2002). Oral accounts of a massacre in the 1860s at Twentynine Palms indicate that it may have been part of a larger American military campaign that lasted 32 days (Bean and Vane 2002:10).

Some of the surviving Serrano sought shelter at Morongo with their Cahuilla neighbors, which later became a formal reservation and is currently known as the Morongo Band of Mission Indians (Bean and Vane 2002). Other survivors followed the Serrano leader Santos Manuel down from the mountains and across the valley floors, eventually settling what later became the San Manuel Band of Mission Indians Reservation, which was established in 1891 (San Manuel Band of Mission Indians 2008). Although ethnographers considered the Vanyume to be a sparse and mostly unknown population during the early 1900s (Bean and Smith 1978; Kroeber 1925), recent genealogical research, combined with mitochondrial DNA analysis, indicates that three lineages from the Fort Tejon area were originally from the village of Topipabit downstream from Victorville (California Energy Commission 2008:4.3–4.11). These lineages are currently part of the San Fernando Band of Mission Indians, located in Newhall. This group, which includes Kitanemuk, Inland Chumash, Tataviam, and Vanyume, has applied for formal federal recognition (San Fernando Band of Mission Indians 2021).

KAWAIISU

The Kawaiisu stem from the Chemehuevi, one of the Shoshonean Plateau divisions, who spoke numerous dialects of remarkable uniformity, considering the vastness of the territory they inhabited. The Chemehuevi were considered a branch of the Southern Paiutes by early ethnographers and the name itself was believed to be more a geographically defined term rather than an ethnic designation (Kroeber 1925). The Kawaiisu appear to have become differentiated from the larger Chemehuevi family due to localized environmental differences affecting resource availability in the region they inhabited (Kroeber 1925). Their traditional territory encompassed the Tehachapi Mountains and associated watersheds along the timbered mountains and foothills, including Tehachapi Pass, Walker Basin, and some southern affluents of Kern River between the Mojave Desert and the San Joaquin Valley, as well as the lower part of Death Valley (Kroeber 1925; Grosscup 1977; Steward 1938). Kroeber (1925) describes multiple names for this group derived from many of the Indigenous neighboring groups and notes that their own name for themselves was Nuwu, Nuwuwu, or Newooah, meaning "people." He also notes that ethnohistorically, they were referred to as the Tehachapi or Caliente Indians. The Kawaiisu were mobile hunter-gatherers who primarily resided in a core area in the southern Sierra Nevada and Tehachapi Mountains and made frequent forays into the Mojave Desert to exploit seasonal resources (Zigmond 1986). Linguistically, Kawaiisu has been identified as a part of the Southern Numic branch of the extensive Uto-Aztecan language family, which includes most languages of the Great Basin, extending south from southern Idaho into Mexico and east into Arizona (Mithun 2004; Zigmond 1994).

Although there is general agreement about the location of the Kawaiisu core area, the extent of their territory in the Mojave Desert is less clearly understood. Zigmond (1986) depicts an area of seasonal use that extends east of the Granite Mountains, in present-day Fort Irwin. Kroeber (1925) cites an account of a Kawaiisu group on the upper Mojave River and in the southern Panamint Range. Steward (1970:71) also places the Kawaiisu in the southern Panamint Valley, the Argus Range, the town of Trona, and an undetermined area to the south and west. He notes further that although the Shoshone occupied the northern Panamint Valley, the Kawaiisu and Shoshone were mixed in the southern part of the valley and perhaps near Trona.

Dietary staples for the Kawaiisu included piñon, juniper, yucca, chia, wild rice, sunflower, buckwheat, and screwbean. Deer were a major source of meat when the Kawaiisu were residing in the mountainous core area, supplemented by small game, and hunters also pursued pronghorn and bighorn sheep. Salt was an important component of the diet and was collected from Koehn Lake or from Proctor Lake in the Tehachapi Valley when water levels at Koehn Lake were high. Ethnobotanical studies indicate that at least 120 types of plant resources were used for food and to make beverages, while more than 100 types of plants were used for medicinal purposes, and at least 40 plants had ritualistic associations (Zigmond 1994). Acorns, a variety of seeds, and tobacco leaves were ground and pounded in the hundreds, if not thousands, of bedrock mortars and bedrock milling stations that continue to be encountered and documented across their traditional territory (Zigmond 1994). As repeated use enlarged a hole beyond the desired dimensions, such mortars were abandoned, and new holes were initiated in another part of the same boulder or on nearby bedrock boulders, resulting in the formation of milling stations composed of multiple grooves/holes along a single bedrock surface.

Pottery is rare in sites attributed to the Kawaiisu and was probably primarily acquired through trading. Basket making was a strong tradition among the Kawaiisu, who used numerous types of baskets for food collecting, processing, and storage, including seedbeaters, burden baskets, winnowers, trays, hoppers, and a variety of containers (Zigmond 1986). Lithic materials for tool making, such as cherts, were likely obtained from areas near Red Rock Canyon, whereas obsidian appears to have been acquired through trade with groups who inhabited the area in the vicinity of the Coso Volcanic Field (east of the Sierra Nevada). Long-distance exchange with coastal areas is also evidenced by the presence of marine shell artifacts in some sites attributed to the Kawaiisu.

During the winter months, the Kawaiisu lived in *tomo-kahni*, circular, aboveground structures with vertical and transverse poles bound together and covered with brush, bark, and tule mats (Zigmond 1986). Other structures included open, flat-roofed shade houses (*havakahni*) used for summer habitation, sweathouses (*tivikahni*), circular brush enclosures, and small granaries.

The Kawaiisu practiced a distinctive style of polychromatic (multicolored) rock art that shares many attributes with that of the Chumash (Lee and Hyder 1991). Teddy Bear Cave (CA-KER-508) is the best studied Kawaiisu rock art site, located along the west edge of Sand Canyon, approximately 12 miles (19 km) northeast of Tehachapi. The site is in the Nettle Spring archaeological complex, which also includes a large habitation area (CA-KER-230), along with numerous other localities. CA-KER-230 is characterized by numerous rock rings, more than 400 bedrock mortars, and numerous panels of rock art. Nearby sites include small camps, additional rock art localities, and a cremation site, all of which are

potentially related to the Nettle Spring complex. Teddy Bear Cave is important in the oral history of the Kawaiisu as the place where their people and the world were created (Sutton 2001).

Euro-Americans began flocking to the area in 1849 with the start of the California Gold Rush; and gold was actually "discovered" in Kawaiisu territory in the 1850s, resulting in a scatter of mining claims across their traditional lands (Zigmond 1994). Today, the Kawaiisu consist of approximately 250 members living in California's Sierra Nevada foothills. The Kawaiisu have never been consigned to a reservation and are not federally recognized, though they continue to seek federal recognition (Zigmond 1994). The remaining Kawaiisu speakers are predominantly elders who have been working to keep their culture alive with language and cultural revitalization programs. The Kawaiisu Language and Cultural Center was established as a 501(c)3 nonprofit organization in 2007. The center's mission is to have the Kawaiisu native language spoken in their Native communities once again (Kawaiisu Language and Cultural Center 2018). They currently refer to themselves as the Kawaiisu Tribe of the Tejon Indian Reservation, or the Kawaiisu Tribe of Tejon, although the Tejon Indian Tribe is a federally recognized tribe (Kawaiisu Tribe of Tejon 2021; Tejon Indian Tribe 2021). The Kawaiisu Tribe is also part of the Kern Valley Indian Community, along with the Tübatulabals of Kern Valley, and the Nuui Cunni Inter-Tribal Cultural Center, which includes tribal members from several local tribes, in addition to a number of other tribal associations and organizations (Audubon California, Kern River Preserve 1998; Nuui Cunni 2021; Tübatulabals of Kern 2021).

SOUTHERN PAIUTE/CHEMEHUEVI

Southern Paiute is a linguistic and cultural group who inhabited the northern Southwest and the southeastern Great Basin regions and are distinctly separate from the Northern Paiute, who speak a mutually unintelligible language (Bunte and Franklin 1994). The Southern Paiute also are related to the Shoshonean Plateau and belong to the Southern Numic branch of the Uto-Aztecan linguistic family, which includes 15 subgroups: Antarianunts, Kaiparaowits, San Juan, Kaibab, Shiwits, Uinkaret, Saint George, Gunlock, Cedar, Beaver, Panaco, Pahranagat, Moapa, Las Vegas (including Pahrump), and Chemehuevi (Kelly and Fowler 1986). Some ethnographers consider the Chemehuevi a separate group from the Southern Paiute, though the differences between them and other Southern Paiute groups are minimal and are generally attributed to cultural adaptations to localized environmental variation (Theodoratus et al. 1998). Additionally, Kroeber (1925:593, 595) considered the Chemehuevi to be "Southern Paiutes," suggesting close ties and cultural similarities between these groups; noting that the Chemehuevi and Southern Paiute called themselves Nüwü, meaning "people," and corresponding to the Mono and Northern Paiute term Nümü. The traditional territory of the Southern Paiute is vast, ranging from the Colorado Plateau to the Mojave Desert, including the Colorado River basin and multiple small mountain ranges, and encompasses a great deal of environmental variation (Kelly and Fowler 1986).

Southern Paiute subsistence was centered on gathering and hunting what was available in their local environments. The inherent environmental differences of the territories occupied by various Southern Paiute groups were reflected in the resources they exploited for subsistence as well as in the procurement strategies they employed (Theodoratus et al. 1998). Primary dietary resources included mostly small-game animals, such as rabbits and tortoises, in addition to rodents, lizards, and possibly other reptiles, as well as fish and mountain sheep, along with a variety of seeds and mescal (Kelly and Fowler 1986; Kroeber 1925). The Southern Paiute exploited a variety of flora, including piñon nuts and agave, for food. Additionally, some groups practiced small-scale agriculture, growing maize, squash, and winter wheat among other things (Kelly and Fowler 1986; Kroeber 1925). By the time of European contact, the Southern Paiute had optimal irrigation systems and had been farming for centuries along the Colorado River (Stoffle and Zedeño 2001:234). The Southern Paiute were skilled basket weavers. They used baskets to carry a wide variety of resources, ranging from seeds to berries, and they carried water in finely woven baskets sealed with pine pitch (National Park Service 2018). The basic socioeconomic unit of the

Southern Paiute was the family household. Centralized political hierarchy was not recorded for this group during the ethnohistoric period, though it was noted that households would cooperate during hunting and gathering activities. Immediately after marriage, matrilocal residence was common, though in the longer term most would permanently settle near the husband's relatives (Kelly and Fowler 1986).

At the time of Euro-American contact, Southern Paiute territory stretched across Arizona, Utah, Nevada, and California, though the 10 modern Paiute groups retain only a small portion of their traditional territory, with tribal members living in many varied communities both on and off reservations (Bunte and Franklin 1994). Five Utah based bands or groups united to form a larger tribal entity, the Paiute Tribe of Utah; the San Juan Paiute Tribe maintains communities in Arizona and Utah; the Kaibab Paiute Tribe has a reservation in Arizona, north of the Grand Canyon; and the Moapa, Las Vegas, and Pahrump Tribes reside in southern Nevada, with the Pahrump being the only non–federally recognized modern Southern Paiute group. In California, the Twenty-Nine Palms Band of Mission Indians are a federally recognized tribal entity, including many descendants of the Chemehuevi people (Twenty-Nine Palms Band of Mission Indians 2021).

