DOE/EIS-0414

Energia Sierra Juarez U.S. Transmission Line Project

Draft Environmental Impact Statement

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Cooperating Agency – County of San Diego
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COVER SHEET

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Title: Draft Environmental Impact Statement for the Energia Sierra Juarez U.S. Transmission Line

Location: San Diego County, California

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Abstract: Energia Sierra Juarez U.S. Transmission, LLC (ESJ-U.S.), a subsidiary of Sempra Generation, has applied to the U.S. Department of Energy (DOE) for a Presidential permit to construct, operate, maintain, and connect a 1.7-mile transmission line (0.65 miles in the U.S.) across the international border between the U.S. and Mexico, near the town of Jacumba, California. A DOE Presidential permit is required before anyone can construct, operate, maintain, and connect an electric transmission line across the U.S. border. DOE must decide whether to issue a Presidential permit for the project.

DOE published a *Federal Register* "Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings; Baja Wind U.S. Transmission, LLC" on August 4, 2008 (73 FR 45218), held public scoping meetings in Jacumba, California, on August 28, 2008, and solicited written and electronic comments on the scope of the Environmental Assessment. Based on the comments received, DOE determined that an EIS would be the appropriate NEPA document for the proposed Presidential permit. Accordingly, on February 25, 2009, DOE issued in the *Federal Register* a "Notice of Intent to Prepare an Environmental Impact Statement; Energia Sierra Juarez U.S. Transmission, LLC" (74 FR 8517), but did not open an additional scoping period; however, it did indicate that any additional comments received would be considered to the extent practicable.

The EIS addresses the environmental impacts of the proposed transmission line and the range of reasonable alternatives. Five alternatives were identified in this EIS, three of which were carried forward for detailed analysis (the No Action Alternative, a Double-Circuit 230-kilovolt (kV) Transmission Line and a Single-Circuit 500-kV Transmission Line). DOE will use the EIS to ensure that it has the information it needs for informed decision-making. DOE invites comments on this draft EIS during the 45-day comment period that will begin when the U.S. Environmental Protection Agency publishes the Notice of Availability in the *Federal Register.* Copies of the draft EIS will be available for public review at the Jacumba and Campo-Moreno Village Branch libraries or may be obtained from Dr. Jerry Pell. The EIS also will be available via the project website (http://www.esjprojecteis.org/). During the 45-day comment period, public hearings will be held in San Diego, Boulevard, and Jacumba, California. Written and oral comments will be given equal weight, and any comments received after the comment period ends will be considered to the extent practicable. DOE's responses to comments received on the draft EIS will be included in the final EIS. DOE will announce its decision in a Record of Decision no sooner than 30 days after the U.S. Environmental Protection Agency publishes the Notice of Availability of the final EIS.

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Department of Energy
Washington, DC 20585

August 2010

Dear Sir/Madam:

Enclosed for your review and comment is the *Energia Sierra Juarez U.S. Transmission Line Project Draft Environmental Impact Statement* (DOE/EIS-0414), prepared by the Department of Energy (DOE) pursuant to the National Environmental Policy Act of 1969 (NEPA) and its implementing regulations. The County of San Diego, California, is a cooperating agency in the preparation of this Draft EIS.

The DOE proposed Federal action in the Draft EIS is the granting of a Presidential permit to Energia Sierra Juarez U.S. Transmission, LLC (ESJ), for the construction, operation, maintenance, and connection of either a 230-kilovolt (kV) or a 500-kV electric transmission line that would cross the U.S.-Mexico border in the vicinity of Jacumba, California, in eastern San Diego County. DOE has prepared this Draft EIS to evaluate the potential environmental impacts in the United States of the proposed action and the range of reasonable alternatives, including the No Action alternative. Under the No Action alternative, the Presidential permit would not be granted, and the proposed transmission line would not cross the U.S.-Mexico border. Two action alternatives were analyzed in addition to the No Action alternative: a Double-Circuit 230-kilovolt (kV) transmission line and a Single-Circuit 500-kV Transmission Line. DOE will use the EIS to ensure that it has the information it needs for informed decision-making.

You are invited to comment on this Draft EIS during the 45-day comment period that will begin when the U.S. Environmental Protection Agency publishes a notice of its availability in the *Federal Register*. Comments submitted after the close of the comment period will be considered to the extent practicable. Information on how to submit comments is provided at the end of this letter.

DOE and San Diego County will conduct public hearings in the vicinity of the proposed project during this comment period. You are invited to attend these hearings and to provide oral and written comments on the Draft EIS. Detailed information on the times, dates, and locations of these hearings will be published in the *Federal Register* and in local newspapers in the near future, and also will be available on the project's website at http://www.esjprojecteis.org. The Draft EIS will be on both this website and on the DOE NEPA website at http://nepa.energy.gov/draft_environmental_impact_statements.htm.

If you have any questions or comments on the Draft EIS, or would like additional copies, please contact me either by mail at the Office of Electricity Delivery and Energy Reliability, OE-20, U.S. Department of Energy, Washington, DC 20585, by telephone at 202-586-3362, by fax at 202-318-7761, or by e-mail at Jerry.Pell@hq.doe.gov. However, please note that conventional mail to DOE tends to be delayed and possibly damaged because of security screening. Also, if you have received the Summary volume but would prefer the full paper version, please contact me.

Very truly yours,

Jerry Pell, Ph.D., CCM
Environmental Scientist
Project Manager
Office of Electricity Delivery
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S E C T I O N 1

Introduction

On December 18, 2007, Baja Wind U.S. Transmission, LLC (now, Energia Sierra Juarez U.S. Transmission, LLC [referred to herein as ESJ-U.S.]), a subsidiary of Sempra Generation (Sempra), applied to the U.S. Department of Energy (DOE) for a Presidential permit in accordance with Executive Orders (E.O.) 10485 and 12038, and 10 Code of Federal Regulations (CFR) §205.320 *et seq*.[1] The Presidential permit (OE Docket Number PP-334), if issued, would authorize ESJ-U.S. to construct, operate, maintain, and connect the United States (U.S.) portion of an electric transmission line that would cross the international border between the U.S. and Mexico, near the town of Jacumba, California (Figures 1-1 and 1-2). The U.S. portion of the double-circuit 230-kilovolt (kV) or single-circuit 500-kV transmission line (referred to herein as the ESJ U.S. Transmission Line project) would be 0.65 mile (1.05 kilometers) in length, and would transmit up to 1,250 megawatts (MW) of wind-generated electricity (Figure 1-1).

The Presidential permit (OE Docket Number PP-334), if issued, would authorize ESJ-U.S. to construct, operate, maintain, and connect the United States (U.S.) portion of an electric transmission line that would cross the international border between the U.S. and Mexico, near the town of Jacumba, California. A project overview is provided below, and additional project details are provided in Section 2.0 (Proposed Action and Alternatives). Project details are based on the ESJ-U.S. December 18, 2007, application letter to DOE, as amended on March 19, 2008, and August 25, 2008. Additional project details were provided by ESJ-U.S. to the County of San Diego during 2009; these materials were also used in this Environmental Impact Statement (EIS). ESJ-U.S. application documents are available on the project Web site at http://www.ESJProjectEIS.org, and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

DOE has determined that issuance of a Presidential permit would constitute a major federal action that may have a significant impact upon the environment within the context of the National Environmental Policy Act of 1969 (NEPA). DOE prepared this draft EIS in compliance with the requirements of NEPA, the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508), and with its NEPA implementing procedures (10 CFR Part 1021).

[1] According to Sempra's August 28, 2009, letter to DOE (available on the project Web site), in its initial application, Sempra made reference to Baja Wind, S. de R.L. de C.V. (Baja Wind), a subsidiary of Sempra Energy Mexico, as the entity undertaking the development in Mexico of the La Rumorosa Wind Energy Project. Baja Wind, S. de R.L. de C.V. was renamed Energia Sierra Juarez S. de R.L. de C.V. (ESJ Wind) to more accurately reflect the location of the project. Sempra Energy no longer refers to the project as La Rumorosa Wind or any such derivatives and instead uses the term Energia Sierra Juarez, ESJ, or ESJ Wind. Energia Sierra Juarez S. de R.L. de C.V. remains a subsidiary of Sempra Energy Mexico.



ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 1-1

PROJECT REGIONAL MAP

August 2010

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This draft EIS was prepared to meet the following key objectives:

- Identify and assess potential impacts on the natural and human environment that would result from implementation of the proposed project in the U.S.;
- Describe and evaluate reasonable alternatives to the proposed project in the U.S. that would avoid or minimize adverse effects to the environment, including the No Action Alternative; and
- Identify specific mitigation measures, as appropriate, to minimize environmental impacts.

For the purposes of this EIS, the term "ESJ U.S. Transmission Line project" or "ESJ U.S. project" refers to all ESJ-U.S. project-related transmission line activities within the U.S, and the term "ESJ Wind project" refers to all project-related activities within Mexico.[2]

Within the U.S., the transmission line is proposed to be constructed on private land. There would be no construction on federal land, and DOE is the only federal agency with direct permitting authority over the proposed project.

A Major Use permit would be required from the County of San Diego; in July 2009, ESJ-U.S. applied to the County for the permit. Additional application information was filed with the County in November 2009 and February 2010.

As a cooperating agency in this NEPA EIS, the County of San Diego has provided information to DOE related to topics within the County's jurisdiction and expertise. The County does not expect to use this EIS to help fulfill its obligations under the California Environmental Quality Act (CEQA).

1.1 BACKGROUND

1.1.1 Overview of the ESJ U.S. Transmission Line Project Presidential Permit Process

Table 1.1-1 provides a timeline for the project that lists the milestones and sequence of events for ESJ-U.S. and DOE actions that pertain to the Presidential permit review, including the environmental review process that led to the publication of this EIS.

1.1.2 Description of the ESJ U.S. Transmission Line Project

The ESJ U.S. Transmission Line project is described in the December 18, 2007, application letter to DOE as amended on March 19, 2008, and August 25, 2008. (All of these documents are available on the project Web site and the DOE Web site).

ESJ-U.S. would construct either a double-circuit 230-kilovolt (kV) transmission line or a single-circuit 500-kV electric transmission line to connect to the Imperial Valley-Miguel segment of the

[2] The term "transmission" is used throughout this document for purposes of clarity. It is understood that, in accordance with Federal Energy Regulatory Commission (FERC) terminology, the proposed transmission line would be a Generator-tie line ("Gen-Tie"). As such, the transmission line, if approved and constructed, would not be required to provide open access transmission capability, as defined in applicable FERC regulations.

Southwest Powerlink[3] (SWPL) 500-kV transmission line and provide up to 1250 megawatts (MW) of energy from renewable energy generators to be located in the general vicinity of La Rumorosa, Northern Baja California, Mexico. Delivery within California of the output of ESJ Wind turbines in Mexico would be scheduled by the California Independent System Operator (Cal-ISO)[4].

Table 1.1-1
ESJ-U.S. Application Time Line

Date	Activity
December 18, 2007	DOE received Baja Wind (now ESJ-U.S.) project application
March 19, 2008	DOE received amended Baja Wind (now ESJ-U.S.) project application, including additional information on the 230-kV alternate transmission line design
August 4, 2008	DOE issued *Federal Register* Notice of Intent (NOI) to Prepare an Environmental Assessment (EA)
August 25, 2008	DOE received second letter amendment to the Baja Wind project application to change the project name from Baja Wind U.S. Transmission, LLC, to Energia Sierra Juarez U.S. Transmission, LLC (ESJ-U.S.)
August 26, 2008	Public scoping meetings in Jacumba, California
September 3, 2008	Scoping period ended
February 25, 2009	DOE issued *Federal Register* NOI to Prepare an EIS
March 27, 2009	End of period to submit additional comments on the scope of the EIS
September 22, 2009	Scoping Report published and available on the ESJ-U.S. project website

The proposed transmission line would have a total length of approximately 1.65 miles (2.65 kilometers [km]), including both the U.S. and Mexican portions of the line. The proposed line would be constructed on lattice towers or steel monopoles, extending south from the point of interconnection with SWPL for about 0.65 mile (1.05 km) to the U.S.-Mexico international

[3] San Diego Gas and Electric Company's project documents state: "San Diego Gas & Electric's (SDG&E) single 500-kV interconnection to the grid is the Southwest PowerLink (SWPL), a 500-kV transmission line connecting the Palo Verde Nuclear Generating Station in Arizona and SDG&E's Miguel Substation in California. The SWPL is owned jointly by SDG&E, Arizona Public Service, and the Imperial Irrigation District." (http://www.sdge.com/sunrisepowerlink/info/PEA/Chapter_1/Chapter1_executive_summary.pdf)

[4] The Cal-ISO is the independent system operator of California's wholesale power grid, maintaining reliability and directing the flow of electric power along the long-distance, high voltage power lines that connect California with neighboring states, as well as Mexico and British Columbia. The Cal-ISO evaluates energy schedules in the so-called "day-ahead" and "hour-ahead" markets and allocates the available transmission capacity to support the implementation of these schedules.

border. From the international border, the proposed line would continue south for approximately 1 mile (1.6 km) to its first point of interconnection inside Mexico. Both the double-circuit 230-kV and single-circuit 500-kV facilities would require connection to a new substation that would be built in the U.S. by San Diego Gas and Electric Company (SDG&E) as parts of its East County (ECO) Substation Project. If the ESJ U.S. transmission line is a 230-kV facility, the 230/500 kV transformation would occur at that new substation. If the ESJ U.S. transmission line is a 500-kV facility, a substation would be required in Mexico.

The proposed action considered in this EIS is the issuance of a Presidential permit that would authorize the U.S. portion of the proposed transmission line. In addition, the EIS considers potential impacts within the U.S. from connected transmission facilities in Mexico and from the associated ESJ Wind project in Mexico (e.g., visual impacts in the U.S. from transmission lines and wind turbine facilities in Mexico or dust from construction in Mexico entering the U.S.). The ESJ U.S. Transmission Line project transmission line would include up to five support structures, either monopole towers or steel lattice towers similar to the existing 500-kV SWPL structures. Towers would be spaced approximately 1,500 feet (457 meters [m]) apart. The towers or poles would be 150 feet (46 m) tall, except that if the ESJ U.S. transmission line is a 500-kV facility the monopoles would be 170 feet (52 m) tall.

The ECO Substation switchyards would occupy approximately 58 acres (23.5 hectares [ha]) between the ESJ U.S. Transmission Line project and Old Highway 80, in close proximity to the existing SWPL. The specific design, location, and acreage requirement for the ECO Substation switchyards are expected to be determined as a result of a decision process between SDG&E and the California Public Utilities Commission (CPUC). According to SDG&E's application to the CPUC, the purpose of the SDG&E ECO Substation Project is to meet several objectives identified by SDG&E and CPUC.[5] These objectives include: provide an interconnection hub for various renewable generation sources, thus eliminating the need for multiple switching stations along SWPL; expand the interconnection capability of the southeastern transmission system to accommodate planned generation in the region, as well as future as-yet-unplanned generation; improve control, increase operational flexibility, and enhance the reliability of the regional transmission system; increase the reliability of electrical service for Boulevard, Jacumba, and other surrounding communities; and, maximize the use of existing utility rights-of-way and access roads. The proposed ECO Substation switchyards are not a part of the ESJ U.S. Transmission Line project, but they are considered a connected action for the purpose of this EIS because the ESJ U.S. Transmission Line would interconnect directly to this facility. Additional infrastructure that SDG&E proposes as a part of the ECO Substation Project includes a loop-in to SWPL; an approximately 13.3 mile (21.4 km) 138-kV transmission line to Boulevard Substation; and associated upgrades to the Boulevard Substation (located west of the project area near the community of Boulevard). It is DOE's position that only the first points of interconnection with the electrical transmission grid (i.e., SDG&E's ECO Substation switchyard facility and SWPL loop-in) are connected actions; therefore, the additional SDG&E ECO Substation Project components beyond the switchyards and loop-in are not considered connected actions to the ESJ U.S. Transmission Line project.

[5] The ECO Substation application documents, including the Proponent's Environmental Assessment (PEA) is available online at: http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/PEA_ECOSUB.htm

The ESJ Wind project in Mexico would be constructed in phases, with up to 52 wind turbines constructed in Phase 1, resulting in up to 130 MW of power (assuming 2.5 MW per turbine). Phase 1 would be constructed on the furthest north land leased by ESJ (an area referred to as the Jacume lease area), north of the town of La Rumorosa, Mexico. Expansion of the ESJ Wind project in Mexico would generate up to 1,000 MW of additional power.[6] The timing and location for installation of subsequent phases have not been determined, but current leaseholds would place the location of those subsequent phases south of the town of La Rumorosa. The location and scale of additional development is considered in the EIS to the extent that such development could result in effects in the U.S.

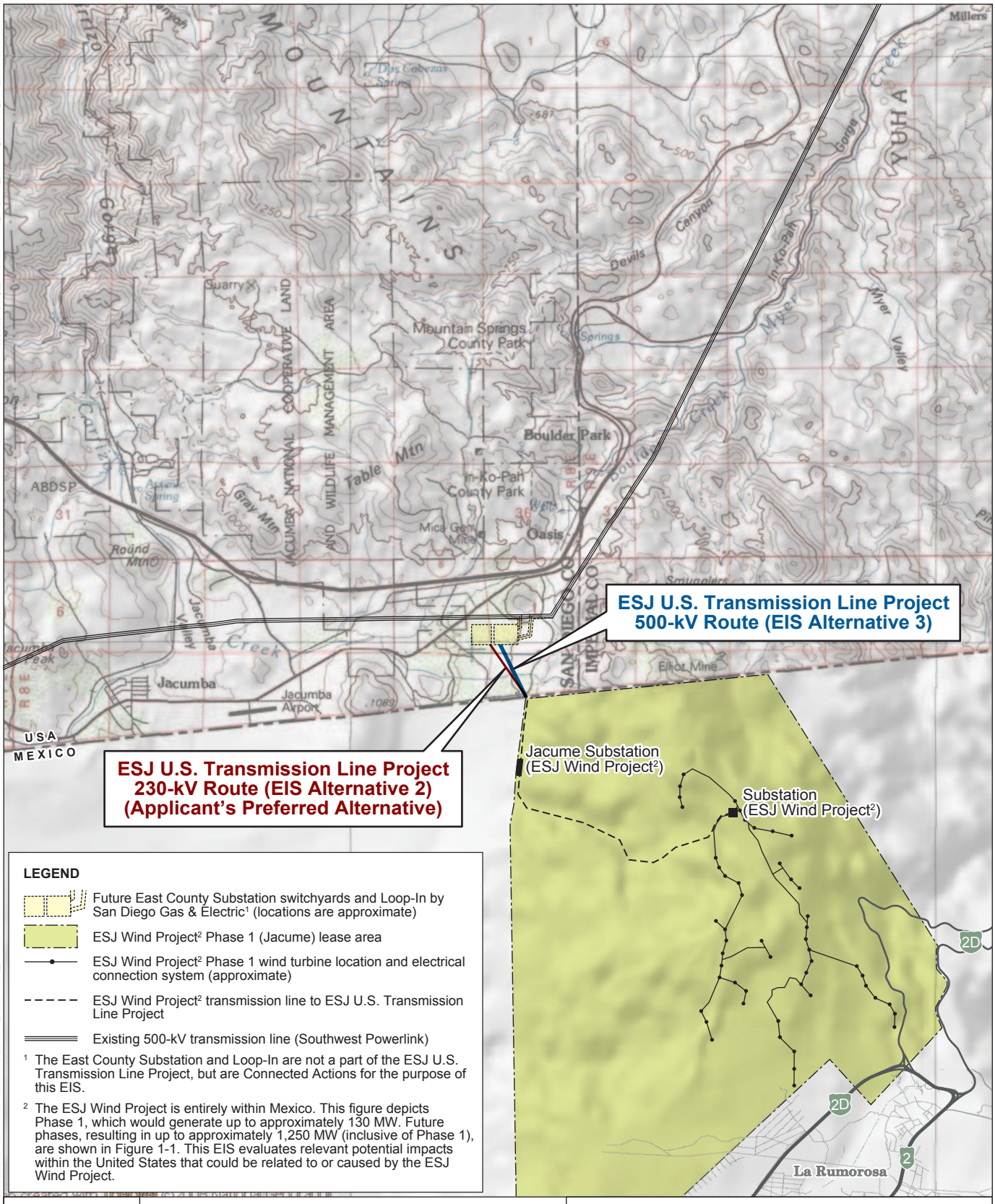
Figure 1-1 depicts the regional location of the ESJ U.S. Transmission Line project. Figure 1-2 provides a map of both the ESJ U.S. Transmission Line project and Phase 1 of the ESJ Wind project locations. The wind turbine locations shown on Figure 1-2 are preliminary and subject to refinement based on ongoing siting studies. The wind turbines nearest to the U.S. would be approximately 0.7 mile (1.1 km) south of the U.S. border. Section 2 provides additional details of the ESJ U.S. Transmission Line project components that are proposed to be constructed in the U.S.

1.2 PURPOSE AND NEED

ESJ-U.S. has applied to DOE for a Presidential permit for its project. The permit would allow the company to construct, operate, maintain, and connect approximately 0.65 mile (1.05 km) of new single-circuit 500-kV or double-circuit 230-kV transmission line in the U.S. that would cross the U.S.-Mexico border to connect with transmission to be built in Mexico.

The purpose and need for DOE's action is to respond to the ESJ-U.S. request for a Presidential permit. DOE may issue or amend a Presidential permit if it determines that the action is in the public interest and after obtaining favorable recommendations from the U.S. Departments of State and Defense. In determining whether a proposed action is in the public interest, DOE considers the impact of the proposed action on the environment pursuant to NEPA, the proposed action's impact on the reliability of the U.S. electric power supply system, and any other factors that DOE may consider relevant. If DOE determines that granting a Presidential permit is in the public interest, the information contained in the EIS will provide a basis upon which DOE decides which alternative(s) to authorize and which potential mitigation measures, if any, are appropriate for inclusion as conditions of the permit. A decision in the form of a Record of Decision (ROD) will be issued no sooner than 30 days after the U.S. Environmental Protection Agency's (EPA) publication of a "Notice of Availability of the Final EIS" in the Federal Register. The Presidential permit, if approved, would be issued subsequent to the ROD.

[6] According to Sempra's August 28, 2009, letter to DOE, ESJ-U.S. requests that the import capacity in the Presidential permit be limited to the physical capacity of the transmission line (1,250 MW) and that power on this line be limited to renewable energy projects. To date, Sempra has submitted three interconnection requests to Cal-ISO, totaling 1,120 MW. Although it is possible to submit interconnection requests to completely fill the physical capacity of the transmission line, interconnection requests to the Cal-ISO are very expensive and have a limited shelf life. It is unclear how long it would take for the ESJ Wind project to reach the 1,120 MW that it currently has in interconnection requests, and therefore Sempra concluded that it is not prudent to submit additional requests to completely fill the line's capacity.


