

Memorandum

Date: June 15, 2012

Telephone: (916) 654-4894

File: 11-AFC-2

To: Commissioner Karen Douglas, Presiding Member
Commissioner Carla Peterman, Associate Member
Hearing Officer Kenneth Celli

From: California Energy Commission - Mike Monasmith
1516 Ninth Street Senior Project Manager
Sacramento, CA 95814-5512

DOCKET	
11-AFC-2	
DATE	JUN 15 2012
RECD.	JUN 15 2012

Subject: HIDDEN HILLS SOLAR ELECTRIC GENERATING SYSTEM (11-AFC-2)
SUPPLEMENTAL STAFF ASSESSMENT / SCHEDULE UPDATE

As was promised when staff published its Preliminary Staff Assessment (PSA) for the Hidden Hills Solar Electric Generating System (HHSEGS) on May 24, 2012, enclosed please find staff's Supplemental Staff Assessment (SSA), which contains the preliminary Cultural Resources staff assessment for HHSEGS. Staff also provides an updated schedule to the Committee, and specifics related to the three PSA Workshop agendas.

ACTIVITY	Calendar Day
Preliminary Staff Assessment (PSA) Publication	05-24-12
PSA Workshop I – Pahrump, NV	06-14-12
Supplemental Staff Assessment (SSA) Publication	06-15-12
PSA Workshop II – Bishop, CA	06-27-12
PSA Workshop III – Sacramento, CA	07-02-12
PSA comment period concludes	07-06-12
Committee Status Conference	07-09-12
SSA comment period concludes	07-16-12
Final Staff Assessment (FSA) Publication	08-01-12

PSA Workshop I (June 14, 2012 in Pahrump, Nevada)

- Traffic & Transportation, Worker Safety / Fire Protection, Water Supply, Visual Resources

PSA Workshop II (June 27, 2012 in Bishop, California)

- Air Quality / Public Health, Biological Resources, Cultural Resources, Land Use, Socioeconomics

PSA Workshop III (July 2, 2012 in Sacramento, California)

- Alternatives, TSE, Misc. Issues (carry-over discussions from Workshops I and II)

CULTURAL RESOURCES

Thomas Gates, Amber Grady, Michael McGuirt

SUMMARY OF CONCLUSIONS

Staff concludes, pending the receipt and consideration of outstanding information and the completion of ongoing analyses, that the proposed Hidden Hills Solar Electric Generating System (HHSEGS or Hidden Hills) project would have significant and unavoidable impacts to an archaeological landscape, three ethnographic landscapes, and an historic trail and road corridor. Feasible mitigation is being considered and is reflected in the proposed cultural resources Conditions of Certification **CUL-1** through **CUL-12**, with specific emphasis on **CUL-9** through **CUL-12**. However, no mitigation measures for any of these five historical resources, individually or cumulatively, would reduce the impacts of the proposed project to a less than significant level.

Archaeology

The archaeological analysis for the HHSEGS project to date has identified the Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape, located just to the northeast of the facility site, as a historical resource assumed eligible for the California Register of Historical Resources (CRHR). This resource represents the aboriginal use of a locally significant ecological zone during still undetermined periods over probably at least the last 12,000 years. The visual impact of the proposed project on the landscape would severely degrade the ability of the resource to convey its association with aboriginal lifeways¹ of the Holocene epoch.

Staff has also determined that the archaeological deposits found within the boundaries of the project site are not significant as individual resources and are not contributors to the Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape.

Ethnography

The ethnographic analysis for the HHSEGS project has identified three ethnographic landscapes that are within the ethnographic project area of analysis (PAA) and assumed eligible for the CRHR:

1. Salt Song Landscape
2. Pahrump Paiute Home Landscape
3. Mo hav Landscape

The impacts of the proposed project on these historical resources would be significant, and the mitigation proposed in **CUL-10** through **CUL-12** would not reduce these impacts to a less than significant level. Staff's proposed compensatory mitigation with the Native American Tribes who would be most affected by impacts to these landscapes. However, even with the adoption and implementation of compensatory mitigation, the project

¹ A "lifeway," as used herein, refers to any unique body of behavioral norms, customs, and traditions that structure the way a particular people carry out their daily lives.

would still have significant and unmitigable effects on Native American spiritual practices dependent on these resources.

Historic Built-Environment

At least one historical built-environment resource, the Old Spanish Trail-Mormon Road, has been identified in the HHSEGS PAA thus far. Substantial information, including the National Register of Historic Places nomination of the Nevada segments of the Old Spanish Trail, has led staff to conclude that, within the PAA, this resource is not represented by a single route, but as a corridor of converging and intermingled tracks and trails. The project site is located within this corridor, with traces running throughout the project site. Staff has concluded that the impacts of the proposed HHSGS project to this Old Spanish Trail-Mormon Road Northern Corridor (Corridor) would be significant and, even with full implementation of **CUL-9** and **CUL-12**, would not be mitigated to a less than significant level.

INTRODUCTION

This environmental assessment identifies the potential impacts of the HHSEGS project on cultural resources. The term “cultural resource” means any tangible or observable evidence of past human activity, regardless of significance, found in direct association with a geographic location, including tangible properties possessing intangible traditional cultural values. Historical resources are defined under California state law as including, but not necessarily limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. [PRC(a)] Three kinds of cultural resources, classified by their origins, are considered in this assessment: prehistoric, ethnographic, and historic. Under federal and state historic preservation law, cultural resources must be at least 50 years old to have sufficient historical importance to merit consideration of eligibility for listing in the California Register of Historical Resources (CRHR). A resource less than 50 years of age must be of exceptional historical importance to be considered for listing.

Prehistoric archaeological resources are associated with the human occupation and use of California prior to prolonged European contact. These resources may include sites and deposits, structures, artifacts, rock art, trails, and other traces of Native American human behavior. In California, the prehistoric period began over 12,000 years ago and extended through the eighteenth century until 1769, when the first Europeans settled in California.

Ethnographic resources represent the heritage of a particular ethnic or cultural group, such as Native Americans or African, European, Latino, or Asian immigrants. They may include traditional resource-collecting areas, ceremonial sites, value-imbued landscapes and related features, cemeteries, shrines, or ethnic neighborhoods and structures. Ethnographic resources are variations of natural resources and standard cultural resource types. They are subsistence and ceremonial locales and sites, structures, objects, and rural and urban landscapes assigned cultural significance by traditional

users. The decision to call resources "ethnographic" depends on whether associated peoples perceive them as traditionally meaningful to their identity as a group and the survival of their lifeways.

Historic-period resources, both archaeological and architectural, are associated with Euro-American exploration and settlement of an area and the beginning of a written historical record. They may include archaeological deposits, sites, structures, traveled ways, artifacts, or other evidence of human activity. Groupings of historic-period resources are also recognized as historic districts and as historic vernacular landscapes.

For the HHSEGS project, staff provides an overview of the environmental setting and history of the project area from a cultural resources perspective, an inventory of the cultural resources identified in the project vicinity, and an analysis of the project's potential impacts to significant cultural resources, using criteria from the California Environmental Quality Act (CEQA) and CEQA Guidelines.

If cultural resources are identified, staff determines which are historically significant (defined as eligible for the CRHR or by other significance criteria) and whether the HHSEGS would have a substantial adverse impact on those that are determined to be historically significant. Staff's primary concern is to ensure that all potentially significant cultural resources are identified, all potential project-related impacts to those resources are identified and assessed, and conditions are proposed that ensure that all significant impacts that cannot be avoided are mitigated to a less than significant level or to the extent feasible.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Projects subject to the Energy Commission's licensing process are reviewed and conditions of certification are imposed, as needed, to ensure compliance with all laws, ordinances, regulations, and standards (LORS); plans; and policies that are applicable to the proposed project and related facilities, or would be applicable but for the Energy Commission's exclusive authority. For this project, there is limited federal project land in California, with the majority of federal involvement occurring in Nevada, outside Energy Commission jurisdiction;² therefore, most of the LORS subject to Energy Commission review are California state laws and local regulations.

² *Cultural resources in California are also protected under provisions of the federal Antiquities Act of 1906 (Title 16, United States Code, Section 431, et seq.) and subsequent related legislation, policies, and enacting responsibilities, e.g., federal agency regulations and guidelines for implementation of the Antiquities Act.*

CULTURAL RESOURCES Table 1
Laws, Ordinances, Regulations, and Standards

<u>Applicable Law</u>	<u>Description</u>
Federal	
45 CFR 690 Use of Human Subjects	Provides for non-disclosure of confidential information that may otherwise lead to harm of the human subject divulging confidential information.
State	
Public Resources Code (PRC) 5097.98(b) and (e)	Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until s/he confers with the Native American Heritage Commission-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reinter the remains elsewhere on the property in a location not subject to further disturbance.
PRC, Sections 5097.99 and 5097.991	5097.99 establishes as a felony the acquisition, possession, sale, or dissection with malice or wantonness of Native American remains or funerary artifacts. 5097.991 establishes a state policy requiring the repatriation of Native American remains and funerary artifacts.
California Health and Safety Code, Section 7050.5	This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. It also requires a project owner to halt construction if human remains are discovered and to contact the county coroner.
California Civil Code Section 1798.24	Provides for non-disclosure of confidential information that may otherwise lead to harm of the human subject divulging confidential information
California Government Code § 62544.10 – California Public Records Act	Provides for non-disclosure of records that relate to archaeological site information and reports maintained by, or in the possession of, the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency.
Local	
County of Inyo General Plan, Conservation/ Open Space Element (Chapter 8.7), Cultural Resources Policy CUL-1.3	CUL-1.3 Protection of Cultural Resources – Preserve and protect key resources that have contributed to the social, political, and economic history and prehistory of the area, unless overriding circumstances are warranted.

SETTING

Information provided regarding the setting of the proposed project places it in its geographical and geological context and provides the context for the evaluation of the historical significance of any identified cultural resources within staff's PAA.

PROJECT SITE AND VICINITY

The proposed project area includes approximately 3,277 acres of privately owned land in the Pahrump Valley in Inyo County, California, approximately 8 miles south of Pahrump, Nevada and approximately 45 miles west of Las Vegas. The Pahrump Valley lies in the eastern Mojave Desert, which is a part of the Basin and Range physiographic province (Fenneman 1931), a broad region of almost parallel, block-faulted mountain ranges that trend approximately north to south and are characteristically separated by internally draining, debris-filled structural basins. The erosion of the largely Cenozoic era ranges (beginning 65 million years ago and continuing to the present) continues to contribute sediment to the poorly sorted gravel aprons or bajadas that predominate along the range flanks. The bajadas form most valley margins as they slope gradually down to the basin bottoms where seasonal lakes or playas often form. Low fault scarps and alluvial fans at the mouths of canyons periodically break the smooth, low-angle sweep of the bajadas (Eaton 1981; Thompson and Burke 1974). The elevation of the proposed project area varies from approximately 2,737 feet above mean sea level (amsl) along the eastern area boundary and 2,583 feet amsl along the western area boundary (HHSO 2011a, Appendix 2G, p.1). Local elevations in this part of the Mojave Desert range from approximately 1,700 to 2,600 feet above sea level (asl) on the valley bottoms to 4,900 to 7,900 feet asl along mountain range ridges.

A bi-seasonal precipitation pattern in the eastern Mojave Desert delivers an average of six inches of annual rainfall from November through April and from July through September, with cool season precipitation being more significant (Hereford 2004). The Colorado River, flowing generally southwesterly from the Rocky Mountains makes a significant bend, within 75 miles of the project area that changes the course of the river towards the south and the Gulf of Colorado. The largely alluvial parent material of the region's bajadas and valley bottoms, and the desert climate generally, support more weakly developed soil orders (Entisols and Aridisols) (NRCS 2007) where a Mojave Creosote Bush Scrub vegetation type predominates (BSE2007a, p. 5.2-9).

The available archaeological evidence indicates a great deal of variability in the Native American use of different portions of the project area through time. A relatively sparse veneer of toolstone acquisition debris on the present surface of the proposed facility site indicates a transitory Native American use of that area, while the presence and moderate frequency of fire pit ruins, stone tool production and maintenance debris, and fragmentary stone tools demonstrate a much more extensive use of the discontinuous mesquite woodland along the fault zone to the immediate northeast of the facility site, through which the transmission line and natural gas pipeline for the proposed project would be built.

The project area also appears to have been subject to prospecting over the last approximately 160 years. Sporadic mineral prospecting in and near the project area continues today. The eroded mountain remnants that are located just above the relatively smooth, sloping surface of the proposed project area, landforms known as inselbergs, show evidence of exploratory activity in the form of abandoned and active prospect pits.

CULTURAL RESOURCES INVENTORY

A project-specific cultural resources inventory is a necessary step in staff's effort to determine whether the proposed project may cause significant impacts to historically significant cultural resources (i.e., historical resources) and would therefore, under CEQA, have a significant adverse effect on the environment.

The development of a cultural resources inventory entails working through a sequence of investigatory phases. Generally, the research process proceeds from the known to the unknown. These phases typically involve doing background research to identify known cultural resources, conducting fieldwork to collect requisite primary data on not-yet-identified cultural resources in the vicinity of the proposed project, assessing the results of any geotechnical studies or environmental assessments completed for the proposed project site, and compiling recommendations or determinations of historical significance (see "Determining the Historical Significance of Cultural Resources," below) for any cultural resources that are identified.

This subsection describes the research methods used by the applicant and Energy Commission staff for each phase and provides the results of the research, including literature and records searches (California Historical Resources Information System (CHRIS) and local records), archival research, Native American consultation, and field investigations. Staff provides a description of each identified cultural resource, its historical significance, and the basis for its significance evaluation. Assessments of the project's impacts on historically significant cultural resources; potential impacts on previously unidentified, buried archaeological resources; and proposed mitigation measures for all significant impacts are presented in separate subsections below.

PROJECT AREA OF ANALYSIS (PAA)

The PAA is a concept that staff uses to bound the geographic area in which the proposed project has the potential to affect cultural resources. The effects that a project may have on cultural resources may be immediate, further removed in time, or cumulative. They may be physical, visual, auditory, or olfactory in character. The geographic area that would encompass consideration of all such effects may or may not be one uninterrupted expanse. It may include the project area, which would be the site of the proposed plant (project site), the routes of requisite transmission lines and water and natural gas pipelines, and other offsite ancillary facilities, in addition to one or several discontinuous areas where the project could be argued to potentially affect cultural resources.

The preliminary configuration of the PAA for staff's consideration of the HHSEGS project reflects the limitations that CEQA places on dual-state projects. Staff presently sees the core of the PAA as the project site, which includes the areas of Solar Plant 1 and Solar Plant 2, the Common Area, and the Temporary Construction Area (HHSG 2011a, Figure 2.1-2). The eastern boundary of the project site is coincident with the California-Nevada border. Elements of the project constructed in Nevada, such as the transmission lines, are not assessed by staff for environmental effects within Nevada. However, impacts resulting from project activities in California, regardless of location, and impacts to resources in California, regardless of where the impacts originate, are evaluated and mitigated to the extent feasible. Therefore, the PAA for cultural resources may extend beyond California's border.

Staff is presently aware of two areas in Nevada that qualify as discontinuous components of the HHSEGS cultural resources PAA. One of these areas encompasses the portion of the shallow step fault zone that defines the eastern edge of the project site along which the HHSEGS power tower would impose a significantly discordant visual presence (also see the **VISUAL RESOURCES** section of the HHSEGS **PSA** for additional information). Portions of the step fault zone, which are part of the State Line fault system, appear to have been the focus of relatively intense Native American activity for thousands of years. This activity has been related to the periodic presence of surface springs and seeps and to mesquite woodlands that have become encased in an archipelago of sand dunes along the zone. The portions of the fault zone that are coincident with these woodlands and the surface springs and seeps, and the archaeological deposits that relate to the use of these natural resources qualify as an archaeological landscape.

An archaeological landscape is a constellation of passively and actively managed natural features and material culture remains that may be significant for its association with behavioral patterns, with events that have made an important contribution to the Native American prehistory and history of this portion of the eastern Mojave Desert. Additionally, it may have potential importance for the information that it may be able to provide about the prehistory and history of Native American life in the region. In order to be able to convey the potential associative significance of the potential landscape, the landscape must reasonably retain integrity of setting, feeling, and association.. Staff has, for the purpose of the present analysis, made the assumption that this landscape is significant for its associative values, and further found that the visual intrusion of the HHSEGS power towers on the landscape compromises the relevant aspects of the resource's integrity. Beyond the archaeological landscape as a whole, constituent deposits that compose the landscape, deposits for which information is presently unavailable, may also be significant as stand-alone cultural resources. These may include archaeological deposits associated with some of the named springs and seeps in the vicinity of the facility site, such as Stump, Browns, and Mound Springs, and with the more productive patches of the mesquite woodland.

A second area in Nevada that staff has identified as a discontinuous component of the PAA encompasses Mount Charleston and other prominent peaks of the Spring Mountains. On the basis of early consultation with local Native American communities, and relying also on the basic tenants of ethnogeography, it is reasonable to assume a

relatively high probability that these peaks are important elements of the mythologies and religions of different Native American groups in the region.

There also appear to be areas to the west of the project site that are likely to be additional discontinuous components of the PAA. On the basis of Native American consultation to date, prominent peaks of the Nopah Range also appear to be places known and named in local Native American mythological and religious repertoires. Among the lower reaches of the range, there may also be places where the visual presence of the HHSEGS power tower would degrade the ability of key places and trails to convey their respective associative values.

BACKGROUND INVENTORY RESEARCH

Identification of cultural resources in the PAA and analysis of the significance of those resources and potential project-related impacts requires resource information specific to the project area and vicinity. Various repositories in California hold compilations of information on the locations and descriptions of cultural resources older than 45 years that have been identified and recorded in past cultural resources surveys. Consistent with the Energy Commission's Data Regulations, the applicant conducted background inventory research and provided the results as part of the HHSEGS AFC and in Data Responses to Energy Commission staff's Data Requests, Set 1D.

Energy Commission staff also conducted additional archival and literature research to supplement information provided by the applicant. This included reviewing documents obtained on the internet; subject-specific books from local venues, the Shoshone Museum, and the Nevada Historical Society Museum in Tonopah; books and manuscripts on file at the Pahrump Public Library, the California State Archives, Sacramento State University Library, and University of California-Berkeley Bancroft Library; historic photographs from the University of Nevada-Las Vegas; and photocopy and original documents provided by the Pahrump Paiute Tribe.

CHRIS Records Search

An archival literature search for the HHSEGS site in California was performed in-person at the CHRIS Eastern Information Center³ at the University of California, Riverside, by CH2MHill on behalf of the applicant, on May 17, 2010. The literature search area included the area within the project site boundaries and a 1-mile buffer around the project site. CH2MHill also requested data from the Nevada Cultural Resource Information System (NVCRIS) database on April 18, 2011 and conducted an in-person search of the files at the Harry Reid Center (HRC) at the University of Nevada-Las Vegas for information related to the project area along the California-Nevada border on April 21, 2011. Additionally, Kathleen Sprowl, archaeologist for the BLM Southern Nevada District Office, was contacted to acquire supplemental information unavailable from the other sources.

³ The California Historical Resources Information System (CHRIS) is a federation of 11 independent cultural resources data repositories overseen by the California State Office of Historic Preservation. These centers are located around the state, and each holds information about the cultural resources of several surrounding counties. Qualified cultural resources specialists obtain data on known resources from these centers and in turn submit new data from their ongoing research to the centers.

The following maps were also reviewed by both CH2MHill and Energy Commission cultural resources staff to identify known historical land uses pertinent to the project site and vicinity:

- 1937 Clark County, Nevada, State of Nevada, Department of Highways. Sheets 1 and 3.
- 1954 Official Highway Map of Nevada.
- 1956 Official Highway Map of Nevada.
- 1939 General Highway Map, Nye County, Nevada
- 1955 Roach Lake 15' USGS quadrangle topographic map, University of Alabama, Historical Maps, electronic resource, <http://alabamamaps.ua.edu/index.html>

The results of the records searches conducted by CH2MHill were submitted as part of the AFC and reviewed by qualified Energy Commission cultural resources staff.

Archival and Library Research

California

Three studies were conducted by the applicant's consultant within the delineated literature search area in California. Only two of these studies intersect the HHSEGS project location. One previously recorded resource was identified within the literature search area. This resource is a prehistoric lithic scatter that has not yet been evaluated for inclusion in the NRHP. This scatter, CA-INY-2492, is located within the HHSEGS project boundary.

Nevada

Three studies have been conducted within the delineated literature search areas in Nevada. Of these studies, only one study crosses the California-Nevada border and intersects the HHSEGS. Neither study is on file with the CHRIS. No previously recorded resources were found within the HHSEGS boundary. One resource was noted within the literature search buffer area. This resource is the NRHP-listed Old Spanish Trail-Mormon Road Historic District in Nevada, Site 26- CK-3848. The Old Spanish Trail-Mormon Road ran from Santa Fe, New Mexico, through Colorado, Utah, Arizona, Nevada, and into Los Angeles, California. These three Nevada segments of the trail were listed on the NRHP in 2001.

Local Agency and Organization Consultation

California counties and cities may recognize particular cultural resources as locally historically important by ordinance, in general plans, or by maintaining specific lists. Consistent with the Energy Commission's Data Regulations, the applicant and Energy Commission Cultural Resources staff contacted local planning agencies and historical and archaeological societies to acquire information on locally recognized cultural resources specific to the vicinity of the project.

Local Historical Societies

The applicant's consultant, CH2M Hill, contacted historical societies in the Pahrump, Nevada, and Sandy Valley, California areas, including the Pahrump Valley Historical Society, Goodsprings Historical Society, and the Nevada State Museum and Historical Society. They also sent letters and maps describing the project to these organizations, requesting information about historical features and structures near the project area and inviting comment on the project.

Old Spanish Trail Association

CH2M Hill also contacted the Old Spanish Trail Association (OSTA) as part of their organizational outreach.

Staff also made contact with OSTA and met with Scott Smith and other representatives on December 1, 2011 at the project site. During the tour of the site, the group discussed both the visual and cultural impacts of the project to the Old Spanish Trail (OST). The OSTA members showed staff segments of a footpath they assert is part of the OST. OSTA prepared a report⁴ on the history of the Old Spanish Trail and submitted it to the Energy Commission on April 30, 2012. Staff is arranging to meet with OSTA to discuss this report prior to the publication of the HHSEGS Final Staff Assessment (FSA).

Native American Consultation

The Governor's Executive Order B-10-11, executed on September 19, 2011 directs state agencies to engage in meaningful consultation with California Indian Tribes on matters that may affect tribal communities. The Energy Commission Siting Regulations require applicants to contact the Native American Heritage Commission (NAHC) for information on Native American sacred sites and a list of Native Americans interested in the project vicinity. The applicant is then required to notify the Native Americans on the NAHC list about the project and include a copy of all correspondence with the NAHC and Native Americans and any written responses received, as well as a written summary of any oral responses in the AFC. [CEC Regs 2007, Appendix B(g)(2)(D), p.87].

The NAHC is the primary California government agency responsible for identifying and cataloging Native American cultural resources, providing protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction, and preventing irreparable damage to designated sacred sites and interference with the expression of Native American religion in California. It also provides a legal means by which Native American descendants can make known their concerns regarding the need for sensitive treatment and disposition of Native American burials, skeletal remains, and items associated with Native American burials.

⁴ http://www.energy.ca.gov/sitingcases/hiddenhills/documents/others/2012-04-27_Jack_Prickett_OSTA_Cultural_Rsources_Report.pdf

The NAHC maintains two databases to assist cultural resources specialists in identifying cultural resources of concern to California Native Americans, referred to by staff as Native American ethnographic resources. The NAHC's Sacred Lands database has records for places and objects that Native Americans consider sacred or otherwise important, such as cemeteries and gathering places for traditional foods and materials. Their Contacts database has the names and contact information for individuals, representing a group or themselves, who have expressed an interest in being contacted about development projects in specified areas.

Both the applicant and staff requested information on the presence of sacred lands in the vicinity of the HHSEGS project area, as well as a list of Native Americans to whom inquiries should be sent to identify both additional cultural resources and any concerns the Native Americans may have about the proposed project.

Staff contacted the NAHC on April 25, 2011 and requested a search of the Sacred Lands File and a Native American contacts list. The NAHC responded in May 2011, with a list of Native Americans interested in consulting on development projects in the project area. Staff sent letters to all of the NAHC listed tribes on May 25, 2011, inviting them to participate in a field trip to the proposed project area and encouraging tribes to provide additional cultural resources information to staff (see Cultural Resources Figure 1 for general map of tribal government office locations and territories).

CH2MHill also contacted the NAHC on May 27, 2011 and requested a search of the Sacred Lands File and a Native American contacts list. The NAHC responded on June 1, 2011, with a list of Native Americans interested in consulting on development projects in the HHSEGS project area (HHSG 2011a). Letters to tribes and individuals listed on the NAHC contact list were mailed or faxed by CH2MHill on June 7, 2011. Copies of the contact letters are provided in Appendix 5.3A of the HHSEGS AFC. A detailed summary table of the results of consultations with the individual Native American organizations on the NAHC contact list is also included. CH2MHill received a response from the Timbisha Shoshone that indicated they would discuss the project at the next tribal meeting. A second response was received from Bill Helmer, Tribal Historic Preservation Officer for the Big Pine Band of Owens Valley stating that the tribe would like to discuss the project with staff. Staff followed up with all NAHC listed tribes, including the two tribes that formally responded, via subsequent phone conversations and face-to-face meetings.

The NAHC record searches of the Sacred Lands file, conducted by both CH2MHill and staff, did not indicate the presence of Native American cultural resources within 1 mile of the HHSEGS site. However, the Sacred Lands file only contains those resources that tribes are willing to publically identify and cannot be considered a comprehensive list of places and objects that Native Americans consider sacred or otherwise important.

Energy Commission cultural and visual resources staff held a pre-filing Native American consultation and outreach meeting on August 2, 2011, in conjunction with the applicant and BLM staff. The meeting was attended by representatives of the Pahrump Band of Southern Paiute and the Las Vegas Paiute. The purpose of the meeting was to introduce the Energy Commission staff, present the project, explain the roles of the

different agencies, talk about the visual resources and cultural resources analyses, and visit the project area. Although a visit to the project site did not occur, photos and photo simulations of key observation points (KOPs) in the vicinity of the project were examined at the meeting.

On December 2, 2011, Energy Commission staff met for a second time with representatives of the Pahrump Band, Las Vegas Paiute, and Timbisha Shoshone in Pahrump, Nevada. Also in attendance was Kathleen Sprowl of the Nevada BLM. The discussion was not limited to cultural and visual resources and a wide range of questions were asked about the project in general, including potential impacts to water. The group also visited the project site in the afternoon.

At the request of the tribes, a follow-up meeting with Energy Commission technical staff, including cultural, visual, biology, water, alternatives, and soils specialists, occurred on January 19, 2012 in Shoshone, California with representatives from the Pahrump Band, Las Vegas Paiute, Timbisha Shoshone, Lone Pine Paiute, and the Moapa to discuss specific tribal concerns regarding several aspects of the project.

Several additional meetings were held to exchange general information with affiliated tribes and to gauge tribal interest in participating in further project-related ethnographic studies. Specific tribal government representatives and individual traditional Native American practitioners were invited, based on the May 2011 listing of tribes interested in consulting on development projects in their ancestral territories, provided by the NAHC to Energy Commission staff.

General Meeting 1 was held on January 19, 2012 in Shoshone, California and was attended by various Energy Commission staff technical experts in the areas of water, biology, cultural resources, and planning, as well as representatives of upper management. Participating tribes included the Pahrump Paiute Tribe, Moapa Paiute Tribe, Las Vegas Paiute Tribe, Timbisha Shoshone Tribe, and the Lone Pine Tribe of Paiute and Shoshone. The tribal attendees were a combination of tribal cultural resources and environmental protection staff and several tribal elders. Staff provided the tribes with an overview of the proposed project and updates on how various natural and cultural resources studies were proceeding. Tribal attendees asked general and clarifying questions and made statements that expressed their concerns for how the project might impact their lifeways.

Specific concerns were expressed regarding the proposed project's water use; impacts to the water-related biomes, such as the local springs that support plants and animals in the nearby coppice dunes mesquite grove complexes; and mention was made that Paiute ceremonies, generally referred to as "Salt Song Trails," occurred or were centered in, around, and running through the project area. Additional concern was expressed regarding impacts to Indian trails, including the Old Spanish Trail, and possible impacts to on-site plants, animals, and cultural resources, including possible burial or cremation sites. Cultural Resources staff proposed that an ethnographic study be conducted. Tribes agreed that an ethnographic study would be one desired method to pursue. They also indicated that the Pahrump Paiute Tribe should be central to that study and that the other tribes could provide support to the Pahrump Paiute Tribe.

However, participating tribes also requested exclusive follow-up meetings with Energy Commission cultural resources staff.

General Meeting 2 was held on February 11, 2012, at the Hidden Hills project site and in Pahrump, Nevada. Energy Commission staff ethnographer, Thomas Gates, met with various Pahrump tribal members as a group near the project site. The membership had assembled to get clarification and a better general understanding of the proposed project parameters. The ethnographic study and confidentiality of information that the tribe might provide were two topics discussed. Several off-project cultural resource areas were visited, including a looted Pahrump Paiute cemetery.

General Meeting 3 was held on February 12, 2012, at the Hidden Hills project site and at Sandy Valley (an alternative project site). The Energy Commission ethnographer met with the Moapa Tribe cultural resources staff and committee members. One Moapa tribal council person also attended, as did Pahrump tribal representatives. General HHSEGS project parameters were discussed. Some Moapa participants are descendants of Paiute families that originated from the Pahrump Valley vicinity. Cultural values attached to the Sandy Valley area were discussed. Moapa Tribe staff reiterated their previous statements that the Moapa Tribe would support the Pahrump Tribe and was interested in reviewing the ethnographic report prior to finalization. They also reiterated concerns voiced at the first general meeting about impacts to water, springs, plants and animals, and the salt song ceremonies.

General Meeting 4 was held on February 14, 2012, with the Owens Valley Indian Water Commission. Representatives from the Uta Gwaitu Paiute Tribe, Bishop Paiute Tribe, Big Pine Paiute Tribe, Fort Independence Paiute Tribe, Lone Pine Paiute and Shoshone Tribe, and Timbisha Shoshone Tribe participated. The general HHSEGS project, as proposed, was discussed and the ethnographic study concept was presented. Participants agreed that the project area was within Southern Paiute Territory (as contrasted with Owens Valley Paiute territory) and that the Pahrump Tribe was the most affiliated tribe to work with, but that some Southern Paiute families had ended up as tribal members in Owens Valley Paiute Tribes. Individual families were identified.

General Meeting 5 was held on May 12, 2012, with the Pahrump Paiute Tribe. A draft of the ethnographic report, Appendix A, appended to this document under confidential cover, was generally reviewed and the Energy Commission project review process was discussed. Sections of the ethnographic report included in this analysis were identified by staff and the Pahrump Tribe as non-confidential, and form the basis of staff's conclusions and recommended mitigation measures.

Since May 2012, staff has continued to consult with the Pahrump Tribe on possible ways to mitigate the project's impacts on tribal cultural and religious practices and the traditional use of ancestral lands. Staff will continue to consult with the Tribes during the licensing process.