The Chemehuevi culture was closely tied to the Shoshone of the Great Basin; however, Kroeber (1925) notes strong Yuman influence in material culture, and religious similarities with the Mohave. Chemehuevi were hunter-gatherers for the most part though some were river agriculturalists who moved into the Colorado River valley during the Early Historic period (Moratto 2004). Their social organization was generally flexible and based on the nuclear family with kinship ties uniting several families for annual rounds and seasonal gatherings to harvest particular resources, possibly forming small villages during winter. The economy was based on seasonal movements to harvest available plant and animal resources, often spanning large distances. The agriculturalists who settled along the lower Colorado baked pots; however, they are better known for making a variety of basketry items similar in coiling style to the people from the San Joaquin Valley as they used a similar type of woody willow fibers, rather than the reedy Juncus used by the Cahuilla and Luiseño to the west (Kroeber 1925). Although no known specimens survive, accounts indicate the Chemehuevi fashioned a unique style of bow that was distinctly shorter than the Mohave self-bow with recurved ends, painted back, the middle wrapped, and a sinewbacking (Kroeber 1925).

At the turn of the twentieth century, the Chemehuevi lived on Cottonwood Island, around Beaver Lake, the Needles area, and Chemehuevi Valley (Bean and Vane 1994). Some tribal members were also living on the Colorado River Indian Tribes Reservation, the Twentynine Palms Reservation, and in the Coachella Valley. The Special Committee on Chemehuevi Affairs was formed in the late 1960s. They proceeded to write a constitution that was approved in 1971 and had the Chemehuevi Indian Reservation located in Chemehuevi Valley set aside for the group. Initial enrollment included 312 Chemehuevi, and around 600 people living at the Colorado River Indian Tribes Reservation identified as being part Chemehuevi. Currently, the Chemehuevi occupy the Chemehuevi Reservation on the Colorado River and are also represented on the Morongo Indian Reservation, the Cabazon Indian Reservation, the Agua Caliente Indian Reservation, and the Colorado River Indian Tribes Reservation. Additionally, many members live in various cities and towns across inland southern California (Bean and Vane 1994).

3.5.3.3 Historic Setting

AMERICAN SETTLEMENT IN THE MOJAVE DESERT

The project site is in north-central San Bernardino County in the Mojave Desert. The name San Bernardino originates from the Spanish missionaries of Mission San Gabriel who named the area in 1810 for Saint Bernardino of Siena. In 1819, San Bernardino Mission was established by the Spanish near present-day Redlands, California. Mexico achieved its independence from Spain in 1821, and in 1842, the

35,509-acre Rancho San Bernardino was granted to José del Carmen Lugo, José Maria Lugo, Vicente Lugo, and Diego Sepulveda by Governor Juan B. Alvarado (Hoffman 1862). The non–Native American population of California increased during the Mexican period because of the influx of explorers, trappers, and ranchers associated with the land grants. The first American known to travel through the Mojave Desert was trapper Jedediah Smith in 1826. He nicknamed the Mojave River the "Inconstant River" because it frequently disappeared beneath the surface (Langum 1987).

The United States and Mexico went to war in 1846, ending with the Treaty of Guadalupe Hidalgo in 1848, which ushered California into its American period. California was granted statehood with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Nevada and Arizona) as U.S. territories. In April 1853, San Bernardino County was organized from parts of Los Angeles and San Diego counties, and the City of San Bernardino became the county seat in 1854. Although portions of San Bernardino and San Diego counties were used to create Riverside County in 1893, San Bernardino County remains the largest county in California and in the United States (Nevin 1974; Stein 1994).

During the mid-to-late nineteenth century, some isolated desert stagecoach stops were transformed into communities due to the advent of irrigated agriculture, growth of the mining industry, and establishment of railroad routes through the region. In San Bernardino County, Barstow, for instance, prospered as a supply center for nearby mines due to its proximity to the Santa Fe Railroad. Though only having a population of about 300 in the 1890s, Barstow had a post office, stage services, telegraph and telephone services, several general stores, and a large hotel. Similarly, Mojave acted as a transportation center for transporting borax and other minerals from Death Valley throughout southern California. Victorville, another city in San Bernardino County, also has its origins as a supply depot for nearby mines and as a railroad stop (Caltrans 2010). In addition to larger communities like Barstow and Victorville, there were many small camps and supply points that grew into smaller towns during the late nineteenth and early twentieth centuries, such as Baker, California.

BAKER

The proposed project site is in the vicinity of Baker, California, located roughly seven miles to the northeast. Baker began as a stop on the Tonopah and Tidewater Railroad (T&T) in 1908, named for thenpresident of the railroad, Richard C. Baker. In 1929, prospector and entrepreneur Ralph Jacobus Fairbanks founded the town of Baker at the same location. Fairbanks was also responsible for the founding of several other communities in the Mojave Desert around this time (Caltrans 2010:38; Kindig 2012; Orr 2023a, 2023b). Shortly after the founding of Baker, several businesses were established in the town to support tourism in the Mojave Desert and motorists between Los Angeles and Las Vegas. Throughout its history, Baker has relied on its role as a stopover for travelers between these two cities, to Mojave National Preserve, and to Death Valley National Park. However, Baker has seen a decline in population between 2010 and 2020 (Orr 2023a, 2023b; World Population Review 2024). As Baker is the nearest census-designated place, some of the properties in the study area have Baker addresses; however, the closest unincorporated community is Beacon Station.

BEACON STATION

Little information was uncovered on Beacon Station, which presently is comprised of a gas/service station, an adjacent single-family residence, and a few manufactured homes on one parcel adjacent to and southeast of I-15. The place name "Beacon Station" appears to have originated from the location of a Federal Aviation Administration beacon in the vicinity. Although it is not depicted on earlier U.S. Geological Survey (USGS) maps, a 1983 map describes an "Old FAA Beacon" northeast of the small development known as Beacon Station (USGS 1983). This was one of many beacons that assisted pilots

traveling in the region as there was a landing field located northeast of Baker as early as 1929 (Freeman 2024). Beacon Station appears to have originated as a stopover for travelers with the establishment of the service station by the late 1920s (Mohawk Rubber Company 1929). The earliest property owner and station operator that was identified was William J. Foley who filed a homestead claim in April 1932, for which a patent was issued in 1935, for 160 acres in the northwest quarter of section 14 in township 12 north, range 7 east. However, by 1936, Foley no longer operated the service station (*Desert Dispatch* 1934; Ancestry 2024; General Land Office 1935).

The service station was operated by Ray V. and Stella Cooley by 1936, and it was referred to as Cooley's Beacon Station (*Desert Dispatch/Barstow Printer* 1936; *San Bernardino County Sun* 1939). A fire in 1939 and construction of I-15 in the 1960s resulted in various buildings at Beacon Station being demolished, added and/or moved over the decades (*Barstow Printer* 1939; *San Bernardino County Sun* 1939, 1963, 1964). The extant buildings at Beacon Station were constructed in the early 1960s according to county assessor records. Available aerial imagery from 1952 through 2020 indicates the area has only ever had a few buildings (NETRonline 2024; UCSB Library 1952). Considered with the limited known residents of the community, this indicates that the only permanent residents of Beacon Station have most likely been the owners of the gas/service station and hospitality business.

TRANSPORTATION IN THE MOJAVE DESERT

Wagon roads and railroads developed across California's Colorado and Mojave deserts between the 1840s and the 1870s connected coastal California with the rest of the county. These modes of transport served to carry mail, miners, entrepreneurs, merchants, immigrants, laborers, muleteers, settlers, and military personnel as well as supplies, livestock, produce, timber, and minerals produced by desert mines, among other necessities. Often small communities were established, supporting and relying on these new transportation corridors. During the early and mid-twentieth century, permanent roadways were constructed across the desert trails and wagon roads due to the increased use of the automobile.

An important travel route in the region was the Mojave River Trail, named the Old Spanish Trail by Captain John C. Fremont in 1844. Starting in Santa Fe, New Mexico, and continuing through Utah and Arizona, the trail then crossed the Mojave Desert to reach Mission San Gabriel Arcángel and Los Ángeles. Frémont's is the first account to use the name "Mojave River" (Frémont 1845). Establishment of wagon routes in the vicinity of the project site dates to 1853–1854, when U.S surveyors investigated the feasibility of routes through the Mojave Desert. This survey effort included a party led by Lieutenant Robert S. Williamson, which began at the western side of the Mojave Desert and continued to Soda Lake. The U.S. General Land Office (GLO) returned to the area for additional survey between 1855 and 1857. In 1857 and 1858, Edward F. Beale crossed the Mojave through this area, using the route that would become the Mojave Road (Old Government Road, Mojave Freeway). With the advent of the automobile, many of the old wagon and railroad stopover towns became common stopovers for new automobile travelers. Beale crossing the Mojave via this route twice proved its viability (Nystrom 2003).

Development of railroad networks throughout the United States was spurred by immigration, agriculture, and industrial growth during the mid-to-late nineteenth century. Railroad surveyors first visited the Southern Californian deserts in the 1850s, but it was not until 1868, after the Civil War, that congressional approval was given for a railroad charter. The SPRR reached the extreme southwest corner of San Bernardino County in 1876. The Atlantic and Pacific Railroad (later the Atchison, Topeka, and Santa Fe [AT&SF]; now the Burlington Northern Santa Fe) soon crossed the central part of the county. The Southern California Railway linked Barstow to San Diego in 1885, and San Bernardino was connected to Los Angeles in 1885 and to the eastern states in 1887 via the AT&SF through Barstow and Needles. Communities typically developed along these railroad routes spaced roughly every 15-20 miles (Mead & Hunt 2011:E-4; Upland Savings and Loan Association 1973).

Two smaller railroads of the nineteenth century that operated through the Mojave Desert crossed near the project site—the T&T and the San Pedro, Los Angeles, and Salt Lake Railroad (SPLA&SL, also known simply as the Salt Lake Route). Both railroads supported industry in the region during the early twentieth century. T&T operated from 1904 to 1940 and primarily transported borax, a major mining export of Death Valley at the time. T&T spanned from Ludlow, California in the south to Goldfield, Nevada in the north. It had a stop named Rasor near the project site, another stop a few miles north called Soda Lake, and a stop in Baker, seven miles northeast of the project site (San Bernardino County 2020:A-1, A-3; Kindig 2012; Tonopah and Tidewater Railroad Company ca. 1907). SPLA&SL incorporated in 1901 and operated under this name from 1905-1916 when it became the Los Angeles and Salt Lake Railroad (SLR). The construction of SPLA&SL was intended, by founder and mining magnate William A. Clark, to connect the port of San Pedro, California with Salt Lake City, Utah in support of mining and agriculture. SPLA&SR had a stop near Soda Springs at Crucero, roughly 5 miles south of the project site. Development of SLR was integral to the founding of Las Vegas, Nevada. Under the designation SLR, the railroad operated until 1976 (Signor 1988:12–13, 34, 37, 223).

A segment of I-15 travels through the project site. I-15 is a major transportation route connecting California and Nevada, and the primary state highway from San Bernardino County to Nevada. The highway alignment which passes through the project site and continues northeasterly through Baker has had several designations since it was originally developed in 1925: legislative route number (LRN) 31, U.S. Route 91, and Highway 466 (Faigin 2023a, 2023b). The alignment is said to follow a route taken by early Mormon travelers in the late 1800s, and it was later improved in the twentieth century as part of the Arrowhead Trail Highway (*San Bernardino County Sun* 1925:11; Urbana Preservation & Planning 2021).