ESJ U.S. Transmission Line Project
500-kV Route (EIS Alternative 3)
ESJ U.S. Transmission Line Project
230-kV Route (EIS Alternative 2)
(Applicant's Preferred Alternative)
Jacume Substation
(ESJ Wind Project²)
Substation
(ESJ Wind Project²)
Jacumba
Jacumba Airport
Mountain Springs County Park
Boulder Park
In-Ko-Pah County Park
Oasis
Elliot Mine
La Rumorosa
USA
MEXICO
LEGEND
Future East County Substation switchyards and Loop-In by San Diego Gas & Electric¹ (locations are approximate)
ESJ Wind Project² Phase 1 (Jacume) lease area
ESJ Wind Project² Phase 1 wind turbine location and electrical connection system (approximate)
ESJ Wind Project² transmission line to ESJ U.S. Transmission Line Project
Existing 500-kV transmission line (Southwest Powerlink)
¹ The East County Substation and Loop-In are not a part of the ESJ U.S. Transmission Line Project, but are Connected Actions for the purpose of this EIS.
² The ESJ Wind Project is entirely within Mexico. This figure depicts Phase 1, which would generate up to approximately 130 MW. Future phases, resulting in up to approximately 1,250 MW (inclusive of Phase 1), are shown in Figure 1-1. This EIS evaluates relevant potential impacts within the United States that could be related to or caused by the ESJ Wind Project.
CALIFORNIA
PROJECT LOCATION
0 1 2 3 Miles
0 1 2 3 4 Kilometers
Source(s):
Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1979, 2006; Google Maps 2009; SanGIS 2009-2010.
ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS
FIGURE 1-2
PROJECT VICINITY MAP
August 2010
\\sacramento-nas\Data\Projects\Sempra-Energia_Sierra_Juarez_EIS-32183001\
Figure_1-2_ProjectVicinity100k_8x11_v11.ai (07/28/2010, 09:09 pm) R. Wurgler/T. Murphy

1.3 ESJ-U.S. PROJECT OBJECTIVES

The ESJ-U.S. stated objective for the proposed transmission line is to transport electrical power generated by the ESJ Wind project in Mexico to the U.S. In its December 18, 2007 application, ESJ-U.S. indicated that all power generated by its proposed ESJ Wind project would be exported to the U.S. and that, "*...the proposed transmission line is expected to reduce the region's dependence upon conventional fossil fuel fired generation plants, and improve the region's ability to meet future electrical energy requirements.* The ESJ projects would also help California utilities meet the renewable portfolio standards specified in California Executive Order S-14-08, which requires that by the end of 2020, 33% of retail electricity sales be generated from renewable energy sources.[7]

1.4 COOPERATING AGENCY

On February 1, 2010, the County of San Diego accepted DOE's invitation to be a cooperating agency for preparation of this EIS. Separate from the DOE Presidential permit application process, ESJ-U.S. has applied to the County of San Diego for a Major Use Permit (MUP) for the project, and the County must review the environmental impacts of that permit in accordance with CEQA. As a responsible agency under CEQA, the County of San Diego expects to use the East County (ECO) Substation Environmental Impact Report (EIR)/EIS for its permitting processes. The U.S. Bureau of Land Management and the California Public Utilities Commission (CPUC) are preparing the ECO Substation EIR/EIS to address San Diego Gas and Electric Company's [SDG&E] proposed ECO Substation project (including switchyards and a loop-in [connection] to the Southwest Power Link [SWPL]), Iberdrola Renewables Tule Wind Energy project, and the ESJ U.S. Transmission Line project. Following certification of the EIR/EIS by the CPUC, the County would use the ECO Substation EIR/EIS to make the appropriate CEQA findings for its discretionary action under CEQA. The County of San Diego Planning Commission would consider two separate MUPs as follows: the first MUP would be for groundwater extraction (Section 6550 of the County's Zoning Ordinance) from the Jacumba Community Service District (for use of groundwater primarily during project construction); the second MUP would be for the ESJ U.S. Transmission Line project, for Major Impact Service Utility (Section 1350 of the County's Zoning Ordinance). Other County permits and approvals that ESJ-U.S. would need to build the project include County right-of-way permits for construction, excavation, and road encroachment; grading permit; and improvement plans.

As a cooperating agency in this NEPA EIS, the County of San Diego has provided information to DOE related to topics within the County's jurisdiction and expertise. The County does not expect to use this EIS to help fulfill its obligations under CEQA.

[7] http://gov.ca.gov/executive-order/11072/

1.5 PUBLIC PARTICIPATION AND THE NEPA PROCESS

1.5.1 Public Scoping and Comment Period

DOE initially determined that the appropriate level of environmental review under NEPA for considering whether to grant the requested Presidential permit was an Environmental Assessment (EA). On August 4, 2008, DOE published in the Federal Register its *Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings; Baja Wind U.S. Transmission, LLC* (73 FR 45218) (NOI). The NOI explained that DOE would be assessing potential environmental impacts and issues associated with the proposed project. The NOI was sent to interested parties, including federal, state, and local officials; agency representatives; tribes; conservation organizations; local libraries and newspapers; and local stakeholder organizations and individuals in the vicinity of the proposed transmission line. Issuance of the EA NOI opened a 30-day public comment period that closed September 3, 2008. The NOI also stated that, "[if] at any time during preparation of the EA DOE determines that an Environmental Impact Statement (EIS) rather than an EA is needed, DOE will issue a Notice of Intent to prepare an EIS in the *Federal Register*. In that case, this scoping process will serve as the scoping process that normally would follow a Notice of Intent to prepare an EIS. Accordingly, DOE will consider any comments on the scope of the EA received during this scoping process in preparing such an EIS."

DOE conducted two scoping meetings in San Diego County, California, during the public comment period following the NOI for EA preparation. Both meetings were held in the town of Jacumba on August 26, 2008. The meetings provided the public with the opportunity to learn more about the proposed project and to provide comments on potential environmental issues associated with the project. A total of 18 people spoke at the meetings, and their comments were transcribed by a court reporter. Transcripts of the scoping meetings are posted on the project Web site and on the DOE Web site. In addition, DOE received scoping comments in the form of eight letters from private citizens, government agencies, and non-governmental organizations. All comments received are available on the project Web site.

The following key issues were identified during the scoping process:

- visual impacts;
- avian mortality;
- impacts on protected, threatened, endangered, or sensitive species of animals or plants, or their critical habitats;
- impacts on cultural or historic resources;
- impacts on human health and safety, with particular focus on wildfire hazards due to presence of the proposed transmission line;
- impacts on air quality and water resources;
- impacts on land use; and
- impacts from development of wind generation.

In addition, several commenters stated that an EA was not adequate, and that an EIS should be prepared.

Based on these comments and the potential for significant impacts, DOE determined that an EIS would be the more appropriate NEPA document. On February 25, 2009, DOE issued in the *Federal Register* a second NOI: *Notice of Intent to Prepare an Environmental Impact Statement; Energia Sierra Juarez U.S. Transmission, LLC* (74 FR 8517). The EIS NOI was also sent to federal, state, and local officials; agency representatives; tribes; conservation organizations; local libraries and newspapers; and local stakeholder organizations and individuals in the vicinity of the proposed project. The EIS NOI did not announce the opening of an additional scoping period, but it did indicate that any additional comments received by March 27, 2009, would be considered by DOE in defining the scope of the EIS, and that comments received or postmarked after that date would be considered to the extent practicable. In response to the EIS NOI, DOE received seven letters or emails from private citizens, government agencies, and non-governmental organizations, including one letter from a Native American Tribe (Quechan Tribe). A Scoping Report was prepared to summarize the scoping comments. The EIS NOI and Scoping Report are provided in Appendix A, and all comments received in response to the two NOIs are available on the project Web site.

DOE also sent letters to various federal and California state agencies specifically requesting their input. Several agencies have responded to these letters, providing information for the EIS, and/or indicating an interest to review the draft EIS and participate in project meetings. All comments received to date in response to the agency letters are available on the project Web site.

Native American Consultation

Native American consultation has occurred through responses to the NOI. In addition, pursuant to regulatory guidance (E.O. 13084), DOE contacted the appropriate Native American groups to offer them the opportunity to consult with DOE regarding the ESJ U.S. project on a government-to-government basis. A total of 13 Native American contacts were made based on the results of a sacred lands search for the project corridor from the Native American Heritage Commission (NAHC). The following discussion summarizes the results of consultations to date.

On March 9, 2009, DOE received an email from the Quechan Tribe in response to the NOI. In its response letter dated April 14, 2009, DOE acknowledged the Tribe's concern about potential cumulative impacts from several projects within the Quechan Indian Tribe's traditional land area, and invited the Tribe to participate in government-to-government consultation. In its initial correspondence to DOE, the Tribe indicated that the project is within the Quechan Tribe's traditional land area and there are several resources affiliated with the Tribe in the area. The Tribe requested that they be allowed to participate in the cultural resource evaluation. They also stated that the EIS should consider the cultural and biological resources within the project area and in the natural landscape. After further correspondence between DOE representatives and the Tribe, a Quechan representative indicated on November 30, 2009, that upon further review of the project location, the project lies outside of the traditional land area of the Quechan, and that the Quechan would defer comments on this project to the Kumeyaay Nation and support that Tribe as needed.

On June 29, 2009, DOE received a letter from the Campo Band of the Kumeyaay Nation in response to DOE's May 28, 2009, letter. The Campo Band requested a consultation meeting between the Campo Band and DOE on this project to discuss cultural resources and historic preservation activities. A DOE representative met with the Campo Band on September 16, 2009, to discuss the project and provide for further coordination during EIS preparation. DOE's consultation with the Campo Band did not identify any significant cultural resources issues. DOE will continue to coordinate with the Campo Band to the extent appropriate during the EIS process.

Appendix D provides copies of consultation letters regarding the preparation of this EIS that were sent to and received from Native American Tribes. This correspondence is also posted on the project Web site.

1.5.1.1 Issues Within the Scope of the EIS

The issues summarized below were raised by commenters during scoping and are addressed in the draft EIS.

Visual Resources. Commenters raised concerns about changes in the visual character of the project area due to the placement of industrial facilities in a rural, open space setting. Specific concerns were raised regarding the daytime and nighttime views of the proposed wind turbines along prominent ridgelines of the Sierra Juarez Mountains; the proposed ESJ U.S. Transmission Line; and other planned projects that would place new infrastructure in the project area, including the ECO Substation switchyards and related transmission line improvements. These issues are addressed in Section 3.2 (Visual Resources).

Birds. Commenters raised concerns about avian mortality due to transmission line and wind turbine construction and operation. They also suggested that birds protected by the Migratory Bird Treaty Act (MBTA) should be addressed in the impact analysis. These issues are addressed in Section 3.1 (Biological Resources).

Protected or Sensitive Species and Critical Habitats. Commenters suggested that the analysis should discuss critical habitat and wildlife movement for protected species in the project area, including Peninsular bighorn sheep, Quino checkerspot butterfly, and California condor; and include measures to mitigate potential impacts to these species and their habitats. Commenters also expressed concerns related to potential impacts on present and potential future preserve lands within the Las Californias Binational Conservation Initiative and suggested avoidance of land that would be necessary to meet preserve objectives. These issues are addressed in Section 3.1 (Biological Resources).

Cultural and Historic Resources. Cultural resource concerns raised by commenters related to potential disturbance to buried archeological resources in the project area and consideration of the broader cultural landscape. DOE has consulted with the Quechan Tribe and the Campo Band. These issues are addressed in Section 3.5 (Cultural Resources).

Human Health and Safety, Fire Hazards, and Homeland Security. Commenters suggested that the project would introduce a new fire hazard area in a remote area of existing high fire hazards. Concerns were also expressed regarding increased electric and magnetic fields, road

construction that could lead to increased illegal activity related to the U.S.-Mexico border, and vulnerability of the transmission line to damage due to illegal border activity. In accordance with DOE NEPA guidance, the EIS also considers potential consequences of intentional destructive acts such as sabotage and terrorism. These issues are addressed in Section 3.8 (Public Health and Safety) and Section 3.9 (Fire and Fuels Management).

Air Quality. Commenters suggested that the analysis address traffic-induced dust due to increased off-road vehicle traffic and increased U.S. Border Patrol traffic, as well as greenhouse gas emissions. These issues are addressed in Section 3.10 (Air Quality).

Water Resources. Commenters indicated that groundwater is scarce in the project area and suggested that the analysis should address groundwater impacts and groundwater impact minimization measures. These issues are addressed in Section 3.11 (Water Resources).

Land Use. Commenters indicated that the County of San Diego is in the process of updating its General Plan, and the County intends for the project area to remain rural. The comments suggested that the ESJ U.S. Transmission Line project and other proposed development projects could alter the rural character of the project area by introducing industrial development, and that these projects should be reviewed for consistency with the applicable General Plan (including the Mountain Empire Subregional Plan), codes and ordinances. These issues are addressed in Section 3.3 (Land Use).

Connected Actions. Commenters asked for the EIS to include assessment of the impacts of SDG&E's ECO Substation project as a connected action. The proposed SDG&E ECO Substation Project has several elements, including the ECO Substation switchyards, a loop-in to the existing SWPL transmission line; an approximately 13.3-mile (21.4 km) 138-kV transmission line to Boulevard Substation; and associated upgrades to the Boulevard Substation (located west of the project area near the community of Boulevard). DOE has assessed the ECO Substation switchyards and SWPL Loop-In components of the project as connected actions because the ESJ U.S. Transmission Line would interconnect directly to the ECO Substation facility and Loop-In. These issues are addressed in Section 4.0 (Connected Actions - ECO Substation and SWPL Loop-In).

Refer to the Scoping Report in Appendix A for additional discussion of issues raised. The Scoping Report and the actual comments are available on the project Web site at http://ESJProjectEIS.org.

1.5.1.2 Issues Outside the Scope of the EIS

DOE has determined that the following issues that were raised by commenters during scoping are outside the scope of the EIS.

Emergency Outage Plans. Commenters requested that emergency outage plans be examined as part of the EIS, particularly in relation to homeland security issues. The development of emergency outage response plans is the purview of local public safety officials and is outside the scope of the EIS. Also, outside of the NEPA process, DOE will perform an electric reliability study to ensure that the existing U.S. power supply system would remain fully operational upon the sudden loss of power, regardless of the cause of the outage.

Impacts in Mexico. Several commenters asked DOE to evaluate the impacts associated with the construction and operation of wind turbines and associated development activities on the environment in Mexico, not just in the U.S. DOE does not agree that such an analysis is appropriate for several reasons.

First, the Federal action evaluated in the EIS is not the building of the wind turbines, but the permitting of the construction, operation, maintenance, and connection of an electric transmission facility at the U.S. international border.

Secondly, NEPA does not require an analysis of environmental impacts that occur within another sovereign nation that result from actions approved by that sovereign nation. E.O. 12114 (January 4, 1979) requires Federal agencies to prepare an analysis of significant impacts from a Federal action in certain defined circumstances and exempts agencies from preparing analyses in others. The E.O. does not require Federal agencies to evaluate impacts outside the U.S. when the foreign nation is participating with the U.S. or is otherwise involved in the action [Section 2-3(b)]. The Mexican government has been involved in the evaluations of the environmental impacts associated with the wind project in Mexico. Further, the ESJ Wind project would be constructed in accordance with all applicable Mexican laws, standards, rules, and regulations. The agencies in Mexico with potential jurisdiction over the activities proposed within Mexico include the Comisión Federal de Electricidad, Comisión Reguladora de Energía, Secretaría de Medio Ambiente y Recursos Naturales, and Instituto Nacional de Ecología.

Finally, the Federal action would not affect the global commons (e.g., outer space, Antarctica), and the Federal action would not produce a product, emission, or effluent that is "prohibited or strictly regulated by Federal law in the U.S. because its toxic effects on the environment create a serious public health risk" or which involves regulated or prohibited radioactive materials.

Sunrise Powerlink Project. Several commenters suggested that SDG&E's application for construction of the Sunrise Powerlink project should be assessed as a connected action to the ESJ U.S. Transmission Line project. The CEQ NEPA regulations require EISs to assess the environmental impacts of connected actions. Connected actions are actions closely related to the proposed action addressed in an EIS. They are further defined (in 40 CFR 1508.25(a)1[8]) as actions that:

- Automatically trigger other actions that may require environmental impact statements;
- Cannot or will not proceed unless other actions are taken previously or simultaneously; or
- Are interdependent parts of a larger action and depend on the larger action for their justification.

Commenters suggested that the Sunrise Powerlink is a connected action because the ESJ U.S. Transmission Line project would depend upon construction of the Sunrise Powerlink to provide adequate electrical transmission line capacity (i.e., due to the currently inadequate capacity of the existing SWPL). While the Sunrise Powerlink and ESJ U.S. Transmission Line projects are complementary in that they would facilitate the operation of the electricity-generating facilities

[8] http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm#1508.25

in Mexico, they are independent actions that serve distinct objectives and that can proceed separately.[9] The Sunrise Powerlink was the subject of a separate EIR/EIS prepared for BLM under NEPA and the CPUC under CEQA. The Sunrise Powerlink is planned for operation in 2012. In this EIS, impacts of the Sunrise Powerlink are considered as cumulative impacts for the ESJ U.S. Transmission Line project.

SDG&E ECO Substation Project Additional Infrastructure. As noted above, the proposed SDG&E ECO Substation Project has several elements, including the ECO Substation switchyards, a loop-in to SWPL, an approximately 13.3-mile (21.4 km) 138-kV transmission line to Boulevard Substation; and associated upgrades to the Boulevard Substation. DOE considers the ECO Substation switchyards and the loop-in to SWPL to be connected actions for the purpose of this EIS because the ESJ U.S. Transmission Line would interconnect directly to this facility. Several commenters suggested that additional proposed infrastructure associated with SDG&E's application for construction of the ECO Substation Project should also be assessed as connected actions to the ESJ U.S. Transmission Line project because the ESJ U.S. Transmission Line project would depend upon interconnection to the SWPL and/or to Sunrise Powerlink. Only the first point of interconnection with the U.S. electrical transmission grid is a connected action for the ESJ U.S. Transmission Line project. The additional SDG&E ECO Substation Project components beyond the switchyards and loop-in are independent of the ESJ U.S. Transmission Line project; that is, the ESJ U.S. Transmission Line project does not depend on these components, and these components are neither triggered by nor dependent on the project. Therefore, these elements are not connected actions for the purpose of this EIS, but are considered as potential sources of cumulative impacts.

Cumulative Impacts from Speculative Future Renewable Energy Projects. Commenters requested that the cumulative impact analysis in the EIS consider the impacts of numerous potential renewable energy projects, particularly projects to be sited in northern Baja, Mexico, that have been announced by various developers or mentioned in media accounts. Guidance from the CEQ on conducting cumulative impact assessments recommends that the consideration of impacts from future projects be limited to projects that are reasonably foreseeable. DOE has limited its identification of reasonably foreseeable projects to those proposals with the potential

[9] In its May 30, 2008, letter to DOE, Sempra provided the following explanation regarding the relationship between the ESJ U.S. and Sunrise Powerlink projects:

> *Although one of the attributes of the Sunrise project is that it would address the previously discussed SPS [Special Protection System] limitation, this would benefit all potential generators seeking interconnection to SWPL or the Imperial Valley Substation, including renewable projects located in Imperial Valley. These Sunrise benefits will occur regardless of whether the generation associated with Baja Wind U.S. [now ESJ] is built or not. Thus, the decision to build the Sunrise project will be made regardless of the potential existence or not of Baja Wind U.S. [now ESJ] or its associated generation.*
>
> *Conversely, if Sunrise is not built, Sempra Generation would seek to have the CAISO [California Independent System Operator] and SDG&E evaluate alternative transmission to accommodate Sempra Generation's interconnection requests. Order No. 888 requires transmission facility owners to offer transmission to generators to their interconnection to grid. The Sunrise and Baja Wind [now ESJ] projects have different purposes and justifications, are proposed by different entities, have independent utility and different triggers and actions are necessary to implement projects. In conclusion, the Sunrise and Baja Wind U.S. [now ESJ] projects are completely independent projects and decisions to proceed with each project will be made separately and independently of the outcome of the other.*

to be executed within the next 10 years; that is, they are funded for future implementation or are included in firm near-term plans. Projects predicted to be developed after 10 years are generally presumed to be speculative and thus are not reasonably foreseeable.

Use of the Proposed Transmission Line for Non-Renewable Energy Projects. Commenters expressed concern that the proposed transmission line could eventually be used to support non-renewable energy generation projects in Mexico that would have additional effects in the U.S. (e.g., impacts due to the construction and operation of natural gas-fired power plants in Mexico that might use the proposed transmission line to export electricity to the U.S.). Commenters pointed out that Sempra has constructed other infrastructure in Mexico near the project area (including a natural gas pipeline from its Natural Gas Liquids facility in Ensenada and a water pipeline) that could facilitate such development. ESJ-U.S. has indicated to DOE that the proposed electrical transmission line is intended to be used only for renewable generation. Accordingly, any alternative future use of the transmission corridor would require a new or revised Presidential permit application to be filed with DOE and would be subject to a separate NEPA review. Therefore, the possible use of the line for non-renewable energy is outside the scope of this EIS.

1.5.2 Public Review of the Draft EIS

The draft EIS has been distributed to interested agencies, organizations, and the general public for review and comment. It is also available on the ESJ U.S. project Web site: http://www.ESJProjectEIS.org/index.htm. Notification of draft EIS availability has been sent to those on the project Web site mailing list. DOE will hold public hearings on the draft EIS during the comment period. The dates and times of the hearings will be announced on the project Web site and in local news media. The hearings will provide interested parties with an additional opportunity to comment on the draft EIS and to participate in the decision-making process. The hearings will include a presentation by DOE and an oral comment session in which attendees will be invited to formally enter their comments on the draft EIS into the public record. Transcripts of the public hearings will be recorded by a court reporter and will be available on the project Web site and in the final EIS.

1.5.3 Final EIS and Record of Decision

After the end of the public comment period on the draft EIS, DOE, in coordination with the County of San Diego (cooperating agency), will consider the comments received and prepare a final EIS. The final EIS will provide responses to the comments received on the draft EIS, identify DOE's preferred alternative, and include any changes to the draft EIS needed to respond to comments or new information received. At the time of publication of this draft EIS DOE does not have a preferred alternative, but DOE will identify its preferred alternative in the final EIS in accordance with 40 CFR 1502.14.

DOE will publish and circulate the final EIS as required by 40 CFR 1502.19, and EPA will publish a Notice of Availability in the *Federal Register*.

DOE's decision will be issued in the form of a Record of Decision (ROD) no sooner than 30 days after EPA publishes its "Notice of Availability of the Final EIS" in the *Federal Register*. The Presidential permit, if approved, would be issued subsequent to the ROD.

1.6 ORGANIZATION OF THIS ENVIRONMENTAL IMPACT STATEMENT

This EIS contains 13 sections and 8 appendices. Brief summaries of the main components of the EIS follow:

- **Section 1** introduces the EIS, discussing pertinent background information; describes the purpose of and need for the DOE and applicant actions, public participation, and EIS organization.
- **Section 2** describes the alternatives considered in the EIS, and the connected actions.
- **Section 3** discusses the environmental setting in the area of the project; the potential environmental impacts of the alternatives; recommended measures to avoid or reduce impacts; and unavoidable adverse effects.
- **Section 4** discusses the potential impacts of connected actions (ECO Substation switchyard and SWPL loop-in).
- **Section 5** discusses the potential cumulative impacts.
- **Section 6** discusses the major irreversible and irretrievable commitments of natural and man-made resources.
- **Section 7** discusses the relationship between short-term use of the environment and long-term productivity.
- **Section 8** identifies the applicable environmental laws, regulations, permits, and DOE Orders.
- **Section 9** provides a list of agencies and individuals contacted during preparation of this EIS.
- **Section 10** lists references cited in the main text of the EIS.
- **Section 11** lists the name, education, and experience of persons who helped prepare the EIS, and the subject areas for which each preparer was responsible.
- **Section 12** provides a glossary of technical terminology used in the EIS.
- **Section 13** provides a distribution list for recipients of this EIS.
- **Appendix A** provides the EIS NOI and September 2009 Scoping Report. This report summarizes the comments received during public scoping and provides an index for major issues that arose in scoping. (The Scoping Report and actual comment letters are also available on the project Web site).
- **Appendix B** provides supplemental engineering details of the ESJ U.S. Transmission Line project.
- **Appendix C** provides supplemental biological resources data and copies of correspondence with the U.S. Fish and Wildlife Service (USFWS).
- **Appendix D** provides cultural resource technical reports, consultation letters regarding the preparation of this EIS that were sent to and received from Native American Tribes, and copies of other correspondence with Native American Tribes.

- **Appendix E** provides data in support of the noise analysis.
- **Appendix F** provides data in support of the air quality analysis.
- **Appendix G** provides copies of consultation letters regarding the preparation of this EIS that were sent to and received from federal and state agencies.
- **Appendix H** provides a contractor disclosure statement.

SECTION 2

PROPOSED ACTION AND ALTERNATIVES

The purpose of Section 2 is to describe the Applicant's proposed project and alternatives to the project.

2.1 PROPOSED ACTION

The proposed action considered by DOE is the issuance of a Presidential permit for the construction and operation of ESJ U.S. Transmission Line project. The remainder of this section provides a description of the Applicant's project and project alternatives.

2.2 APPLICANT'S PROJECT OVERVIEW

ESJ-U.S. proposes to construct and operate the ESJ U.S. Transmission Line, an electric transmission line that would cross the international border between the U.S. and Mexico near the town of Jacumba, California. ESJ-U.S. would construct either a double-circuit 230,000 volt (230-kV) transmission line or a single-circuit 500-kV electric transmission line which would connect up to 1,250 MW of energy from renewable energy generators (the ESJ Wind project) to be located in the general vicinity of La Rumorosa, Northern Baja California, Mexico, with the Imperial Valley-Miguel segment of the SWPL 500-kV transmission line. The ESJ Wind project will be developed in phases. Phase 1 would be constructed on the furthest north land leased by ESJ (an area referred to as the Jacume lease area), north of the town of La Rumorosa, Mexico (see Figure 1-1). The proposed double-circuit 230-kV route would have a total length of approximately 1.7 miles (2.7 km), while the proposed single-circuit 500-kV route would have a total length of approximately 1.8 miles (2.8 km) (including both the U.S. and Mexican portions of the line, to the first point of interconnection in Mexico). On the U.S. side, the proposed line would be constructed on lattice towers or steel monopoles. The interconnection for the transmission line to the U.S. transmission grid system (to the existing SWPL) would be provided by SDG&E at its proposed ECO Substation switchyard facility (the SDG&E ECO Substation Project is discussed further in Section 2.7) (SDG&E 2009).

