FINAL
ARCHAEOLOGICAL AND HISTORICAL INVESTIGATIONS FOR THE ENERGIA SIERRA JUAREZ U.S. GEN-TIE LINE PROJECT JACUMBA, CALIFORNIA

Energia Sierra Juarez U.S. Transmission, LLC
MUP 09-008, Log No. 09-22-001

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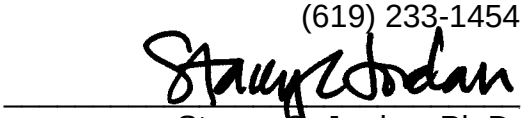

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National Archaeological Data Base Information

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Client/Project Proponent:	Energia Sierra Juarez U.S. Transmission, LLC
Report Date:	July 2010
Report Title:	Draft Archaeological and Historical Investigations for the Energia Sierra Juarez U.S. Gen-Tie Line Project, Jacumba, California
Type of Study:	Intensive Pedestrian Survey and Phase I Testing
New Sites:	CA-SDI-19480, CA-SDI-19484, CA-SDI-19485, CA-SDI-19486, CA-SDI-19488, CA-SDI-19489, CA-SDI-19490, CA-SDI-19492, CA-SDI-19493, CA-SDI-19494, P-37-30672, P-37-30673, P-37-30674, P-37-30675, P-37-30678
Updated Sites	CA-SDI-6119
USGS Quad:	In-Ko-Pah Gorge 1975
Acreage:	Approximately 73.81 acres
Permit Numbers:	MUP 09-008, Log No. 09-22-001
Key Words:	Intensive pedestrian survey, Phase I testing; ceramic scatter, lithic scatter, lithic reduction area, quarry, CA-SDI-6119, CA-SDI-19480, CA-SDI-19484, CA-SDI-19485, CA-SDI-19486, CA-SDI-19488, CA-SDI-19489, CA-SDI-19490, CA-SDI-19492, CA-SDI-19493, CA-SDI-19494, P-37-30672, P-37-30673, P-37-30674, P-37-30675, P-37-30678

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LIST OF ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
amsl	above mean sea level
APE	Area of Potential Effect
B.P.	Before Present
CEQA	California Environmental Quality Act
County	County of San Diego Department of Planning and Land Use
CRHR	California Register of Historical Resources
CWA	Clean Water Act
DPR	Department of Parks and Recreation
E&E	Ecology and Environment, Inc.
ECO Substation	East County Substation
EDAW	EDAW, Inc.
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESJ	Energia Sierra Juarez
ESJ U.S.	Energia Sierra Juarez U.S. Transmission, LLC
ENSO	El Niño Southern Oscillation
FAA	Federal Aviation Administration
Gen-Tie Line	generator interconnection line
GPS	Global Positioning System
ha	hectares
kV	Kilovolt
Local Register	San Diego County Local Register of Historical Resources
MW	megawatts
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places
O&M	operations and maintenance
ROW	right-of-way
R.P.A.	Register of Professional Archaeologist
RPO	San Diego County Resource Protection Ordinance
RWQA	Regional Water Quality Board
SCIC	South Coastal Information Center
SDG&E	San Diego Gas & Electric
SDSU	San Diego State University
SIC	Southeast Information Center
STP	Shovel Test Pit
SWPL	Southwest Powerlink
SWPPP	Stormwater Pollution Prevention Plan
TEU	Test Excavation Unit
U.S.	United States
U.S.G.S.	United States Geological Survey

MANAGEMENT SUMMARY

Project Description

For the purposes of this Cultural Resources Technical Report, the "project" refers to the Gen-Tie right-of way (ROW) (Route A1, Route A2, Route D1, and Route B2) and the access road (Route PA Options A and B).

Energia Sierra Juarez (ESJ) U.S. Transmission, LLC, proposes the construction, operation and maintenance of a less than one-mile electric generator-tie line from the Mexico border to a substation adjacent to the Southwest Powerlink (SWPL) 500 kV transmission line in Eastern San Diego County (see Figures 1, 2a, and 2b). This project, known as Energia Sierra Juarez U.S. Gen-Tie project (ESJ Gen-Tie Project) is proposed by ESJ U.S. In August of 2009, SDG&E submitted a Proponents Environmental Assessment (PEA) with the proposed "ECO Substation" location. Subsequently, SDG&E proposed an "ECO Substation Alternative" that was located approximately 100 meters to the northeast. The proposed ESJ Gen-Tie Project proposes two sets of gen-tie routes based upon the East County Substation (ECO Substation) location and the ECO Substation Alternative location. The "ESJ Gen-Tie" route consists of Routes A1 and A2. The "ESJ Gen-Tie Alternative" route consists of Routes D1 and D2. Each set consists of a single circuit 500 kV line (Route A1 or Route D1) or double-circuit 230 kV line (Route A2 or Route B2). The route that is ultimately selected would be supported on three to five 150 foot steel lattice towers or up to 170-foot steel monopoles. Currently, Routes A1 and A2 are proposed to be supported by five steel lattice towers or steel monopoles and Routes D1 and B2 are proposed to be supported by three steel lattice towers or steel monopoles. Figure 3a shows the alignments and project features for Routes A1 and A2 and Figure 3b shows the alignments and project features for Routes D1 and B2. The proposed Gen-Tie would have the capacity to interconnect up to 1250 MW of future renewable energy produced by generators located in Northern Baja California Mexico.

The ESJ Gen-Tie Routes would connect with the proposed ECO Substation and the ESJ Gen-Tie Alternative Routes would connect to the ECO Substation Alternative. The ECO substation is proposed by San Diego Gas and Electric (SDG&E) which in turn would interconnect to SWPL. The ECO Substation will be permitted by the California Public Utility Commission and will be constructed and operated by SDG&E. The ECO Substation is located approximately 0.65 miles north of the U.S. Mexico border and approximately 3.75 miles east of Jacumba in the southeast corner of San Diego County near the Imperial County Line (see Figures 1, 2a, and 2b).

The total length of the generator tie line would be approximately two miles, with approximately one mile in the United States (ESJ Gen-Tie Project) and approximately one mile from the international border to the first point of interconnection in Mexico, at the ESJ Jacume substation in Mexico. An additional overhead static ground wire running

above the conductors would have a fiber optic core for communications between the ESJ Jacume Substation in Mexico and the proposed SDG&E ECO Substation.

Surveys/Investigations

The project proponent, ESJ U.S., originally contracted Ecology and Environment, Inc. (E&E) to conduct archaeological and historical survey investigations in support of an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the proposed project. A records search was conducted by Sandra Pentney of E&E on August 23, 2007 at the South Coastal Information Center (SCIC) located at San Diego State University and by staff of the Southeast Information Center (SIC) at the Imperial Valley College Desert Museum on August 29, 2007. The records searches revealed that 43 previously recorded sites are located within a 1-mile radius of the survey area. The survey area is approximately 1.5 miles from the Table Mountain Historic District and is adjacent to the Jacumba Discontiguous Archaeological District. One previously recorded cultural resource, CA-SDI-6119, was mapped in the project area, intersecting with the Option A and Option B Access Road alignments.

E&E staff conducted pedestrian archaeological and historical survey investigations on January 16, 17, and 18, 2008, with additional survey conducted on March 31, 2008. This survey covered approximately 69.25 acres of the proposed project's Area of Potential Effect (APE). Subsequently, ESJ U.S. contracted EDAW, Inc. (EDAW) to conduct additional survey of approximately 2.56 acres of proposed Option A access road right-of-way and incorporate the results of E&E's survey into a County-format cultural resources report authored by a County-approved consultant. An approximately 2.00 acre area encompassing the western end of the proposed Option B access road alignment, where it diverges from its shared alignment with the proposed Option A access road, was surveyed on June 2, 2010. The combined 73.81 acres constitutes the proposed project's APE. Prior to conducting additional surveys of the proposed Option A access road alignment on April 3 and 22, 2009, EDAW staff sent a Sacred Lands file search request to the Native American Heritage Commission (NAHC) on March 19, 2009. A response was received on March 30, 2009, and immediately forwarded to the County at their request to establish government-to-government consultation. At the request of the County, Mr. Clint Linton, Kumeyaay representative, and Mr. Preston Arrow-weed, Quechan representative, were contacted by telephone on April 2, 2009, to notify them of the survey and solicit their participation; both declined participation in the survey. Field notes and photographs for the original project survey are on file at E&E. Field notes and photographs for the access road survey are on file at EDAW. Mr. Linton and Mr. Arrow-weed were also contacted by telephone on February 3, 2010 to consult regarding the testing program and findings. Mr. Linton declined participation and, as a result of the discussion with Mr. Arrow-weed, EDAW forwarded Mr. Arrow-weed information on the findings, a project description, a location map, and a response form for any additional comments or questions.

Area Findings

Results of the combined Phase I cultural resources inventory indicate that 17 cultural resources are present within the project APE. These consist of 11 archaeological sites and six isolates. Identified archaeological sites include six lithic reduction areas (CA-SDI-19480, CA-SDI-19484, CA-SDI-19486, CA-SDI-19488, CA-SDI-19489, and CA-SDI-19492), two lithic scatters (CA-SDI-19490 and CA-SDI-19494), one lithic reduction area with associated ceramics (CA-SDI-19493), one ceramic scatter (CA-SDI-19485), and one probable quarry site consisting of a lithic reduction area and roasting pit (CA-SDI-6119). One of these sites, previously recorded site CA-SDI-6119, was relocated and updated during the survey efforts. Because none of the 11 resources have undergone formal evaluation by the County, they are considered "important" resources because of their potential to yield important information on prehistory. Isolates include one historic lead ball (P-37-30670), one ceramic sherd (P-37-30674), and four lithic isolates (P-37-30672, P-37-30673, P-37-30675, and P-37-30678). The County identifies isolates as "Not Important" resources requiring no work beyond appropriate documentation and discussion in the current report. No human remains have been identified in the project area. Department of Parks and Recreation 523 forms have been completed for all newly identified and relocated resources and submitted to SCIC.

Project Impacts

Four archaeological sites, CA-SDI-6119, CA-SDI-19488, CA-SDI-19490, and CA-SDI-19493, will be directly impacted by the proposed project as currently designed. CA-SDI-6119 will be impacted by construction and maintenance of the Legal Property Access Road, CA-SDI-19488 by construction of proposed Route A2 (230kV), and CA-SDI-19490 and CA-SDI-19493 by construction of proposed Route A1 (500kV). While the project has been designed to minimize impacts to cultural resources, project redesign of the proposed north-south Gen-Tie access roads to avoid impacts to resources, followed by construction monitoring and placement in an open space easement, is recommended to avoid direct impacts to these sites. The remaining site, CA-SDI-19494, faces indirect impacts due to project construction activity and inadvertent ground disturbance. Because further project redesign was not feasible, a testing program was established for sites CA-SDI-6119, CA-SDI-19488, CA-SDI-19490, CA-SDI-19493, and CA-SDI-19494. The remaining six sites will not be impacted by the proposed project and can be preserved in open space.

Site Testing

In coordination with County of San Diego, a testing plan was developed for sites CA-SDI-6119, CA-SDI-19488, CA-SDI-19490, CA-SDI-19493, and CA-SDI-19494. The field investigations were conducted between December 14 and December 16, 2009, and preceded according to the general field methods described in the County approved testing plan. Additionally, surface collection was as conducted at site CA-SDI-6119 on January 20, 2010. All collected materials are temporarily curated at EDAW. It is anticipated that the collection will be permanently curated at the San Diego

Archaeological Center pursuant to an accession agreement with the County of San Diego. As a result of the testing program, the data potential of these sites has been exhausted and impacts form the proposed project are reduced to less than significant. This report documents the testing and evaluation effort for these sites. A copy of this report will be sent to SCIC for future researchers.

1.0 INTRODUCTION

1.1 Project Description

For the purposes of this Cultural Resources Technical Report, the "project" refers to the Gen-Tie right-of way (ROW) (Route A1, Route A2, Route D1, and Route B2) and the access road (Route PA Options A and B).

Energia Sierra Juarez (ESJ) U.S. Transmission, LLC, proposes the construction, operation and maintenance of a less than one-mile electric generator-tie line from the Mexico border to a substation adjacent to the Southwest Powerlink (SWPL) 500 kV transmission line in Eastern San Diego County. This project, known as Energia Sierra Juarez U.S. Gen-Tie project (ESJ Gen-Tie Project) is proposed by ESJ U.S. The proposed ESJ Gen-Tie Project proposes two sets of gen-tie routes based upon the East County Substation (ECO Substation) location and the ECO Substation Alternative location. The first set consists of the ESJ Gen-Tie Routes A1 and A2, and the second set consists of the ESJ Gen-Tie Alternative Routes D1 and D2. Each set consists of a single circuit 500 kV line (Route A1 or Route D1) or double-circuit 230 kV line (Route A2 or Route D2). The route that is ultimately selected would be supported on three to five 150 foot steel lattice towers or up to 170-foot steel monopoles. Currently, Routes A1 and A2 are proposed to be supported by five steel lattice towers or steel monopoles and Routes D1 and D2 are proposed to be supported by three steel lattice towers or steel monopoles. Figure 3a shows the alignments and project features for Routes A1 and A2 and Figure 3b shows the alignments and project features for Routes D1 and D2. The proposed Gen-Tie would have the capacity to interconnect up to 1250 MW of future renewable energy produced by generators located in Northern Baja California Mexico.

The ESJ Gen-Tie Routes would connect with the proposed ECO Substation and the ESJ Gen-Tie Alternative Routes would connect to the ECO Substation Alternative. The ECO substation is proposed by San Diego Gas and Electric (SDG&E) which in turn would interconnect to SWPL. The ECO Substation will be permitted by the California Public Utility Commission and will be constructed and operated by SDG&E. The ECO Substation is located approximately 0.65 miles north of the U.S. Mexico border and approximately 3.75 miles east of Jacumba in the southeast corner of San Diego County near the Imperial County Line (see Figures 1, 2a, and 2b).

The total length of the generator tie line would be approximately two miles, with approximately one mile in the United States (ESJ Gen-Tie Project) and approximately one mile from the international border to the first point of interconnection in Mexico, at the ESJ Jacume substation in Mexico. An additional overhead static ground wire running above the conductors would have a fiber optic core for communications between the ESJ Jacume Substation in Mexico and the proposed SDG&E ECO Substation.