The earliest designation for the stretch of highway adjacent to the project site was LRN 31. The route that would become LRN 31 dates to 1915, however, the segment through Barstow had not yet been constructed and was not part of the state highway system at that time (Faigin 2023b; Mead & Hunt 2011:E-8). The Arrowhead Trail Highway was established between 1917 and 1920 (Urbana Preservation & Planning 2021). In 1925, the route was extended to the Nevada state line from Barstow and codified as LRN 31. That segment between Barstow and the Nevada state line was also cosigned as U.S. 91/U.S. 466 (Faigin 2023b). Originally, the segment was routed through Daggett, a few miles southeast of Barstow, but by 1931 was rerouted through Barstow (Faigin 2023a).

The former highway was later consumed by I-15 which replaced U.S. 91/U.S. 466. "With the completion of the freeway, remaining portions of U.S. 91 were relegated to frontage road status. Segments of the Arrowhead Trail are still extant; however, the original alignment has been substantially changed by multiple freeway construction projects" (Urbana Preservation & Planning 2021). Construction of the present-day four-lane interstate between Barstow and Baker (including the segment adjacent to the project site) occurred between 1964 and 1965 (AA Roads 2024). Additional related highway infrastructure that was developed adjacent to the project site includes on- and off-ramps, and the Rasor Road overcrossing.

UTILITY INFRASTRUCTURE

In 1928, the U.S. Congress enacted the Boulder Canyon Project Act supporting a comprehensive federal reclamation project which included authorizing construction of a dam on the Colorado River and a canal to irrigate the Imperial Valley, as well as hydroelectric power generation (Urbana Preservation & Planning 2021). Funding for the project was authorized in mid-1930, and construction began in 1931. To supply power to the dam site and the construction town that housed workers, the Southern Sierras Power Company was hired to construct an approximately 222-mile-long power line from San Bernardino in southern California. Completed in 1931, this is now known as the Boulder Dam-San Bernardino Transmission Line (Urbana Preservation & Planning 2021). Although the dam is often referred to as Boulder Dam, it was officially named Hoover Dam.

The project site is in an area that sustains a utility corridor referred to as Corridor 27-225 which spans from near Daggett, California to near Jean, Nevada, generally following the alignment of I-15. In California, the corridor is adjacent to the Mojave National Preserve for approximately 40 miles. The corridor is approximately 113 miles long and has a varying width along its alignment, from over 10,500 feet wide in California to 3,500 feet wide in Nevada. Containing electrical transmission and pipelines, the corridor is one link in a much larger energy transportation system spanning from southern California to Wyoming (Section 368 Interagency Workgroup 2019).

BLM records indicate that right-of-way for telegraph, telephone and electrical lines were established in the area in the first half of the twentieth century (BLM, n.d.-1, n.d.-2). As early as 1915, one of the first transcontinental telephone lines was built through the region. Early in the establishment of all manner of utility lines, priority was often placed on acquiring rights of way for both land transportation and electric conduction at the same time. As a result, many early roads were followed by transmission and communications lines adjacent to their paths. Typically, the lines remained in place and relevant throughout World War I and the Great Depression to the late World War II era. Starting in the 1960s, upgrades to insulation technology allowed lines to be buried. During the Cold War, as part of strategic and technological upgrades to AT&T's transcontinental system, cables in the area were buried and repeating equipment was built every four miles, housed in a concrete vault below a tin shed. Further upgrades were made in the ensuing decades as improved technology eventually eliminated the need for hard wire telephones (Nystrom 2003).

Two high-pressure pipelines were constructed between the 1960s and 1970s within the corridor to convey petroleum products between the Los Angeles and Las Vegas areas, supporting the latter city's development and tourism industry. These pipelines consist of an 8-inch diameter pipeline constructed in the early 1960s and a 14-inch diameter pipeline constructed in the mid-1970s. The smaller, older pipeline was shut down when the newer, larger pipeline was put into service; however, due to high demand, the older pipeline was reactivated 10 years later (Nystrom 2003; Kinder Morgan 2007).

More recently, underground fiber optic cable lines have been developed within the corridor which are capable of carrying greater amounts of information. The last quarter of the twentieth century saw notable advancements in the telecommunications industry including cellular, cable television, and satellite service, followed by internet service. By the 2000s, fiber broadband was widely available to maximize broadband speeds, and a decline in traditional voice lines was seen (NTCA 2024; Federal Communications Commission 2024).

3.5.4 Methods and Identification of Cultural Resources

3.5.4.1 Archaeological Resources

For the purposes of the archaeological resource analysis, the study area consists of the project site and gen-tie line linear facility, along with a 200-foot-wide buffer around the project site and substation and a 50-foot-wide buffer along the gen-tie alignment. The definition of the archaeological study area is consistent with the CEC application requirements for proposed projects.

CALIFORNIA HISTORICAL RESOURCES INFORMATION RECORDS SEARCH

SWCA completed confidential searches of the California Historical Resources Information System (CHRIS) records at the South Central Coastal Information Center (SCCIC) on the campus of California State University, Fullerton, which houses the records for San Bernardino County. Initial record searches were conducted by SWCA staff on January 11 and 17, 2023, with supplemental record searches undertaken on November 4 and 11, 2024, respectively.

The records searches were conducted as a supplement to the earlier records searches which were completed as part of the original Class III inventory (Duke and Patterson 2009). The purpose of the updated record searches was to identify previously conducted cultural resource surveys and all previously recorded cultural resources within the project site, including, where possible, their potential eligibility for the CRHR. The CHRIS centers maintain records of previously documented archaeological resources and technical studies; they also maintain copies of the OHP's portion of the Historic Resources Inventory. The records search also contained a buffer of 1.0 mile (1.6 km) around the project site and 0.25 mile (0.4 km) around the linear gen-tie line.

SACRED LANDS FILE SEARCH

Acting as the CEQA lead agency, the CDFW initially contacted the Native American Heritage Commission (NAHC) on August 2, 2022, to obtain an Assembly Bill 52 consultation list and conduct a review of the Sacred Land File (SLF) to determine whether any NAHC-listed Native American sacred lands are located within or adjacent to the project area. The NAHC is charged with identifying, cataloging, and protecting Native American cultural resources, which include ancient places of special religious or social significance to Native Americans, and known ancient graves and cemeteries of Native Americans on private and public lands in California. The NAHC's inventory of these resources is known as the SLF. The contents of the SLF are strictly confidential, and SLF search requests return positive or negative results. Following receipt of the NAHC contact list, the CDFW sent outreach letters to tribal representatives.

On January 4, 2023, SWCA contacted the NAHC for an updated review of the SLF.

BURIED SITE SENSITIVITY ANALYSIS

A buried site sensitivity analysis was undertaken to evaluate the potential for buried archaeological sites in the project area. As part of this study, geological data were reviewed to identify the age of landforms mapped within the Soda Mountain area (Bedrossian et al. 2012). Following Byerly et al. (2018:10), the main working assumptions underlying this analysis were: 1) archaeological sites are not buried within landforms that developed prior to human presence in the region around 13,500 cal B.P. (Rosenthal and Meyer 2004a, 2004b); 2) the potential for buried archaeological sites generally increases as the age of the surface landform decreases; and 3) the density of human populations increased over time resulting in increased numbers of archaeological sites on the landscape. Working under these assumptions, the potential for older landforms to contain buried sites is lower than it is for younger landforms because the amount of time for human occupation was shorter for older landforms compared to the younger ones.

Other environmental factors considered in the analysis include proximity to viable water sources, topographic setting, and the distribution of important subsistence resources. Precontact occupation sites are most often associated with relatively level landforms that occur near perennial streams, especially those located at or near the confluence of two or more channels (Pilgram 1987:44–47). Precontact sites are also expected to be concentrated near water sources such as lakes, creeks, and wetlands where plant and animal populations are generally more diverse and concentrated (Byerly et al. 2018:10).

ARCHAEOLOGICAL RESOURCES SURVEY

As discussed previously, Class III cultural resources inventories of the project site and adjacent areas were completed by Far Western in 2009 and 2012 (Duke and Patterson 2009; McCabe 2013). The studies documented a number of archaeological resources in the current project site, most of which date to the historic period and consist of isolated or small scatters of roadside refuse (see discussion in Section 3.5.5.1). The only prehistoric resources identified by Far Western in the current project site were a few isolated flaked stone artifacts. Based on these findings, it appears that the project site exhibits a low

sensitivity for prehistoric archaeological resources with a moderate to high sensitivity for historic-era archaeological remains.

The existing survey coverage and results of Far Western's studies informed the field methods that were employed by SWCA for identifying archaeological resources in the project site. As discussed below, SWCA used a combination of reconnaissance and intensive survey methods to obtain an updated inventory of archaeological resources in the study area. The surveys were completed as three separate field work effort in 2023 and 2024. A summary of the methods employed in each of the field efforts is provided below.

Between February 13 and 15, 2023, SWCA archaeologists conducted a reconnaissance survey of the original 1,490-acre project site and adjacent areas (total of 1,849 acres), which has been previously surveyed by Far Western (Duke and Patterson 2009; McCabe 2013). These areas encompassed four solar array fields that were connected by access roads with an associated gen-tie line (Figure 3.5-1). During the survey, the previously mapped locations of archaeological resources within the project site were revisited and their current conditions were assessed. As part of this effort, the archaeologists also intensively surveyed a 100-meter (m) (328-foot) radius around each of the previously plotted locations of the resources using 15-m (49-foot) survey transects.

Following completion of the reconnaissance survey, the applicant expanded the project site to encompass 2,670 acres (Figure 3.5-1). Examination of the revised project boundary revealed two small sections of land, totaling 54 acres, that extended beyond the areas previously surveyed by Far Western (Duke and Patterson 2009; McCabe 2013). In response to this discovery, SWCA archaeologists conducted a supplemental intensive pedestrian survey of the 54 acres along the southern boundary of the project site on June 17 and 18, 2024 (Figure 3.5-1). During the survey, they also revisited an archaeological resource that had been previously recorded in the area. Survey transects were spaced at 15 m (49-foot) intervals, although spacing was reduced to 3 to 5 m (10–16 feet) within the vicinity of the site to adequately define and characterize the resource.

The shift in the CEQA lead agency from the CDFW to the CEC prompted a third round of fieldwork which was conducted between November 18 and December 6, 2024. These efforts included Class III pedestrian surveys for the portions of the project site and the CEC's required buffer areas that had not been subject to the February 2023 reconnaissance work or the June 2024 intensive pedestrian survey. Two different survey methods were used in this fieldwork effort: 1) 15-m (49-foot) transect intervals were used to survey the portions of the CEC's required buffer areas that had not been previously surveyed by Far Western (236 acres), and 2) 30-m (98-foot) transect intervals were used to survey the remaining portions of the project site (890 acres). Figure 3.5-1 depicts the areas that were surveyed using these two inventory methods.

During the surveys, SWCA archaeologists examined the ground surface for precontact artifacts (e.g., flaked stone tools, toolmaking debris, stone milling tools, ceramics, fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions, features indicative of the current or former presence of structures or buildings (e.g., standing exterior walls, post holes, foundations), and historic-era artifacts (e.g., metal, glass, ceramics). Additionally, surveyors investigated any unusual landforms, contours, features (e.g., road cuts and drainages), and rodent burrows for evidence of buried cultural deposits. For the purposes of this study, one or more cultural features or four or more artifacts greater than 45 years of age within a 25-square-meter (269-square-foot) area were classified as an archaeological site. Cultural features or clusters of artifacts more than 30 m (98 feet) away from the nearest known cultural resource were generally considered a separate resource. An isolated find is defined as three or fewer artifacts within a 25-square-meter (269-square-foot) area. All newly identified archaeological resources were recorded on appropriate Department of Parks and Recreation (DPR) 523



Figure 3.5-1. Summary of survey work.

forms. A DPR update was completed for each revisited resource that confirmed or corrected information on its location, spatial extent, and general character.