As noted in Section 1 (Introduction), for the purposes of this draft EIS, the term "ESJ U.S. Transmission Line project" refers to all ESJ-U.S. project transmission line activities within the U.S., and the term "ESJ Wind project" refers to all ESJ-U.S. project activities within Mexico; the international border delineates the separations between these American and Mexican projects.

2.3 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, DOE would not issue a Presidential permit for the ESJ U.S. Transmission Line and the line would not be built. The ESJ Wind project still could be constructed in Mexico, and the electrical generation from the wind turbines could either be confined entirely within Mexico or could enter the U.S. through a different transmission corridor. However, any alternative transmission corridor that crossed the international border would require a new Presidential permit application and would be subject to a separate NEPA review.

2.4 ALTERNATIVE 2 – DOUBLE-CIRCUIT 230-KV TRANSMISSION LINE

Under Alternative 2, DOE would issue a Presidential permit for a double-circuit 230-kV transmission line (230-kV Route) across the U.S.-Mexico border. This section describes the design, construction activities, and operations and maintenance activities for Alternative 2 (the Applicant's preferred project). For purposes of this discussion, Alternative 2 is referred to as "the 230-kV Route."[1]

2.4.1 Project Location and Design

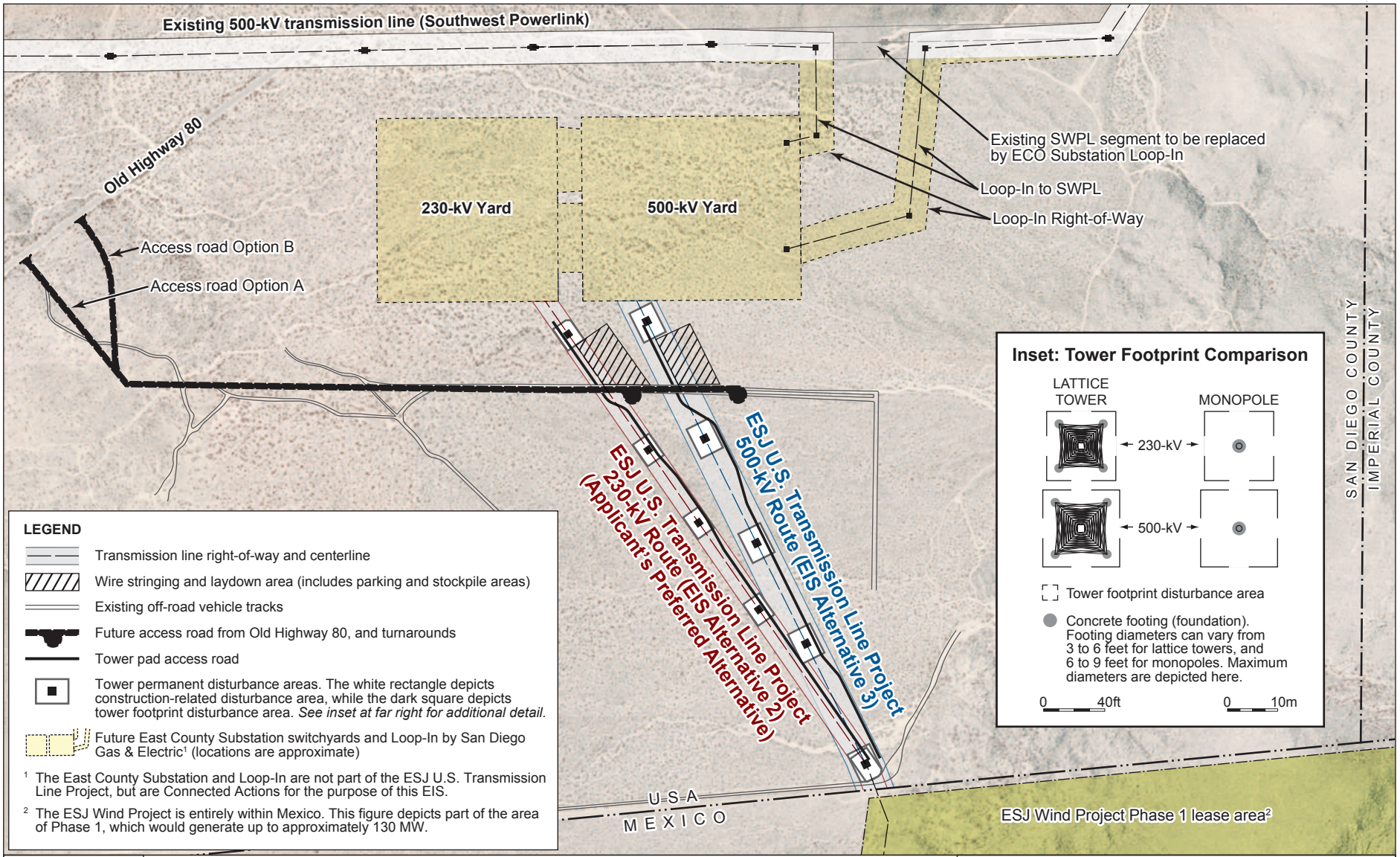
The project location is shown in Figures 1-1 and 1-2 in Section 1 (Introduction). Detailed views of the 230-kV Route are shown in Figure 2-1. The 230-kV transmission lines would be supported on either 150-foot (46 m) steel lattice towers similar to the existing 500-kV SWPL structures, or 150-foot (46 m) steel monopoles. The towers or monopoles would be spaced no more than 1,500 feet (460 m) apart. The ESJ U.S. Transmission Line project would require 3 to 5 steel lattice towers or up to 5 steel monopoles.

The 230-kV Route would connect with SDG&E's proposed ECO Substation 138/230-kV switchyard, which in turn would interconnect to SWPL. The ECO Substation switchyards are proposed to be located approximately 0.65 mile (1 km) north of the U.S.-Mexico border and approximately 3.8 miles (6 km) east of Jacumba in the southeast corner of San Diego County near the Imperial County line (Figures 1-1 and 1-2) (SDG&E 2009).

The total length of the 230-kV Route would be approximately 0.65 mile (1.05 km) between the future ECO Substation switchyard and the international border. The 230-kV line would continue south of the border for approximately 1 mile (1.6 km) from the international border to the first point of interconnection in Mexico, at the proposed ESJ Jacume Substation. 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 switchyard in the U.S. A loop-in in the proposed ECO Substation would connect the proposed line to the existing 500-kV SWPL.

Site Access. Access to the ESJ U.S. Transmission Line project area would be provided by Interstate Highway 8 (I-8), Carrizo Gorge Road, and Old Highway 80, as shown in Figure 2-1. ESJ-U.S. has identified two options, Option A and B, for the property access road from Old Highway 80. The locations and alignments for both options are shown in Figure 2-1. Both options would require construction of a new 28-foot (8.5 m) wide access road from Old Highway 80 to the site. This road would be constructed within a 40-foot (12.2 m) easement serving the properties where the 230-kV Route would be located. Road material would consist of decomposed granite (a type of gravel), and the road would terminate at a 36-foot (11 m) radius turnaround. The property access road easement to the 230-kV Route would be 0.77 mile (1.24 km) in length for both options. Additional discussion of site access is provided in Section 3.7 (Transportation and Traffic), and in Figure 3.7-1.

[1] The Applicant's materials refer to the single-circuit 500-kV route as "Route A1" and to the double-circuit 230-kV route as "Route A2." These terms are not used in the remainder of this EIS.



Source(s):
Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1998; Google Maps 2009; SanGIS 2009-2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 2-1

PROJECT ALTERNATIVES

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Figure_2-1_ProjectAlternatives_11x8_v12.ai (07/29/2010, 08:50 am) R. Wurgler/T. Murphy

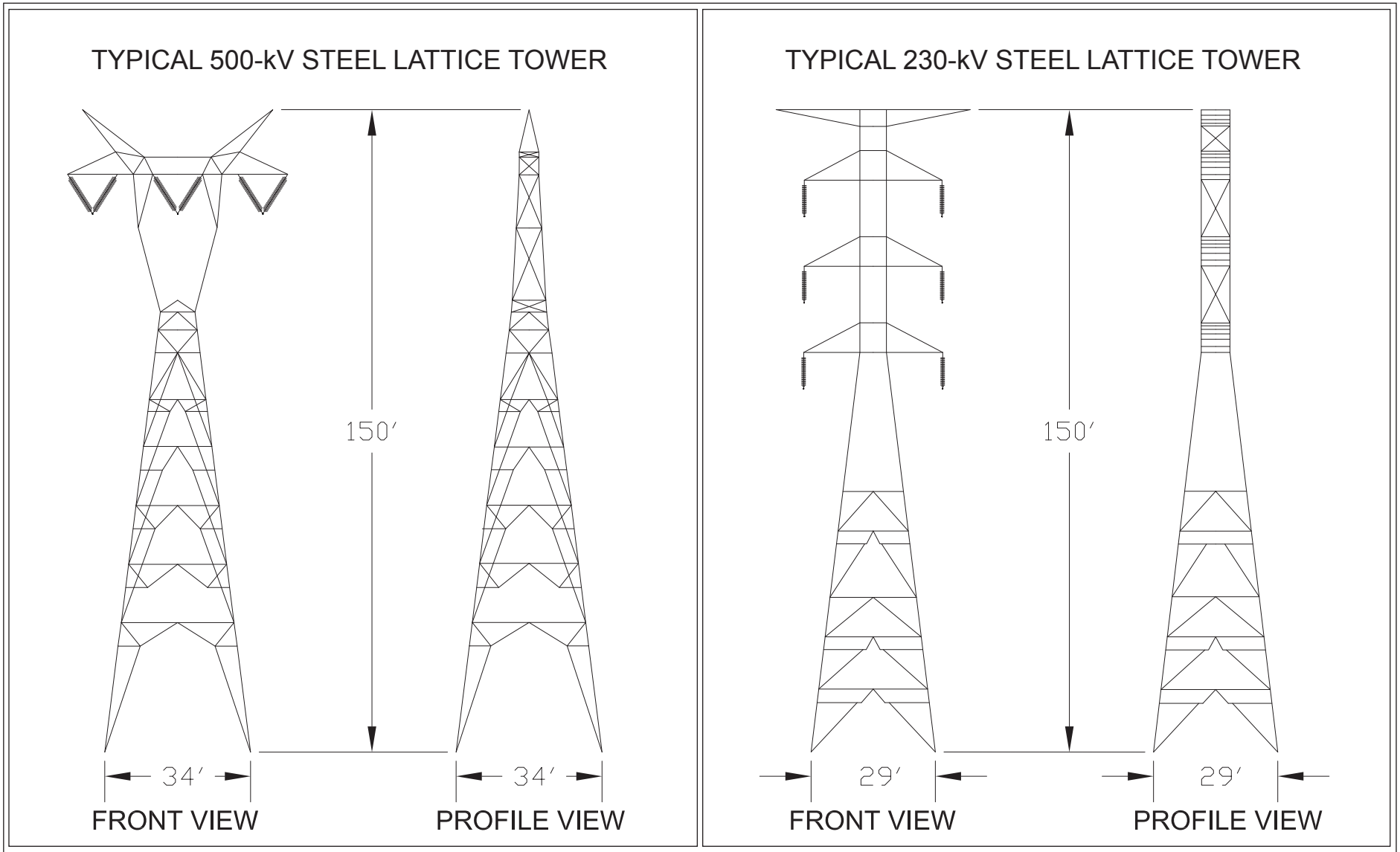
A new transmission line right-of-way access road would be constructed within the permanent right-of-way that would parallel the 230-kV Route for its entire length between the ECO Substation switchyard and the international border. This would be a graded dirt road approximately 12 feet (3.7 m) wide. Both the property access road and right-of-way access road would be maintained periodically through the life of the transmission line. This maintenance would include periodic grading and minor repairs.

Design Features. The transmission line would consist of a double-circuit 230-kV line and would be supported by either lattice towers or monopoles. The key features of this design are summarized in Table 2-1 (the features of the 500-kV Route alternative, described in Section 2.4, are also displayed in Table 2-1 to provide a side-by-side comparison). Elevation views of typical lattice tower and monopole designs that may be used are shown in Figure 2-2 and Figure 2-3, respectively.

Table 2-1
230-kV Route and 500-kV Route Parameters

Parameter	230-kV Alternative Interconnection	500-kV Alternative Interconnection
Maximum Capacity	1,250 megawatts	1,250 megawatts
Number of Circuits	Double-Circuit	Single-Circuit
Minimum Ground Clearance	34 feet (10.4 m)	39 feet (11.9 m)
Width of Permanent Right-of-Way	130 feet (39.6 m)	214 feet (65.2 m)
Number of Structures	3 to 5	3 to 5
Maximum Spacing Between Structures	1,500 feet (460 m)	1,500 feet (460 m)
Permanent Impacts at Each Structure[1]	120 feet x 160 feet (0.44 acre; 0.18 hectare)	150 feet x 200 feet (0.69 acre; 0.28 hectare)
Permanent Impacts for All Structures (assuming 5 structures)	2.2 acres (0.89 hectare)	3.45 acres (1.4 hectares)
Area of Permanent Vegetation Removal	9.72 acres (3.9 hectares)	10.77 acres (4.4 hectares)
Construction Laydown/Parking/Stringing Area	1.98 acres (0.8 hectare)	1.88 acres (0.76 hectare)
Maximum Height of Lattice Towers	150 feet (46 m)	150 feet (46 m)
Maximum Base of Lattice Towers	29 feet x 29 feet (9 m x 9 m)	34 feet x 34 feet (10.4 m x 10.4 m)
Foundation of Lattice Towers at Each Corner	3 – 6 feet (1 – 2 m) diameter	3 – 6 feet (1 – 2 m) diameter
Maximum Height of Steel Monopoles	150 feet (46 m)	170 feet (52 m)
Foundation of Steel Monopoles	6 – 9 feet (2 – 3 m) diameter and up to 40 feet (12.2 m) deep	7 – 9 feet (2 – 3 m) diameter and up to 40 feet (12.2 m) deep

[1] In accordance with ESJ-U.S.'s Fire Plan for the project, a cleared space will be maintained around the tower or monopoles structures, and no restoration of impacted areas is proposed in the remainder of the construction area. Consequently, for planning purposes, there are no "temporary" disturbances and all land disturbances are considered permanent. ESJ-U.S. has proposed the creation of a conservation easement to address this permanent impact. The proposed location for the easement is on the eastern edge of ESJ-U.S.'s property, adjacent to an existing U.S. Bureau of Land Management (BLM) Wilderness area (Section 3.1).





Source(s):
Adapted from Burns & McDonnell 2009.

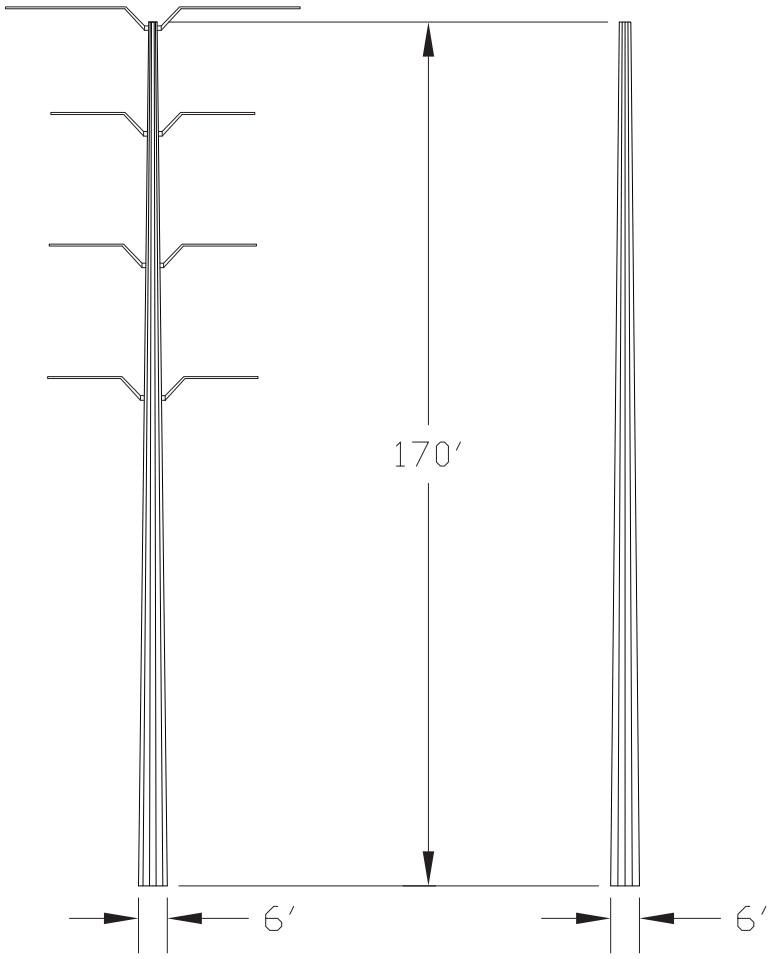
ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 2-2

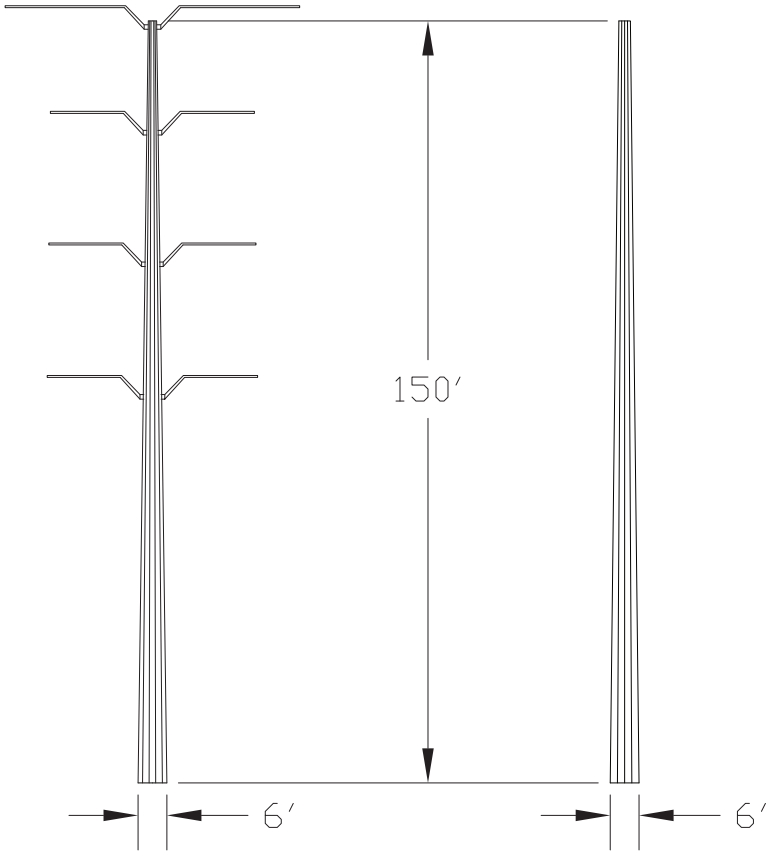
TYPICAL STEEL LATTICE TOWERS

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TYPICAL 500-kV STEEL MONOPOLE



TYPICAL 230-kV STEEL MONOPOLE





Source(s):
Adapted from Burns & McDonnell 2009.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 2-3

TYPICAL STEEL MONOPOLES

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The 230-kV Route would be constructed within a 130-foot (40 m) permanent right-of-way. The right-of-way width would be the same for either the lattice towers or monopole design. A 1.98-acre (0.8 ha) staging site would be constructed at the northern end of the route, adjacent to the transmission line right-of-way, and north of the property access road (Figure 2-1). This area would provide a permanent consolidated site for construction equipment laydown, vehicle parking, and wire stringing.[2]

The monopoles or lattice towers would be located no more than 1,500 feet (460 m) apart. The precise locations may be adjusted based on final design and, if necessary, to avoid sensitive cultural resources. The towers or poles would be placed within 150 feet (46 m) of the U.S.-Mexico border.[3] Based on the typical 1,500-foot (457 m) span between lattice towers or monopoles, the nearest transmission structure in Mexico would be located approximately 150 feet (46 m) from the U.S.-Mexico border.

2.4.2 Additional Engineering Details

Additional views of the project site and engineering details, including site topography, are provided in Appendix B. These materials include:

- Preliminary Plot Plans (Burns & McDonnell 2009c; Drawings P01 through P10 Rev. 1)
- Preliminary Grading Plans (Burns & McDonnell 2009b; Drawings C01 through C08 Rev. 1)

According to the Preliminary Grading Plan (Drawing C02, Revision 1), project construction would require import and export of earthwork materials for development of the all-weather road surfacing along the property access road (primarily decomposed granite [see earlier note about gravel]), tower pad grading, and foundation excavation.[4] The earthwork summary is provided in the grading notes on Drawing C02, Revision 1, provided in Appendix B.

[2] An original construction plan included a 0.69-acre (0.28-ha) equipment staging area at the same location as the currently proposed staging site, and an additional 100-foot wide (7.72-acre) or 70-foot wide (5.64-acre) temporary construction easement along the right-of-way for the 500-kV Route or 230-kV Route, respectively. The currently proposed approximately 2-acre (0.8-ha) consolidated staging site would result in substantially less surface disturbance than the original design. The temporary easement was eliminated from the original design to minimize the overall construction phase disturbed areas, including reducing the potential for impacts to cultural resources.

[3] According to Congressional Research Service (2009), in 1907, President Roosevelt reserved from entry and set apart as a public reservation all public lands within 60 feet (18.3 m) of the international boundary between the U.S. and Mexico within the State of California and the Territories of Arizona and New Mexico. Known as the "Roosevelt Reservation," this land withdrawal was found "necessary for the public welfare...as a protection against the smuggling of goods." The text of President Roosevelt's proclamation is available online at: http://dl.dropbox.com/u/369702/RooseveltEasementPresProc.pdf. The ESJ-U.S. design would exceed this distance.

[4] The engineering drawings provided in Appendix B are preliminary, and show the access road described herein as Option A. Details of access road Option B were not yet developed at the time of this EIS preparation.

Assuming a typical truck load of 18 cubic yards (14 cubic meters), these grading and construction activities would result in about 600 truck trips (about 540 export trips and about 55 import trips) for the 230-kV Route.[5] The total number of round trips would be somewhat reduced, if practical, by having import trucks leave the site with an export load, resulting in about 540 total round trips. Since the sources of the imported material and the destinations of the export material have not yet been identified, it is assumed that vehicles carrying earthwork material would travel to the site from either the east or west along I-8.

2.4.3 Project Construction and Operations

Construction of the transmission line would include the following activities:

- Clearing, grading, and grubbing (clearing of roots and stumps)
- Access road and pad construction
- Digging and drilling for tower foundations
- Pouring concrete foundations for towers
- Overhead electrical power system construction
- Final grading and site clean-up

Vegetation would be cleared and grubbed along the proposed access roads. Vegetation debris would be disposed offsite at a County of San Diego-approved disposal facility. Limited grading would be required for the tower/pole pads and the temporary consolidated construction staging and wire stringing site. Topsoil removed during the grading of the tower areas and construction staging area would be stockpiled in the construction staging area, if necessary. This topsoil would be utilized during final grading of the road and tower areas. Although material would be brought on site (for example, road base), the site would require a net export of excavated material. Transmission towers/poles would be supported on excavated, reinforced concrete foundations. The monopole foundations would be excavated to a typical depth of up to 40 feet (12.2 m) using specialized excavation equipment. The tower foundations would be excavated to a considerably shallower depth (e.g., 10 feet [3 m]). Table 2-2 summarizes the amounts of land disturbance for all project components associated with the proposed route. As noted in Table 2-2, the maximum total disturbed acreage for the 230-kV Route would be 9.72 acres (3.93 ha) (estimated based upon the excavation required for property access road Option B, total disturbed acreage would be slightly less if Option A is constructed). ESJ-U.S. may utilize helicopter lift capability for placement of transmission line structures. This activity, as well as other construction methods noted here, is discussed further in the air quality assessment (Section 3.10 [Air Quality and Climate Change]).