Figure 1 Regional Location Map

Figure 2a Project Vicinity (Routes A1 and A2)

Figure 2b Project Vicinity (Alternative Routes D1 and D2)

Figure 3a Study Area and Site Plan (Routes A1 and A2)

Figure 3b Study Area and Site Plan (Alternative Routes D1 and D2)

Access to the ESJ Gen-Tie Project area is provided by Old Highway 80. The proposed project has two property access (PA) road options, Option A and B. Option A is the historical property easement; however, the County of San Diego determined this easement did not satisfy the County's Site Distance requirements. Option B satisfies the County of San Diego Site Distance requirements. The locations and alignments for both PA options are shown in Figures 3a and 3b. Both options would require construction of a new 28 foot wide road and turnaround within a 40-foot wide easement, as required by the Rural Fire Protection District. It is possible that the entire 40-foot easement could be impacted during construction of the access road. Disturbed areas within the 40-foot easement, but beyond the 28-foot wide access road, would be revegetated with a native seed mix.

A new Gen-Tie tower access road would be constructed that would parallel the proposed Gen-Tie. The Gen Tie tower access road and foundations for the lattice towers or monopoles would be located entirely within the permanent right-of-way. The Gen-tie tower access road would be an approximately 12-foot wide graded dirt road. Both the property access road and Gen-Tie tower access road would be maintained periodically. This maintenance would include periodic grading and minor repairs.

As noted above, the Gen-Tie would consist of either a single circuit 500 kV line or double circuit 230 kV line. The key features and impacts of each of these alternatives are summarized in Table 1.

Route A1 or D1 (the 500 kV Gen-tie) would be constructed within a 214-foot wide permanent right-of-way. Route A2 or D2 (the 230 kV Gen-tie) would be constructed within a 130-foot permanent right-of way. A 100-foot and 70 foot wide temporary construction easement along the right-of-way was originally proposed for Route A1 and A2, respectively. The temporary easement has been eliminated to minimize disturbed areas.

In lieu of these 100-foot wide (7.72 acres) or 70-foot wide (5.64 acres) temporary easements, the wire stringing site proposed at the north end of the project site immediately adjacent to the property access road, and which was originally identified as having a disturbance of 0.69 acres, would instead be used as a wire stringing site and as a construction laydown and parking area. This consolidated construction laydown/parking/stringing disturbance area would be 1.88 acres for Route A1 and 1.98 acres for Route A2, which is a reduction in impacts in comparison to the 100-foot and 70-foot easements. Route D1 and Route D2 share a common 1.99 acre staging area south of common roadway of both Route PA options (Figures 3a and 3b).

Table 1. 500 kV and 230 kV Parameters

Parameter	500 kV (Route A1 or D1) Interconnection	230 kV (Route A2 or B2) Interconnection
Maximum Capacity	1250 MW	1250 MW
Number of Circuits	Single Circuit	Double Circuit
Minimum Ground Clearance	39 ft	34 ft
Permanent Right-of-Way	214 ft	130 ft
Number of Structures	3 to 5	3 to 5
Maximum Spacing Between Structures	1500 ft	1500 ft
Permanent Impacts at each structure	150 ft x 200 ft (0.69 acre)	120 ft x 160 ft (0.44 acre)
Permanent Impacts for all structures	3.45 acres (assuming 5 structures)	2.20 acres (assuming 5 structures)
Maximum Height of Lattice Towers	150 ft	150 ft
Maximum Base of Lattice Towers	34 ft x 34 ft	29 ft x 29 ft
Foundation of Lattice Tower at each corner	3-6 ft diameter	3-6 ft diameter
Maximum Height of Steel Monopoles	170 ft	150 ft
Foundation of Steel Monopoles	7-9 ft diameter	6-9 ft diameter

Construction impacts would include:

- Clearing, grading, and grubbing;
- Access road and pad construction;
- Digging and drilling for tower foundations;
- Pouring concrete foundations for towers;
- Overhead electrical power system construction; and
- Final grading and site clean-up

Vegetation would be cleared and grubbed along the proposed access roads. Limited grading would be required for the tower/pole pads and the construction laydown/ parking/stringing site (construction staging and wire stringing site). Top soil removed during the grading of the tower areas and construction staging area would be stockpiled in the construction staging and wire stringing site, if necessary. This topsoil would be utilized during final grading of the road and tower areas. Based on preliminary engineering design, grading would require the export of soil.

Gen-Tie towers/poles would be supported on excavated, reinforced concrete foundations. The foundations would be excavated using a backhoe or similar excavation equipment. The maximum area of disturbance at each tower site would be approximately 150 feet by 200 feet, or 0.69 acre at each site, for a total of 3.45 acres of impacts if five structures are installed. This disturbed acreage is based on the 500 kV Route A1 and D1; impacts associated with the 230 kV Route A2 and D2 would be less.

Tables 2a and 2b quantify the amounts of land disturbance for all project components associated with Routes A1 and A2, and Routes D1 and B2, respectively.

Table 2a. Land Disturbance (Routes A1 and A2)

Project Components	500 kV (Route A1) Interconnection	230 kV (Route A2) Interconnection
Construction lay-down/ parking/ stringing area	1.9 acres	2.0 acres
28-foot Property Access Road and Turn Around[1]	4.5 acres[2]	4.5 acres[2]
Gen-Tie Tower Access Road	0.8 acres	0.9 acres
Permanent Impacts (5 towers and 30-foot fire clearing)[3]	3.45 acres	2.2 acres
Totals	10.77 acres[4]	9.72 acres[4]

1 The 28' Property Access Road is located within a 40' easement. The entire 40' easement could be impacted during construction. Therefore impacts to the entire 40' easement have been assumed for this calculation.
2 Impacts associated with the Property Access Road include Option B in order to provide show the greatest amount of impact.
3 Depending on final design 3-5 towers would be installed. Values are approximate.
4 The total amount of land disturbance shown in this row is larger than the sum of the rows above due to rounding.

Table 2b. Land Disturbance (Routes D1 and B2)

Project Components	500 kV (Route D1) Interconnection	230 kV (Route B2) Interconnection
Construction lay-down/ parking/ stringing area	1.99 acres	1.99 acres
28-foot Property Access Road and Turn Around[1]	4.49 acres[2]	4.49 acres[2]
Gen-Tie Tower Access Road	0.68 acres	0.65 acres
Permanent Impacts (3 towers and 30-foot fire clearing)[3]	1.32 acres	2.02 acres
Totals	8.48 acres	9.15 acres

1 The 28' Property Access Road is located within a 40' easement. The entire 40' easement could be impacted during construction. Therefore impacts to the entire 40' easement have been assumed for this calculation.
2 Impacts associated with the Property Access Road include Option B in order to provide show the greatest amount of impact.
3 Depending on final design 3-5 towers would be installed. Values are approximate.

In addition to the permanent impact associated with each tower pad, fire protection guidelines require a defensible space of 30 feet on all sides of each tower. Therefore, for purposes of this technical report, the entire project ground disturbance is considered a permanent impact.

Project construction would require approximately 20 to 25 workers per day for up to six months. The bulk of the work would be completed in late 2011 or early 2012. There would be approximately 5 to 15 construction vehicles operating on-site during construction, with approximately 10 to 20 worker vehicles entering or leaving the site each day.

During operation of the facility, minimal personnel (1 or 2) would be required to patrol and visually inspect the Gen-Tie on a periodic basis. Operations and maintenance related traffic would consist of approximately two vehicles entering and leaving the site weekly.

Project construction would require approximately 780,000 gallons of water (assumes use of 2 – 2,500 gallon water trucks per day and a six day work week), for watering of roads and minimizing dust generated from traffic and excavation activities and for aid in soil compaction. It is anticipated that water would be trucked onto the site in tank trucks, although a temporary groundwater well could be drilled for use during construction. Very little water would be needed when the facilities are in operation, and would mainly consist of the occasional pressure washing of the insulators to remove dirt accumulation to minimize arcing.

Road maintenance activities are anticipated to occur no more than twice per year on average, but would be performed on an as-needed basis. No fencing is proposed. However, the Gen-Tie towers would be equipped with devices to prevent climbing on the towers. Warning signs in English and Spanish would alert the public to the electrical hazard.

Project impacts can be summarized as follows. The total disturbance would encompass one of eight possibilities: 10.55 acres for Route A1 and PA Option A, 10.77 acres for Route A1 and PA Option B, 9.50 acres for Route A2 and PA Option A, or 9.72 acres for Route A2 and PA Option B; or 8.37 acres for Route D1 and PA Option A, 8.48 acres for Route D1 and PA Option B, 9.03 acres for Route B2 and PA Option A, or 9.14 acres for Route B2 and PA Option B.

1.2 Existing Conditions

1.2.1 Environmental Setting

Natural

The project site is located approximately 3.75 miles (6.04 km) east of the community of Jacumba and approximately 1.75 miles (2.81 km) northeast of the intersection of Old Highway 80 and Carrizo Gorge Road. An existing west-east dirt road provides access to the proposed project area. Currently the area is used extensively by the U.S. Border Patrol who has created roads to monitor the border fence. Other users of the site are target shooters who have left a consistently spread scatter of shattered clay pigeon debris and people disposing of garbage such as household trash and old appliances.

Precipitation averages 15.58 inches (in.) per year at Jacumba. Most rain falls from November to March. Jacumba experiences its hottest average temperatures in August, with an average maximum of 94 degrees Fahrenheit (°F). January is the coldest month, with an average high of 62°F (Weather Channel 2009).

Topography

The proposed project is in the Desert Slopes ecological subsection of the Southern California Mountains and Valleys ecological subregion in southeastern-most San Diego County. Located on the eastern side of the Peninsular Ranges physiographic region, formed by the large, intrusive La Posta igneous pluton (Walawender and Hanan 1991), the proposed project is situated south of Table Mountain and the Jacumba Mountains and southeast of the In-Ko-Pah Mountains. Generally, the area contains steep to moderately steep mountains with narrow to rounded summits and broad valleys occupied by alluvial fans. The Table Mountain area provides the highest elevations within a 1-mile (1.61-km) radius of the project (3,000 to 4,000 feet [914.4 to 1,219.2 meters] above mean sea level [amsl]) with slope gradients of up to 40 percent (Cook and Fulmer 1980). Although human uses have been found virtually anywhere in the level areas, site locations are concentrated in the Table Mountain Formation Gravels, at the escarpments of Table Mountain, and on “beaches” along the shores of well-watered drainages at the base of the Southern California Batholith. Concentrations in this area form significant patterns and imply that this geomorphic formation was particularly desirable for human occupation (May 1976).

Elevation at the project site ranges from approximately 3,200 ft amsl at the northwest corner of the footprint to approximately 3,400 ft amsl at the southeast corner. The proposed project site consists of level terrain surrounded by low east-west finger ridges forming the foothills of Blue Angels Peak to the east. The general area includes a hill that slopes down to the west, south, and north. Boulder Creek runs south from the In-Ko-Pah Gorge, located approximately 8.5 miles northeast of the proposed project. This, together with smaller tributary drainages, has been responsible for the alluvial deposits in the general project area. A hill comprising granitic ridge outcroppings and boulders is located to the east of the proposed project.

Geology

The area began with the Mesozoic aged granitic bedrock of the Southern California Batholith, which was subsequently buried by Early Miocene-age Table Mountain Formation gravels. Subsequently, Late Miocene Jacumba Volcanics erupted to cover both earlier formations, distributing porphyritic pyroclastic materials throughout the region. Quaternary alluviation and Late Pleistocene erosion converted the Table Mountain Formation into ridges and terraces (May 1976). Gray Mountain, in the western portion of the Table Mountain area, is an exposure of the Southern California Batholith. The gravel-covered ridges in the general area are Table Mountain Formation Gravels, with Table Mountain itself composed of more recent intrusive Jacumba Volcanics (May 1976, Cooley 2006, Strand 1962). Overall, this area is predominantly granitic, with

scattered zones of gabbro intrusive and mixed granitic-metamorphic rocks (Underwood and Gregory 2006).

The geology of the region provided raw materials for everyday life in prehistoric San Diego County. The exposed granitic boulders of the Southern California Batholith provide a landscape offering shelter from the elements, secluded locations for caches of cultural items, and canvasses for rock art. Boulder outcrops in well-watered washes, valleys and saddles also served as the raw materials for milling stations to process the region's edible natural resources (May 1976). The ridges, terraces, and benches of the Table Mountain Formation gravels contain porphyritic andesites that provided suitable raw materials for the production of chipped stone tools, and the gravels contained many cobbles that retain heat well for use in roasting pits. Jacumba Volcanics, present in the northern region of the project vicinity, also yield materials such as fine-grained basalts and porphyritic andesite that can be quarried and are suitable for the production of stone tools (May 1976).

Soils

Soils within the general area consist of acid igneous rock, Rositas loamy coarse sand, rough broken land, and sloping gullied land soil associations. The acid igneous rock soil series, deposited during Quaternary alluviation, is present in the southeastern portion of the project vicinity and consists of rough, broken terrain. Large boulders and rock outcrops of granite, granodiorite, tonalite, quartz diorite, gabbro, basalt, or gabbro diorite cover 50% to 90% of the total area of this soil type in San Diego County. The soil material is loamy to coarse sand in texture and is very shallow (0 to 4 inches) over decomposed granite or basic igneous bedrock (U.S. Bureau of Land Management [BLM] 2007; Natural Resources Conservation Service [NRCS] 2007)].

Rositas loamy coarse sand, present in the south-central portion of the project site, consists of somewhat excessively drained, variable-depth (0 to 60 inches) loamy coarse sands derived from Quaternary granitic alluvium (BLM 2007; NRCS 2007). Rough broken land, present in the central and northeast portions of the project site, is made up of well-drained to excessively drained, steep and very steep land dissected by many narrow V-shaped valleys and sharp tortuous divides. Areas of exposed raw sediments are common, and there are areas of very shallow soils (0 to 2 inches). Runoff is rapid to very rapid, and erosion is very high (BLM 2007; NRCS 2007). Sloping gullied land occurs in the desert on alluvial fans adjacent to mountains and is present in the north-central portion of the project site. It consists of a wide variety of material derived from igneous, sedimentary, and metamorphic rocks, with a range of depths between 0 and 60 inches. The texture ranges from clay loam to gravelly, cobbly sand. Limy material has been exposed where gullies have dissected areas of old alluvium. Drainage is good to somewhat excessive. Runoff is medium to very rapid, and the erosion hazard is moderate to high (BLM 2007; NRCS 2007).

