

5.4 Cultural Resources

This section addresses the cultural resources impacts of construction and operation of the Ridgecrest Solar Power Project (RSPP or Project). The section covers the approximately 1,760-acre area that will be disturbed by construction and operation of the Project (including linear facilities) plus a 200-foot survey buffer around the plant site and a 50-foot survey buffer on both sides of the linears. Surveys were conducted of the the disturbance area plus buffers which constitute the Project's cultural resources Area of Potential Effect (APE). The water line route along China Lake Boulevard was established after field investigations were completed and additional surveys will be required. Similarly, changes in the Project footprint after the field investigations were completed led to changes in the buffer that also will require additional survey of buffer areas. Survey results will be provided to the California Energy Commission (CEC), Bureau of Land Management (BLM), and other stakeholders when the survey work is completed.

Cultural resources are defined as buildings, sites, structures, districts, and/or objects that have historical, architectural, archaeological, cultural, or scientific significance. Project cultural resources studies were conducted by qualified cultural resources professionals. Additional detail on the cultural resources assessments, including personnel qualifications, can be found in the Cultural Resources Technical Report (Class III Report), provided as Appendix G. The Architectural Survey Report is provided as Attachment 6 to the Cultural Resources Technical Report.

The cultural resources discussion presented in the following pages is intended to support compliance by the CEC with the requirements of the California Environmental Quality Act (CEQA), and by BLM with the requirements of the National Environmental Policy Act (NEPA). The two agencies are conducting a joint review of the Project and a combined CEQA/NEPA document will be prepared.

Summary

With implementation of planned additional investigations and appropriate mitigation measures, Project impacts on cultural resources would be expected to be less than significant. Based on archival research, systematic field surveys, and consultation with interested parties, 63 new archaeological sites and three built environment resources were inventoried for the Project. None of the built resources are significant; the potential exists for significant impacts as defined by CEQA at nine of the archaeological sites. All nine sites are prehistoric and consist of lithic scatters, lithic and groundstone scatters, or rock features. Potential adverse effects to the nine archaeological sites, under the National Historic Preservation Act (NHPA) would be addressed through *California Archaeological Resources Identification and Data Acquisition Program: Sparse Lithic Scatters* (CARIDAP) or consultation between BLM, the State Historic Preservation Officer (SHPO), and interested parties.

The eastern portion of the Last Chance Canyon Archaeological District, which is listed on the National Register of Historic Places (NRHP), currently covers about one-third of the western portion of the Project. No list is available of the individual sites that were nominated to the NRHP; however, BLM Archaeologist Don Storm has organized available data compiled a list of 79 sites, most of which have never received trinomial numbers and all of which are far to the southwest of the Project area.

If unanticipated archaeological and/or historical resources are discovered during construction, Project construction activities will be halted in the immediate vicinity so that the significance of these resources can be evaluated and appropriate mitigation measures implemented, if deemed necessary.

5.4.1 LORS Compliance

The Project will comply with applicable LORS throughout construction and operation. Applicable LORS are summarized in Table 5.4-1 and briefly discussed below.

Table 5.4-1 LORS Applicable to Cultural Resources

LORS	Applicability	Where Discussed In AFC
Federal		
Antiquities Act of 1906, 16 United States Code (USC) Sections 431- 433	Federal legislation for protection of cultural resources on Federal land.	Section 5.4.1
National Historic Preservation Act (NHPA), 16 USC Section 470 <i>et seq.</i>	Establishes national policy of historic preservation; requires that Federal agencies consider significant cultural resources prior to undertakings.	Section 5.4.1
Archaeological Resources Protection Act of 1979, 16 USC Sections 470aa-470mm	Provides protection for archaeological resources on public lands and Indian lands.	Section 5.4.1
Executive Order 11593 of May 13, 1971, 36 Federal Register 8921	Provides for protection and enhancement of the cultural environment.	Section 5.4.1
Secretary of Interior's Standards for Archaeology and Historic Preservation: 48 Federal Register 44716 (September 29, 1983)	Establishes guidelines for professional qualifications, technical reports, and standards for evaluation required by the SHPO.	Section 5.4.1
Federal Land Policy Management Act of 1976: 42 USC Sections 1701(a)(8) and 1740	Establishes that public lands be managed in a manner that will protect the quality of scientific, scenic, historical...and archeological values.	Section 5.4.1
Native American Graves Protection and Repatriation Act, 25 USC Sections 3001-3013	Provides for ownership of Native American graves and grave goods on Federal lands.	Section 5.4.1
American Indian Religious Freedom Act, 42 USC Section 1996	Provides protection of Native American religious practices.	Section 5.4.1
State		
CEQA, Public Resources Code (PRC) Section 21083.2	Requires public agencies to evaluate impacts to cultural resources; provides guidance for evaluating and mitigating impacts.	Sections 5.4.1, 5.4.3, and 5.4.4
CEQA Guidelines, Title 14 California Code of Regulations (CCR) Sections 15064.5, 15064.7, 15126.4(b), Appendix G Section V	<p>Addresses reburial options for Native American remains and provides for treatment of archaeological discoveries.</p> <p>Encourages agencies to develop thresholds of significance for environmental effects and outlines mitigation measures related to impacts on historical resources.</p> <p>Includes environmental checklist for identifying potential disturbances to cultural resources.</p>	Sections 5.4.1, 5.4.3, and 5.4.4

LORS	Applicability	Where Discussed In AFC
PRC Sections 5024.1, 5097.98, 5097.99, 5097.991, and 21084.1	Establishes the California Register of Historical Resources (CRHR). Discusses required procedures following discovery of Native American human remains; establishes that removal of Native American grave artifacts or remains is a felony and that is State policy to repatriate Native American grave artifacts. Provides a definition of historical resources, and states that a project's substantial adverse change to a historic resource may define a significant environmental impact	Sections 5.4.1, 5.4.3, and 5.4.4
Assembly Bill (AB) 2641 (2006)	Modifies the process that private land owners follow after discovering Native American human remains (set forth in California PRC 5097.98).	Sections 5.4.1, 5.4.3, and 5.4.4
Health and Safety Code (HSC) Sections 7050.5, and 8010-8011	Establishes notification procedures if human remains are discovered; requires halting construction and contacting the County Coroner.. Makes it a misdemeanor to disturb or remove human remains found outside a cemetery.	Sections 5.4.1, 5.4.3, and 5.4.4
Local		
Kern County General Plan, Section 1.10.3, Policy 25	Provides that the County will promote the preservation of cultural and historic resources.	Sections 5.4.1, 5.4.3, and 5.4.4
Kern County Code of Building Regulations Sections 17.48.060 and 17.48.370	Provides historic structure definition and provides direction on issuance of variances for the repair or rehabilitation of Historic Structures.	Sections 5.4.1, 5.4.3, and 5.4.4

5.4.1.1 Federal LORS

Antiquities Act of 1906, 16 USC Sections 431- 433

This Act establishes criminal penalties for unauthorized destruction or appropriation of “any historic or prehistoric ruin or monument, or any object of antiquity” on Federal land.

National Historic Preservation Act, 16 USC Section 470 et seq.

The National Historic Preservation Act (NHPA) sets in place a program for the preservation of historic properties. Section 106 of the NHPA requires Federal agencies to take in to account the effects of projects on historic properties (resources included in or eligible for the National Register of Historic Places [NRHP]). It also gives the Advisory Council on Historic Preservation and State Historic Preservation Officer (SHPO) an opportunity to consult. Federal agencies issuing permits for the Project would be required to comply with NHPA requirements.

Archaeological Resources Protection Act of 1979, 16 USC Sections 470aa-470mm

This Act provides protection of archaeological resources from vandalism and unauthorized collecting on Federal land.

Executive Order 11593 of May 13, 1971, 36 Federal Register 8921

This Executive Order focuses on the protection and enhancement of the cultural environment. It outlines responsibilities of the Federal agencies and Secretary of the Interior with regard to cultural resources.

Archeology and Historic Preservation: Secretary of Interior's Standards and Guidelines 48 FR 44716

This document establishes standards and guidelines regarding professional qualification requirements for archaeological and historic preservation professionals, technical report format and content, and standards for resource evaluation required by the SHPO.