A GPS receiver with submeter accuracy was used to accurately survey and map archaeological resources. A map of each archaeological site was drawn to scale, indicating the location of activity loci, features, and temporally or functionally diagnostic artifacts. For small sites, generally those comprising less than 10 objects, each artifact was individually plotted using the GPS unit. In cases of large sites with artifact counts exceeding 25 objects, a representative sample was characterized and mapped to provide a representation of artifact distribution across the site. Artifact concentrations, such as refuse dumps, were mapped as polygons or single-point features. Spatially discrete artifact concentrations were mapped, assigned a unique number, and photographed. All precontact flaked stone tools, ground stone, and all diagnostic or unique historic artifacts were assigned an artifact number, photographed, and mapped. Precontact artifacts were measured in metric units, typically using either millimeter or centimeter increments. Historic artifacts were recorded using U.S. customary units in sixteenth-inch increments. No artifacts were collected during the fieldwork efforts.

3.5.4.2 Built Environment Historical Resources

For the purposes of the built environment historical resource analysis, the study area consists of the project site and gen-tie line linear facility, and a surrounding 0.5-mile radius, consistent with the CEC application requirements for historic architecture field surveys for projects in rural areas.

BACKGROUND AND ARCHIVAL RESEARCH

SWCA architectural historians conducted background and archival research to understand historical development in the proposed project site and surrounding area. Built environment properties and linear features were identified through the review of Public Land Survey System data, BLM Master Title Plat maps and Historical Index data, the BLM National Data ArcGIS map, USGS topographic maps, and aerial imagery. The desktop review identified 16 built environment resources within the architectural study area. These include seven previously documented built environment resources and nine newly identified properties/features.

Information collected as part of the archival research effort was also used to develop the historic contexts and individual property histories that are presented in the Historical Resources Assessment Report (HRAR) (Appendix G). Sources consulted by SWCA include CHRIS records search results, regional and local histories, existing cultural resources studies, historical maps and aerial photographs, and newspaper and photographic archives. Online repositories consulted included the San Bernardino County Assessor, University of California Santa Barbara (UCSB) Library Geospatial Collection, Online Archive of California, Calisphere, HathiTrust Digital Library, Newspapers.com, BLM General Land Office (GLO) records, Ancestry.com, and other databases and sources.

HISTORICAL SOCIETY OUTREACH

To identify historic-era cultural resources in the project vicinity that may be listed or recognized by the County or local historical archaeological societies or museums, SWCA reviewed the Cultural Resources Element of the San Bernardino County's (2022) Countywide Plan. In addition, SWCA sent outreach letters on October 21 and November 8, 2024, to the following local historical societies and museums: Mojave River Valley Museum, the Mojave Desert Heritage & Cultural Association, the Western American Railroad Museum, the Daggett-Calico Historical Society, and the Desert Discovery Center. The letters provided a project description and a project location map and requested that the organizations contact SWCA if they had any information regarding known or potential historical cultural resources

within the project site or study area that may be adversely impacted by the proposed project. Follow-up correspondence was sent on November 5 and 6, 2024, and follow-up calls were made on December 31, 2024.

HISTORICAL RESOURCES SURVEY

On June 20 and November 26, 2024, an architectural historian conducted intensive and reconnaissancelevel surveys of built environment properties and linear features over 45 years old within the study area for architectural/built environment resources. The 16 properties and linear features identified by the desktop analysis were visited during the survey. These include a gas/service station and residential property, a former AT&T facility, a segment of I-15, five segments of transmission lines, a segment of a telephone line, segments of the Arrowhead Trail Highway, four roads, a pipeline and its associated access road, and a segment of a system of Southern California Edison (SCE) access roads.

Each of these properties and features was documented using digital photographs, a GPS unit, and field notes. The nine newly identified built environment resources were recorded on appropriate DPR 523 forms. A DPR update was completed for three previously recorded resources that were revisited. No additional documentation was prepared for four previously recorded resources, three of which were recorded and evaluated within the last five years, and the fourth being a transmission line that has an existing SHPO determination of eligibility.

3.5.5 Results

3.5.5.1 CHRIS Records Search

The results of previously conducted records searches at the SCCIC indicate that 23 cultural resource studies have been conducted within the records search area, 14 of which intersect the project site (Table 3.5-2).

Report Number	Other ID	Title	Author: Affiliation	Year	Proximity to Project Site
SB-00046	1060046	Mohave Desert Pipeline Survey	Grosscup, Gordon L., and Jack E. Smith: –	1960	Within
SB-00874	1060874	An Archaeological Sampling of the Proposed Allen-Warner Valley Energy System, Western Transmission Line Corridors, Mojave Desert, Los Angeles and San Bernardino Counties, California and Clark County, Nevada	Barker, James P., Carol H. Rector, and Philip J. Wilke: Archaeological Research Unit, UCR	1979	Within
SB-01080	1061080	Archaeological Survey Report: Three Material Source Sites Along 115 in the Eastern Mojave Desert	Hammond, Stephen R.: –	1981	Within
SB-01219	1061219	An Archaeological Survey of the Proposed Southern California Edison Ivanpah Generating Station, Plant Site, and Related Rail, Coal Slurry, Water and Transmission Line Corridors, San Bernardino County, California, and Clark County, Nevada	Hall, Matthew C., Philip J. Wilke, Doran L. Cart, and James D. Swenson: Archaeological Research Unit, UCR	1981	Within

Table 3.3-1. FIIOL Cultural Resource Studies within Records Search Area	Table	3.5-1.	Prior	Cultural	Resource	Studies	within	Records	Search	Area
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Report Number	Other ID	Title	Author: Affiliation	Year	Proximity to Project Site
SB-01220	1061220	The Ivanpah Generating Station Project: Ethnographic (Native American) Resources	Bean, Lowell John, Sylvia Brakke Vane, and Jackson Young: Cultural Systems Research, Inc.	1981	Within
SB-01381	1061381	An Archaeological Survey of the Proposed Barstow to Las Vegas Race Course	Musser, Ruth A., and Mark Q. Sutton: –	1983	Within
SB-01413	1061413	Cultural Resource Assessment for MCI Telecommunications Proposed Soda Lake Area Microwave Tower Site and Access Road	Smith, Gerard: –	1983	Outside
SB-01479	1061479	Mead/Mccullough-Victorville/Adelanto Transmission Project Technical Report: Volume IV, Cultural Resources	Dames & Moore: Dames & Moore	1985	Outside
SB-01551	1061551	Class III Archaeological Survey of Pro- Peace Proposed Lunch and Camp Sites, San Bernardino County, California	-: UC Riverside Archaeological Research Unit	1986	Within
SB-01734	1061734	And Paleontological Resources Survey: Us Sprint Fiber Optic Cable Project, Rialto, California To Las Vegas, Nevada	Shackley, M. Steven, Rebecca McCorkle Apple, Jan Wooley, and Robert E. Reynolds: Dames & Moore	1987	Within
SB-01825	1061825	Cultural Resource Survey and Clearance for AT&T's Proposed Construction 29 Vault Locations Along Portions of the Socorro to Mojave "A" Cable Line from Needles, California to Kramer Junction, California	-: Peak & Associates, Inc.	1988	Within
SB-01834	1061834	Class II Archaeological Survey of the Rasor Off-Highway Vehicle Area, San Bernardino County, California	Bouey, Paul E., and M.C. Hall: Far Western Anthropological Research Group, Inc.	1988	Within
SB-02220	1062220	Archaeological Sites of the California Desert Area (Owlshead, Amargosa Mojave Basin Planning Unit, Phase I-III): Archaeological Sample Unit Records	-: Bureau of Land Management	1978	Outside
SB-02315	1062315	A Cultural Resource Assessment for Ten Proposed Pac Tel Microwave Tower Sites I-15/Barstow to Mountain Pass	Cook, John, and Drew Pallette: Brian F. Mooney and Associates	1991	Outside
SB-02470	1062470	A Cultural Resource Assessment for Thirteen Proposed Pac Tel Microwave Tower Sites I-15/Barstow to Mountain Pass	Cook, John, and Drew Pallette: Brian F. Mooney and Associates	1991	Outside
SB-02597	1062597	Kern River Cultural Resources Survey Report Cima Road and Rasor Road Stockpile Areas San Bernardino County, California	-: Dames and Moore	1991	Within
SB-03163/ SB-03673	1063163/ 1063673	A Cultural Resources Assessment of Three Proposed Air Touch Microwave Tower Sites at Rasor Road, San Bernardino County, and Corn Springs Road and Wiley's Well Road, Riverside County, California	-: Brian F. Mooney and Associates	1996	Outside

Soda Mountain Solar Project Environmental Impact Report Section 3.5 Cultural Resources

Report Number	Other ID	Title	Author: Affiliation	Year	Proximity to Project Site
SB-03668	1063668	Class III Cultural Resources Inventory for LA Dept of Water & Power-Mead to Adelanto Transmission Line Project: Stateline & Baker Divisions. 218PP	York, Andrew, W.G. Spaulding, D. Powers, L. Peterson, G. Davis, and T. Wahoff: Dames & Moore	1995	Outside
SB-06489	1066489	Rasor Road, Rasor Road and I-15, Baker, San Bernardino County, California	Wilkens, Roberts: IVI Due Diligence Services, Inc.	2009	Outside
SB-06730	1066730	Seismic Retrofit of Three Bridges on Interstate 15 in San Bernardino County: Afton Canyon Road, Basin Road and Rasor Road	Jones, Gary: CalTrans	2010	Outside
SB-06731	1066731	Cultural Resources Inventory of 6,775 Acres for the Soda Mountain Solar Project, San Bernardino County, California, BLM Report No. 680-09-24	Duke, Daron, and Brandon Patterson: Far Western	2009	Within
SB-07573	1067573	Cultural Resources Inventory of an Additional 335 Acres for the Soda Mountain Solar Project, San Bernardino County, California.	McCabe, Allen: –	2013	Within
SB-07980	1067980	Archaeological Survey Report for the Interstate 15 Median Regrade Project from East Yermo Crossing to the Nevada State Line, San Bernardino County, California EA 0C040	Heidelberg, Kurt: CALTRANS	2005	Within

The CHRIS records search identified 68 previously documented cultural resources within the records search area, 42 of which intersect the project site (Table 3.5-3). The previously documented cultural resources within the project site consist of two historic-era transmission lines (P-36-010315 and P-36-028522), a multicomponent site with both a prehistoric component and a historic built environment component (P-36-007689), a historic-era site (P-36-02720), and 38 isolated finds.