FIELD INVENTORY INVESTIGATIONS

The Energy Commission's Data Regulations require applicants to conduct surveys to identify previously unrecorded cultural resources in or near their proposed project areas. These surveys include a pedestrian archaeological survey and a built-environment windshield survey.

The applicant provided survey information as part of the AFC and additional information in response to staff's Data Requests. This information was augmented by staff's independent research and ethnographic resource study.

CULTURAL RESOURCES TABLE 2
Cultural Resources Inventory Investigations for the Present Analysis

<i>Investigation Type</i>	<i>Results</i>	<i>Report Reference</i>
Initial Intensive Pedestrian Cultural Resources Survey	One previously recorded prehistoric archaeological site revisited, and ten new prehistoric ¹ , one new historical, and one new indeterminate-age archaeological site found	CRTR 2011a
Geoarchaeological and Evaluation Phase Archaeological Investigations	Documentation of near-surface stratigraphy of the project site	CH2 DR128
Intensive Historic Trails and Roads Survey	One previously recorded historic trail, one previously recorded historic road, and 6 new roads/trails.	CH2 DR125
Ethnographic Resource Study	Three ethnographic landscapes: 1. Salt Song Landscape 2. Pahrump Paiute Home Landscape 3. Mo hav Landscape	HHSEGS Supplemental Preliminary Staff Assessment, Confidential Cultural Resources Ethnographic Report

¹ The technical report for this survey documents a total of 13 new archaeological sites. Energy Commission staff, on the basis of a field examination, determined that one of the newly recorded prehistoric archaeological sites (Temporary No. S-2), was actually the result of recent historic activity.

CULTURAL RESOURCES TABLE 3
Present Inventory of Cultural Resources in the Project Area of Analysis
Prehistoric Archaeological Resources

Cultural Resource Type (Year of Initial Recordation)	Description	Location	CRHR Eligibility	Source of Objective Data
CA-INY-2492 (1979/2011)	Lithic scatter of 5 yellow and brown chert flakes, and 4 light brown flakes of igneous stone	E-central portion of project area	Ineligible	CRTR 2011
Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape	Proposed landscape thematically focused on collection and processing of mesquite and other plant resources unique to the mesquite woodland-coppice dune association during the entirety of woodland's existence. Landscape elements include the archaeological deposits, the mesquite population, ancillary floral and faunal populations, and, the structural features of the faults, dunes, and aquifer discharge locales	Largely just to the NE of the project area in Nevada. Several alternate transmission line and gas pipeline routes traverse this proposed landscape	Assumed eligible under Criteria 1 and 4 (see "Evaluations of Prehistoric and Historical Archaeological Resources" subsection, below)	Spaulding 2012
S-1	Lithic scatter (1 piece/9.4 m ²) with 1 utilized flake, 12 flakes, and 3 pieces of shatter in a 10 m x 15 m area amidst 3 apparent recent pot-hunters holes.		Ineligible	
S-3	Lithic scatter of 6 flakes, and 2 cores, mostly in a 1 x 1 m area. Flakes include 4 primary, 1 secondary, and 1 tertiary flakes of red rhyolite and a yellowish red "welded tuff." Site on flat, undisturbed floor of the project area bolson.	E-central portion of project area	Ineligible	CRTR 2011
S-4	Original technical report describes site as lithic scatter of 41 flakes. Majority of flakes reported as a "light brown igneous medium grained material."	SE portion of project area	Ineligible	CRTR 2011; CH2 DR128
S-5	Lithic scatter of 5, "red and black banded rhyolitic	E-central to central portion of	Ineligible	CRTR 2011

Cultural Resource Type (Year of Initial Recordation)	Description	Location	CRHR Eligibility	Source of Objective Data
	material” flakes in a 50 x 50 cm area. Overall site dimensions 10 x 10 m. Field archaeologists note the flakes’ association with a 5 x 10 m shallow depression that they tentatively interpret as a former spring or seep.	project area		
S-6	A 25 x 30 m lithic scatter. Surface assemblage (1 piece/53.6 m ²) includes 3 multi-directional cores of green chert and a coarse mudstone, 1 poorly described utilized basalt flake, 9 flakes and a fragmentary flake of limestone or mudstone. No subsurface assemblage.	E-central to central portion of project area	Ineligible	CRTR 2011; CH2 DR128
S-10 and -11 ⁵	“Large, widely dispersed lithic procurement site or quarry.” Surface assemblage (1 piece/2.5 m ²) includes 3 flake tools, 9 cores, and over 150 flakes, the majority of which is said to be “light brown chert.” Subsurface assemblage (variably, 0 pieces/m ³ , 100 pieces/m ³ , and 310 pieces/m ³) appears to have maximum depth of 10 cm and includes chert flakes	E-central portion of project area	Ineligible	CRTR 2011; CH2 DR128
S-23	10 x 10 m scatter (1 piece/5.3 m ²) with 19 secondary and tertiary flakes of a “light yellow to brown igneous material, likely a welded tuff.”	E-central to central portion of project area	Ineligible	CRTR 2011; CH2 DR128
S-AF-1	Lithic scatter, approximately 13 x 13 m, of approximately 25 chert flakes ranging from beige to light brown in color	Buffer area on Nevada side of E-central portion of project area	N/A	CRTR 2011
S-AF-2	4 m-diameter, 19 flake scatter (1.5 pieces/1 m ²) of material	SE portion of project area	Ineligible	CRTR 2011

⁵ Archaeological sites temporary numbers S-10 and -11 were recorded in the original intensive pedestrian survey as separate resources (Helton, Lawson, and Fergusson 2011). Subsequent work on the sites to support evaluations of their respective historical significance (Lawson, Spaulding, and Helton 2012) determined, relative to the applicant’s project definition of an archaeological site (see *Intensive Pedestrian Cultural Resources Survey* subsection, below), that the two resources were actually one.

Cultural Resource Type (Year of Initial Recordation)	Description	Location	CRHR Eligibility	Source of Objective Data
	described as “caramel colored chert,” surmised to have come from the same core.			

Historical Archaeological Resources

Cultural Resource Type (Year of Initial Recordation)	Description	Location	CRHR Eligibility	Source
S-20	A 12 item scatter (150 m ²) of 1 “solder dot” can, 5 sanitary cans, 3 “soft top cans,” and 3” bottle bases.	S-central portion of the project area	Ineligible	CRTR 2011

Archaeological Resources of Indeterminate Age

Cultural Resource Type (Year of Initial Recordation)	Description	Location	CRHR Eligibility	Source
S-8	22 x 33 in. rock cairn of 26 “fist- to soccer ball-sized” stones.		Ineligible	CRTR 2011; CH2 DR128

<i>Ethnographic Resources</i>				
<i>Cultural Resource Type (Year of Initial Recordation)</i>	Description	Location	CRHR Eligibility	Source
<i>Salt Song and Land Scape</i>	<i>Ethnographic Landscape</i>	<i>General Location: Southeastern Utah, Southern Nevada, Northwestern Arizona, Southern California</i> <i>Specific Location: Corridor between Spring Mountains, Mount Charleston, Pahrump Valley including Mo hav area, Playa and No pah Range (Figure 2).</i>	Criteria A at the regional level Criteria C at the regional level	HHSEGS Supplemental Preliminary Staff Assessment, Confidential Cultural Resources Ethnographic Report, Appendix A
<i>Pahrump Paiute Home Landscape</i>	<i>Ethnographic Landscape</i>	<i>General location: area encompassed by the Chief Tecopa Journey around the Spring, No Pah, Resting Spring, and Providence Mountain Ranges</i> <i>Specific Location: Western Slopes of Spring Mountains, Pahrump Valley (Figure 1).</i>	Criteria A at the regional level Criteria B at the regional level	
<i>Mo hav Landscape</i>	<i>Ethnographic landscape</i>	Mo hav is an area of approximately 35 square miles that takes in the southeastern margins of the Pahrump Dry Lake bed, the washes that extend from the alluvial toes of Mt. Charleston down to the Pahrump Dry Lake bed, the spring areas in between that include Browns Spring, Hidden Hills Ranch Spring, Stump Spring, several unnamed spring discharge areas (including Weeping Rock Seep), the various vegetations including the Mojave Scrub, Shadscale Scrub, and the coppice dune mesquite bosquet areas. The proposed project site is wholly within the Mo hav Landscape (Figure 3).	Criteria A at the local level Criteria D at the local level	

Historic Built-Environment Resources

Cultural Resource Type (Year of Initial Recordation)	Description	Location	CRHR Eligibility	Source
<i>The Old Spanish Trail/Mormon Road</i>	The entire approximately 2,700 mile long trail	Extends from Santa Fe, New Mexico, to Los Angeles, California. Tracks/traces run through and near the project site.	Listed National Historic Trail, CRHR eligible	
<i>S-24</i>	Historic road segment	Traverses the southeast corner of the project site	To Be Determined (TBD)	CH2 DR125
<i>S-25</i>	Historic road segment	Runs north- south, clips a portion of the eastern boundary of the project site	TBD	CH2 DR125
<i>S-26</i>	Trail/footpath	Bisects the project site (northeast to southwest)	TBD	CH2 DR125
<i>Track 1</i>	Historic road	Parallels the California-Nevada border in the project site	TBD	CH2 DR125
<i>Track 4</i>	Historic road	South of Tecopa Road (outside of the project site)	TBD	CH2 DR125
<i>Track 5</i>	Historic trail/road	North of the project site originating at Brown's Spring	TBD	CH2 DR125
NOTE: 'track' refers to historic transportation marks generally made by vehicles of a historic nature				

INTENSIVE PEDESTRIAN CULTURAL RESOURCES SURVEY

The archaeologists for the applicant undertook an intensive pedestrian cultural resources survey of the project site to provide information on the location and the character of the cultural resources that lie on the surface of the PAA (CRTR 2011a, 2011b). The information resulting from this survey informs the present analysis of the project's potential effects on historical resources on the surface of the project site and 200 feet beyond the boundary of the project site. The alignments for the project transmission and natural gas pipelines are in Nevada. Since the Energy Commission does not have licensing authority over facilities located in Nevada, transmission and natural gas pipeline alignments were not surveyed as part of the applicant's AFC. These project elements in Nevada are subject to a BLM environmental analysis, called the Valley Electric Association Hidden Hills Transmission Project (NVN 089669)⁶.

⁶ http://www.blm.gov/nv/st/en/fo/lvfo/blm_programs/energy/hidden_hills_transmission.html

A pedestrian survey of the HHSEGS project site within California was conducted on and off from March through June 2011, over a total of approximately 19 field days (CRTR 2012b, p. 1). The survey included coverage of the entire proposed project site and 200 feet beyond the project boundaries. The requisite survey of built-environment resources from the edge of the 200-foot buffer zone out to one half of a mile from the project site boundary was not an aspect of the initial survey and was conducted at a later date (CH2 2012a) (see *Windshield Survey for Built-Environment Resources* subsection, below).

A relatively routine methodology was used to walk the survey area. Transect intervals for the survey ranged from 10 to 15 meters in width (CRTR 2012b, p. 49). Survey personnel navigated through the survey area with Trimble GeoXT submeter global positioning system (GPS) units which were each loaded with shape files of the survey area and of previously recorded cultural resources. Personnel recorded survey transects with these units to ensure adherence to the survey sample.

The recordation of the cultural resources that were found on the survey was also relatively routine (CRTR 2012b, pp. 49 and 50). For the purpose of the survey, an archaeological site was defined as any five artifacts or ecofacts within a 50-meter radius of one another, or as any archaeological feature, such as a constructed fire feature or storage pit. Artifact and ecofact⁷ clusters of five or greater pieces were split into separate archaeological sites if they were found on adjacent but separate landforms. Artifact and ecofact clusters of fewer than five pieces were documented as “Isolated Occurrences.” Historic road segments were recorded as separate linear resources irrespective of any proximal association that they may have had to other archaeological sites or isolates. Found archaeological resources were recorded on appropriate California Department of Parks and Recreation (DPR) 523 series forms, photographed, and mapped with the Trimble GPS units. Field notes were taken to describe the finds, and nothing was collected.

Results

As a result of the intensive pedestrian cultural resources survey, 13 new archaeological sites, one previously recorded archaeological site, and 49 archaeological isolates were found (CRTR 2012b, p. 53 and Table 5) ([“Present Inventory ...”] Table 3, above). No built-environment resources were found in the survey area. The 13 new archaeological sites initially consisted of 11 prehistoric and 1 historical archaeological site, and 1 archaeological site of indeterminate age. On the basis of a subsequent field examination, Energy Commission and Nevada BLM staff determined that one of the newly recorded prehistoric archaeological sites (Temporary No. S-2) was actually the result of recent historic activity. This determination reduced the number of new prehistoric archaeological sites to 10. The prehistoric archaeological site types include lithic scatters of what appear to be chipped stone debris related to the assaying of natural local accumulations of cobbles suitable for use as toolstone, suitable to make

⁷ An “ecofact” is an organic or inorganic natural resource, fragmentary or whole, that has not been crafted into a cultural object, but has been demonstrably used or in some manner manipulated by people. Ecofacts include, for example, refuse related to food preparation and disposal; various mineral residues, related to food preparation and disposal, personal adornment, or art; and microscopic pollen grains or phytoliths that would indicate the prior presence of particular plant species.,

stone tools. The large majority of the debris is flakes of stone, many of which exhibit parts of the weathered rind of the cobbles from which they came. The balance of the artifact assemblages from these archaeological deposits are made up of cores, or the chipped cobbles from which the flakes came. The most common type of stone present in these deposits is chert of different colors. Other stone types of igneous, metamorphic, and sedimentary origin are present, though much more infrequently. The one historical archaeological site is an historic refuse deposit and the one archaeological resource of indeterminate age is a rock cairn.

ETHNOGRAPHIC RESOURCE INVESTIGATION

Ethnographic Methods

Rapid Ethnographic Assessment Procedures (REAP)

An ethnography, at its best, takes years to complete. Ethnographers can spend a lifetime studying another culture and still find that their cross-cultural knowledge of their “second” culture is incomplete. Minimally, it is advised to spend at least one year in studying another culture so that one can learn about the various seasonal variations and adaptations. Academic and self-funded anthropologists may have such luxury. However, the merits of ethnography, when employed to understand project impacts to ethnographic resources, often require less than optimal study durations. One method, called “Rapid Cultural Assessment” (RCA) was developed in the 1930s to assist sociologists’ understanding of American rural agricultural community responses to socioeconomic impacts ensuing from evolving environmental conditions.

The National Park Service (NPS) has developed similar methods for understanding ethnographic resources within the shortened time frames related to project review. The NPS method, called Rapid Ethnographic Assessment Procedures (REAP), was generally followed for this project-related ethnographic study. REAP consists of a selection of ethnographic methods that relies on interview, observation, and research techniques to describe a way of life common to a group of people, including their knowledge, customs, beliefs, social habits, technology, arts, values, and institutions. REAP involves active participation of people in a cultural group to render representations of a way of life from a community’s point of view. Unlike traditional ethnography, REAP focuses investigations and resultant descriptions on solving specific problems or issues that may arise as a result of proceeding with a development project. (NPS REAP)

REAP’s methods are:

1. Group meetings/interviews where the ethnographer explains the project to the group, answers general questions, and solicits immediate responses, fears, apprehensions, benefits, or other general perceptions from the participants concerning the project, the area where the project is being proposed, and the general connections of traditional people to the project area. Often issues of confidentiality are discussed. The ethnographer may be successful in scheduling

follow-up activities with specific individuals to increase ethnographic understanding.

2. Areas worth further ethnographic inquiry are identified; a research design, including research/interview questions, is developed; and specific people are scheduled by the ethnographer and the group for follow-up interviews. Follow-up interviews should be conducted according to the protocols of documentation and confidentiality identified during the group meeting/interview. Interview notes, however recorded, should be vetted with the source individuals to verify accuracy and to gather additional nuanced information.
3. Follow-up interviews with the same or additional people often occur while both the ethnographer and the community begin to further think about the project, the project effects, and additional information that is necessary for fully identifying, evaluating, assessing effects, or otherwise considering impacts to ethnographic resources.
4. As Steps 1 through 3 are being conducted, a parallel archival “search, retrieve, and assess” process should be undertaken to provide supporting or conflicting information to what is being discovered through the interview process. In addition to archive, book store, and other informational repositories (e.g., the internet), the people themselves or other ethnographers with previous experiences with the same people, may provide source materials.
5. Field visits help the ethnographer triangulate between what people currently say, what people have written in the past, and what is actually or perceived to be in the project area as a potential ethnographic resource.

Research Design

Based upon these general meetings, an abbreviated research design was developed for the HHSEGS project that generated various research questions or directives. The following research design provided general guidance for preliminary archival research and allowed staff to prepare for interviews.

- Research specific Pahrump Valley Native American history and culture beyond what is generally provided in the CH2MHill Cultural Resources report prepared for the HHSEGS AFC.
- Determine what plants and animals that have Southern Paiute cultural significance are or may be located in the project area. Plants and animals determined to have attached Southern Paiute cultural values should be further studied to understand ethno-botanical and ethno-zoological details.
- Research the general Southern Paiute cultural relevance and history of Southern Paiute water knowledge and use in the Pahrump Valley and surrounding mountains.

- Research and understand the importance of springs, mesquite groves, and the surrounding coppice dune environs in the project area for the continuance of Southern Paiute lifeways.
- Research and understand the Round dance, Harvest dance, and Cry ceremonies performed in the Pahrump Valley and specifically the ceremony held in 1933 at Hidden Springs Ranch. Determine to what extent these ceremonies are still practiced today and to what extent the proposed project would impact such ceremonies.
- Research and further understand the history, practices, and meaning of the salt song trail; deer and big horn sheep mourning songs; and Coyote and Wolf legends, with emphasis on ethno-geography and specific attention paid to the nature of the trail aspects of these songs and related ceremonies.
- Research the history of Southern Paiute horticulture in the project area from pre-contact to current times.
- Research and map, to the extent feasible, Native American Trails located in and near the project area that are not necessarily "Salt Song Trails."
- Understand to what extent the Old Spanish Trail is also a Native American trail.
- Particularly research the Native American slave traffic that occurred along the Old Spanish Trail
- Inquire and document the importance of Charleston Peak, Spring Mountains, Kingston Mountains, No Pah Mountains, the Last Chance Mountains, and other surrounding landforms in general and as view/auditory sheds in relation to the project area and to other landforms.
- Research traditional and current Southern Paiute burial practices, including cremation.
- Inquire as to the interrelation of Paiute and Shoshone culture in general and specifically in project area.
- Research the history of tribal governments: Moapa, Las Vegas, Pahrump, Timbisha Shoshone, Lone Pine, Independence, Big Pine, Bishop, and Benton.

Interviews

Staff determined, based upon limited time, budget constraints, and the general attitude of most Native Americans that participated in the general meetings that an opened question/answer dialogue style of interviewing would be more effective than a formal interview style that would require protracted review of the research questions, the possible need to develop a formal questionnaire, and other methods of recordation. Instead, hand-written notes were taken by the ethnographer. These notes were then typed up within a few days and returned to the person interviewed for further review with

instructions to make changes including deletions and additions. The ethnographer also asked interviewees to identify what information in the interviews should remain confidential.

Interviews were conducted with the following Southern Paiute and Shoshone individuals:

- Clarabelle Jim, Elder Pahrump Paiute Tribe
- Lorrain Jim, Elder Pahrump Paiute Tribe
- Cynthia Lynch, Elder Pahrump Paiute Tribe
- Richard Arnold, Traditional Religious Practitioner Pahrump Paiute Tribe
- George Ross, Elder Pahrump Tribal Member
- Vernon Lee, Moapa Tribal Member of Pahrump Paiute ancestry
- Juanita Kinlichine, Elder Moapa Tribal Member of Pahrump Paiute ancestry
- Lalovi Miller, Elder Moapa Tribal Member of Pahrump Paiute ancestry
- Philbert Swain, Elder Moapa Tribal Member
- Barbara Durham, Tribal Historic Preservation Officer for the Timbisha Shoshone Tribe and Timbisha Shoshone Tribal member

Follow-up interviews were conducted with Clarabelle Jim, Cynthia Lynch, and Richard Arnold.

An interview with Don Hendricks was conducted on May 8, 2012, in Pahrump. Mr. Hendricks is a retired nuclear physicist, formerly employed by the Atomic Energy Commission and the Environmental Protection Agency. Mr. Hendricks is also a respected local historian, archaeologist and member of various local and state historic societies and associations. The purpose of this interview was to triangulate among conflicting written and oral history dates, people and events.

Ethnographic Method Constraints

There were inherent constraints to the ethnographic methods described above. Five such constraints are identified and further described:

1. Confidentiality of Sensitive Information;
2. Abbreviated time period in which to conduct thorough ethnography;
3. Language barriers in expressing and understanding information;
4. Seasonal prohibitions against divulging certain types of information; and,
5. Some seminal archival information not obtainable (Isabel Kelley's 1934 field notes).

Confidentiality of Native American sensitive cultural information – key to obtaining critically-important information necessary for the completion of a thorough Cultural

Resources analysis – became problematic due to the absence of a clearly defined and stipulated Resources Agency and Energy Commission policy specific to Native American concerns for confidentiality. This fact initially inhibited staff's ability to collect pertinent information in a timely manner.

The Southern Paiute culture, and particularly traditional cultural practices related to epistemology (belief systems), world view, and religion, are extremely complex to understand within the limits of a three month study. One Pahrump Paiute stated:

“Admittedly and with all due respect, the abbreviated ethnographic approach being used in this project appears to be designed to collect only a limited amount of information. The open-ended interviews are good for collecting certain kinds of general data, but cause concern when trying to synthesize the data. “

Another Moapa Paiute stated a broader concern with language barriers to cross cultural understanding:

“English language will never get to the bottom of such things like Salt Song Trails. When we speak our language to one another, we automatically know what the other is saying. Paiute Language gets right to it. In English, we have to say it a bunch of different ways and we still are not sure if the other person understands. With Paiute, it is either yes or no, do or not do. There is no ambiguity.”

Well documented in the literature and re-stated for this study by various interviewees is a general cultural prohibition against telling culturally significant and traditional stories outside of the winter period (Fowler 1971: 21, Kelly 1964:120). The Pahrump Paiute winter time is generally defined as the months of November, December, and January. Interviews were conducted in February and March.

Finally, it was determined early in this study that Isabel Kelly conducted ethnographic research among the Southern Paiute in 1932. Her research was partially recorded in her personal field notes. However, only the eastern Southern Paiute (those Paiute residing in Utah and northern Arizona) were discussed in Kelly's seminal work *Southern Paiute Ethnography*, published in 1964. While staff was able to incorporate some comparative information from that ethnography into this report; Kelly's information for the western Southern Paiute was not obtainable, although several efforts were made by Energy Commission staff to obtain copies of her field notes.

Constraints were either *surmountable*, *partially surmountable*, or *not surmountable* as described below.

1. A confidentiality agreement was struck between staff Ethnographer and the Pahrump Paiute Tribe representatives that guaranteed confidentiality of information provided. Confidential information included in this report is marked accordingly. *Constraint Surmounted.*
2. Rapid Ethnographic Assessment Procedures (REAP) were adapted to this ethnographic study. While REAP cannot replace the quality of long-term ethnography, it does provide some ability to include consideration of ethnographic

resources in the Energy Commission environmental project assessment; a process that only affords Energy Commission staff a few months to conduct independent research. *Constraint Partially Surmounted.*

3. The staff author of the Ethnographic Report does not speak or understand Southern Paiute, and there are few other non-Southern Paiute that speak the language. Four of the Southern Paiute interviewees spoke English as a second language. However, their English language skills were proficient enough to convey partial understanding and some interviews were followed up with second interviews to verify previously recorded information. However, information conveyed in this report is provided in the English written language only. *Constraint Not Surmountable.*

A prohibition prevents traditional stories, many of the stories holding embedded information sought for this study, from being told in entirety during the months that this research was conducted. Interviewees could tell pieces of stories or otherwise provide specific information without breaking the prohibition. In addition, some literature discovered through archival research further substantiated the fragments that were provided through interview. However, an exhaustive review of significant oral history was not obtainable. *Constraint Partially Surmounted.*

While previously recorded seminal ethnographic information was not obtained from Kelly's field notes, similar information was gathered from other sources, including a Southern Paiute section included in the Smithsonian Handbook of North American Indians Volume 11 and written by Kelly and Fowler (Kelly 1982: 368-397) that did rely on the field notes in question. *Constraint Partially Surmounted.*

Results

The ethnographic report analysis has divided some of the Pahrump life-ways, and how those life-ways are intertwined with a landscape, into seven attributes: water, plants, animals, horticulture, trails, landforms, and ceremonies. It should be noted that there is crossover between categories. For example, trails are waterways, trails are songs, trails are ceremony, trails are for hunting and gathering, and trails run through all of the landforms that allow Southern Paiute (and others), to travel between the mountains, valleys, gardens, plants and animals, and homes and camps. Likewise, any of the other attributes can be explained in terms of, or have overlaps with, the other attributes. The Pahrump Paiute world is one holistic phenomenon. This whole is segmented into attributes so that non-Paiute can understand something about the life-ways of a different people.

Paiute and Shoshone people from the various tribes consulted for this study continue to practice their traditional ways as best they can against the backdrop of a modern dominant society, and the various developments that come with that modern society.

Three overlapping ethnographic landscapes have as their contributing attributes, elements or features the following: water, plants, animals, horticultural gardens, trails, landforms, and religious practices. These ethnographic landscapes were identified as a result of this ethnographic study, and are called the *Salt Song Landscape*, *Pahrump*

Paiute Home Landscape, and *Mo hav Landscape*. All three landscapes include the entire project area within their boundaries.

Contributing Attributes, Elements or Features

The NPS Cultural Landscape guidelines provide various terms for the smallest units that collectively define any landscape. These units are called synonymously, “attributes”, “elements” or “features”. The following tables, (**Tables 8, 9 and 10**), provide a features listing, description and other relevant information for understanding the natural and cultural make-up of the three landscapes discussed in this report.

Table 4. Contributing Features of the *Salt Song Landscape* Related to the Hidden Hills Solar Energy Generating Systems Project Vicinity (Figure 2)

FEATURE	DESCRIPTION	-
Water	Puha, Spirits, Springs, Creeks, Flats, Washes, Creeks. See Cultural Resources Table Appendix – Table A.	-
Plants	Puha, Spirits, Plants along the trail and in project vicinity. There are 364 plants related to the Salt Song Trail. See Cultural Resources Table Appendix – Table B.	-
Animals	Puha, Spirits, Animals, Insects. there are 174 animals related to the Salt Song Trail. See Cultural Resources Table Appendix – Tables C and D.	
Horticulture	Puha, Spirits, Springs Horticulture is a secondary aspect of the primary aspect of water, specifically springs and the activities that occur near springs.	
Trails	Puha, Spirits, Humans, Animals. All Southern Paiute living and deceased participate in the Salt Song Trail. The trail is a path on the ground, a corridor on and above the ground, and an auditory sound scape.	
Ceremony	Puha, various types of ceremonies related to funerals and memorials. Ceremonies require aesthetically compatible viewsheds, noise free space and foreign-odor free space.	

Table 5. Contributing Features of the *Pahrump Home Landscape* Related to the Hidden Hills Solar Energy Generating Systems Project Vicinity (Figure 1)

FEATURE	DESCRIPTION	ADDITIONAL INFORMATION
Water	From Valley to Mountain Crest: Playa (Pahrump Dry Lake Bed), Washes, Springs and Seeps of the Hidden Hills Landscape, Alluvial washes including creek bed of Trout Canyon Creek and Pahrump Valley Creek, Springs that contribute to the aforementioned Creeks, Rain, Dew, Mist, and the Snow of Mt. Charleston. See Cultural Resources Table Appendix – Table A	
Plants	All of the plants listed at Cultural Resources Table Appendix – Table B	
Animals	All of the arthropods and animals listed at Cultural Resources Table Appendix – Tables C and D.. Arthropod types at or near the project site are not known.	
Horticulture	Corn, squash, gourds, pumpkins, melons, sunflower, amaranth, winter wheat, various beans, and Devil's claw. Irrigation systems Garden plots	
Trails	Lateral trails along the valley floor Lateral trails along the valley spring escarpments Lateral trails along the mountain side Vertical trails that connect the valley floor with the high elevations of the Spring Mountains Trails that connect various districts/tribes and the larger Southern Paiute Nations These trails include the Old Spanish Trail and the later and overlapping Mormon Road.	
Ceremony	All of the ceremonies identified in this analysis and the Ceremony section of the Confidential Ethnographic Report for the Hidden Hills project. Some ceremonies are site specific and some ceremonies can be held based upon a consensus of the involved practitioners and affiliated families	

Table 6. Contributing Features of the *Mo hav Landscape* Related to the Hidden Hills Solar Energy Generating Systems Project Vicinity (Figure 3)

FEATURE	DESCRIPTION	
Water	Stump Spring, Hidden Hills Ranch Spring, Browns Spring, Weeping Rock Seep, and other unnamed springs within the Mo hav Landscape boundaries as depicted on Figure 3. Edge of the Playa (Pahrump Dry lake Bed, washes and creeks within the boundaries of the Hidden Hills landscape. See Cultural Resources Table Appendix – Table A.	
Plants	Plants listed at Cultural Resources Table Appendix – Table B	
Animals	Arthropods and animals listed at Cultural Resources Table Appendix – Tables C and D	
Horticulture	Horticulture gardens at Weeping Rock, Browns, Hidden Hills and Stumps Springs. The garden area at Hidden Hills can still be discerned today. The exact garden locations at the other springs would require further historic and archaeological investigation to determine exact locations	
Trails	Trails that connected the springs, and connected the spring areas to other destination points such as the springs to the north (Mound, Manse, Pahrump), Sandy Valley to the south, the playa, Mule Springs to the east, the Trout Canyon, and Resting Springs to the west. Smaller paths in and around each of the spring areas. Tribal members assert that the project area is a traditional hunting and gathering area and that procurement activities do not necessarily follow pre-established routes	
Ceremony	Hidden Hills Cry ceremony and Salt Song memorial Burials and Pahrump Paiute Cemetery. It is highly probable that similar ceremonies occurred at the other Springs. Also John Stumper, being a renowned medicine man, conducted personal religious activities at or near Stump Spring.	
Archaeology	Various resource procurement locations, seasonal occupation, village and homestead sites, including historic sites such as Tank Sharpe's still are located throughout the Mo have landscape. Archaeological information included in this staff assessment provides additional parameters for considering an archaeological district that encompasses the Mo hav Landscape	

RESULTS OF ETHNOGRAPHIC STUDIES

Ethnographic Landscapes

An ethnographic landscape is defined generally as a landscape containing a variety of natural and cultural resources that associated people define as heritage resources, as noted in this Section's Introduction. Ethnographic landscapes can have considerable

overlap with what are called traditional cultural properties. Traditional cultural properties are synonymous with the term “place.” Places and areas are types of historical resources that can be synonymous with traditional cultural properties and ethnographic landscapes. The term ethnographic landscape will be used to generally refer to the types of resources that are considered in this report; however, the author, by using the term ethnographic landscape also intends that usage to mean an “area” or “place” per the definition of historical resources.