[5] Of this total, about 90% of truck deliveries would be due to the property access road improvements, which are estimated to require about 9,300 cubic yards (7,110 cubic meters) of material to be delivered onsite for the 230-kV Route (Burns & McDonnell 2009b; included in Appendix B of this EIS). According to ESJ-US, this estimate is based on available topographic data, and this estimate is likely to be substantially reduced upon completion of a more detailed site topography survey.

Table 2-2
Land Disturbance

Project Components	230-kV Route	500-kV Route
Construction Lay-Down/ Parking/Stringing Area	1.98 acres (0.81 ha)	1.88 acres (0.77 ha)
28-foot Property Access Road and Turn Around[1]	4.5 acres (1.82 ha)	4.5 acres (1.82 ha)
Transmission Tower Access Road	0.9 acre (0.36 ha)	0.8 acre (0.32 ha)
Permanent Impacts (5 towers and 30-foot fire clearing)[2]	2.2 acres (0.89 ha)	3.45 acres (1.4 ha)
Totals[3]	9.72 acres (3.93 ha)	10.77 acres (4.36 ha)

[1] The 28 foot (8.5 m) property access road is located within a 40 foot (12.2 m) easement. The entire 40 foot (12.2 m) easement could be impacted during construction. Therefore, impacts to the entire 40 foot (12.2 m) easement have been assumed for this calculation. The acreage of disturbance is based on property access road Option B in order to indicate the greatest amount of potential impact.

[2] Depending on final design, 3 to 5 towers would be installed. Values are approximate.

[3] The total amount of land disturbance shown in this row is larger than the sum of the rows above due to rounding.

Source: EDAW 2009b.

Project construction would require approximately 20 to 25 workers per day for up to 6 months. Approximately 5 to 15 construction vehicles would operate onsite daily during construction, with approximately 10 to 20 worker vehicles entering and leaving the site each day. A list of estimated equipment and vehicle requirements and maximum utilization during the various activity phases is provided in Appendix B. This table provides a basis for the air quality estimated maximum construction emissions, provided in Section 3.10, Air Quality and Climate Change.

Due to fire protection requirements there would be no revegetation of the right-of-way after completion of construction. During operation of the facility, minimal personnel (1 or 2) would be required to patrol and visually inspect the transmission facilities on a periodic basis. Vegetation maintenance to prevent fuel build-up in a 30-foot (9.1-m) radius clear space around the tower footings (or 10-foot [3.0-m] radius around monopoles) would be done at least once a year. Operations and maintenance related traffic would typically consist of two vehicles entering and leaving the site each week.

Project construction would require an estimated 780,000 gallons (3 million liters) of water (assuming the use of two 2,500-gallon [9,500 liter] water trucks per day and a 6 day work week), for watering of roads and minimizing dust generated from traffic and excavation activities and for aid in soil compaction. Water would either be trucked or a new temporary groundwater well would be constructed at the project site. If water is trucked onto the site in tank trucks, it would be obtained from either an existing non-potable (brackish) groundwater well in the town of Jacumba, or from groundwater wells located in the community of Alpine (located 40 miles [64 km] northwest of the project site). Temporary onsite storage of water may be possible. Very little water would be needed when the facilities are in operation, and water use would mainly

consist of occasional pressure washing of the insulators to remove dirt accumulation to minimize arcing. Water used during operations may be obtained from the same source used during construction.

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. The transmission towers would be equipped with devices to prevent climbing on the towers and warning signs in English and Spanish that would alert the public to the electrical hazard.

ESJ-U.S. received a "Determination of No Hazard to Air Navigation" from the Federal Aviation Administration (FAA) for each of the proposed tower locations. For each tower location, the FAA determination states: "The Aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation…" The determinations also indicate that: "Any height exceeding 170 feet [51.8 m] above ground level…will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation." Based on these determinations, ESJ-U.S. does not propose to install lighting on the towers/poles.[6] A copy of each of the FAA determinations (FAA 2009) is provided in Appendix B.

2.5 ALTERNATIVE 3 – SINGLE-CIRCUIT 500-KV TRANSMISSION LINE

Under this alternative, DOE would issue a Presidential permit for the construction of a single-circuit 500-kV Transmission Line (500-kV Route) across the U.S.-Mexico border. For purpose of this discussion, Alternative 3 is referred to as "the 500-kV Route."The site access, design, and construction features of the 500-kV Route are very similar to those described above for the 230-kV Route. This section describes the key features of the 500-kV Route alternative.

The 500-kV Route would be located immediately east of the 230-kV Route, as shown in Figures 1-1 and 1-2 in Section 1 (Introduction); and in Figure 2-1. Like the 230-kV Route, the 500-kV transmission lines would be supported on 3 to 5 steel lattice towers or up to 5 steel monopoles. The towers would be 150 feet (46 m) in height, and the monopoles would be 170 feet (52 m) in height. These heights compare to either 150-foot (46 m) steel lattice towers or 150-foot (46 m) steel monopoles for the 230-kV Route.

The 500-kV Route would connect with the 500-kV portion of SDG&E's proposed ECO Substation switchyard, which in turn would interconnect to SWPL.

The total length of the 500-kV Route would be 0.62 mile (1 km) between the future ECO Substation switchyard and the international border, compared to 0.65 mile (1.05 km) for the 230-kV Route.

Road design and location for access to the 500-kV Route would be the same as for the 230-kV Route except that it would be slightly longer, 0.89 mile [1.43 km] in length for the Option A route, as compared to 0.77 mile [1.24 km] (Figure 2-1).

[6] Based on correspondence from the U.S. Border Patrol, DOE understands that the U.S. Border Patrol may request that ESJ-U.S. install lighting to avoid potential hazards to their aviation operations.

The key features of the 500-kV Route design options are summarized above in Table 2-1, Section 2.3. Elevation views of typical lattice tower and monopole designs are shown in Figures 2-2 and 2-3, respectively.

The 500-kV Route would be constructed within a 214-foot (65-m) wide permanent right-of-way, compared to the narrower 130-foot (40-m) permanent right-of-way that would be required for the 230-kV Route.

Construction staging would be constructed at the northern end of the 500-kV Route, adjacent to the transmission right-of-way, and north of the property access road (Figure 2-1). This area would be about the same size for both route alternatives (approximately 2.0 acres [0.8 ha] for the 230-kV Route and approximately 1.9 acres [0.77 ha] for the 500-kV Route; see Table 2-1).

Additional views of the 500-kV Route site and engineering details, including site topography, are provided in Appendix B. Engineering design and construction methods would be substantially the same for the 500-kV Route as for the 230-kV Route. Because the access road would be slightly longer, a proportionately larger volume of road construction material and number of associated truck deliveries would be required for the 500-kV Route than for the 230-kV Route.

Construction of the 500-kV Route transmission line would include the same activities, equipment, personnel and schedule as described above for the 230-kV Route. As noted in Table 2-2, the total disturbed acreage for the 500-kV Route would be 10.77 acres (4.36 ha), as compared to 9.72 acres (3.93 ha) for the 230-kV Route. A list of estimated equipment and vehicle requirements and maximum utilization during the various activity phases is provided in Appendix B. This table provides a basis for the air quality estimated maximum construction emissions, provided in Section 3.10 (Air Quality and Climate Change).

Operation and maintenance activities for the 500-kV Route would be the same as described above for the 230-kV Route. Minimal personnel (1 or 2) would be required to patrol and visually inspect the transmission facilities on a periodic basis. Operations and maintenance related traffic would typically consist of two vehicles entering and leaving the site each week.

2.6 APPLICANT PROPOSED MEASURES APPLICABLE TO BOTH ALTERNATIVES

As part of the proposed ESJ U.S. Transmission Line project, ESJ-U.S. would incorporate various applicant-proposed measures (APMs) that are designed to avoid or minimize potential impacts related to construction and operation of the transmission lines. The environmental impact analyses for each resource area in Section 3 describe how the APMs would be applied to avoid or minimize impacts. APMs are summarized below for key environmental issues. These measures apply to both alternatives described above (in Sections 2.3 and 2.4) for the ESJ U.S. Transmission Line project in the U.S.

Biological Resources. The project's potential effects on biological resources are described in Section 3.1 (Biological Resources). APMs intended to minimize impacts to biological resources are listed below and further described in Section 3.1 (Biological Resources). These measures would include:

- To compensate for the loss of native scrub habitat that would be disturbed during construction and would not be revegetated or restored after construction due to fire protection considerations (as directed by the County of San Diego Rural Fire Protection District [Hunt Research Corporation 2009]), ESJ-U.S. would place a portion of the project property under a conservation easement for preservation. A portion of ESJ-U.S.' property in the eastern section of the site is proposed for preservation. This preserved area would adjoin a large open space tract of land to the east (Jacumba Wilderness) under ownership of BLM. The mitigation ratio would be subject to review and approval by the County of San Diego and possibly other resource agencies. Figure 3.1-5 in Section 3.1 (Biological Resources) shows the location of the proposed conservation easement. Depending on the alternative and property access road option selected, the compensatory mitigation site would be up to 15 acres (6.1 hectares) in size.
- ESJ-U.S. has prepared a Conceptual Resource Management Plan (CRMP) for management of the conservation easement area. The plan provides a framework and specific measures for the interim and long-term management of the easement until such time that a formal land management entity can assume the long-term management of the land. At the time of this EIS preparation, ESJ-U.S. is coordinating with BLM to have the federal agency assume management responsibilities of the easement. The CRMP is written with the assumption that BLM, or other non-profit organization, would be the long-term Land Manager of the easement. In the event that BLM does not assume the role of long-term Land Manager of the compensation site, the CRMP would remain in effect and would be implemented by ESJ-U.S., until some other non-profit organization is found to serve as the long-term Land Manager (AECOM 2010b). Additional discussion of the conservation easement and management plan is provided in Section 3.1 (Biological Resources).
- Prior to construction or vegetation clearing, suitable nesting habitat and trees within 500 feet (152 m) of the site would be surveyed for breeding activity to determine if raptors or other sensitive wildlife species are nesting. If nesting is confirmed, no construction activity would occur within 500 feet (152 m) of raptor nests or sensitive species, unless measures are implemented to reduce noise levels below 60 A-weighted decibel (dBA) hourly equivalent level (L_{eq})[7] to minimize disturbance to those species. If measures are implemented to reduce noise levels, noise monitoring would be conducted to determine that measures are effective to reduce noise to below 60 dBA hourly L_{eq}. The types of sensitive wildlife that are subject to this measure are identified in Section 3.1 (Biological Resources).
- Repair of heavy equipment, if necessary, would occur as far away as practicable from areas where nesting birds of sensitive species may be present; manufacturers' standard noise control devices would be equipped on all construction equipment (including generators and compressors); and the construction contractor would maintain all construction vehicles and equipment in proper operating condition and provide mufflers on all equipment.

[7] Refer to Section 3.6 (Noise) for definitions of noise parameters.

- Noise analyses would be performed during construction activities adjacent to sensitive habitats or potential active nests of sensitive species; temporary noise attenuation barriers would be erected to reduce construction-related noise to below 60 dBA hourly L_{eq}, at the location of the habitat or potential activity nests if necessary; repair of heavy equipment would occur as far away as practical from areas where nesting birds of sensitive species may be present.
- Flagging or construction fencing would be installed to restrict encroachment into biologically sensitive areas and to minimize the potential establishment of pests and non-native species.
- In accordance with County of San Diego guidelines, ESJ-U.S. has prepared a Stormwater Management Plan (SWMP) that provides for the installation of several construction best management practices (BMPs) to avoid and minimize impacts to natural communities of special concern (i.e., Sonoran Mixed Woody Scrub and Peninsular Juniper Woodland and Scrub), special status plants, and special status animals. BMPs are discussed further below under Water Resources, and in Section 3.11 (Water Resources).
- Vegetation removal would occur prior to the start of breeding season of sensitive species (generally February 1 to September 15), and construction activities that coincide with raptor breeding season of sensitive species (generally February 1 to September 30) would be monitored. If project activities are determined through monitoring to adversely affect raptor foraging and/or nesting, then either construction activities would be modified accordingly to reduce or eliminate the identified effects, or construction would be halted until it is determined that nesting is complete or the affected raptors abandon their nest.
- If any habitat for the California horned lark or San Diego black-tailed jackrabbit, or any foraging habitat for raptors is unavoidably disturbed, the additional acreage of disturbance would be included in the conservation easement described above.

Cultural Resources. ESJ-U.S. commissioned the preparation of an Archaeological and Historical Investigations Report to investigate the potential presence of signficant resources within the project area (EDAW 2010). As discussed further in Section 3.5 (Cultural Resources), certain sites were identified within the currently proposed project development area that are considered significant. To avoid potential impacts to these resources, ESJ-U.S. would implement the report's recommendations (described further in Section 3.5 [Cultural Resources]) and the recommended APM, including:

- Avoidance of impacts to significant cultural resources that have been identified at the project site through redesign of the project, where feasible, or by redirecting workers and vehicles away from known sites during construction and facility operation.
- Monitoring of ground-disturbing activities by a qualified archaeologist. A Native American representative would be invited to participate in site monitoring.
- Implementation of a testing program and data recovery prior to ground-disturbing activities at identified significant sites.
- Avoidance of cultural resource sites by redirecting pedestrian and vehicular traffic away from the site during construction and facility operation.

- Significance testing of any incidental discoveries during construction, as outlined in applicable agency guidelines.
- Additional field surveys for any areas that may be disturbed due to project changes.

Water Resources. As noted above, ESJ-U.S. has prepared a SWMP to manage the quality of stormwater runoff from the land disturbance activities associated with the project in accordance with the requirements of the Clean Water Act (CWA) and County of San Diego's guidelines. The BMPs outlined in the SWMP would be implemented prior to commencement of field construction activities. BMPs would be maintained during and after construction, and until final stabilization of the soil is accomplished at the site. According to the SWMP,[8] the minimum temporary erosion and sediment control practices that would be used include: stockpile management, maintenance of the construction entrance/exit, silt fence, wind erosion prevention measures, street sweeping and vacuuming, and sandbag barriers. Temporary silt fence and sandbag cross barriers would be placed on the downhill side of the entire right-of-way to capture any silt during the construction phase of the project. Although, it is not anticipated that the design would include clearing or grading of any slopes that are more than three feet in height, if such activity is required, ESJ-U.S. would implement slope protection measures. Onsite construction workers would remove litter at the end of each day. All waste material generated during construction would be deposited in dumpsters or covered bins that would be removed from the project site by a licensed waste hauler for proper disposal. Portable toilets would be provided for use by the construction workers. These facilities would be installed and removed from the site by a licensed portable sanitation company and the waste material would be disposed of at an approved facility.

A final site cleanup and inspection would be conducted by ESJ-U.S., in coordination with local agencies, at the completion of construction. Post-construction erosion and sediment control BMPs, as well as final soil stabilization and cleanup BMPs, would be implemented. The use of BMPs is discussed further in Sections 3.11 (Water Resources) and 3.12 (Geology and Soils). The types and locations of proposed BMPs are also shown on the project engineering drawings provided in Appendix B.

Public Health and Safety. Project construction would require the routine transport, handling and onsite storage of petroleum products such as fuel and lubricating oil, and hazardous materials such as paints, as well as waste products with these constituents. A Spill Prevention and Control Plan is included in the SWMP. The Spill Prevention and Control Plan outlines the measures to prevent, control, and minimize impacts from a spill of petroleum substances or hazardous materials or wastes during construction. Construction materials that pose a potential contamination risk to storm water would be managed to minimize exposure to storm water. Solid and liquid waste would be reused and/or recycled to the extent practical, or disposed of properly if deemed not reusable or recyclable. The small amounts of hazardous waste (primarily vehicle fuels and lubricants) that could be produced as byproducts of construction would be disposed of in accordance with the local, state, and federal regulations. The hazardous materials would also be stored aboveground and in secondary containment to prevent discharges to receiving waters.

[8] The SWMP prepared for the project is on file with the County of San Diego Department of Planning and Land Use (County DPLU).

Portable sanitary facilities would be used by all construction personnel, would be located on non-paved areas, 50 feet (15.2 m) away from drain inlets, and would be serviced regularly.

Fire and Fuels Management. ESJ-U.S. prepared a Fire Protection Plan as provided in Appendix B (Hunt Research Corporation 2009). The Fire Protection Plan was submitted to the County of San Diego Rural Fire Protection District in Jamul, California, and to the County of San Diego Department of Planning and Land Use (DPLU) for approval. The Fire Protection Plan serves to evaluate the impacts associated with the relationship between the proposed project and wildland fires. Primarily, the Fire Protection Plan is intended to ensure that the project does not unnecessarily expose people or structures to a significant risk of loss, injury or death involving wildland fires. Pursuant to County of San Diego Fuel Modification requirements for cellular communication tower facilities, which are comparable to the proposed electrical transmission towers or poles, the towers would have 30 feet (9 m) of fuel modification on all sides of the towers. Within this 30-foot (9.1-m) perimeter, the area should be cleared, concreted, and graveled, or vegetation should be cut to no more than 6 inches (15 centimeters [cm]) in height. ESJ-U.S. would also provide a 10-foot (3-m) vertical clearance between vegetation and transmission lines/wires, and marking of towers. Further, no new shrubs, trees, or other plants would be planted in the right-of-way or in the 30-foot area on each side of the right-of-way. The right-of-way would be maintained on an annual basis, prior to May 1, or more often as needed to ensure adequately low levels of vegetation coverage.

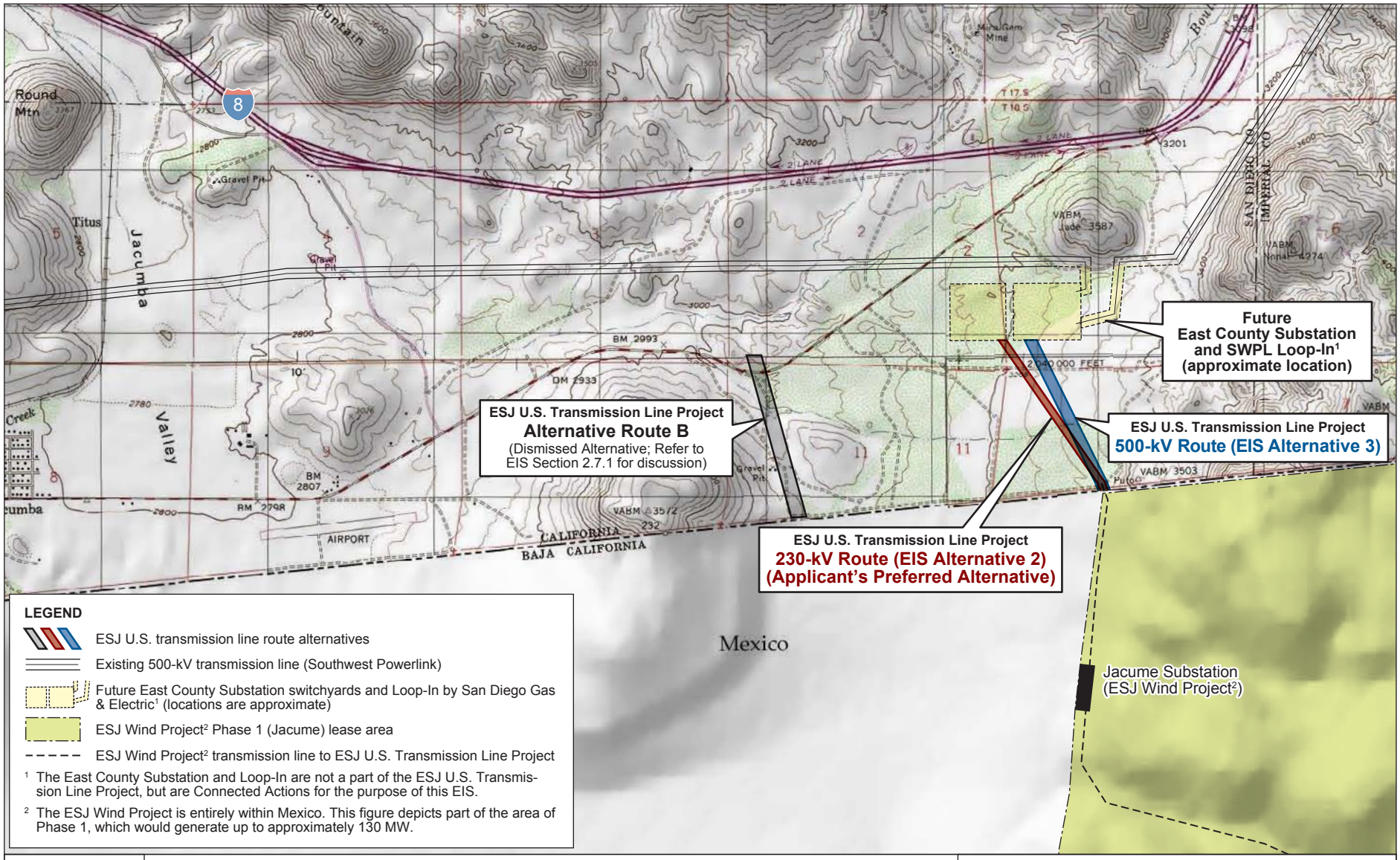
In accordance with applicable guidelines, no fuel modification (e.g., vegetation removal) would be done in sensitive habitat, or archaeological sites, or if otherwise prohibited, without permission of the County DPLU and other applicable resource agencies. As discussed above under Biological Resources, ESJ-U.S. would place a portion of their project property in the project vicinity under a conservation easement to compensate for this loss of native vegetation.

Traffic and Transportation. ESJ-U.S. is working with the County of San Diego to develop road improvements at the site entrance in accordance with the County's traffic safety design standards. As noted above, ESJ-U.S. has identified two options, Option A and B, for the property access road from Old Highway 80. The locations and alignments for both options are shown in Figure 2-1. These design standards are discussed further in Section 3.7 (Traffic and Transportation).

2.7 ALTERNATIVES CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS

2.7.1 Alternative Transmission Line Route (Route B)

During the initial planning and siting process for the ESJ U.S. Transmission Line project, ESJ-U.S. considered one additional route alternative for an overhead transmission line (Alternative Route B) as shown in Figure 2-4. The route depicted in Figure 2-4 indicates that the Alternative Route B would be located west of and parallel to the location of the route proposed in Alternatives 2 and 3, and would terminate at an alternative substation location on the north side of Old Highway 80, east of Jacumba. Alternative Route B would extend approximately 1 mile (1.6 km) north across U.S. land and would require a slightly longer line in Mexico than Alternatives 2 and 3. This concept was developed by ESJ-U.S. prior to SDG&E's application filing for the ECO Substation Project. (Further discussion of SDG&E's ECO Substation Project



Source(s):
Sempra Generation 2008; Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1979, 2006; Google Maps 2009; SanGIS 2009-2010.

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FIGURE 2-4

ALTERNATIVE ROUTE B (DISMISSED) IN RELATION TO ALTERNATIVES 2 AND 3

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Figure_2-4_AltRouteB_11x8_v8.ai (07/29/2010, 09:24 am) R. Wurgler/T. Murphy

application filing and a description of that project are provided below in Section 2.7). Given the current proposed location of the SDG&E ECO Substation switchyard, and the distance between Route B and the ECO Substation switchyard (the transmission lines would need to run east along Old Highway 80, or parallel to the SWPL , for at least 1 mile [1.6 km] to the ECO Substation switchyard, for a total distance of at least 2 miles [3.2 km]), this alternative is no longer considered feasible or practical. For these reasons, construction of Alternative Route B is not considered a reasonable alternative, and no further analysis is provided.

2.7.2 Underground Transmission Line

It is technically feasible to install transmission lines underground, and underground transmission lines are often considered in dense urban areas where overhead routes may not be feasible. Commenters on the scope of this EIS and the County of San Diego, which is a cooperating agency for this EIS, requested that the EIS consider the alternative of placing the proposed transmission line underground for its entire length from the Mexican substation to the proposed SDG&E ECO Substation. The commenters stated that an underground transmission alternative would have less environmental impact, including lower visual impacts and lower fire risk, than an aboveground transmission line. The County also stated that an underground line would reduce impacts to biological resources, visual resources, recreation, public health and safety, fire and fuels management, and geology and soils.