Table 3.5-2. Previousl	y Recorded Cultural Resources	within Records Search Area

SCCIC Primary No.	Trinomial	Resource Age	Resource Type	Description	Year Recorded (Recorder)	Proximity to Project Site
P-36-007689	CA-SBR- 7689/H	Prehistoric, Historic	Site	Arrowhead Trail Highway	1993 (A. York, Dames & Moore); 1997 (Neal Neuenschwander, Peak & Associates, Inc); 2001 (K. Swope, Caltrans Dist 8); 2009 (J. Berg, Far Western); 2010 (J. Howard, ECORP); 2011 (W. Jones, ECORP); 2011 (W. Jones, ECORP); 2011 (P. Stanton, SRI); 2012 (G. Cardenas, CH2M Hill); 2012 (G. Cardenas, CH2M Hill); 2012 (A. McCabe, Far Western); 2012 (B. Bartram, Chambers Group, Inc); 2013; (-); 2014 (K. Lindgren, ECORP); 2016 (Daniel Ballester, CRM TECH); 2020 (None, Urbana)	Within

SCCIC Primary No.	Trinomial	Resource Age	Resource Type	Description	Year Recorded (Recorder)	Proximity to Project Site
P-36-010315	CA-SBR- 10315H	Historic	Structure, Site	Edison Company Boulder Dam-San Bernardino Electrical Transmission Line	1988 (N. Neuenschwander, Peak & Associates, Inc); 1989 (J. Brock, Archaeo Advisory Group); 1993 (–); 1997 (Neal Neuenschwander, Peak & Associates); 1997 (Carrie Wills, WSA); 2006 (Roger Hatheway, Hatheyway & Associates); 2008 (–); 2008 (Jay K. Sander, Chambers); 2009 (Stephen Pappas, ECORP); 2010 (J. Howard, ECORP); 2011 (J. Howard, ECORP); 2011 (J. Howard, ECORP); 2011 (J. Howard, ECORP); 2011 (J. Howard, ECORP); 2012 (C. Bodmer, Chambers Group, Inc); 2013 (C. Higgins, Far Western); 2013 (C. Higgins, Far Western); 2013 (M. O'Neill, Pacific Legacy); 2014 (Wendly L. Tinsley Becker, Urbana Preservation & Planning); 2015 (Audry Williams, SCE); 2018 (Carole Denardo, L&L)	Within
P-36-020718	CA-SBR- 13346	Prehistoric	Site	Trail or footpath and an associated cleared circle	2009 (–, Far Western)	Outside
P-36-020719	CA-SBR- 13347	Prehistoric	Site	Rock alignment of twelve stones	2009 (–, Far Western)	Outside
P-36-020720	CA-SBR- 13348H	Historic	Site	Historic assemblage dating from the 1910s to 1970s with four loci and several features and dumps	2009 (B. Patterson, Far Western); 2012 (A. McCabe, Far Western)	Within
P-36-020721	CA-SBR- 13349	Prehistoric	Site	A cleared circle located on a desert pavement surface atop an ancient alluvial fan finger	2009 (–, Far Western)	Outside
P-36-023488		Prehistoric	Isolate	Lithic flake	2009 (–, Far Western)	Outside
P-36-024396		Historic	Isolate	Gas can	2009 (–, Far Western)	Within
P-36-024397		Historic	Isolate	Rock alignment	2009 (–, Far Western)	Within
P-36-024398		Prehistoric	Isolate	Chert unifacial flaked tool	2009 (–, Far Western)	Within
P-36-024399		Historic	Isolate	Quart-sized can	2009 (–, Far Western)	Within
P-36-024400		Prehistoric	Isolate	Core reduction flake	2009 (–, Far Western)	Outside
P-36-024401		Historic	Isolate	Remnant of wooden billboard	2009 (–, Far Western)	Outside
P-36-024403		Prehistoric	Isolate	Lithic flake	2009 (–, Far Western)	Within
P-36-024404		Prehistoric	lsolate	Single reduction locus of 13 white cryptocrystalline silicate reduction flakes	2009 (–, Far Western)	Within
P-36-024406		Historic	Isolate	Glass insulator	2009 (–, Far Western)	Outside

SCCIC Primary No.	Trinomial	Resource Age	Resource Type	Description	Year Recorded (Recorder)	Proximity to Project Site
P-36-024407		Prehistoric	Isolate	Core reduction flake	2009 (–, Far Western)	Outside
P-36-024408		Prehistoric	Isolate	Lithic flake	2009 (–, Far Western)	Outside
P-36-024409		Historic	Isolate	Vent-hole evaporated milk can	2009 (–, Far Western)	Within
P-36-024410		Historic	Isolate	Vent-hole evaporated milk can	2009 (–, Far Western)	Within
P-36-024411		Historic	Isolate	Vent-hole evaporated milk can	2009 (–, Far Western)	Within
P-36-024412		Historic	Isolate	Lid	2009 (–, Far Western)	Within
P-36-024413		Historic	Isolate	1955 benchmark sitting within a rock cairn	2009 (–, Far Western)	Within
P-36-024414		Historic	Isolate	Vent-hole evaporated milk can	2009 (–, Far Western)	Within
P-36-024415		Historic	Isolate	Multi-serve sanitary food can	2009 (–, Far Western)	Within
P-36-024416		Historic	Isolate	Gas can top with metal spout	2009 (–, Far Western)	Within
P-36-024417		Prehistoric	Isolate	Projectile point	2009 (–, Far Western)	Within
P-36-024418		Historic	Isolate	Disintegrating rubber tire	2009 (–, Far Western)	Within
P-36-024419		Historic	Isolate	Powder can	2009 (–, Far Western)	Within
P-36-024420		Historic	Isolate	Knife-opened paint can	2009 (–, Far Western)	Within
P-36-024421		Historic	Isolate	Knife-opened sanitary food can	2009 (–, Far Western)	Within
P-36-024422		Historic	Isolate	Knife-opened food can	2009 (–, Far Western)	Within
P-36-024423		Historic	Isolate	Church key-opened beverage can	2009 (–, Far Western)	Outside
P-36-024424		Historic	Isolate	Church key-opened beverage can	2009 (–, Far Western)	Within
P-36-024425		Historic	Isolate	3-gallon fuel can	2009 (–, Far Western)	Within
P-36-024426		Historic	Isolate	Single-serve sanitary food can	2009 (–, Far Western)	Within
P-36-024427		Historic	Isolate	Starter fluid can with screw top spout	2009 (–, Far Western)	Within
P-36-024428		Historic	Isolate	5-gallon fuel can	2009 (–, Far Western)	Within
P-36-024429		Historic	Isolate	Single-serve sanitary food can (opened with can opener)	2009 (–, Far Western)	Within
P-36-024430		Historic	Isolate	Miscellaneous Domestic appliance part/ Mechanical part	2009 (–, Far Western)	Within
P-36-024431		Historic	Isolate	Vent-hole evaporated milk can	2009 (–, Far Western)	Within
P-36-024432		Historic	Isolate	Baby milk can (dating from 1917 to 1930)	2009 (–, Far Western)	Within

SCCIC Primary No.	Trinomial	Resource Age	Resource Type	Description	Year Recorded (Recorder)	Proximity to Project Site
P-36-024433		Historic	Isolate	Fuel can	2009 (–, Far Western)	Within
P-36-024434		Historic	Isolate	Vent-hole evaporated baby milk can	2009 (–, Far Western)	Outside
P-36-024435		Historic	Isolate	Automatic glass chemical bottle	2009 (–, Far Western)	Within
P-36-024436		Historic	Isolate	Baby milk can (dating from 1917 to 1930)	2009 (–, Far Western)	Within
P-36-024437		Historic	Isolate	A three tab-top bottle with metal lid	2009 (–, Far Western)	Within
P-36-024438		Historic	Isolate	Vent-hole evaporated baby milk can	2009 (–, Far Western)	Within
P-36-024439		Historic	Isolate	Military refuse	2009 (–, Far Western)	Outside
P-36-024449		Prehistoric	Isolate	Lithic flake	2009 (–, Far Western)	Outside
P-36-024450		Prehistoric	Isolate	Obsidian biface	2009 (–, Far Western)	Outside
P-36-024451		Historic	Isolate	Metal milk can	2009 (–, Far Western)	Outside
P-36-024452		Prehistoric	Isolate	Cryptocrystalline biface	2009 (–, Far Western)	Outside
P-36-024453		Prehistoric	Isolate	Unifacial ground stone	2009 (–, Far Western)	Outside
P-36-024454		Historic	Isolate	Rock cairn	2009 (–, Far Western)	Outside
P-36-024455		Historic	Isolate	Evaporated milk can	2009 (–, Far Western)	Outside
P-36-024456		Prehistoric	Isolate	Single reduction locus of white cryptocrystalline lithics	2009 (–, Far Western)	Outside
P-36-024457		Historic	Isolate	One-gallon glass-lined metal thermos	2009 (–, Far Western)	Outside
P-36-025535		Historic	Isolate	Hole-in-cap can	2009 (–, Far Western)	Within
P-36-025536		Historic	Isolate	Blown, brown alcohol bottle break	2012 (–, Far Western)	Within
P-36-025537		Historic	Isolate	Hole-in-cap can	2012 (–, Far Western)	Within
P-36-025538		Historic	Isolate	Two hole-in-cap cans	2012 (McCabe, A., –)	Within
P-36-028478		Historic	Isolate	Church key-opened flat-top beverage can	2012 (G. Granger, Chambers Group, Inc)	Outside
P-36-028479		Historic	Isolate	Caltrans survey marker	2012 (G. Granger, Chambers Group, Inc)	Outside
P-36-028480		Historic	Isolate	Three-piece beverage can	2012 (G. Granger, Chambers Group, Inc)	Outside
P-36-028481		Historic	Isolate	Colorless glass insulator attached to a wooden dowel	2012 (G. Granger, Chambers Group, Inc)	Outside
P-36-028516	CA-SBR- 28516H	Historic	Site	Sparse refuse scatter made up of six flat-top steel beverage cans and a single one-quart oil can	2012 (C. Bodmer, Chambers Group, Inc)	Outside
P-36-028522	CA-SBR- 28522H	Historic	Structure, Site	Altered, overhead electrical transmission line that is currently in active service	2012 (C. Bodmer, Chambers Group, Inc)	Within

3.5.5.2 Sacred Lands File Search

On October 4, 2022, the CDFW received the results of an SLF search from the NAHC; the results were positive. The letter noted that the CDFW should contact the tribes listed on the Tribal Consultation List for more information on the presence of sensitive archaeological resources that may be present in the project site. On October 22, 2022, the CDFW sent letters to 35 individuals representing 29 tribal groups on the NAHC contact list. The CDFW received three responses that are summarized below.

- Nicole Raslich, Archaeological Technician at the Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Office, responded via email on November 7, 2022. N. Raslich stated that a records check of the Tribal Historic Preservation Office's cultural registry revealed that the project is not located within the Tribe's traditional use area. Therefore, the Agua Caliente Band of Cahuilla Indians defers to the other tribes in the area and concludes consultation with the CDFW.
- Jill McCormick, Historic Preservation Officer for the Fort Yuma Quechan Tribe, responded via email on November 28, 2022. J. McCormick noted that the Fort Yuma Quechan Tribe does not wish to comment on the project and defers to more local tribes and supports their determination on this matter.
- Deneen Pelton, Cultural Resources Department Coordinator for the Rincon Band of Luiseño Indians (Rincon Band), responded via email on November 29, 2022. D. Pelton stated that the project area is not within the Rincon Band's area of historic interest. At this time, the Rincon Band has no additional information to provide and recommended that tribes closer to the project area be contacted for pertinent information.

SWCA received the results of the updated SLF search from the NAHC on January 24, 2023. The results of the updated review were negative.