Southern Paiute, Pahrump Paiute, and Mo hav Ethnographic Landscapes Generally Described

There are three ethnographic landscapes that this report describes and that, with varying proximity, are in the vicinity of the project and within the ethnographic project area of analysis:

1. Southern Paiute Salt Song Landscape
2. Pahrump Paiute Home Landscape
3. Mo hav Landscape

The Salt Song Landscape, as generally described above (see **Cultural Resources Figure 2**), encompasses portions of current day southern California, southern Nevada, northeastern Arizona and southwestern Utah; and within which numerous bands of Southern Paiute participate. This ethnographic study does not attempt to fully describe this song landscape except as such description is relevant for the purposes of assessing affects of the project on the Salt Song Landscape. The Pahrump Paiute Home Landscape is a part of the Salt Song Landscape.

The Pahrump Paiute Home Landscape ensues from and radiates out from and around the Spring Mountains. Its largest extent is slightly larger than the area encircled by Chief Tecopa’s 1873 homeland journey. It can be easily asserted that some portion of the eastern side of the Spring Mountains is more directly affiliated with the Las Vegas Southern Paiute. This report does not attempt to specifically delineate the boundaries of the Pahrump Paiute Home Landscape, nor is it necessary that such boundaries are defined. Because the project is on the west side of the Spring Mountains and the west side is more directly affiliated with the Pahrump Paiute homeland. The Pahrump Paiute Home Landscape consists of numerous component landscape areas with multiple contributing attributes. It is not necessary, for the purposes of this document, to further describe and delineate all of the component landscapes and delineated boundaries. However, one component landscape, the Mo hav Landscape is fully described and delineated in a section of the Ethnography report (**Appendix A– CONFIDENTIAL**). The proposed project is within the Mo hav Landscape. Please see **Cultural Resources Figure 3** for the extent of the Mo hav landscape.

Contributing Attributes, Elements or Features

The National Park Service Cultural Landscape guidelines provide various terms for the smallest units that collectively define any landscape. These units are called

synonymously, “attributes”, “elements” or “features”. The above tables, (Tables 4, 5, and 6), provide a features listing, description and other relevant information for understanding the natural and cultural make-up of the three landscapes discussed in this report.

Southern Paiute Salt Song and Landscape

A precise delineation and boundary justification for the Southern Paiute Salt Song Landscape is not necessary for this project because the landscape, extending over a large swath of the Southwest and California, far exceeds the PAA for the project. Research project time constraints also prohibit such a robust delineation. **Cultural Resources Figure 2** provides the general parameters of the Southern Paiute Salt Song Landscape. However, suffice to say that the boundaries permeate the Pahrump Valley, and surrounding mountain ranges that collectively form the Pahrump Valley. The Salt Song Landscape is ubiquitous throughout, saturates and exceeds the project area.

Pahrump Paiute Home Landscape

A precise delineation and boundary justification for the Pahrump Paiute Home Landscape is not necessary for this project because the landscape, extending from the western side of the Spring Range and including Pahrump Valley, Last Chance Range, No Pah Range, and the Kingston Mountains, and areas further to the north, west, and south, far exceeds the area of the project. Research project time restraints also prohibit such robust delineation. **Cultural Resources Figure 1** provides a general sense of some of the area mentioned above. However, suffice to say that, as with the Southern Paiute Salt Song Landscape, the boundaries permeate the Pahrump Valley, and surrounding mountain ranges that collectively form the Pahrump Valley. The Pahrump Paiute Home Landscape is ubiquitous throughout, saturates and exceeds the project area.

Mo hav Landscape

Cultural Resources Figure 3 provides a precise delineation of the Mo hav Landscape. There are four specific justifications for the boundary delineations:

1. **Geology:** The area represents a unique geological surface covering of clay that has uplifted, eroded and flows towards and contributes to the Pahrump Valley Dry Lake bed. The Playa itself is not included because it is formed from other eroded deposits that surround the Playa on all sides. This surface provided for specific plant and animal communities that are hunted and gathered by Pahrump Paiute affiliated with the Mo hav area.
2. **Watershed:** The area represents a specific lower portion of the watersheds of the Trout Canyon Creek and its main tributary the Pahrump Valley Creek. These two creeks collectively drain the Southwestern portion of Mount Charleston. These watersheds are separate and distinct from watersheds that drain the northwestern slopes of Mount Charleston and that flow towards the springs north of the Hidden Hills Landscape such as Mound, Manse and Pahrump Springs. These watersheds provided a corridor for travel from the valley floor to the heights of Mount Charleston.

3. People: The area represents the closely related Pahrump Paiute families of the Lees, Weeds, Haskins, Browns, Howells, Bruces, and Toms. While these families are inter-related to other Pahrump Paiute families, and other non-Pahrump Paiute people, they tended to reside, or frequent, in and around the Mo hav, Hidden Hills, and Charleston View areas.
4. Unique Character: The Hidden Hills springs and surrounding hills tend to have a unique character in that the springs flow less and attracted non-indian development more recently. The larger Pahrump Valley ranches were first established to the north around Ash Meadows, Pahrump Spring, Manse Spring and Mound Spring. As a result the Hidden Hills area was known to have a more unique set of people that differentiated themselves from the larger valley population to the north and near the city of Pahrump. In addition, specific esoteric cultural and religious knowledge was formulated, instructed and practiced within this delineated landscape and nowhere else in the Paiute landscape. Finally this landscape and the Pahrump Paiute people that occupied it during the Spanish Trail and Mormon road periods were subjected to some of the first contacts and related hostilities ensuing from trail side encounters.

Given that the land is a contiguous whole, this delineation is conservative. The Mo hav Landscape boundaries could be drawn up to the crest of Mt Charleston by including the Trout Canyon and Pahrump Valley creeks. However the upper reaches of the aforementioned creeks are included in the Pahrump Paiute Home Landscape. The Pahrump Paiute Home Landscape includes and exceeds the project area.

Periods of Significance

Southern Paiute Salt Song Landscape

The period of significance for the Southern Paiute Salt Song Landscape spans from the time of primordial instruction, just after the great flood and Coyote's creation of Paiute, up to the Present.

Pahrump Paiute Home Landscape

The period of significance for the Pahrump Paiute Home Landscape spans from the time of Coyote's creation of Southern Paiute up to the present. From an archaeological perspective, the earliest dates would liberally be sometime between 10,000 before present to the ethnographic present. A conservative archaeological perspective would be from 600 before present up to the ethnographic present. A historically documented time period of significance would be from the time of Chief Tecopa's leadership (circa 1840s) to the present. It can be assumed that Chief Tecopa inherited his leadership from one of his male relatives. The historic record does not provide sufficient information related to Chief Tecopa's preceding lineage.

Mo hav Landscape

The period of significance for the Mo hav Landscape is provided in the timetable found at **Cultural Resources Appendix A**.

Archaeological investigations (including dating of artifacts from sites within the Mo hav landscape) have not been conducted.

A historic time period that can be documented in the literature, including oral histories collected for this ethnographic study, starts with John “Stomper” Pete’s occupation of Stump Springs, circa 1840 – 1890, up to the present.

Historic Built-Environment Windshield Survey

The applicant’s consultant conducted a windshield survey of the Calvada Springs subdivision in Charleston View, south of the project site, on December 29, 2011 and concluded that a majority of the residences within the one-half mile radius of the project site are mobile homes. Two permanent residences are located on Carpenter Avenue. Other permanent structures include barns, sheds and other outbuildings. Original construction dates were unavailable, but a review of maps and aerial photos indicated that none were built prior to 1968. (CH2 2012a, p. 23)

CH2MHill identified 6 historic trails/roads within 1 mile of the HHSEGS project site and Energy Commission staff identified one additional trail/road.

DETERMINING THE HISTORICAL SIGNIFICANCE OF CULTURAL RESOURCES

CEQA requires the Energy Commission, as a lead agency, to evaluate the historical significance of cultural resources by determining whether they meet several sets of specified criteria. Under CEQA, the definition of a historically significant cultural resource is that it is a “resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR”, or “a resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of section 5024.1 (g) of the Public Resources Code,” or “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 agency’s determination is supported by substantial evidence in light of the whole record” (Cal. Code Regs., tit. 14, § 15064.5(a)).

In general, to be considered historically significant under the CEQA Guidelines, a cultural resource must meet the criteria for listing in the CRHR. These criteria are essentially the same as the eligibility criteria for the NRHP. In addition to being at least 50 years old,⁸ a resource must meet at least one of the following four criteria (Pub. Resources Code, § 5024.1):

- Criterion 1, is associated with events that have made a significant contribution to the broad patterns of our history;

⁸ The Office of Historic Preservation’s *Instructions for Recording Historical Resources* (1995) endorses recording and evaluating resources over 45 years of age to accommodate a potential five-year lag in the planning process.

- Criterion 2, is associated with the lives of persons significant in our past;
- Criterion 3, embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values; or
- Criterion 4, has yielded, or may be likely to yield, information important to history or prehistory.

Historical resources must also possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to convey their historical significance (Cal. Code Regs., tit. 14, § 4852(c)).

Additionally, cultural resources listed in or formally determined eligible for the National Register of Historical Places (NRHP) and California Registered Historical Landmarks numbered No. 770 and up are automatically listed in the CRHR and are therefore also historical resources (Pub. Resources Code, § 5024.1(d)). However, even if a cultural resource is not listed or determined to be eligible for listing in the CRHR, CEQA allows a lead agency to make a determination as to whether it is a historical resource and, therefore, historically significant (Pub. Resources Code, § 21084.1).

The assessment of potentially significant adverse impacts to historical resources and the mitigation that may be required of a proposed project to reduce any such impacts depend on CRHR-eligibility evaluations.

California Register of Historical Resources Evaluations

Under CEQA, mitigation need only be developed for substantial project-related adverse impacts to historically significant cultural resources (historical resources). Consequently, staff seeks CRHR eligibility recommendations for those cultural resources subject to possible project impacts. The existing documentation for previously known cultural resources may include CRHR eligibility recommendations, and the applicant's cultural resources specialists often make CRHR eligibility recommendations for newly identified cultural resources they discover and record in their project-related surveys. Staff considers these prior CRHR eligibility evaluations and may accept them or conclude that additional information is needed before making its own recommendations.

When the available information on known or newly identified resources that could be impacted by the proposed project is not sufficient for staff to make a recommendation on CRHR eligibility, staff may ask an applicant to conduct additional research to gather the information needed to make such a recommendation, or staff may gather the additional information. For an archaeological resource, the additional research usually entails some degree of field excavation, called a "Phase II" investigation. For an ethnographic resource, the additional research may be an ethnographic study. For built-environment resources, the additional research would probably be archival. The object of this additional research is to obtain sufficient information to enable staff to validate or make a recommendation of CRHR eligibility for each cultural resource that the proposed project could impact.

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE OF IMPACTS TO HISTORICAL RESOURCES

Under CEQA, “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” (Pub. Resources Code, § 21084.1). Staff analyzes whether a proposed project would cause a substantial adverse change in the significance of all historical resources identified in the Cultural Resources Inventory as CRHR eligible or otherwise historically significant. The degree of significance of an impact depends on:

- The cultural resource impacted;
- The nature of the resource’s historical significance;
- How the resource’s historical significance is manifested physically and perceptually;
- Appraisals of those aspects of the resource’s integrity that figure importantly in the manifestation of the resource’s historical significance; and
- How much the impact will change those integrity appraisals.

Assessment of Impacts and Recommended Mitigation

To identify construction-related impacts to cultural resources that would need to be mitigated, staff first identifies all historical resources (see above). In the next step in its analysis, staff must evaluate the potential project impacts to the significant cultural resources to determine if these impacts are substantial and adverse. Staff must then recommend avoidance or other mitigation for substantial and adverse impacts to these historical resources. Staff also must assess whether the proposed project has the potential to impact as-yet-unknown buried archaeological resources and recommend mitigation for impacts to previously unknown but historically significant resources discovered during construction, if impacts to such resources cannot be avoided.

CEQA advises a lead agency to make provisions for archaeological resources unexpectedly encountered during construction, and a project owner may be required to train workers to recognize cultural resources, fund mitigation, and delay construction in the area of the find (Pub. Resources Code, § 21083.2; Cal. Code Regs., tit. 14, §§ 15064.5(f) and 15126.4(b)). Consequently, staff recommends that procedures for identifying, evaluating, and possibly mitigating impacts to archaeological resources discovered during construction be put in place through conditions of certification to reduce those impacts to a less than significant level or to the extent feasible

DIRECT AND INDIRECT IMPACTS

In the abstract, direct impacts to cultural resources are those associated with project development, construction, and operation (co-existence). Construction usually entails surface and subsurface disturbance of the ground, and direct impacts to archaeological resources may result from the immediate disturbance of the deposits, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, excavation, or demolition of overlying structures. Construction can have direct impacts on historic

built-environment resources when, for example, those structures must be removed to make way for new structures or when the vibrations of construction impair the stability of historic structures nearby. New structures can have direct impacts on historic structures when the new structures are stylistically incompatible with their neighbors and the setting, and when the new structures produce something harmful to the materials or structural integrity of the historic structures, such as emissions or vibrations.

Generally speaking, indirect impacts to archaeological resources are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource components due to improved accessibility. Similarly, historic structures can suffer indirect impacts when project construction causes obsolescence and demolition or creates improved accessibility, making vandalism or greater weather exposure possible.

Ground disturbance accompanying construction at a proposed plant site, along proposed linear facilities, and at a proposed laydown area has the potential to directly impact unknown archaeological resources. The potential direct, physical impacts of the proposed construction on unknown archaeological resources are commensurate with the extent of ground disturbance entailed in the particular mode of construction. This varies with each component of the proposed project. Placing the proposed plant into this particular setting could have a direct impact on the integrity of association, setting, and feeling of nearby standing historic structures.

ARCHAEOLOGICAL ANALYSIS

Background - Prehistoric

The prehistory of the eastern Mojave Desert is the narrative of how human populations have adapted to marked fluctuations in the local environment over the course of at least the last 12,000 years. The archaeological remains of the region's prehistory are relatively scarce. Sparse scatters of stone tools and chipped stone tool manufacturing debris, and isolated artifacts, resources that typically yield information of marginal value, account for 40 to 60 percent of the archaeological remains found in the Mojave and Colorado Deserts. A relative scarcity of intact buried archaeological deposits contributes further to the lack of information on the prehistory of the region (Lyneis and Macko 1986, p. 52). The availability of water and the location of high-value resource patches in otherwise unproductive habitats appear to influence the distribution of human settlement and, consequently, of the archaeological sites that are on the desert landscape (Lyneis and Macko 1986, p. 57; Sutton et al. 2007, p. 230). The broad trajectory of cultural development in the Mojave Desert appears to be a steady decline in residential mobility as local populations come to occupy increasingly larger valley or basin bottom base camps, in a few preferred locations, over longer periods of time, rather than working out of temporary camps in particularly productive environmental zones (Bamforth 1990, p. 74).

Over the past seven decades, Mojave Desert archaeologists have developed and refined a broad sequence of approximately six artifact groups or assemblages, each with distinctive types of stone projectiles, that represent the material record of the peoples who once lived in the proposed project area (Bamforth 1990, p. 72; Campbell

1936; Lyneis 1982; Rogers 1939; Sutton, et al. 2007; Warren 1984; Warren and Crabtree 1986). Choosing what staff believes to be a cultural chronology more applicable to the proposed project area than that used in the AFC (BSE2007a) and acknowledging recent proposed refinements to the chosen chronology (Sutton, et al. 2007), the discussion here of the region's prehistory will rely primarily on Warren's 1984 chronology and Warren and Crabtree's 1986 chronology. Following Warren and Crabtree, the periods of the chronology below represent units of time during which particular artifact assemblages appear to prevail rather than discrete, homogeneous past cultures.

Terminal Pleistocene Period (Prior to 10,000 B.C.)

The archaeological record of the Terminal Pleistocene Period in the Mojave Desert is particularly sparse. The most consistent evidence for human activity during this period are fragments of the characteristic fluted, concave-based, lanceolate spear or projectile point of the Clovis archaeological culture. The Clovis culture is a pan-Western Hemisphere archaeological phenomenon that manifests in diverse material patterns over North and South America. In the Mojave Desert, material culture assemblages that include Clovis projectile point fragments are typically sparse surface deposits (Lyneis and Macko 1986, p. 41). The evidence from such deposits suggests only that human groups during this time were probably small in number, were highly mobile, and lived in small, temporary camps near what were then permanent water sources (Sutton, et al. 2007, p. 234). It is unclear whether the Mojave Desert Clovis assemblages demonstrate a cultural continuity with the material remains of subsequent periods (Warren and Crabtree 1986, p. 184).

Lake Mojave Period (10,000 to 5000 B.C.)

Lake Mojave Period artifact assemblages appear to represent a cultural phenomenon that is antecedent to subsequent cultural developments in the Mojave Desert (Warren and Crabtree 1986, p. 184). Portions of archaeological sites or components that date to the Lake Mojave Period are typically sparse and vary little in assemblage composition (Bamforth 1990, p. 73), although components that include extensive accumulations of residential debris have more recently been found (Sutton, et al. 2007, p. 237). Lake Mojave components are most often found in the vicinity of high terraces above or on relict shorelines of what are now playas and along relict stream channels (Bamforth 1990, p. 72; Lyneis and Macko 1986, p. 41).

Lake Mojave Period assemblages include a relatively narrow range of stone tools and also represent a narrow range of site types. The index artifacts for the period are the local variants of the Great Basin stemmed series projectile point types, Lake Mojave and Silver Lake points. The balance of period assemblages may include bifaces, steep-edged unifaces, "small beaked graters," "narrow concave scrapers," crescents, and occasional cobble-core tools and ground stone implements (Sutton, et al. 2007, p. 234; Warren 1984, p. 413). The assemblages primarily appear to represent temporary small camps and work stations. Infrequent accumulations of residential debris do indicate, however, that camps with longer use periods are also present.

The archaeological record of the Lake Mojave Period indicates that human populations during the Early Holocene were small, mobile groups practicing a hunting-and-foraging economy whereby groups shifted residency across the landscape among the most productive environmental zones as the resources in those zones became depleted over time (Bamforth 1990, p. 73; Lyneis and Macko 1986, p. 41).

Pinto Period (5000 to 2000 B.C.)

The evidence of human activity found in Pinto Period archaeological sites indicates a behavioral continuity with Lake Mojave Period developments (Warren 1984, p. 414). The Pinto Period witnesses the final desiccation of the Pleistocene pluvial lakes in the Mojave Desert and the adaptive transformation of local populations to the extreme aridity of the mid-Holocene Altithermal (see Antevs 1948). It is unclear whether the Pinto Period directly follows the Lake Mojave Period, or may represent a resumption of the desert's use after a hiatus during the worst of the mid-Holocene droughts (Warren and Crabtree 1986, p. 184). Pinto Period components are typically surface deposits that are small in area and do not include midden deposits, constituent residential debris of ash, charcoal, and food and other organic residues, although larger components with broader ranges of artifacts and substantial midden deposits have more recently been found (Sutton, et al. 2007, p. 238, Warren 1984, p. 413 and 414). Pinto Period components are generally found on the landscape in the same places as deposits of the Lake Mojave Period (Bamforth 1990, p. 72, Lyneis and Macko 1986, p. 41). The suggestion has been made that the components may actually overlap in time (Bamforth 1990, p. 73, Sutton, et al. 2007, p. 238).

The most important distinction between the artifact assemblages of the Pinto Period and those of the preceding Lake Mojave Period appears to be the relative abundance of ground stone implements or milling tools. More recent research has found milling tools to occur in moderate abundance in most Pinto Period deposits and, occasionally, in great frequency (Sutton, et al. 2007, p. 238). The characteristic Pinto Period assemblage includes large and small leaf-shaped projectile points and knives, domed and elongated keeled scrapers, several forms of well-made flake scrapers, flat millstones, and manos. Drills, engraving tools, and *Olivella* spp. shell beads also occur (Sutton, et al. 2008, p. 238; Warren 1984, p. 412; Warren and Crabtree 1986, p. 187). The index artifact for the period is the stemmed, indented-base Pinto series projectile point, the Mojave Desert variety of which is markedly crude in form and manufacture (Warren 1984, p. 411). A broad continuity in the chipped stone technology evident in both the Lake Mojave and Pinto Periods has been noted. Populations during these periods appear to make extensive use of toolstones⁹ other than cryptocrystalline silica or obsidian, and they also make regular use of unifacial and bifacial core tool forms (Sutton, et al. 2007, p. 238).

⁹ Toolstone is a type of stone used to manufacture stone tools. Generally speaking, tools that require a sharp edge are made using cryptocrystalline materials that fracture in an easily-controlled conchoidal manner. Cryptocrystalline tool stones include flint, chert, rhyolite, and obsidian. These materials fracture in a predictable fashion, and are easily resharpened.

More recent research indicates that Pinto Period assemblages may reflect the emergence of a two-tier settlement pattern. The small temporary or seasonal camps that appear to have been the primary focus of Lake Mojave Period activity may have become more task-specific camps that were subordinate to more permanent residential base camps. The increase during the Pinto Period in the relative frequency of milling tools suggests a corresponding increase in the reliance of local populations on plant resources (Sutton 2007, pp. 238–239).

Gypsum Period (2000 B.C. to A.D. 500)

Gypsum Period artifact assemblages, though scarce relative to earlier and later periods, appear to evidence a shift in the economy of local populations toward a much greater dependence on plant resources (Bamforth 1990, p. 73; Warren 1984, p. 419). Period components are ephemeral in character, relatively more scarce in the southern and eastern portion of the Mojave Desert, smaller yet more numerous than components of the preceding periods, and found in more diverse locations on the landscape (Sutton, et al. 2007, p. 241).

Gypsum Period assemblages encompass a relatively broad array of artifact types. The index artifacts for the period include any combination of Gypsum (Gypsum Cave), Humboldt (Humboldt Concave Base), or Elko (Elko Eared, Elko Corner-notched) series projectile points (Sutton, et al. 2007, p. 241; Warren 1984, p. 414; Warren and Crabtree 1986, p. 187). The balance of period assemblages may include leaf-shaped projectile points; rectangular-based knives; flake scrapers; T-shaped drills; occasional large scraper-planes; choppers; hammerstones; manos and millingstones; mortars and pestles; shaft smoothers incised slate and sandstone tablets and pendants; fragments of drilled slate tubes; *Haliotis* spp. Rings; central California Middle Horizon bead and ornament types; *Olivella* spp. shell beads; and bone awls (Warren 1984, p. 418). The greater presence of quartz crystals, paint, split-twigs, figurines, and rock art also indicates the elaboration of ritual activity during this period (Warren and Crabtree 1986, pp. 188–189). The influence of the Anasazi archaeological culture of the Southwest is apparent in the eastern Mojave Desert toward the end of the Gypsum Period with the introduction of Anasazi ceramic types to period assemblages, and evidence of the replacement of the atlatl with the bow and arrow, as the larger Gypsum, Humboldt, and Elko series dart points give way to smaller Eastgate and Rose Spring arrow point types in the subsequent Saratoga Springs Period (Warren 1984, pp. 414–415).

The relative scarcity of Gypsum Period data complicates discussions of period settlement patterns in the Mojave Desert. Available data indicates that the focus of Gypsum Period components was lowland concentrations of plant resources along streams and in the lake basins (Bamforth 1990, p. 73; Sutton, et al. 2007, p. 241). One such resource may have been mesquite. The introduction of the mortar and pestle during this period and the use of these tools in the historic period to process mesquite pods have been taken to indicate that mesquite was first used in the Gypsum Period (Warren 1984, p. 419). Populations appear to have spent a substantial part of each year in residential base camps while dispatching task groups out to hunt (Bamforth 1990, p. 73). The presence of shell ornaments in the assemblages of the period also indicates

the establishment of relatively routine trade with the southern California coast (Warren 1984, p. 419).

Saratoga Springs Period (A.D. 500 to 1200)

The artifact assemblages of the Saratoga Springs Period in the eastern Mojave Desert reflect the mixture of cultures that appears to have influenced the region.

Saratoga Springs Period assemblages encompass a broad, diverse array of artifact types, many of which appear to come from outside the region or reflect outside influences. The index artifacts for the period include Eastgate and Rose Spring projectile points. The core of the period assemblage includes millingstones and manos, mortars and pestles, incised stones, and slate pendants (Warren 1984, p. 420). Other characteristic artifact types of the period include small triangular knives, scrapers, drills, hammerstones, choppers, pendants of green schist, and Pacific Coast shell ornaments, including *Olivella* Saucer beads, *Olivella* Barrel beads, and limpet rings (Warren 1984, p. 367). Anasazi grayware ceramics of the Basketmaker III through early Pueblo Periods (Pecos Classification, see Cordell 1984, pp. 55–58) are a notable element of the Saratoga Springs Period assemblage as well.

The archaeological data for the Saratoga Springs Period appear to indicate that local populations were developing broader spheres of interaction with outside groups, perhaps even allowing settlements of outsiders, in the context of a general continuity in local settlement patterns. The basic settlement pattern for the period appears not to change markedly from the Gypsum Period through to the Protohistoric Period (see below). The size of residential base camps and seasonal population dispersions to acquire more remote resources may both have been in slow decline however. The overexploitation of large mammals, due, in part, to the introduction of the bow and arrow during this period and to a deteriorating climate, may have led to a shift in hunting emphasis to small animals and reinforced the primary dependence of local populations on plant seed resources such as mesquite (Bamforth 1990, p. 74).

The Anasazi influence, presumably of the Virgin Branch (see Fowler and Madsen 1986, pp. 175–181), was marked in the eastern Mojave Desert during this period from at least A.D. 700 through A.D. 1150 (Warren 1984, pp. 373–373, 426–427). The distribution of Anasazi grayware ceramics, the key archaeological index of Anasazi influence, reaches from the lower Virgin River in southern Nevada into California as far west as the Cronise Basin in San Bernardino County. The primary focus of Anasazi influence in the vicinity of the proposed project area appears to have been the turquoise deposits in the area around Halloran Springs, roughly 30 miles southwest of the proposed project area. The sequence of ceramic types found at the turquoise mines in the area indicate that the period of Anasazi influence there was from approximately A.D. 700 to 900, during the Basketmaker III and Pueblo I Periods (Warren 1984, pp. 371–372). It remains unclear whether Anasazi peoples were actually in residence in the area (Warren 1984, p. 422) practicing the Virgin Branch horticultural lifeway, in residence living on stores of provisions, or not in residence and managing the extraction of turquoise through proxy labor. The Anasazi influence over the eastern Mojave Desert ultimately terminates around A.D. 1150 (Warren 1984, pp. 426–427).

Protohistoric Period (A.D. 1200 to present)

The speakers of Numic languages appear to displace the local populations of the eastern Mojave Desert at the outset of the Protohistoric Period, and to decisively eradicate Anasazi influence in the region (Warren 1984, p. 430).

The Protohistoric assemblage has been said to relate directly to the historic Paiute (Warren 1984, p. 427). The characteristic index artifacts for assemblages of the more northerly areas of the eastern Mojave Desert are Desert Side-notched projectile points and coarse, brownware ceramic types. The overall eastern Mojave assemblage strongly resembles assemblages across the northern Mojave Desert to Owens Valley and may derive from that region. Assemblages from the more southerly areas of the eastern Mojave Desert include Cottonwood Triangular projectile points, in addition to Desert Side-notched points, and the ceramic assemblage includes types representative of the Hakataya archaeological culture, a cultural unit of the Lower Colorado River and the Colorado Desert. Among the Hakataya ceramics in the Protohistoric Period assemblages of the eastern Mojave Desert are brownwares, buffwares, and red-on-buff wares (Warren 1984, p. 427; Warren and Crabtree 1986, p. 191).

Despite the apparent shifts in the local populations in the eastern Mojave Desert and the ebb and flow of outside influences during the Saratoga Springs and Protohistoric Periods, the basic economic milieu and the settlement patterns of the local populations continue, in the Protohistoric Period, to reflect the trends in desert adaptation that had been developing in the Mojave Desert for millennia. Among the final elaborations to the local economy of the populations in the Mojave Desert may have been the addition, during the late Saratoga Springs Period and into the Protohistoric Period, of small gardens in preferred areas, the produce from which may have supplemented local diets in a minor way (Lyneis and Macko 1986, p. 41).

The influence of the Anasazi in the eastern Mojave Desert is supplanted by Hakataya influence from the Lower Colorado River and the Colorado Desert. Toward the end of the Saratoga Springs Period or the beginning of the Protohistoric Period around A.D. 1200, there is evidence of Hakataya influence or presence at the Halloran Springs turquoise mines lasting roughly a century. The Paiute have used the mines infrequently subsequent to the withdrawal of the Hakataya in about the fourteenth century (Warren 1984, p. 372 and 373).

Evaluations of Prehistoric and Historical Archaeological Resources

Archaeological Resources

Investigations at and below the present surface of the proposed project site (CH2 DR128, CRTR 2011b) have provided the evidence necessary to develop recommendations on the historical significance of the 12 archaeological sites that are found there. On the basis of a thorough analysis of technical field data that the applicant provided in conjunction with the AFC (CRTR 2011b) and additional technical information that staff requested from the applicant (CH2 DR128), and on the basis of consultation with the local Native American community and the BLM, staff recommends that the whole inventory of 12 archaeological sites be determined to be ineligible for listing in the

CRHR. Complete discussions of these resources and the rationale behind these recommendations will be forthcoming in the FSA.

However, a determination that the 12 known archaeological sites are not historical resources for the purposes of CEQA, this does not preclude the possibility that unknown

Multi-site Archaeological Resources

Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape (Pahrump Metapatch Landscape)

TECHNICAL CLASSIFICATION OF THE LANDSCAPE AND APPLICABLE GUIDANCE

The Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape, which is adjacent and parallel to the northeastern boundary of the project site, has been identified by staff as an archaeological landscape and historical resource under CEQA. The landscape appears to date from a presently undetermined point in prehistory through at least the early twentieth century and includes archaeological sites, springs, mesquite groves which aboriginal cultures have used and quite probably tended for millenia, and assemblages of flora and fauna unique to the variety of mesquite woodland association that is the focus of the landscape. Applying NPS guidance developed for the NRHP to the consideration of the landscape as a cultural resource under the parallel CRHR (NPS 1994, 1999, 2000), the combination of cultural and natural features that make up this composite resource would qualify the resource as a type of cultural landscape referred to as a “rural historic landscape” and would require technical evaluation of historical significance as a district (NPS 1999), more precisely, an archaeological district (NPS 2000)

LANDSCAPE ELEMENTS AND CHARACTERISTICS

Our knowledge of the character of the Pahrump Metapatch Landscape and the elements that it is composed of is severely constrained, because no systematic survey of the landscape has been done to date. The records search for the present analysis revealed that no prior formal investigations have been undertaken across the portion of the Pahrump Metapatch Landscape within one mile of the proposed project site, and only two prior investigations have traversed the landscape in the vicinity of the proposed project: a 1982 reconnaissance survey for an off-road vehicle race and a 1989 intensive survey of the Old Spanish Trail (OST) from Las Vegas to the California border to facilitate the Nevada BLM’s management of that resource. These two efforts led to updates of the records for the OST and a previously known archaeological site at Stump Spring (26CK301). No new sites were identified. The information that is presently available on the landscape is the result of Energy Commission staff’s informal reconnaissance of the landscape in March and April of 2011, and draft information from the applicant on the results of intensive pedestrian surveys on two different transects through the landscape, received just prior to the publication of this analysis (Spaulding 2012).