Biota

Plant communities occurring in the project vicinity include juniper woodland and semi-desert chaparral. Semi-desert chaparral habitat is predominant. Common shrub or perennial species in this habitat include jojoba, waterjacket (*Lycium andersonii*), lotebush, ephedra, Gander's cholla, Mojave yucca and creosote (*Larrea tridentata*). Annuals present in the southern portion include dense patches of common goldfields (*Lasthenia gracilis*), desert dandelion (*Malacothrix glabrata*), scale-bud (*Anisocoma acaulis)*, wild heliotrope (*Phacelia distans*), California butterweed (*Senecio californicus*), California coreopsis (*Coreopsis californica* var. californica), and pincushion (*Chaenactis* spp.). Near the northwestern corner of the site, habitat begins to transition into juniper woodland with species such as California juniper, jojoba, lotebush, waterjacket, desert agave, hedgehog cactus (Echinocereus engelmannii), ephedra, and Gander's cholla (*Cylindropuntia ganderi*). The herbaceous cover in this area is fairly sparse and consists primarily of filaree (*Erodium cicutarium*) with scattered individuals of Wallace's woolly daisy (*Eriophyllum wallacei*), chia (*Salvia columbariae*), hydra stick-leaf (*Mentzelia affinis*) and three-lobed starry puncturebract (*Sidotheca trilobata*) (E&E 2009).

Habitat in the area supports abundant populations of small mammals and reptiles as indicated by frequent sightings of small rodent burrows and lizards. Snake species with ranges overlapping the project site include rattlesnake (*Crotalus* spp.), California kingsnake (*Lampropeltis getula californiae*), coachwhip (*Masticophis flagellum*), nightsnake (*Hypsiglena torquata*), gopher snake (*Pituophis catenifer*), and long-nosed snake (*Rheinocheilus lecontei*). Lizard species include western banded gecko (*Coleonlyx variegatus*), side-blotched lizard (*Uta stansburiana*), and tiger whiptail (*Aspidoscelis tigris*) (California Herps 2008). None of these species were detected during the site visits. Several species of birds likely use the area seasonally and during the flowering and fruiting season of local vegetation, including ladder-backed woodpecker, red-tailed hawk, common raven, western scrub jay, horned lark, Scott's oriole, northern mockingbird, ash-throated flycatcher, western kingbird, black-throated sparrow, and white-crowned sparrow. Mammals likely to be found within the area of the proposed project include black-tailed jackrabbit and coyote (E&E 2009).

Cultural

Regional Prehistory

Paleoindian

The prehistory of the east San Diego County region is generally divided into three major periods of occupation: Paleoindian, Archaic, and Late Prehistoric. An earlier pre-projectile point (pre-Paleoindian) culture was proposed by Malcolm Rogers who used the term Malpais – later reclassified as San Dieguito I – to refer to very early materials (Rogers 1939). Malpais materials consist of very heavily varnished choppers, scrapers,

and other core-based tools typically found on old desert pavement areas. Many scholars are skeptical of these posited early occupations (e.g., Schaefer 1994).

The first well-documented cultural tradition in southern California is the San Dieguito complex (12,000 to 7,000 years before present [B.P.]). The type site is on the San Dieguito River in north-coastal San Diego County. The San Dieguito complex has been radiocarbon dated here at 9,030 B.P., but most scholars assume that it began a few thousand years earlier (Underwood and Gregory 2006). Related materials have been found in the Mojave Desert and in the Great Basin, sometimes called the Lake Mojave complex (e.g., Campbell et al. 1937; Warren and Ore 1978). Diagnostic artifact types and categories associated with the San Dieguito complex include percussion-flaked core tools and flake-based tools such as scraper planes; choppers; scrapers; crescentics; elongated bifacial knives; and diagnostic Silver Lake, Lake Mojave, and leaf-shaped projectile points (Rogers 1939).

In areas adjacent to the coast, many Paleoindian period sites are believed to have been covered by the rise in sea levels that began at the end of the Pleistocene. In more inland regions, alluvial sedimentation in valley areas may have covered these materials. Few San Dieguito-Lake Mojave sites in the desert contain subsurface deposits, temporally diagnostic artifacts, or datable material (Hayden 1976; Rogers 1939). Temporal placement of desert sites is based primarily on degree of weathering and patination, and absolute dating has been problematic (Underwood and Gregory 2006).

Archaic

Underwood and Gregory (2006) provide a detailed discussion of the Archaic period in the area of the current project, and their research is summarized below. Desert and coastal Archaic period sites have generally been dealt with separately, although there are clear similarities between the two. In the desert, the Archaic can be divided into the Pinto complex (7000 to 4000 B.P.) and the Amargosa or Gypsum complex (4,000 to 1,500 B.P.). The Pinto complex shows evidence of a shift from big game exploitation to a broader-based economy with increased emphasis on the exploitation of plant resources, and is thought to be an adaption to erratic climatic drying of the Altithermal (Grayson 1993, Warren 1984, Warren and Crabtree 1986). Groundstone artifacts are rare; these are typically thin slabs with smooth, highly polished surfaces which “may be platforms upon which fibrous leaves or skins were scraped. They are invariably associated with pulping planes” (Rogers 1939:52-53). Projectile points are distinctive crude, percussion-flaked Pinto series atlatl points. Other lithics include percussion-flaked scrapers, knives, scraper planes, and choppers (Underwood and Gregory 2006).

The subsequent Amargosa or Gypsum complex is characterized by the presence of fine, pressure-flaked Elko, Humboldt, and Gypsum-series projectile points; leaf-shaped points; rectangular-based knives; flake scrapers; T-shaped drills; and occasional large scraper planes, choppers, and hammerstones (Underwood and Gregory 2006). Manos and basin metates became relatively common, and the mortar and pestle were

introduced late in this period (Warren 1984:416). The florescence of tool types and the addition of groundstone hard seed-processing equipment suggest an attempt to adapt to drier desert conditions in the greater Southwest. Most examples of this complex have been found in the southern Great Basin-Mojave Desert.

Archaic period sites are more commonly found in California in coastal areas. These are generally called La Jollan complex sites in coastal San Diego County. As noted in Underwood and Gregory (2006):

> The assemblage is similar to those of the desert Archaic prompting Warren and others (1961:28) and Kowta (1969:68) to suggest that the Altithermal (ca. 8000 B.P. - 5000 B.P.) made the deserts largely uninhabitable at that time. This induced people to migrate to the coast, beginning at approximately 8000 B.P., where they quickly shifted their subsistence strategies to include shellfish and other seashore resources.

Subsistence again shifted to a more intense utilization of hard seeds and other terrestrial resources along the coast in the Late Archaic, when siltation is thought to have reduced available coastal lagoon resources. Further inland, the similar but separately named Pauma complex may represent seasonal inland occupations of coastal La Jollan peoples (Moratto 1984; True 1958, 1980).

Late Prehistoric

The incursion of Yuman-speaking people via the Gila/Colorado River drainages of western Arizona is apparent by approximately 2,000 years ago, and subsequent movements westward had great impact on the people of San Diego County (Moriarty 1966, 1967, 1968). This Late Prehistoric period (1,500 B.P. to 450 B.P.) is similarly characterized by two geographic expressions, the transmontane in the desert east of the mountains and the cismontane in the coast and foothill area west of the mountains. Both patterns indicate higher population densities and elaborations in social, political, and technological systems. Culture traits generally associated with this period include increasingly elaborate kinship systems and rock art, including ground figures or geoglyphs (McGuire 1982). Extensive trail systems also indicate connections between the coast and desert for trade, religious activities, and other interactions, peaceful or otherwise (Davis 1961).

The desert manifestation of the Late Prehistoric is broadly referred to as the Patayan pattern (e.g., Waters 1982). Paddle and anvil pottery first appears, likely via the Yuman-speaking Hokan culture of the middle Gila River area (Rogers 1945; Schroeder 1975, 1979). Tizon brownware appears at approximately A.D. 1000 at Mount Laguna, located 24 miles northwest of the project site (Underwood and Gregory 2006). Cottonwood Triangular series projectile points and Desert side-notched series projectile points used in bow and arrow hunting appear at approximately A.D. 800 (1200 B.P). Cremation rather than inhumation also became the burial norm. Artifactual material is

characterized by the presence of arrow shaft straighteners, pendants, comales (heating stones), Tizon Brownware pottery, ceramic figurines, ceramic "Yuman bow pipes," ceramic rattles, miniature pottery, various cobble-based tools (e.g., scrapers, choppers, hammerstones), bone awls, manos and metates, and mortars and pestles.

Subsistence in desert areas is thought to have focused on acorns and grass seeds, with small game serving as a primary protein resource and big game as a secondary resource. Vegetation resources included honey mesquite and screwbean mesquite with smaller amounts of palo verde, ironwood and native grasses (Underwood and Gregory 2006).

The proposed project sits in an area of small mountains and valleys on the eastern side of the Peninsular Ranges. Locally, the project site is situated within the area of the Cuyamaca Complex. True (1970) defined Cuyamaca complex based on excavations within Cuyamaca Rancho State Park and collections at the San Diego Museum of Man to differentiate interior San Diego County assemblages from Meighan's (1954) San Luis Rey complex. It is widely accepted that the Cuyamaca complex is associated with the Hokan-based, Yuman-speaking peoples (Diegueño/Kumeyaay) and that the San Luis Rey complex is associated with the Takic Shoshonean- speaking peoples (Luiseño).

The region surrounding the proposed project has extensive evidence of the cultural elaboration that occurred in the Late Prehistoric. In Baja California's Sierra de Juárez Mountains south of the proposed project is the town of La Rumorosa. Like the Jacumba region of the U.S., the La Rumorosa region is one of transition between the mountain and desert environments. Within this region is the site of *El Vallecito*, located approximately 3 miles northeast from the town of La Rumorosa. The site is home to La Rumorosa-style Late Prehistoric petroglyphs and pictographs, as well as other Late Prehistoric artifactual remains like ceramics. This style is associated with the Kumeyaay (often spelled Kumiai in Mexico), whose territory straddled both sides of the present-day U.S.-Mexico border. The La Rumorosa style, which flourished in southeastern San Diego County and northern Baja California, is characterized by rectilinear and curvilinear polychrome designs in red, black, yellow and white. Defining elements include lizard forms, digitate anthropomorphs, circles, sunbursts, rectangular grids, oval grids, simple anthropomorphs, crosses, and rectangles (Hedges 1970).

Ethnographic Background

The project site is in the traditional territory of the Kumeyaay. Also known as Kamia, Ipai, Tipai, and Diegueño, the Kumeyaay occupied the southern two-thirds of San Diego County. The Kumeyaay spoke a Yuman language belonging to the Hokan language family, which includes the lower Colorado River tribes and Arizona groups to whom they are closely related. South of the Kumeyaay, in the vicinity of modern-day Ensenada, are the closely related Paipai. Desert Kumeyaay or Kamia ranged over the Imperial Valley and northeastern Baja California (Underwood and Gregory 2006). As noted in Cooley (2006):

> Early chronicler Gifford (1931) designated the Kumeyaay living in the Jacumba area as the Kamia, who were distinguished by a desert orientation with contacts and travel most frequently between Jacumba and the Imperial Valley. This term has generally been replaced with the designation of eastern Kumeyaay or Tipai, or sometimes Jacumeño (Chace 1980, Cook et al. 1997, Hedges 1975; Langdon 1975; Gifford 1931:2; Luomala 1978). The Jacumeño or Kamia were closely connected to the Quechan on the Colorado River and served as trading partners between the coastal and desert groups using a travel route through the Mountain Springs Grade.

The Kumeyaay lived in semi-sedentary, politically autonomous villages or rancherias. Most rancherias were the seat of a clan, although it is thought that some clans had more than one rancheria and some rancherias contained more than one clan (Bean and Shipek 1978). The Kamia or Desert Kumeyaay relied on hunting and gathering, supplementing that subsistence base with floodplain horticulture along the New and Alamo rivers and at various springs (Underwood and Gregory 2006).

The predominant determining factor for placement of villages and campsites was the ready availability of water, preferably on a year-round basis, with seasonal movements to exploit available food resources. Inland bands could travel to the coast to fish and gather salt, then shift to desert areas in the spring to gather agave (*Agave deserti*), moving to higher altitudes later in the year to gather seasonally available acorns and pine nuts (Cline 1984; Shipek 1991). Several large villages have been documented within the region through ethnographic accounts and archaeological investigations in the area. These include *Pa'Mu* northeast of Ramona; *Tukmak*, located near Mesa Grande, and *Pauba*, located between the previous two villages (Cooley and Barrie 2004; Kroeber 1925:590-591). Most important was likely the village of *Hakum*, the source of the word "Jacumba." Like many prehistoric villages, its location is not certain. However, it has been postulated that the large, complex archaeological site CA-SDI-4455, situated in the hills immediately west of Jacumba, is likely the village of *Hakum* (Cook et al. 1997:8).

Historic Period

The Spanish period in California (1769-1821) represents a time of European exploration and settlement. Dual military and religious contingents established the San Diego Presidio and the Mission San Diego de Alcalá along the coast. The mission system introduced horses, cattle, and other agricultural goods and implements to the area. It also disrupted traditional native lifeways, and many Native American populations became tied economically to the colonists. Contact with the interior came later, when Pedro Fages lead a Spanish expedition through what is now Eastern San Diego County in 1785. Despite the lack of early interaction between colonists and interior Native Americans, the Jacumeño were already hostile to the Spaniards and in alliance with other native groups, actively resisting Spanish rule in the area by the time of Fages'

expedition. Still, during their period of governance the Spaniards had little involvement in the eastern areas of the county.

The cultural systems and institutions established by the Spanish continued to influence the region beyond 1821, when California came under Mexican rule. The Mexican period (1821-1848) retained many of the Spanish institutions and laws; the mission system, however, was secularized in 1834. Secularization allowed for increased Mexican settlement, with large tracts of land granted to individuals and families, and establishment of a rancho system based on cattle grazing (Pourade 1963). Secularization also meant that many Native Americans were further dispossessed. The Native Americans of the eastern mountain areas began to have hostile interactions with the Mexican settlers who began to enter the area. By this time, contact had led the Eastern Kumeyaay to incorporate domestic livestock, especially horses and cattle, procured through raids. Anglo-European contact also led to the adoption of agriculture, replacing the previous subsistence system based on hunting and gathering.

In San Diego County, cattle ranching dominated agricultural activities and the development of the hide and tallow trade with the United States increased during the early part of this period. The Pueblo of San Diego was established at the former Presidio's settlement along the San Diego River in 1834. Just over a decade after that occasion, however, Mexican rule in California ended. The Mexican-American War began in 1846, following Texas' declaration of Republic status, breaking from Mexican governance. The conflict expanded to California, and Mexico ceded its California territory to the United States as part of the Treaty of Guadalupe-Hidalgo at the war's end in 1848.