Federal Land Policy Management Act of 1976, 43 USC Section 1701 et seq

The Federal Land Policy Management Act declares that it is the policy of the United States that public lands be managed so as to protect historical and archaeological resources, and that the Secretary of Interior shall establish rules and regulations regarding resource protection on public lands.

Native American Graves Protection and Repatriation Act, 25 USC Sections 3001-3013

Provides for the protection of Native American graves, funerary objects, and "objects of cultural patrimony" on Federal land and establishes the procedures for determining ownership for Native American human remains, funerary objects, and other sacred objects under Federal jurisdiction.

American Indian Religious Freedom Act, 42 USC Section 1996

This measure establishes a national policy to protect the right of Native Americans and other indigenous groups to exercise their traditional religions. Federal agencies issuing permits for the Project will be required to comply with this Act if Native Americans identify issues regarding their right to exercise traditional religious practices.

5.4.1.2 State LORS**CEQA, Public Resources Code Section 21083.2**

Under CEQA, the lead agency is responsible for determining whether a project may have a significant effect on historical and archaeological resources. Section 21083.2 states that if the lead agency determines that the project may have a significant effect on "unique" archaeological resources, an environmental impact report shall address these resources. A unique archaeological resource is an 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 one of the following criteria:

- A) Contains information needed to answer important research questions and that there is a demonstrable public interest in that information;
- B) Has a special and particular quality such as being the oldest or best example of its type; or
- C) Is directly associated with a scientifically-recognized important prehistoric or historic event or person.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require that reasonable efforts be taken to preserve these resources in place or provide mitigation measures. CEC licensing is a CEQA-equivalent process.

CEQA Guidelines, Title 14 California Code of Regulations Section 15064.5

State CEQA Guidelines define a "historical resource" to include:

- Resource(s) listed or eligible for listing on the California Register of Historic Resources (CRHR) (Title 14 California Code of Regulations [CCR] Section 15064.5(a)(1));
- Resource(s) either listed in the NRHP or in a “local register of historical resources,” unless “the preponderance of evidence demonstrates that it is not historically or culturally significant” (Title 14 CCR Section 15064.5(a)(2)); and
- Resources identified as significant in a historical resource survey meeting the requirements in section 5024.1(g) of the Public Resources Code (PRC) (Title 14 CCR Section 15065.5(a)(2)).

Subdivision (g) provides that:

[a] resource identified as significant in a historical survey may be listed in the CRHR if the survey meets all of the following criteria:

- 1) The survey has been or will be included in the State Historic Resources Inventory.
- 2) The survey and the survey documentation were prepared in accordance with...procedures and requirements [of the (California) Office of Historic Preservation].
- 3) The resource is evaluated and determined [by the Office of Historic Preservation] to have a significance rating of Category 1 to 5 [on the Department of Parks and Recreation (DPR) Historic Resources Inventory Form].
- 4) If the survey is 5 years or more old at the time of its nomination for inclusion in the California Register, the survey is updated to identify historic resources which have become eligible or ineligible due to changed circumstances or further documentation and those which have been demolished or altered in a manner that substantially diminished the significance of the resource.

Resources identified by such surveys are presumed to be historically- or culturally-significant unless the preponderance of evidence demonstrates otherwise.

- The final category of “historical resources” is discretionary with the lead agency:
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, education, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency’s determination is supported by substantial evidence in light of the whole record. (Title 14 CCR Section 15064.5(a)(3))

If initial studies identify the existence of, or the probable likelihood of, Native American human remains within the Project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission (NAHC). The Applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the NAHC (Title 14 CCR Section 15064.5(d)).

CEQA Guidelines, Title 14 CCR Section 15064.7

This section of the CEQA Guidelines encourages lead agencies to develop, publish, and implement thresholds of significance in order to standardize environmental assessments. Such thresholds must be adopted by ordinance, resolution, regulation or rule at the conclusion of a public review process.

CEQA Guidelines, Title 14 CCR Section 15124(b)

This section of the CEQA Guidelines states that where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified.

Formulation of mitigation measures should not be deferred until some future time. However, measures may specify performance standards which would mitigate any significant effects of the project and which may be accomplished in more than one specified way. This section also states that the preferred mitigation for historical resources is treatment in a manner consistent with Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. The preferred mitigation for archaeological sites is preservation in place.

CEQA Appendix G Section V

This appendix to CEQA is a checklist that identifies potential impacts to historical, cultural, or paleontological resources. The checklist includes four questions to assess whether the impacts of a project would be potentially significant:

- 1) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- 2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- 3) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- 4) Disturb any human remains, including those interred outside of formal cemeteries?

A project may be determined by the lead agency to be potentially significant, less than significant with mitigation, less than significant, or have no impact.

PRC Section 5024.1

This section of the PRC establishes the CRHR. A resource may be listed as a historical resource in the CRHR if it meets NRHP criteria or any of the following State 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. The 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 from substantial adverse change.

PRC Section 5097.98

This section of the PRC discusses the procedures that need to be followed upon the discovery of Native American human remains. The NAHC, upon notification of the discovery of human remains by the coroner, is required to notify those persons it believes to be most likely descended from the deceased Native American. It enables the descendant to inspect the site of the discovery of the Native American human remains and to recommend to the land owner (or person responsible for the excavation) means of treating, with dignity, the human remains and any associated grave goods.

Assembly Bill 2641 (2006)

Assembly Bill (AB) 2641 provides procedures for private land owners to follow upon discovering Native American human remains. Land owners are encouraged to consider culturally appropriate measures if they discover Native American human remains as set forth in California PRC 5097.98. AB 2641 further clarifies how the land owner should protect the site both immediately after discovery and into the future.

PRC Sections 5097.99 and 5097.991

These sections establish that it is a felony to obtain or possess Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions. They also mandate that it is the policy of the State to repatriate Native American remains and associated grave goods.

PRC Section 21084.1

This section sets forth that a project that may cause a significant adverse change in a significant historical resource is a project that may be considered to have adverse effects on the environment. Historical resources not listed on the CRHR or other local lists may still be considered historical resources at the discretion of the lead agency.

Health and Safety Code Section 7050.5

This code establishes that any person, who knowingly mutilates, disinters, wantonly disturbs, or willfully removes any human remains in or from any location without authority of the law, is guilty of a misdemeanor. It further defines procedures for the discovery and treatment of Native American remains.

Health and Safety Code Sections 8010-8011

This code establishes a State repatriation policy consistent with the implementation of the Native American Graves and Repatriation Act. The code extends policy coverage to non-federally recognized tribes, as well as federally recognized groups.

5.4.1.3 Local LORS**Kern County General Plan, Section 1.10.3, Policy 25**

This portion of the General Plan provides that the County of Kern will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors. There are five implementing measures (K through O) listed below.

- K. Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.
- L. The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.
- M. In areas of known paleontological resources, the County should address the preservation of these resources where feasible.
- N. The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.
- O. On a project specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

Kern County Code of Building Regulations Section 17.48.060.45

Item 45 defines a historic structure as any structure that is on the NRHP, or on a State inventory in a state with a historic preservation plan approved by the Secretary of Interior.

Kern County Code of Building Regulations Section 17.48.370

Subsection (B) provides that the County floodplain administrator is empowered to grant variances for the repair or rehabilitation of Historic Structures upon determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character of the structure.

5.4.1.4 Involved Agencies

Consistent with CEC requirements for AFC preparation, as indicated in Table 5.4-2, the NAHC was contacted regarding a check of their sacred sites inventory and to acquire a list of Native American contacts for the area. Cultural sites were identified in the vicinity of the Project. Contact information was provided for seven tribal representatives and contacts have been initiated with these representatives. To date one response has been received from Harold Williams, Chairperson of the Kern Valley Indian Council, requesting further communication. Follow-up contacts were made via telephone on August 5, 2009, where Mr. Williams indicated that he is no longer Chairperson and does not have any comments on the Project. He referred the Applicant's consultant to Robert Robinson and Ron Wermuth, who have previously been contacted as part of this ongoing program and who, to date, have not submitted responses. Please note that the BLM will also conduct Native American consultation as part of the NEPA process.