3.5.5.3 Historical Society Outreach

SWCA identified no historical resources within the project site or surrounding 0.50-mile area in the Cultural Resources Element of the San Bernardino County's (2022) Countywide Plan. Two responses were received from outreach efforts with local historical societies and museums. On November 7, 2024, Laura Misajet, Director of Museum Operations & Public Outreach for the Mojave Desert Heritage & Cultural Association, replied via email and stated that SWCA's email was forwarded to two of the museum's archive committee members and to Dave Nichols, the archaeologist at Mojave National Preserve. No additional correspondence has been received from the Mojave Desert Heritage & Cultural Association or D. Nichols. On November 15, 2024, Patricia Schoffstall of the Mojave River Valley Museum replied via email and stated objections to the project due to concerns about groundwater, big horn sheep, desert tortoise, birds and other natural elements, but did not have information or concerns regarding historical or cultural resources. Table 3.5-4 provides a summary of the outreach efforts.

3.5.5.4 Buried Site Sensitivity Analysis

Results of the analysis indicate that the archaeological study area is characterized by a low to moderate sensitivity for buried archaeological sites. The upper alluvial fan areas along the edges of the study area have a low potential for containing buried archaeological sites. Sensitivity increases as one moves down in elevation, with a moderate potential for buried archaeological sites found along the distal end (or toe) of the alluvial fans.

Four surficial geologic units are mapped in the archaeological study area: late to middle Pleistocene old alluvial fan deposits (Qof), Holocene to late Pleistocene young alluvial fan deposits (Qyf), late Holocene

Organization Name/ Contact Information	SWCA Outreach Efforts	Organization Response
Mojave River Valley Museum 270 East Virginia Way Barstow, California 92311 760-256-5452 https://mrvmuseum.org/contact/ mrvmuseum@gmail.com	10/21/2024: Outreach letter sent via email 11/05/2024: Follow-up email sent	11/15/2024: Patricia Schoffstall of the Mojave River Valley Museum replied via email and stated the organization had objections to the project because of negative impacts to groundwater, big horn sheep, desert tortoise, native birds, and other natural elements in the vicinity. SWCA replied via email, stated that we understand those concerns, but this particular study is focused on historic buildings and structures.
Mojave Desert Heritage & Cultural Association 37198 Lanfair Road # G-15 Essex, California 92332-9786 760-733-4482 info@themojaveroad.org	10/21/2024: Outreach letter sent via email 11/05/2024: Follow-up email sent	11/07/2024: Laura Misajet, Director of Museum Operations & Public Outreach, replied via email and stated she forwarded SWCA's email to two of the museum's archive committee members and to Dave Nichols, the archaeologist at Mojave National Preserve. SWCA has not received any additional contact.
Western America Railroad Museum 685 North First Street Barstow, California 92311 760-256-9276 https://barstowrailmuseums.com/	10/21/2024: Outreach letter sent via U.S. mail 11/06/2024: Follow-up call made; left message 12/31/2024: Follow-up call made; could not leave message.	No response as of the date of this report.
Daggett-Calico Historical Society P.O. Box 105 Daggett, California 92327 760-254-2201 https://daggetthistoricalsociety.org	10/21/2024: Outreach letter sent via U.S. mail 11/06/2024: Follow-up call attempted; number not in service 12/31/2024: Follow-up call attempted; number not in service.	No response as of the date of this report.
831 Barstow Road Barstow, California 92311 760-252-6060	via U.S. mail	"undeliverable." (SWCA checked the address and verified it was correct). No email address was located as an alternate delivery method.

Table 3.5-4. Summary of Historical Society Outreach Efforts

alluvial fan deposits (Qf), and Holocene to late Pleistocene eolian and dune deposits (Qye) (Bedrossian et al. 2012). Approximately 5 percent of the project site is characterized by late to middle Pleistocene old alluvial fan deposits (Qof). These landforms are composed of alluvium likely deposited prior to human occupation of the area and therefore probably have very low sensitivity for buried archaeological resources. Approximately 60 percent of the project site is covered by gravel- and cobble-rich fan alluvium that was deposited in the Holocene to late Pleistocene (Qyf). Although these deposits are likely young enough to contain prehistoric archaeological material, the apex and upper portions of the alluvial fans were formed in high-energy depositional environments where site preservation is unlikely. As a result, these areas probably have low sensitivity for intact, buried prehistoric sites. The distal end of the fans, which are characterized by finer-grained deposits, display an increased, or moderate, potential for buried archaeological resources due to the lower energy deposition of sediments in this area.

The remainder of the project site (35%) is dominated by lower energy fan deposits (Qf) and eolian and dune deposits (Qye), most of which date to the late Holocene. The lower energy deposition associated with the formation of these sediments, along with their young age, indicate geomorphological conditions conducive to the presence of buried prehistoric sites. However, the lack of a perennial water source suggests that the project site would not have been considered a highly attractive place for past human use

and occupation. Rather, it is expected that prehistoric groups would have been drawn to the springs that were present along the margins of Soda Lake several miles to the east (Honke et al. 2019). In addition to providing a reliable water source, the springs fed wetland areas that would have supported diverse and concentrated plant and animal populations. Given these findings, the young alluvial fan deposits (Qf), as well as young eolian and dune deposits (Qye), are classified as having only a moderate potential to contain intact buried prehistoric archaeological sites.

3.5.5.5 Archaeological Resources Survey

ARCHAEOLOGICAL SITES

Two previously recorded sites (P-36-007689 and P-36-020720), one previously recorded isolate (P-36-024425) reclassified as a site, and 15 newly identified archaeological sites were documented in the archaeological study area (Table 3.5-5).

The Arrowhead Trail Highway (P-36-007689) was found to be in generally the same condition as reported by Duke and Patterson (2009) and McCabe (2013). The resource was previously determined eligible for the CRHR under Criteria 1 and 3 (BLM 2016). However, the segment that intersects the project site was found to lack sufficient integrity to convey its significance and thus, is considered to be a non-contributing element. The revisit to site P-36-020720 by SWCA resulted in the documentation of additional artifacts outside the previously recorded site boundary. Site P-36-020720 had been previously determined not eligible for the CRHR under all criteria due to low integrity and low informational potential (BLM 2016). SWCA concluded that the site remains not eligible for the CRHR as no significant features were identified during the revisit. Rather, the historic-era refuse identified by SWCA appears to represent secondary deposits of artifacts that were transported downslope from the central portion of the site by erosion and alluvial processes. SWCA concurs with the previous findings that site P-36-020720 lacks sufficient integrity due to physical deterioration and modern impacts and contains little informational value.

The one previously recorded isolate (P-36-024425) was reclassified as a site due to the discovery of additional associated artifacts. The site consists of historic refuse scatter containing seven metal cans and an oil filter. An evaluation of significance found that P-36-024425 does not meet any of the criteria for listing on the CRHR.

Primary No.	Trinomial or Temp No.	Temporal Affiliation	Resource Description	CRHR Status
P-36-007689	CA-SBR-7689/H	Prehistoric/ Historic	Arrowhead Trail Highway with associated features and refuse scatters that include prehistoric and historic-era artifacts	Determined eligible for the CRHR; portion of resource in project site is non-contributing
P-36-020720	CA-SBR-13348H	Historic	Artifact assemblage dating from the 1910s to 1970s with four loci and several features and dumps	Determined not eligible for CRHR
P-36-024425	-	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-002	Historic	Abandoned road, cleared area, and associated refuse	Not eligible for CRHR
-	SWCA-68347-S-003	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-004	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-005	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-006	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-007	Historic	Refuse scatter	Not eligible for CRHR

Table 3.5-5. Archaeological Sites within the Study Area

Primary No.	Trinomial or Temp No.	Temporal Affiliation	Resource Description	CRHR Status
-	SWCA-68347-S-010	Historic	Prospecting trench, spoils pile, and associated refuse	Not eligible for CRHR
-	SWCA-68347-S-012	Historic	Prospecting trench and spoils pile	Not eligible for CRHR
-	SWCA-68347-S-013	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-014	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-015	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-016	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-017	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-018	Historic	Refuse scatter	Not eligible for CRHR
-	SWCA-68347-S-019	Historic	Refuse scatter	Not eligible for CRHR

Finally, 15 newly identified sites within the archaeological study area. Most of these resources consist of historic-era refuse scatters located adjacent to I-15 that date to the 1960s and 1970s. At the time of Far Western's surveys, these resources were not of age for consideration for listing in the CRHR. SWCA also documented the remnants of a construction site associated with I-15 and two prospecting sites that may be historic in age. An evaluation of significance found that none of the newly identified archaeological sites meet any of the criteria for listing on the CRHR.

ISOLATED FINDS

Eighty-nine isolated finds were documented in the archaeological study area, consisting of nine resources that were previously identified and 80 resources that were newly identified (Table 3.5-6). As previously discussed, one previously identified isolated find (P-36-024425) was also reclassified as a site due to the discovery of additional associated artifacts. Most of the isolated finds consist of single or small numbers of historic cans or glass bottles. Many of the isolates that had been initially recorded by Far Western appear to have been transported downslope or were buried by recent alluvial and eolian processes. Isolated artifacts are typically recommended not eligible for the CRHR due to a lack of association and limited data potential.

SCCIC Primary No.	Temp No	Temporal Affiliation	Resource Description
P-36-024397	-	Historic	Rock alignment
P-36-024404	-	Prehistoric	Single reduction locus of 19 chalcedony flakes
P-36-024411	-	Historic	Vent-hole evaporated milk can
P-36-024417	-	Prehistoric	Rose Spring projectile point
P-36-024421	-	Historic	Knife-opened sanitary food can
P-36-024422	-	Historic	Knife-opened food can
P-36-024433	-	Historic	Fuel can
P-36-025535	-	Historic	Hole-in-cap can
P-36-025536	-	Historic	Blown, brown alcohol bottle break
-	SWCA-68347-ISO-0001	Historic	Knife-opened, hole-in-cap food can
-	SWCA-68347-ISO-0002	Historic	One hole-in-top milk can
-	SWCA-68347-ISO-0003	Historic	One bimetal pull-tab beverage can and one steel flat-top beverage can with church-key opening.

Table 3.5-6. Isolated Finds within the Archaeological Study Area

SCCIC Primary No.	Temp No	Temporal Affiliation	Resource Description
-	SWCA-68347-ISO-0004	Historic	One bimetal pull-tab beverage can and one steel 1-quart oil can
-	SWCA-68347-ISO-0005	Historic	Blasting powder can
-	SWCA-68347-ISO-0006	Historic	Knife-opened, hole-in-top food can
-	SWCA-68347-ISO-0007	Historic	One steel cone-top can
-	SWCA-68347-ISO-0008	Historic	Three bimetal cans
-	SWCA-68347-ISO-0009	Historic	One bimetal can and one crushed-steel flat-top can
-	SWCA-68347-ISO-0010	Historic	One steel flat-top beverage can
-	SWCA-68347-ISO-0011	Historic	One steel flat-top beverage can
-	SWCA-68347-ISO-0012	Historic	One hole-in-cap metal can
-	SWCA-68347-ISO-0013	Historic	One oil can, one steel-top sanitary can, and one bimetal can
-	SWCA-68347-ISO-0014	Historic	One oil can
-	SWCA-68347-ISO-0015	Historic	One church key–opened steel flat beverage can
-	SWCA-68347-ISO-0016	Prehistoric	One tertiary chalcedony flake
-	SWCA-68347-ISO-0017	Historic	One oil can
-	SWCA-68347-ISO-0018	Historic	Two 1-quart steel oil cans
-	SWCA-68347-ISO-0019	Historic	One 1-quart steel oil
-	SWCA-68347-ISO-0020	Historic	One church key-opened beverage can
-	SWCA-68347-ISO-0021	Historic	One 1-quart steel oil can
-	SWCA-68347-ISO-0022	Historic	One bimetal pull-tab beverage can
-	SWCA-68347-ISO-0023	Historic	One 1-quart steel oil can
-	SWCA-68347-ISO-0024	Historic	One church key–opened oil can
-	SWCA-68347-ISO-0025	Historic	Two 1-quart steel oil cans
-	SWCA-68347-ISO-0026	Historic	One knife-opened steel oil can
-	SWCA-68347-ISO-0027	Historic	One church key–opened steel oil can
-	SWCA-68347-ISO-0028	Historic	One church key–opened, 1-quart steel oil can
-	SWCA-68347-ISO-0029	Historic	One rectangular standing metal can
-	SWCA-68347-ISO-0030	Historic	One rectangular standing metal can
-	SWCA-68347-ISO-0031	Prehistoric	One secondary chalcedony flake
-	SWCA-68347-ISO-0032	Historic	One cone-top beverage can and one bimetal pull-tab beverage can
-	SWCA-68347-ISO-0033	Historic	One church key–opened beverage can and on3 bimetal pull- tab beverage can
-	SWCA-68347-ISO-0034	Historic	One bimetal pull-tab beverage can
-	SWCA-68347-ISO-0035	Historic	One bimetal pull-tab beverage can
-	SWCA-68347-ISO-0036	Historic	One bimetal pull-tab beverage can
-	SWCA-68347-ISO-0037	Historic	One rotary-opened sanitary food can
	SWCA-68347-ISO-0038	Historic	One knife-opened, 1-quart steel oil can
-	SWCA-68347-ISO-0039	Historic	One knife-opened oil can
	SWCA-68347-ISO-0040	Historic	One bimetal pull-tab beverage can
-	SWCA-68347-ISO-0041	Historic	One church key–opened metal oil can