At the start of American rule in 1848, gold was discovered in California and American immigration began in earnest. Few Mexican ranchos remained intact because of land claim disputes. The homestead system encouraged American immigration to the west and brought further settlement in the inland mountain areas. Mid-century saw the Jacumba area become a focal point of contact. It was situated along a well-travelled road from San Diego to Fort Yuma which served as the military mail route. The Jacumba station kept horses for the mail carriers who traveled the route, and had come under increasing attack by local Native Americans. In the early 1850s, Old Town settler James McCoy was sent to Jacumba with 14 men to protect the mail line from Native American raids. McCoy and his men constructed a fort there to protect the station garrison (Sullivan 1977). The Jacumeño, who had continued to resist European and Anglo rule through both the Mexican and American Periods, were finally subdued in 1880 and evicted from the Jacumba area (Cook et al. 1997).

The San Diego & Arizona Railway arrived in the area in 1919, with a station in Jacumba. This transportation innovation was soon followed by the formal establishment of Highway 80 for automobile transportation. Following much of the route of the Old Plank Road that had been maintained by travelers in eastern San Diego and Imperial Counties, the original alignment of the highway was in place by 1919. A "second

generation" of the highway was built in the 1920 and 1930s, now known as Old Highway 80 (County of San Diego n.d.). The highway brought new traffic to Jacumba. A hot springs spa was established at Jacumba's natural spring, giving roots to the town. Now easily connected to distant markets, stock raising and dairy farming became important pursuits for the area's residents (Cook et al. 1997). The Jacumba Hot Springs Resort became a local tourist attraction beginning in the 1920s, hosting Hollywood celebrities, and spawned hotels, a race track and other recreational facilities in Jacumba (Cooley 2006). Following World War II, the popularity of the resort began to decline. The construction of Interstate 8 in 1967, bypassing Jacumba, marked the end of the town's glory days (Chace 1980).

1.2.2 Records Search Results

A records search was conducted by Sandra Pentney of E&E on August 23, 2007 at the South Coastal Information Center (SCIC) located at San Diego State University and by the staff of the Southeast Information Center (SIC) at the Imperial Valley College Desert Museum on August 29, 2007. The archival searches consisted of an archaeological and historical records and literature review. The data reviewed included historic maps, the California Inventory of Historic Places, and National Register of Historic Places (NRHP) information for the area of the proposed project. The search included a 1-mile radius surrounding the project site. This research provides a background on the types of sites that would be expected in the region. The research was also used to determine whether previous surveys had been conducted in the area and what resources had been previously recorded within the project limits. A records search confirmation letter was received from SIC and is included in Appendix A. No confirmation letter from SCIC was available from E&E; the SCIC NADB list and E&E's records search map are instead included in Appendix A.

Previous Investigations

Thirty-five cultural resources studies have been conducted within a one-mile radius of the project site (Table 3). Two studies, Wirth Associates (1981) and Cook and Fulmer (1980) include the study area. Wirth Associates (1981) consisted of linear survey for a proposed transmission line, and runs through the project site's northern boundary. A portion of the Jacumba Discontiguous Archaeological District, discussed below, was recorded adjacent to the current project site as part of this study. Cook and Fulmer (1980) involved a Class II cultural resources inventory of much of eastern San Diego County including the southeastern corner where the current project site is located. It does not appear that survey transects for this study included the project site, and no sites were identified within or adjacent to the proposed project as part of this inventory.

Table 3. Previous Investigations within a 1-Mile Radius of the Project APE

Author	Title	Date	NADB Document Number
Arrington	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California.	2006	1130551
Barker	Preliminary Archaeological … [missing]	n.d.	1100011
Bull and von Werlhof	Cultural Resource Study of a Proposed Electric Transmission Line from Jade to the San Hills, Imperial County, California.	1981	1100233
Bureau of Land Management	Table Mountain District National Register of Historic Places.	1980	1122626
Bureau of Land Management	Proposed Resource Management Plan and Final Environmental Impact Statement – South Coast.	1992	1122473
Bureau of Land Management	Final Environmental Assessment for the Table Mountain Study Area Wind Energy Development.	1984	1122065
Bureau of Land Management	Table Mountain Area of Critical Environmental Concern Management Plan.	1984	1122064
Bureau of Land Management	EA Number CA-067-EA99-19. Wilderness Reclamation.	2001	1100890
Caterino	The Cemeteries and Gravestones of San Diego County: An Archaeological Study.	2005	1129506
Cook and Fulmer	Archaeology and History of the McCain Valley Study Area, Eastern San Diego County, California.	1980	1125760
Gallegos and Ni Ghabhlain	Cultural Resource Literature Review for the Rural Highway 94 Corridor, Jacumba-Jacume Port of Entry San Diego County, California.	1999	1124166
Hillier and Zorkman	Final Record of Decision for the Table Mountain Wind Energy Study.	1984	1121818
Johnson	An Archaeological Inventory and Assessment of Corridor Segments 46 and 49, Preferred Southern Route, San Diego County.	1976	1121267
Lambert	Historic Resource Report: CA07/Hendrix Peak Intersection of Interstate 8 and Carrizo Gorge Road, Jacumba, Imperial County, California.	2004	1100957
May	Hwi-Nip-Shish: A settlement and Land Use Pattern Model for the Table Mountain Complex Near Jacumba, California.	1976	1121815
McCoy and Thesken	Archaeological Survey of the Mazzanti Property, Jacumba, California.	1979	1121318
Mitchell	Archaeological Reconnaissance Report: Ryerson Frink Pit Site, Mineral Sales.	1998	1100431
SRS, Inc.	Archaeological Report – Volume I Data Presentation on the Survey, Surface Collection and test Excavation of the Archaeological Resources on the Mazzanti Property, Located in the Jacumba Area of the County of San Diego.	1982	1121463

Table 3. (continued)

Author	Title	Date	NADB Document Number
Shackley	Environment and Behavior: Agave Desert Procurement in the In-ko-pah Gorge Area, San Diego and Imperial Counties, California.	1982	1125229
Shackley	Volume I: Phase II Archaeological Survey of the Mountain Springs (Jade) to Sand Hills Portion of the APS/SDG&E Interconnection Project 500 kV Transmission Line.	1982	1100279
Shackley	Volume III: Site Documentation (Field Notes, mapping Books, Etc.), Data Recovery on the Mountain Springs (Jade) to the Sand Hills Segment: Southwest Powerlink Project.	1983	1100314
Shackley	Volume IV: Site Documentation (Field Notes, mapping Books, Etc.), Data Recovery on the Mountain Springs (Jade) to the Sand Hills Segment: Southwest Powerlink Project.	1984	1100315
Shackley	Volume II: Appendices, Data recovery on the Mountain Spring (Jade) to San Hills Segment: Southwest Powerlink Project.	1984	1100316
Shackley	Volume I: Archaeological Investigations in the Western Colorado Desert: A Socioecological Approach: Data recovery on the Mountain Spring (Jade) to San Hills Segment: Southwest Powerlink Project.	1984	1100319
Taylor	Archaeological Survey Report and National register of historic Places Eligibility Assessment Imperial Irrigation District Coachella-Midway-East Mesa 230 kV Transmission Line Project Riverside and Imperial Counties, California.	1987	1100387
Townsend	Miguel to Mountain Springs Grade (Jade) Archaeological Survey Report.	1981	1124902
Townsend	Southwest Powerlink Cultural Resources Management Plan.	1984	1100310; 1123836
Townsend	Southwest Powerlink Cultural Resources Management Plan. Volume III-B.	1984	1100310
Townsend	Southwest Powerlink Cultural Resources Management Plan. Volume II.	1984	1100311
Townsend	Prehistoric Lifeways in the Jacumba Valley. Volumes I and II and Appendices.	1986	1122492
Weaver	Sundesert Nuclear Project – Archaeological Inventory and Assessment of Two Alternative Corridor Segments (Alignment 43 and 44) in the In-ko-pah Gorge Area, Imperial and San Diego Counties, California.	1976	104482
White	Documentation of the Phase II (Plant Site to Devers and Miguel Substations) Archaeological Inventory Report (Draft).	1978	1121509
Wirth Associates	Jacumba Archaeological District.	1981	1128602
Wirth Associates	IN-ko-pah Gorge Discontinuous Archaeological District.	1982	1100588; 1101068
Wirth Associates	Jacumba Archaeological District.	1987	1124401

Previously Recorded Cultural Resources

The general area and surroundings are very rich in prehistoric cultural resources and have some notable historic era resources. This richness is caused by an intersection of eco-zones and geological formations resulting in an abundance of food and tool resources in the nearby Table Mountain and Jacumba Valley areas. The abundance of these resources attracted human populations who used the landscape in a variety of ways including long term habitation, short term campsites, agave and other plant processing areas, quarries for stone tool materials, and lithic workstations.

The results of the records search revealed that 55 resources have been recorded within a one-mile radius of the ESJ U.S. Gen-Tie project area (Table 4). One previously recorded resource, CA-SDI-6119, appears to be adjacent to or intersect with the proposed Option A and Option B property access road alignments in the western portion of the proposed project APE. This resource is discussed below. No other resources were previously recorded within or directly adjacent to the proposed project APE. This, however, is likely a reflection of the paucity of cultural resources investigations conducted within the project area, and the potential for resources remains high. Portions of the Table Mountain Historic District and the Jacumba Discontiguous Archaeological District are located within a one-mile radius of the project site, and are discussed below.

Table 4. Previously Recorded Cultural Resources within a 1-Mile Radius of the Project APE

Primary Number (P-)	Permanent Trinomial (CA-)	Site Description	Site Dimensions	Reference
13-000181	IMP-181	Cleared circles	6 m x 3 m	Miller 1976
13-002431	IMP-2,431	Temporary camp; milling station	N/A	Hatley 1976
13-002615	IMP-2,615	Milling station	30 sq. m	RW 1976
13-002616	IMP-2,616	Lithic and ceramic scatter	15 sq. m	RW 1976
13-003694	IMP-3,694	Isolate – scraper	1 m x 1 m	Walker and von Werlhof 1979
13-003695	IMP-3,695	Ceramic scatter	135 sq. ft.	Walker 1979
13-003696	IMP-3,696	Lithic and Ceramic scatter	12 m x 10 m	Walker 1979
13-003697	IMP-3,697	Isolate – Core	0.5 m x 0.5 m	Talley 1979
37-000175	SDI-175	Lithic quarry	3 miles dia.	Treganza 1930/40s
37-000176	SDI-176	Habitation site; milling features; possible cremations	230 m x 120 m	Hector, Moslak and Pallette 2006; Treganza 1930/40s

Table 4. (continued)

Primary Number (P-)	Permanent Trinomial (CA-)	Site Description	Site Dimensions	Reference
37-000178	SDI-178	Ceramic Scatter (not relocated and suggested to be mapped incorrectly)	Undetermined	Hector, Moslak and Pallette 2006; Treganza 1930/40s
37-000179	SDI-179	Ceramic scatter	1 mile x 0.5 mile	Treganza 1930/40s
37-001080	SDI-1,080	Possible Rancheria; pictographs	220 ft x 100 ft	May 1978; Bryan 1963
37-002720	SDI-2,720	Unknown	200 sq. m	Prewitt 1964
37-004477	SDI-4,477	Temporary camp	1001-5000 sq. m	Hector, Moslak and Pallette 2006; Easland 1976
37-004448	SDI-4,448	Temporary camp	N/A	Waldron 1976
37-006098	SDI-6,098	Lithic quarry	100 m x 50 m	RW 1976
37-006099	SDI-6,099	Temporary camp; milling station	100 m x 50 m	RW 1976
37-006115	SDI-6,115	Temporary camp	N/A	RW 1976
37-006116	SDI-6,116	Lithic and ceramic scatter, agave roasting pits	200 m x 150 m	SWCA and Applied Earthworks 2008
37-006117	SDI-6,117	Agave roasting pit	2.5 m x 2.5. m	RW 1976
37-006118	SDI-6,118	Lithic scatter	5 m x 5 m	RW 1976
37-006119	SDI-6119	Lithic quarry	100 m x 50 m	RW 1976
37-006120	SDI-6,120	Milling station	50 m x 50 m	RW 1976
37-006191	SDI-6,191	Milling station; lithic and groundstone scatter	N/A	Moore 1978
37-006740	SDI-6,740	Temporary camp; milling station	N/A	Welch 1976
37-006800	SDI-6,800	Roasting pit with ceramic scatter	20 m x 20 m	May 1978
37-007059	SDI-7,059	Sparse lithic and ceramic scatter	>105,000 sq. m	Hector, Moslak and Pallette 2006
37-007060	SDI-7,060	Temporary camp; lithic quarry	488 m x 396 m	Hector, Moslak and Pallette 2006; Donovan 1981; Townsend 1979
37-007061H	SDI-7,061H	Rock enclosure	1 m x 0.9 m	SWCA and Applied Earthworks 2008; Dominici 1979
37-007074	SDI-7,074	Lithic scatter	60 m x 30 m	Moore 1979
37-007075	SDI-7,075	Lithic scatter	30 m x 20 m	Dominici 1979
37-007076	SDI-7,076	Cairn	1 m x 1 m	Moore 1979
37-007077	SDI-7,077	Lithic scatter	25 m x 10 m	Moore 1979

Table 4. (continued)

Primary Number (P-)	Permanent Trinomial (CA-)	Site Description	Site Dimensions	Reference
37-007078	SDI-7,078	Isolate – hammerstone and core	1 m x 1 m	Donovan 1979
37-007079	SDI-7,079	Lithic and groundstone scatter	70 m x 40 m	Moore 1979
37-007081	SDI-7,081	Lithic scatter	333 m x 166 m	Crotteau 1979
37-007082	SDI-7,082	Lithic scatter	10 m x 10 m	Crotteau 1979
37-007083	SDI-7,083	Ceramic scatter	1.5 m x 1.5 m	Moore 1979
37-008306	SDI-8,306	Ceramic cache; projectile point	N/A	Bianchi and Jones 1976; Treganza 1950
37-008307	SDI-8,307	Ceramic scatter	10 m x 3 m	Walker 1979
37-008309	SDI-8,309	Ceramic scatter	2.5 sq. ft.	Walker 1979
37-009102	SDI-9,102	Lithic scatter	N/A	Welch 1981
37-009163	SDI-9,163	Historic trash scatter	2 m x 3 m	Hawkins 1981
37-009164	SDI-9,164	Lithic and ceramic scatter; historic railroad spike	10 m x 7 m	Donovan 1981
37-009170	SDI-9,170	Isolate – core	1 m x 1 m	Pierce 1981
37-009187	SDI-9,187	Milling; lithic and ceramic scatter	160 m x 45 m	Palmer 1981
37-009188	SDI-9,188	Temporary camp; milling feature	150 m x 55 m	Palmer 1981
37-009189	SDI-9,189	Lithic and ceramic scatter; roasting pit	80 m x 70 m	Palmer 1981
37-009343	SDI-9,343	Temporary camp	75 m x 10 m	May 1976
37-019193	SD-15,879	Lithic scatter	30 m x 10 m	Andrews 2000
37-027805	SDI-18,065	Historic Mine	20 m x 85 m	Hector, Moslak and Pallette 2006;
37-027806	SDI-18,066	Lithic scatter	215 m x 80 m	Hector, Moslak and Pallette 2006;
37-027807	SDI-18,067	Historic Mica Gem Mine	100 m x 35 m	Hector, Moslak and Pallette 2006;
37-027809	SD-18,069	Historic structures and debris	N/A	Hector, Moslak and Pallette 2006;

CA-SDI-6119

Site CA-SDI-6119, consisting of a lithic scatter and roasting pit, was documented as a probable quarry site in 1976 during an unidentified survey; the recorder is marked only by the initials “RW.” This site is located approximately 100 m south of Old Highway 80. A hand drawn sketch map shows the site directly north of the Property Legal Access Road Option A alternative in the western portion of the project APE.