Table 5.4-2 Agency Contacts

Agency Contact	Phone/E-mail	Permit/Issue
David Singleton Native American Heritage Commission 915 Capitol Mall, Room 364 Sacramento, CA 95814	(916) 653-6251 nahc@pacbell.net	Native American cultural issues
Charles Lackey, Director Kern County Engineering & Survey Services Department Public Services Building 2700 "M" Street, Suite 570 Bakersfield, CA 93301-2370	(661) 862-5100 ess@co.kern.ca.us	Determines compliance with County grading, drainage, and building regulations
Don Storm, Archaeologist Bureau of Land Management 300 S. Richmond Road Ridgecrest, CA 93555	(760) 384-5422 Donald_Storm@ca.blm.gov	BLM Fieldwork Authorization Government to government Native American consultation

5.4.1.5 Required Permits and Permit Schedule

The Project is located on BLM land. Prior to all archaeological field investigations on BLM land, a Fieldwork Authorization Request must be filed and approved by the BLM. A Fieldwork Authorization was obtained on April 3, 2009 (permit number CA 06 21) for cultural resources studies of the Project site.

5.4.2 Affected Environment

These sections describe the Affected Environment for cultural resources for the Project.

5.4.2.1 Natural Environment

The Indian Wells Valley is bounded by the southern Sierra Nevada Mountains to the west, the El Paso Mountains to the south, the Argus Range and Searles Valley to the east, and the Coso Range to the north.

The oldest identified rock formations in the Mojave Desert consist of metamorphosed sedimentary rocks, including gneiss, marble, quartzite, mica schist, gabbro, and conglomerates of pre-Cambrian age. Rock types of the Paleozoic era (230 to 620 million years ago[mya]) include scattered sedimentary and carbonate rock, chert, limestone, sandstone gypsum and dolomite. Materials of this nature typically formed at the bottom of an ocean and yield fossils ranging from Cambrian to Permian in age. These rock materials are not abundant in the western Mojave, but substantial sections of Paleozoic rock do occur within the El Paso Mountains.

In the El Paso Mountains and Barstow area, deposits of sandstone and limestone dating to the Mesozoic era (70 to 230 mya) occur. During the Oligocene and Miocene epochs (23 to 5 mya), volcanism dominated the landscape, with volcanic activity occurring near Ridgecrest and Red Rock Canyon. During the late Middle Pliocene the Mojave region was subjected to great erosion, which continued into the Pleistocene. Erosion occurring during this glacial period (beginning about 1.64 mya) formed the long southward trending Owens, Searles, Panamint, and Death Valleys. Water flowing from these valleys likely flowed south across the Mojave block, filling Owens Lake, China Lake, Searles Lake, and Death Valley. At present, erosion from the Sierra Nevada Mountains and surrounding mountains are actively filling the valleys with sediments.

Conditions within the Mojave Desert are among the hottest found in the United States. Average daily temperatures typically range from the low 30s (degrees Fahrenheit [°F]) in winter to low 100s in summer, although summer temperatures can reach into the 110s. A high of 119°F has been recorded in Inyokern, California, located approximately eight miles west of Ridgecrest. This region also experiences rapid heat loss at night, resulting in a wide daily temperature variance of approximately 30°F. Annual rainfall totals within the Mojave Desert are among the lowest in California, averaging less than 2.5 inches (6.4 cm) per year.

There are several main hydrologic features in the western Mojave Desert. The most notable drainage systems occur on Edwards Air Force Base (AFB), and in Antelope Valley and Fremont Valley. The system on AFB consists of two sizeable dry lake beds, Rosamond and Rogers, and one minor dry lake bed, Buckthorn. The Fremont Valley situated southwest of Indian Wells Valley is a closed basin, with all run-off water flowing to the lake-bed complex. Indian Wells Valley is also a closed basin that contains perennial lake, China Lake. China Lake is the primary groundwater discharge point for the valley.

The Mojave has a typical mountain-and-basin topography with sparse vegetation. Although a large portion of the APE is marked by creosote bush (*Larrea tridentate*), the dominant plant species of the Mojave Desert, extant vegetative resources are characterized by moderate species diversity. Lower elevations are dominated by creosote bush, while higher elevations contain yuccas and agaves and then pinion-juniper habitats. Plant communities within proximity of springs, marshes, and streambeds produce tules, cattails, and various grass species.

Large fauna species are rare in the Mojave Desert. Rodents, reptiles and birds are more common and are found on the desert floor. Rodent species include various pocket mice (*Perognathus* spp.), whitetail antelope squirrel (*Ammospermophilus leucurus*), and kangaroo rats (*Dipodomys* spp.). Reptile species present include the desert tortoise (*Gopherus agassizii*), desert iguana (*Dipsosaurus dorsalis*), common king snake (*Lampropeltis getulus*) and the Mojave rattlesnake (*Crotalus scutulatus*). More than 300 species of birds are found in the Mojave Desert. A few species common to the open desert are the prairie falcon (*Falco mexicanus*), burrowing owl (*Athene cunicularia*), roadrunner (*Geococcyx californianus*), and the horned lark (*Eremophila alpestris*). Other species found in the Mojave include the blacktail jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*) and the coyote (*Canis latrans*).

5.4.2.2 Prehistoric Background

Prehistoric human settlement in the Mojave Desert has been influenced by environmental change. Major climatic fluctuations influenced spatial settlement patterns and resource exploitation. Archaeological investigations have indicated that although the area had limited resources and surface water, the region supported a long human occupation with population density increasing in the Holocene. Prehistorically, human occupation has been categorized into the Paleoindian Period, the Pinto Complex, the Gypsum Complex, the Rose Springs Complex, and the Late Prehistoric Complex. While portions of the Mojave Desert and the southwestern Great Basin have undergone extensive study and enabled the construction of detailed prehistoric analyses, the area encompassing the Project has not been comprehensively studied.

Lake Mojave Complex (12,000 to 7000 years Before Present [B.P.]

The Late Pleistocene/Early Holocene Lake Mojave complex has become the comparative unit for Early Man in the Mojave Desert. Lake Mojave period sites are often limited to surface assemblages, although substantial subsurface deposits have been reported in the central Mojave Desert. Lake Mojave assemblages are marked by various projectile point types, including leaf-shaped points, long-stemmed points with narrow shoulders (Lake Mojave and Parman points), short-bladed stemmed points with distinct shoulders (Silver Lake points), and rare fluted points. Also present are crescents, domed scrapers, heavy core tools, and other items. While Warren and Crabtree believe that milling stones are rare or absent, recent evidence suggests that these items are more common than previously thought.

Because sites of the Lake Mojave period are often found in association with lake stands and outwash drainages, some researchers have argued that lacustrine resources were a subsistence focus, while others suggest that grasslands suitable for the grazing of large game would have surrounded the lakes, and that these were the primary subsistence focus of Lake Mojave cultures. Materials dating to the Lake Mojave period in the western Mojave Desert are few and confined to areas such as Lake Mojave; Fort Irwin; Twentynine Palms; Rosamond Lake; and China Lake, which is located 12 miles northeast of the APE. Surveys around China Lake in the 1960s and 1970s identified surface prehistoric artifact concentrations dating typologically to more than 10,000 years old on the downwind side of the lakebed. While further analyses identified post-depositional erosion processes, including wind and wave forces, at work in forming the concentrations, the findings illustrate the cultural adaptation to pluvial conditions (e.g., lakes, marshes, and grasslands) that flourished for several millennia after 10,500 B.P.

Pinto Complex (7000 to 4000 B.P.)

A period of dramatic environmental change has been posited for the Pinto Complex. The middle Holocene environment changed from pluvial to arid conditions, rivers and lakes dried up and animal and plant life changed. This period is seen by Warren as marking the beginnings of cultural adaptations to the desert. Desert humans either adapted to this change or relocated to areas with more favorable environmental conditions. Depopulation of the area seems evident in the small size of Pinto period sites, which are often limited to surface deposits. These ephemeral sites suggest temporary or seasonal occupations by small groups of people, focusing on a forager-like strategy.

Pinto sites are generally limited to surface scatters. The most important characteristic of Pinto period assemblages relates to an increase in the abundance of ground stone implements. The appearance of significant numbers of milling stones in Pinto assemblages is attributed to the exploitation of hard seeds. This is seen by Warren as part of the process of subsistence diversification brought on by increased aridity and decreasing game populations. Most Pinto Complex sites have been identified in the eastern Mojave although a few Pinto-style projectile points have been identified in the Tehachapi area and other parts of the western Mojave.

Gypsum Complex (4000 to 1500 B.P.)