SCCIC Primary No.	Temp No	Temporal Affiliation	Resource Description
-	SWCA-68347-ISO-0042	Historic	One bimetal pull-tab beverage can
-	SWCA-68347-ISO-0043	Historic	One steel flat-top beverage can and one bimetal pull-tab beverage can
-	SWCA-68347-ISO-0044	Historic	Two metal coffee cans
-	SWCA-68347-ISO-0045	Historic	One steel flat-top beverage can
-	SWCA-68347-ISO-0046	Historic	One church key–opened sanitary can
-	SWCA-68347-ISO-0047	Historic	One church key-opened steel flat-top beverage can
-	SWCA-68347-ISO-0048	Historic	One 1-quart oil can
-	SWCA-68347-ISO-0049	Historic	One cylindrical fuel can
-	SWCA-68347-ISO-0050	Historic	One bimetal pull-tab beverage can
-	SWCA-68347-ISO-0051	Historic	One church key–opened steel flat-top beverage can and one rotary-opened sanitary food can
-	SWCA-68347-ISO-0052	Historic	One steel flat-top beverage can and one bimetal beverage can
-	SWCA-68347-ISO-0053	Prehistoric	One chalcedony core and one primary flake
-	SWCA-68347-ISO-0054	Prehistoric	One chalcedony primary flake
-	SWCA-68347-ISO-0055	Historic	One standing meal fuel can
-	SWCA-68347-ISO-0056	Historic	One rectangular standing fuel can and one crushed sanitary can
-	SWCA-68347-ISO-0057	Historic	One 1-quart steel oil can
-	SWCA-68347-ISO-0058	Historic	Two fragmented amber glass beer bottles
-	SWCA-68347-ISO-0059	Historic	One metal oil can
-	SWCA-68347-ISO-0060	Historic	One 1-quart steel oil can
-	SWCA-68347-ISO-0061	Historic	One knife-opened metal oil can
-	SWCA-68347-ISO-0062	Historic	One church key–opened metal beverage can
-	SWCA-68347-ISO-0063	Historic	One 1-quart steel oil can
-	SWCA-68347-ISO-0064	Historic	One 1-quart steel oil can
-	SWCA-68347-ISO-0065	Historic	One knife-opened metal oil can
-	SWCA-68347-ISO-0066	Historic	One metal oil can, one sanitary can, and one bimetal pull-tab beverage can
-	SWCA-68347-ISO-0067	Historic	One colorless glass liquor bottle
-	SWCA-68347-ISO-0068	Historic	One knife-opened oil can
-	SWCA-68347-ISO-0069	Prehistoric	Four buffware ceramic sherds (from same vessel)
-	SWCA-68347-ISO-0070	Historic	One standing metal fuel can
-	SWCA-68347-ISO-0071	Historic	Two bimetal beverage cans
-	SWCA-68347-ISO-0072	Historic	Two crushed metal cans
-	SWCA-68347-ISO-0073	Historic	One sanitary food can and one blasting powder can
-	SWCA-68347-ISO-0074	Historic	One sanitary food can and two bimetal pull-tab beverage cans
	SWCA-68347-ISO-0075	Historic	One hole-in-top can and one steel flat-top beverage can
-	SWCA-68347-ISO-0076	Historic	One bimetal pull-tab beverage can, one hole-in-top can, and one steel flat-top metal can

SCCIC Primary No.	Temp No	Temporal Affiliation	Resource Description
-	SWCA-68347-ISO-0077	Historic	One large screwdriver-opened oil sanitary can
-	SWCA-68347-ISO-0078	Historic	Two bimetal beverage cans
-	SWCA-68347-ISO-0079	Historic	One bimetal beverage can and one large food can
-	SWCA-68347-ISO-0080	Historic	Two bimetal beverage cans and a screw-top fuel can

3.5.5.6 Historical Resources Survey

A total of 16 properties and linear features were documented in the architectural/built environment study area including a gas/service station and residential property, a former AT&T facility, a segment of I-15, five segments of transmission lines, a segment of a telephone line, segments of the Arrowhead Trail Highway, four roads, a pipeline and its associated access road, and a segment of a system of Southern California Edison (SCE) access roads (Table 3.5-7). Of these, nine properties/features were newly recorded and evaluated for potential historical significance using the criteria for the CRHR, and three previously recorded properties/features were revisited, and an updated record was prepared. One previously recorded resource has an existing SHPO determination of eligibility, therefore, no additional documentation was prepared as part of the HRA; and three properties/features had been previously recorded and evaluated within the last five years therefore no additional documentation was prepared as part of the HRAR. Additional details are provided below, including eligibility findings for each of the 16 properties and linear features. A more detailed discussion of the results is provided in the HRAR in Appendix G.

Primary No.	Common Name	Address or APN	Resource Description	Construction Date(s)	CRHR Status
-	Unknown	APN 054330103	Utility (former AT&T) facility	1962	Not eligible for CRHR
-	Shell gas station, Rasor Road Services	66150 Rasor Road, APN 054330201	Gas/service station, single-family residence, and two manufactured homes	1961, single-family residence 1962, gas/service station 1982, manufactured homes	Not eligible for CRHR
P-36- 010315	Edison Company Boulder Dam-San Bernardino Electrical Transmission Line	Not Applicable	Transmission line	1930–1931	Listed in CRHR
-	I-15	Not Applicable	Interstate highway	1964–1965	Eligible for CRHR
P-36- 028522	GG-001	Not Applicable	Transmission line	Unknown (between 1938 and ca. 1973)	Not eligible for CRHR
P-36- 007689	Arrowhead Trail (U.S. 91/U.S. 466)	Not Applicable	Highway	Circa 1917-1920	Determined eligible CRHR; the portion of the resource in the architectural study area is non- contributing
-	Rasor Road	Not Applicable	Road	Between 1933 and 1939	Not eligible for CRHR
-	BLM Road AC8825	Not Applicable	Road	Circa 1975	Not eligible for CRHR

Table 3.5-7. Summary of Built Environment Properties/Features in the Study Area

Primary No.	Common Name	Address or APN	Resource Description	Construction Date(s)	CRHR Status
-	BLM Road AC8826	Not Applicable	Road	Circa 1975	Not eligible for CRHR
-	BLM Road CL8845	Not Applicable	Road	Circa 1950	Not eligible for CRHR
-	Transmission Line within BLM ROW R02879	Not Applicable	Transmission line	Circa 1964	Not eligible for CRHR
-	Transmission Line within BLM ROW CACA53944	Not Applicable	Transmission line	Circa 1976	Not eligible for CRHR
-	Telephone Line within BLM ROW CACA57955	Not Applicable	Telephone line	Circa 1976	Not eligible for CRHR
-	Pipeline and BLM Road CL8837	Not Applicable	Pipeline and access road	Circa 1970	Not eligible for CRHR
-	SCE Access Road System	Not Applicable	Access road system	Circa 1930 with later additions	Not eligible for CRHR
-	Transmission Line within BLM ROW CACA53937	Not Applicable	Transmission line	Circa 1976	Not eligible for CRHR

3.5.6 Impact Analysis

3.5.6.1 Thresholds of Significance

The determinations of significance of project impacts are based on applicable policies, regulations, goals, and guidelines defined by CEQA. Specifically, the project would be considered to have a significant effect on cultural resources if the effects exceed the significance criteria described below:

- 1. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5;
- 2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5; and/or
- 3. Disturb any human remains, including those interred outside of dedicated cemeteries

Each of these thresholds is discussed under Section 3.5.6.3, Impact Assessment, below.

3.5.6.2 Applicant-Proposed Measures

The Applicant has identified and committed to implement the following APMs as part of the proposed Projects to avoid or substantially lessen potentially significant impacts to cultural resources, to the extent feasible. The APMs, where applicable, are discussed in the impact analysis section below.

APM CUL-1: Prior to any ground disturbing activities, the Applicant shall retain a qualified archaeologist, defined as one meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology and subject to approval by the BLM and CEC, to conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of cultural resources and tribal cultural resources that may be encountered, and of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological and tribal cultural resources. The

Applicant shall ensure that all construction personnel are made available for and attend the training and shall retain documentation demonstrating attendance. The training will also be presented in the form of a written brochure. The brochure shall be distributed to workers during the construction and operation of the proposed facility.

APM CUL-2: A Cultural Resources Discovery and Monitoring Plan (CRDMP) shall be developed at least 30 days prior to ground disturbing activities and implemented by an archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards for archaeology. The CRDMP shall detail provisions for the archaeological monitoring of Project construction. Archaeological monitoring during ground-disturbing activities shall be conducted by an archaeologist familiar with the types of historic and prehistoric resources that could be encountered within the Area of Potential Effect or project site, who shall have the authority to halt construction in the event of a discovery. The archaeological monitor shall work under the direct supervision of the qualified archaeologist. All cultural resources personnel will be approved by the BLM and CEC.

The CRDMP shall detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans, and assessing NRHR- and CRHR-eligibility in the event that unknown cultural resources are discovered during construction. The CRDMP shall require that the contractor immediately cease all work activities in the area (within 100 feet) of the discovery until it can be evaluated by a qualified archaeologist. After cessation of excavation, the contractor shall immediately contact the BLM Archaeologist and the CEC compliance project manager. The contractor shall not resume work until authorization from the BLM and the CEC is received.

If the qualified archaeologist, in consultation with BLM and CEC, determines that the discovery constitutes a historic property per Section 106 of the National Historic Preservation Act or a historical or unique archaeological resource under the California Environmental Quality Act, respectively, preservation in place shall be the preferred manner of mitigation (Public Resources Code §21083.2). In the event preservation in place is demonstrated to be infeasible, a treatment plan shall be prepared by the qualified archaeologist and shall be approved by the BLM and the CEC prior to implementation. The BLM and CEC shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. Archaeological materials recovered during any investigation shall be curated at an accredited curational facility. The CRDMP shall include provisions for reporting of monitoring and any treatment of resources in a timely manner.