The Pahrump Metapatch Landscape is composed of both natural and cultural elements. The natural elements include what appears to be one of the relatively ancient population

of mesquite trees that falls within one mesquite woodland metapatch¹⁰, the Pahrump metapatch, delineated in Clark County, Nevada (BLM 2006). The mesquite trees across broad swaths of this metapatch are the primary anchors groups of coppice¹¹ dunes which, in turn, are a major structural element of the landscape. Local fault scarps and aquifer discharge points are other structural elements that shape the distribution of the mesquite trees across the landscape, and shape the inventory and the distribution of the balance of the floral and faunal associations that have been of import to Native American communities through time.

The frequency and the character of the archaeological deposits that make up the cultural elements of the proposed landscape are unclear. Representative archaeological data for the landscape are presently unavailable. The applicant largely declined staff requests to consider the potential presence of theme-based, multi-property cultural resources or to provide primary contextual data to facilitate the evaluation of the historical significance of any such resources (CEC 2011h, Data Requests #105 and #121). What is presently known is that relatively robust archaeological deposits are usually associated with the points along the landscape from which springs emanate or did emanate in the past. These deposits appear to have higher artifact densities and a greater diversity of artifact types than deposits away from springs. Deposits of higher artifact density and greater artifact diversity most likely represent longer durations of land use around the springs, as well as a greater range of activity there.

Cursory staff observations of the landscape in the near vicinity of the proposed project site, an inter-spring area between Stump and Hidden Hills Ranch springs, document the presence of at least two additional types of archaeological deposits. One type is an interdunal lag¹², variably of fire-affected calcium carbonate (CaCO_3) tufa¹³ and coarse-grained sandstone mixed with chipped flakes of chert and of fine-grained, toolstone-quality sandstone. Bifacial, edge-modified chert flakes were found to be an infrequent component of these deposits. The distribution of chert flakes was sparse and broad, subsuming multiple clusters of fire-affected rock. The chert appeared to have been worked using a hard-hammer technique. Another type of deposit is a relatively large (5–10 m wide, 15–30 m long) interdunal scatter made up almost entirely of small, what would appear to be pressure-flaked, late-stage, biface thinning flakes, all of chert and all of different colors of chert. No two flakes were typically found to be of the same material. The frequency of the flakes was roughly on the order of 12 pieces per square meter. Presumably, the actual range of the archaeological deposits that represent the proposed landscape is much broader. Clarification of this issue must necessarily await further research.

¹⁰ A “metapatch” is defined as a “collection of woodland patches separated by less than 2 km, and not separated by any major [geographic] barrier” (BLM 2006, p.41).

¹¹ “Coppice dunes” form as vegetation and air-transported sand interact to form sand mounds that vegetation anchors in place and out of which the anchoring vegetation continues to grow. The incremental growth of coppice dunes over time can lead to the formation of quite large sand dunes.

¹² An “interdunal lag” deposit is a deposit that is the result of the aerial erosion of a sand dune whereby the wind blows dune sand away leaving in its wake a heap or scatter of any materials larger than sand grains. Those materials “lag” behind the blown away dune sand.

¹³ “Tufa” is a relatively porous deposit of CaCO_3 that slowly precipitates out of water in a number of surface and subsurface contexts.

The proposed Pahrump Metapatch Landscape is ultimately the result of a dynamic interaction among the natural elements of the landscape and the different Native American cultures that have evolved there. The tangible evidence of this interplay is the landscape characteristics that are part of its formal definition. Of the eleven landscape characteristics set out in National Register Bulletin 30 (NPS 1999: pp.3-6), the proposed landscape has the potential to possess six characteristics (land uses and activities, patterns of spatial organization, response to the natural environment, cultural traditions, vegetation related to land use, and archaeological sites). These characteristics would reflect and more precisely articulate the reciprocal manner in which the land has shaped local Native American cultures and, in turn, the manner in which successive and overlapping Native American cultures have shaped the land through time. There are a number of aspects of the landscape on which human action may have been more of a factor than is readily apparent. The shape of the individual mesquite patches within the landscape and their spatial distribution may, to some degree, be a function of cultural manipulation that reflects the ownership norms of the people who collected mesquite pods and may have tended the patches. The shapes of the individual trees may partially be the result of plant-tending techniques meant to maximize mesquite pod yield or facilitate easier harvesting. The information that would be necessary to develop meaningful discussions of these and other potential landscape characteristics is not presently available. Primary field research on the landscape would be necessary to acquire it. During the course of the consideration of the application for the proposed project, the applicant has repeatedly objected to engaging in this fieldwork.

Landscape Interpretation

The overarching behavioral theme that binds the Pahrump Metapatch Landscape into a discrete entity is the Native American use of the area to collect and process mesquite pods and other plant resources unique to this mesquite woodland-coppice dune association; to hunt the animal resources dependent on the association; and to access the scarce water resources that are coincident with it. The Native American use of this cultural landscape extends from the ancient point in time when the existence of the mesquite woodland and the presence of Native Americans first coincided, up through the early twentieth century. The landscape represents a local resource-rich zone in the midst of the relatively vast expanses of the resource-spare Mojave Desert scrub and shadscale scrub associations that surround it. The landscape was undoubtedly of more than economic value to the native peoples who used it. As a desert floor area that yielded a disproportionately high amount of life-giving resources, the metapatch landscape can be surmised to have been deeply woven into the oral traditions, the mythology, the religion, and the ethnogeography of the peoples who once lived there.

The Pahrump Metapatch Landscape was one of a number of local, discontinuous resource zones that were, most likely, variable parts of the territorial configurations of different cultures here through time. The landscape was one resource island in a lateral and vertical resource archipelago scattered in a metaphorical sea of low resource-value vegetation associations. The Spring Mountains and Mount Charleston have offered and still offer, among other resources, pinyon nuts, agave, and water. The Pahrump Valley playa, perennially to seasonally from the terminal Pleistocene through the Holocene

epochs, has been a critical focus of a suite of lacustrine¹⁴ resources. And the Nopah Range undoubtedly offers resources of value as well. The variable and most likely significant role that the metapatch landscape played in different prehistoric through early historic aboriginal territories has not been well investigated to date.

CRHR Evaluation of the Landscape

There is presently not enough information on the Pahrump Metapatch Landscape to make a formal determination on the resource's eligibility for listing in the CRHR. However, there is enough information to provide a sound rationale for assuming the eligibility of the landscape as an archaeological district under CRHR Criteria 1 and 4 and for proceeding directly to the analysis of the potential project-related impacts to this historical resource under CEQA.

The Pahrump Metapatch Landscape has the legitimate potential to be eligible for listing in the CRHR under Criterion 1, for its association with events that have made a significant contribution to the broad patterns of the local aboriginal prehistory and history of Pahrump Valley, and under Criterion 4 for its potential to yield information important to our understanding of that prehistory and history. Although the visual quality of the landscape's setting, feeling, and association relative to Criterion 1 and the spatial quality of the landscape's location and design relative to Criterion 4 are not entirely pristine, the landscape, nonetheless, presently retains enough of its historic character and appearance (integrity) to be recognizable as an historical resource and to convey the reasons for and the sense of its significance.

The provisional boundary for the landscape is the boundary delineated for the Pahrump Metapatch in the *Conservation Management Strategy for Mesquite and Acacia Woodlands in Clark County, Nevada* (BLM 2006). This boundary is meaningful because it relates the resource to a discontinuous series of mesquite woodland populations that can be conceptually unified largely on the basis of their association with the near-surface water sources along the Pahrump-Stewart Valley fault system. This boundary is provisional and would require significant future refinement. The periods of significance for the bounded landscape would be those periods from the terminal Pleistocene through the Holocene epochs, when the landscape was a key component of local aboriginal culture. Whether there were distinguishable, discrete periods when this was the case or the landscape has always functioned in this capacity has not yet been deciphered.

Impacts and Recommended Mitigation

The construction of the proposed project would cause a substantial adverse change in the significance of the Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape. The presence of the heliostat fields and the approximately 750 foot tall solar power towers would be a stark visual intrusion that would profoundly and irreparably degrade the ability of the landscape to convey its historical significance under CRHR Criterion 1. The mass of the looming towers in particular, in combination

¹⁴ lacustrine: of, relating to, formed in, living in, or growing in lakes (Merriam-Webster On-Line Dictionary. 2012. <http://www.merriam-webster.com/dictionary/lacustrine>)

with the operational glare from the solar receiver steam generators atop each tower, would compromise the setting, feeling, and association aspects of the resource's integrity, aspects critical to the resource's ability to convey its associative values under Criterion 1. Subsequent to the construction of the facility, one would no longer be able to experience the sense of the landscape as it was during its period of significance. The baseline presence of the roads and residences of the Charleston View community along the southwestern side of the landscape and of Nevada State Route 160 along the northeastern side of it has contributed somewhat to the visual degradation of the landscape, in those limited areas. There are broad expanses of the landscape, however, where that degradation is not readily apparent. The presence of the solar power towers would significantly intrude on those remaining broad landscape expanses. Staff therefore concludes that the construction of the proposed project and its indefinite period of operation (presence on the land) would result in a significant impact on the Pahrump Metapatch Landscape, a historical resource; and would require mitigation under CEQA.

The significant impact of the proposed project on the Pahrump Metapatch Landscape cannot be avoided or reduced if the project is constructed as designed and in the proposed location. Given the extended period of both the proposed project's operation (a minimum of at least 30 years) and the physical presence of the proposed power towers, the effect of the towers' presence on the landscape can, in essence, be considered permanent. Once the towers are present, the visual integrity of the landscape will be lost. Staff is unaware of any suite of mitigation measures that would reduce the loss of the entire landscape or a substantial portion of one to a less than significant level. The applicant has provided no information or analysis on this landscape and has recommended no mitigation to reduce the project's impacts on this significant resource. Staff must, therefore, conclude that the project's actual impact to the Pahrump Metapatch Landscape is significant and unmitigable. Nonetheless, staff is proposing compensatory mitigation to lessen the intangible loss of this landscape's ability to convey its associative values.

Staff's proposed Condition of Certification **CUL-11** would seek to develop a comprehensive picture of the resource's value and re-create that sense of experience through description and interpretation. This type of mitigation would parallel the treatments routinely given to significant built-environment resources, such as buildings and bridges (Historic American Building Survey and Historic American Engineering Record documentation, respectively) prior to demolition, and increasingly given to significant landscapes (Historic American Landscape Survey documentation), under federal historic preservation programs, where such resources are subject to profound visual degradation or physical destruction. This form of mitigation does not serve to directly avoid or minimize the significant effects that the proposed project would have on the Pahrump Metapatch Landscape, and it does not reduce those effects to a less than significant level. It does however serve to partially compensate the public for their loss.

Staff finds compensatory mitigation appropriate here, because staff knows of no direct way to effectively counteract the visual degradation that the proposed project would inflict on the landscape. **CUL-11** seeks to compensate, in part, for the permanent loss of the public's ability to experience a significant aboriginal landscape through the

reasonably thorough documentation of the landscape's diachronic¹⁵ composition and character, and the subsequent dissemination of this information back out to the public, to the people who would suffer the loss. **CUL-11** proposes to gather this information thorough the design and execution of a thoughtful program of primary field research.

The proposed field research would develop two primary avenues of inquiry. One direction of inquiry would encompass research on the geomorphology and the paleoenvironment of the ancient mesquite woodland-coppice dune association, and on the springs and seeps across the proposed landscape. This information is critical to understanding the chronology of the use of this area and the age of related archaeological sites, and to determine the relative importance that the landscape may have played in the broader ecological milieu of Pahrump Valley over the last several millennia. A second line of inquiry would entail the investigation of the archaeology of the landscape and would seek to establish the range of variability, the density, and the patterns of distribution of the archaeological deposits that typify the landscape. The overarching purpose for gathering and interpreting information on the associate values of the Pahrump Metapatch Landscape is not to provide further support to staff's assumption of historical significance of the subject landscape. Once assumed significant by the lead agency, the resource is considered significant under CEQA and treated accordingly. The purpose would rather be to attempt to provide the public with a sense, however diminished, of the experience that they would have had if the project did not exist.

However, even with full implementation of Condition of Certification **CUL-11**, the project's impact to the Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape would remain significant and unmitigable.

ETHNOGRAPHIC ANALYSIS

Ethnographic Background

Ethnography fulfills a supporting role for other anthropological disciplines, while providing contributions on its own merits. It supports archaeology by providing a cultural and historic context for understanding the people who are associated with the material remains of the past. By understanding the cultural milieu in which archaeological sites and artifacts were manufactured, utilized, or cherished, this additional information can provide greater understanding for identification efforts, significance determinations per the National Historic Preservation Act (NHPA) or CEQA; eligibility determinations for the National Register of Historic Places (NRHR) or CRHR; and for assessing if and how artifacts are subject to other cultural resources laws, such as the Native American Graves Protection and Repatriation Act.

In addition, ethnography has merits of its own by providing information concerning ethnographic resources that tend to encompass physical places, areas, or elements or attributes of a place or area. Ethnographic resources have overlap and affinity to historic property types referred to as cultural landscapes, traditional cultural properties, sacred sites, and heritage resources.

¹⁵ "Diachronic" means of or concerned with phenomena as they change through time.

The National Park Service Brief 36 (NPS 2000a) provides the following definition of a cultural landscape and lists the four types. A Cultural Landscape is:

“...a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.”

An ethnographic landscape is defined as “a landscape containing a variety of natural and cultural resources that associated people define as heritage resources. Examples are contemporary settlements, religious sacred sites and massive geological structures. Small plant communities, animals, subsistence and ceremonial grounds are often components. Examples include a section of a river where a Native American culture lives, travels, and fishes; or an upland mountain area where tribal people hunt, gather, camp and travel extensively during part of the year. (NPS 2000a)

Landscapes are understood and documented by conducting ethnographic research that identifies the contributing elements or attributes of the landscape. Contributing elements can include both cultural and biological resources, climate and landforms, subsistence, religion, economy and the built environment.

General ethnographic backgrounds for the Western Shoshone and Southern Paiute were provided by the applicant in the Cultural Resources Inventory Report (pp. 14-20), appended to the HHSEGS AFC. With this information as a starting point, staff conducted an ethnographic study to identify Native American concerns and as a basis for determining the significance of related resources and potential mitigation for impacts to those resources.

Nine distinct tribal governments were consulted regarding an ethnographic study for this project. Tribes were invited to participate based upon a list of affiliated tribes provided by the Native American Heritage Commission (NAHC). The nine invited tribal governments represent four different cultural affiliations. From west to east, these affiliations are: Owens Valley Paiute, Timbisha Shoshone, Pahrump Southern Paiute, Las Vegas Southern Paiute, and Moapa Southern Paiute. Of the nine tribal governments, the Pahrump Southern Paiute participated fully, the Moapa Southern Paiute and Timbisha Shoshone participated in supporting roles, and the remaining six tribes provided limited input due to their greater distances and relationships to the project area. **Cultural Resources Figure 1**, located at the end of this section, is a map of the general locations and territories of the participating tribes. The map also includes a historic journey taken by a Pahrump Paiute leader and his son that, in part, helps to define Pahrump Paiute ancestral territory.

Southern Paiute

The “Southern Paiute” represents a population of people that traditionally reside in a large swath of land that has, as its general boundaries, the eastern side of the Black Mountains and, as the west end, the eastern Mojave Desert. The Colorado River and the Grand Canyon form the southern extent of Southern Paiute and the southeastern plateaus of the Rocky Mountains form the eastern extent of the Southern Paiute territory. The northern boundary of Southern Paiute territory takes in the southern third of present day Utah and the lower quarter of present day Nevada. The Pahrump and Moapa Tribes are the Southern Paiute residing in the western extent of Southern Paiute territory. The Chemhuevi people to the immediate south of Pahrump and living along the lower Colorado River are also Southern Paiute and share many cultural traits with those Southern Paiute to the north and east. Chemhuevi did not participate in this ethnographic study because they were not listed by the NAHC and therefore were not invited to participate in this study. In addition, the more eastern Southern Paiute Tribes, located in Utah and Northern Arizona, were not invited to participate although they recognize the Spring Mountains as their common place of origin and participate in some of the ceremonial practices in common with the Moapa and Pahrump Southern Paiute.

In the Fall of 1873, Major John Wesley Powell and G. W. Ingalls were commissioned by the United States Department of the Interior to determine the extent of Paiute Indians (Numic) dwelling throughout the Great Basin and who had not yet been moved to reservations (Fowler 1971: 97-120). In all, the two commissioners documented 83 separate tribes. Powell made one trip as far as Las Vegas, where he collected information on the Paiutes of that area. Powell documented a “Chief of Alliance”, named To-ko’-pur (Chief Tecopa), who represented one tribe, as well as the alliance of seven additional tribes. Each of the additional tribes had “Chiefs.” The following table provides Powell’s grouping of seven tribes into one alliance. Powell suggested that all Southern Paiute of southeastern California, southern Nevada, northwestern Arizona and southern Utah be relocated to the Moapa Reservation (Ibid:116).

Table 8: Seven Tribes Allied Under Chief Tecopa

TRIBE	LOCALITY	CHIEF
<i>No-gwats</i>	Vicinity of Potosi	To-ko’-pur
<i>Pa-room’-pats</i>	Pa-room Springs	Ho-wi’-a-gunt
<i>Mo-quats</i>	Kingston Mountains	Hu-nu’-na-wa
<i>Ho-kwaits</i>	Vicinity of Ivanspaw	Ko-tsi’-an
<i>Tim-pa-shau’-wa-go-tsis</i>	Providence Mountains	Wa-gu’-up
<i>Kau-yai’-chits</i>	Ash Meadows	Nu-a’-rung
<i>Ya’-gats</i>	Armagoza	Ni-a-pa’-ga-rats

Powell’s 1873 Las Vegas journey report counted a total of 240 individual Southern Paiute within the alliance lead by Chief Tecopa (Ibid:104-105). Powell provides further clarification by stating that a number of Indians who acknowledge a common authority and encamp together is a “Tribe” (Ibid: 50). Powell also adds that any collection of “tribes” that acknowledge allegiance to a head chief would be designated as a “nation”

(Ibid). Hence, all of the seven tribes with allegiance to Chief Tecopa were considered a nation.

Today, the terminology has changed, with the alliance or nation, now called a “tribe” and each of the contributing localities referred to as “districts.” The entire alliance is now referred to as the Pahrump Tribe. The nomenclature has been partly confused when anthropologist Isabel Kelly chose to combine the above Tecopa alliance with four other localities, (Las Vegas, Colville, Indian Spring, and Cottonwood Island) and then chose to call the entire group the “Las Vegas Tribe” (Kelly 1964). Some ethnographers have then come to falsely associate the currently recognized Las Vegas Tribe with this larger conglomerate or to consider Pahrump Paiute as Las Vegas Paiute.

That the Pahrump and Las Vegas Southern Paiute are two distinct groups is further confirmed by a document produced by the Inter-Tribal Council of Nevada:

“Centered around Las Vegas, Red Rock, and Mt. Charleston were the Pegesits who lived as far east as present-day Hoover Dam. On the western edge of Nevada were the Pahrumpits. They lived in Pahrump Valley and on the western slopes of the Spring Mountains” (Inter-tribal 1976:11).

Pahrump Paiute Tribe

The Pahrump Paiute Tribe, located in Pahrump, Nevada, is not a federally recognized tribe, but is recognized as an established tribal entity by the State of California and is informally recognized by federal land management agencies that operate within the Tribe’s traditional territory. Over the years, Pahrump Paiute individuals have been intermittently recognized by the federal government. The Tribe currently consists of approximately 100 tribal members. The membership generally resides in the nearby Las Vegas, Pahrump, Charleston View, and Tecopa/Shoshone areas, although some tribal members live a considerable distance beyond the tribal territory. The tribe is led by a chairperson and is based in Pahrump, Nevada. While the Pahrump Paiute Tribe has no reservation, they do assert an ancestral territory. They are the primary tribe affiliated with the area in which the project is proposed. The tribe’s primary foci are maintaining their unique cultural identity, protecting important cultural resources that are in harm’s way of various federal, state and local projects, and attaining federal recognition. The tribe’s cultural expertise resides within its membership.

Moapa Paiute Tribe

The Moapa Band of Paiute Indians, located in Moapa, Nevada, is a federally recognized tribe. It currently consists of approximately 300 members. Some tribal members are closely related to Pahrump tribal members or are from the Pahrump Valley and continue to bury those members in the Chief Tecopa Cemetery (formerly known as the Pahrump Indian Cemetery). The tribe occupies a 71,954 acre reservation near Moapa, Nevada. A reservation of 2 million acres was originally established in 1874; however, two years later, the reservation was reduced to 1000 acres. In the 1980s, the reservation was expanded by an additional 70,000 acres. The reservation is located along the lower flood plains of the Muddy River. The tribe governs per a constitution that was adopted in 1942. An elected tribal council presides over several tribal businesses (travel center, fireworks store, and a tribal farm) and various tribal departments and committees,

including a cultural committee. The tribe has been impacted by surrounding development, such as the nearby coal-fired Reid Gardner Power Station. Tribal elders and cultural staff also assert that decades of bomb testing at Nellis Air Force Range immediately to the west and northwest of the reservation have contaminated their reservation and ancestral lands (Kinlichine – Personal Communication). (http://www.moapapaiutes.com/about_us.htm)

Las Vegas Paiute Tribe

The Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony is a federally recognized tribe. It consists of approximately 71 members who occupy a 3,800 acre reservation generally referred to as “Snow Mountain” and located several miles north of Las Vegas. Pahrump Paiute and Las Vegas Paiute are closely related to one another and to some of the Moapa Tribe membership. Isabel Kelly identified both Pahrump and Las Vegas under the Las Vegas Paiute Tribe; however, each tribe has continuously maintained their distinct identities and function independently. The Tribe’s original reservation was a 10 acre plot of land located in downtown Las Vegas and deeded to the tribe in 1911 by a private ranch owner. The 10 acre plot is still part of the reservation. The tribe has a constitution adopted in 1970 and is governed by a tribal council. The tribe has several businesses, including an extensive golf resort, gas station, and two smoke shops. Recent issues that involve the tribe’s concern are on-going desecration of tribal cultural sites, including graffiti of sacred sites in the Red Rock area, a popular tourist destination for visitors to Las Vegas. The Tribal staff cultural expertise resides within the Tribal Environmental Protection Office.

(<http://lvpaiutetribe.com>;

http://en.wikipedia.org/wiki/Las_Vegas_Tribe_of_Paiute_Indians_of_the_Las_Vegas_Indian_Colony)

Shoshone

The Shoshone people reside in a swath of land as extent as, and immediately north of, the Southern Paiute territory. Their western-most boundaries are in the Coso Mountains and on the eastern slope of the Inyo Mountains in California. The eastern end of their territories is in the areas of northwestern Utah and southern Idaho. The Shoshone in the western side of this swath of land are referred to as Western Shoshone.

Timbisha Shoshone Tribe

The Timbisha Shoshone Tribe, California, is a federally recognized tribe. It currently has approximately 306 tribal members and occupies a 7,914 acre reservation, comprised of several parcels in and around Death Valley National Park, including a 314 acre parcel near Furnace Creek, California. Some reservation parcels are located in Nevada near Lida, Scotty’s Junction, and Death Valley Junction. The Tribe also has several areas that are co-managed with the NPS or the BLM. The Tribe’s main office is in Bishop, California. The Tribe was originally represented in the 1863 treaty of Ruby Valley. However, that treaty did not result in any specific representation for the Timbisha Shoshone, who fought for and eventually achieved federal recognition in 1983. However, the Tribe did not receive a land base until 2000 with the passage of the Timbisha Homeland Act. The Tribe holds general elections; it is lead by a chairperson and holds monthly meetings. The Tribe’s cultural programs are managed by a Tribal

Historic Preservation Office (THPO). The Timbisha's ancestral territory abuts the Pahrump Paiute Tribe's ancestral territory in the vicinity of Ash Meadows, Eagle Mountain, and the Black Mountains. (Field Directory, 2004, page 156, <http://www.timbisha.org/index.htm>, Durham - Personal Communication).

Owens Valley Paiute

The Owens Valley Paiute are a distinct group of Paiute that reside in the Owens Valley and have the Owens Valley as an ancestral territory, including the valley's defining flanks, the eastern flanks of the Sierra Nevada, and the western flanks of the Inyo and White Mountains. The Mono Lake area provides the northern boundary of their territory. The Owens Valley Paiute are represented by five separate tribes. All of the tribes are members of the Owens Valley Indian Water Commission. Of the five tribes, two (Lone Pine and Big Pine) have some tribal members with cultural affiliation to the Timbisha Shoshone and Pahrump Paiute people that historically co-existed in the Ash Meadows area.

Lone Pine Paiute Shoshone Tribe

The Lone Pine Paiute Tribe of Lone Pine, California, is a federally recognized tribe. It currently has approximately 425 tribal members and occupies a 237 acre reservation near Lone Pine, California. The Tribe is governed by a general council and holds monthly meetings. Some Lone Pine Paiute Tribal members are of Timbisha Shoshone descent. Cultural Resources affairs are provided by the tribal Environmental Protection Program. (Field Directory 2004: 111, <http://lppsr.org/>)

Fort Independence Paiute Tribe

The Fort Independence Paiute Tribe is a federally recognized tribe. It consists of approximately 136 tribal members and occupies a 580 acre reservation near Independence, California. The Tribe has recently attained tribal historic preservation status. (Field Directory 2004: 94, <http://www.fortindependence.com/native.aspx>)

Big Pine Paiute Tribe

The Big Pine Paiute Tribe of the Owens Valley is a federally recognized tribe. It consists of approximately 403 tribal members and occupies a 279 acre reservation near Big Pine, California. The Tribe has a constitution and is governed by a Tribal Council and a General Council. The Tribal Council holds monthly meetings; the General Council meets quarterly. At least one Big Pine Paiute Tribe family shares a tribal affiliation with the Pahrump Paiute. The Big Pine Tribe's cultural resources program is maintained through a THPO (Field Directory, 2004: 66, <http://www.bigpinepaiute.org>, Jim - Personal communication).

Bishop Paiute Tribe

The Paiute-Shoshone Indians of the Bishop Community is a federally recognized tribe. It consists of approximately 1040 tribal members and occupies an 875 acre reservation near Bishop, California. The tribe meets bi-monthly and is governed by the Bishop Indian Tribal Council. The Paiute-Shoshone Indians of the Bishop Community share a tribal affiliation with the Paiute-Shoshone. The Bishop Tribe's cultural resources

program is maintained through a THPO. (Field Directory, 2004: 69, <http://www.bishoppaiutetribes.com/>)

Utu Utu Gwaitu Paiute Tribe

The Utu Utu Gwaitu Paiute Tribe (formerly the Benton Paiute Tribe), is a federally recognized tribe. It consists of approximately 138 tribal members and occupies a 162 acre reservation near Benton, California. The tribe has a constitution and is governed by the Utu Utu Tribal council. The Tribal Council holds monthly meetings; the General Council meets annually. The Utu Utu Gwaitu Paiute shares a tribal affiliation with the Paiute. (Field Directory, 2004, page 63)

Evaluation of Ethnographic Resources

Southern Paiute Salt Song Landscape

This landscape is eligible under Criteria 1 at the regional level for its broad contributions to the unique historic events that shape Southern Paiute understanding of the landscape, its mapping through song and movement, and the conveyance of the deep oral tradition through the generations for the unborn, living, and deceased.

This landscape is also eligible under Criteria 3 at the regional level for its contributions to the production of the salt songs for which, without the salt songs, the high artistic value of the songs would fall flat. Songs sung during a ceremony that moves a group of living people and the deceased through a landscape is most aesthetic and culturally appropriate when the songs are sung in the landscape, as contrasted with being sung for a studio recording or transcribed into musical notation and then heard, read or duplicated by others.

Pahrump Paiute Home Landscape

This landscape is eligible under Criteria 1 at the regional level for the broad contributions to the unique historic events that shape Pahrump understanding of their homeland and their ongoing traditions and history that have allowed them to survive, and during particular periods of their existence, flourish in a place that many non-Pahrump would consider harsh, inhospitable, or vastly in need of improvements.

This landscape is also eligible under Criteria 2 at the regional level for its association with the life and times of Chief Tecopa, the first Pahrump Paiute chief that withstood, translated, and guided his people through the pressures of a rapidly changing world brought on by the intrusions of other cultures. This association of a leader, his homeland, and his fellow people to endure into modern times was passed on generation to generation and endures into the present.

Mo hav Landscape

This landscape is eligible under Criteria 1 at the local level for the broad contributions to the unique historic events that this landscape provides to the Pahrump Paiute Home landscape in that it provides a unique marginal cultural milieu that spanned the interaction of the first contacts between Pahrump Paiute and non-Pahrump Paiute

foreigners, such as the Mexican traders, American explorers, trappers, and traders; the American and Mormon miners, homesteaders; and later American ranchers and business men that came to call the Pahrump Valley, either a wayside curiosity or new home.

This landscape is also eligible under Criteria 4 at the local level of significance for the potential to yield ethnographic information important to the prehistory and history of the Mo hav area and specifically the prehistoric archaeological potential that lays beneath and on the surface of the Mo hav area, including the archaeological remains known to exist or that potentially exist in the Mo hav Landscape.

The Mo hav landscape contains burials and at least one known cemetery. Normally, cemeteries are not eligible to the NRHP. However, the burials and cemetery are considered as contributing features of the Mo hav landscape and lend a sense of longevity to the landscape. Rather than render the landscape ineligible, this actually increases the merits for eligibility.

Integrity

Southern Paiute Salt Song Landscape

The Southern Paiute Salt Song Landscape has been visually and physically compromised by significant modern developments, such as the presence of numerous large cities, towns, military installations, energy generating facilities, mining infrastructure, and other infrastructure, such as transportation and transmission corridors. In addition, auditory, olfactory, and nightscapes have been compromised. The Spring Mountains are surrounded on several sides with incompatible intrusions to traditional religious and cultural practices. To the east/southeast lies the sprawling Las Vegas metropolis. To the north lies Nellis Airforce base and Nevada Test Site. And to the east/northeast lies the town of Pahrump. Across and through this terrain are several major highway corridors and transmission lines. However, one major area, lying to the south/southeast, and where the proposed project and its alternative site are proposed, the landscape is remarkably unmarred.

In addition, Southern Paiute traditional singers have an obligation to continue this tradition least they void their obligations to the deceased and ultimately to themselves, their yet to be born, and their very identity and continuance as a people. No amount of landscape alteration can prevent them from continuing this tradition. However, increased infrastructural intrusions increase the burden and challenges to traditional practitioners to continue traditions vital to their community and related heritage. They consider their landscape to remain aesthetically pleasing despite intrusions due to the beauty, balance and sustenance by which they are provided a unique identity, handed down through generations and originally provided to them in a pact with their creator.

The Southern Paiute Salt Song Landscape maintains integrity of Association, Feeling, Setting, and Location.