Table Mountain District

The Table Mountain Historic District was first documented in 1976 (May 1976) and nominated for the NRHP in 1980 (BLM 1980). The geomorphology of Table Mountain contains varied vegetation communities due to the elevation of the landform. This provides a varied and more stable source of plant resources for human use. The mountain is a remnant volcano surrounded by granitic boulder fields. This provides raw materials for both groundstone and chipped stone tool resources. The large granitic outcroppings also provided areas to construct lean-tos, overhangs, and shelters for habitation and storage (BLM 1980).

The southeastern extent of the Table Mountain Historic District is approximately 1.5 miles (2.41 km) to the north northwest of the project area. The district was defined based on the recordation of 124 sites, 11 of which are said to be permanent village sites (May 1976). While the district is only marginally within the 1-mile (1.61 km) buffer of the project site its presence influences the potential of the project site to contain cultural resources.

Rock art panels and ethnographic documentation also imply that the Table Mountain area had medicinal or religious significance (BLM 1980). Due to the sensitive nature of the Table Mountain Historic District the BLM has designated six sections of public land around the area as an area of critical environmental concern (ACEC) (BLM 1980).

Jacumba Discontiguous Archaeological District (JDAD)

The proposed JDAD includes 70 sites and 22 isolated finds in a 441-acre (178.46-ha) predominantly linear area (Wirth Associates 1981). Identified during linear surveys for the Southwest Powerlink 500kV line north of the project area, sites in this district are organized somewhat horizontally in four different discontiguous areas, Sections A through D. The easternmost portion of Section D (the easternmost section of the district) falls approximately 1,500 to 1,900 feet north of the northwestern portion of the current project area; one site in the western portion of Section D, CA-SDI-7,060, is located approximately 600 feet north of the proposed access road to the site. No contributing elements of the proposed district are within the current project boundaries.

Lithic quarrying and stone tool manufacture was a major industry in the JDAD; however, temporary camps, base camps, rock cairns, and ceramic scatters are also present (Wirth Associates 1981). Jacumba Valley was an area of intensive trade between the Quechan peoples, located along the Colorado River, and the mountain and desert Kumeyaay who lived in the Peninsular Range and the general project area (Wirth Associates 1981). Carrizo and In-Ko-Pah Gorges were used as trade routes (BLM 1980). The foot traffic that came near the area on the trade routes also acts to increase the probability that cultural resources will be found in the project site.

1.3 Applicable Regulations

Various federal, state, and local regulations are applicable to projects located within San Diego County. These regulations are used to assess cultural resources, address adverse impacts to cultural resources, and identify protection measures for these resources. Applicable regulations for addressing these concerns and for determining resource significance include CEQA, the San Diego County Local Register of Historical Resources (Local Register), and the San Diego County Resource Protection Ordinance (RPO). The following sections describe the criteria that a resource must meet to be determined a significant resource or an important resource under each guideline.

1.3.1 California Environmental Quality Act

A cultural resource is considered "historically significant" under CEQA if the resource meets the criteria for listing in the California Register of Historical Resources (CRHR). The CRHR was designed to be used by state and local agencies, private groups, and citizens to identify existing historical resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR (Public Resources Code §§5024.1, Title 14 CCR, Section 4852). A resource is considered significant if it:

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

1.3.2 San Diego County Local Register of Historical Resources

The County requires that a resource be assessed for importance at the local level as well as the state level. If a resource meets any one of the criteria outlined in the Local Register, it will be considered important. The criteria are as follows (County of San Diego 2007b):

1. Is associated with events that have made a significant contribution to the broad patterns of San Diego County's history and cultural heritage;
2. Is associated with the lives of persons important to the history of San Diego County or its communities;

3. Embodies the distinctive characteristics of a type, period, San Diego County region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value; or

4. Has yielded, or may likely yield, information important in prehistory or history.

1.3.3 Resource Protection Ordinance

The County's RPO protects significant cultural resources. The RPO definition of a "Significant Prehistoric or Historic Site" is as follows (County of San Diego 2007b):

> Location of past intensive human occupation where buried deposits can provide information regarding important scientific research questions about prehistoric or historic activities that have scientific, religious or other ethnic value of local, regional, State or Federal importance. Such locations shall include, but not limited to: any prehistoric or historic district, site, or object included in or eligible for inclusion in the National Register of Historic Places or the State Landmark Register; or included or eligible for inclusion, but not previously rejected, for the San Diego County Historical Site Board List; any area of past human occupation located on public or private lands where important prehistoric or historic activities and/or events occurred; and any location of past or current sacred, religious or ceremonial observances protected under Public Law 95-341, the American Indian Religious Freedom Act or Public Resources Code Section 5097.9, such as burial(s), pictographs, petroglyphs, solstice observatory sites, sacred shrines, religious ground figures, and natural rocks or places which are of ritual, ceremonial, or sacred value to any prehistoric or historic ethnic group.

The RPO does not allow nonexempt activities or uses damaging to significant prehistoric or historic lands on properties under County jurisdiction. The only exempt activity is scientific investigations authorized by the County. All discretionary projects are required to be in conformance with applicable County standards related to cultural resources, including the noted RPO criteria on prehistoric and historic sites.

2.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

Section 15064.5(b) of the State CEQA Guidelines identifies adverse environmental impacts to historical resources. The County has prepared guidelines for determining the significance of environmental impacts to cultural resources, based on CEQA and the County RPO. Pursuant to the County of San Diego Guidelines for Determining Significance – Cultural Resources: Archaeological and Historical Resources (2007b), any of the following will be considered a significant impact to cultural resources:

1. The project, as designed, causes a substantial change in the significance of a historical resource as defined in §15064.5 of the State CEQA Guidelines. This shall include the destruction, disturbance or any alterations of characteristics or elements of a resource that cause it to be significant in the manner not consistent with the Secretary of Interior Standards.
2. The project, as designed, causes a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 of the State CEQA Guidelines. This shall include the destruction or disturbance of an important archaeological site or any portion of an important archaeological site that contains the potential to contain information important to history or prehistory.
3. The project, as designed, disturbs any human remains, including those interred outside formal cemeteries.
4. The project proposes non-exempt activities or uses damaging to, and fails to preserve, significant cultural resources as defined by the Resource Protection Ordinance and fails to preserve those resources.

3.0 RESEARCH DESIGN

The following Phase I investigation plan, developed in coordination with and approved by the County of San Diego, was designed to assess prehistoric sites CA-SDI-6119, CA-SDI-19488, CA-SDI-19490, and CA-SDI-19493. The sites are located within the area designated for the development of two gen-tie alternatives, consisting of either 500-kV single circuit line towers (alternative A1) or double circuit 230-kV towers (alternative A2), associated facility and circuit line access roads, and construction staging areas for the proposed project and will be subject to impacts during construction. Site CA-SDI-19494 is also subject to indirect impacts posed by the proposed project. In the absence of mitigation of impacts through avoidance by placing the sites in an open space easement, the County of San Diego determined that these five sites required archaeological significance testing.

This investigation was intended to ascertain the presence or absence of subsurface cultural deposits and, if present, the horizontal and vertical extents (depths) of such deposits as well as a general idea of their content.

CA-SDI-6119

Site CA-SDI-6119 was originally recorded in 1976 as a probable quarry area measuring 200 x 100 m with a single agave roasting pit located east of Old Highway 80, at an elevation of 3,120 ft amsl. At that time, erosion of the alluvial soils from flooding was noted. Numerous flakes, cores, and retouched flakes were observed; no stone tools were identified. Intensive pedestrian survey efforts for the proposed Option A access road alignment found that the site contains a broad lithic scatter of metavolcanic, volcanic, quartz, and quartzite flakes and cores; the roasting pit was not relocated.

CA-SDI-19488

This resource consists of a lithic reduction area with cores, over 50 flakes, debitage, and battered implements. Lithic materials include quartz, rhyolite, and felsite. The site measures 45 m x 80 m in area. The site is situated at 3,273 ft amsl on an alluvial fan with a seasonal, intermittent stream running east-west through the project area located approximately 225 m to the south.

CA-SDI-19490

This resource consists of a lithic reduction area with a rhyolite core fragment and several rhyolite and quartz flakes. The site measures approximately 15 m x 15 m at an elevation of 3,293 ft amsl. A seasonal, intermittent stream running east-west through the project area sits approximately 300 m to the south.

CA-SDI-19493

This resource consists of a lithic scatter with a groundstone implement and single ceramic sherd. Within the site are approximately 70 quartz flakes, one quartz core, two rhyolite cores, approximately 25 rhyolite flakes, one rhyolite hammerstone, one probable mano, and one brownware body sherd. Measuring 45 m x 60 m, the site is located at an elevation of 3,280 ft amsl. A seasonal, intermittent stream running east-west through the project area sits approximately 275 m to the south.

CA-SDI-19494

This resource consists of one rhyolite flake, more than five quartz flakes and more than two felsite flakes. The site is located at an elevation of 3,249 ft amsl, and a seasonal, intermittent stream running east-west through the project area lies approximately 400 m to the south.

Proposed Testing Plan

In consultation with the County of San Diego, the proposed testing plan consists of the following field (Figure 1 attached) and laboratory methods outlined below.

Field Methods

Site Mapping

The sites were mapped using a submeter global positioning system (GPS). All features, shovel test pits (STPs), and test excavation units (TEUs) were mapped and documented. A central site datum for each resource was established during the testing and mapped with the GPS. STPs and TEUs were provenienced with reference to the site datum. A subdatum was established in any loci within each site. Existing Department of Parks and Recreation (DPR) site records were updated as appropriate and included as an appendix in the testing and evaluation report.

Photographic records were kept documenting the progress of the evaluation program. This will include general overviews; unit profiles; and views of site excavation, features, and unusual stratigraphic changes. Photographs were taken and a photographic log was kept to document orientation and subject matter by type of collection and level.

Shovel Test Pits

CA-SDI-6119

Due to the extremely sparse nature of the surface deposit of CA-SDI-6119, diagnostic surface artifacts were collected, and 18 STPs were placed at 50-m intervals along an established grid (with a focus along the existing roadway proposed for road

improvements) to determine the presence or absence of archaeological deposits at the site and determine site boundaries. The STPs measured 30 cm in diameter and were excavated in 10-cm levels to culturally sterile sediments or a maximum depth of 30 cm. Soil removed from the STPs was dry-screened through 1/8-inch mesh and all cultural materials retained for analysis. Each STP was completely backfilled on completion.

CA-SDI-19488

Due to the extremely sparse nature of the surface deposit of CA-SDI-19488, surface artifacts were recorded and collected, and 6 STPs were placed at 50-m intervals along an established grid to determine the presence or absence of subsurface deposits and to determine site boundaries. The STPs measured 30 cm in diameter and were excavated in 10 cm levels to culturally sterile sediments or a maximum depth of 30 cm. Soil removed from the STPs was dry-screened through 1/8-inch mesh and all cultural materials retained for analysis. Each STP was completely backfilled on completion.

CA-SDI-19490

Due to the extremely sparse nature of the surface deposit of CA-SDI-19490, surface artifacts were recorded and collected, and 3 STPs were placed at 50-m intervals along an established grid to determine the presence or absence of subsurface deposits and to determine site boundaries; the easternmost is within the boundary of nearby site CA-SDI-19492. The STPs measured 30 cm in diameter and were excavated in 10 cm levels to culturally sterile sediments or a maximum depth of 30 cm. Soil removed from the STPs was dry-screened through 1/8-inch mesh and all cultural materials retained for analysis. Each STP was completely backfilled on completion.

CA-SDI-19493

To determine the presence or absence of archaeological deposits at CA-SDI-19493, and 6 STPs were placed at 20-m intervals along an established grid. The STPs measured 30 cm in diameter and were excavated in 10-cm levels to culturally sterile sediments or a maximum depth of 30 cm. Soil removed from the STPs was dry-screened through 1/8-inch mesh and all cultural materials retained for analysis. Each STP was completely backfilled on completion. One additional STP was placed approximately 50 m east of the site boundary.

CA-SDI-19494

Due to the extremely sparse nature of the surface deposit of CA-SDI-19488, surface artifacts were recorded and collected, and 5 STPs were placed at 50-m intervals along an established grid to determine the presence or absence of subsurface deposits and to determine site boundaries. The STPs measured 30 cm in diameter and were excavated in 10 cm levels to culturally sterile sediments or a maximum depth of 30 cm.

Soil removed from the STPs was dry-screened through 1/8-inch mesh and all cultural materials retained for analysis. Each STP was completely backfilled on completion.

Test Excavation Units

When a subsurface deposit was encountered at a site, one TEU was excavated at that site to sample the subsurface deposit. The TEU measured 1 m by 1 m and was hand-excavated in 10-cm levels to culturally sterile sediments or a maximum depth of 1 m. Soil removed from the TEU was dry-screened through 1/8-inch mesh and all cultural materials retained for analysis. The unit was documented in a standard unit notebook and was completely backfilled on completion. Sidewall profiles were drawn, depicting and describing the stratification of soil in each unit.

Laboratory Processing

Upon arrival at the laboratory, the collections were checked in and segregated into materials to be washed and not washed. Materials such as lithic debitage, faunal remains, and ceramics were washed. All of the recovered materials was described, counted, measured, and weighed, and the data entered into a computerized cataloging system (Paradox or comparable software). Catalog entries were arranged according to provenience. Numbers were assigned to artifacts based on their classification. After cataloging, the materials are stored in archival plastic bags labeled with permanent ink.

Artifact Analysis

Analysis of the artifact collection focused on basic characterization of the materials recovered, as appropriate, to determine their applicability to identified research issues. Artifacts were described and cataloged. Lithic debitage were characterized according to basic parameters (material type, size and reduction stage), while groundstone was analyzed according to type, material, size, and degree of wear. Diagnostic artifacts such as projectile points or beads were categorized according to established typologies.