APM CUL-3: If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the BLM Authorized Officer and CEC compliance project manager shall be informed immediately. The BLM shall ensure that any Native American human remains, funerary objects, sacred objects, and/or objects of cultural patrimony discovered on BLM administered lands during implementation of the Project will be treated in accordance with the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA) (Pub. L. 101-601, 25 USC § 3001 et seq.) and 43 CFR Section 10. Avoidance and protection of inadvertent discoveries that contain human remains through Project redesign shall be the preferred protection strategy.

3.5.6.3 Impact Assessment

Impact CR-1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5? (Less than Significant)

The historical resources assessment documented 16 built environment properties and linear features in the architectural study area. As summarized above, 14 of those properties and linear resources are ineligible

for the CRHR. Two are listed in or eligible for the CRHR and therefore qualify as historical resources for the purposes of CEQA: the Boulder Dam–San Bernardino Transmission Line (P-36-010315), and I-15.

Boulder Dam-San Bernardino Transmission Line (P-36-010315)

The Boulder Dam–San Bernardino Transmission Line is eligible under NRHP Criterion A for its association with the construction of Boulder/Hoover Dam, and under Criterion C as a rare example of low-voltage, long-distance electrical transmission. Its period of significance is 1930 to 1937 which corresponds to the transmission line's date of construction, powering of Boulder/Hoover Dam, and the reversal of power for delivery to the Los Angeles area. The resource's character-defining features include its linear alignment over a long distance, regular tower placement at 750-foot intervals linked by a continuous transmission line, and steel-lattice tower typology with eight distinct designs (Hodal 2020).

The project does not propose any alterations to features of the Boulder Dam–San Bernardino Transmission Line but would change the resource's setting due to the construction of project elements such as the solar arrays, BESS, substation, switchyard and fencing. While the majority of the project elements would be located on the east side of I-15 (in some areas up to approximately one mile away from the transmission line), the new switchyard would be located in closer proximity to the transmission Line as the switchyard would be constructed approximately 0.8 mile northwest of I-15, adjacent to the Mead-Adelanto 500 kV transmission line which the project proposes to connect to.

Most notably, the overall setting of the Boulder Dam–San Bernardino Transmission Line segment in the study area has been altered since the time of its original development in 1930-1931. Changes in its setting include the construction of the modern four-lane I-15, the associated on- and off-ramps and overcrossing; construction of the utility facility on APN 054330103 and the commercial and residential property on APN 054330201; and construction of additional transmission lines such as the Mead-Adelanto 500 kV transmission line and SCE Inn 12-kV transmission line. Many of these features were developed between the 1960s and 1990s.

Development of the project would not adversely impact the Boulder Dam–San Bernardino Transmission Line's character-defining features. The resource would retain its linear alignment, the regular placement of its towers and its continuous transmission line, and none of the towers would be physically altered. Although project elements would create a change in the resource's setting, the majority of the project elements would be located between approximately 0.5 to 1 mile away on the east side of I-15. In addition, the switchyard that would be developed adjacent to the transmission line would be compatible with existing electrical infrastructure and would not introduce incompatible elements to the resource's setting.

As described in the Regulatory Framework section of this report, under CEQA, a project that follows the SOI's Standards for the Treatment of Historic Properties is considered "as mitigated to a level of less than a significant impact on the historical resource" (14 CCR 15064.5). The proposed project does not propose direct alterations to the historic transmission line, but the Standards relevant to changes in surrounding setting are discussed below.

SOI Standard 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

The proposed project would construct new elements for the solar farm in the surrounding setting of the historic transmission line. No historic materials of the transmission line would be altered or destroyed. The new project elements would be differentiated from the old because the solar farm features would be constructed with contemporary materials and techniques. Proposed project

elements include solar arrays, a substation, BESS, switchyard, and an approximately 1.5 mile long gen-tie line. The majority of these proposed project elements would be located on the east side of I-15, between 0.5 mile and 1 mile from the historic transmission line, within a setting that is already extensively altered since the period of significance with continuous development in an otherwise rural and open desert landscape. The massing, size, and scale of proposed project elements would not overshadow the existing Boulder Dam-San Bernardino Transmission Line. In addition, the switchyard that would be developed adjacent to the historic transmission line would be compatible with existing electrical infrastructure as an extension of this historic use, while also being differentiated as new development, and would not introduce incompatible elements in close proximity.

SOI Standard 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

The project elements that are proposed to be constructed in the vicinity of the Boulder Dam–San Bernardino Transmission Line include solar arrays, a substation, BESS, switchyard, and an approximately 1.5 mile long gen-tie line. None of these project elements would directly alter the historic transmission line, and they could be removed in the future without impairing the form and integrity of the historic transmission line and its environment. Similarly, the removal of these elements would revert the overall setting to its existing condition.

Based upon the above assessment, the proposed project conforms with the relevant SOI's Standards for Rehabilitation, and the Boulder Dam–San Bernardino Transmission Line (P-36-010315)–a historical resource pursuant to CEQA–will retain the character-defining features and aspects of integrity that convey its historical significance. The proposed project would not cause a significant adverse impact to the historical resource.

I-15

A segment of I-15 crosses the architectural/built environment study area and a small portion of the project site where the gen-tie line would cross under the interstate. I-15 is eligible for the CRHR under Criterion 1 for its significant association with post-World War II highway construction in the Mojave Region and its important role in transportation and economic development. The I-15 segment's period of significance was identified as 1960 to 1975 (Urbana Preservation & Planning 2021).

Additionally, Caltrans has deemed I-15 bridges and an overcrossing within the current architectural/built environment study area ineligible for the NRHP (Caltrans Category 5 structures) including the Rasor Road overcrossing, and the north-bound and south-bound Opah Ditch bridges (Caltrans 2014). Research to date has not indicated that either the overcrossing or bridges, which are typical infrastructure elements within the setting of I-15, would be individually eligible for listing in the CRHR under any criteria.

As described in the HRAR, the interstate system as a whole is exempt from consideration as a historic property under Section 106 of the NHPA for Federal agency undertakings, with the exception of a limited number of individual elements that may be considered of importance – these include historic bridges, tunnels and rest areas that are a) at least 50 years old, possess national significance and meet the NRHP criteria, b) are less than 50 years old, possess national significance and meet the NRHP criteria, or c) were listed or determined eligible for listing in the NRHP by the Keeper prior to the effective date of the exemption.

The existing Advisory Council for Historic Preservation (ACHP) exemption for the Interstate Highway System was developed for federal agencies and historic preservation review under Section 106 of the

NHPA, yet the reason and purpose of the exemption can be applied to the current CEQA analysis. The Interstate Highway System is considered by the ACHP as significant to the transportation, commercial, and social history of the United States. However, the interstate system is approximately 46,700 miles long, and as the ACHP describes, the highway system has been evolving since its inception as it has been constructed, expanded, and upgraded to serve the transportation needs of the country (U.S. Government Publishing Office 2005).

While the current project does not propose direct alterations to I-15, the project would create a change in the setting of the highway due to construction and operation of the project elements on adjacent properties and roads such as solar arrays, BESS, substation, switchyard, fencing and culverts, and installing the gentie line beneath the highway. In line with the ACHP exemption (U.S. Government Publishing Office 2005), the changes to the setting of this approximately 5-mile-long highway segment can be considered minimal or not adverse when viewing the Interstate Highway System as a whole.

Consequently, the proposed project would not cause a substantial adverse change in the significance of any built environment historical resources. Atmospheric and auditory effects, which would be related to active project construction, would be temporary. Construction, operation and maintenance of the proposed project would not result in significant adverse impacts, either directly or indirectly, to historical resources in the study area. Impact CR-2: Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? (Less than Significant)

The archaeological assessment documented 18 archaeological sites and 89 isolated finds in the archaeological study area. Only one of these resources, the Arrowhead Trail Highway (P-36-007689), is eligible for listing on the CRHR. The portion of the resource that intersects the project site lacks sufficient integrity to convey its significance. As such, it is considered a non-contributing element to the historical resource. None of the other identified archaeological resources within the project site or adjacent buffer areas meet the criteria for listing on the CRHR. Therefore, construction activities associated with the project would not directly or indirectly impact significant archaeological resources under CEQA.

The buried site sensitivity analysis indicates that the project site has low to moderate sensitivity for buried archaeological resources. Thus, it is possible that construction activities could result in damaging or destroying unknown archeological resources. As outlined in APM CUL-1, a qualified archaeologist would provide cultural resources sensitivity training to the construction personnel for awareness and procedures to be enacted in the event of an inadvertent discovery of archaeological resources. In addition, APM CUL-2 requires development of a Cultural Resources Discovery and Monitoring Plan (CRDMP), which would outline archaeological monitoring, procedures for construction cessation, and provisions for reporting of monitoring and any treatment of resources in a timely manner.

Operation of the project would not require substantial ground-disturbing activities, such as grading or excavation; thus, it is not anticipated that project operation would encounter any unknown archaeological resources. Therefore, no additional direct or indirect impacts to archaeological resources are expected following the completion of construction activities.

Implementation of APM CUL-1 and APM CUL-2 would ensure that impacts to archaeological resources would be **less than significant**.

Impact CR-3: Would the project disturb any human remains, including those interred outside of dedicated cemeteries? (Less than Significant)

A review of the archaeological record search and results of recent surveys did not identify any human remains in the study area. The project site is not located on a known cemetery and no human remains are anticipated to be found or disturbed during the construction phase. However, although unlikely, the discovery of human remains is always a possibility during ground-disturbing activities; State of California Health and Safety Code (HSC) Section 7050.5 addresses these findings. APM CUL-3 provides protection for any human remains under the applicable codes for the treatment of human remains encountered during project construction, operation, and future decommissioning. HSC Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. Section 7050.5 prescribes the requirements for the treatment of any human remains that are accidentally discovered during the excavation of a site. The code section further requires that all activities cease immediately, and a qualified archaeologist and Native American monitor be contacted immediately. If the human remains are determined to be prehistoric, the County Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). The MLD shall complete the inspection of the site within 24 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. Compliance with APM CUL-3 and the established regulatory framework (i.e., HSC Sections 7050.5-7055 and PRC Sections 5097.98 and 5097.99) would ensure potential project impacts concerning human remains are less than significant. APM CUL-3 is supplemented by APM CUL-1 and APM CUL-2, which provide for archaeological monitoring and resource treatment.

Operation of the project would not require substantial ground-disturbing activities, such as grading or excavation; thus, it is not anticipated that project operation would encounter subsurface human remains. Therefore, impacts related to human remains during project operation are not anticipated.

Implementation of APM CUL-1 through APM CUL-3 would ensure that impacts to human remains would be **less than significant**.

3.5.7 Mitigation Measures

No mitigation measures are required.

3.5.8 Cumulative Impacts

Impact C-CR-1: Would the impacts of the proposed project, in combination with other past, present, and reasonably foreseeable future projects, contribute to a cumulative impact related to cultural resources? (Less than Significant)

Chapter 3, Table 3-1 lists the projects considered for the cumulative impact analysis. Construction and (to a lesser extent) operation of solar facilities within the county has the potential to directly damage cultural resources, including historic resources, archaeological resources, and human remains within the region. However, cumulative projects would be required to avoid or minimize impacts to cultural resources to the extent practicable pursuant to federal and State law, including CEQA. Given the project would have neither a direct impact or an indirect impact on cultural resources, it **would not contribute to or have a cumulative impact** on cultural resources.

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