Pahrump Paiute Home Landscape

The Pahrump Paiute Home landscape has been compromised by the same modern developments, such as the sprawling town of Pahrump. Water used for agriculture has significantly lowered the water table, resulting in declines of associated plant communities and related animal habitat and population viability. Private property rights have restricted access to important hunting and gathering grounds. The tribe does not have a land base that would preserve intact their cultural traditions, except for which they would otherwise be able to take their cultural destiny into their own hands. However, sufficient land is in federal ownership, such as the U.S. Forest Service lands in the Spring Mountains, the U.S. Fish and Wildlife Ash Meadows Wildlife Area, and designated BLM wilderness areas in the No Pah and Kingston Mountain Ranges, as well as BLM front-country lands that encircle the Pahrump Valley, that allow some continued access. Because this homeland is intricately tied to Pahrump Paiute identity as a distinct people, no amount of environmental alteration of their lands will deter them from protecting and maintaining their landscape the best that they can. Indeed, one main reason for Pahrump Paiute application for federal recognition is to attain greater leverage in protecting what is their perceived birthright to exist in their homelands, including standing in issues related to the Native American Graves Protection and Repatriation Act.

The Pahrump Paiute Home Landscape maintains integrity of Association, Feeling, Setting, and Location.

Mo hav Landscape

The Mo hav landscape has been primarily compromised by the establishment and workings of the Wiley estate and perhaps, marginally, by the operations of the Front Site Gun Range located in the north east portion of the landscape. However, these historic and recent alterations are minimal compared to other component landscapes that contribute to the Pahrump Paiute Home Landscape. Areas of the Mo hav landscape are in BLM ownership and subject to federal management. And one specific area (Stump Springs) is protected as an Area of Critical Environmental Concern for its association with Pahrump Paiute cultural values. The Pahrump Paiute People affiliated with the Mo hav landscape live as close to the property as is possible, given that the land is in private ownership by non-Pahrump Paiute people. The Mo hav Landscape maintains integrity of Association, Feeling, Setting, and Location.

All CRHR-Eligible Ethnographic Resources Subject To Potential Project Impacts

Pahrump Paiute feel that their life-ways have been walked upon, stolen, lost, forgotten, rejected, belittled, infringed upon, and otherwise dismissed. In the face of this treatment, Pahrump Paiute also continue to practice as much of their traditional ways as is possible within the current society. They feel like it is still within their reach to maintain their cultural identities and ensuing obligations as traditional Pahrump Paiute while participating in the dominant society. The Pahrump Paiute see federal recognition and a tribal land base, including at a minimum, greater tribal involvement in land management planning, processes, as critical steps to ensure their tribal longevity.

Quotes from recent tribal interviews concerning perceived impacts

“The project impact is huge. That does not mean that a traditional ceremony can be held and then the land and spirits will understand once and for all. Confusion will increase and multiply over time and that will accumulate in the burden that singers and other people will take on year after year.”

“Bomb testing in the area has contaminated a lot of the desert around Moapa. We are at risk if we go gather plants. There is also the local coal plant that causes environmental problems. So we go to Pahrump Valley (and other areas where Southern Paiute are from) to gather because we think that it is a cleaner environment.”

“Area is also important for fox trail songs. Which is a song that follows the fox, who travels from spring to spring. Putting a high tech facility in the midst of the ceremonial song trail is an invasion of Indian religion. The project area is a religious area. There is not only what the project mirrors and towers will do to the salt song prayers and people but also there will be long term impacts from more people and activity over the course of the project. What actual impacts would be to the Salt Song Trail and if those impacts can be mitigated are something that only certain practitioners can answer. Those answers can only be provided by medicine men or song practitioners. It is suggested that the ethnographer talk with Larry Eddy (Chemhuevi Elder) or Richard Arnold (Pahrump Paiute Singer).”

“There is a real concern about environmental justice and how Southern Paiute people are being disproportionately and adversely impacted by the proposed project. When our cultural landscape is impacted significantly such as will happen with the proposed solar project, life-ways are changed forever and does not allow our people to complete their journey to the afterlife as described in our Salt Songs.”

“An impact to the song trails would impact all Southern Paiute that need or rely on the Salt Songs trails and related ceremonies.”

Impacts and Recommended Mitigation

The impacts of the proposed HHSEGS project on the three ethnographic landscapes, would be significant, and it is anticipated that any mitigation proposed would not reduce those impacts to a less than significant level. The threshold of significance for this type of cultural resource is based on the integrity of the resource, continuous ancestral use, and the continued investment of tribal lives in the use of this landscape. Energy Commission staff continues to seek ways to lessen impacts in consultation with Native American Tribes affiliated with the proposed project area and the surrounding landscapes.

The construction of the proposed project would cause a substantial adverse change in the significance of the three ethnographic landscapes. The presence of the heliostat fields and the 750 foot tall solar power towers would be a stark visual intrusion that would profoundly and irreparably degrade the ability of the landscapes to convey historical significance under CRHR Criterion 1. In particular, the mass of the looming towers, in combination with the operational glare from the solar receiver steam

generators atop each one, would compromise the setting, feeling, and association aspects of the resource integrity, aspects critical to the resource's ability to convey its associative values under Criterion 1. Subsequent to the construction of the facility, one would no longer be able to experience the sense of the landscape as it was during its period of significance.

Salt Song Landscape

Direct Impacts

The Salt Song Landscape and associated practices require a specific landscape, and that landscape, while a somewhat linear corridor, totally encompasses the proposed project area. The cultural practices associated with this landscape have endured for at least a millennium and are ancient enough that most do not know of its specific historical origins except to say that the practices, and places where the practices are conducted, were provided to Southern Paiute at the time of creation. The project is proposed to be placed in the midst of this corridor. Siting the project in its proposed location would result in a physical impact to the Salt Song Landscape trail and its contributing features, in that the project footprint and infrastructure would blemish, mar, and otherwise damage, destroy, and alter the trail corridor. In the course of project construction some natural waterways would be removed, damaged or altered. New water flow patterns, with newly introduced water sources would be created. The project would also damage, remove, and otherwise destroy plants and animals that are contributing features to the landscape in the vicinity of the trail corridor. Unprecedented human activity would occur in a place otherwise considered to be comparatively tranquil.

Many of the impacts during construction will endure for the operational life of the project. The washing of heliostat mirrors and establishment of project roads would cause further alteration to the natural course of ground and surface water flow. Dew would accumulate in differential amounts depending on project extent of infrastructure. Alteration to water accumulation and flow would change remaining plant characteristics. Contributing feature plants and animals would be removed and or fenced out from the project footprint, subject to harm up to and including death.. The heliostat mirrors would not only cause alteration of the water flow and plant and animal life, but traditional cultural and religious practitioners believe that the heliostats would also diminish the power of the songs and add confusion to the songs and souls on their journey to the afterlife given the large number of heliostats, approximately 170,000, that would be utilized in Solar Plant 1 and Solar Plant 2.

Indirect Impacts

Construction would also have indirect impacts to the deceased that travel the trail, to the traditional singers that guide the deceased along the trail, and to the living relatives. Funeral ceremonies have occurred adjacent to the proposed project site in the past, and are likely to occur in the future. A year after burial, Salt Song Singers in conjunction with grieving relatives, undertake the Salt Song Ceremony, which occurs in various places within the project boundaries and in adjacent areas. The project would become a physical barrier to those who travel the Salt Song Trail. In addition, the construction of

the project would irreparably damage and alter, through physical, visual, and auditory impacts, the ability of the Salt Song Singers to fulfill their spiritual obligations to the deceased to move them from their places of death through the landscape and on to the afterlife.

As the uncertainty of Salt Song Singers to fulfill their obligations is increased, so also is there a correlating increased impact to grieving families of the deceased. Grieving families would be uncertain if their deceased have been properly ushered to the place of afterlife. Additionally, although the Salt Song Trail is a Southern Paiute institution, the segment that runs through, across, and within the Pahrump Valley is within Pahrump Paiute ancestral territory and, therefore, is under their watch. Should this segment of the trail be impacted, it would further adversely affect the Pahrump Paiute in that they would be perceived by other Southern Paiute to have had a role in allowing the impact to occur. Some of these impacts may be more categorically placed within the context of mental health impacts or environmental and social justice frameworks than as impacts to cultural resources. But there are indirect cause and effect links between impacts to ethnographic landscapes and impacts to people whose lifeways and related sense of cultural wellbeing rely upon and ensue from such landscapes.

Mitigation

The direct, indirect, and cumulative adverse impacts of the proposed project on the Salt Song Landscape is significant and unavoidable if the project is constructed as designed and in the proposed location. Given the extended period of both the proposed project's operation (a minimum of at least 30 years) and the physical presence of the proposed facilities, including the heliostats and power towers, the effect of the project's presence on the landscape must be considered permanent. Staff is unaware of any suite of mitigation measures that would reduce the loss of a substantial portion of the Landscape's integrity and spiritual context, particularly one that provides the means by which the Southern Paiute deceased travel from their places of birth and death to an afterlife. The applicant has provided no information or analysis on this or any of the other ethnographic landscape, and has recommended no mitigation to date to reduce the project's impacts on these significant resources.

Although it is not possible to avoid or substantially reduce the direct adverse impacts this project, as proposed, would cause to this resource, there may be alternatives that would allow the project to proceed in some fashion, while still offering some protection to the resource and its associative values. This could include selecting a much reduced footprint, changing the proposed infrastructure to a technology that does not rely on solar power towers, or mitigating for the loss of plants and animals that are otherwise not considered or protected in the conditions of certification proposed in the **BIOLOGICAL RESOURCES** section of the HHSEGS **PSA**, but that are significant to Pahrump Paiute and integral to their traditional and spiritual practices and beliefs. It is likely, however, that construction of the proposed project in any configuration, at the proposed location, would result in the complete disruption of the existing ecosystem and habitat within the facility footprint, conditions that would have been maintained for the life of the project. Appropriate rehabilitation of the site would need to be revisited at the time of closure; however, return to the drainages; plants, animals, and supportive ecosystem, and topography that existed prior to construction is not reasonably feasible.

Staff is also consulting with the Southern Paiute to explore the possibility of compensatory mitigation measures that would at least partially mitigate the loss of this landscape's ability to convey its associative values and to compensate for the impacts to those who pass away, those responsible for facilitating the passage of death, and those who grieve during a time of transition. There is not another resource that can be substituted or replace the Salt Song Landscape. By Southern Paiute reckoning, the creator provided a specific set of instructions in relation to a particular landscape and the transference of knowledge from the creator to the Southern Paiute concerning matters of life and death is non-negotiable. There are no rules by which tribal religious leaders can modify, delete, or add to the religious prescriptions provided them in a solemn pact with the creator. To do otherwise is to invite chaos, particularly as the rules and practices at hand are those pertaining to relations between the living and the deceased. However, compensatory actions may provide some token sign of goodwill to minimize the impact. If compensation is considered, then it should be done in direct consultation with the traditional practitioners and tribal communities associated with the Salt Song Trail. Direct consultation for possible compensatory mitigation should be conducted with a wider group of practitioners than just the tribes consulted to date regarding this proposed project. No conditions of certification to address impacts to this resource are proposed at this time.

Pahrump Paiute Home Landscape –

Direct and Indirect Impacts

The project site is wholly within the boundaries of the Pahrump Paiute Home Landscape. The Pahrump Paiute Home landscape overlaps with and is a contributor to the Salt Song Landscape. Therefore, all of the direct impacts identified for the Salt Song Landscape also apply to the Pahrump Paiute Home Landscape.

In addition, a number of the indirect impacts identified for the Salt Song Landscape and all of the indirect impacts identified for the Mo hav Landscape also apply to the Pahrump Paiute Home Landscape. However, because of relative scale, the HHSEGS project would have a smaller visual impact on the Pahrump Paiute Home Landscape.

Mitigation

Although impacts to the Pahrump Paiute Home Landscape may be mitigable if it were a stand-alone resource, the direct, indirect, and cumulative effects of the proposed project on the Pahrump Paiute Home Landscape are only mitigable to less than significant by mitigating for both the Salt Song Landscape and Mo hav Landscape. Potential mitigation for this and the other two landscapes, and the extent such mitigation may reduce any significant impacts, is still on-going. No conditions of certification are proposed for this resource at this time.

Mo hav Landscape

Direct Impacts

The project site is wholly within the boundaries of the Mo hav Landscape. The Mo hav landscape overlaps with and is a contributor to the Pahrump Home Landscape and the Salt Song Landscape. Therefore, some of the direct impacts identified for the other two landscapes would also apply to the Mo hav landscape.

Indirect Impacts

Water usage would increase during the period of construction. It is possible that increased water drawdown from the local aquifer would potentially impact the adjacent spring areas of the Mo hav landscape.. Reduced water in the spring areas could lower plant and animal habitats. Many of the impacted plant and animal habitats and populations are contributors to the Mo hav Landscape. Animals that no longer can frequent the project site and that have a capability to self relocate would move into adjacent areas of the Mo hav landscape further increasing competition for habitat and other life sustaining resources that also may be in decline due to overall water decreases.

Some of the Pahrump Paiute horticultural areas in the Mo hav Landscape can still be identified. However, as spring areas are potentially reduced and vegetation types are also potentially reduced, it is possible that soils will erode quicker and it is even more possible that horticultural areas would erode away or covered over with soil types not conducive to horticultural fertility. The spring areas of the Mo hav landscape, adjacent to the project site, have been and continue to be locales for tribal ceremony, including burial in and near the Tribal cemetery. It is likely that burial ceremonies will occur in the future, despite the fact that the burial area and related access is on or near private land and that the cemetery has been vandalized in the past. A large solar field with large solar power towers, adjacent and within view of the ceremonial area of the Mo hav Landscape would visually and auditorily intrude on the areas where Pahrump Paiute are accustomed to conducting very solemn ceremonies.

Mitigation

As with the Salt Song Landscape, it is not possible to avoid or reduce the adverse direct, indirect, and cumulative impacts this project, as proposed, would cause to this resource to a less than significant level, It would be difficult to substitute another comparable resource. By Southern Paiute reckoning, all of their lands are linked with specific families that are related through long term use practices to segments of their common ancestral territory. Substitution of one area for another would need to be checked with other tribal families, groups, or tribes, depending on where compensatory lands are located. Other families would not likely open their ancestral home areas to other tribal people without requiring that their loss of lands and resources also be mitigated. The Mo hav Landscape and other adjacent gathering and hunting areas in the Pahrump Valley are already compromised by neighboring Moapa tribal members, (with Pahrump Paiute permission) that travel from the Las Vegas area to the Pahrump Valley to avoid perceived contamination of their own lands from decades of atom bomb testing and related fallout.

There may be alternatives that might allow the project to proceed in some fashion, while still offering some protection to the resource and its associative values. This could include selecting a much reduced footprint, changing the proposed infrastructure to a technology that does not rely on solar power towers, or mitigating for the loss of plants and animals that are otherwise not considered or protected in the conditions of certification proposed in the **BIOLOGICAL RESOURCES** section of the HHSEGS **PSA**, but that are significant to Pahrump Paiute and integral to their traditional and spiritual practices and beliefs. Conditions of certification that will monitor possible water level decreases and related impacts to spring reliant vegetation are proposed in the both the Biological Resources Conditions of Certification **BIO-24** and **WATER SUPPLY** Conditions of Certification **WS-2** and **6** of the **PSA**. Other joint Biological/Cultural Resource conditions of certification are under discussion and may be proposed in the FSA.

Condition of Certification **VIS-6** would require an Interpretive Center be placed somewhere in the Pahrump Valley (along Tecopa Road) and near the Old Spanish Trail to compensate for the visual intrusion that the project will impose on the scenic values associated with the Old Spanish Trail. Condition of Certification **CUL-10** has been added to expand the interpretive scope to include information on the traditional Pahrump Paiute land management, usage, and history of the Mo hav Landscape; development of a traditional Paiute horticultural garden that would include a sampling of traditional plant and animal populations to demonstrate, to the general public, the ethno-zoological and ethno-botanical uses and knowledge base of the traditional tribal peoples who have adapted to the desert environment over at least a millennia. Development of the ethnographic elements of the Interpretive Center would be implemented in direct consultation with the Pahrump Tribe, including all stages of planning, construction and management in perpetuity, to the extent that Pahrump Paiute Tribe is comfortable in participating. Implementation of this portion of the Interpretive Center design would also require siting of the Interpretive Center adjacent to a functional spring.

As noted above, staff is unaware of any action, short of project relocation or denial that would directly avoid or substantially minimize the significant effects that the proposed project would have on the three ethnographic landscapes and associated Native American practices. As an alternative, staff finds compensatory mitigation, identified in Condition of Certification **CUL-10**, to be a means of compensating, in part, for the permanent loss of the resource's visual, cultural, and spiritual values.

HISTORIC/BUILT ENVIRONMENT ANALYSIS

Historic Background

The border region of southeastern California and southern Nevada has long been a travel corridor in the American West, with a climate and terrain that has made travel and settlement in the area challenging. The history of this travel can still be seen across the Pahrump Valley (see Cultural Resources Figures 4 and 5).

Old Spanish Trail–Mormon Road (OST-MR)

The Old Spanish Trail (OST) has gone by many names, including the Camino de California, Camino de Santa Fe, and Camino de Nuevo Mexico, depending on your destination (NPS 2000b, p. 5). Various groups of people used the Old Spanish Trail (OST) in historic times, including explorers, trappers, prospectors, and immigrants; however, the primary use appears to have been for trade. The OST was primarily a horse and burro trail, but as stated previously, in places it follows trails used by the Native Americans, which would have originally been footpaths. The Mormons traveled primarily by wagon; therefore, traces in the western half of the OST that joined up with the Mormon Road were transformed into a wagon road beginning in 1847 (NPS 2000b, p. 5).

Various portions of the OST were explored by different groups long before it came together as a cohesive route. The exploration of the OST in historic times began in the Spanish Period as their interest in the exploration and settlement of the present-day American southwest ramped up.

SPANISH PERIOD

By the middle of the 16th century, Spain had emerged as the premier naval and military power in Western Europe with colonies in North and South America and a trading network throughout the Pacific. The Spanish colonization of California was achieved through a program of military-civilian-religious conquests. Soldiers secured areas for settlement by suppressing Indian and foreign resistance and established fortified structures called presidios. Civilians established pueblos (e.g., towns) and ranchos. Spanish priests led the religious conquest effort by establishing missions and converting the Indians.

Don Francisco Vazquez de Coronado led the first excursion by European peoples through the southwest in 1540 (Steiner 1999, pp. 1). As part of this expedition Cardenas, a lieutenant of Coronado, first ventured up the Colorado River, but only came as far as the south side of the Grand Canyon (CRTR 2011b, p. 24 and Steiner 1999, pp. 4–5). While Coronado failed to find the riches he originally set out for, his expedition spurred Spanish settlement in the American Southwest.

In the late 1770s, Antonio Maria de Bucareli, the Viceroy of New Spain, “legitimized Spain’s claim to Alta California by making it the new *Provincia de California* with a provisional capitol at the Presidio at Monterey.” (Steiner 1999, pp. 6). Bucareli’s plan was to use the missions to colonize the new province. Despite the abundance of rich farmland, the missions and few large ranchos that had been established were not geared towards sustaining large populations. As such, supplies were imported from the Provinces of New Mexico and Sonora. Small supply ships and the lack of reliable overland supply routes initially hampered growth in California. Bucareli realized that it was necessary to establish a direct supply route between New Mexico and California in order for California to flourish (Steiner 1999, pp. 8).

Spanish priests, or padres, began the colonization of the American southwest in the late 16th century, long before Bucareli's decree, motivated by their mission to convert the native peoples to Christianity and extend the influence of the Church. The first church in New Mexico was built in 1598, and the padres were followed by settlers, who colonized land suitable for agricultural activities. The provincial capital of Santa Fe was founded in 1610 and by the 18th century, this area was considered politically stable and productive. The Spanish were less successful at colonizing what is now northern Arizona and were only able to extend their sphere of influence to the areas south of the Gila River and along the Santa Cruz River south of present-day Tucson. The Spanish explored the coast of present-day California in the mid-16th century, but it wasn't until the incursion of Russian and British explorers into what are now Alaska, British Columbia, Washington, and Oregon in the 1750s before serious attempts were made by the Spanish to colonize Alta California (Steiner 1999, pp. 4–6).

The Spanish continued to explore the Southwest region through the 17th century. Father Eusebio Francisco Kino followed Coronado's route, travelling north to southern Arizona. He explored the courses of the San Pedro and Santa Cruz Rivers north to the Gila River, and was the first European to see the ruins of Casa Grande in 1694. He also explored what is now the United States-Mexico border from south of Nogales to Yuma, Arizona (Steiner 1999, pp. 9–10).

Father Francisco Garcés picked up where Father Kino left off when the Jesuits were expelled from New Spain in 1767. Father Garcés was the resident missionary at the Mission San Xavier del Bac, near present day Tucson, Arizona. Father Garcés made five important entradas, or explorations, during his tenure there. His first two entradas, in 1768 and 1770, brought him as far north as the Gila River. His third entrada, in 1771, brought him again to the Gila River where he retraced Father Kino's route to Yuma then south along the Colorado River to the Sea of Cortez. On each of these explorations, Father Garcés ministered to the local peoples and established friendly relations. He also accompanied Captain Juan Bautista de Anza on his expedition from the Presidio at Tubac to the Presidio of Monterey in 1774, and went as far as the Mission San Gabriel. This expedition proved that an overland route was possible between Sonora and Monterey. While waiting for de Anza to return at the Yuma Crossing, Father Garcés continued to explore along the banks of the Colorado River and into the Mojave Desert, which provide more valuable information on the region (Steiner 1999, pp. 10–12).

Father Garcés' most important entrada was in 1776, when he and two Native American guides set out north towards the Colorado River. They had reached the Mojave villages by February 28, where they were shown items by the natives that had come from the coast. Father Garcés convinced several of the Mojave natives to guide his party across the desert. They set off on March 4 and crossed the Mojave Desert via Indian trade routes surviving only because their guides knew where to find water. Presumably they stopped at Paiute Spring, Rock Spring, Marl Spring, and Soda Spring, which would later become critical stops along the extreme southern alternative route of the Old Spanish Trail. Once they reached the sink of the Mojave River they followed it to Cajon Canyon and descended into the Los Angeles basin, reaching Mission San Gabriel and Los Angeles on March 26, 1776 (Steiner 1999, pp. 12–14).

Initially Father Garcés intended to continue on to San Luis Obispo; however, he was denied troops and supplies and was unable to continue his journey. Instead he explored other parts of California up to Tulare Lake in the San Joaquin Valley, crossed over the Tehachapi Pass, and retraced his route to the Mojave Villages and Colorado River in May. Recognizing the significance of the Native American desert trails and the impact they would have on the Spanish goal of establishing an overland route from Santa Fe to the coast, Father Garcés continued his journey east to try to reach Santa Fe. He and his guides began near present-day Needles and travelled to Kingman, Arizona, Peach Springs, detoured to the Grand Canyon, and to the Hopi pueblo of Old Oraibi, part of the present-day Hopi Reservation. Spanish priests had not been welcomed there, and Father Garcés' experience was no different. He did, however, meet a member of the Zuni tribe there who confirmed that the New Mexican missionaries had made it as far west as Old Oraibi. This confirmed for Father Garcés that an overland route from Santa Fe to the coast was possible. However, he did not continue to Zuni Mission and others received credit for discovering this route (Steiner 1999, pp. 14–16).

Father Garcés returned to the Mission La Purisima Concepcion at the Yuma Crossing on the Colorado River, working among the Quechan people. In July 1781, the Quechan revolted against the Spanish and killed all of the men, including Father Garcés (Steiner 1999, p. 16). Some of the routes that Father Garcés traveled would later become part of the western portion of the Old Spanish Trail (NPS 2000b, p. 6).

In the 1760s and '70s, there were three officially sanctioned expeditions into Ute country (southwestern Colorado and southeastern Utah); the first two were led by Juan Maria Antonio Rivera and the third by Francisco Atanasio Dominguez and Father Sivestre Velez de Escalante (NPS 2000b, p. 6).

In 1822, Mexico achieved independence from Spain and California became an outpost of the Mexican Republic.

MEXICAN PERIOD

The first Europeans known to have entered present-day Nevada were fur trappers: Peter Skene Ogden of the Hudson's Bay Company and Jedidiah Strong Smith of the Rocky Mountain Fur Company. In 1826, both men crossed into Mexican Territory looking for the San Buenaventura River and beavers. Smith and his party explored an impressive amount of Nevada and were the first non-Indians to cross the Great Basin. Trade connections between Santa Fe and Los Angeles developed quickly along what came to be called the Old Spanish Trail. Jedediah Smith first traversed the route in 1826, traveling down the Virgin River to the Colorado River and then on to California. Although west of the lower Colorado River, Smith's party traveled a similar route as Garcés, which would later be named the Mojave trail or road.

In 1829–1830, Antonio Armijo came down the Virgin River to the Colorado River below the Grand Canyon, and then journeyed across the desert reaches to the Mojave River. He followed the Mojave River to the Cajon Pass and then on to Los Angeles. Armijo crossed the Colorado River at the Crossing of the Fathers, which was discovered by Fathers Dominguez and Escalante who crossed in 1776 (NPS 2000b, p. 7). After Armijo paved the way, annual trading expeditions between New Mexico and Los Angeles

became common. During this time a number of routes were developed. Many travelers avoided the Colorado River below the Grand Canyon. After descending out of the Utah Mountains by way of the Virgin River, travelers cut across the desert, establishing a direct route to the Mojave River.

The primary use of these routes was for commerce and immigration. A less-well-documented activity during this period was slaving. Beginning in the Spanish Period, Paiutes were often captured by Ute and Navajo raiders and sold as slaves in New Mexico or California.

As early as the 1820s, British and American mountain men, fur traders, and entrepreneurs were venturing into California. In 1825-26 Antoine Robidoux built Fort Uncompahgre (a.k.a. Fort Robidoux), near present-day Delta, Colorado, which acted as a centralized trading area. Trappers and traders traveling to and from the Fort used routes that would later become part of the Old Spanish Trail. Mexican trader Antonio Armijo successfully established a route from New Mexico to Los Angeles. He traded New Mexican goods for horses and mules. His accounts reportedly took him south of present day Las Vegas on his way to the Amargosa River. It is likely that he passed somewhat south of the project area, but perhaps through the project alternative area near present day Sandy Valley.

By the 1840s, there was a steady migration of American settlers into California. Unable to stop the incursion, the Mexican government granted citizenship to all who would pledge to follow Mexican law. Many of these foreigners received land grants on which they established grazing and commercial operations. One example of this is the New Helvetia rancho granted to John Sutter in 1839 in what is now the City of Sacramento. War broke out between the United States and Mexico in May 1846, with many decisive battles occurring in California. The American victory over Mexico was formalized in February 1848 with the signing of the Treaty of Guadalupe Hidalgo. California was admitted as the thirty-first state in the Union on September 9, 1850. Antoine Robidoux, Peter Skene Ogden, Jedediah Strong Smith, Antonio Armijo, William Wolfskill, and George C. Yount explored and documented the route throughout the Mexican Period. Early mountain men such as Jedediah Smith, in addition to trapping and trading, also dabbled in contract map making for the United States. Wolfskill and Yount first established the Northern Route of the Old Spanish Trail in 1831 (NPS 2000b, p.7).

In 1848, Brigham Young had established a church policy of settlement, which included a series of settlements for several hundred miles both north and south of Salt Lake City, including a port on the Pacific coast. This would aid emigration and ensure control over the Great Basin (Reeder 1966, pp. 216). By 1849, Young had established plans for the State of Deseret, encompassing the Great Basin, the Colorado River drainage, and most of present-day southern California. In 1848, Mexico signed the Treaty of Guadalupe Hidalgo and granted Alta California and everything above the Gila River and the Rio Grande to the United States. In 1850, California became a state and the land east of California was divided into the two territories of New Mexico and Utah. Mormon colonies continued to develop during the early and middle 1850s. In early 1851, settlers left Salt Lake City bound for California. They arrived in southern California in June of that year, where they purchased the San Bernardino Rancho (Reeder 1966, pp. 205).

A one-mile square town site was laid out, which essentially marked the California end of the Mormon Road. San Bernardino County was established in 1853. The population of this new settlement grew steadily in the early 1850s and in 1856, it was said that it had grown to 3,000 (Reeder 1966). Brigham Young and other Mormon leaders built what later became known as the “Mormon Fort” (a.k.a., Las Vegas Mission) in 1855, located in present-day Las Vegas, Nevada. The Fort was strategically located half way between the settlements in southern Utah and the San Bernardino Mission in southern California along the Mormon Road. This part of the Mormon Road overlapped with the Old Spanish Trail between New Mexico and California. The settlements were officially abandoned in February 1857, under the direction of Brigham Young, although a few settlers remained to tend the fields and continue to operate as way stations.

The Old Spanish Trail Recognition Act of 2002 (Act) defines the trail as “an approximately 2,700 mile long trail extending from Santa Fe, New Mexico, to Los Angeles, California, that served as a major trade route between 1829 and 1848... including the Armijo Route, Northern Route, North Branch, and Mojave Road” and refers to maps in the ‘Old Spanish Trail National Historic Trail Feasibility Study’, dated July 2001, (16 USC 1241). The Old Spanish Trail-Mormon Road, as documented by the Act, is located on the south side and just outside of the project site, but within the PAA. While these transportation routes diverge in Nevada, with the Mormon Road turning north and the Old Spanish Trail continuing east, they are recorded as occupying the same area in California, just south of the project area.

“It [the Old Spanish Trail] was never a single, clearly defined route, but was a composite of traces that separated and converged according to the dictates of terrain and potable water.” (Steiner 1999, pp. ix) It is logical that there would be a single, narrow trail/road through those areas of difficult terrain, such as mountain passes; however, in open, flat lands such as the project area, it is unlikely that travelers would travel the same perfectly straight path between springs, but that circumstances such as availability of water, forage (e.g., food for the animals), terrain and climate, the presence of friendly tribes and the absence of hostile tribes, could take them on a more southerly or northerly route. “Over time, travelers sought easier, shorter routes, and numerous variant trails developed along the Old Spanish Trail Northern Route corridor.” (NPS, 2001, p. 13) While many have endeavored to trace a single route for the Old Spanish Trail, or even a main route with some alternatives, it seems more appropriate to call it a corridor as it is referred to by National Parks Service’s Feasibility Study quoted above. Since the Feasibility Study was completed research has continued on the OST and other potential traces discovered. The Northern Route, as documented in the Feasibility Study, of the OST is located in the PAA.

The Mormon Road follows portions of the Northern Route. Segments on the project site are discussed under “Results of Windshield Survey for Built-Environment Resources” and were given temporary site numbers of Track 4 and S-24 when surveyed. Other traces/segments have been proposed, based on travel accounts, from just south of present day Pahrump, to the north of the project site, to south of the project site within the PAA (**Cultural Resources Figure 5**). Staff has concluded that the various documented and/or listed traces/segments in the project vicinity will be collectively revered to as the Old Spanish Trail-Mormon Road Northern Corridor (Corridor).

AGRICULTURE

The Pahrump Valley has a number of artesian wells conducive to farming. Some of the earliest homesteads were established by Pahrump Paiute, with the assistance of some Mormon families that stayed on in the Ash Meadows, Pahrump, and Las Vegas areas. Southern Paiute were horticulturalist prior to European contact. As non-Indian populations increased, cattle ranching quickly became a mainstay after Europeans settled in the valley in the mid-1860s. In addition to cattle, several crops were grown, including alfalfa, cotton, sugar beets, and wine grapes. One of the earliest ranches settled in the Pahrump Valley was that of Joseph Yount.