An underground transmission line would avoid most of the potential visual resource impacts associated with an overhead line that used either the lattice tower or monopole designs. An underground line also would be more reliable, e.g., less susceptible to weather-related outages. However, this benefit is offset to some extent by the fact that a failure underground can be difficult to locate and is relatively more difficult to repair.

This alternative would require significantly greater ground disturbance and associated environmental impacts than the proposed towers or monopoles, as underground construction would require trenching throughout the entire length of the transmission line route. Trenching along the entire length of the line would result in more disturbance to biological resources, soils, and cultural resources during construction than an overhead transmission line and would afford less opportunity to avoid sensitive resources. During operation, fire and fuel management would be less a concern for an underground transmission line than for an overhead line, but the land above and in the vicinity of the line would have to be kept free of shrubs to avoid direct interference by roots, and access roads would be needed along the entire length of the line in order to provide access to repair outages.

Placing the transmission line underground may reduce public exposure to electric and magnetic fields (EMF) because studies indicate that underground cables produce no electric field (ICF Consulting 2003); however, magnetic field strengths from alternating current (AC) power lines buried underground are similar to magnetic strengths for power lines above ground (NIEHS 1999), and exposure levels at ground level can be greater for underground AC lines due to the closer distance between the buried cables and the ground surface, as compared to aboveground lines. Therefore, EMF exposure under this alternative would potentially be greater than exposure from the 230-kV Route and 500-kV Route alternatives.

A potential undergrounding approach to minimize ground disturbance in installation of an underground line is to use horizontal directional drilling techniques. Horizontal directional drilling uses a directional boring technique over relatively long distances compared to conventional boring techniques. Horizontal directional drilling minimizes the total ground disturbance required. However, due to its high cost, this method is typically used only at major infrastructure or sensitive resource crossings where trenching and conventional boring techniques are not feasible (e.g., to cross under highways or major streams). The cost of undergrounding has been shown to be substantially higher than placing aboveground wires. Recent studies indicate that underground 230-kV lines cost up to 15 times the amount required to build an overhead line (Georgia Transmission Corporation 2006, as cited in DOE and DEQ 2008; Verbund 2006, as cited in DOE and DEQ 2006). According to ESJ-U.S., undergrounding of the ESJ U.S. Transmission Line is estimated to cost $20.3 million, while the same stretch of overhead line is projected to cost less than $2 million.

Based on these considerations, DOE does not consider the construction of an underground transmission line to be a reasonable alternative, and no further analysis is provided.

2.8 EAST COUNTY SUBSTATION (CONNECTED ACTION)

The construction and operation of the proposed ECO Substation switchyards and SWPL Loop-In are connected actions for the ESJ U.S. Transmission Line.

On August 11, 2009, SDG&E filed an application with the CPUC for a Permit to Construct the ECO Substation (CPUC Application A.09-08-003). The CPUC is in the process of evaluating the SDG&E ECO Substation Project under the California Environmental Quality Act (CEQA). Additionally, because of the potential involvement of federal BLM lands, that agency is collaborating with CPUC in the environmental evaluation process.

According to SDG&E, the purpose of the ECO Substation Project is to "provide an economical interconnection platform for renewable energy projects and to improve reliability to electric customers in southeastern San Diego County" (SDG&E 2009).[9] As noted in Section 1 (Introduction), the SDG&E ECO Substation Project is not a part of the ESJ U.S. Transmission Line project, but two components of the project (ECO Substation switchyards and SWPL loop-in) are considered "connected actions" under NEPA (40 C.F.R. 1508.25(a)(1)) for the purpose of this EIS. As such, the potential impacts of these components are evaluated in Section 4 (Connected Actions) of this EIS.

The following project description information was obtained from the SDG&E ECO Substation Project application documents. SDG&E's application to the CPUC includes infrastructure beyond the perimeter of the ECO Substation switchyard facilities and the SWPL loop-in described below that would be constructed as a part of their overall ECO Substation Project. These project components include a 13.3-mile (21.4 km) long 138-kV transmission line to the Boulevard Substation (located approximately 12 miles [19.3 km] northwest of the proposed ECO Substation site in the unincorporated community of Boulevard), and upgrades to the Boulevard Substation (SDG&E 2009). These components of the SDG&E ECO Substation Project are

[9] The ECO Substation Project application documents, including the Proponent's Environmental Assessment (PEA), are available online at: http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/ECOSUB.htm

described further in Section 5.0 (Cumulative Impacts) and shown in Figure 5-1 in that section. These project components are not connected actions for the purposes of the EIS, but are briefly mentioned here for the sake of completeness. Detailed descriptions of these additional components of the ECO Substation Project are provided in SDG&E's application documents.

2.8.1 ECO Substation Switchyard and SWPL Loop-In Location

The proposed ECO Substation switchyards and SWPL loop-in would be located on the south side of I-8, approximately 3.8 miles (6 km) east of the town of Jacumba, on the west side of the Jacumba Mountain range (an extension of the Sierra Juarez range) within the In-Ko-Pah Gorge U.S. Geological Survey (USGS) quadrangle.[10] Old U.S. Highway 80 is located just north of the site and the U.S.-Mexico border is located to the south. The proposed location of the ECO Substation switchyards and SWPL loop-in are shown in Figure 2-1, and the site arrangement and layout are shown in Figures 2-5 and 2-6.

The ECO Substation switchyards would be located entirely on privately-owned, undeveloped land. SDG&E would acquire up to six parcels to construct the ECO Substation switchyards, totaling approximately 498 acres (202 ha) of land, of which the fenced-in portion of the switchyards would encompass approximately 58 acres (23.5 ha). Privately-owned, undeveloped land borders the western and southern sides of the site, and undeveloped land managed by BLM is located to the east. The site would be accessed by traveling east from San Diego on I-8, exiting at In-Ko-Pah Park Road, and heading west on Old U.S. Highway 80 until it intersects the SWPL.

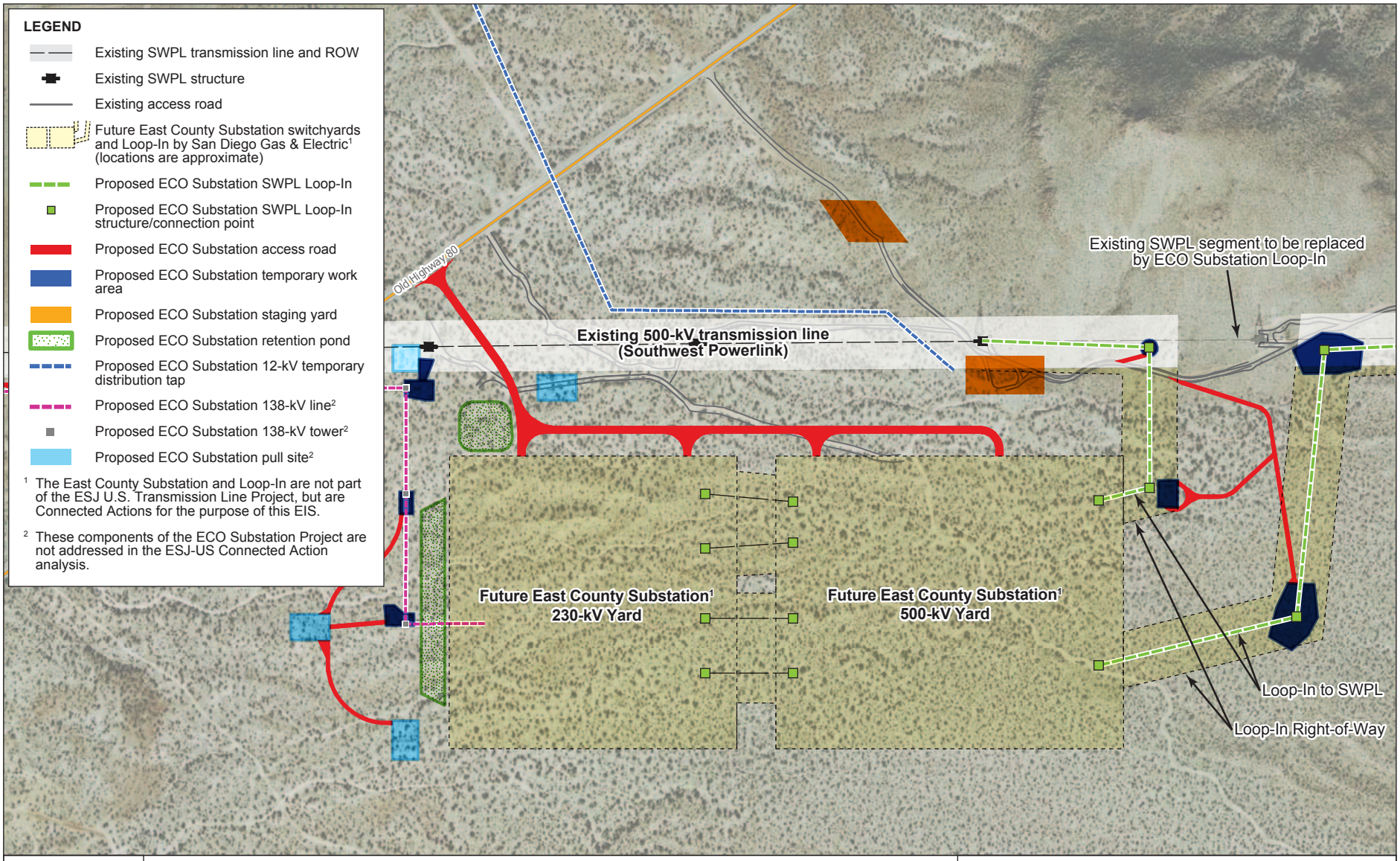
2.8.2 ECO Substation Switchyard Design

As proposed, the ECO Substation switchyards would occupy approximately 58 acres (23.5 ha), which would be enclosed by a 10-foot (3-m) tall chain-link fence topped with barbed wire around the perimeter of the substation (Figure 2-5). All entrance gates would be locked and monitored remotely to limit access to only qualified personnel. Warning signs, in English and Spanish, would be posted on the substation fence in accordance with federal, state, and local safety regulations. A substation ground grid would also be installed in accordance with applicable safety guidelines. In addition, a 20-foot (6-m) buffer around the perimeter of the substation pads would be maintained.

Construction would require permanent cut and fill slopes in the area surrounding the substation that may occupy an additional 25 acres (10.1 ha), resulting in a total disturbed area of up to 83 acres (33.6 ha). A new permanent access road, drainage facilities for the site, and a design/construction buffer of approximately 100 to 150 feet (30.5 to 45.7 m) around the substation would be included in the project design. The substation would be split into two separate switchyards consisting of one 500-kV yard and one 230/138-kV yard, each of which would be fenced-in separately.[11] The chain link fenced area of the 500-kV yard would occupy roughly 32 acres (approximately 1,290 feet by 1,080 feet) (12.9 ha). The fenced area of the 230/138-kV yard would occupy roughly 26 acres (approximately 1,060 feet by 1,080 feet) (10.5 ha).

[10] For more information, see, for example, http://www.recreationparks.net/search/in-ko-pah%20gorge

[11] The SDG&E ECO Substation Project design would include both the 500-kV and 230/138-kV switchyards regardless of the final route selected for the ESJ U.S. transmission line.





0 400 800 1,200 Feet
0 100 200 300 Meters

Source(s):
Adapted from SDG&E 2009; Burns & McDonnell 2009.

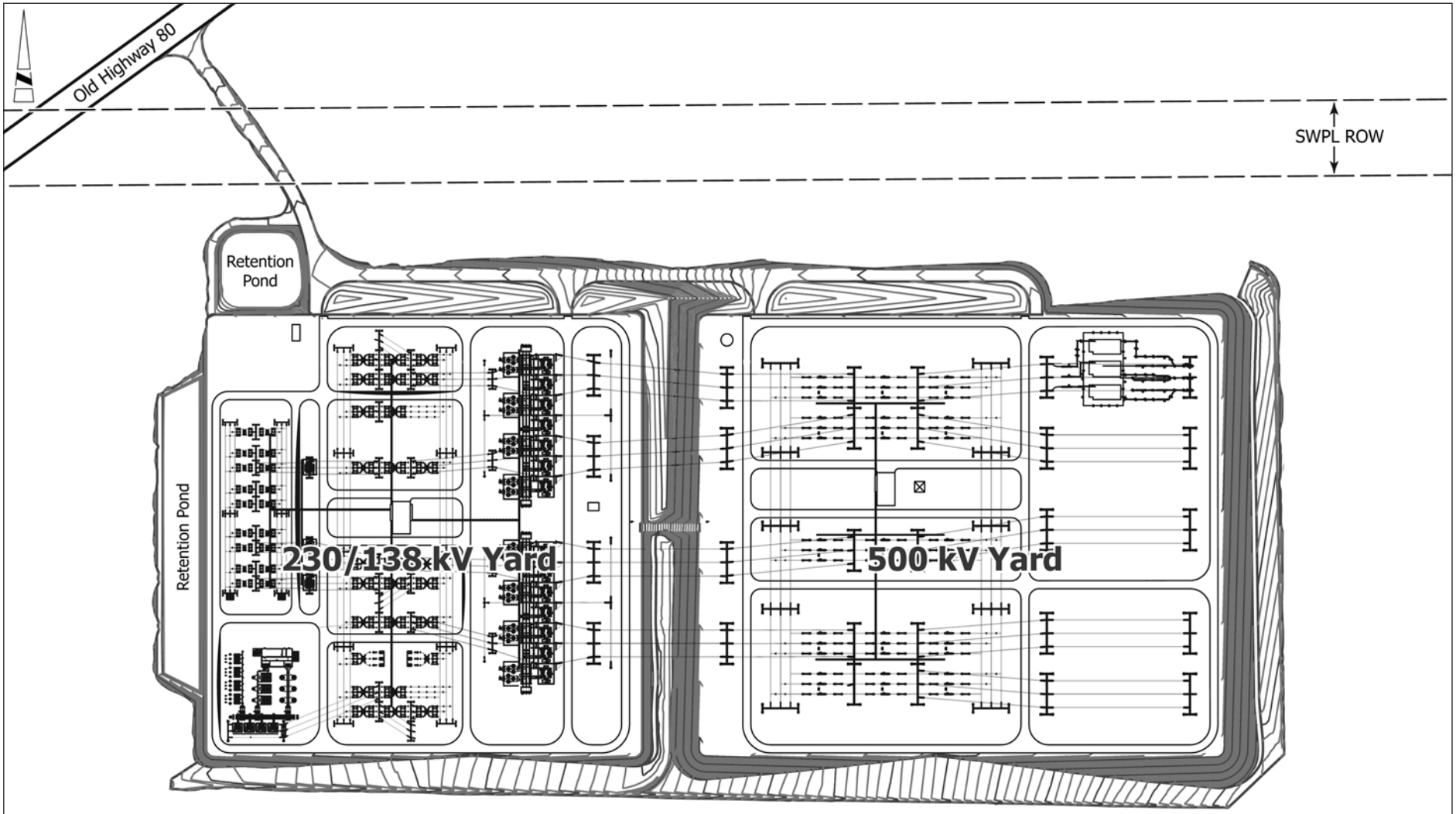
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FIGURE 2-5

EAST COUNTY (ECO) SUBSTATION SWITCHYARDS AND SWPL LOOP-IN

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The East County Substation is not a part of the ESJ U.S. Transmission Line Project, but it is a Connected Action for the purpose of this EIS.



0 250 500 1,000 Feet
0 100 200 300 Meters
SCALE IS APPROXIMATE

Source(s):
SDG&E 2009.

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FIGURE 2-6

EAST COUNTY (ECO) SUBSTATION SWITCHYARDS LAYOUT

August 2010

An approximately 2,900-foot (884-m) long paved asphalt access road would be constructed from Old Highway 80 to the ECO Substation switchyards. The access road would extend southeast off of Old Highway 80 before turning east and running along the north side of the pads. Four asphalt-paved driveways, approximately 100 feet (30 m) in length, would be constructed off of the access road into the four gated entrances of the substation. The access road would be approximately 30 feet (9 m) wide, requiring approximately 2.2 acres (0.9 ha) of land. Substation communication would be facilitated via a microwave and "T1" communication cable system that would include the construction of a new communication tower at the ECO Substation. A 135-foot (41-m) tall microwave tower with a six-foot (1.8-m) diameter microwave antenna, associated ground systems, control structure, and cable bridge from the communication tower to the control structure would be installed within the ECO Substation fence. The microwave dish would be attached to the tower approximately 50 feet (15 m) off the ground.

Electrical facilities that would be installed include 500-kV, 230-kV, and 138-kV insulated electrical buses, steel support structures, transformers, capacitors, reactors, circuit breakers, disconnect switches, communication equipment, control equipment, and protective relays.

The initial arrangement of the substation would consist of:

- Two 500-kV bays in a ring bus configuration;
- One 500/230-kV transformer bank (three single-phase units with one operational spare);
- Three 230-kV bays in a breaker-and-a-half bus configuration;
- One 230-kV shunt capacitor;
- One 230/138-kV transformer bank;
- Two 138-kV bays in a double-bus/double-breaker bus configuration;
- One 12-kV, 180 megavolt ampere reactive shunt reactor bank; and
- One microwave communication tower.

Other facilities would include metering, Supervisory Control and Data Acquisition, security, and communications equipment. In addition, two single-story relay/control buildings, a single-story storage building, and a fire-suppression system with associated hydrants and an approximately 120,000 gallon (436,000 liter) water tank would be installed. The water tank would be approximately 15 feet (4.6 m) in height and 30 feet (9.1 m) in diameter and would also be utilized for landscape irrigation. Water would be either provided by a well installed at the ECO Substation site, or purchased from the City of El Centro or the Imperial Irrigation District. A stationary standby generator would also be installed for use as a backup to the station lights and power transformers. The anticipated substation equipment would be fully contained within the fenced area of the ECO Substation switchyards. In addition, a retention basin would be constructed near the northwestern corner of the 230/138-kV yard, adjacent to the northern side of the substation. After construction, the basin would be used for stormwater retention for the 500-kV yard. A second retention basin would be constructed along the western side of the ECO Substation switchyards for collection of drainage from the 230/138-kV yard. The retention basins are anticipated to be approximately 1.2 acres (0.5 ha) and 1.9 acres (0.8 ha) in size,

respectively; however, the final design of the retention basins would be determined after consultation with the County of San Diego to ensure adequate sizing to accommodate storm water flows.

The substation would be designed to allow for future expansion and inclusion of the following components:

- Five 500-kV bays in a breaker-and-a-half bus configuration;
- Nine 230-kV bays in a breaker-and-a-half bus configuration;
- Nine 138-kV bays in a double-bus/double-breaker configuration;
- Four 500/230-kV, 1,100 megavolt ampere transformer banks with two single-phase operational spares;
- Three 230/138-kV, 224 megavolt ampere transformer banks;
- One or more 500-kV series capacitors;
- Two 230-kV, 63 megavolt ampere reactive shunt capacitors;
- Four 12-kV, 180 megavolt ampere reactive shunt reactor banks; and
- One 230-kV static megavolt ampere reactive compensator.

A maximum of approximately 569,800 gallons (2.2 million liters) of insulating oil[12] would be required for the transformers at the ECO Substation. The 500-kV line and transformer dead-end structures and the new communication tower would be the tallest structures in the substation, reaching a maximum height of approximately 135 feet (41 m). Substation lighting would be provided by approximately fifty 300-watt tungsten-quartz lamps placed near major electrical equipment. The yard lights would only be used during nighttime for security and safety reasons and would be turned off during the day. In addition, approximately ten 100-watt yellow floodlights would be mounted near the substation gates and building entrances to allow for nighttime emergency repair and routine maintenance access. The lights would be oriented downward to minimize glare onto surrounding property and habitat.

To offset the auxiliary power use at the ECO Substation, SDG&E is currently evaluating the installation of solar panels on the two control structures and storage structure. The installation of these solar panels would generate approximately 111,000 kilowatt hours of electric energy annually. Because these solar panels were not yet fully evaluated or designed at the time of the application filing, impacts associated with their installation (although anticipated to be minor) had not been evaluated by SDG&E at the time of this writing.

The loop-in to SWPL would connect the ECO Substation switchyards into the existing 500-kV SWPL transmission line. This would require installation of transmission structures outside of the fenced area at the ECO Substation, but within the newly acquired SDG&E property. The loop-in

[12] Transformer oil, or insulating oil, is usually a highly-refined mineral oil that is stable at high temperatures and has excellent electrical insulating properties. It is used in oil-filled transformers, some types of high voltage capacitors, fluorescent lamp ballasts, and some types of high voltage switches and circuit breakers. Its functions are to insulate, suppress corona and arcing, and to serve as a coolant.

construction would begin along the existing SWPL right-of-way, traverse south for approximately 1,200 feet (366 m), then would turn west for 250 feet (76 m), and enter at the east side of the new substation. The existing SWPL transmission line and new substation are shown in Figure 2-5. Structures associated with this loop would be located on land acquired for the new substation and within SDG&E's existing SWPL right-of-way.

This installation would require the removal of one existing 125-foot (38-m) SWPL 500-kV transmission line tower and the installation of four new steel transmission line towers east of the fence. Depending on the final design, the anticipated maximum height of these structures would be approximately 125 feet (38 m). The approximate locations of these structures are shown in Figures 2-5 and 2-6.[13] A drawing of the typical lattice structure design to be installed is provided in Figure 2–7.

The distance from the ground to the lowest conductor would be at least 35 feet (10.7 m). The approximate distance between phases would be 35 feet (10.7 m) horizontally. The span lengths between the transmission structures would be approximately 1,200 feet (366 m).

Looping of the SWPL into the ECO Substation switchyard would require approximately 7 acres (2.8 ha) of land, approximately 200 feet (61 m) wide and 2,285 feet (696 m) long, for placement of the four new transmission structures and the associated permanent right-of-way.

Figure 2-8 provides a simulated view of the ECO Substation after construction, as viewed from eastbound I-8. Additional design and construction details for the ECO Substation and loop-in to SWPL are available in SDG&E's application documents (SDG&E 2009).

2.9 ESJ WIND PROJECT IN MEXICO

The ESJ Wind project in Mexico would be constructed in phases. A maximum of 52 wind turbines would be constructed in Phase 1, depending on the selected manufacturer and specific model, resulting in up to 130 MW of power (assuming nominally 2.5 MW per turbine; the wind turbines have not been selected by ESJ-U.S., so actual generating capacity may vary). Phase 1 would be constructed on the furthest north land leased by ESJ (an area referred to as the Jacume lease area), north of the town of La Rumorosa, Mexico. Figure 1-1 depicts the general location of the project in eastern San Diego County and Baja California. Figure 1-2 provides a more detailed map of Phase 1 of the ESJ Wind project and proposed project locations. The wind turbine locations shown in Figure 1-2 are preliminary and subject to refinement based on ongoing siting studies. The preliminary wind turbine locations are in areas that have been determined to be optimal for wind generation, taking into consideration available meteorological information, site access, and other site constraints. As shown in Figure 1-2, the wind turbines nearest to the U.S. would be located no closer than approximately 0.7 mile (1.1 km) south of the U.S. border.

[13] Figure 2-6 is adapted from SDG&E as proposed in their filing with CPUC (PEA, Figure 3-7: ECO Substation and SWPL Loop-In Vicinity Map). The figure depicts different types of disturbed land areas, including new permanent access roads; temporary transmission line pull sites; temporary construction work areas; and temporary staging yards.