The Gypsum Complex is marked by an increase in the number of archaeological components, and increased diversity in assemblage and site setting. Occupations in the Antelope Valley southwest of the APE during this period are indicative of large permanent or seasonally occupied villages, with smaller seasonally-based special purpose sites including rock rings, lithic scatters and milling stations. The appearance of large village and special purpose sites in the Antelope Valley has been attributed by Warren to refined hunting methods and seed processing technologies that raised the regional carrying capacity and facilitated population growth. Trade through the western Mojave increased during this time, and increasing ceremonial activity is suggested by the rock art found in the Coso Range approximately 40 miles to the north, near Red Mountain approximately 16 miles to the southeast, and the El Paso Mountains directly southwest of the APE.

Gypsum Complex assemblage sites are characterized by diagnostic projectile points, leaf shaped points, rectangular based knives, flake scrapers, T-shaped drills, large scraper-planes, choppers, and hammerstones. There is an increase in the presence of milling stones and the mortar and pestle were introduced during this period.

Rose Spring Complex (ca. 1500 to 1000 B.P.)

Archaeological evidence for the Rose Spring Complex indicates a major population increase, changes in artifact assemblages, and well developed middens. The introduction of small projectile points into assemblages in the Mojave Desert and the Great Basin appear to mark the introduction of the bow and arrow and the decline of the atlatl and spear weaponry. Subsistence strategies seem to shift towards the exploitation of small to medium sized game, including lagomorphs and rodents. The milling of plant foods was an important activity with numerous bedrock milling features at the Rose Spring type site, including mortars and slicks.

Late Prehistoric Complex (1000 B.P. to European contact)

There is an increase in the ethnic and linguistic complexity within the Mojave Desert during this period. Desert Side-notched points and Brownware ceramics become more widely distributed throughout the Mojave Desert and the Great Basin. This development, combined with linguistic evidence, is associated with the Numic-speaking Paiute and Shoshone westward expansion throughout most of the area, including the vicinity of the APE. Characteristic artifacts of this period include Desert series projectile points (Desert Side-notched and Cottonwood Triangular), Brownware ceramics, Lower Colorado Buff Ware, unshaped hand stones and milling stones, incised stones, mortars, pestles, and shell beads from the coast.

5.4.2.3 Ethnographic Background

The APE is located within the traditional territory of the Kawaiisu, whose core homeland was in the southern Sierra Nevada mountains south of the Kern River and northern Tehachapi Mountains. The desert to the east of the Kawaiisu's core area was used transitorily for seasonal trips to exploit desert resources. A trail system emanating from their core area encouraged the flow of people and resources. Neighboring groups included the Tubatalubal to the north, the Southern Yokuts to the west, and the Kitanemuk and Serrano groups to the south. During the initial period after European contact, the Kawaiisu claimed a major portion of the western Mojave Desert as their territory, including the Fremont Valley.

The Kawaiisu language belongs to the Southern Numic branch of the Northern Uto-Aztecan family, which spans a large part of Mexico and the southwestern United States. Seasonally mobile with a subsistence system based on hunting and gathering, the Kawaiisu relied on acorns and piñon nuts, supplemented with large and small game, rodents, birds, and insects. Acorns were also used as a commodity in exchange for obsidian and salt. Family groups formed the basis of the Kawaiisu social

organization and there was little tribal identity, with a leader or leaders being recognized through tacit acceptance of the community. Material culture included the bow and arrow made of available local woods, lithic tools, elaborate baskets, buckskin clothing, beading worn through pierced ears, and tubular nose plugs. Pottery, however, is rarely found and may have been obtained in only limited amounts through trade with neighboring Great Basin groups rather than through manufacture.

5.4.2.4 Historical Background

As early as 1539, the Spanish began to explore parts of California. Early explorers, such as Francisco de Ulloa (1539), Hernando de Alarcón (1540), and Francisco de Coronado (1540) led expeditions into the Gulf of California, reaching the mouth of the Colorado River and continuing up the river past the Gila confluence. However, little exploration of the interior deserts was undertaken until much later. The European period in the Mojave Desert began when Spanish missionaries and explorers entered the area in the 18th century. Among the first Europeans in the Mojave was Pedro Fages, who led an expedition into the western Mojave in 1772. Later exploration into the Mojave was undertaken in 1776 by Francisco Garcés. Garcés was tasked with exploring overland routes between Santa Fe, New Mexico, and southern California. During his expedition, he stayed in what is today the town of Mojave.

American exploration into the Mojave Desert began in the 19th century. Jedediah Smith was the first American to enter the Mojave in 1826. Smith followed the Old Spanish Trail, the trade route approximately 60 miles southeast of the APE that connected Santa Fe with the settlement in Los Angeles, and ultimately reached the Pacific Ocean. In 1844, John C. Fremont, The Great Pathfinder, traveled through the Mojave from the north and eventually met up with the Old Spanish Trail.

Some prospectors established mines in the Mojave region in the 1850s, but it was not until the 1860s that mining expanded in the region. In 1865, the Owens Valley saw an influx of settlers in response to the silver strike at Cerro Gordo near Lone Pine. Further strikes led people through the Indian Wells Valley above the APE, and Remi Nadeau's Cerro Gordo Freighting Company became the largest freight company in the area, hauling bullion and supplies between mining towns.

Various materials were mined in the western Mojave Desert, including gold, silver, and iron, and major mining districts were established in the Rand and El Paso mountains. As mining increased, so did the number of permanent settlements. From the 1860s to the 1880s, mining became the primary economy in the area. Mining camps grew into mining towns that were connected through a series of stage coach roads. Later, the Southern Pacific Railroad (SPRR) established a stop north of Mojave called Nadeau Station. An important commercial mining endeavor that took place in the Mojave Desert involved the extraction of borax, celebrated because of its association with the 20-mule teams that carried the raw material from Death Valley into other parts of the western Mojave. Borax mining operations were undertaken by several companies during the late 19th century, including the Eagle Borax Works (founded by Francis C. "Borax" Smith), the Harmony Borax Works, Amargosa Borax, and Pacific Coast Borax Company. As late as the second half of the twentieth century, the area southwest of the APE was the site of Placer mining and strip-mining operations.

Railroads developed in the Mojave Desert in response to the mining boom and the desire to move goods between the eastern states and California. Routes had been scoped by earlier expeditions, but the railroad did not arrive near Ridgecrest until 1876. This rail line ran from Tehachapi to Mojave and then to Los Angeles via the Antelope Valley as part of the SPRR. The establishment of the railroad enabled more homesteaders to move into the area, but a lack of reliable water resources ensured that agriculture did not become a dominant industry in the region. Farmers generally stayed near rivers for dependable sources of water. Some farmers, however, found moderate success by utilizing wells and pumps to irrigate or by building near dry lake beds that periodically flooded during the rainy winter season. The need for water in association with farming made agricultural growth difficult, but several communities were able to survive on a subsistence farming lifestyle.

The construction of the Los Angeles Aqueduct between 1905 and 1913 stands as one of the greatest architectural and engineering achievements in the history of southern California. The demand for water in the growing community of Los Angeles required a solution beyond the locally available water resources in the city. Once completed, the aqueduct ran 226 miles from Owens Valley to Los Angeles. Aqueduct construction camps and rail line spurs in the Fremont Valley include those at Cinco and Cantil. The camp at Cinco was used as a supply depot to support aqueduct construction. The section of track near Cinco, called the "Jawbone Division," was constructed by the SPRR in 1909 to carry supplies needed to run the camp and build the aqueduct. In the far-western portion of the APE is a section of the line built between 1908 and 1910, the Mojave-Owenyo Branch, used to supply construction materials for the aqueduct project.

During the 1930s, a series of existing routes extending from San Diego to Canada were combined to create U.S. Highway 395. Following the route of the Camino Sierra, a primitive road developed on a former trail alignment from Los Angeles to Lake Tahoe, the road originally followed the Mojave-Owenyo railroad alignment but improvements made in the mid-1960s realigned the highway from present-day China Lake Boulevard northward.