In 1902, one of Yount's sons, John B. Yount, acquired the land that would eventually become the Hidden Hills Ranch, which was located approximately 10 miles south of the Manse Ranch. The Hidden Hills Ranch in 1940 comprised 2,474 acres. (See Table 5.3-3 of the AFC for locational information.) During the same period of Wiley's ownership of the Hidden Hills ranch, other large farming and ranching enterprises were established and flourishing throughout the northern portion of Pahrump Valley. Many of these ranches relied on the valley's abundant (but dwindling) water sources and Paiute laborers. In fact, Manse Ranch had an Indian "Rancheria" attached that provided segregated quarters for the local Paiute workers.

HISTORIC/BUILT ENVIRONMENT RESOURCE ANALYSIS

Results of Built-Environment Resources Investigation

The Old Spanish Trail and the Mormon Road are two separate and distinct resources along much of their respective routes. However, in and around the project area, they are in close proximity of each other and even overlap in areas, which means, to a certain extent, they share a common history and origin. For that reason, they are discussed together and are referred to as The Old Spanish Trail/Mormon Road Northern Corridor (OST/MRNC). The OST/MRNC is a large and complicated resource, which has not been fully documented through survey. The Old Spanish Trail Recognition Act of 2002 (Act) designated the OST as a National Historic Trail. The Act defines the OST as "an approximately 2,700 mile long trail extending from Santa Fe, New Mexico, to Los Angeles, California, that served as a major trade route between 1829 and 1848... including the Armijo Route, Northern Route, North Branch, and Mojave Road" and refers to maps in the 'Old Spanish Trail National Historic Trail Feasibility Study', dated July 2001, (16 USC 1241). This designated resource has two routes in the vicinity of the project site, but none on the project site. The NPS Feasibility Study states:

The "combined North Route [of the Old Spanish Trail]/Mormon Road followed Virgin River and Dry Lake Valleys southwest to Las Vegas (Big Springs) and Blue Diamond (Cottonwood) Spring, crossing the Spring Mountains at Mountain Springs. The trail entered California by way of the Pahrump Valley." (page 15)

The project footprint lies within the larger OST/MRNC and the two designated routes in the vicinity of the project site noted above are located within the one-mile built-environment PAA.

The OSTA has documented approximately 7 miles of the mule trace defining the OST from Emigrant Pass east to the community of Charleston View. Based on the locations of the springs just over the border in Nevada, OSTA has hypothesized that branches of the route are located on the HHSEGS project site. The applicant's consultant has also discovered traces of the OST on the project site. The Mormon Road linked the settlements in southern Utah to the San Bernardino Mission in southern California. The Mormons used the OST in the project area as an alternate to the northern Emigrant Trail (NPS, OST-MR nomination, 2001).

These two resources share such a common history in this geographic area that in 2001, the OHP listed segments of The Old Spanish Trail/Mormon Road Historic District (OST-MR District) in Nevada on the NRHP. The OST-MR District was found significant under Criteria A and D in the areas of transportation, exploration/settlement, and archaeology/historical, with a period of significance of 1844-1857. The OST-MR District includes approximately 10 miles of the OST/MR; a small portion of the 2,700 mile long trail. The study that resulted in the nomination was restricted to the historic route in Nevada as it was mapped by John C. Fremont. The OST-MR District includes three segments, all in Nevada, with a total of five contributing sites and four non-contributing sites. The Stump Spring segment, the nearest to the California-Nevada border, is described as beginning on the two-track road near Stump Spring and travels generally southeast towards the border. The OST-MR District is defined by the extant wagon traces (6-7 feet wide) plus a 20-foot corridor on either side described as the "pitch zone" where people discarded trash and goods along the way. Archaeological finds have been made in the OST-MR District.

Many individuals and organizations have studied, searched for, and documented portions of the trail in California near and on the project site. As such, many possible traces have been proposed as "The" Old Spanish Trail. As previously discussed, it seems more appropriate to call it a corridor as it is referred to by NPS's Feasibility Study. Based on the various studies, traces in the vicinity of the project area could cross the California-Nevada border as far north as Pahrump, Nevada; as far south as Charleston View, California (a.k.a. Calvada Springs), south of the project site; and at locations in between, which could traverse the project site.

S-24 (Historic Road Segment)

Temporary Site S-24 was recorded and evaluated by the applicant's consultant. This resource consists of a historic road segment connecting the old Nevada State Route 16 to the Tecopa Pass Road. Historically it connected either Hidden Hills Ranch Spring and/or Browns Spring to the OST-MR just ½-mile south of the project site. It was measured at approximately 8,250 feet in length and is approximately 20 feet wide. The segment of this road located within the PAA was noted as being graded in the modern era. Some historic and modern debris was observed along this segment and including one flat-top, steel Coors can; a green glass Coke bottle; and an Owens-Illinois maker's mark dating to 1944. One section of the road, which is located within Charleston View in an area of desert pavement, was described as ungraded and in fair condition. It is bounded by two modern roads. The segment is 10 feet wide and appears to have two tracks that are approximately 2 inches deeper than the surrounding desert pavement. The segment is short, measuring less than 20 feet and is bound by two modern roads.

This road bed has no remaining desert pavement. A large pit approximately 6 feet in diameter is located next to this small segment and appears modern. No artifacts were noted in this area.

This road is depicted on the 1910 USGS 30-minute Ivanpah map and the 1956 USGS 15-minute Horse Thief Springs quadrangle map. This road also appears to be the road discussed in archival sources that led into and out of the Hidden Hills Ranch in the 1930s. Its construction consists of a shallow grade in the natural landform. The 1910 Ivanpah map shows that S-24 crosses another road, potentially the OST-MR, which runs through Stump Springs. S-24 then turns southwest, approximately 0.5 mile south of the HHSEGS project area.

The applicant's consultant states that the segment in the PAA no longer retains sufficient integrity to be eligible as a contributing element to the overall OST-MR. Staff agrees that S-24 would not be eligible under Criterion A due to the lack of integrity, which was compromised by being graded with modern equipment; however, staff disagrees with the applicant's conclusion with regards to Criterion D. The history of the OST-MR route is incomplete; therefore, any traces/tracks that are discovered are potentially eligible under Criterion D for data potential. Despite the fact that some segments have been maintained or upgraded they still retain integrity of location, which can add to the historical knowledge of the route(s) of the resource. "The current graded road appears to be situated on the remnants of an historical wagon road...." (Lawson and Spaulding, 2012, S-24 Historic Road Segment DPR). Also, based on the width of the modern grading (approx. 20 feet wide) verses the width of the historic road (approx. 10 feet wide), subsurface artifacts associated with the road may be present on either side of the route. This area is referred to as the "pitch zone" in the NRHP nomination for the OST/MR Historic District.

S-25. Temporary Site S-25 is a road that connects the Hidden Hills Ranch to Sandy Valley. The segment recorded within the project site measures 4,025 feet in length and is 20 feet wide. Its construction consists of a shallow grade in the natural landform. This road is visible on the 1956 USGS 15-minute Horse Thief Springs quadrangle map. As the road does not appear on the 1910, 1912, and 1942 USGS Ivanpah 30-minute quadrangle map, but does appear on the 1956 15-minute Horse Thief Springs USGS quadrangle map, a construction date range of 1954 to 1956 is appropriate. This resource has been affected by grading and erosion over the last 50 years.

The road was primarily used by Wiley to access his ranch from the Arrowhead Highway between Las Vegas and Los Angeles. It connects the Ranch to Sandy Valley. As such it is said that he regularly graded the road to maintain his access. It was an alternative route to the pass at Mountain Springs prior to the construction of Nevada Highway 160. The applicant's consultant states that the road could have been considered eligible for the NRHP and CRHR as part of the Hidden Hills Ranch because of its association with Roland Wiley. However, as the Ranch is no longer extant the road has nothing to be a part of and has therefore lost integrity. On its own the road is not individually eligible for either the NRHP or the CRHR and staff has concluded that it is not a historic resource under CEQA.

S-26. This recorded site is a single, ephemeral trail or footpath that measures approximately 35 to 40 cm wide. The width and location of the trail led to the conclusion that it is a prehistoric trail possibly connecting nearby Hidden Hills Ranch and/or Browns springs to the northeast with a village site to the southwest. Neither the springs nor the village site are located on the HHSEGS project site. This trail may be part of the Mo hav Ethnographic Landscape and is being evaluated as a potential contributor to the Landscape in the Ethnographic portion of this section. Analysis is also ongoing to determine if it is an early trace, prior to wagon activity, of the OST-MR and will be included in the FSA.

Track 1. This is a narrow road paralleling the California-Nevada border within the PAA. It is approximately 2 miles long with a southern terminus at S-24. There is evidence that it may be associated with early surveys of the California-Nevada border. Analysis of this road is ongoing and will be included in the FSA.

Track 4. Track 4 has been identified as a segment of the OST-MR as documented by the NPS in 2001. The applicant's consultant initially discerned it as a single route during remote imagery analysis; however, two track portions were observed along portions of the route. It is an approximately 5.5 miles long and 6 foot wide portion of the OST-MR starting at Stump Spring and trending southwest. It passes south of the project site, but within the PAA. It merges with S-24 and then can be followed west out of the valley. Artifacts found by CH2MHill along this segment include a hand-soldered can with a crimp seam top, a mule shoe, a crushed soldered can, a soldered seamed sanitary can, and large a metal ring, likely from a bridle or harness. CH2MHill dated the can prior to 1883. A small scatter of aqua glass was also found and a basal of the fragments bore a pontil scar, dating the glass to pre-1860. Some modern trash was also observed including a wire hanger, a modern aluminum beer can, and a crushed sanitary can. Analysis of this resource is ongoing and will be included in the FSA.

Track 5. Track 5 is a trail of unknown age that runs from Browns Springs in the east and near the western margin of the Pahrump Valley bolson on the west. It is outside of the project site, but within the PAA.

Impacts and Recommended Mitigation

The project site lies within the OST-MR Northern Corridor. Known elements within the OST-MR Northern Corridor to date include the Northern Route¹⁶ of the Old Spanish Trail National Historic Trail as designated by the Old Spanish Trail Recognition Act of 2002, Track 4 (CH2MHill, 2012), Steiners Apx Trace (OSTA 2012), S-24 (CH2MHill, 2012), S-26 (CH2MHill, 2012), Track 5 (CH2MHill, 2012), Central trace (OSTA 2012), and Northern trace (OSTA 2012). While not all of the traces on the project site have been ground truthed, it is clear that the project site lies squarely among all of these tracks/traces and, therefore, within the OST-MR Northern Corridor, a regionally and nationally significant travel/trade corridor that aided the exploration and shaped the development of the southwestern United States. Although not formally included in the Act, staff has concluded that these tracks/traces should also be considered part of the Old Spanish Trail National Historic Trail. As such, the Corridor is a historical resource

¹⁶ Note: This overlaps with Track 4 (CH2MHill, 2012) and Steiners Apx Trace (OSTA 2012).

for the purposes of CEQA and potential impacts resulting from the proposed project must be evaluated. The proposed project has the potential to significantly impact the OST-MR Northern Corridor by erasing traces/trails on site and visually impacting traces/tracks off site, which could jeopardize the integrity of the OST-MR segment in the Pahrump Valley.

While modern development in the Charleston View area may have disturbed some traces/tracks in the PAA, the overall setting of the Pahrump Valley has been well preserved. Also, as previously stated, even segments with minimal integrity could be significant for their information value, as not all tracks/traces in the Pahrump Valley have been ground-truthed. Modern development has been sparse and the visibility of that development is minimal from the project site, as discussed in the **VISUAL RESOURCES** section of the **PSA**. Conversely, the proposed project would be visible for miles creating the most significant visual intrusion into the valley to date. Based on the visual simulations and analysis of the visual impacts from the KOPs, the proposed project would be visible for approximately 4+ miles to the west and approximately 12+ miles to the east. Figure DR37-1 in the AFC demonstrates locations/areas that would have a view of the project.

Tracks/traces on the project site would be directly, physically impacted by the project development. The setting of the tracks/traces outside of the project site would be impacted by the proposed project, including segments of the Northern Route of the Old Spanish Trail National Historic Trail in Nevada, which are part of the NRHP-listed Old Spanish Trail/Mormon Road Historic District described above. Traces/tracks on the project site would be destroyed, along with any archaeological resources associated with the Corridor. Subsequently, staff has determined that the installation of the proposed power towers and heliostats would also result in a significant and unavoidable impact to the Corridor. The installation of this large number of heliostats and 750+ foot towers would substantially alter the vast, open landscape that is a character-defining feature of this section of the this historical resource.

The visual quality of this section of the OST-MR would be permanently damaged, resulting in a substantial adverse change in the significance of a historical resource and a significant and unmitigable impact. This impact cannot be avoided or reduced if the project is constructed as designed and in the proposed location. Given the extended period of both the proposed project's operation (a minimum of at least 30 years) and the physical presence of the proposed project facilities, the effect of project on the resource must be considered permanent. Destruction of the tracks/traces, and resulting loss of integrity, is irreversible. Staff is unaware of any suite of mitigation measures that would reduce this loss to a less than significant level. The area is relatively flat and consists of scrub vegetation. The historical significance of the OST-MR in the Pahrump Valley is largely tied to its view of the vast, unobstructed, flat expanse of desert landscape, which would be impeded by any type of screening that might be proposed to attempt to block views of the project, especially the power towers. Eliminating project elements along the project site boundary would not lessen the visual impact, as the existing views are unobstructed for several miles.

As noted above, staff is unaware of any action, short of project relocation or denial that would directly avoid or substantially minimize the significant effects that the proposed project would have on the OST-MR Northern Corridor identified in this document. As an alternative, staff finds compensatory mitigation, identified in Condition of Certification **CUL-9**, to be implemented in conjunction with **CUL-10/VIS-6**, to be a means of compensating, in part, for the permanent loss of the resource's visual and informational value.

CUL-9 proposes to gather information and verify existing data specific to the location, history, condition, and significance of the OST-MR Northern Corridor, as an individually eligible resource and an element of the Old Spanish Trail National Historic Trail and/or the NRHP-listed Old Spanish Trail Historic District. The information resulting from CUL-9 will be necessary in completing the interpretive center in **CUL-10**.

However, even with full implementation of conditions of certification **CUL-9** and **CUL-10/VIS-6**, the project's impact to the OST-MR Northern Corridor would remain significant and unmitigable.

ALL CRHR-ELIGIBLE RESOURCES SUBJECT TO POTENTIAL PROJECT IMPACTS

Cultural Resources Table 9 lists, by resource type, the number of CRHR-eligible cultural resources potentially impacted by the project.

CULTURAL RESOURCES Table 9
CRHR-Eligible Cultural Resources Potentially Subject to Impacts from the Proposed Project

Resource Type, Designation	Resource Description [type, size, age,]	CRHR- Eligibility
<u>Prehistoric Archaeological Resources</u>		
Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape	Terminal Pleistocene to Holocene proposed landscape thematically focused on collection and processing of mesquite and other plant resources unique to the mesquite woodland-coppice dune association. Landscape elements include the archaeological deposits, the mesquite population, ancillary floral and faunal populations, and, the structural features of the faults, dunes, and aquifer discharge locales	Assumed eligible for listing in the CRHR
<u>Historical Archaeological Resources</u>	None	
<u>Ethnographic Resources</u>	Three ethnographic landscapes: 1. Salt Song and Landscape 2. Pahrump Paiute Home Landscape 3. Mo hav Landscape	Eligible for listing in the CRHR

<u>Built-Environment Resources</u>		
The Old Spanish Trail-Mormon Road Northern Corridor (see Cultural Resource Figure 4)	Historic trail/road.	Portions are designated as a National Historic Trail. CRHR eligible.

CUMULATIVE IMPACTS AND MITIGATION

Geographic Scope of Analysis

Table 1 Hidden Hills Master List of Cumulative Projects and the Cumulative Projects Figure 1, included in the Cumulative Impacts Assessment **EXECUTIVE SUMMARY** of the HHSEGS **PSA**, identify the development projects that may contribute to cumulative impacts on cultural resources in combination with the proposed HHSEGS project. These include St. Therese Mission, Pahrump Airport, Element Solar, Amargosa Farm, PSI Amargosa PV Solar Project, Silver State South Solar Project, Stateline Solar Farm, Sandy Valley, Searchlight Wind Energy, Southern Owens Valley Solar Ranch, Lathrop Wells Solar, Table Mountain, and South Solar Ridge. These projects are located within a geographic area that has been identified by staff as covering an area large enough to provide a reasonable basis for evaluating cumulative impacts for all resource elements or environmental parameters. Most of these projects have, are, or would be required to undergo their own independent environmental review under CEQA.

Cumulative impacts could occur if impacts resulting from the implementation of the proposed HHSEGS project combine with the impacts of other local or regional projects on the same or similar resources. Cumulative impacts would occur locally if the HHSEGS impacts combined with the impacts of projects located within the area identified in **Cumulative Projects Figure 2**. Cumulative impacts could also occur as a result of the development of some of the many proposed and licensed solar and wind development projects that have been, or are anticipated to be, constructed in the foreseeable future. This geographic scope is appropriate because it is likely that cultural resources similar to those in the HHSEGS PAA are present throughout the Pahrump Valley and eastern Mojave Desert.

IMPACTS

St. Therese Mission, Pahrump Airport, Element Solar, and Sandy Valley Solar projects are considered most likely to contribute to the cumulative impacts on historic/built-environment resources, specifically the OST-MR Northern Corridor. The Sandy Valley project would have direct, physical impacts to the OST-MR as it appears to have the potential to adversely affect springs and tracks/traces in Nevada just east of the project site. The other projects could potentially increase the adverse impacts to the setting, or

visual quality, of the Pahrump Valley, adversely affecting a contributing element of the OST-MR. The construction of the Hidden Hills project would result in permanent adverse impacts related to the destruction of the tracks/traces of the OST-MR on the project site, as well as create a substantial visual intrusion on the landscape. This would result in significant and unmitigable adverse impacts to built-environment resources, specifically the OST-MR. Therefore, any additional adverse impacts to the OST-MR Northern Corridor for other projects would simply add a cumulative element to the existing significant and unmitigable impacts.

A related aspect is the presence of three ethnographic landscapes. The project site and vicinity is a known area for important Native American religious and traditional resource uses.

The Pahrump Paiute Home Landscape is much larger than the project footprint. The project would be visible from less than one tenth of the total Pahrump Paiute Home Landscape. However, all of the projects identified in the “Cumulative Impacts” subsection of this analysis are within the Pahrump Paiute Home Landscape. In addition, because of its size, there are many more reasonably foreseeable projects than those listed that would adversely impact the Pahrump Paiute Home Landscape.

Two other solar projects, Element Solar and Sandy Valley, are proposed either near or immediately adjacent to the Mo hav Landscape. Element would be of a similar scale to the Hidden Hills project, but will not incorporate solar power tower infrastructure into its designs. The proposed Sandy Valley project would occupy a much larger site footprint and, it is assumed, would use solar power tower technology and infrastructure.

Therefore, cumulative impacts would be greater from the Sandy Valley project. The Element Project would provide a slightly lesser set of impacts, and the combined set of projects would jointly provide even greater impacts than any one of the projects would singularly introduce.

As mentioned in the Integrity section for this discussion, the Southern Paiute Salt Song Landscape has already been visually and physically compromised to some extent by modern developments, such as the presence of numerous large cities, towns, military installations, energy generating facilities, mining infrastructure, and other infrastructure, such as transportation and transmission corridors. In addition, auditory, olfactory, and nightscapes have been compromised. The Spring Mountains are surrounded on several sides with incompatible intrusions to traditional religious and cultural practices. To the east/southeast lies the sprawling Las Vegas metropolis. To the north lies Nellis Airforce base and the Nevada Test Site. And to the east/northeast lies the City of Pahrump. Across and through this terrain are several major highway corridors and transmission lines. Although not in the immediate vicinity of the proposed project, the expanse of these ethnographic landscapes exposes them to cumulative impacts resulting from projects well outside the area identified in **Cumulative Projects Figure 1**. Analysis of the extent of these impacts on these landscapes, both individually and cumulatively, is on-going, will be discussed at the PSA Workshop in Bishop, California on June 27, 2012, and will be addressed more fully in the FSA.

The impacts to the entire Salt Song Landscape are beyond the scope of this analysis. However, the segment of the Landscape that runs through the Pahrump Valley is already compromised, in particular, by the presence of the City of Pahrump. Erosion of the spiritual context and critical elements of religious practice of the Salt Song Landscape in the Pahrump Valley is occurring primarily in response to the continued development in and around the Pahrump area. The focus of development, both current and future, is being driven by the need for housing and businesses to serve the influx of temporary construction and permanent operational personnel needed to build and staff the solar development projects in the area. These projects, some currently proposed by the same parent company in immediate vicinity of the Hidden Hills project (Sandy Valley project), would have similar impacts as the Hidden Hills project and, therefore, would contribute cumulatively to the significant adverse impacts on the Landscape.

Conclusion

The construction of other projects in the same vicinity could affect unknown cultural resources of the same types as those affected by the proposed project. Proponents for other projects in the area may be able to reduce the impact(s) to CRHR-eligible cultural resources through deliberate project planning, or reduce impacts to presently unknown cultural resources to a less than significant level by implementing construction monitoring, evaluation of resources discovered during monitoring, and avoidance or data recovery for historical resources. However, significant and unmitigable cumulative impacts to the Pahrump Metapatch Landscape; Salt Song, Pahrump Paiute Home, and Mo hav (ethnographic) Landscapes; and the OST-MR Northern Corridor by the proposed project virtually guarantees that impacts from any other projects on these resources would result in an overall significant and unmitigable cumulative impact.

CONCLUSIONS, RECOMMENDATIONS, AND PROPOSED FINDINGS OF FACT

- Staff has identified the Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape, located just to the northeast of the facility site, as a historical resource under CEQA and has assumed it eligible for the California Register of Historical Resources (CRHR), under CRHR Criterion 1. The resource represents the aboriginal use of a locally significant ecological zone during still undetermined periods over probably at least the last 12,000 years. The visual impact of the proposed project on the landscape would severely degrade the ability of the resource to convey its association with aboriginal lifeways of the Holocene epoch, potentially compromising its cultural significance and CRHR eligibility.

Staff has not identified, and the applicant has not recommended, any mitigation measures that would reduce the project impacts to this resource to a less than significant level. Staff has proposed compensatory mitigation and is discussing this option with the Native American Tribes who would be most affected by impacts to this resource. However, even with the adoption and implementation of compensatory mitigation identified in Condition of Certification **CUL-11**, the project would still have a significant and unmitigable impact on the Pahrump Metapatch Mesquite

Woodland-Coppice Dune Archaeological Landscape and related impacts to affected Native American cultural practices.

- Staff has determined that the archaeological deposits found within the boundaries of the HHSEGS facility site are not significant as individual resources and are not contributors to the Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape. No mitigation is required.
- Staff has identified three ethnographic landscapes within the ethnographic project area of analysis (Salt Song, Pahrump Paiute Home, and Mo hav Landscapes) as historical resources under CEQA and potentially eligible for listing in the California Register of Historical Resources (CRHR), under Criterion 1. The presence and visual impact of the proposed project on these landscapes would compromise the setting, feeling, and association aspects of the resources' integrity, aspects critical to the resources' ability to convey their associative values, potentially compromising their cultural significance and CRHR eligibility. Staff has proposed compensatory mitigation (**CUL-10 – CUL-12**) and is discussing this option with the Native American Tribes who would be most affected by impacts to these landscapes. However, even with the adoption and implementation of compensatory mitigation, the project would still have significant and unmitigable effects on Native American spiritual practices dependent on these resources.
- Staff has identified a historic trail corridor, containing various converging and intermingled tracks and trails that comprise a portion of the Old Spanish Trail-Mormon Road and encompasses the HHSEGS project site. Staff has determined this trail corridor to be a historical resource under CEQA and eligible for the CRHR under Criterion 1 and 4. Analysis is still ongoing, but at this time, staff anticipates that, even with adoption and full implementation of Conditions of Certification **CUL-9, CUL-10/VIS-6**, and CUL-12, project impacts to this resource would be significant and could not be mitigated to a less than significant level.
- Staff has determined that construction and operation of the HHSEGS project, in conjunction with past, present, and reasonably foreseeable projects in the Cultural Resources PAA, would result in significant and unmitigable impacts to one archaeological landscape, three ethnographic landscape, and one historic/built environmental historical resource, as identified in this section. Although full implementation of all proposed Conditions of Certification would reduce the project-related impacts to some extent, thereby reducing the project's contribution to cumulative impacts to the resources, they would not reduce the cumulative project contribution to the total resource inventory for this project or that of the past, present, and foreseeable future projects in the vicinity to the these resources below a level of significance..
- Staff has determined that construction and operation of the HHSEGS project as currently proposed and full implementation of all Cultural Resources conditions of certification would ensure compliance with all applicable LORS, plans, and policies identified in **Cultural Resources Table 1**.

PROPOSED CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of construction-related ground disturbance or grading, boring, and trenching, as defined in the General Conditions for this project; surface grading or subsurface soil work during pre-construction activities or site mobilization; or mowing activities and heavy equipment use in loose or sandy soils, at the site and for access roads and linear facilities, the project owner shall obtain the services of a Cultural Resources Specialist (CRS) and one or more Alternate CRS(s). The project owner shall submit the resumes and qualifications for the CRS, CRS alternates, and all technical specialists to the CPM for review and approval.

The CRS shall manage all cultural resources monitoring, mitigation, curation, and reporting activities, and any pre-construction cultural resources activities (e.g., geoarchaeology or data recovery), unless management of these is otherwise provided for in accordance with the cultural resources conditions of certification (Conditions). The CRS may elect to obtain the services of Cultural Resources Monitors (CRMs), Native American Monitors (NAMs), and other technical specialists, if needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS makes recommendations regarding the eligibility for listing in the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner.

No construction-related ground disturbance or grading, boring, and trenching, as defined in the General Conditions for this project; surface grading or subsurface soil work during pre-construction activities or site mobilization; or mowing activities and heavy equipment use in loose or sandy soils, at the site, access roads, and linear facilities, shall occur prior to Compliance Project Manager (CPM) approval of the CRS and alternates, unless such activities are specifically approved by the CPM.

Approval of a CRS may be denied or revoked for reasons including but not limited to non-compliance on this or other Energy Commission projects and for concurrent service as CRS on an unmanageable number of Energy Commission projects, as determined by the CPM. After all ground disturbance is completed and the CRS has fulfilled all responsibilities specified in these cultural resources conditions, the project owner may discharge the CRS, if the CPM approves. With the discharge of the CRS, these cultural resources conditions no longer apply to the activities of this power plant.

If, during operation of the proposed power plant, circumstances develop that would require ground disturbance in soils or sediments previously undisturbed during project construction, no surface grading or subsurface soil work shall occur prior to submission of a Petition to Modify and CPM review and approval of project-specific protocol for addressing unanticipated discoveries, consistent with the approved Cultural Resources Mitigation and Monitoring Plan (CRMMP).

CULTURAL RESOURCES SPECIALIST

The resumes for the CRS and alternate(s) shall include information demonstrating to the satisfaction of the CPM that their training and backgrounds conform to the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61). In addition, the CRS and alternate(s) shall have the following qualifications:

1. Listing in the Register of Professional Archaeologists;
2. Qualifications appropriate to the needs of the project, including a background in anthropology, archaeology, history, architectural history, or a related field;
3. At least three years of archaeological or historical, as appropriate (per nature of predominant cultural resources on the project site), resources mitigation and field experience in California; and
4. At least one year of experience in a decision-making capacity on cultural resources projects in California and the appropriate training and experience to knowledgeably make recommendations regarding the significance of cultural resources. The resumes of the CRS and alternate CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS/alternate CRS on referenced projects and demonstrate to the satisfaction of the CPM that the CRS/alternate CRS has the appropriate training and experience to implement effectively the Conditions.

CULTURAL RESOURCES MONITORS

CRMs shall have the following qualifications:

1. B.S. or B.A. degree in anthropology, archaeology, historical archaeology, or a related field, and one year experience monitoring in California; or
2. A.S. or A.A. degree in anthropology, archaeology, historical archaeology, or a related field, and four years experience monitoring in California; or
3. Enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historical archaeology, or a related field, and two years of monitoring experience in California.

CULTURAL RESOURCES TECHNICAL SPECIALISTS

The resume(s) of any additional technical specialist(s), e.g., historical archaeologist, historian, architectural historian, and/or physical anthropologist, shall be submitted to the CPM for approval.

The geoarchaeologist is required to defer to the CRS in the event of the discovery of human remains or other cultural material during the conduct of a pre-construction geoarchaeological evaluation plan. A similar provision in the approved pre-construction geoarchaeological evaluation plan would be needed, giving the geoarchaeologist

authority over the planned work except for the handling of a discovery of human remains and other cultural material.

Verification:

1. At least 45 days prior to the start of ground disturbance, the project owner shall submit the resumes for the CRS and alternate(s) to the CPM for review and approval.
2. At least 10 days prior to a termination or release of the CRS, or within 10 days after the resignation of a CRS, the project owner shall submit the resume of the proposed new CRS, if different from the alternate CRS, to the CPM for review and approval. At the same time, the project owner shall also provide to the proposed new CRS the AFC and all cultural resources documents, field notes, photographs, and other cultural resources materials generated by the project. If no alternate CRS is available to assume the duties of the CRS, the project owner shall designate a CRM to serve in place of a CRS for a maximum of 3 days. If cultural resources are discovered, ground disturbance shall remain halted until there is a CRS or alternate CRS to make a recommendation regarding significance.
3. At least 20 days prior to ground disturbance, the CRS shall provide a letter naming CRMs and attesting that the identified CRMs meet the minimum qualifications for cultural resources monitoring required by this condition.
4. At least 5 days prior to additional CRMs beginning on-site duties during the project, the CRS shall provide letters to the CPM identifying the new CRMs and attesting to their qualifications.
5. At least 10 days prior to any technical specialists, other than CRMs, beginning tasks, the resume(s) of the specialists shall be provided to the CPM for review and approval. At least 10 days prior to the start of ground disturbance, the project owner shall confirm in writing to the CPM that the approved CRS will be available for onsite work and is prepared to implement the cultural resources conditions.

CUL-2 Prior to the start of construction-related ground disturbance or grading, boring, and trenching, as defined in the General Conditions for this project; surface grading or subsurface soil work during pre-construction activities or site mobilization; or mowing activities and heavy equipment use in loose or sandy soils, at the project site, access roads, and linear facilities, if the CRS has not previously worked on the project, the project owner shall provide the CRS with copies of the AFC, data responses, confidential cultural resources reports, all supplements, the Energy Commission cultural resources Final Staff Assessment (FSA), and the cultural resources conditions of certification from the Final Decision, for the project. The project owner shall also provide the CRS and the CPM with maps and drawings showing the footprints of the power plant, all linear facility routes, all access roads, and all laydown areas. Maps shall include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:24,000 or 1" = 200') for plotting cultural features or materials. If the CRS

requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review map submittals and, in consultation with the CRS, approve those that are appropriate for use in cultural resources planning activities. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless such activities are specifically approved by the CPM.