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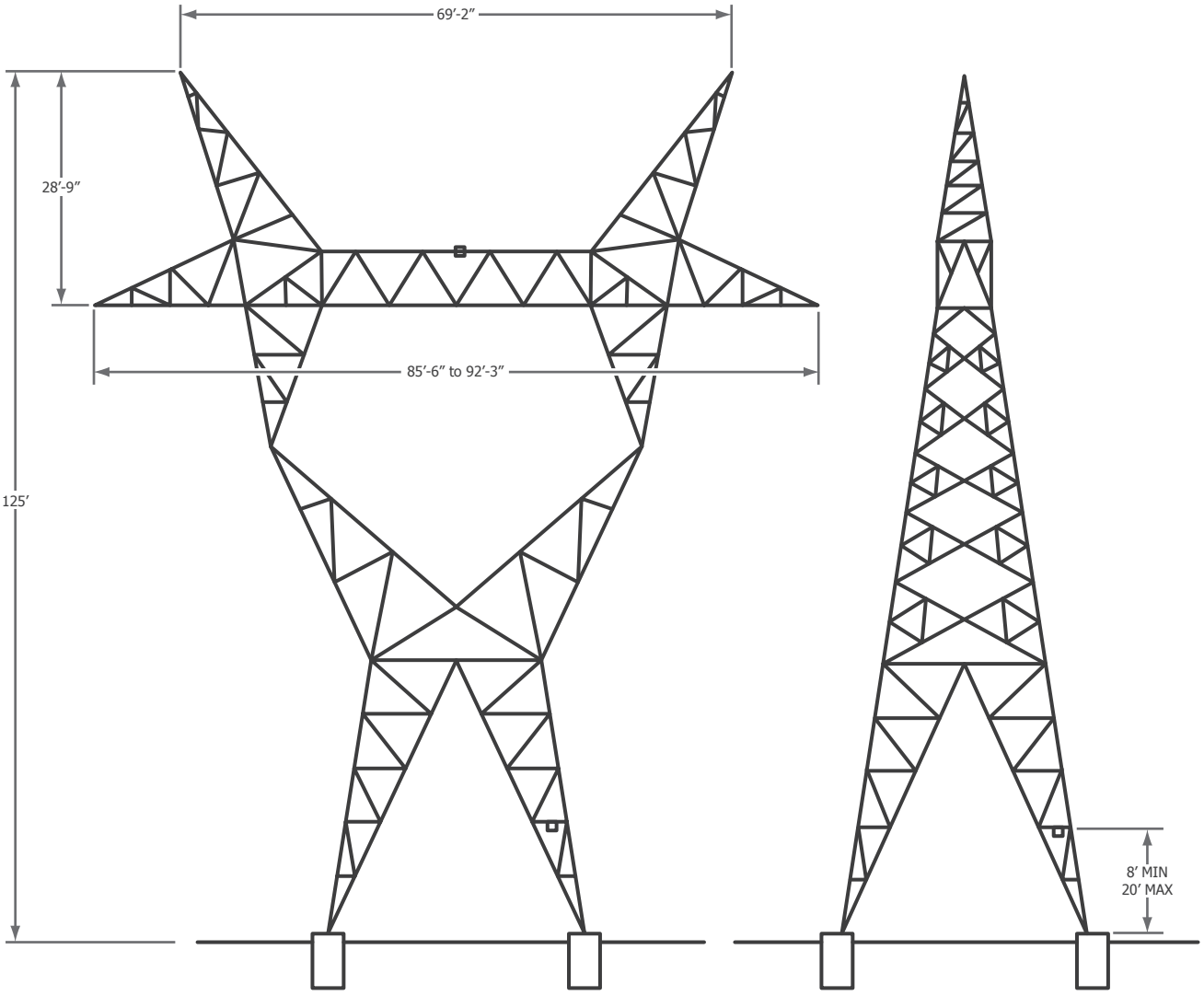


Figure_2-7_EastCountySubstationLoopInTypicalStructure_8x11_v3.ai (07/28/2010, 11:09 pm) R. Wurgler/T. Murphy



Source(s):
SDG&E 2009.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 2-7

SWPL LOOP-IN TYPICAL STRUCTURE

August 2010

Photographs depict a Siemens Power Generation SWT-2.3-101 Wind Turbine and rotor segment. Schematic is as provided by ESJ, LLC.

Source(s):
Siemens Energy 2009.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 2-8

TYPICAL WIND TURBINE

August 2010

Subsequent expansion of the ESJ Wind project in Mexico would consist of additional phases of wind generation, up to a maximum build-out of 1,250 MW. According to ESJ-U.S., the timing and location for installation of subsequent phases have not been determined, but their current leaseholds would place the location of those subsequent phases south of the town of La Rumorosa (Figure 1-1), and thus farther from the border than Phase 1.[14]

For Phase 1, each wind turbine would be rated at up to a possible maximum of 3.0 MW. A typical turbine design that may be used for this project is shown in Figure 2-8, and is similar to Siemens Power Generation's SWT-2.3-101 Wind Turbine (this is a 2.3 MW machine). The maximum rotational speed of turbine rotor blades averages between 6 and 16 revolutions per minute for a 2.5 MW turbine. As shown in Figure 2-7, the total height of the combined tower structure and rotor blades would likely be up to 431 feet (130.5 m), depending on the tower height and the turbine rotor blade diameters. The rotor diameter for the Siemens SWT-2.3-101 is approximately 333 feet (101 m). The total distance from blade tip at the six o'clock position to the ground surface would be at least 97 feet (29.5 m). The wind turbine blades and tower would likely be light grey in color with a semi-matte finish, although final color selection would be based on Mexican regulatory requirements.

According to ESJ-U.S., up to approximately 30 percent of the wind turbine units would be lighted (actual percentage would be dictated by Mexican regulatory requirements). It is anticipated that lighting would generally follow FAA guidelines listed in Advisory Circular 70/7460-1K, Obstruction Marking and Lighting (2007), or equivalent Mexican guidelines. The FAA guidelines propose that lighting for wind turbine farms should include the following parameters:

- The majority of the lights should be positioned on the outer perimeter of the wind turbine farm. Lighting of the turbines inside the perimeter is not required unless the turbines stand higher than the perimeter turbines.
- Any array of flashing or pulsed lighting should be synchronized or flashed simultaneously.
- Nighttime wind turbine lighting should consist of the preferred FAA L-864 aviation red-colored flashing lights, which emit approximately 20-40 flashes per minute.
- Each light within a group of wind turbines should be spaced no more than one-half statute mile (2,640 feet [800 m]) from each other if the integrity of the group appearance is to be maintained.
- If the wind turbines would be painted white or light grey, no daytime illumination of the turbines would be required; however, the color treatment of the turbines would be within the purview of Mexican permitting authorities.

Actual lighting specifications could vary based on Mexican regulations. For the purpose of this EIS, the visual impacts assessment in Section 3.2 (Visual Resources) considers these parameters as being implemented in the evaluation of nighttime visual impacts from the ESJ Wind project on U.S. receptors.

[14] This reflects the latest information provided to DOE by the applicant as of the date of publication.

Other infrastructure to support the wind turbines would include access roads, electrical substations, and transmission lines from the substations to the U.S.-Mexico border, where the lines would link to the ESJ U.S. Transmission Line, as shown in Figures 1-2 and 2-1.

As noted in Section 1 (Introduction), if the interconnecting line is rated at 230-kV, the 230/500-kV transformation would occur at a new substation that would be built in the U.S. by SDG&E as part of its ECO Substation Project. However, if the interconnecting line is set at 500-kV, then a substation would also be required in Mexico.

2.10 COMPARISON OF IMPACTS OF ALTERNATIVES

A complete discussion and analysis of potential impacts of the alternatives is provided in Section 3 (Environmental Setting, Impacts, and Mitigation Measures). The following discussion summarizes the environmental implications of the action alternatives, organized by resource area. Both temporary impacts during construction and long-term impacts during operation of the proposed transmission line are considered. The APMs described in Section 2.6, which are designed to avoid or minimize potential impacts, were considered as part of the project in determining the potential for impacts. Additional mitigation measures that could be implemented to further reduce potential impacts of the two action alternatives and, which could be considered for adoption in DOE's Record of Decision, are also discussed. Under the No-Action Alternative, the transmission line would not be built, and there would be no changes to existing conditions in the various resource areas.

Following this discussion is Table 2-3, which is organized by resource area and compares the potential impacts for the three alternatives and lists potential additional mitigation measures for the two action alternatives.

2.10.1 Biological Resources

Both the 230-kV Route and 500-kV Route alternatives would result in permanent disturbance to approximately 10 acres of natural vegetation and wildlife habitat. The areas that would be affected are classified in two habitat types: Sonoran Mixed Woody Scrub and Peninsular Juniper Woodland and Scrub. These habitats support a wide range of plants and wildlife, including special status wildlife that has been observed onsite or that has the potential to occur onsite. Due to fire safety concerns, there would be no revegetation or restoration of areas disturbed by the proposed project.

Under the 230-kV Route alternative, construction of the double-circuit transmission line would result in the loss of up to 9.72 acres (3.9 hectares) of vegetation and wildlife habitat. These permanent impacts would be offset by a proposed conservation easement (in accordance with County of San Diego Guidelines), described below. Construction of the transmission line would also potentially result in minor temporary disturbances to wildlife and breeding birds due to traffic and increased noise along the right-of-way. Construction activities would also increase the potential for introduction of non-native invasive species, which is a known concern in the desert region. Following completion of construction activities, the presence of the transmission line could result in a minor potential increase in avian collisions, but would also result in a long-term minor beneficial impact to raptors by providing additional roosting area on structures. Operation

of the transmission line would also result in long-term and major impacts to vegetation and wildlife habitat in the event of a transmission line-caused wildfire.

The analysis of special-status species addressed potential impacts to plant and wildlife species that meet one or more of the following criteria: listed or proposed for listing as threatened or endangered under the federal Endangered Species Act or the California Endangered Species Act; protected under the federal Migratory Bird Treaty Act (MBTA) or Bald and Golden Eagle Protection Act (BGEPA); listed on the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California; considered by the County of San Diego to be rare, endangered, or threatened or sensitive; included on the County of San Diego's lists of sensitive animal species; or designated by California Department of Fish and Game as a Species of Special Concern, Watch List, Specially Protected Mammal, or a California Fully Protected species.

No special-status plants were observed in the survey area during rare plant surveys. Therefore, no impacts to special status plant species are anticipated. Four special-status wildlife species were observed during the project surveys or have a high potential to occur: northern red diamond rattlesnake, California horned lark, loggerhead shrike, and San Diego black-tailed jack rabbit. Vegetation clearance would remove potential foraging and nesting habitat for nesting birds, including California horned lark and loggerhead shrike. Construction is not expected to affect the northern red diamond rattlesnake population. Construction would remove cover and foraging habitat for the San Diego black-tailed jackrabbit and could destroy active burrows if present.

Five other federally-listed wildlife species were identified by USFWS as potentially occurring in the vicinity of the project: Quino checkerspot butterfly, arroyo toad, southwestern willow flycatcher, California condor, least Bell's vireo, and Peninsular bighorn sheep. The project site lacks suitable riparian and woodland habitat for arroyo toad, southwestern willow flycatcher, and least Bell's vireo; therefore, these species are considered to have a low potential to occur onsite and no impacts are expected to occur as a result of construction activities. Designated critical habitat for the Quino checkerspot butterfly is approximately 3.6 miles (5.8 km) west of the most westerly portion of the proposed project and would not be affected by project construction. Project site surveys did not document the presence of any Quino checkerspot butterfly or populations of host plants used at the larval stage by the species. As a result, the species is not expected to occur in the project area and would not be impacted by the project.

The project site is within the range of the California condor; however, this species is considered to have a very low probability of occurring in the project area based on limited distribution within its historic range and the absence of recent sightings in the project vicinity (with the exception of a 2007 sighting near Jacumba). Construction of the project is not expected to adversely affect California condors.

The designated critical habitat and known populations of the Peninsular bighorn sheep are approximately 2 miles (3.2 km) from the project site; thus, project construction would not affect the designated critical habitat for this species. However, vegetation clearing within the right-of-way and the main access road would result in permanent impacts to potential forage material for this species.

Under the 500-kV Route alternative, construction of the single-circuit transmission line would result in the loss of up to 10.77 acres (4.4 hectares) of vegetation and wildlife habitat which would be offset by the proposed conservation easement. All other impacts would be as described for the 230-kV Route.

Under both the 230-kV Route and 500-kV Route alternatives, there could be impacts to biological resources in the United States if construction or operation of the proposed ESJ Wind project and the associated transmission lines in Mexico impeded the cross-border movement of wildlife or caused mortality to such wildlife, including birds afforded international protection under the MBTA. The wind development area in Mexico would not be fenced, so the ESJ Wind project would not impede cross-border movement of terrestrial wildlife. However, wildlife movement is currently impeded by the U.S.-Mexico Border Fence, where present. In addition, the construction and operation of the wind facilities, coupled with elevated levels of human activity from workers and visitors to the wind farm, could alter wildlife behavior, including possible avoidance of the area.

Neither the proposed transmission line segment in Mexico nor the ESJ Wind project turbines would be located within known major migration corridors or habitats such as major wetlands and riparian areas that would support large concentrations of birds, but construction of the Phase 1 wind turbines could impact up to 7,500 acres (3,035 ha) of chaparral, pine forest, and possibly some desert communities in Mexico that may support birds protected under the MBTA. Future phases would increase this development footprint and thus potentially increase the impact to birds protected under the MBTA. Construction of the ESJ Wind project could result in the destruction or abandonment of active migratory bird nests and operation of the turbines could result in the loss of migratory birds and migratory bats that collide with the turbine blades. Migratory raptors, in particular, may be vulnerable to collisions with wind turbines when hunting prey. ESJ has obtained an environmental permit from the Mexican government for the ESJ Wind project. This permit includes conditions that require both pre-construction and post-construction bird and bat monitoring of the project area, as well as the identification and implementation of measures to avoid and/or minimize potential collisions.

APMs that are intended to minimize impacts to biological resources and are considered in assessing impacts of both transmission line alternatives are listed in Section 2.6. Potential mitigation measures in addition to the APMs described above as having the potential to further minimize potential impacts to biological resources are:

- Worker training for contractor personnel to ensure that construction workers are aware of the sensitive biological resources that potentially occur in the construction areas and the protection measures that should be followed within these areas;
- Measures to prevent wildlife entrapment, including covering of excavations at the end of each work day; and
- Development and implementation of a weed control plan to minimize the potential for weed introduction during construction, and to address post-construction maintenance and weed control procedures during the operational life of the project.

2.10.2 Visual Resources

Under the 230-kV Route and 500-kV Route alternatives, construction of the transmission line would result in permanent potentially moderate-to-major adverse visual impacts due to land scarring. In addition, views of construction equipment and activity from surrounding recreational areas and highways are considered a temporary moderate adverse impact. Following completion of construction activities, the presence of the transmission line would result in long-term moderate adverse impacts to visual resources. Wind turbines constructed in Mexico as part of the EJS Wind project would be visible from several U.S. locations, including locations in or on the communities of Jacumba and Boulevard, Interstate 8, Old Highway 80, Table Mountain Area of Critical Environmental Concern (ACEC), Anza-Borrego Desert State Park, Jacumba Wilderness, and BLM-administered lands in the Yuba Desert. The numerous wind turbines would appear as an assemblage of light-colored vertical forms in a landscape predominantly natural in appearance. Predicted visual impacts from wind turbines would be moderate-to-high for viewers at observation points in Jacumba and Table Mountain ACEC and low-to-moderate for viewers at an observation point on Interstate 8. During clear weather, aviation safety lighting on wind turbines (if lighting is required by Mexican agencies) would also be visible from viewing points in the U.S.

Potential mitigation measures not proposed as APMs that could reduce potential visual impacts from the transmission line are: (1) reducing the reflectivity and visual contrast of construction equipment and towers and (2) reducing the color contrast and views of land scars by avoiding landform alteration and implementing measures such as contour grading to blend graded surfaces with existing terrain. These measures could reduce potential impacts to minor levels.

2.10.3 Land Use

No adverse land use impacts are anticipated under either the 230-kV Route or 500-kV Route alternatives. Construction and operation of the proposed transmission line is a permitted use under the County's existing and proposed General Plan designation, and under the existing zoning (with a Major Use Permit). No mitigation measures are indicated. The County of San Diego would make the final determination of consistency with the General Plan, the Mountain Empire Subregional Plan, and Zoning Ordinance. Additional mitigation measures may be imposed by the County during their review.

2.10.4 Recreation

Because both the 230-kV Route and 500-kV Route alternatives are on private land and are not adjacent to state or Federal wilderness or recreation areas, there would be no direct effects on recreation. However, users of public recreation areas in the vicinity could be affected indirectly by increased traffic, noise, and visual changes. Construction of the transmission line would result in minor temporary increases in vehicle traffic and travel times to and from nearby recreation areas. However, roadways have enough capacity to accommodate the increased traffic without affecting level of service, so recreational users would not experience adverse effects. Following completion of construction activities, the presence of the transmission line would result in long-term minor indirect impacts to recreational areas due to alterations to existing scenic vistas and increases in ambient noise levels during foul weather (due to corona noise). Although the transmission line would encroach upon the views and compromise the integrity of the largely intact desert setting, the overall change to the views from recreation areas would be low (ICF

Jones and Stokes 2010b). Similarly, based on the distances from the transmission line, no increases in ambient noise levels are anticipated to occur at any other nearby recreational facilities due to corona effect during foul weather. No mitigation measures are indicated..

2.10.5 Cultural Resources

ESJ-U.S. commissioned the preparation of an Archaeological and Historical Investigations Report to investigate the potential presence of significant resources within the project area and vicinity. There are 11 known prehistoric archaeological sites in the area potentially affected by project construction. ESJ-U.S. has incorporated measures into its project design to eliminate potential impacts to these sites. Under the 230-kV Route and 500-kV Route alternatives, construction of the transmission line would result in the potential for minor impacts to currently unknown cultural resources and/or human remains. ESJ-U.S. would comply with legal requirements related to protection of these resources and has committed to several APMs to reduce or avoid potential impacts. If human remains are discovered, ESJ-U.S. would stop work within 50 feet (15 m) of the discovery; ESJ-U.S. would also contact the County of San Diego coroner and a professional archaeologist to determine the significance of the discovery. Depending on the recommendations of the coroner and/or archaeologist, ESJ-U.S. would consult with the County of San Diego to establish additional feasible and appropriate mitigation measures to be implemented into the project.

APMs intended to avoid potential impacts to cultural resources are listed in Section 2.6. A potential mitigation measure not proposed as an APM that would further minimize the potential for cultural resources impacts during construction is worker training of contractor personnel to ensure that construction workers are aware of the potential for archaeological discoveries during construction. To achieve its goals, the employee training session should be conducted by a qualified archaeologist and should include a description of the kinds of cultural resources that may be encountered during construction and the steps to be taken if such finds are unearthed.

Operation of a transmission line under either alternative would not involve ground disturbance; therefore, no impacts to cultural resources are anticipated during operation.

2.10.6 Noise

Both the 230-kV Route alternative and the 500-kV Route alternative would introduce new sources of sound into a rural environment where sound is generated by wind and other natural sources, traffic on nearby roadways, occasional air traffic, and activities at a shooting range approximately 1 mile to the west. Average sound levels generally are below 50 dBA during daytime hours and below 40 dBA at night.

Under the 230-kV Route alternative, construction of the double-circuit transmission line would result in minor temporary increases in ambient noise levels; however, construction would occur during the hours of the day allowed by the County of San Diego ordinance and, thus, would be consistent with the County's requirements. The nearest noise-sensitive receptor is a residence (unoccupied) located approximately 1,600 feet (490 m) west of the construction area. During construction, the sound level at this location would be approximately 60 dBA (CPUC/BLM 2008a; DOE 2004), which is well below the County's 75-dBA threshold for daytime construction noise impacts. Construction-related truck traffic along existing roadways would also

generate increases in sound levels. However, because of the existing high traffic levels on Interstate-8, the increase in sound levels from trucks accessing the project in the vicinity of that roadway would not be perceptible.

Once operational, increased sound levels from transmission lines are due primarily to corona discharge, which is a small electrical discharge along the wire that produces crackling and hissing sounds as well as small amounts of light. These discharges result from electrical energy passing over surface irregularities that occur along the transmission lines, such as scratches, nicks, dust, or water drops that can affect a conductor's electrical surface gradient. The resulting noise caused by corona discharge varies depending on conductor size and configuration. Minor temporary increases in ambient noise level caused by corona noise during infrequent foul weather events are anticipated during operation of the transmission line. A noise analysis conducted for the project determined that both of the possible configuration options for conductors on a 230-kV line would meet the County of San Diego's nighttime property line sound level limit of 45 dBA (the model results indicate a maximum 8.8 dBA at the property line for the 230-kV configuration options). Therefore, the impact of corona-generated sound during operation of the project would be minor, but would occur sporadically for the life of the project. No mitigation measures are indicated.

Under the 500-kV Route alternative, construction impacts would be as described for the 230-kV Route. However, the corona effect increases with voltage, and analysis of potential corona noise determined that only two of the four possible configuration options for conductors on a 500-kV line would meet the County of San Diego's nighttime property line sound level limit of 45 dBA (the model results indicate a maximum 35.4 and 38.8 dBA at the property line for the two 500-kV configuration options that would meet the County's noise standard). ESJ-U.S. has committed to choosing only those options which would meet the criterion; therefore, the level of corona-generated sound would be somewhat larger than described for the 230-kV Route, but would meet the county criteria. No additional mitigation measures are indicated.

2.10.7 Transportation and Traffic

Under both the 230-kV Route and 500-kV Route alternatives, construction of the transmission line would result in a minor temporary increase in traffic on local roadways, a minor potential for adverse impacts to traffic safety at the project's ingress/egress, and a short-term minor potential for roadway damage. These minor impacts would be avoided with the implementation of a traffic control plan, as required by the County of San Diego prior to issuance of a MUP for transmission line construction and prior to approval of construction or grading permits. ESJ-U.S. is working with the County of San Diego to develop road improvements at the site entrance in accordance with the County's traffic safety design standards.

Under either alternative, operation of the transmission line would result in a minor potential for adverse impacts to air traffic safety with U.S. Border Patrol's aircraft patrol along the U.S.-Mexico border. Consultation with the U.S. Border Patrol prior to starting construction is a potential mitigation measure (not proposed by the applicant) that could minimize this impact.

2.10.8 Public Health and Safety

There would be little potential to expose the public to hazardous materials or contaminated soil as a result of project construction for either the 230-kV Route or the 500-kV Route alternatives. However, construction would require the routine transport, handling and onsite storage of petroleum products such as fuel and lubricating oil and hazardous materials such as paints, as well as waste products with these constituents. As described in Section 2.6, a Spill Prevention and Control Plan implemented as an APM would outline measures to prevent, control, and minimize impacts from a spill of petroleum substances, hazardous materials, or wastes during construction. Construction materials that pose a potential contamination risk to storm water would be managed to minimize potential storm water contact. Solid and liquid waste would be reused and/or recycled to the extent practicable, or disposed of properly if deemed not reusable or recyclable. The small amounts of hazardous waste (primarily vehicle fuels and lubricants) that could be produced as byproducts of construction would be disposed of in accordance with local, state, and Federal regulations. The hazardous materials would also be stored aboveground and in secondary containment to prevent offsite discharges. Portable sanitary facilities would be used by all construction personnel, would be located on non-paved areas, 50 feet (15 m) away from drain inlets, and would be serviced regularly.

No contaminated soils or potential areas of contamination have been identified in areas that would be disturbed by construction. However, However, a potential mitigation measure (not proposed by the applicant) to reduce the possibility of public exposure to previously unidentified contaminated soils is training of construction personnel to identify potential contamination prior to beginning work (e.g., through odor detection and visual observation of discolored soils or oil sheens).

During operation of the transmission line under both the 230-kV Route and 500-kV Route alternatives, there would be a minor potential for public exposure to induced currents and electrical field interference. To reduce the potential impact, ESJ-U.S. would incorporate grounding features into the project design in accordance with industry design standards for electrical transmission structures. Maintenance workers and members of the public who are present in the immediate vicinity of the line would be temporarily exposed to the EMF generated by the transmission line, but because there are no public trails, recreational areas, or other developments to cause visitors to linger near the line, there would be little public exposure to EMF. EMF levels would be higher for the 500-kV Route alternative than for the 230-kV Route alternative because electric fields increase in strength as voltage increases. At the nearest residence (an unoccupied mobile home about 1,600 feet [490 m] west of the 230-kV Route and about 2,000feet [610 m] west of the 500-kV Route), EMF levels from the line under either alternative would be below typical household levels.

DOE considered the potential for impacts from intentionally destructive acts. The aboveground electrical transmission lines and supporting structures would be located within an unfenced utility right-of-way and would, therefore, be accessible to those desiring to damage the system. The transmission line support structures would be constructed on footings in the ground and would be difficult to dislodge. In general, the proposed transmission line would present no greater target for intentional destructive acts than any other high-voltage transmission line in the U.S. Past experience along the thousands of miles of electrical transmission lines in the country

suggests that intentional destructive acts against the proposed structures would be unlikely. If such an act were to occur and succeed in destroying towers or other project-related equipment, the main consequence for the public would be disruption of electrical service.