In the 20th century, the military had a significant role in the development of the Mojave Desert. Prior to World War II, the western Mojave was one of the major training grounds in preparation for war. The Mojave Army Antiaircraft Range (later renamed Camp Irwin) was built near Barstow while Condor Field, a glider training base, was established near Twentynine Palms. Muroc Bombing and Gunnery Range was established in 1933. Later renamed Edwards Air Force Base, it has been one of the most important spots in aviation history, as many experimental aircraft have been designed and tested here. Edwards AFB continues to operate today and is one of the landing sites for the Space Shuttle. To the northwest of the APE in Ridgecrest, the China Lake Naval Air Weapons Station has been in use since 1943 and has been the driver for economic and demographic growth in the area. Over the following decades, the town of Ridgecrest grew by providing housing and services in support of Federal employees and contractors. Development outside of the towns of Ridgecrest and nearby Inyokern has still remained sparse.

5.4.2.5 Cultural Resources Inventory

A cultural resources inventory was conducted of the APE. This inventory included archival research, a pedestrian archaeological survey, and an architectural survey. The results of the inventory are presented in the following subsections; additional detail is provided in Appendix G.

Archival Research

A records search was conducted by the Southern San Joaquin Valley Information Center (SSJVIC) at California State University, Bakersfield. The records search covered a one-mile buffer around the Project ROW and a greater than 0.25-mile buffer on both sides of linear facilities (the Records Search Study Area). The study included a review of archaeological, historical, and environmental literature in addition to the site records and survey maps on file at the SSJVIC.

Of the 15 previous surveys identified by the records search, eight (KE-00289, KE-02553, KE-00572, KE-02188, KE-02016, KE-003497, KE-02862, KE-00948) were conducted within portions of the APE (Table 5.4-3). KE-00289 consists of a linear study for a gasline corridor; no resources were identified in the APE. KE-00948 represents a linear survey for a private access roadway easement on BLM land; no resources were identified in the APE. KE-02016 consists of a Class III inventory conducted by Southern California Edison for the proposed stringing of the existing Inyokern-Kramer 230-kilovolt (kV) transmission line running through the far southwestern portion of the APE. This study identified one lithic scatter within the APE, recorded as isolate feature IF-KER-435. KE-02188 and KE-02553 consist, respectively, of an original linear survey and a resurvey of sections of the Lone Pine Branch of the Mojave-Owenyo rail alignment, a portion of which runs through the western edge of the APE. These

studies recorded and updated this segment of the rail alignment and its associated features (CA-KE-3366H). KE-00572 consists of a Negative Archaeological Survey report on the linear survey for the proposed rehabilitation of U.S. Highway 395; one isolate obsidian flake (P-15-10822) was recorded within northeastern portion of the APE. KE-02862 and KE-03497 consist of the Archaeological Survey Report and Historic Properties Survey Report related to the expansion of U.S. Highway 395; no sites were recorded within the APE as part of these studies.

Table 5.4-3 Summary of Previous Surveys within Records Search Study Area

Report Number	Author	Title	Date
KE-00289	Berg	A Technical Report of a Cultural Resources Survey and Inventory for the Mojave Pipeline/Coso Lateral.	1993
KE-02553	Burke	Re-Examination of Previously Documented Cultural Resources on the Union Pacific Railroad Lone Pine Branch, M.P. 4300.00 Series to M.P. 519.34 Near Lone Pine, on Public Lands Administered by the BLM, Ridgecrest Field Office.	1998
KE-00572	Caltrans	Negative Archaeological Survey Report U.S. 395 P.M. 15.0/29.3.	n.d.
KE-02188	Hall	Cultural Resources Survey of a Portion of the Former Southern Pacific Mojave-Owenyo Branch Railroad, Inyo and Kern Counties, California.	1992
KE-00538	Jensen	Archaeological Inventory Survey, Ridgecrest Solid Waste Landfill Site c. 120 ac at Ridgecrest, Eastern Kern County, California.	1992
KE-00541	Jensen	Archaeological Inventory Survey Buffer Zone Study Area at the Ridgecrest Solid Waste Landfill, Indian Wells Valley, Eastern Kern County, California.	1996
KE-02403	LSA Associates, Inc.	Cultural Resource Assessment for Pacific Bell Mobile Services Facility LA-973-04, in the County of Kern, California.	2000
KE-00795	No Author	Environmental Impact Statement for Archaeological Values Prepared for Various Projected Facilities of the IWVCWD.	1979
KE-01868	Oxendine	Cultural Resources Report for the Contel Fiber Optic Cable Ridgecrest Resource Area.	1989
KE-01094	Pruett	Environmental Impact Evaluation: Archaeological Evaluation for 80 Acres South of Inyokern, Kern County.	1989
KE-00948	Pruett	Archaeological Evaluation for a Road Right-of-Way across BLM and South of Inyokern, Kern County.	1990
KE-02016	Taylor	Archaeological Survey Report Inyokern-Kramer 220 kV Transmission Line Conducting Project Tower Sites, Pulling Areas, Sleeve Areas, and Wire Setups Kern and San Bernardino Counties, California.	1989
KE-003497	Wickstrom and Brangham	Historic Properties Survey Report for the Inyokern Four Lane Project Kern County, California.	2006
KE-02862	Wickstrom and Donahue	Archaeological Survey Report for the Inyokern Four Lane Project, Kern County, California.	2003
KE-01762	Young	Archaeological Survey Report for a Shoulder Paving and Resurfacing Project North of Johannesburg on 9-Ker-395-0.0/14.5 E.A. 069001.	1977

The records search identified 16 resources within the Records Search Study Area (Table 5.4-4). As discussed above, three of these previously documented cultural resources are recorded within the APE. These consist of a lithic scatter (IF-KER-435/P-15-8709), an isolate obsidian flake (P-15-10822), and a segment of the SPRR alignment (P-15-3366). Cultural resources within the records search buffer area include lithic and groundstone scatters, milling features, rock shelters and alignment, historic debris, and a portion of Old Highway 395.

The eastern boundary of NRHP-listed Last Chance Canyon Archaeological District, P-15-008676, intersects with the western edge of the APE. The limited information available from SJJVIC on the District consists of the NRHP Inventory – Nomination Form, a small scale map copied over 8½ by 11 sheets showing the rectangular boundary of the district, two pages of unlabelled photographs, and one 8½ by 11 copy of the northern portion of the Inyokern 15-minute quadrangle showing a handwritten legend of site symbols but showing neither the boundary of the District nor the location of any recorded sites. The NRHP nomination form and accompanying maps were completed by Alex Apostolides in 1971 following the University of California-Los Angeles Archaeological Survey conducted between 1962 and 1970.

The Last Chance Canyon Archaeological District is described as encompassing Townships 27 South, 28 South, and 29 South and Ranges 37 East, 38 East, and 39 East on the 1943 Saltdale and Inyokern 15-minute U.S. Geological Survey (USGS) quadrangles. As mapped, the district currently covers approximately one-third of the western portion of the APE. According to available records, there exists no list of the individual sites that were nominated to the NRHP. BLM Archaeologist Don Storm has organized available data regarding the District and has compiled a list of 79 sites, most of which have never received trinomial numbers and all of which are far to the southwest of the APE. Cultural resources within the district include both historic and prehistoric sites, including rock shelters, campsites, milling features and groundstone, house rings, rock art, workshop areas/digging stations, and two burials. Occupation evidence is believed to date as early as 400 B.P., with one obsidian projectile point yielding a hydration date of 3980 B.P.

Pedestrian Archaeological Survey

An archaeological survey of the APE was conducted in May 2009. The survey was conducted to identify possible cultural resources that may be impacted by Project construction activities. The survey utilized both 7.5-minute USGS topographic maps and larger-scale aerial photographs. The APE was surveyed by a six- to nine-person crew walking at no more than 20-meter intervals. Archaeological sites were defined as a cluster of three or more artifacts within 50 meters. Identified site boundaries, features, and artifacts were recorded using a GEO-XT submeter Trimble Global Positioning System (GPS) receiver, and a sketch map was produced. Identified sites were recorded on State of California DPR 523 forms. All work for the pedestrian survey was carried out under the direct supervision of a qualified archaeologist who meets the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation Professional Qualification Standards (Title 36 Code of Federal Regulations Part 61, Appendix A).