Radiocarbon Dating

If recovered during excavation, samples of charcoal from the site loci would be submitted to Beta Analytic, Inc. for dating by standard radiocarbon assay or, for small samples, Accelerator Mass Spectrometry. Samples recovered would be from concentrations inferred to represent cultural activity, and either directly from the deposit or from bulk soil samples.

Curation

In consultation with the County and the property owner, it is anticipated the collection will be permanently curated at the San Diego Archaeological Center. The San Diego Archaeological Center offers curatorial services that meet state and federal standards.

4.0 ANALYSIS OF PROJECT EFFECTS

4.1 Survey Methods

4.1.1 Survey Methods

E&E staff members Sandra Pentney, Heather Thomson, and Gloriella Cardenas conducted pedestrian archaeological and historical survey investigations on March 17, and 18, 2008, with additional survey conducted on March 31, 2008. Approximately 69.25 acres were surveyed as part of the currently proposed project. Subsequently, ESJ U.S. contracted EDAW, Inc. to incorporate the results of E&E's survey into a County-format cultural resources report and to conduct additional surveys of approximately 2.56 acres of proposed Option A access road right-of-way extending from Old Highway 80 to the proposed transmission lines. Under the direction of Stacey C. Jordan, Ph.D., EDAW archaeologists Nick Doose and Brian Spelts conducted additional pedestrian survey of the existing access road alignment on April 3, 2009 and Stacey Jordan and Cheryl Bowden-Renna conducted pedestrian survey of the newly proposed Option A access road alignment on April 22, 2009. EDAW archaeologists Wayne Glenny and Tiffany Contreras also conducted a pedestrian survey of approximately 2.00 acres for the newly proposed Option B access road alignment on June 2, 2010.

Stacey C. Jordan, Ph.D. prepared the County-format report based on the findings of the EDAW survey and previous E&E documentation (E&E 2009). Resumes of key EDAW personnel are provided in Appendix B.

Intensive pedestrian archaeological survey of the original 69.25 acres of the project APE was conducted in continuous parallel 10 m transects walked in an east/west direction. Visibility was good to fair with approximately 20-30% of the project area partially obscured by ground cover in the form of dry grasses and cacti. All sites were recorded in the field with a global positioning system (GPS) unit, either by establishing a datum point for the site or taking a point at a feature or artifact. Each GPS-recorded item was assigned a record number for data tracking and this number was written on a data-recording sheet. For each new site, California State Parks Department of Parks and Recreation (DPR) 523 site forms were generated. One or more photographs were taken of each site or isolate, and the view recorded on a DPR 523 photo log form (DPR 523-I).

The additional survey of 2.56 acres of the Legal Property Access Road alignment was conducted in 5 to 10 m transects following the roadway alignment, including a buffer of 20' on either side of centerline, as vegetation permitted. Visibility was excellent, with areas outside the roadbed partially obscured by vegetation. Aerial photographs were used in relocating previously identified site CA-SDI-6119. The additional survey of the approximately 2.00 acres of route for Route PA Option B was conducted in 5 to 10 m transects following the roadway alignment.

A submeter GPS unit was used to record the location of newly identified and previously identified sites. For each new site, California State Parks DPR 523 site forms were generated and an update provided for the single relocated site. A visual inspection was conducted at each site, to confirm or expand previously established site boundaries, to determine if any recent disturbances have occurred, and to confirm whether these sites were within the current project.

Seventeen cultural resources are located within the project APE. One previously recorded site, CA-SDI-6119, was relocated and updated during the access road survey efforts. This resource consists of a probable quarry site consisting of a lithic reduction area and roasting pit. Ten previously unidentified archaeological sites were recorded. Newly recorded archaeological sites consist of six lithic reduction areas, two lithic scatters, one lithic reduction area with associated ceramics, and one ceramic scatter. Six new isolates were also identified within the proposed project's APE (see Section 3.2 below). The County identifies isolates as "Not Important" resources requiring no work beyond appropriate documentation and discussion in the current report. No historical resources were identified in the proposed project area.

DPR forms for newly recorded sites, site updates, and resources identified as part of the SCIC and SIC records searches are included in Appendix C (bound separately). All site forms for newly recorded and updated resources have been submitted to the SCIC, and Primary Numbers and Trinomials were issued on September 1, 2009.

4.1.2 Native American Consultation

As part of this investigation, EDAW contacted the NAHC via fax on March 19, 2009, to solicit a Sacred Lands file search and request a list of Native American contacts for the proposed project. A response from the NAHC was received on March 27, 2009. The NAHC indicated that there are known Native American cultural resources within or in the vicinity of the project area. At the request of the County, the NAHC response and appended Native American Contact list was forwarded to County Archaeologist Heather Kwiatkowski for the purposes of government-to-government consultation under CEQA. Also at the request of the County, EDAW staff member Cheryl Bowden-Renna contacted Native American representatives Mr. Clint Linton, Kumeyaay, and Mr. Preston Arrow-weed, Quechan, by telephone on April 2, 2009, to notify them of the access road alignment alternatives survey and solicit their participation; both declined participation in the survey. Native American correspondence is included in confidential Appendix D.

4.2 Survey Results

Together, the E&E and EDAW field surveys resulted in the identification and/or relocation of seventeen cultural resources within the proposed project's APE (Table 5; Figures 4a and 4b, Appendix E - bound separately). One previously recorded site, CA-SDI-6119, was relocated and updated during survey efforts for the Legal Property Access Road alignment. Ten previously unidentified archaeological sites were recorded. Newly

recorded archaeological sites consist of six lithic reduction areas, two lithic scatters, one lithic reduction area with associated ceramics, and one ceramic scatter. Six new isolates were also identified. Permanent trinomial and P- numbers have been assigned by SCIC.

Table 5. Cultural Resources Within the ESJ Gen-Tie APE

Trinomial/Primary No.	Site Type
Sites	
CA-SDI-6119	Lithic reduction area, roasting pit
CA-SDI-19480	Lithic reduction area
CA-SDI-19484	Lithic reduction Area
CA-SDI-19485	Ceramic scatter
CA-SDI-19486	Lithic reduction area
CA-SDI-19488	Lithic reduction area
CA-SDI-19489	Lithic reduction area
CA-SDI-19490	Lithic scatter
CA-SDI-19492	Lithic reduction area
CA-SDI-19493	Lithic reduction area, ceramic sherd
CA-SDI-19494	Lithic scatter
Isolates	
P-37-30670	Historic lead ball isolate
P-37-30672	Lithic isolate
P-37-30673	Lithic isolate
P-37-30674	Ceramic isolate
P-37-30675	Lithic isolate
P-37-30678	Lithic isolate

4.2.1 Sites Within the APE

CA-SDI-6119

Site CA-SDI-6119 was originally recorded in 1976 as a probable quarry area measuring 200 x 100 m located east of Old Highway 80, at an elevation of 3,120 ft amsl (see Appendix C – bound separately). At that time, erosion of the alluvial soils from flooding was noted. Numerous flakes, cores, and retouched flakes were observed; no stone tools were identified. Survey efforts for the existing and proposed Option A and Option B access road alignments found that the site contains a broad lithic scatter of metavolcanic, volcanic, quartz, and quartzite flakes and cores. The site boundary encompasses portions of both the proposed Option A access road and the newly proposed Option B access road. DPR 523 Primary and Location map updates are attached in Confidential Appendix C (bound separately).

FIGURE 4a

CULTURAL RESOURCES WITHIN OR ADJACENT TO THE PROJECT AREA (ROUTES A1 AND A2)
(Confidential – Bound Separately)
See Appendix E

FIGURE 4b

CULTURAL RESOURCES WITHIN OR ADJACENT TO THE PROJECT AREA (ALTERNATIVE ROUTES D1 AND D2)
(Confidential – Bound Separately)
See Appendix E

CA-SDI-19480

This resource consists of one quartz core, one quartz scraper, and two or more flakes in a 5 m diameter area. The site is situated on the south side of a west trending finger ridge at an elevation of 3,242 ft amsl. Vegetation observed within the project area includes scrub oak, yucca, agave, ephedra, opuntia and native grasses. A seasonal, intermittent drainage running east-west through the project area is located approximately 500 m to south.

CA-SDI-19484

This resource consists of a lithic scatter with two rhyolite flakes and a core in a 30 m x 20 m area. The site is located at an elevation of 3,258 ft amsl. A seasonal, intermittent drainage running east-west through the project area is adjacent approximately 100 m to the south.

CA-SDI-19485

This ceramic scatter is comprised of approximately seven Tizon brownware body sherds from a vessel with a constricted neck. The site measures 15 m x 15 m and sits at an elevation of 3,309 ft amsl. A seasonal, intermittent drainage running east-west through the project area lies approximately 250 m to the north.

CA-SDI-19486

This site consists of a lithic reduction area with approximately 30 quartz flakes and one quartz core in a 10 m x 7 m area. Sitting at an elevation of 3,322 ft amsl, the site lies approximately 100 m north of a seasonal, intermittent drainage running east-west through the project area.

CA-SDI-19488

This resource consists of a lithic reduction area with cores, over 50 flakes, debitage, and battered implements. Lithic materials include quartz, rhyolite, and felsite. The site measures 45 m x 80 m in area. The site is situated at 3,273 ft amsl on an alluvial fan with a seasonal, intermittent drainage running east-west through the project area located approximately 225 m to the south.

CA-SDI-19489

This site is comprised of a lithic reduction area with two quartz core fragments and approximately 10 flakes. It sits at 3,321 ft amsl, with a seasonal, intermittent drainage running east-west through the project area located approximately 175 m to the south.

CA-SDI-19490

This resource consists of a lithic reduction area with a rhyolite core fragment and several rhyolite and quartz flakes. The site measures approximately 15 m x 15 m at an elevation of 3,293 ft amsl. A seasonal, intermittent drainage running east-west through the project area sits approximately 300 m to the south.

CA-SDI-19492

This site consists of one quartz core and approximately 25 quartz flakes located on a boulder-strewn finger ridge at an elevation of 3,313 ft amsl. A seasonal, intermittent drainage running east-west through the project area lies 225 m to the south.

CA-SDI-19493

This resource consists of a lithic scatter with a groundstone implement and single ceramic sherd. Within the site are approximately 70 quartz flakes, one quartz core, two rhyolite cores, approximately 25 rhyolite flakes, one rhyolite hammerstone, one probable mano, and one brownware body sherd. Measuring 45 m x 60 m, the site is located at an elevation of 3,280 ft amsl. A seasonal, intermittent drainage running east-west through the project area sits approximately 275 m to the south.

CA-SDI-19494

This resource consists of one rhyolite flake, more than five quartz flakes and more than two felsite flakes. The site is located at an elevation of 3,249 ft amsl, and a seasonal, intermittent drainage running east-west through the project area lies approximately 400 m to the south.

4.2.2 Isolates Within the APE

P-37-30670

This isolate consists of a round metal ball approximately 5 cm in diameter and stamped with the number “2”. Located at an elevation of 3,228 ft amsl, this item sits 125 m north of a dirt roadway. The function of this item is as yet undetermined; it may be related to mining or railroad operations.

P-37-30672

This isolate consists of a single quartz flake located at an elevation of 3,360 ft amsl, approximately 100 m north of the U.S.-Mexico border and 350 m south of a seasonal, intermittent drainage running east-west through the project area.

P-37-30673

This resource consists of a single rhyolite flake approximately 225 m south of a seasonal, intermittent drainage running east-west through the project area at an elevation of 3,340 ft amsl.

P-37-30674

This isolate consists of a single thick, gray potsherd located at an elevation of 3,332 ft amsl, approximately 125 m south of a seasonal, intermittent drainage running east-west through the project area.

P-37-30675

This resource consists of a single large rhyolite primary flake located at an elevation of 3,307 ft amsl, approximately 100 m north of a seasonal, intermittent drainage running east-west through the project area.

P-37-30678

This isolate consists of a single hammerstone located at an elevation of 3,260 ft amsl, approximately 300 m north of a seasonal, intermittent drainage running east-west through the project area.

4.3 Testing Methods

Site testing was conducted between December 14 through December 16, 2009 and surface collection of diagnostic artifacts at CA-SDI-6119 was conducted on January 20, 2010. Testing proceeded according to the general field methods described in the testing plan for sites CA-SDI-6119, CA-SDI-19488, CA-SDI-19490, CA-SDI-19493, and CA-SDI-19494 (Figures 5a and 5b – see Appendix E). Native American representatives Mr. Linton and Mr. Arrow-weed were contacted by telephone on February 3, 2010 to consult regarding the testing program and findings. A message was left for Mr. Linton and, as a result of the discussion with Mr. Arrow-weed, EDAW forwarded Mr. Arrow-weed information on the findings, a project description, a location map, and a response form for any additional comments or questions. Mr. Linton was reached on February 8, 2010 and declined to participate (see Appendix 4 for contact program communication log). Copies of any additional communications received from Native American representatives will be forwarded to the County upon receipt.

4.3.1 Field Methods

The sites were mapped using a submeter global positioning system (GPS). All features, STPs, and TEUs were mapped and documented. A central site datum for each

FIGURE 5a

CULTURAL RESOURCES SUBJECTED TO TESTING
(ROUTES A1 AND A2)
(Confidential – Bound Separately)
See Appendix E

FIGURE 5b

CULTURAL RESOURCES SUBJECTED TO TESTING
(ALTERNATIVE ROUTES D1 AND D2)
(Confidential – Bound Separately)
See Appendix E

resource was established during the testing and mapped with the GPS. STPs and TEUs were provenienced with reference to the site datum and any loci within each site also have a subdatum established. STPs measured 30 cm diameter and were excavated in 10 cm arbitrary levels, to a minimum depth of 30 cm or until sterile sediments or bedrock was encountered. All excavated soil was passed through 1/8-inch mesh hardware cloth and all cultural materials were collected. Cultural materials were separated into artifact and ecofact categories; bagged and labeled by 10 cm level; and taken to EDAW's processing facility for cleaning, cataloging, analysis, and temporary curation.

During testing, each site was resurveyed to examine potential changes in observable boundaries. In the case of CA-SDI-6119, surface examination continued northwest of the site to Interstate 80 to encompass any potential redesigns of the project access road. At the County's request, diagnostic artifacts were collected from the surface of CA-SDI-6119.

One TEU was excavated at CA-SDI-6119. The TEU consisted of a 1–m-by-1-m unit oriented to true north and excavated in arbitrary 10 cm levels from the surface contours. The excavation was terminated when sterile subsoil or bedrock was encountered. All excavated soil passed through 1/8-inch mesh hardware cloth and all artifacts retained in the screens were collected. Stratigraphic profiles were photographed and drawn. Soil samples were taken for each sediment unit encountered in the excavation.