2.10.9 Fire and Fuel Management

Both the 230-kV Route and 500-kV Route alternatives would result in major increases in wildfire hazards during construction and operation of the transmission line. Factors leading to increased wildfire hazard would include introduction of new ignition sources; potential introduction of invasive nonnative plants that can change wildfire frequency, timing, and spread; and creation of a potential obstacle to firefighting. Impacts from operation of the transmission line would be reduced to some extent by the implementation of an APM, the project's Fire Protection Plan (Hunt Research Corporation 2009). The Fire Protection Plan (developed in coordination with the San Diego Rural Fire Protection District) specifies measures to prevent fires caused by operation of the transmission line. For example, to reduce potential fuel, there would be no revegetation of the right-of-way.

Potential mitigation measures in addition to the APM described above that would further reduce potential fire impacts are:

- Development and implementation of a Construction Fire Prevention Plan specifying measures to be implemented during project construction.
- Coordination of ESJ-U.S. activities with emergency fire suppression activities. To help minimize impacts on fire-fighting ability associated with construction and operation of the transmission line, ESJ-U.S. could coordinate fire suppression activities with appropriate fire agencies, and implement routine maintenance and inspections of the towers and conductors to remove any potential fire hazards.
- Removal of hazards (brush and dead or decaying vegetation) from work areas prior to starting construction or maintenance work.

Another potential mitigation measure, noted above in Section 2.10.1, is the development and implementation of a weed control plan to minimize the potential for weed introduction during construction, and to address post-construction maintenance and weed control procedures during the operational life of the project.

2.10.10 Air Quality and Climate Change

Under both the 230-kV Route and 500-kV Route alternatives, construction of the transmission line would result in minor increases in several criteria pollutants or their precursors (reactive organic gases that contribute to ozone formation; carbon monoxide; nitrogen oxides; sulfur oxides; and particulate matter [PM_{10}] due to fugitive dust) and greenhouse gases. Most of San Diego County is currently designated a federal attainment or unclassifiable area for all criteria pollutants except ozone (8-hour), for which the project area is classified as nonattainment. With regard to state criteria, the project area is currently classified as a "serious" ozone nonattainment area and a nonattainment area for particulates measured as PM_{10} and $PM_{2.5}$. Maximum construction emissions of criteria pollutants are estimated to be well below applicable thresholds, including general conformity thresholds, except for daily fugitive PM_{10}. The temporary increase

in fugitive dust from construction activity would be minimized by complying with the San Diego Air Pollution Control District's Rule 55 – Fugitive Dust Control. This rule requires development and implementation of a Dust Control Plan. The Plan will specify several dust control measures including: use of water or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas with sufficient frequency to maintain an effective level of soil moisture or cohesion; suspension of construction grading on days when the wind gusts exceed 25 mph (40 kilometers per hour [kph]); use of rattle plates (grizzlies) to minimize mud and dust from being transported onto paved roadway surfaces from dirt or gravel roads; covering all trucks hauling soil and other loose material; limiting vehicle speeds to 15 mph (24 kph) on unpaved roads; street sweeping and vehicle washing; and covering or stabilizing exposed stockpiles. The Dust Control Plan would emphasize water conservation by limiting water application strictly to necessary quantities.

Because it would transmit electricity from wind turbines, operation of the transmission line would potentially result in a long-term reduction of greenhouse gas emissions. This electricity transmission would aid in reducing the need to generate electricity within the U.S. using fossil fuel, which could indirectly lead to reduced emissions from fossil fuel-fired power plants.

The minor impacts from air emissions during construction and operation could be further minimized by implementing additional potential mitigation measures (not identified by the applicant); these potential mitigations include: using low-emission construction equipment, minimizing vehicle idling, and encouraging carpooling among construction personnel.

2.10.11 Water Resources

Water resources impacts would be the same for both the 230-kV Route and 500-kV Route alternatives. Construction of the proposed transmission line would result in temporary minor impacts to groundwater supply due to use of groundwater for dust abatement, cleaning construction equipment, and concrete production for tower foundations. Because the total water requirement of 2.4 acre-feet (2,950 cubic m) would be less than 0.1 percent of the estimated annual groundwater recharge of 2,700 acre-feet/year (3.3 million cubic m/year), project water use would not impact the locally available water supply. Since water resources are generally scarce in the project area, this short-term minor impact could be further reduced by the potential mitigation measure (not identified by the applicant) of preferentially selecting non-potable water sources for project-related uses to the extent practicable.

Surface water resources in the vicinity of the corridors consist of ephemeral creeks and washes that flow only in response to rainfall events. Onsite investigations identified three minor ephemeral drainage features in the area of the alternative corridors. Land disturbance for the project would have minimal impact on surface water flows in and near the right-of-way.

An APM that would contribute to minimizing the potential water quality impacts of construction is the implementation of the SWMP that ESJ-U.S. has prepared for the project. The SWMP is designed to manage the quality of stormwater runoff from the land disturbance activities associated with the project in accordance with the requirements of the Clean Water Act (CWA) and County of San Diego's guidelines. The BMPs outlined in the SWMP would be implemented prior to commencement of field construction activities. BMPs would be maintained during and after construction and until final stabilization of the soil is accomplished at the site. Specific

measures included in the SWMP are described in Section 2.6. A final site cleanup and inspection would be conducted by ESJ-U.S., in coordination with local agencies, at the completion of construction. Post-construction erosion and sediment control BMPs, as well as final soil stabilization and cleanup BMPs, would be implemented.

No impacts to surface water or groundwater are anticipated during the operation of the transmission line.

2.10.12 Geology and Soils

Under both the 230-kV Route and 500-kV Route alternatives, construction of the transmission line would result in a minor temporary increase in soil disturbance and erosion, which would be minimized by implementation of the project's SWMP. There is a potential for erosion impacts after completion of construction due to improperly controlled site runoff; these impacts would be minor provided that the control measures outlined in the SWMP are left in place, inspected, and maintained until final stabilization has occurred. The potential for soil erosion could be further reduced by limiting modifications to the access road to the extent practical in areas that are sensitive to disturbance and that have a high erosion potential. This additional potential mitigation measure (not identified by the applicant) would reduce potential erosion both during and after construction.

Onsite soils have a high potential to corrode steel, but potential impacts of corrosion on operation of the transmission line would be largely avoided by not placing uncoated steel in contact with onsite soils and by a proposed inspection, maintenance, and repair program that would be planned to identify and remedy corrosion problems before they result in a structural failure. During operations there would a minor potential for structure failure/damage of project facilities due to seismic ground-shaking from earthquakes associated with one of the major faults in the region (such as the magnitude 7.2 earthquake which occurred on a fault located 54 miles [87 km] southeast of the corridor on April 4, 2010). Although such seismically induced groundshaking could damage project facilities, the overhead transmission lines and their support structures would be designed for dynamic loading under variable wind conditions that exceed earthquake loads. This design feature minimizes the potential for seismically-induced groundshaking to cause significant damage.

2.10.13 Socioeconomics

Under both the 230-kV Route and 500-kV Route alternatives, construction of the transmission line would result in minor temporary beneficial impacts to local businesses through increased expenditure of wages for goods and services. During operation of the transmission line, minor short-term adverse impacts to property values due to visual impacts are anticipated. Research indicates that while there is some evidence that overhead transmission lines have the potential to reduce the value of nearby property, any effects are usually smaller than anticipated and difficult to quantify due to the individuality of properties/neighborhoods, differences in personal preferences of individual buyers/sellers, and the weight of other factors that contribute to a person's decision to purchase a property (CPUC/BLM 2008b). Other factors (e.g., neighborhood factors, square footage, size of lot, irrigation potential) are more likely than overhead transmission lines to be major determinants of the sales price of property (Knoll and Priestly 1992; CPUC/BLM 2008b). No mitigation measures are indicated.

2.10.14 Environmental Justice

No disproportionately high or adverse impacts to low-income or minority populations are anticipated under either the 230-kV Route or the 500-kV Route alternatives. More than 50 percent of the residents in the areas surrounding the alternative corridors are classified as minorities, indicating the presence of a minority population. Poverty levels in the areas surrounding the alternative corridors are not, however, high enough for the local area to be considered to contain low-income populations.

Construction and operation of the proposed transmission line would not expose the minority population to disproportionately high and adverse impacts. These activities would not result in major adverse health and safety, air quality, noise, socioeconomic, or other impacts on local communities. The distance between the right-of-way and the nearest residents (2 miles to the nearest occupied residence) means that the identified minor impacts would not disproportionately affect nearby minority populations in comparison to the general public. Additionally, no information suggests that there are differential patterns of consumption of natural resources that would cause minority populations to experience substantially different impacts than the general population. Therefore, there is no potential for the operation of the transmission line to cause disproportionately high or adverse impacts to minority or low-income populations in comparison to the general population. No mitigation measures are indicated.

2.10.15 Services and Utilities

Under both the 230-kV Route and 500-kV Route alternatives, construction of the transmission line would result in temporary minor increased demand for solid waste utilities and for law enforcement at the U.S.-Mexico border. The temporary minor increased demand for solid waste utilities during construction would be minimized by complying with the County of San Diego construction and demolition debris ordinance. The effect of increased demand for border law enforcement could be minimized by the additional mitigation measure of coordinating with the U.S. Border Patrol and local law enforcement to ensure the construction site is secure and to identify site-specific security measures.

Operation of the transmission line would not result in added population; therefore, it would not result in an increased demand for public services or utilities. See Section 3.8 (Fire and Fuels Management) for information on increased demand for fire protection.

Table 2-3
Summary of Impacts by Resource Area

Resource Area	Alternative 1 No Action	Alternative 2 Double-Circuit 230-kV Route	Alternative 3 Single-Circuit 500-kV Route	Potential Mitigation Measures[1]
Biological Resources	No impacts to habitat/vegetation, sensitive species or breeding birds would occur.	Permanent removal of up to 9.72 acres of Sonoran Mixed Woody Scrub and Peninsular Juniper Woodland and Scrub habitat/vegetation (would be offset by conservation easement) Potential for long-term major impacts to habitat in the event of a fire Minor temporary disturbances to wildlife and breeding birds during construction (noise and traffic increases) Minor potential for introduction of non-native invasive species during construction Potential for avian collisions Minor beneficial impact to raptors (potential for roosting on structures)	Permanent removal of up to 10.77 acres of Sonoran Mixed Woody Scrub and Peninsular Juniper Woodland and Scrub habitat/vegetation (offset by conservation easement) All other impacts would be the same as described for the 230-kV Route Certification of compliance with Mexican permit requirements related to avian mortality to MBTA-protected cross-border migratory bird species	Worker training Measures to prevent wildlife entrapment Weed Control Plan
Visual Resources	No impacts to visual resources would occur	Permanent moderate to major adverse impacts due to land scarring from excavation Temporary moderate adverse impacts due to views of construction equipment and activity Moderate long-term adverse impacts to visual resources during operation of transmission line	Impact would be the same as described for the 230-kV Route	Reduce color contrast and views of land scars Reduce visual contrast of towers and conductors
Land Use	No impacts to land use would occur	No adverse impacts are anticipated	No adverse impacts are anticipated	None indicated

[1]Applicant Proposed Measures are considered part of the project description and are accounted for in the analysis of potential impacts within each resource area. Potential mitigation measures are those additional measures that are identified in the EIS to further reduce or avoid potential impacts.

Table 2-3
Summary of Impacts by Resource Area

Resource Area	Alternative 1 No Action	Alternative 2 Double-Circuit 230-kV Route	Alternative 3 Single-Circuit 500-kV Route	Potential Mitigation Measures[1]
Recreation	No impacts to recreation would occur	Minor temporary indirect impacts during construction from increased traffic Minor long-term indirect impacts during operation from changes to views from recreational areas	Impacts would be the same as described for the 230-kV Route	None indicated
Cultural Resources	No impacts to cultural resources would occur	No adverse impacts to known cultural resources are anticipated Minor potential for impacts to unknown cultural resources	Impacts would be the same as described for the 230-kV Route	Worker training to reduce potential for impacts to unknown cultural resources
Noise	No changes in the noise environment	Minor temporary increases in ambient noise levels during construction (about 60 dBA at the nearest dwelling unit) but below County of San Diego thresholds Minor temporary increases in ambient noise level during operation, caused by corona noise during foul weather but below County of San Diego thresholds (45 dBA at the property line)	Impacts would be the same as described for the 230-kV Route	None indicated
Transportation and Traffic	No impacts to transportation and traffic would occur	Minor temporary increase in traffic on local roadways during construction Minor potential for adverse impacts to traffic safety at ingress/egress during construction Short-term minor potential for roadway damage during construction Long-term minor potential for adverse impacts to air traffic safety during operation	Impacts would be the same as described for the 230-kV Route	Consult with and inform U.S. Border Patrol to avoid adverse impacts to air traffic safety for their activities

[1]Applicant Proposed Measures are considered part of the project description and are accounted for in the analysis of potential impacts within each resource area. Potential mitigation measures are those additional measures that are identified in the EIS to further reduce or avoid potential impacts.

Table 2-3
Summary of Impacts by Resource Area

Resource Area	Alternative 1 No Action	Alternative 2 Double-Circuit 230-kV Route	Alternative 3 Single-Circuit 500-kV Route	Potential Mitigation Measures[1]
Public Health and Safety	No impacts to public health and safety would occur	Minor long-term potential for public exposure to induced currents and electrical field interference during operation	Impacts would be the same as described for the 230-kV Route	None indicated for public exposure to induced currents and electrical field interference Evaluate unanticipated contamination sites to prevent exposure to contaminated soils during construction
Fire and Fuels Management	No impacts to fire and fuels management would occur	Major temporary increase in fire hazards during construction Major permanent increase in unavoidable ignition source and fire hazards during operation Major permanent adverse impacts to fire-fighting ability during operation	Impacts would be the same as described for the 230-kV Route	Develop and implement Construction Fire Prevention Plan Coordinate with emergency fire suppression activities Remove hazards from work area
Air Quality and Climate Change	No impacts to air quality or climate change would occur	Minor temporary increase in criteria pollutants (reactive organic gases, carbon monoxide, nitrogen oxides, sulfur oxides, and fugitive dust) and greenhouse gases during construction Minor short-term increase in criteria pollutants during operation Potential long-term reduction in greenhouse gas emissions during operation (beneficial)	Impacts would be the same as described for the 230-kV Route	Use low-emission construction equipment Minimize vehicle idling Encourage carpooling
Water Resources	No impacts to water resources would occur	Temporary minor impacts to water supply due to water use during construction	Impacts would be the same as described for the 230-kV Route	Use non-potable water

[1]Applicant Proposed Measures are considered part of the project description and are accounted for in the analysis of potential impacts within each resource area. Potential mitigation measures are those additional measures that are identified in the EIS to further reduce or avoid potential impacts.

Table 2-3
Summary of Impacts by Resource Area

Resource Area	Alternative 1 No Action	Alternative 2 Double-Circuit 230-kV Route	Alternative 3 Single-Circuit 500-kV Route	Potential Mitigation Measures[1]
Geology and Soils	No impacts to geology and soils would occur	Minor temporary increase in soil disturbance and erosion during construction Minor long-term potential for erosion during operation Minor long-term potential for adverse impacts to structures due to corrosive soils Minor long-term potential for structure failure/damage due to seismic ground-shaking	Impacts would be the same as described for the 230-kV Route	Limit modifications of access road in areas which are very sensitive to disturbance
Socioeconomics	No socioeconomic impacts would occur	Minor temporary beneficial impacts to local businesses during construction Minor long-term beneficial impacts to county revenue (property taxes) Minor short-term adverse impacts to property values due to visual impacts	Impacts would be the same as described for the 230-kV Route	None indicated
Environmental Justice	No changes in impacts to low-income or minority populations would occur	No disproportionately high or adverse impacts to low-income or minority populations are anticipated	Impacts would be the same as described for the 230-kV Route	None indicated
Services and Utilities	No impacts to services and utilities would occur	Temporary minor increased demand for law enforcement services during construction Temporary minor increased demand for solid waste utilities during construction	Impacts would be the same as described for the 230-kV Route	Coordinate with local enforcement agencies and secure construction site

[1]Applicant Proposed Measures are considered part of the project description and are accounted for in the analysis of potential impacts within each resource area. Potential mitigation measures are those additional measures that are identified in the EIS to further reduce or avoid potential impacts.

SECTION 3

AFFECTED ENVIRONMENT, IMPACTS, AND MITIGATION

This section provides a discussion of the possible environmental effects of implementing the ESJ U.S. Transmission Line project. The section is organized by environmental resource area (Sections 3.1 through 3.16). Each resource area section also includes a discussion of potential impacts in the U.S due to related activities in Mexico associated with the ESJ Wind project. Where applicable, potential mitigation measures are indicated to avoid or reduce identified potential impacts.

The environmental consequences of implementing the ESJ U.S. Transmission Line project would vary in duration and level of significance among the environmental resource issues. Four levels of impact duration are considered: temporary, short-term, long-term, and permanent. An impact is considered temporary if the impact would generally occur during construction, with the resource returning to preconstruction conditions almost immediately afterward. An impact is considered short-term if the impact would last beyond the end of construction, generally from two to five years depending on the resource. An impact is considered long-term if the impact would last for the life of the project but the resource would recover following removal of the project components. An impact is considered permanent if it would continue indefinitely.

The level of significance of impacts are classified as major, moderate, minor, or "no impact." An impact is considered major if it would result in a substantial adverse change to the environment. An impact is considered moderate or minor if it would not result in substantial adverse environmental effects but could still have some effect. In cases where no impact would occur, this conclusion is noted. Quantitative thresholds are applied, where appropriate, to determine the level of significance (for example, quantitative thresholds are commonly used to determine impact levels in the areas of noise and air quality). Other issues are assessed qualitatively based on context and intensity. A summary of unavoidable adverse impacts is provided at the end of this section (Section 3.16), following the analyses of individual resource areas.

Available information and reports are used to the extent appropriate in preparation of the impact assessment. Information sources include project description information provided in Section 2 (Proposed Action and Alternatives) (including measures proposed by ESJ-U.S. to avoid or reduce impacts); and previous environmental documents including the Sunrise Powerlink Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) prepared jointly by the California Public Utilities Commission (CPUC) and the U.S. Bureau of Land Management (BLM) (CPUC/BLM 2008b). The ESJ U.S. Transmission Line project was analyzed in the RDEIR/SDEIS as a connected action to the Sunrise Powerlink project. The RDEIR/SDEIS was completed in October 2008. The BLM issued

a ROD for the project in January 2009.[1] The U.S. Forest Service issued a ROD for the project in July 2010 to allow construction through 19 miles (30.6 km) of the Cleveland National Forest. [2] The RDEIR/SDEIS was reviewed and it was determined that much of the impact assessment presented in it prepared for the ESJ U.S. Transmission Line project is still relevant. Therefore, throughout this assessment, certain portions of the RDEIR/SDEIS are summarized and incorporated by reference. Independent analysis was performed based on a review of these documents; site visits by various specialists; and additional research to update and confirm previous studies.

Impacts related to the connected actions are discussed in Section 4.0.

Cumulative impacts are discussed in Section 5.0. Irretrievable commitments of resources and the relationship between short-term uses and long-term productivity are discussed in Sections 6.0 and 7.0, respectively. Applicable federal laws and regulations are listed in Section 8.0.

[1] The BLM ROD for the Sunrise Powerlink Project can be found at the following website: http://www.cpuc.ca.gov/environment/info/aspen/sunrise/rod.pdf

[2] The USFS ROD for the Sunrise Powerlink Project can be found at the following website: http://www.fs.fed.us/r5/cleveland/projects/sunrise-powerlink/fs-rod-july-09-2010.pdf

3.1 BIOLOGICAL RESOURCES

This section provides an assessment of the potential impacts of the project alternatives on biological resources including vegetation communities, special-status plant and wildlife species, sensitive natural communities and habitat, wetlands, and wildlife movement corridors either known to occur or potentially occurring along the alternative corridors or in the vicinity of the corridors. For the purposes of this analysis, plant species were considered special-status (or rare) if they are:

1. listed or proposed for listing as threatened or endangered under the federal Endangered Species Act or the California Endangered Species Act (CDFG 2010);

2. on List 1B (considered endangered throughout its range) or List 2 (considered endangered in California but more common elsewhere) of the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (CNPS 2009); or

3. considered rare, endangered, or threatened or sensitive by the County of San Diego (County of San Diego 2009a).

In addition, noteworthy plant species are considered to be those on List 3 (more information about the plant distribution and rarity needed) and List 4 (plants of limited distribution) of the CNPS Inventory.

Wildlife species were considered special-status if they are:

1. listed or proposed for listing under the federal Endangered Species Act or California Endangered Species Act (CDFG 2010);

2. protected under the federal Migratory Bird Treaty Act (MBTA) or Bald and Golden Eagle Protection Act (BGEPA);

3. designated as a Species of Special Concern, Watch List, Specially Protected Mammal, or a California Fully Protected species by CDFG; or

4. included on the County of San Diego's Group 1 or 2 lists of sensitive animal species[3] (County of San Diego 2009a).

3.1.1 Affected Environment

The information provided in the following sections is based upon biological surveys conducted along and in the vicinity of the alternative corridors and the main access road during 2008 and 2009 by Ecology & Environment, Rocks Biological Consulting and EDAW, Inc., and the summary report of the findings of those surveys prepared by EDAW, Inc. (EDAW, Inc. 2010b).

[3] Group 1 animals are species with a high level of sensitivity, either because they are threatened or endangered or because they have very specific natural history requirements that must be met. Group 2 animals are species that are becoming less common but are not yet so rare that extirpation or extinction is imminent without immediate action.

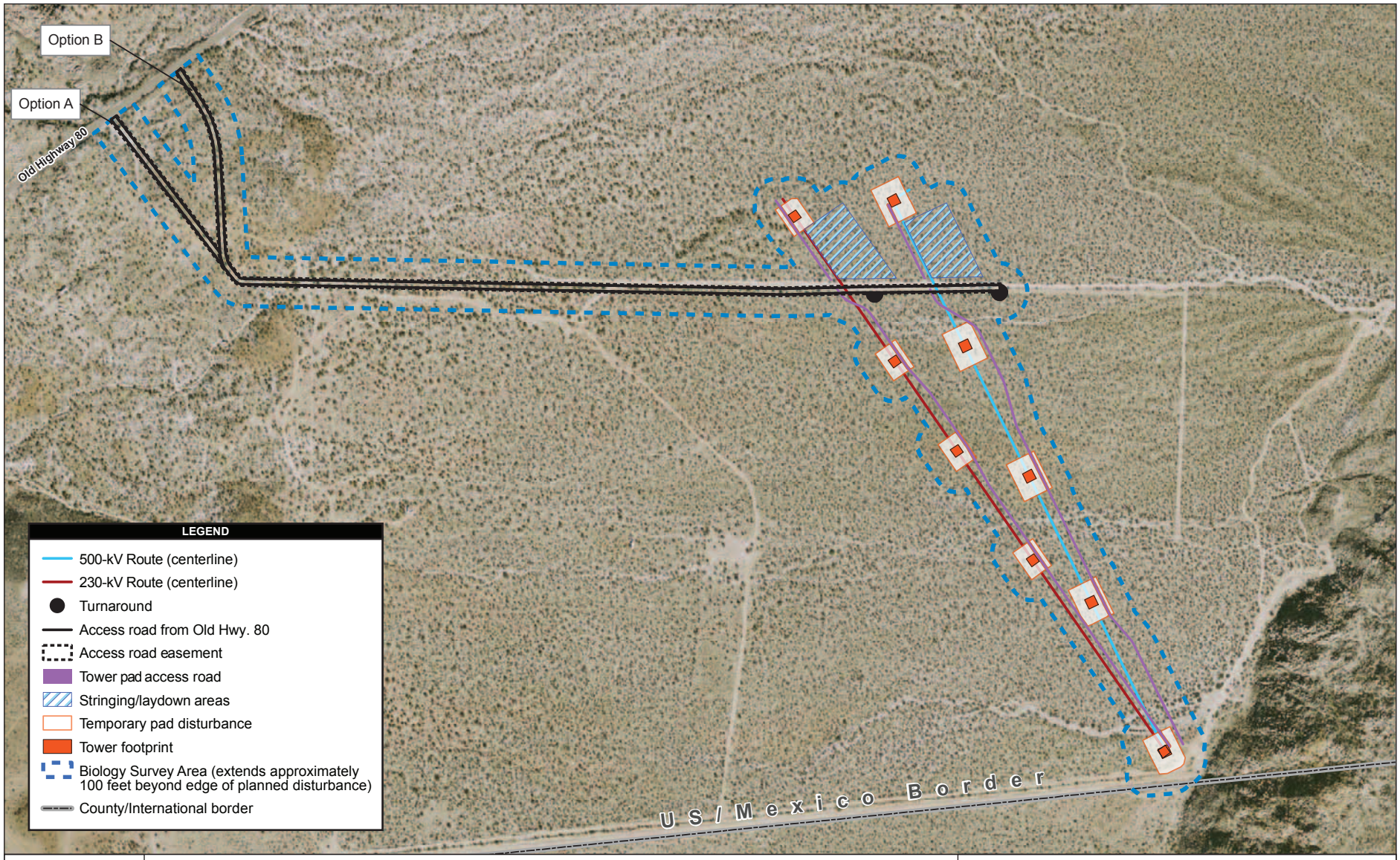
As required by County of San Diego Guidelines (2008), the survey area extended along the alternative corridors and the main access road plus a 100-foot-wide (30.5-m) area adjacent to the corridors and the access roads (Figure 3.1-1). The total area of the survey was 65.2 acres (26.4 hectares [ha]). Ecology & Environment and Rocks Biological Consulting conducted special-status plant and wildlife surveys and habitat assessments of the survey area in 2008 and 2009 (Rocks Biological Consulting 2008 and 2009; Ecology & Environment 2009a). The surveys conducted by Rocks Biological Consulting included protocol-level surveys for the federally-listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*). To confirm the assessment conducted by Ecology & Environment, EDAW, Inc. conducted additional wildlife surveys in 2009. The results of these studies are summarized below. Appendix C.1 presents additional details on the study methods and the results of the surveys. ENTRIX biologists (as DOE's third-party contractor for the preparation of this EIS) inspected the survey area to verify EDAW, Inc.'s findings.