Table 5.4-4 Summary of Previously Recorded Cultural Resources

Primary Number (P-15-)	Permanent Trinomial (CA-KER-)	Site Type	Site Constituents	Time Period
000249	249	Rock shelter and lithic scatter	Smoke-blackened granitic rock shelter with obsidian flakes	Prehistoric
001253	1253	Lithic and groundstone scatter	Four chalcedony cores and approximately 25 chalcedony flakes, one obsidian flake, one quartzite hammerstone, obsidian nodules, basalt metate fragments	Prehistoric
001254	1254	Lithic scatter	Chalcedony flakes and one obsidian nodule	Prehistoric
001596	1596	Rock shelters; milling station	Multiple granitic rockshelters including a grinding slick, a possible hearth and a shepherd's camp	Prehistoric/ Historic
002034	2034	Rock alignments; lithic isolate	Three curvilinear rock alignments and two cairns, with obsidian flake isolate	Prehistoric/ Historic
003366	3366H	Railway alignment	Segment of the Southern Pacific Mojave-Owenyo Railroad Line into Inyo County (CA-INY-4608H)	Historic (early 20th Century)
003394	3394H	Historical mining debris	Mining prospect, two trash dumps and a can scatter	Historic
007670	436	Lithic scatter (recorded as isolate feature IF-KER-436)	Three chalcedony flakes	Prehistoric
008676		Last Chance Canyon Archaeological District	Prehistoric campsites, house-ring complexes, rockshelters, lithic and groundstone material, petroglyph sites, and burials; unidentified historic period (1870s) sites	Prehistoric/ Historic
008709	435	Lithic scatter (recorded as isolate feature IF-KER-435)	One white chalcedony flake, two quartzite flakes, and three brown jasper flakes	Prehistoric
008711	800	Milling feature	Unifacially ground, basalt milling slab	Prehistoric
010822		Isolate	Obsidian flake	Prehistoric
012067	6834H	Tin can scatter	Scatter of at least 63 cans that post-date 1945 in age	Historic
012068	6835H	Historic scatter	Adjoining scatters of metal slag, about 50 metal artifacts and one aqua colored glass jug base	Historic
012069	6836H	Historic scatter	Scatter of amber, aqua, and clear bottle glass fragments, crimped seam cans, and fragments of a porcelain tea cup	Historic
012070	6837H	Historic road alignment	Abandoned historic portion of U.S. Highway 395	Historic

Archaeological Survey Results

Pedestrian survey of the APE was conducted in May 2009. The ground visibility was good, ranging between 70 and 100 percent. The APE lies west of U.S. Highway 395 and has been disturbed by vehicle tracks crossing the entire APE, off-road activity, and by deposition of modern trash, including automobile parts and appliances. Throughout the APE, there are numerous isolated modern and historic cans. Larger refuse concentrations were identified within proximity of some dirt roads. During the course of the survey, 63 sites and 290 isolates were identified. The resource types include prehistoric and historic period sites, along with numerous isolated artifacts scattered throughout the landscape.

As shown in table 5.4-5, of the sites encountered, 53 sites are historic and 10 are prehistoric. Most cultural materials are historic and consisted of tin canisters and other historic glass, metal, and ceramic debris. Historic features included survey markers, a historic campsite and historic road alignments. Prehistoric cultural materials included isolated lithics and lithic scatters. Cryptocrystalline silicate (CCS) and obsidian are the main sources of raw materials used in the manufacturing of these artifacts. Also present are rock features and groundstone objects made from locally available materials.

Table 5.4-5 Archaeological Survey Results

Temporary Number	Site Type	Date
CA-KER-6837H	Old Highway 395 alignment and associated historic debris	Historic
R-S-001	Tin can scatter	Historic
R-S-001b	Tin can scatter	Historic
R-S-001c	Tin can scatter	Historic
R-S-002	Claim post feature and tin can scatter	Historic
R-S-003	Tin can scatter	Historic
R-S-005a	Tin can scatter	Historic
R-S-005b	Historic debris scatter (cans, car parts, milled wood)	Historic
R-S-006	Rock-lined historic roadbed	Historic
R-S-008	Claim post and can scatter	Historic
R-S-010	Claim post/rock pile feature	Historic
R-S-011	Claim post/rock pile feature	Historic
R-S-012	Claim post/rock pile feature	Historic
R-S-013	Claim post/rock pile feature	Historic
R-S-015	Tin can scatter	Historic
R-S-019c	Metate milling feature and CCS biface	Prehistoric
R-S-023	Claim post feature	Historic
R-S-032	Tin can scatter	Historic
R-S-035	Historic debris scatter (cans, milled wood, ceramic and glass fragments)	Historic
R-S-037	Tin Can and glass scatter	Historic

Table 5.4-5 Archaeological Survey Results

Temporary Number	Site Type	Date
R-S-038	Tin can scatter	Historic
R-S-039b	Tin can scatter	Historic
R-S-040b	Tin can scatter	Historic
R-S-042	Tin can scatter	Historic
R-S-153	Tin can scatter with and wood	Historic
R-S-154	Lithic scatter of CCS flakes	Prehistoric
R-S-155	Tin can and glass scatter	Historic
R-S-157	Tin can scatter	Historic
R-S-158	Tin can scatter	Historic
R-S-159	Tin can scatter	Historic
R-S-161	Tin can scatter	Historic
R-S-162/163	Tin can scatter	Historic
R-S-166	Historic debris scatter (cans, milled wood, amethyst and other glass fragments)	Historic
R-S-167	Tin can scatter	Historic
R-S-325	Tin can scatter	Historic
R-S-407	Piled rock features	Prehistoric
R-S-409	Metates and obsidian flake	Prehistoric
R-S-410	Lithic scatter of obsidian, CCS, and metavolcanic flakes	Prehistoric
R-S-603	Tin can scatter	Historic
R-S-604	Whole metate and metate fragment	Prehistoric
R-S-607	Tin can scatter	Historic
R-S-614	Cistern and well	Historic
R-S-616	Tin can scatter	Historic
R-S-618	Tin can scatter	Historic
R-S-700	Tin cans and glass fragments	Historic
R-S-720	Groundstone scatter (mano and metate fragments)	Prehistoric
R-S-726	Tin can scatter	Historic
R-S-728/731	Tin can scatter	Historic
R-S-739	Tin can scatter	Historic
R-S-742	Tin can scatter	Historic
R-S-746	Tin can scatter	Historic
R-S-750	Tin cans and barrel straps scatter	Historic

Table 5.4-5 Archaeological Survey Results

Temporary Number	Site Type	Date
R-S-752	Tin can scatter	Historic
R-S-757	Tin can scatter	Historic
R-S-758	Lithic scatter of CCS flakes	Prehistoric
R-S-773	Tin can scatter	Historic
R-S-781	Tin can scatter	Historic
R-S-850	Lithic scatter of CCS flakes and CCS biface	Prehistoric
R-S-856	Tin can scatter	Historic
R-S-866	Tin can scatter	Historic
R-S-868	Historic road alignment	Historic
R-S-869	Historic road alignment	Historic
R-S-870	Lithic and groundstone scatter	Prehistoric

Architectural Reconnaissance

On May 9, 2009, a qualified architectural historian conducted a “windshield” reconnaissance of the Architectural Area of Potential Effect (AAPE), defined as the disturbance area and a surrounding 0.5-mile area per CEC requirements, to determine whether historic buildings and structures were present. The survey was conducted from the ROW or existing vantage points. Prior to the survey, available aerial photographs and historical maps of the AAPE were reviewed to identify existing structures.

Architectural Reconnaissance Results

During the site visit, no buildings or structures were identified in the Project disturbance area. However, a segment of the SPRR Mojave-Owenyo Line alignment exists in the southwestern portion of the AAPE and several buildings and structures were observed concentrated in two locations within the AAPE.

One area is just west of the northwest corner of the archaeological APE in Section 22 of Township 27 South, Range 39 East. The buildings in this area are primarily associated with two or three small-scale farming and ranching complexes. Based on field observations and review of historical maps, the buildings date to the mid- to late-20th century, with land transaction primarily occurring circa 1960. Many buildings are now abandoned and severely deteriorated; few appear to be inhabited. The second area is located east of U.S. Highway 395 in Section 19 of Township 27 South, Range 40 East. This section has more dense development on approximately five-acre lots. The majority of the land transactions in this section occurred circa 1959, and many buildings appear to date from that era, although many are abandoned and in poor condition. The earliest building in this section appears on the 1953 USGS Ridgcrest 15-minute topographical map. The limited activities appear to relate to small-scale farming and husbandry. There are newly constructed buildings in this section, as well.