Level sheets were recorded for each level of the excavated STPs and TEUs detailing the field observations for that section of the STP or TEU including preliminary counts of cultural materials. Recovered items were separated into artifact and ecofact categories; bagged and labeled by unit type and 10 cm level; and taken to EDAW for cleaning, cataloging, analysis, and temporary curation.

Photographic records were kept to document the progress of the testing phase. These included general overviews; unit profiles; and views of the site excavation, features, and unusual stratigraphic changes. Digital photographs were taken and photographic logs were kept to document orientation and subject matter. GPS points were taken for all STPs and TEUs using a submeter GPS unit.

4.3.2 Analytical Methods

Identification and cataloging of artifactual materials was completed by EDAW technicians under the direction of the project archaeologist. A standard system of cataloging cultural material was used to document the recovered artifacts. When appropriate, items were washed and separated by class, prior to cataloging.

Each artifact or group of artifacts was counted, weighted, and/or measured and given consecutive catalog numbers. Each item was analyzed for specific attributes particular to that artifact class. A computerized master catalog was created in a database program

and is included in Appendix B. The master catalog includes the results from both the testing and evaluation phase and the data recovery program. All items were divided into typological categories and placed in appropriately labeled archival boxes for temporary storage at EDAW.

4.3.3 Curation

EDAW prepared the recovered materials for permanent curation. Material from this project will be submitted to the San Diego Archaeological Center pursuant to an accession agreement with the County of San Diego.

4.3.4 Results

CA-SDI-6119

Eighteen STPs were placed along transects in relation to the site datum (Figure 6). STPs were labeled based on their coordinates from the datum. Eight of the STPs were positive. After the completion of the STPs, a single 1-by-1-m TEU (95S 80E) was initiated and excavated to 50 cm. A total of 40 pieces of debitage, three pieces of ceramic, 1.2 g of charcoal, 0.6 g of faunal material, and 1.0 g of intrusive material were recovered from the STPs and TEU 1. Surface collection of diagnostics artifacts was conducted and three bifaces, 35 pieces of ceramics, one core, and one tool were collected (Table 6).

Table 6. CA-SDI-6119, Cultural Material Summary by Depth

Depth (cm)	Biface	Ceramic	Core	Debitage	Tool	Charcoal*	Faunal*	Intrusive materials*	Total	Relative Frequency
Surface	3	36	1	5	1			1	46	54.8%
0-10		2		21		1.2			23	27.4%
10-20				12	1		0.6		13	15.5%
20-30				1					1	1.2%
30-40				1					1	1.2%
Total	3	38	1	40	3	1.2	0.6	1	84	
Relative Frequency	3.6%	45.2%	1.1%	47.6%	2.3%					100.0%

*Weight in grams and not included in totals.

Forty pieces of lithic debitage were collected during the testing effort, with 63 percent recovered from the TEU (N=26) and 36 percent recovered from the STPs (N=14). The majority of the debitage assemblage from the testing effort is tertiary (N=29, 68%). Only 10 percent of the assemblage retains some cortex on the dorsal surface (Table 7), suggesting that it is the result cobble core reduction. Metavolcanic material dominates the lithic material recovered. (N=28; 70%), followed by quartz (N=11; 27%). One piece of CCS was recovered from the TEU (Table 8).

FIGURE 6

CA-SDI-6119, EXCAVATION
(Confidential – Bound Separately)
See Appendix E

Table 7. CA-SDI-6119, Cortex Removal by Provenience

Cortex Removal	STP	TEU	Total	Relative Frequency
Primary	3	1	**4**	9.8%
Secondary	5	4	**9**	22.0%
Tertiary	6	21	**29**	68.2%
Total	**14**	**26**	**40**	
Relative Frequency	36.6%	63.4%		**100%**

Table 8. CA-SDI-6119, Debitage Material by Provenience

Material Type	STP	TEU	Total	Relative Frequency
Quartz	1	10	**11**	26.8%
Metavolcanic	13	15	**28**	70.7%
Cryptocrystalline	--	1	**1**	2.5%
Total	**14**	**26**	**40**	
Relative Frequency	36.6%	63.4%		100%

Stratigraphy of TEU 1 was uniformly silty sand with increased compaction as the depth increased (Figure 7). TEU was terminated at 50 cm in sterile soil. Based on the investigations, the horizontal extent of the site remains unchanged. As seen in the vertical distribution of the material recovered, the subsurface deposit is sparse. Further, it appears to reflect alluvial transport and redeposition of material rather than in situ accumulation. Disturbance resulting in alluvial redeposition was visible following heavy rainstorms and observed in process even during the fieldwork effort. In addition, the largest densities of material were recovered near or in active wash areas.

One metavolcanic, single platform, core (artifact number CA-SDI-6119-25) was collected from the surface. Two tools were collected. One is a flaked-based scraper (CA-SDI-6119-32), identified based on the type of flake removal and retouch exhibited. CA-SDI-6119-5 is a modified flake with flake removal exhibited along one edge. Material type for both is metavolcanic.

Three bifaces were collected from the surface. Two are preforms. CA-SDI-6119-1 is complete, and composed of metavolcanic material. CA-SDI-6119 consists of a quartz base and mid-section. CA-SDI-6119-26 consists of the base and mid-section of a possible Desert-side notch projectile point of metavolcanic material.

Thirty-eight ceramic sherds were recovered from CA-SDI-6119, 34 (89%) from the surface collection, one (3%) from STP 80S 100E, and two (5%) from TEU 1. Thirty-one of these are from a single surface collection (SC) locus (SC-5; CA-SDI-6119-28). All sherds were identified as Tizon Brownware, with the exception of CA-SDI-6119-31. This sherd appears to be a desert buffware. It is buff on the exterior of the piece; however, the interior is red. Three rim sherds were recovered from SC-5. Two are small sherds

Figure 7 CA-SDI-6119, TEU 1 North Wall Profile

with a defined lip and slight curvature, indicative of a small vessel. One rim and neck sherd has a defined lip with a moderate curvature of the neck, indicative of a small to moderate olla.

CA-SDI-19488

Five STPs were placed along transects in relation to the site datum (Figures 8a and 8b). STPs were labeled based on their coordinates from the datum. All of the STPs were sterile. No cultural material was collected from this site. Based on the investigations, there is no subsurface deposit at this site.

CA-SDI-19490

Four STPs were placed along transects in relation to the site datum (Figures 8a and 8b). STPs were labeled based on their coordinates from the datum. All of the STPs were sterile. All full site surface collection of artifacts material was conducted. Artifacts included 36 pieces of debitage and one core.

Thirty-six pieces of lithic debitage were collected during the testing effort, all collected from the surface collection. The majority of the debitage assemblage from the testing effort is tertiary (N=30, 83%). Only 3 percent of the assemblage retains some cortex on the dorsal surface (Table 9). This data suggests on-site cobble core reduction, which is common at many prehistoric sites in San Diego County.

Quartz material dominates the lithic material recovered. (N=31; 86%), followed by metavolcanic (N=5, 13%) (Table 10). Based on the investigations, there is no subsurface deposit at this site.

Table 9. CA-SDI-19490, Cortex Removal by Provenience

Cortex Removal	Surface Collection	Relative Frequency
Primary	1	2.8%
Secondary	5	13.8%
Tertiary	30	83.4%
Total	**36**	
Relative Frequency		100%

Table 10. CA-SDI-19490, Debitage Material by Provenience

Material Type	Surface Collection	Relative Frequency
Quartz	31	86.5%
Metavolcanic	5	13.5%
Total	**37**	
Relative Frequency		**100%**

FIGURE 8a

CA-SDI-19488, -19490, -19493, AND -19494, EXCAVATION (ROUTES A1 AND A2)
(Confidential – Bound Separately)
See Appendix E

FIGURE 8b

CA-SDI-19488, -19490, -19493, AND -19494, EXCAVATION (ALTERNATIVE ROUTES D1 AND D2)
(Confidential – Bound Separately)
See Appendix E

CA-SDI-19493

Six STPs were placed along transects in relation to the site datum (see Figures 8a and 8b). STPs were labeled based on their coordinates from the datum. All of the SPTs were sterile. No cultural material was collected from this site. Based on the investigations, there is no subsurface deposit at this site.

CA-SDI-19494

Five STPs were placed along transects in relation to the site datum (sees Figures 8a and 8b). STPs were labeled based on their coordinates from the datum. All of the SPTs were sterile. A full site surface collection of artifacts material was conducted. Artifacts included seven pieces of debitage.

Seven pieces of lithic debitage were retrieved during the testing effort, all from the surface collection, and all reflecting tertiary reduction (Table 11). These data suggest on-site cobble core reduction, which is common at many prehistoric sites in San Diego County. Quartz material dominates the lithic material recovered. (N=5; 71%), followed by metavolcanic (N=2, 29%). Based on the investigation results, there is no subsurface deposit at this site.

Table 11. CA-SDI-19494, Debitage Material by Provenience

Material Type	Surface Collection	Relative Frequency
Quartz	5	71.4%
Metavolcanic	2	28.6%
Total	7	100%

4.3.5 Discussion

Based on the testing results, it appears that sites CA-SDI-19488, CA-SDI-19490, CA-SDI-19493, and CA-SDI-19494 are surface lithic scatters with no subsurface components. No diagnostic materials were recovered from these sites. Further, based on surface artifact distribution at and between CA-SDI-19490 and CA-SDI-19493, and the close proximity (less than 20 m) of CA-SDI-19492, these sites have been combined into one larger surface scatter, CA-SDI-19490. This does not change the testing results as both CA-SDI-19492 and CA-SDI-19493 have demonstrated a lack of a subsurface deposit (Figures 9a and 9b). An STP placed within the boundary of CA-SDI-19492 as part of testing efforts at CA-SDI-19490 indicated that this resource lacked a subsurface component.

FIGURE 9a

CULTURAL RESOURCES TESTING RESULTS
(ROUTES A1 AND A2)
(Confidential – Bound Separately)
See Appendix E

FIGURE 9b

CULTURAL RESOURCES TESTING RESULTS (ALTERNATIVE ROUTES D1 AND D2)

(Confidential – Bound Separately)

See Appendix E

Site CA-SDI-6119 contains a shallow subsurface deposit. Diagnostic artifacts are limited to two performs, one possible (broken) Desert Side-notch point, and ceramics, which point to Late Prehistoric origins for the cultural material. The subsurface deposit, however, is limited to almost exclusively the upper 20 cm, and appears to be disturbed by alluvial action.

5.0 INTERPRETATION OF RESOURCE IMPORTANCE AND IMPACT IDENTIFICATION

5.1 Resource Importance

The cultural resources survey conducted for the ESJ U.S. Gen-Tie Project resulted in the documentation of ten unrecorded archaeological sites and the re-identification of one previously recorded archaeological site, CA-SDI-6119 within the proposed project APE.

Prehistoric cultural uses of the APE are suggested by the observable archaeological data. Lithic reduction areas reflect the use of diverse raw materials. Quartz was the predominant raw material at many of the sites and, although no quartz bedrock outcroppings are present in the project area, outcroppings of quartz are present in the vicinity. Much of the observed material was metavolcanic and volcanic. The nearby Table Mountain Archaeological District was used as a cobble quarry for volcanic rock cobbles (Laylander 2005a). Alluvium from Table Mountain has carried porphyritic andesites into the project area, making fine-grained volcanic raw materials available for stone tool production.

Lithic artifacts, primarily debitage, comprise the most abundant artifact type recorded find in the project area. It is possible that some of the flakes present in the project area also served as expedient tools – flakes that are picked up, used to perform an immediate task, and then discarded after use. In contrast, only one possible groundstone artifact was observed in the project APE, consisting of a probable mano at site CA-SDI-19493. The dearth of groundstone is not surprising considering that the project site is located in the alluvial floodplain west of a hill comprised of many bedrock outcroppings. It is expected that bedrock milling features would be present in those outcroppings and that few of the portable groundstone tools associated with milling activities would have made their way to the floodplain.

While no diagnostic lithic artifacts were found to place the archaeological sites chronologically, the presence of Tizon Brownware in the project area indicates its use during the Late Prehistoric. The date of the first appearance of ceramics in San Diego County is a debated issue (Laylander 2005b), however it is generally acknowledged that ceramics are a marker of the Late Prehistoric period.

Only one historic artifact was observed in the project APE. This unidentified isolate is a lead sphere approximately five centimeters in diameter stamped with the number “2”. E & E archaeologists conferred with various colleagues who have suggested that the artifact may have been associated with railway operations, historic mining, historic munitions, or served as a gate weight (Branstner 2008, May 2008, Serr 2008, Wayne 2008, Gojak 2008, Hangan 2008). To date, no positive identification for the artifact has been found.

Five of the sites within the APE (CA-SDI-6119, CA-SDI-19488, CA-SDI-19490, CA-SDI-19493, and CA-SDI-19494) have been tested and no longer have the potential to yield important information. The six remaining sites identified within the project APE have not been formally tested for CEQA or RPO significance and have the potential to yield information, they are all considered "important" resources under County guidelines. The County identifies isolates as "not important" resources requiring no work beyond appropriate documentation and discussion. Specific recommendations for the 11 archaeological resources and the six identified isolates within the project APE are outlined below in Table 12.

Table 12. Subsurface Potential for Resources within the APE

Trinomial/ Primary No.	Resource Description	Subsurface Potential?	Recommendation
CA-SDI-6119	Lithic reduction area, roasting pit	Low	Documentation of testing program findings
CA-SDI-19480	Lithic reduction area	Medium	Avoidance
CA-SDI-19484	Lithic reduction Area	Medium	Avoidance
CA-SDI-19485	Ceramic scatter	Medium	Avoidance
CA-SDI-19486	Lithic reduction area	Medium	Avoidance
CA-SDI-19488	Lithic reduction area	Low	Documentation of testing program findings
CA-SDI-19489	Lithic reduction area	Medium	Avoidance
CA-SDI-19490	Lithic scatter	Low	Documentation of testing program findings
CA-SDI-19492*	Lithic reduction area	Low	Documentation of testing program findings
CA-SDI-19493*	Lithic reduction area, ceramic sherd	Low	Documentation of testing program findings
CA-SDI-19494	Lithic scatter	Low	Documentation of testing program findings
P-37-30670	Historic lead ball isolate	Low	Avoidance
P-37-30672	Lithic isolate	Low	Avoidance
P-37-30673	Lithic isolate	Low	Avoidance
P-37-30674	Ceramic isolate	Low	Avoidance
P-37-30675	Lithic isolate	Low	Avoidance
P-37-30678	Lithic isolate	Low	Avoidance

*Now combined with CA-SDI-19490

5.2 Impact Identification

Four archaeological sites, CA-SDI-6119, CA-SDI-19488, CA-SDI-19490, and CA-SDI-19493, have the potential to be directly impacted by project alternatives A1 and A2 (see Figures 4a and 4b, Appendix E – bound separately). One remaining site, CA-SDI-19494, has the potential to be indirectly impacted by project-related construction and maintenance activities.