If construction of the project would proceed in phases, maps and drawings not previously provided shall be provided to the CRS and CPM prior to the start of each phase. Written notice identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

Weekly, until ground disturbance is completed, the project construction manager shall provide to the CRS and CPM a schedule of project activities for the following week, including the identification of area(s) where ground disturbance will occur during that week.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verification:

1. At least 40 days prior to the start of ground disturbance, the project owner shall provide the AFC, data responses, confidential cultural resources documents, all supplements, cultural resources conditions of certification, and the FSA to the CRS, if needed, and the subject maps and drawings to the CRS and CPM. The CPM will review submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities.
2. At least 15 days prior to the start of ground disturbance, if there are changes to any project-related footprint, the project owner shall provide revised maps and drawings for the changes to the CRS and CPM.
3. At least 15 days prior to the start of each phase of a phased project, the project owner shall submit the appropriate maps and drawings, if not previously provided, to the CRS and CPM.
4. Monthly, during ground disturbance, the project owner shall email a progress report to the CPM, interested Native Americans and other interested parties.
5. Within 5 days of changing the scheduling of phases of a phased project, the project owner shall provide written notice of the changes to the CRS and CPM.

CUL-3 Prior to the start of ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by, or under the direction of, the CRS, to the CPM for review and approval. The CRMMP shall follow the content and organization of the draft model CRMMP, provided by the CPM, and the authors' name(s) shall appear on the title page of the CRMMP. The CRMMP shall identify measures to minimize potential impacts

to sensitive cultural resources. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, each CRM, and the project owner's on-site construction manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless such activities are specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures:

1. The following statement included in the Introduction: "Any discussion, summary, or paraphrasing of the conditions of certification in this CRMMP is intended as general guidance and as an aid to the user in understanding the conditions and their implementation. The conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the conditions in the CRMMP. The Cultural Resources conditions of certification from the Commission Decision are contained in Appendix A."
2. A proposed general research design that includes a discussion of archaeological research questions and testable hypotheses specifically applicable to the project area, and a discussion of artifact collection, retention/disposal, and curation policies as related to the research questions formulated in the research design. The research design will specify that the preferred treatment strategy for any buried archaeological deposits is avoidance. A specific mitigation plan shall be prepared for any unavoidable impacts to any CRHR-eligible (as determined by the CPM) resources. A prescriptive treatment plan may be included in the CRMMP for limited data types.
3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground disturbance and post-ground-disturbance analysis phases of the project.
4. Identification of the person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team.
5. A description of the manner in which Native American observers or monitors will be included, the procedures to be used to select them, and their role and responsibilities.
6. A description of all impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation, and identification of areas where these measures are to be implemented. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related effects.

7. A statement that all encountered cultural resources 50 years old or older shall be recorded on the appropriate Department of Parks and Recreation (DPR) 523 form(s) and mapped and photographed. In addition, all archaeological materials retained as a result of the archaeological investigations (e.g., survey, testing, data recovery) shall be curated in accordance with the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository or museum.
8. A statement that the project owner will pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project. The project owner shall identify three possible curation facilities that could accept cultural resources materials resulting from project activities.
9. A statement demonstrating when and how the project owner will comply with Health and Human Safety Code 7050.5(b) and Public Resources Code 5097.98(b) and (e), including the statement that the project owner will notify the CPM and the Native American Heritage Commission (NAHC) of the discovery of human remains.
10. A statement that the CRS has access to equipment and supplies necessary for site mapping, photography, and recovery of any cultural resource materials that are encountered during ground disturbance and cannot be treated prescriptively.
11. A description of the contents, format, and review and approval process of the final Cultural Resource Report (CRR), which shall be prepared according to ARMR guidelines.

Verification:

1. After approval of the CRS proposed by the project owner, the CPM will provide to the project owner an electronic copy of the draft model CRMMP for the CRS.
2. At least 30 days prior to the start of ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval.
3. At least 30 days prior to the start of ground disturbance, in a letter to the CPM, the project owner shall agree to pay curation fees for any materials generated or collected as a result of the archaeological investigations (survey, testing, data recovery).
4. Within 90 days after completion of ground disturbance (including landscaping), if cultural materials requiring curation were generated or collected, the project owner shall provide to the CPM a copy of an agreement with, or other written commitment from, a curation facility that meets the standards stated in the California State Historical Resources Commission's Guidelines for the Curation of Archaeological

Collections, to accept the cultural materials from this project. Any agreements concerning curation will be retained and available for audit for the life of the project.

CUL-4 The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for approval. The final CRR shall be written by or under the direction of the CRS and shall be provided in the ARMIR format. The final CRR shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, DPR 523 forms, data recovery reports, and any additional research reports not previously submitted to the California Historical Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as appendices to the final CRR.

If the project owner requests a suspension of ground disturbance and/or construction activities, then a draft CRR that covers all cultural resources activities associated with the project shall be prepared by the CRS and submitted to the CPM for review and approval. The draft CRR shall be retained at the project site in a secure facility until ground disturbance and/or construction resumes or the project is withdrawn. If the project is withdrawn, then a final CRR shall be submitted to the CPM for review and approval at the same time as the withdrawal request.

Verification:

1. Within 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval.
2. Within 90 days after completion of ground disturbance (including landscaping), the project owner shall submit the final CRR to the CPM for review and approval. If any reports have previously been sent to the CHRIS, then receipt letters from the CHRIS or other verification of receipt shall be included in an appendix.
3. Within 10 days after CPM approval of the CRR, the project owner shall provide documentation to the CPM confirming that copies of the final CRR have been provided to the SHPO, the CHRIS, the curating institution, if archaeological materials were collected, and to the tribal chairpersons of any Native American groups requesting copies of project-related reports.

CUL-5 Prior to, and for the duration of, ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas. The cultural resources part of this training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video. During the training and during construction, the CRS shall be available (by telephone or in person) to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended, but must be resumed when ground disturbance, as described in detail in CUL- 1, resumes.

The training shall include:

1. A discussion of applicable laws and penalties under law;
2. Samples or visuals of artifacts that might be found in the project vicinity;
3. A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed;
4. A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits;
5. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt ground disturbance in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS;
6. Instruction that employees, if the CRS, alternate CRS, or CRMs are not present, are to halt work on their own in the vicinity of a potential cultural resources discovery, and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS;
7. An informational brochure that identifies reporting procedures in the event of a discovery;
8. An acknowledgement form signed by each worker indicating that they have received the training; and
9. A sticker that shall be placed on hard hats indicating that environmental training has been completed. No ground disturbance shall occur prior to implementation of the WEAP program, unless such activities are specifically approved by the CPM.

Verification:

1. At least 30 days prior to the beginning of ground disturbance, the CRS shall provide the cultural resources WEAP training program draft text, including Native American participation, graphics, and the informational brochure to the CPM for review and approval.
2. At least 15 days prior to the beginning of ground disturbance, the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP-trained worker to sign.

3. Monthly, until ground disturbance is completed, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms of workers who have completed the training in the prior month and a running total of all persons who have completed training to date.

CUL-6 Prior to ground disturbance, the project owner shall notify the CPM of the date on which ground disturbance will ensue. The project owner shall ensure that the CRS, alternate CRS, or CRMs monitor, full time, all ground disturbance at the project site, along the linear facilities routes in California, and at laydown areas, roads, and other ancillary areas, to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner.

Full-time archaeological monitoring for this project shall be the archaeological monitoring of ground-disturbing activities in the areas specified in the previous paragraph, for as long as the activities are ongoing. Where excavation equipment is actively removing dirt and hauling the excavated material farther than fifty feet from the location of active excavation, full-time archaeological monitoring shall require at least two monitors per excavation area. In this circumstance, one monitor shall observe the location of active excavation and a second monitor shall inspect the dumped material. For excavation areas where the excavated material is dumped no farther than fifty feet from the location of active excavation, one monitor shall both observe the location of active excavation and inspect the dumped material.

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered. Contact lists of interested Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered.

On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of non-compliance with the conditions and/or applicable LORS. Copies of the daily monitoring logs shall be provided by the CRS to the CPM, if requested by the CPM. From these logs, the CRS shall compile a monthly monitoring summary report to be included in the MCR. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended.

The CRS or alternate CRS shall report daily to the CPM on the status of the project's cultural resources-related activities, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM.

In the event that the CRS believes that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.

The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these conditions.

Upon becoming aware of any incidents of non-compliance with the conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the C conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

Verification:

1. At least 30 days prior to the start of ground disturbance, the CPM will notify all Native Americans with whom the Energy Commission communicated during the project review of the date on which the project's ground disturbance will begin.
2. At least 30 days prior to the start of ground disturbance, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log.
3. Monthly, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the CRMMP.
4. At least 24 hours prior to implementing a proposed change in monitoring level, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for changing the monitoring level.
5. Daily, as long as no cultural resources are found, the CRS shall provide a statement that "no cultural resources over 50 years of age were discovered" to the CPM as an e-mail or in some other form of communication acceptable to the CPM.

6. At least 24 hours prior to reducing or ending daily reporting, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for reducing or ending daily reporting.
7. No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of the information transmittal letters sent to the chairpersons of the Native American tribes or groups who requested the information. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, and reports and records.

CUL-7 The project owner shall grant authority to halt ground disturbance to the CRS, alternate CRS, and the CRMs in the event of a cultural resources discovery. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event that a cultural resource over 50 years of age is found (or if younger, determined exceptionally significant by the CPM), or impacts to such a resource can be anticipated, ground disturbance shall be halted or redirected in the immediate vicinity of the discovery sufficient to ensure that the resource is protected from further impacts. If the discovery includes human remains, the project owner shall comply with the requirements of Health and Human Safety Code § 7050.5(b) and shall notify the CPM and the NAHC of the discovery of human remains. No action shall be initiated without direction from the CPM. Monitoring and daily reporting, as provided in other conditions, shall continue during the project's ground-disturbing activities elsewhere. After the discovery of human remains, cultural resources monitoring of ground disturbance shall continue or be initiated, and shall include a Native American monitor pursuant to requirements in these conditions of certification. The halting or redirection of ground disturbance shall remain in effect until the CRS has visited the discovery, and all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for data recovery from any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.
2. If the discovery would be of interest to Native Americans, the CRS has notified all Native American groups that have requested to be notified in the event of such a discovery within 24 hours of the discovery.

3. The CRS has completed field notes, measurements, and photography for a DPR 523 "Primary" form. Unless the find can be treated prescriptively, as specified in the CRMMP, the "Description" entry of the DPR 523 "Primary" form shall include a recommendation on the CRHR eligibility of the discovery. The project owner shall submit completed forms to the CPM.
4. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the discovery and approved the CRS's proposed data recovery, if any, including the curation of the artifacts, or other appropriate mitigation; and any necessary data recovery and mitigation have been completed. Ground disturbance may resume only with the approval of the CPM.

Verification:

1. At least 30 days prior to the start of ground disturbance, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, and CRMs have the authority to halt ground disturbance in the vicinity of a cultural resources discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning.
2. Unless the discovery can be treated prescriptively, as specified in the CRMMP, completed DPR 523 forms for resources newly discovered during ground disturbance shall be submitted to the CPM for review and approval no later than 24 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever the CRS decides is more appropriate for the subject cultural resource.
3. Within 48 hours of the discovery of a resource of interest to Native Americans, the project owner shall ensure that the CRS notifies all Native American groups that expressed a desire to be notified in the event of such a discovery, and the CRS must inform the CPM when the notifications are complete.
4. No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of the information transmittal letters sent to the chairpersons of the Native American tribes or groups who requested the information. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, and reports and records.
5. Within 15 days of receiving them, the project owner shall submit to the CPM copies of any comments or information provided by Native Americans in response to the project owner's transmittals of information.

CUL-8 If fill soils must be acquired from a non-commercial borrow site or disposed of to a non-commercial disposal site, unless less-than-five-year-old surveys of these sites for archaeological resources are documented and

approved by the CPM, the CRS shall survey the borrow and/or disposal site/s for cultural resources and record on DPR 523 forms any that are identified. When the survey is completed, the CRS shall convey the results and recommendations for further action to the project owner and the CPM, who will determine what, if any, further action is required. If the CPM determines that significant archaeological resources that cannot be avoided are present at the borrow site, other conditions shall apply. The CRS shall report on the methods and results of these surveys in the final CRR.

Verification:

1. As soon as the project owner knows that a non-commercial borrow site and/or disposal site will be used, he/she shall notify the CRS and CPM and provide documentation of previous archaeological survey, if any, dating within the past five years, for CPM approval.
2. In the absence of documentation of recent archaeological survey, at least 30 days prior to any soil borrow or disposal activities on the non-commercial borrow and/or disposal sites, the CRS shall survey the site/s for archaeological resources. The CRS shall notify the project owner and the CPM of the results of the cultural resources survey, with recommendations, if any, for further action.

CUL-9 The project owner shall contract and fund a study by the Old Spanish Trail Association of the Old Spanish Trail-Mormon Road (OST-MR) Northern Corridor, as identified within this cultural resources environmental assessment. The project owner shall also be responsible for any curation fees associated with the study.

The study shall, at a minimum:

- a. Ground truth all potential tracks/traces, within the identified OST-MR Northern Corridor (see **Cultural Resources Figure 5**)..
- b. Evaluate the Mound, Browns, Weeping Rock, Hidden Hills Ranch, and Stump springs in relation to their importance as key natural water sources for those traveling along this portion of the Corridor.
- c. Evaluate the identified OST-MR Northern Corridor for inclusion in the National Register of Historic Places (NRHR)-listed Old Spanish Trail/Mormon Road Historic District, located in Nevada, and the Old Spanish Trail National Historic Trail.
- d. Evaluate the identified OST-MR Northern Corridor for NRHP and California Register of Historical Resources (CRHR) eligibility in its own right, in the context of the Pahrump Valley.

The project owner shall ensure that any resource documentation is submitted to the California Historical Resources Information System (CHRIS) and to the appropriate

federal and/or state agencies for nomination to the NRHR, CRHR, and the Old Spanish Trail National Historic Trail.

Documentation shall adhere to the Secretary of the Interior's Guidelines for Architectural and Engineering Documentation and the NPS guidelines for Historic American Landscape Surveys. The work shall be undertaken and completed by a historian(s) approved by the Energy Commission Compliance Project Manager (CPM) and meeting the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 CFR, part 61). The resources shall be documented using the appropriate Department of Parks and Recreation (DPR) form(s) and nomination forms. Resume(s) of the historian(s) shall be submitted to the CPM for approval and shall include the names and telephone numbers of contacts familiar with their work on referenced projects and demonstrate, to the satisfaction of the CPM, that the historian has the appropriate training and experience to effectively implement the study requirements.

The project owner shall submit the study design plan/methodology to the CPM for review and approval prior to the start of the investigation. The project owner shall also submit the final study report, DPR forms, and nomination forms to the CPM for review and approval before submittal to the CHRIS or associated organizations or government agencies.

The project owner shall provide a copy of all final documents and study-related correspondence with OSTA and other agencies and organizations to the CPM in a timely manner.

All on-site study-related investigations shall be completed prior to the start of any ground-disturbing activities.

Verification

1. At least 30 days prior to the start of the study investigation, the project owner shall submit the design plan/methodology for this study to the CPM for review and approval. The study shall not begin prior to CPM approval.
2. At least 15 days prior to the start of the survey work, the project owner shall submit the resumes of any cultural resources professionals working on the study to the CPM for review and approval.
3. The project owner shall provide a copy of all study-related correspondence with OSTA and other agencies and organizations to the CPM within 10 working days of receipt.
4. At least 15 days prior to submission to any outside organization, agency, or document repository, the project owner shall submit draft study documentation, including but not limited to the final study report, DPR forms, and nomination forms to the CPM for review and approval. Documentation shall not be distributed prior to CPM approval.

5. The project owner shall provide a copy of all final study-related documents to the CPM within 30 days of completion.

CUL-10 (consistent with that portion of **VIS-6** addressing an Interpretive Center)

The project owner shall construct and maintain an Interpretive Center, with parking, and interpretive panels highlighting the visual and cultural resources that will be adversely impacted by the HHSEGS project. The Interpretive Center shall also include a traditional Paiute horticultural garden.

The Interpretive Center shall be built within the Tecopa Road right-of-way setback, in conjunction with, and as part of, the landscape screening required by Visual Resources Condition of Certification **VIS-2**.

The project owner shall submit a detailed design plan to the CPM for review and approval, and to Inyo County and Native American tribal representatives for review and comment, prior to the start of landscaping installation and Interpretive Center construction.

Cultural resources to be addressed in the interpretive panels shall include, but not necessarily be limited to, the following information on the project area:

- Pahrump Valley history, including the Wiley Ranch;
- Native American history, uses, and spiritual values associated with the surrounding landscapes;
- History and significance of the Old Spanish Trail-Mormon Road, incorporating information acquired through the Old Spanish Trail-Mormon Road Northern Corridor study required by **CUL-9**;
- Identification of the wilderness and national recreation areas and the major landscape features visible from the site (i.e. mountain ranges and named peaks). Information shall include a discussion of the significance of these features from a Native American perspective.
- Information on traditional Pahrump Paiute land management, usage, and history of the Mo hav landscape

The project owner shall develop and implement the ethnographic elements of the Interpretive Center in direct consultation with the Pahrump Tribe, including all stages of planning, construction and management in perpetuity, to the extent that Pahrump Paiute Tribe is comfortable in participating.

Interpretive Center design shall include all elements identified in **VIS-6**, as well as a traditional Paiute horticultural garden with interpretive panels and a sampling of traditional plant and animal populations to demonstrate, to the general public, the

ethno-zoological and ethno-botanical uses and knowledge base of the traditional tribal peoples who have adapted to the desert environment over at least a millennia. Location of the Center adjacent to a functioning spring, to facilitate development of a traditional Paiute gardening process, should be a primary consideration.

The project owner shall simultaneously notify the CPM, Inyo County, and Pahrump tribal representatives when the center is completed and the site is ready for inspection. A report to the CPM describing how the completed interpretative area meets the conditions of **CUL-10** shall be submitted in conjunction with the request for inspection.

The project owner shall maintain the Interpretive Center for the life of the project, unless otherwise approved by the CPM, and shall report maintenance activities for the previous year of operation in each Annual Compliance Report. The Interpretive Center shall be considered a project facility and its continued operation or disposition following plant abandonment or closure shall be included in the facility closure plan.

Verification:

1. At least 120 days prior to the installation of any permanent landscape treatments along the Tecopa Road frontage, a detailed design plan shall be submitted to the CPM for review and approval, and to Inyo County and to Native American tribal representatives, identified by Cultural Resources staff, for review and comment. No Interpretive Center construction shall begin prior to approval of the design plan.
2. Within seven days following completion of the Interpretive Center and prior to the start of commercial operation, the project owner shall simultaneously notify the CPM and Inyo County that the site is ready for inspection. A report to the CPM describing how the completed interpretative area meets the conditions of **CUL-10** shall be submitted in conjunction with the request for inspection.
3. At least 10 days prior to the official opening of the Interpretive Center to the public, the project owner shall provide a routine maintenance schedule to the CPM for review and approval.
4. The project owner shall provide a report of maintenance activities for the previous year of operation in each Annual Compliance Report.
5. The project owner shall detail the proposed methods of continued operation or disposition of the Interpretive Center following plant abandonment or closure in the facility closure plan required.

CUL-11 The project owner shall design and implement a multidisciplinary program of primary research on the geology, geomorphology, hydrology, ecology, and archaeology of the Pahrump Metapatch Mesquite Woodland-Coppice Dune Archaeological Landscape, which is delineated and described in the cultural

resources staff assessment for the HHSEGS project. The scale of the research shall be sufficient to provide reliable interpretative synopses, from both processual and historical perspectives, of each of these disciplines. The measure of research sufficiency, should any dispute arise, shall be the expert opinion of research institution faculty members who actively pursue research and publish in peer-reviewed journals in each discipline.

The project owner shall develop a draft formal research design that includes a proposed budget for the research and submit the design plan simultaneously to the CPM for review and approval, and to Native American tribes who have expressed an interest in commenting and/or participating in the research program for review and comment.

Upon the CPM's approval of the research design, the project owner shall implement the program as designed. The project owner shall ensure that the research team shall provide regular progress reports to the CPM for review and comment.

Following completion of the research program, the project owner shall submit the research program's draft final report simultaneously to the CPM for review and approval, and to the Native American tribes who have been actively involved in the research process for review and comment.

The project owner shall also ensure that the research program's approved final report, completed DPR 523 series forms, and other associated documentation is submitted to the appropriate California Historical Resources Information System (CHRIS) Information Center(s) and other repositories.

The project owner shall provide a copy of all final documents and study-related correspondence with other agencies and organizations to the CPM in a timely manner.

The project owner shall ensure the curation of all research documentation related to the execution of this research program and the material culture recovered as a result in a curation facility that meets Federal curation standards. The project owner shall also be responsible for any curation fees associated with the program.

The project owner shall develop and execute professional and public outreach initiatives that would clearly benefit the public.

Verification:

1. No later than 90 days from the start of construction, the project owner shall submit a draft formal research design to the CPM for review and approval.
2. No later than 90 days subsequent to the CPM's approval of the formal research design, the project owner shall, unless otherwise stipulated by the CPM, initiate the

implementation of the research design and complete the fieldwork portion of it without interruption.

3. No later than 180 days subsequent to the completion of the fieldwork portion of the formal research design, the project owner shall, unless otherwise stipulated by the CPM, submit a draft final report of the research program to the CPM for review and approval.
4. No later than 270 days subsequent to the completion of the fieldwork portion of the formal research design, the project owner shall, unless otherwise stipulated by the CPM, provide the CPM with written proof of the submission of the approved final report and complete DPR 523 series forms to the appropriate CHRIS Information Center(s).
5. No later than 270 days subsequent to the completion of the fieldwork portion of the formal research design, the project owner shall, unless otherwise stipulated by the CPM, provide draft proposals for the professional and public outreach initiatives that are to be one result of this research to the CPM for review and approval.
6. No later than 390 days subsequent to the completion of the fieldwork portion of the formal research design, the project owner shall, unless otherwise stipulated by the CPM, provide the CPM with written proof of the completion of the CPM-approved professional and public outreach initiatives.

CUL-12 Upon ceasing operation, plant closure, or abandonment, the project owner shall demolish all facility structures within the project footprint and restore the project site to preconstruction conditions, including topographic recontouring, replanting of native vegetation, and restoration of habitat for native species indigenous to the site.

[Details of this condition and verification requirements are still being developed in concert with Biological Resources and Soil & Water technical staff, as well as the Compliance Office of the Energy Commission's Siting, Transmission and Environmental Protection Division.]

CULTURAL RESOURCES ACRONYM GLOSSARY

HIDDEN HILLS SOLAR ELECTRIC GENERATING PROJECT

AD	After the Birth of Christ
AFC	Application for Certification
ARMR	Archaeological Resource Management Report
BC	Before the Birth of Christ
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
Conditions	Conditions of Certification
CRHR	California Register of Historical Resources
CRM	Cultural Resources Monitor
CRMMP	Cultural Resources Monitoring and Mitigation Plan
CRR	Cultural Resource Report
CRS	Cultural Resources Specialist
DPR 523	Department of Parks and Recreation cultural resource inventory form
EIC	Eastern Information Center, University of California, Riverside
FSA	Final Staff Assessment
HHSEGS	Hidden Hills Solar Electric Generating System
LORS	laws, ordinances, regulations, and standards
MCR	Monthly Compliance Report
MLD	Most Likely Descendent
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places

OHP	Office of Historic Preservation
Project Area of Analysis (PAA)	The project site (see below) plus what additional areas staff defines for each project that are necessary for the analysis of the cultural resources that the project may impact.
Project Site	The bounded area(s) identified by the applicant as the area(s) within which they propose to build the project.
PSA	Preliminary Staff Assessment
SHPO	State Historic Preservation Officer
Staff	Energy Commission cultural resources technical staff
WEAP	Worker Environmental Awareness Program

REFERENCES

The “(tn: 00000)” in a reference below indicates the transaction number under which the item is catalogued in the Energy Commission’s Docket Unit. The transaction number allows for quicker location and retrieval of individual files.

Antevs 1948—Ernst Antevs. “Climatic Changes and Pre-white Man.” *University of Utah Bulletin* 38(20):168-191.

Arnold 2012 – Arnold, Richard - Personal Communication.

Bamforth 1990—Douglas B. Bamforth. “Settlement, Raw Material, and Lithic Procurement in the Central Mojave Desert.” *Journal of Anthropological Archaeology*, Vol. 9, pp. 70-104.

BLM 2001- McBride, Terri. Bureau of Land Management, Las Vegas Field Office. *Old Spanish Trail/Mormon Road Historic District National Register of Historic Places Registration Form*. April 2001.

BLM 2006 - Crampton, L., J. Krueger and D. Murphy. Bureau of Land Management, Las Vegas Field Office. *Conservation Management Strategy for Mesquite and Acacia Woodlands in Clark County, Nevada*. March 2006.

BSE2007a—Bright Source Energy/ Solar Partners I, LLC/ J. Woolard. Application for Certification, Volumes I and II, for the Ivanpah Solar Electric Generating System. Dated on 8/28/2007.

Campbell 1936—Elizabeth W. Crozer Campbell. “Archaeological Problems in the Southern California Deserts.” *American Antiquity* 1(4):295-300.

CCR 2010 - CEQA Guidelines. California Code of Regulations, Title 14, Chapter 3 (14 CCR §§15000-15387), as amended through December 30, 2009.
<http://ceres.ca.gov/ceqa/guidelines/>

CEC Regs 2007 – California Energy Commission. *Siting Regulations: Rules of Practice and Procedure & Power Plant Site Certification Regulations*. CEC-140-2007-003. April 2007.

CH2 DR125 – CH2MHill. N. Lawson and W.G. Spaulding. *Confidential Attachment DR 125: Historic Trails and Roads Technical Study: Hidden Hills Solar Electric Generating System*. Prepared for Hidden Hills Solar I, LLC and Hidden Hills Solar II, LLC. March 30, 2012.

CH2 DR127 - CH2MHill. C. Helton, N. Lawson, W.G. Spaulding, and A. Fergusson. *Phase II Evaluative Testing Plan, Hidden Hills Solar Electric Generating System* in confidential attachment DR127-1 to *Data Response, Set 1D-3* (tn: 63564). 02/06/2012

CH2 DR128 - CH2MHill. N. Lawson, G. Spaulding, and C. Helton, Confidential Technical Memorandum, *HHSEGS, Interim Summary of Field Results for DR 128*. Prepared for Hidden Hills Solar I and II, LLC, California Energy Commission Staff, and John Carrier, CH2MHill. CH2MHill Project No. 427930.DI.DR. May 4, 2012.

Cordell 1984—Linda S. Cordell. *Prehistory of the Southwest*. San Diego, CA.: Academic Press, 1984.

CRTR 2011a - CH2MHill. C. Helton, N. Lawson, and A. Fergusson. (tn: 61776). *Hidden Hills Ranch Energy Generating System Cultural Resources Technical Report; California Plant Site*. BLM Cultural Resources Report No. 5-2666. Submitted to BrightSource Energy, Oakland, CA and the Bureau of Land Management, Las Vegas, NV. July 15, 2011.

CRTR 2011b - CH2MHill. C. Helton, N. Lawson, and A. Fergusson. *Hidden Hills Solar Electric Generating System (HHSEGS) Cultural Resources Technical Report: California Solar Plant Site (Revision 1 to CRTR 2001a)*. BLM Cultural Resources Report No. 5-2666. Submitted to BrightSource Energy, Oakland, CA and the Bureau of Land Management, Las Vegas, NV. December 5, 2011.

Durham 2012 – Durham, Barbara 2012 – Personal Communication

Eaton 1982—Gordon P. Eaton. “The Basin and Range Province: Origin and Tectonic Significance.” *Annual Review of Earth and Planetary Sciences*. Vol. 10 (May 1982), pp. 409–440.

Fenneman 1931—Nevin M. Fenneman. *Physiography of the Western United States*. New York, NY: McGraw-Hill, 1931.

Fowler 1971 - Fowler, Don D. and Cathrine S. Fowler. 1971. *Anthropology of the Numa: John Wesley Powell's Manuscripts on the Numic Peoples of Western North America, 1868-1880*. Smithsonian Contributions to Anthropology Number 14. Smithsonian Institution Press. Washington D.C

Fowler and Madsen 1986—Don D. Fowler and David B. Madsen. “Prehistory of the Southeastern Area,” in *Handbook of North American Indians*, Vol. 11. Warren L. D’Azevedo, ed., pp. 173-182. Washington, D. C.: Smithsonian Institution, 1986.

Hereford 2004—Richard Hereford. “Precipitation History of the Mojave Desert Region, 1893–2001.” Electronic document, http://mojave.usgs.gov/rvde/activ_clim_paper.html, accessed 28 December 2007.

HHSG 2011a – BrightSource Energy/J. Woolard (tn: 61756) Application for Certification, Volume 1 & 2. 08/5/2011

Inter-tribal 1976 Inter-Tribal Council of Nevada. 1976. *Nuwuvi: A Southern Paiute History*. Published by the Inter-Tribal Council of Nevada.

Jim 2012 – Jim, Ed 2012. Personal Communication

Kelly 1964 - Kelly, Isabel T. 1964. *Southern Paiute Ethnography*. University of Utah Press, Salt Lake City, Utah.

Kinlichine 2012 – Kinlichine, Juanita 2012 Personal Communication.

Lingenfelter 1986 - Lingenfelter, Richard E. *Death Valley and the Amargosa: A Land of Illusion*, Berkeley, University of California Press.

Lyneis 1982—Margaret M. Lyneis. “Prehistory in the Southern Great Basin.” In *Man and Environment in the Great Basin*, D. Madsen and J. O’Connell, ed., pp. 172-185. Society for American Archaeology Papers 2.

Lyneis and Macko 1986—Margaret M. Lyneis and Michael E. Macko. “Mojave Desert, California.” In *Current Status of CRM Archaeology in the Great Basin: Report of the Society for American Archaeology Regional Conference on Great Basin Cultural Resource Management Research*, C. Melvin Aikens, ed., pp. 40-64. Portland, OR: Bureau of Land Management, Nevada, 1986. Cultural Resource Series No. 9.

Miller 2012 – Miller, Vernon, 2012. Personal Communication

NPS 1994—National Park Service, C.A. Birnbaum. “Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes.” *Preservation Brief No. 36*. 1994. <<http://www.nps.gov/hps/tps/briefs/brief36.htm>>, accessed on June 4, 2012.

NPS 1999—National Park Service, L.F. McClelland, J.T. Keller, G.P. Keller, and R.Z. Melnick. “Guidelines for Evaluating and Documenting Rural Historic Landscapes.” *National Register Bulletin No. 30*. 1999. <<http://www.nps.gov/nr/publications/bulletins/nrb30/>>, accessed on June 4, 2012.

NPS 2000a—National Park Service, B. Little, E.M. Seibert, J. Townsend, J.H. Sprinkle, Jr., and J. Knoerl. “Guidelines for Evaluating and Registering Archeological Properties.” *National Register Bulletin No. 36*. 2000, <<http://www.nps.gov/nr/publications/bulletins/arch/>>, accessed on June 4, 2012.

NPS 2000b - National Park Service. *Draft National Historic Trail Feasibility Study and Environmental Assessment: Old Spanish Trail*. United States Department of the Interior, July 2000.

NPS REAP – National Park Service. Informational website for the Rapid Ethnographic Assessment Procedures (REAP):
<http://www.nps.gov/ethnography/training/elcamino/phase1.htm#reap>

NRCS 2007—Natural Resources Conservation Service. “NRCS Soil Survey, Mojave Desert Area, Northeast Part, California (CA805),” March 2007. Electronic document, <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>, accessed 28 December 2007.