Table 5.4-6 Architectural Reconnaissance Results

Resource Number (Temporary Number)	Resource Type	Date
RS-BE-341-140-30	Concrete block building	Mid- to Late 20th century
RS-BE-341-130-19	Residential building	Mid- to Late 20th century
P-15-003366/3366H	Segment of the Southern Pacific Mojave-Owenyo Railroad Line alignment (CA-INY-4608H)	Early 20th century

5.4.2.6 Consultation with Local Historical Societies and Other Interested Parties

In addition to the records search conducted by SSJVIC, several historical societies and agencies were contacted by a letter on June 1, 2009, requesting any pertinent information regarding historic or other cultural resources within or near the APE (see Appendix G.2). The societies contacted were:

- Clan Diggers Genealogical Society
- Historical Society of the Upper Mojave Desert
- Kern County Museum
- Maturango Museum
- Kern River Valley Historical Society and Kern Valley Museum

As of August 2009, no responses have been received.

The BLM Ridgecrest Field Office was visited in May 2009. The BLM office provided information and records related to historic activities in the area, and commented on cultural resources that have been identified in the APE.

The Historical Society of the Upper Mojave Desert and the Maturango Museum in Ridgecrest, California, were also visited in May 2009. They provided supplementary materials for the historical narrative of the area, but did not comment on any specific cultural resources within the APE.

5.4.2.7 Native American Consultation

A letter was sent to the NAHC on April 13, 2009, requesting information on sacred lands and traditional cultural properties, and a list of Native American individuals and organizations that might have knowledge or concerns with cultural resources within or in the vicinity of the APE. A response was received April 20, 2009, indicating that cultural resources are located within a 0.5-mile radius of the Project area. Six Native American representatives were identified by the NAHC (Table 5.4-7). Letters were sent to these individuals informing them of the Project and asking for their input and concerns. Copies of correspondence are provided in Appendix G.1. To date, one response has been received from Harold Williams, Chairperson of the Kern Valley Indian Council requesting additional information. Follow-up contacts were made via telephone on August 5, 2009, where Mr. Williams indicated that he is no longer Chairperson and does not have any comments on the Project. He referred the Applicant's consultant to Robert Robinson and Ron Wermuth, who have previously been contacted as part of this ongoing program and who, to date, have not submitted Responses.

Table 5.4-7 Consulting Parties and Public Participation Contacts by Affiliation

Name/Title	Affiliation	Dates of Contact	Response
Neil Peyron Chairperson	Tule River Indian Tribe	Letter: 5/5/2009 Phone: 8/5/2009	None to date
Ron Wermuth	None given (Tubatulabal, Kawaiisu, Koso, Yokuts)	Letter: 5/5/2009 Phone: 8/5/2009	None to date
Kathy Morgan Chairperson	Tejon Indian Tribe	Letter: 5/5/2009 Phone: 8/5/2009	None to date
Harold Williams Chairperson	Kern Valley Indian Council	Letter: 5/5/2009 Phone: 8/5/2009	Request for further communication, 5/15/2009 Mr. Williams indicated on 8/5/09 that he was no longer the Chairperson and to contact Ron Wermuth and Robert Robinson in the future.
Robert Robinson Historic Preservation Officer	Kern Valley Indian Council	Letter: 5/5/2009 Phone: 8/5/2009	None to date
Donna Begay Tribal Chairwoman	Tubatulabals of Kern Valley	Letter: 5/5/2009 Phone: 8/5/2009	None to date

5.4.3 Environmental Impacts

This section describes the potential impacts of the Project on cultural resources. Impacts during both construction and operation are addressed.

Environmental impacts are assessed for those resources that have been identified as potentially significant. Significance of archaeological sites is based on the regional and local context in which they are found. For a cultural resource to be significant it must meet some of the significance criteria of the NRHP (NHPA, 16 USC Section 470x-6) or CRHR (PRC 5024.1), or satisfy the uniqueness criteria under CEQA. In general, a site that qualifies for inclusion to the NRHP also qualifies for inclusion to the CRHR under CEQA.

The NRHP states that a building, structure, archaeological site, or other resource will be considered significant if it meets at least one of the following criteria:

- A) That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B) That are associated with the lives of persons significant in our past; or
- C) That 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) That have yielded or may be likely to yield, information important in prehistory or history.

The CRHR states that a building, structure, archaeological site, or other resource will be considered significant if it meets at least one of the following criteria:

- 1) Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California;
- 2) Is associated with the lives of persons important to local, California, or national history;
- 3) Embodies distinctive characteristics of a type, period, region, or method of construction or represents the work of a master, or possesses high artistic values; or
- 4) Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to qualifying for the NRHP or CRHR, a resource must possess sufficient integrity with regard to location, design, setting, materials, workmanship, feeling, and association.

Assessments of Project impacts are based on the level of direct and indirect physical changes to a significant resource. A significant impact would occur if the Project:

- Alters a resource or its setting in a manner that affects the qualities that make it significant. Direct impacts to archaeological resources include grading, and for built resources include removal of key elements (e.g., roof), or demolition.
- Indirectly alters the setting, access to, or other elements of the resource in a manner that negatively affects the significance of the resource. Examples of indirect impacts include increased erosion at archaeological sites or visual intrusion buildings that are left vacant.
- Disturbs any human remains, including those located outside of formal cemeteries.

5.4.3.1 Construction

Ground-disturbing construction activities have the potential to directly impact cultural resources by altering site integrity and the qualities that make the resources significant. In addition, in the case of built resources, impacts can occur to the setting of a resource, even if the resource is not physically damaged.

Based on archival and survey investigations, 63 archaeological sites and three built environment resources were inventoried for the Project. Table 5.4-8 summarizes the Project's anticipated impacts to these resources.

Most of the resources inventoried for the Project have been assessed as not significant. None of the built resources are considered significant. Potentially significant impacts could occur at nine archaeological sites (Sites R-S-019, R-S-154, R-S-407, R-S-409, R-S-410, R-S-604, R-S-720, R-S-850, and R-S-870). All sites are prehistoric and consist of sparse lithic scatters or sites with groundstone tools. Based on the surface evidence, these resources are assessed as potentially significant and subject to potential impacts from construction of the Project. Three of these sites (R-S-154, R-S-410, and R-S-850) appear to qualify for the California Archaeological Resources Identification and Data Acquisition Program: Sparse Lithic Scatters (CARIDAP). Successful treatment under this program results in a "not eligible" and "No Effect on historic properties" determination. With implementation of mitigation measures at other sites identified in Section 5.4.4 below, potential impacts would be mitigated to a less than significant level under CEQA and would be addressed under the NHPA through the BLM Nationwide Programmatic Agreement.

In addition to the resources identified in Table 5.4-8, 290 isolated finds were encountered during the survey efforts. These include prehistoric lithics and historic period items such as tin cans. None of the isolated finds are considered significant. If an unanticipated archaeological and/or historical resource were discovered during construction, then potential impacts would be mitigated to a less than significant level with the implementation of the mitigation measures identified in Section 5.4.4.1.