The footprint of alternative A1 (500kV) will impact lithic scatter CA-SDI-19490 and lithic reduction area CA-SDI-19493. CA-SDI-19490 is located within the footprint of both the proposed access road alignment and a proposed tower location, and CA-SDI-19493 is located within a proposed tower location. Results of the testing program indicated that these sites have no subsurface component and, with CA-SDI-19492, have been combined into a single surface scatter, CA-SDI-19490. Testing and surface collection of this site has exhausted its data potential. As such, the impact to this site is reduced to below a level of significance.

The footprint of alternative A2 (230kV) bisects lithic reduction area CA-SDI-19488. This large site extends approximately 300 feet to the west and 200 feet to the east of the proposed alignment's access road. Results of the testing program indicated that this site has no subsurface component. Testing and surface collection of this site has exhausted its data potential. As such, the impact to this site is reduced to below a level of significance.

Previously recorded site CA-SDI-6119, a large lithic reduction area with an agave roasting pit, faces impacts from both Option A and Option B Legal Property Access Road alignments. Impacts will result from construction of either of the Legal Property Access Road alignments, each of which runs through the length of the site boundary. Results of the testing program indicated that this site has a limited subsurface component, likely redeposited. Testing and surface collection of this site has exhausted it data potential. As such, the impact to this site is reduced to below a level of significance.

While the project as planned does not pose any direct impacts to site CA-SDI-19494, it may be subject to indirect impacts due to project construction activity and inadvertent ground disturbance as a result of its proximity to the proposed project footprint of alternative A2. Results of the testing program indicated that this site has no subsurface component. Testing and surface collection of this site has exhausted it data potential. As such, the impact to this site is reduced to below a level of significance.

No significant impacts to the remaining six sites within the APE are posed by the proposed project's construction or operation activities.

6.0 MANAGEMENT CONSIDERATIONS – MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Archaeological sites are nonrenewable resources. The ideal treatment for cultural resources is avoidance of impacts, and measures to ensure avoidance can be incorporated into project design. If a project is determined to cause damage to a significant cultural resource, reasonable efforts must be made to mitigate the impact to a level below significant.

Upon review and consideration of the original E&E surveys, the ESJ project was redesigned to greatly reduce the transmission line impacts along the north-south ROW construction ROW, and the temporary lay-down/parking/stringing area was consolidated to avoid and/or minimize impacts to cultural resources (see discussion on page 7). Subsequent to these feasible project redesigns, based on the findings in Section 4.2 above, the remaining mitigation measures for the project have been identified.

6.1 Mitigable Impacts

Upon review and consideration of the original E&E surveys, the ESJ project was redesigned to greatly reduce the transmission line impacts along the north-south ROW construction ROW, and the temporary lay-down/parking/stringing area was consolidated to avoid and/or minimize impacts to cultural resources (see discussion on page 7). Subsequent to these feasible project redesigns. The testing program implemented at sites CA-SDI-6119, CA-SDI-19488, CA-SDI-19490, CA-SDI-19493, and CA-SDI-19494, reduced all project impacts to a level below significant. As such, there are no remaining mitigable impacts associated with the proposed project.

6.2 No Significant Adverse Effects

The remaining six sites within the APE – CA-SDI-19480, CA-SDI-19484, CA-SDI-19485, CA-SDI-19486, CA-SDI-19489, and CA-SDI-19492 – will not be impacted by the construction or operation of any of the four proposed project alternatives and can be preserved in open space.

In the event of incidental discoveries during construction activities, each discovery would require significance testing as outlined in the County's Guidelines for Determining Significance (2007b). Any new facility, infrastructure, roadway or staging area for construction or maintenance not shown on the current site plan may require additional survey or, if within previous survey boundaries, further analysis of impacts to cultural resources.

7.0 REFERENCES

Bean, Lowell J., and Florence C. Shipek

1978 Luiseño. In *California*, edited by Robert F. Heizer, pp. 550-563. Handbook of North American Indians, Vol. 8, Smithsonian Institution, Washington D.C.

Branstner, Mark

2008 Personal Communication. Email received December 23, 2008. On file at E & E San Diego.

Bureau of Land Management

1980 *Table Mountain District National Register of Historic Places*. BLM. Submitted to Bureau of Land Management. Unpublished report on file at the South Coastal Information Center.

2007 *Eastern San Diego County Proposed RMP/Final EIS*. Available at: http://www.blm.gov/ca/st/en/fo/elcentro/esdrmp.html.

Chace, Paul G.

1980 *A Cultural Resources Assessment of Jacumba*. Report prepared by Paul G. Chace & Associates for JoJoba Limited and Jacumba Associates, San Diego.

Cline, Lora L.

1984 *Just Before Sunset*. J and L Enterprises, Jacumba, California.

Cook, John. R. and S. G. Fulmer (editors)

1980 *The Archaeology and History of the McCain Valley Study Area, Eastern San Diego County, California, A Class II Cultural Resource Inventory.* Archaeological Systems Management, Inc., San Diego, CA. Unpublished report on file at South Coastal Information Center.

Cook, John R., and Michael Baksh, and Stephen R. Van Wormer

1997 *Jacumba Valley Ranch Cultural Resources Inventory and Evaluation* (Appendix F Cultural Resources Draft Environmental Impact Report for Jacumba Valley Ranch Specific Plan [SP91-003, P91-012, Log #89-22-3]). Report prepared by Mooney & Associates for Jacumba Valley Ranch, San Diego.

Cooley, Theodore G.

2006 *Site Significance Evaluation of Prehistoric Archaeological Site CA-SDI-17,979 Located at a Proposed Restroom Facility in the Jacumba Community Park, San Diego County, California.* Unpublished report on file at the South Coastal Information Center.

Cooley, Theodore G., and Laura J. Barrie
2004 Archaeological Excavations at the Village of Pa'Mu, Ramona Valley, California. *Proceedings of the Society for California Archaeology*. 17:43-46.

County of San Diego
2007a *County of San Diego Report Format and Content Requirements Cultural Resources: Archaeological and Historical Resources.* County of San Diego Land Use and Environmental Group. Department of Planning and Land Use, Department of Public Works.

2007b *County of San Diego Guidelines for Determining Significance Cultural Resources: Archaeological and Historic Resources*. First Revision, December 5, 2007. Land Use and Environment Group, Department of Planning and Land Use, Department of Public Works. Available at: http://www.sdcounty.ca.gov/dplu/docs/Cultural_Guidelines.pdf.

n.d. *County of San Diego Road Maintenance History.* Available at http://www.sdcounty.ca.gov/dpw/organization/roadmainten.html. Retrieved 4/9/09.

Davis, James T.
1961 *Trade routes and Economic Exchange Among the Indians of California*. University of California (Berkeley) Archaeological Survey Report No. 54.

E & E
2009 *Cultural Resources Investigations for Energia Sierra Juarez Gen-Tie Project, Jacumba, California.* Prepared by Ecology and Environment, Inc. for Energia Sierra Juarez U.S. Transmission, LLC.

Gojak, Denis
2008 Personal Communication. Email received February 4, 2008. On file at E & E San Diego.

Grayson, Donald K.
1993 *The Desert's Past: A Natural Prehistory of the Great Basin*. Smithsonian Institution Press, Washington, D.C.

Hangan, Margaret
2008 Personal Communication. Email received February 4, 2008. On file at E & E San Diego.

Hayden, Julian D.
1976 Pre-Altithermal Archeology in the Sierra Pinacate, Sonora, Mexico. *American Antiquity* 41:274-289.

Hedges, Ken
1970 *An Analysis of Diegueño Pictographs*. Unpublished Master's thesis, Department of Anthropology, San Diego State University, San Diego, California.

Laylander, Don
2005a *Lithic Quarrying. Research Issues in San Diego Prehistory*. Available at: http://home.earthlink.net/~researchissues/.

2005b *Chronology: Tizon Brownware. Research Issues in San Diego Prehistory*. Available at: http://home.earthlink.net/~researchissues/.

May, R. V.
1976 *Hwi-Nip-Shish: A Settlement and Land Use Pattern Model for the Table Mountain Complex Near Jacumba, California*, pp. 108, San Diego, CA.

2008 Personal Communication. Email received February 5, 2008. On file at E & E San Diego.

McGuire, Randall H.
1982 Problems in Culture History: The Patayan Root. In *Hohokam and Patayan: Prehistory of Southwestern Arizona*, edited by Randall H. McGuire and Michael B. Schiffer, pp. 216-222, Academic Press, New York.

Meighan, Clement W.
1954 A Late Complex in Southern California Prehistory. *Southwestern Journal of Anthropology* 10(2):215-227.

Moratto, M. J.
1984 *California Archaeology*. Academic Press, Inc., Orlando.

Moriarty, James R. III
1966 Cultural Phase Divisions Suggested by Typological Change Coordinated with Stratigraphically Controlled Radiocarbon Dating in San Diego. *The Anthropological Journal of Canada* 4(4):20-30.

1967 Transitional Pre-Desert Phase in San Diego County. *Science*, 155-37-62.

1968 The Environmental Variations of the Yuman Area of Southern California, Parts I and II. *Anthropological Journal of Canada* 6(2):1-20 and 6(3):9-23.

NRCS
2007 Soil Survey for San Diego County Area, California (CA 638).

Office of Historic Preservation (OHP)
1989 *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format*. Department of Parks and Recreation, Sacramento.

Pourade, Richard F.
1963 *The History of San Diego: The Silver Dons*. San Diego Union-Tribune Publishing Company, San Diego, California.

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

1945 Outline of Yuman Prehistory. *Southwestern Journal of Anthropology* 1:167-198.

Schaefer, Jerry
1994 The Challenge of Archaeological Research in the Colorado Desert: Recent Approaches and Discoveries. *Journal of California and Great Basin Anthropology* 16(1):60-80.

Schroeder, A. H.
1975 *The Hohokam, Sinagua, and the Hakataya*. Occasional Paper 3, Imperial Valley College Museum Society, El Centro.

1979 Prehistory: Hakataya. In *Southwes*t, edited by Alfonso Ortiz, pp. 100-107. Handbook of North American Indians, Vol. 9, W. C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Serr, Carol
2008 Personal Communication. Email received February 5, 2008. On file at E & E San Diego.

Shipek, Florence C.
1991 *Delfina Cuero: Her Autobiography, An Account of her Last Years and Her Ethnobotanic Contributions*. Ballena Press, Menlo Park, California.

Strand, Rudolf G.
1962 Geologic Map of California, San Diego-El Centro Sheet. California Division of Mines and Technology, Sacramento.

Sullivan, Susan
1977 James McCoy: Lawman and Legislator. *Journal of San Diego History* 23(4).

True, D. L.
1958 An Early Complex in San Diego County, California. *American Antiquity* 23(3):255-263.

1970 *Investigations of a Late Prehistoric Complex in Cuyamaca Rancho State Park, San Diego County, California*. University of California (Los Angeles) Archaeological Survey Monographs 1.

1980 The Pauma Complex in Northern San Diego County: 1978. *The Journal of New World Archaeology* 3(4):1-39.

Underwood, Jackson and Carrie Gregory
2006 *Cultural Resources Survey of La Posta Mountain Warfare Training Facility San Diego, California*. Unpublished report on file at the South Coastal Information Center.

Warren, Claude N.
1984 The Desert Region. In *California Archaeology*, edited by Michael J. Moratto, pp. 339-430, Academic Press, New York.

Warren, Claude N., and Robert H. Crabtree
1986 Prehistory of the Southwestern Area. In *Great Basin*, edited by Warren L. D'Azevedo, pp. 183-193. *Handbook of North American Indians*, Vol. 11, W. C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Warren, Claude N., and H. T. Ore
1978 Approach and Process of Dating Lake Mojave Artifacts. *Journal of California Anthropology* 5(2):179-187.

Walawender, M. J. and B. B. Hanan (editors)
1991 *Geological Excursions in Southern California and Mexico.* Department of Geological Sciences, San Diego State University, San Diego, CA.

Waters, Michael R.
1982 The Lowland Patayan Ceramic Tradition. In *Hohokam and Patayan, Prehistory of Southwestern Arizona,* edited by Randall H. McGuire and Michael B. Schiffer, pp. 275-297. Academic Press, New York.

Wayne, Lucy
2008 Personal Communication. Email received February 4, 2008. On file at E & E San Diego.

Weather Channel
2009 Local Weather: Monthly Averages for Jacumba, CA. Accessed 4/24/09. http://www.weather.com/weather/wxclimatology/monthly/graph/USCA0521?p

ar=usatoday&site=www.usatoday.com&promo=0&cm_ven=USAToday&cm_cat=www.usatoday.com&cm_pla=WxPage&cm_ite=CityPage.

Wirth Associates
1981 *Jacumba Discontiguous Archaeological District*. Unpublished report on file at the South Coastal Information Center.

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9.0 LIST OF MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Cultural Resource	Design Consideration	Mitigation Measure	Less than Significant Impact?
CA-SDI-6119	East-west Legal Property Access Road Option A and B alignment grading and widening	Site Evaluation/Data Recovery program	Yes
CA-SDI-19488	Alternative 2 north-south access roadway alignment	Avoidance, construction monitoring	Yes
		Designated open space easement	Yes
		Site Evaluation/Data Recovery program	Yes
CA-SDI-19490	Alternative 1 north-south access roadway alignment and tower location	Site Evaluation/Data Recovery program	Yes
CA-SDI-19492*	Construction and development of Gen-Tie lines and access roads	Site Evaluation/Data Recovery program	Yes
CA-SDI-19493*	Alternative 1 tower location	Site Evaluation/Data Recovery program	Yes
CA-SDI-19494	Construction and development of Gen-Tie lines and access roads	Site Evaluation/Data Recovery program	Yes
CA-SDI-19480, CA-SDI-19484, CA-SDI-19485, CA-SDI-19486, CA-SDI-19489	Construction and development of Gen-Tie lines and access roads	Avoidance, construction monitoring	Yes
		Designated open space easement	Yes

*Now combined with CA-SDI-19490

APPENDIX A

RECORDS SEARCH RESULTS
(Confidential – Bound Separately)

APPENDIX B

RESUMES OF KEY PERSONNEL

APPENDIX C

DPR FORMS
(Confidential – Bound Separately)

APPENDIX D

NATIVE AMERICAN CONSULTATION

APPENDIX E

CONFIDENTIAL FIGURES
(Confidential – Bound Separately)