OSTA 2012 - Old Spanish Trail Association. *The Old Spanish National Historic Trail: A Report on Cultural and Visual Resources in the Near Vicinity of the Proposed Hidden Hills Solar Energy System Plant, Inyo County, California.* April 2012.

PersCom 2012 – Contacts between Energy Commission Cultural Resource Staff Ethnographer Thomas Gates and Native American Tribal representatives and members:

http://en.wikipedia.org/wiki/Las_Vegas_Tribe_of_Paiute_Indians_of_the_Las_Vegas_Indian_Colony

<http://lvpaiutetribe.com>

<http://www.fortindependence.com/native.aspx>

<http://www.iisd.org/casl/caslguide/rapidruralappraisal.htm>

http://www.moapapaiutes.com/about_us.htm

<http://www.nps.gov/ethnography/training/elcamino/phase1.htm#reap>

<http://www.timbisha.org/index.htm>

PRC(a) – California Public Resources Code, Section 5020.1. *Definitions (State Historical Resources Commission)*, as of June 6, 2012.

PRC(b) – California Public Resources Code Section 5097.9. *Interference with Native American Religion*, as of June 6, 2012.

Reeder 1966 - Reeder, Ray M. 1966- *The Mormon Trail: A History of the Salt Lake to Los Angeles Route To 1869*, Dissertation, Department of History, Brigham Young University. University Microfilms, Inc. Ann Arbor Michigan.

Rogers 1939—Malcolm J. Rogers. Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas. *San Diego Museum of Man Papers* 3. San Diego, CA: San Diego Museum of Man, 1939.

RRA 2012 – Rapid Rural Assessment informational website (basis for Rapid Cultural Assessment methodology):

Spaulding 2012a - Spaulding, W.G. *Technical Memorandum: Geomorphic Surfaces of the Pahrump Basin and the Absence of Alkali Sinks in the HHSEGS Project Area*. Prepared for J.L. Carrier, CH2MHill, Sacramento, CA and Susan Strachan, Strachan Consulting, Davis, CA. March 14, 2012. 9 pp.

Spaulding 2012b - Spaulding, W.G. *Landforms and Resource Complexity of an Oasis System in the Northern Mojave Desert, Hidden Hills Solar Energy Generating Station (HHSEGS)*. Prepared for Hidden Hills Solar I and II, LLC, and CH2MHill. May 13, 2012 Draft.

Steiner 1999 - Steiner, H. *The Old Spanish Trail Across the Mojave Desert*. Las Vegas: The Haldor Company, 1999

Sutton, et al 2007—Mark Q. Sutton, Mark E. Basgall, Jill K. Gardner, and Mark W. Allen. “Advances in Understanding Mojave Desert Prehistory.” In *California Prehistory: Colonization, Culture, and Complexity*, Terry L. Jones and Kathryn A. Klar, eds., pp. 229-245. Lanham, MD: Academic Press, 2007.

Thompson and Burke 1974—George A. Thompson and Dennis B. Burke. “Regional Geophysics of the Basin and Range Province. *Annual Review of Earth and Planetary Sciences*. Vol. 2 (May 1974), pp. 213–238.

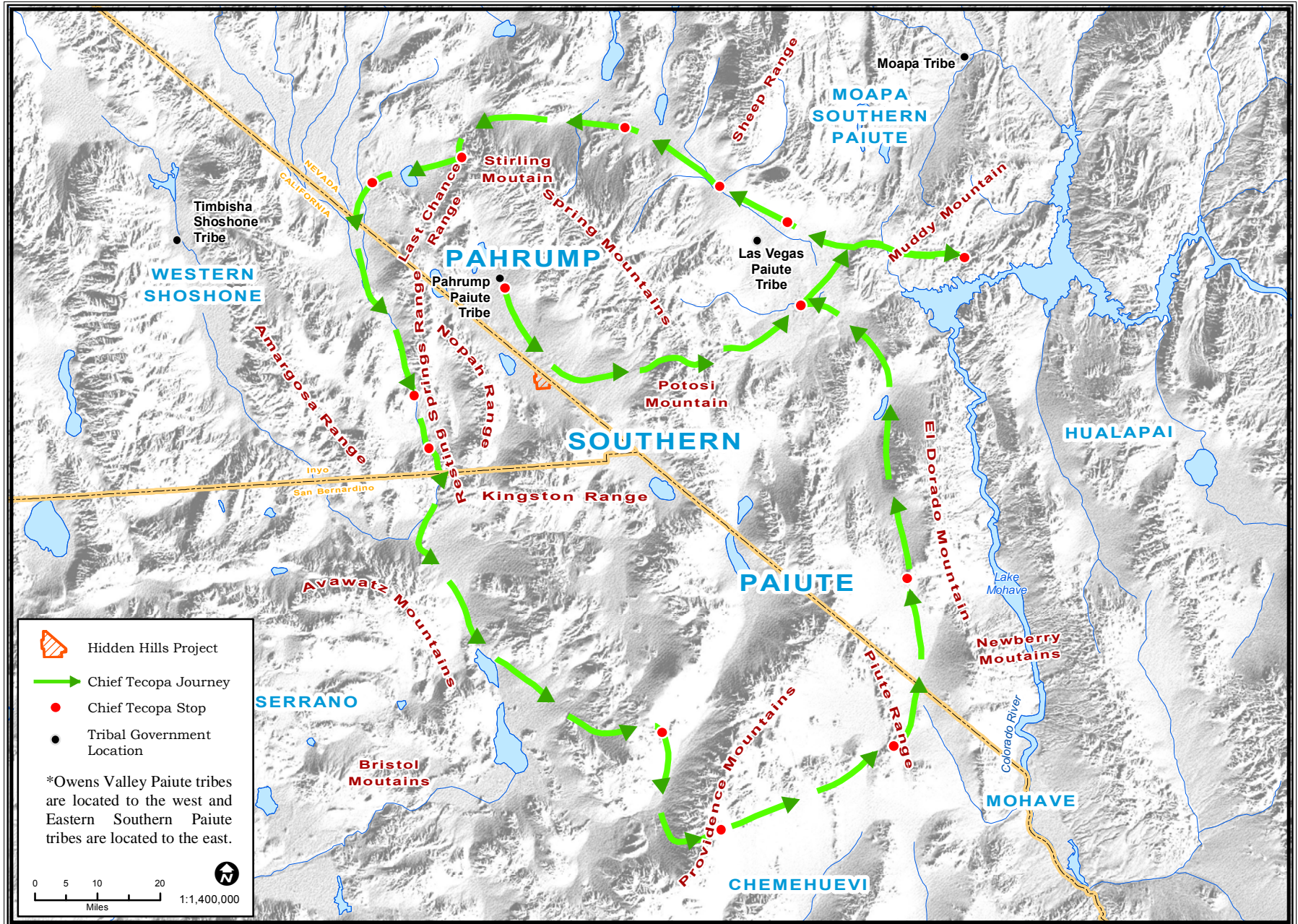
USGS 2008 - Workman, J.B., S.C. Lundstrom, R.J. Blakely, and G.L. Dixon. *Geologic Map of the Hidden Hills Ranch Quadrangle, Clark County, Nevada*. U.S. Geological Survey Scientific Investigations Map 3033, Version 1. 1 sheet, scale 1:24,000.

Warren 1984—Claude N. Warren. “The Desert Region.” In *California Archaeology*, Michael J. Moratto, ed., pp. 339-430. San Diego, CA.: Academic Press, 1984.

Warren and Crabtree 1986—Claude N. Warren and Robert H. Crabtree. “Prehistory of the Southwestern Area,” in *Handbook of North American Indians*, Vol.11. Warren L. D’Azevedo, ed., pp. 183-193. Washington, D. C.: Smithsonian Institution, 1986.

CULTURAL RESOURCES - FIGURE 1

Hidden Hills Solar Electric Generating System (HHSEGS) - Tribal Ancestral Territories and Tribal Government Locations in and around Pahrump Valley



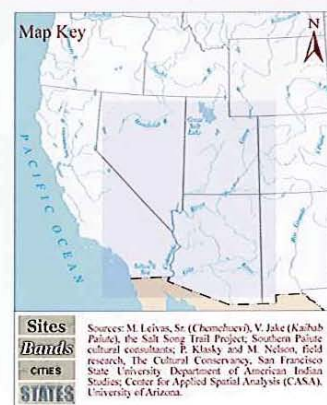
CALIFORNIA ENERGY COMMISSION, SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Adapted from *Handbook of North American Indian* Volumes 8 and 11, and *Chief Tecopa and The Hikos* by Celeste Lowe.

Hidden Hills Solar Generating System (HHSEGS) - Salt Song Trail Map of Nuwuvi (Southern Paiute)
Sacred Landscapes, Culture Areas and Bands

This map illustrates the Colorado Plateau region, highlighting the territories of several Native American tribes and bands. The states of Nevada, Utah, Arizona, and California are labeled. Key geographical features include Skull Valley, Fort Duchesne, Richfield, Cedar City, Blanding, Tuba City, and various mountain ranges and valleys. The map also shows the locations of numerous Indian bands and tribes, such as the Kanosh, Richfield, Koosharem, Indian Peak, Cedar City, Kibab, Tuba City, San Juan, Hualapai, Hopi, and Navajo. The map is color-coded with brown for land and blue for water.

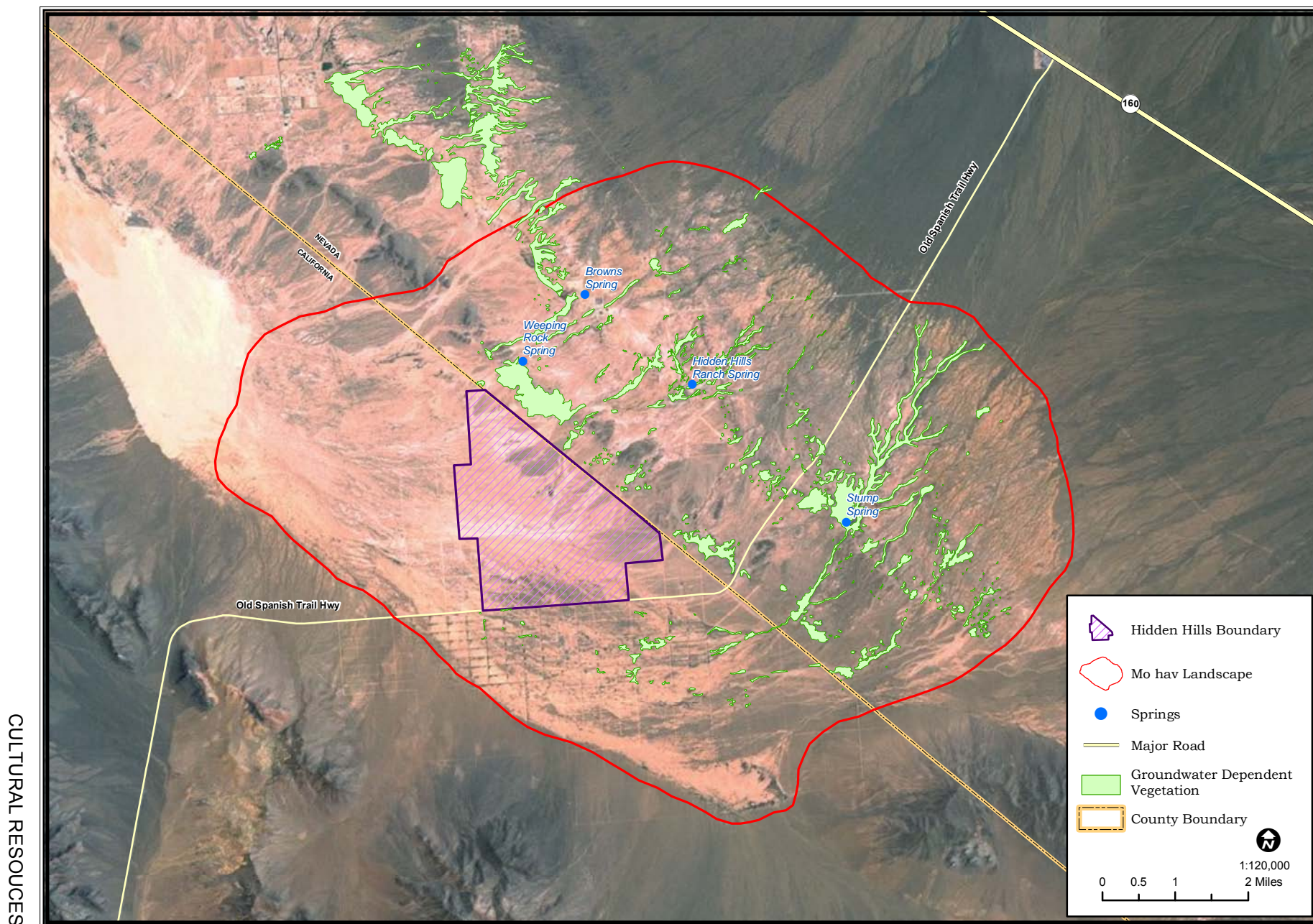
The Salt Song Trail Project © 2009 all rights reserved.
Design by Dana F. Smith and Philip M. Klasky



CULTURAL RESOURCES

CULTURAL RESOURCES - FIGURE 3

Hidden Hills Solar Electric Generating System (HHSEGS) - Mo hav Landscape Vicinity Map

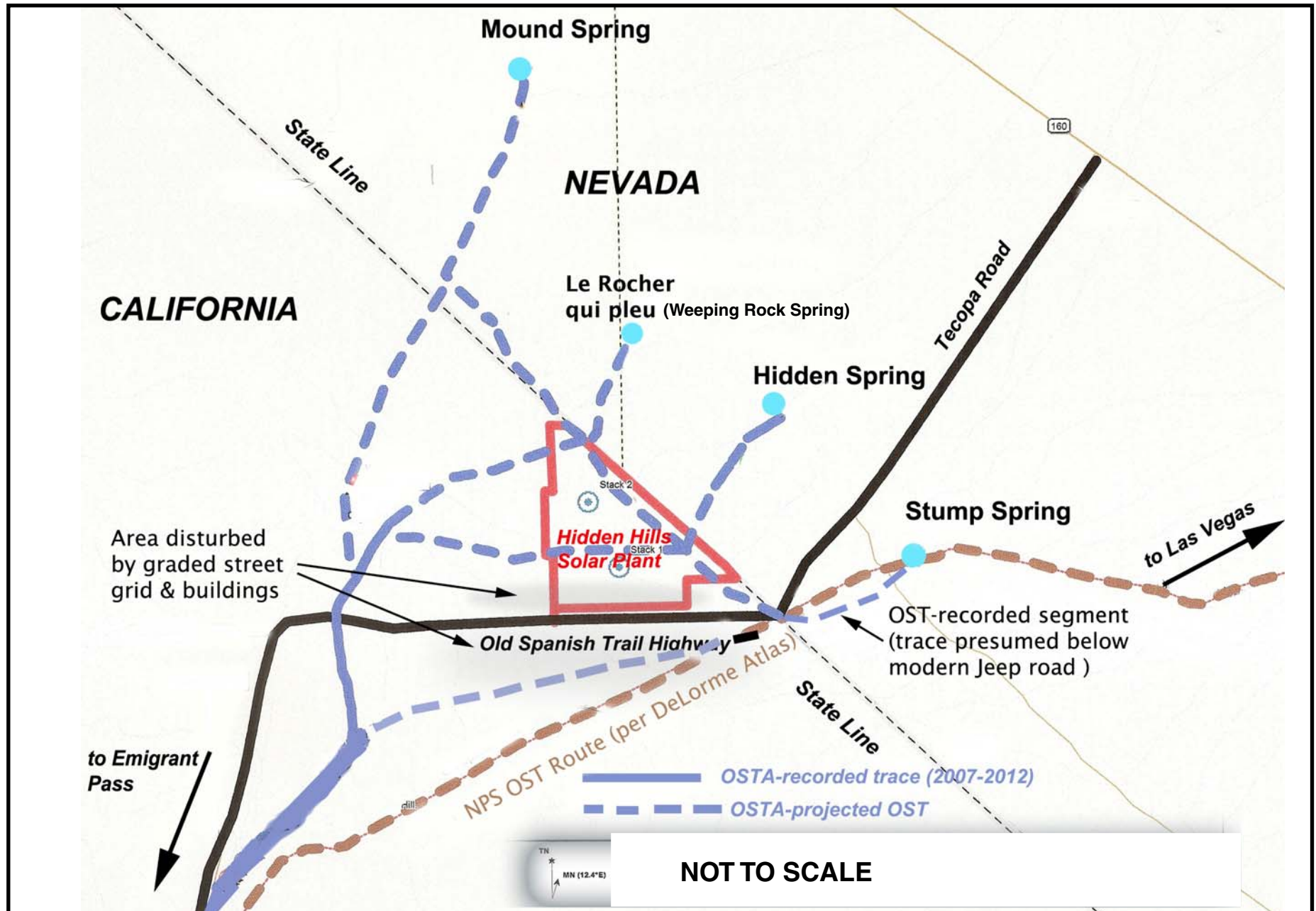


CALIFORNIA ENERGY COMMISSION, SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: US Major Highway - USDA National Agriculture Imagery Program (NAIP) imagery and USGS Digital Ortho Quarter, Quad, CH2M HILL, Tele Atlas North America, Inc (2010).

CULTURAL RESOURCES - FIGURE 4

Hidden Hills Solar Electric Generating System (HHSEGS) - Traces of the Old Spanish Trail studied by the OSTA

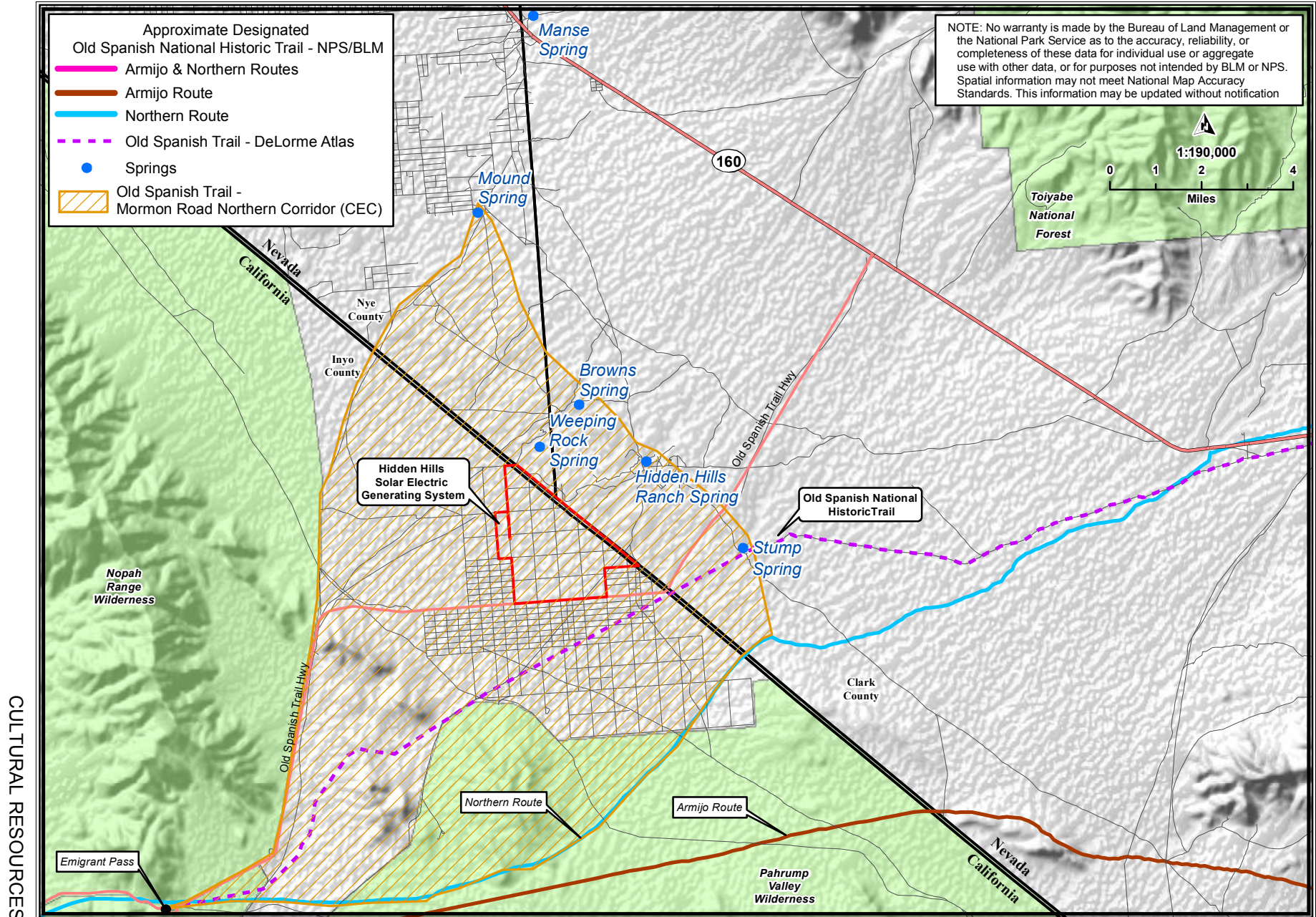


CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Old Spanish Trail Association

CULTURAL RESOURCES - FIGURE 5

Hidden Hills Solar Electric Generating System (HHSEGS) - Historic Trails in the Project Vicinity



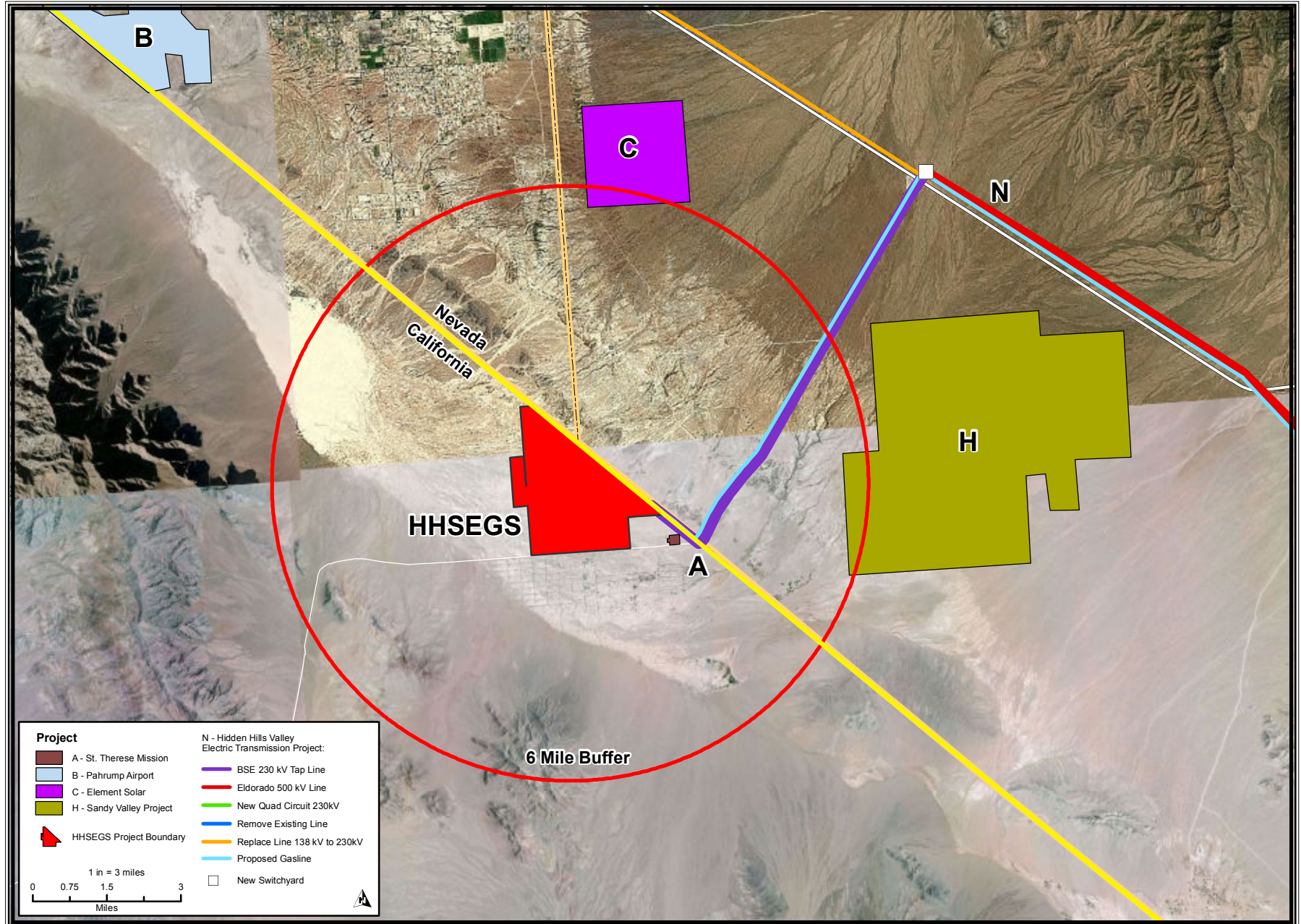
CALIFORNIA ENERGY COMMISSION, SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: CH2MHILL, MultiNet, DeLorme Atlas, Bureau of Land Management/National Park Service

CULTURAL RESOURCES

CUMULATIVE PROJECTS - FIGURE 2

Hidden Hills Solar Electric Generating System (HHSEGS) - Cumulative Projects within a Six Mile Buffer of HHSEGS Boundary



CALIFORNIA ENERGY COMMISSION, SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: BLM Southern Nevada District - Renewable Energy in Southern Nevada, BLM California - Renewable Energy Priority Projects, and Los Angeles Department of Water and Power.



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV**

**APPLICATION FOR CERTIFICATION
FOR THE *HIDDEN HILLS SOLAR ELECTRIC
GENERATING SYSTEM***

**DOCKET NO. 11-AFC-02
PROOF OF SERVICE
(Revised 6/5/2012)**

APPLICANT

BrightSource Energy
Stephen Wiley
1999 Harrison Street, Suite 2150
Oakland, CA 94612-3500
swiley@brightsourceenergy.com

BrightSource Energy
Bradley Brownlow
Michelle L. Farley
1999 Harrison Street, Suite 2150
Oakland, CA 94612-3500
bbrownlow@brightsourceenergy.com
mfarley@brightsourceenergy.com

BrightSource Energy
Clay Jensen
Gary Kazio
410 South Rampart Blvd., Suite 390
Las Vegas, NV 89145
cjensen@brightsourceenergy.com
gkazio@brightsourceenergy.com

APPLICANTS' CONSULTANTS

Strachan Consulting, LLC
Susan Strachan
P.O. Box 1049
Davis, CA 95617
susan@strachanconsult.com

CH2MHill
John Carrier
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833-2987
jcarrier@ch2m.com

COUNSEL FOR APPLICANT

Ellison, Schneider and Harris, LLP
Chris Ellison
Jeff Harris
Samantha Pottenger
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816-5905
cte@eslawfirm.com
jdh@eslawfirm.com
sgp@eslawfirm.com

INTERVENORS

Jon William Zellhoefer
P.O. Box 34
Tecopa, CA 92389
jon@zellhoefer.info

Center for Biological Diversity
Lisa T. Belenky, Sr. Attorney
351 California Street, Ste. 600
San Francisco, CA 94104
e-mail service preferred
lbelenky@biologicaldiversity.org

Center for Biological Diversity
Ileene Anderson, Public Lands
Desert Director
PMB 447
8033 Sunset Boulevard
Los Angeles, CA 90046
e-mail service preferred
landerson@biologicaldiversity.org

Old Spanish Trail Association
Jack Prichett
857 Nowita Place
Venice, CA 90291
jackprichett@ca.rr.com

INTERVENORS (con't.)

Cindy R. MacDonald
3605 Silver Sand Court
N. Las Vegas, NV 89032
e-mail service preferred
sacredintent@centurylink.net

INTERESTED AGENCIES

California ISO
e-recipient@caiso.com

Great Basin Unified APCD
Duane Ono
Deputy Air Pollution Control Officer
157 Short Street
Bishop, CA 93514
dono@gbuapcd.org

County of Inyo
Dana Crom
Deputy County Counsel
P.O. Box M
Independence, CA 93526
dcrom@inyocounty.us

Nye County
Lorinda A. Wichman, Chairman
Board of County Supervisors
P.O. Box 153
Tonopah, NV 89049
lawichman@gmail.com

Nye County Water District
L. Darrel Lacy
Interim General Manager
2101 E. Calvada Boulevard
Suite 100
Pahrump, NV 89048
llacy@co.nye.nv.us

INTERESTED AGENCIES (con't.)

National Park Service
Michael L. Elliott
Cultural Resources Specialist
National Trails Intermountain
Region
P.O. Box 728
Santa Fe, NM 87504-0728
Michael_Elliott@nps.gov

**ENERGY COMMISSION –
DECISIONMAKERS**

KAREN DOUGLAS
Commissioner and Presiding Member
e-mail service preferred
karen.douglas@energy.ca.gov

CARLA PETERMAN
Commissioner and Associate Member
carla.peterman@energy.ca.gov

Ken Celli
Hearing Adviser
ken.celli@energy.ca.gov

Galen Lemei
Advisor to Presiding Member
e-mail service preferred
galen.lemei@energy.ca.gov

Jim Bartridge
Advisor to Associate Member
jim.bartridge@energy.ca.gov

**ENERGY COMMISSION –
STAFF**

Mike Monasmith
Senior Project Manager
mike.monasmith@energy.ca.gov

Richard Ratliff
Staff Counsel IV
dick.ratliff@energy.ca.gov

*Kerry Willis
Staff Counsel
kerry.willis@energy.ca.gov

**ENERGY COMMISSION –
PUBLIC ADVISER**

Jennifer Jennings
Public Adviser's Office
e-mail service preferred
publicadviser@energy.state.ca.us

DECLARATION OF SERVICE

I, Diane Scott, declare that on June 15, 2012, I served and filed copies of the attached **Hidden Hills Generating System (11-AFCC-02) Supplemental Staff Assessment / Schedule Update**, dated June 15, 2012. This document is accompanied by the most recent Proof of Service list, located on the web page for this project at: www.energy.ca.gov/sitingcases/hiddenhills/index.html.

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit or Chief Counsel, as appropriate, in the following manner:

(Check all that Apply)

For service to all other parties:

- X Served electronically to all e-mail addresses on the Proof of Service list;
- X Served by delivering on this date, either personally, or for mailing with the U.S. Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "e-mail preferred."

AND

For filing with the Docket Unit at the Energy Commission:

- X by sending an electronic copy to the e-mail address below (preferred method); **OR**
- by depositing an original and 12 paper copies in the mail with the U.S. Postal Service with first class postage thereon fully prepaid, as follows:

CALIFORNIA ENERGY COMMISSION – DOCKET UNIT
Attn: Docket No. 11-AFC-02
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.ca.gov

OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:

- Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission
Michael J. Levy, Chief Counsel
1516 Ninth Street MS-14
Sacramento, CA 95814
michael.levy@energy.ca.gov

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Originally Signed:
Diane Scott
Environmental, Siting and Transmission Protection Division