Table 5.4-8 Summary of Ridgecrest Solar Power Project Site Data and Impact Assessment

Resource Number	Site Type / Historic Context	Date	Significance Potential	Project Impact
Archaeological Resources				
CA-KER-6837H	Old Highway 395 alignment and associated historic debris	Early to Mid-20th century	Potentially eligible under NRHP criterion A and CRHR Criterion 1; character defining features will not be impacted	Not significant; character defining features will be avoided
R-S-001	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-001b	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-001c	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-002	Claim post feature and tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-003	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-005a	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-005b	Historic debris scatter (cans, car parts, milled wood)	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-006	Rock-lined historic roadbed	Mid-20th century?	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-008	Claim post and can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-010	Claim post/rock pile feature	Post-1907	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-011	Claim post/rock pile feature	Early to Mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-012	Claim post/rock pile feature	Early to Mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-013	Claim post/rock pile feature	Early to Mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-015	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant

Table 5.4-8 Summary of Ridgecrest Solar Power Project Site Data and Impact Assessment

Resource Number	Site Type / Historic Context	Date	Significance Potential	Project Impact
R-S-019	Metate milling feature and CCS biface	Prehistoric	Potentially eligible under CRHR Criterion 4 and unevaluated under NRHP Criterion D	If eligible, impact less than significant with mitigation under CEQA; adverse effect under NHPA addressed by consultation between BLM, SHPO, and interested parties
R-S-023	Claim post feature	Early to Mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-032	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-035	Historic debris scatter (cans, milled wood, ceramic and glass fragments)	Mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-037	Tin can and glass scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-038	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-039b	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-040b	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-042	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-153	Tin can scatter with and wood	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-154	Lithic scatter of CCS flakes	Prehistoric	Appears to meet requirements for CARIDAP	Within solar field. If eligible, impact less than significant with mitigation under CEQA; no historic properties affected if addressed under CARIDAP for NHPA
R-S-155	Tin can and glass scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-157	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant

Table 5.4-8 Summary of Ridgecrest Solar Power Project Site Data and Impact Assessment

Resource Number	Site Type / Historic Context	Date	Significance Potential	Project Impact
R-S-158	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-159	Tin can scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-161	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-162/163	Tin can scatter	Early 20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-166	Historic debris scatter (cans, milled wood, amethyst and other glass fragments)	Mid 20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-167	Tin can scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-325	Tin can scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-407	Piled rock features	Prehistoric	Potentially eligible under CRHR Criterion 4 and unevaluated under NRHP Criterion D	If eligible, impact less than significant with mitigation under CEQA; adverse effect under NHPA addressed by consultation between BLM, SHPO, and interested parties
R-S-409	Metates and obsidian flake	Prehistoric	Potentially eligible under CRHR Criterion 4 and unevaluated under NRHP Criterion D	If eligible, impact less than significant with mitigation under CEQA; adverse effect under NHPA addressed by consultation between BLM, SHPO, and interested parties
R-S-410	Lithic scatter of obsidian, CCS, and metavolcanic flakes	Prehistoric	Appears to meet requirements for CARIDAP	Within solar field. If eligible, impact less than significant with mitigation under CEQA; no historic properties affected if addressed under CARIDAP for NHPA
R-S-603	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant

Table 5.4-8 Summary of Ridgecrest Solar Power Project Site Data and Impact Assessment

Resource Number	Site Type / Historic Context	Date	Significance Potential	Project Impact
R-S-604	Whole metate and metate fragment	Prehistoric	Potentially eligible under CRHR Criterion 4 and unevaluated under NRHP Criterion D	If eligible, impact less than significant with mitigation under CEQA; adverse effect under NHPA addressed by consultation between BLM, SHPO, and interested parties
R-S-607	Tin can scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-614	Cistern and well	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-616	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-618	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-700	Tin cans and glass fragments	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-720	Groundstone scatter (mano and metate fragments)	Prehistoric	Potentially eligible under CRHR Criterion 4 and unevaluated under NRHP Criterion D	If eligible, impact less than significant with mitigation under CEQA; adverse effect under NHPA addressed by consultation between BLM, SHPO, and interested parties
R-S-726	Tin can scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-728/731	Tin can scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-739	Tin can scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-742	Tin can scatter	Early 20 th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-746	Tin can scatter	Early 20 th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-750	Tin cans and barrel straps scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant

Table 5.4-8 Summary of Ridgecrest Solar Power Project Site Data and Impact Assessment

Resource Number	Site Type / Historic Context	Date	Significance Potential	Project Impact
R-S-752	Tin can scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-757	Tin can scatter	Early to mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-758	Lithic scatter of CCS flakes	Prehistoric	Appears to meet requirements for CARIDAP	None, site is in the survey buffer area and will be avoided
R-S-773	Tin can scatter	Mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-781	Tin can scatter	Mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-850	Lithic scatter of CCS flakes and CCS biface	Prehistoric	Appears to meet requirements for CARIDAP	Within solar field. If eligible, impact less than significant with mitigation under CEQA; no historic properties affected if addressed under CARIDAP for NHPA
R-S-856	Tin can scatter	Post-1935	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-866	Tin can scatter	Mid-20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-868	Historic road alignment	Pre-1915	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-869	Historic road alignment	Pre-1915	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
R-S-870	Lithic and groundstone scatter	Prehistoric	Potentially eligible under CRHR Criterion 4 and unevaluated under NRHP Criterion D	If eligible, impact less than significant with mitigation under CEQA; adverse effect under NHPA addressed by consultation between BLM, SHPO, and interested parties
Architectural Resources				
RS-BE-341-140-30	Concrete block building	Mid- to Late 20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant
RS-BE-341-130-19	Residential building	Mid- to Late 20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant

Table 5.4-8 Summary of Ridgecrest Solar Power Project Site Data and Impact Assessment

Resource Number	Site Type / Historic Context	Date	Significance Potential	Project Impact
P-15-003366	Segment of the Southern Pacific Mojave-Owensy Railroad Line alignment (CA-INY-4608H)	Early 20th century	Not significant; does not meet NRHP or CRHR criteria or criteria for uniqueness	Not significant

5.4.3.2 Operation

No additional impacts to cultural resources are anticipated through operation of the Project.

5.4.3.3 Cumulative Impacts

To the extent that the cumulative projects identified in Section 5.1 disturb previously undisturbed land, they potentially could impact existing cultural resources at their respective sites, including potentially significant resources on a substantial amount of land. However, as is the case for the RSPP, the other projects also would be required to comply with the CEQA and other applicable regulatory and professional requirements to investigate, carefully evaluate, avoid, and mitigate cultural resources impacts. For these reasons, cumulative cultural resources impacts would be less than significant and the Project's contribution to cumulative impacts would be less than considerable.

5.4.4 Mitigation Measures

To mitigate potentially significant Project cultural resources to a less-than-significant level, the Applicant will implement the measures listed below.

- CUL-1** If significant or potentially significant cultural resources cannot be avoided, the Project owner will retain a qualified Cultural Resources Specialist to prepare and implement a Historic Property Treatment Plan (HPTP) for the affected resources. The HPTP may include protocols for affected resources including data recovery, research design, and treatment measures. The Principal Investigator for the HPTP program will meet the minimum Principal Investigator qualifications under the Secretary of Interior's Standards for Archaeology.
- CUL-2** A designated Cultural Resources Specialist will provide input to construction and operation training programs for employees to enhance awareness regarding the protection of cultural resources. The specialist will be available during construction to inspect and evaluate any finds of potentially significant buried cultural material. The Cultural Resources Specialist will coordinate with the Project owner's construction manager and environmental compliance manager to stop all work in the vicinity of the find until it can be assessed. The Cultural Resources Specialist will also contact the BLM archaeologist. If the discovery is determined to be not significant through consultation with CEC and BLM staff, work will be allowed to continue.
- CUL-3** All discoveries will be documented on appropriate Department of Parks and Recreation forms (Form DPR 523) and filed with the SSJVIC at California State University, Bakersfield.
- CUL-4** If in consultation with the CEC and BLM a discovery is determined to be significant, a mitigation plan will be prepared and carried out in accordance with State and Federal guidelines. If the resources cannot be avoided, a data recovery plan will be developed to ensure collection of sufficient information to address archaeological or historical research questions.

- CUL-5** A professional technical report will be prepared documenting assessment and data recovery investigations. The report will describe the methods and materials collected and will provide conclusions regarding the results of the investigations. The report will be submitted to the curatorial facility with the artifacts.
- CUL-6** Cultural material collected as part of an assessment or data recovery mitigation will be curated at a qualified curation facility. Field notes and other pertinent materials will be curated along with the archaeological collection.
- CUL-7** If human remains are encountered during construction, potentially destructive activities in the vicinity of the find will be stopped. The Cultural Resources Specialist will immediately notify the Principal Investigator, who will contact the CEC and BLM. The Project owner will ensure that any such remains are treated in a respectful manner and that applicable State and Federal laws are followed. If human remains of Native American origin, associated grave goods, or objects of cultural patrimony are discovered on Federal property, the provisions of the Native American Graves Protection and Repatriation Act will be followed.
- CUL-8** The Project owner will provide Worker Environmental Awareness Program training during construction to assist in worker compliance with cultural resource protection procedures. The training will include photographs of a variety of historic and prehistoric artifacts and will include a description of the specific steps to be taken in the event of an unanticipated discovery of cultural material, including human remains.

5.4.5 References

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