Other data sources used in the preparation of this section to obtain information regarding biological resources along the alternative corridors and regionally (i.e., southeastern San Diego County) included the California Natural Diversity Database (CNDDB), CNPS database, California Wildlife Habitat Relationships (CWHR) System database, and information provided by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), U.S. Bureau of Land Management (BLM), and County of San Diego DPLU. DOE, in compliance with its responsibilities under Section 7 of the Endangered Species Act, requested and received from the USFWS a list of federally-listed, proposed, and candidate species that may occur in the vicinity of the project.

3.1.1.1 Regional Setting

The alternative corridors are within the area covered by County of San Diego's proposed East County Multiple Species Conservation Program (Conservation Program), which is currently in development (County of San Diego 2009b). The Conservation Program, as proposed, would cover nearly 1.6 million acres (648,000 hectares) of unincorporated communities that make up the eastern portion of the county. The Conservation Program currently proposes to cover up to 254 species. As of October 2009, the DPLU is considering entering into a joint Planning Agreement with the USFWS for both the North and East County subarea plans under the Natural Community Conservation Program (NCCP). Based on a draft map of the Conservation Program, the alternative corridors are located in an "Agriculture or Natural Upland" area, which is outside of a Focused Conservation Area of the plan (County of San Diego 2008).

The BLM owns two tracts of land within close proximity of the alternative corridors: Jacumba National Cooperative Land and Wildlife Management Area to the north, and the 31,237-acre (12,640-ha) Jacumba Wilderness about 2 miles (3.2 km) to the east. Approximately 3 miles (4.8 km) to the north is the southern boundary of Anza Borrego State Park, which at 600,000 acres (243,000 ha) is the largest state park in California. These lands preserve a significant amount of desert habitat in eastern San Diego County, providing forage, cover, water resources, and travel routes and linkage corridors for resident and transitory wildlife. In addition, two County of San Diego parks, In-Ko-Pah and Mountain Springs, lie within close proximity, along the southeastern boundary of the Anza Borrego (Figure 3.1-2).





0 200 400 600 800 1,000 Feet
0 100 200 300 Meters

Source(s):
Figure adapted from EDAW 2010 (sources cited in EDAW 2010: DigitalGlobe 2008, Sempra Energy 2009, SANGIS 2008).

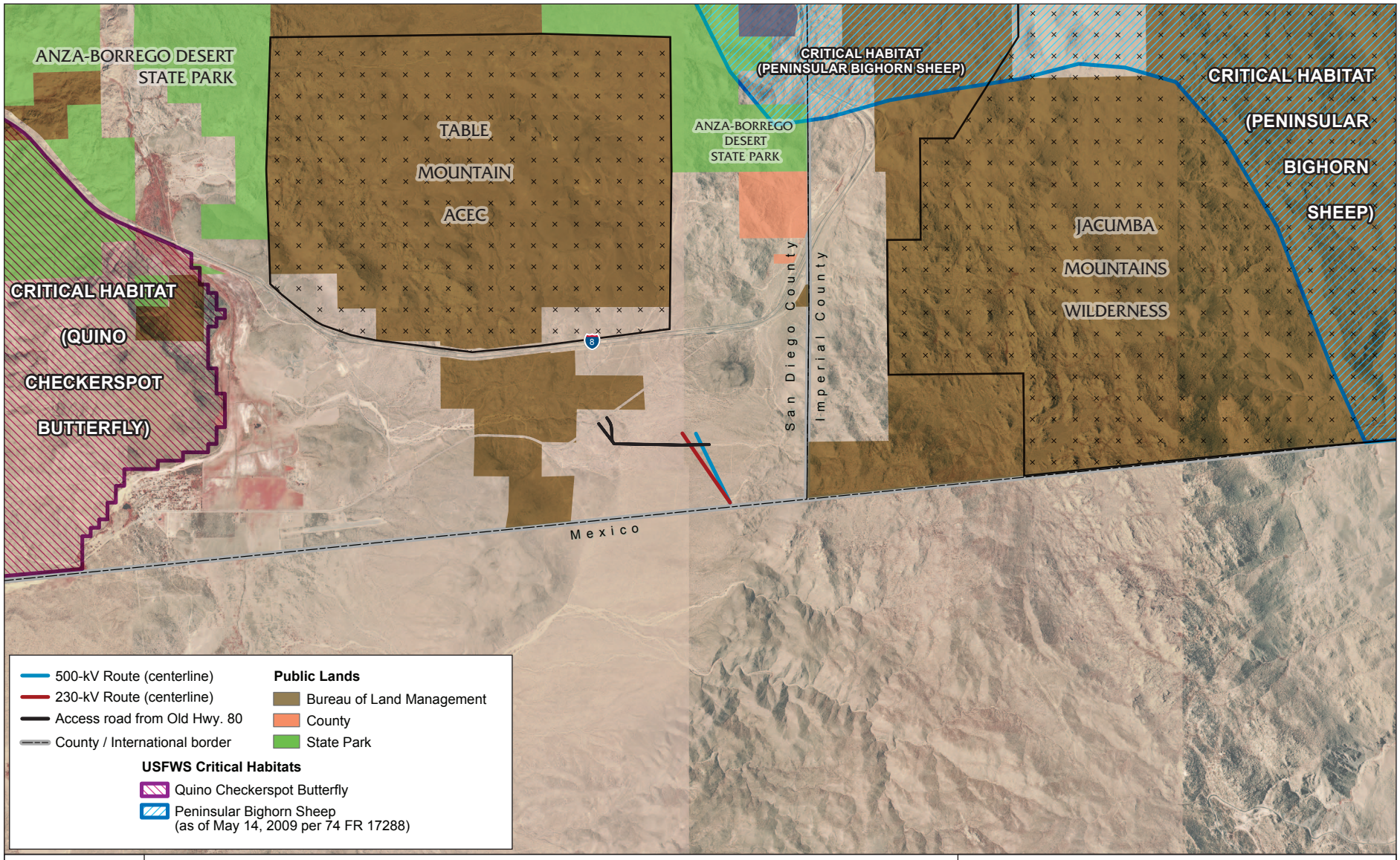
ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.1-1

BIOLOGICAL SURVEY AREA

August 2010

\\sacramento-nas\Data\Projects\Sempra - Energia Sierra Juarez EIS 32183001\
Figure_3_1-1_BiologicalSurveyArea_11x8_v5.ai (07/28/2010, 11:10 pm) R. Wurgler/T. Murphy
August 2010



Source(s):
USFWS 2009; SanGIS 2009-2010; Figure adapted from EDAW 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.1-2

DESIGNATED CRITICAL HABITAT AND REGIONAL CONSERVATION AREAS

August 2010

\\sacramento-nas\Data\Projects\Sempra - Energia Sierra Juarez EIS 32183001\
Figure_3_1-2_CriticalHabitatRegionalConservationLands_11x8_v4.ai (08/09/2010, 03:50 pm) R. Wurgler/T. Murphy

3.1.1.2 Project Setting

The alternative corridors lie within the Jacumba mountain range in the southeastern corner of San Diego County, adjacent to the U.S.-Mexico international border (Figure 3.1-1). The range is characterized by granite ridges, separated by scrubby desert-like valleys. The elevation descends from west to east towards the Sonoran Desert. The corridors are at an elevation of approximately 3,300 to 3,400 feet (1,005 to 1,036 meters [m]) above mean sea level, with a gentle slope from east to west. This high-elevation, desert-like environment, is generally warmer than coastal areas to the west, but cooler than lower deserts to the east.

The land in the vicinity of the alternative corridors supports Sonoran Mixed Woody Scrub and Peninsular Juniper Woodland and Scrub. Species within the survey area include creosote bush (*Larrea tridentata*), jojoba (*Simmondsia chinensis*), lotebush (*Ziziphus parryi*), ephedra (*Ephedra californica*), yucca (*Yucca schidigera*), Gander's cholla (*Cylindropuntia gander*), and California juniper (*Juniperus californica*). These species uniformly covered the survey area. Annuals are more common in the southern portion of the site and include common goldfields (*Lasthenia gracilis*), filaree (*Erodium cicutarium*), wild heliotrope (*Phacelia distans*), hydra stick-leaf (*Mentzelia affinis*), and Rancher's fiddleneck (*Amsinckia menziesii* var. *intermedia*). Two sensitive vegetation communities, Sonoran Mixed Woody Scrub and Peninsular Juniper Woodland and Scrub, occur within and adjacent to the alternative corridors (EDAW, Inc. 2010b).

Although the alternative corridors are within a relatively undeveloped area in the extreme southeastern portion of the county, existing linear development features including I-8 and Old Highway 80 to the north, and the U.S.-Mexico International Border fence to the south, have the potential to inhibit the north-south movement of terrestrial wildlife species through the area. However, there are suitable, unconstrained open space areas to the east and west of the alternative corridors that provide local and regional travel routes and linkage corridors for resident and transitory wildlife through the area.

3.1.1.3 Habitat Types/Vegetation Communities

As stated above, there are two vegetation communities in the survey area: Sonoran Mixed Woody Scrub and Peninsular Juniper Woodland and Scrub. In addition to these vegetation communities, disturbed habitat characterizes the dirt roads and immediate adjoining areas. The vegetation communities and disturbed areas are described below, summarized in Table 3.1-1, and depicted in Figure 3.1-3.

Sonoran Mixed Woody Scrub (Holland Code 33210)

Sonoran Mixed Woody Scrub is characterized by a mixture of three or more woody species. Characteristic species include creosote bush, burro weed (*Ambrosia dumosa*), and brittlebush (*Encelia farinosa*). The community typically occurs on rocky, well-drained slopes and alluvial fans, often at the base of mountains. This vegetation community is classified as a community "threatened" natural plant by CDFG (CDFG 2009b). In addition, Sonoran Mixed Woody Scrub is listed by the County of San Diego as sensitive or naturalized habitat that would warrant mitigation if affected by project activities (County of San Diego 2009a).

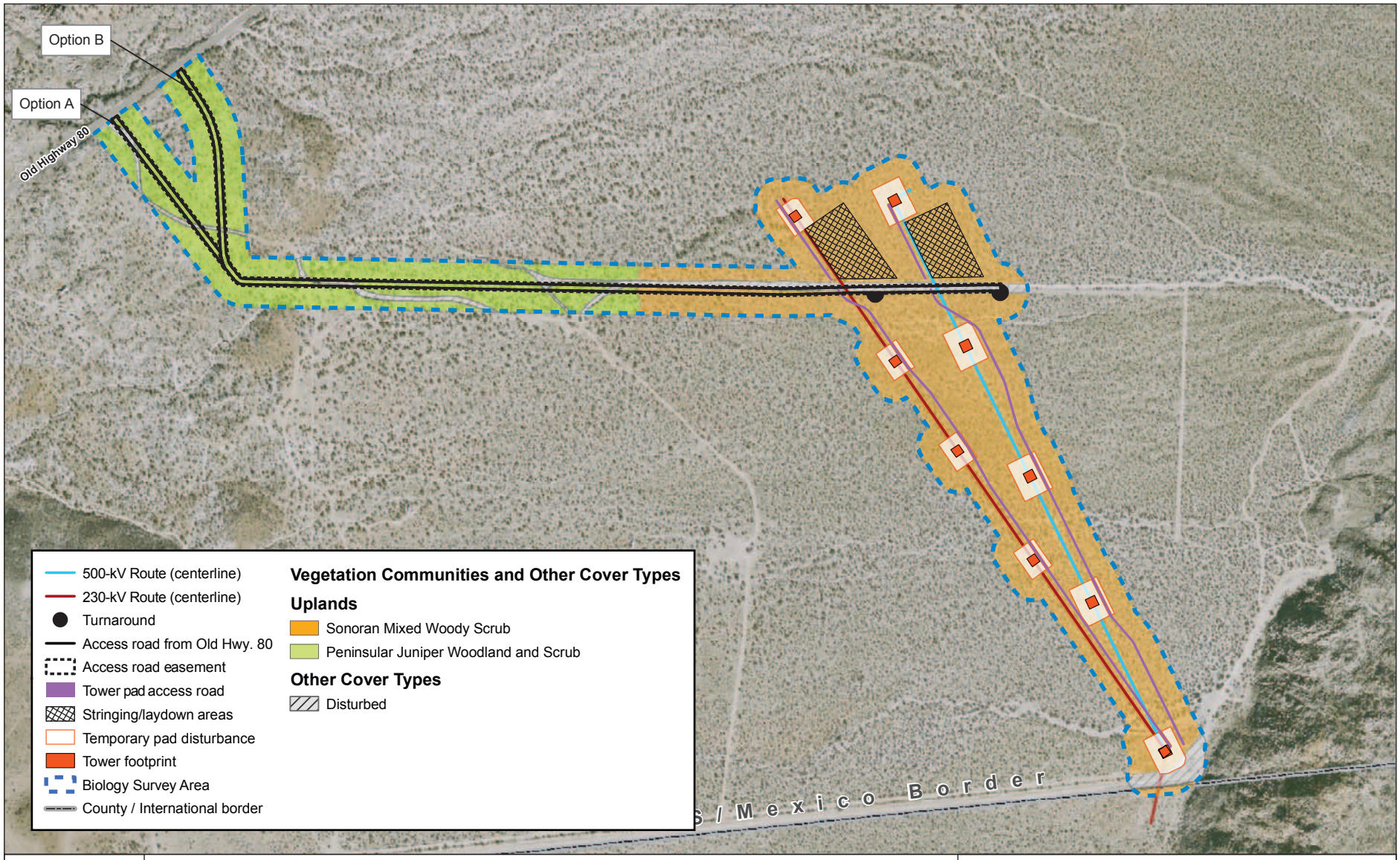
Table 3.1-1
Vegetation Communities and Habitat Types

Vegetation Communities and Cover Types (Holland Code[1])	Focused Survey Area[2] (Acres)	500-kV Route (Acres)	230-kV Route (Acres)	100-foot Buffer to Transmission Line Route Corridors (Acres)	Property Access Route Option A (Acres)	Property Access Route Option B (Acres)	100-foot Buffer to Property Access Road (Acres)
Sonoran mixed woody scrub	46.38	6.07	5.06	32.48	0.55	1.14	2.77
Peninsular Juniper Woodland and Scrub	14.85	--	--	--	2.29	2.60	12.29
Disturbed	3.97	0.16	0.12	1.82	1.56	0.80	1.15
Total =	65.20	6.23	5.18	34.30	4.40	4.54	16.21

[1] Based on Holland (1986) and Oberbauer (1996) as revised by the County of San Diego (2008).

[2] The survey area includes the 500-kV and 230-kV transmission line corridors, main access road, and the County-required 100-foot-wide buffer surrounding the perimeter of those areas. The survey area acreage is smaller than the sum of the component parts of Table 3.1-1, due to an approximately 0.48-acre (0.19 ha) overlap of features associated with the 500-kV and 230-kV transmission line corridors.

Source: EDAW, Inc. 2010b





0 200 400 600 800 1,000 Feet
0 100 200 300 Meters

Source(s):
Figure adapted from EDAW 2010 (sources cited in EDAW 2010: DigitalGlobe 2008, Sempra Energy 2009, SANGIS 2008).

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.1-3

VEGETATION COVER TYPES IN THE SURVEY AREA

August 2010

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Figure_3_1-3_VegetationCoverTypes_11x8.ai (03/29/2010, 02:25 pm) R. Wurgler/T. Murphy
August 2010

Approximately 71 percent of the survey area (46.38 acres [18.77 ha]) is covered by Sonoran Mixed Woody Scrub, including 5.06 acres (2.05 ha) along the 500-kV Route and 6.07 acres (2.46 ha) along the 230-kV Route. This community is also present along both options for the property access road (Figure 3.1-4). Along the corridors, this community is characterized by 15 to 75 percent shrub cover, with the low end applying to washes that are essentially devoid of vegetation. The common shrub species observed include creosote bush, ephedra, jojoba, Gander's cholla, yucca, and lotebush, with an herbaceous layer of forbs that includes wild heliotrope, common goldfields, fiddleneck, filaree, and hydra stick-leaf.

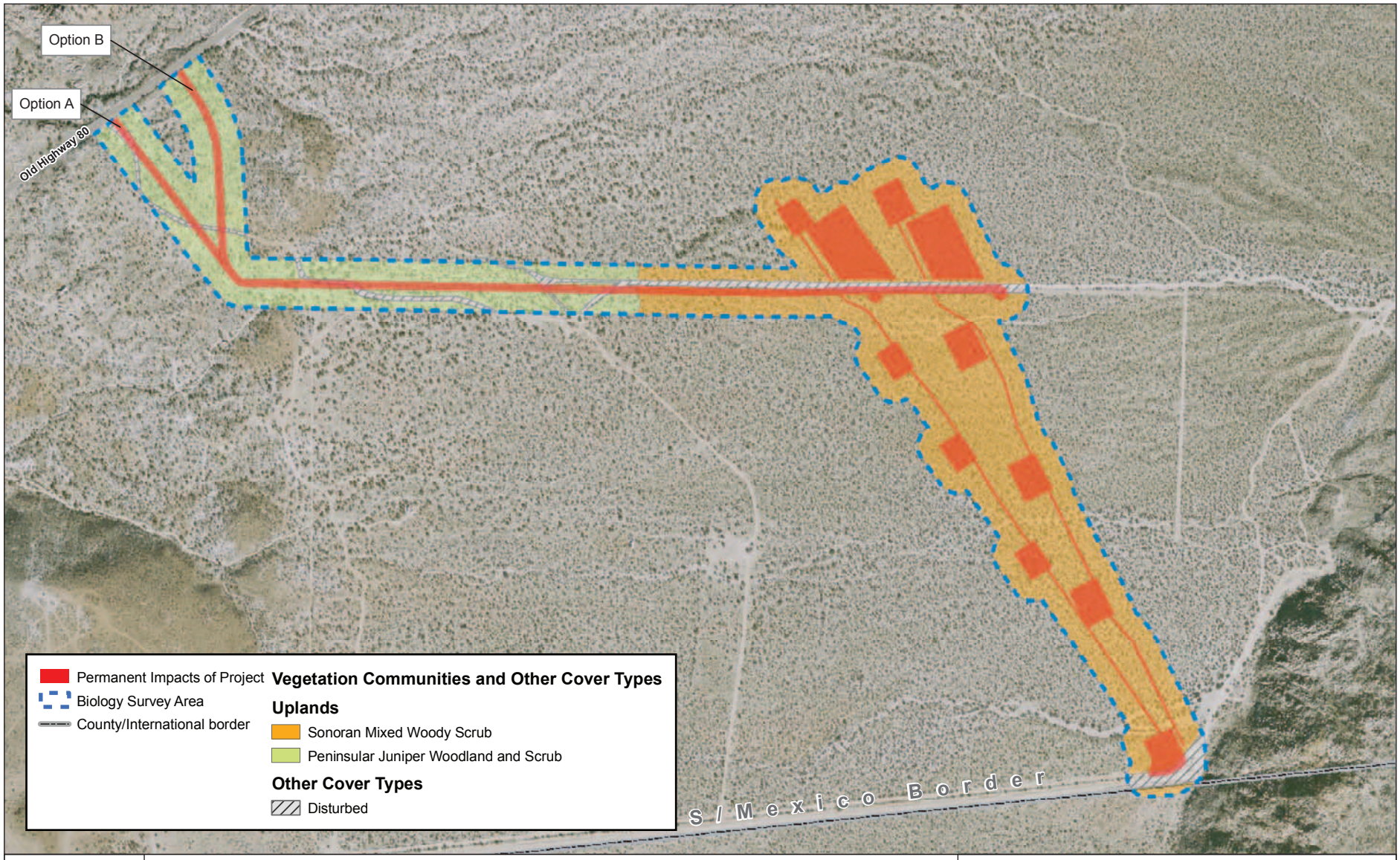
Peninsular Juniper Woodland and Scrub (Holland Code 72320)

A total of 14.85 acres (6.01 ha) (23 percent) of the surveyed area consists of this vegetation community. Approximately 2.29 acres (0.9 ha) of Peninsular Juniper Woodland and Scrub is present along the proposed footprint of Option A for property access road and 2.60 acres (1.05 ha) of the footprint for Option B (Figure 3.1-4). In addition to California juniper, commonly occurring plant species within this community include Parry's nolina (*Nolina parryi*), Parry piñon pine (*Pinus quadrifolia*), grey oak (*Quercus turbinella*) and big sagebrush (*Artemisia tridentata*).

Disturbed Habitat (Holland Code 11300)

Disturbed habitat is generally defined as any land where the native vegetation has been significantly altered by agriculture, grazing, construction, or other land-clearing activities, resulting in species composition and site conditions that favor invasive species. Such land typically is found in vacant lots, dirt roads, roadsides, construction staging areas, or abandoned fields and is dominated by bare ground and/or nonnative annual species and perennial broad-leafed species. The level of soil disturbance is such that only plants species successful in such environments would be expected to be present; these species include Russian thistle (*Salsola* sp.), sweet fennel (*Foeniculum vulgare*), horseweed (*Conyza spp*.), black mustard (*Brassica nigra*), lamb's quarters (*Chenopodium album*), fountain grass (*Pennisetum setaceum*), and/or castor bean (*Ricinus communis*).

Approximately 3.97 acres (1.61 ha) of the survey area (6 percent) includes disturbed habitat; this includes 0.16 acre (0.06 ha) along the 500-kV corridor and 0.12 acre (0.04 ha) along the 230-kV corridor (Figure 3.1-4). All disturbed habitat within the survey area is associated with dirt roads.





0 200 400 600 800 1,000 Feet
0 100 200 300 Meters

Source(s):
Figure adapted from EDAW 2010 (sources cited in EDAW 2010: DigitalGlobe 2008, Sempra Energy 2009, SANGIS 2008).

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.1-4

PERMANENT IMPACTS TO VEGETATION COMMUNITIES AND OTHER COVER TYPES

August 2010

August 2010

\\sacramento-nas\Data\Projects\Sempra - Energia Sierra Juarez EIS 32183001\
Figure_3_1-4_ImpactsToVegetationCommunities_11x8_v6.ai (07/29/2010, 06:17 am) R. Wurgler/T. Murphy

3.1.1.4 Special Status Plant Species

Appendix C.3 summarizes all special-status (rare) plant species that have the potential to occur within or adjacent to the alternative corridors and the main access road. This appendix also includes species that are known historically from the region but are not expected to occur within the alternative corridors or the area of the main access road based on a lack of suitable habitat. According to CNDDB historical occurrence data (queried March 2009; CDFG 2009a), there are no known occurrences of plants listed as federally threatened or endangered along the alternative corridors or adjacent to the main access road and no special-status plant species were detected during the rare plant surveys (EDAW, Inc. 2010b).[4] Moreover, no plants were included in the official USFWS list of federally listed, proposed, or candidate species with potential to occur in the project vicinity (Appendix C.8).

CNDDB (CDFG 2009a) reported the known locations of special-status plant species in the vicinity of the alternative corridors and the main access road; one known occurrence is about 700 feet (213 m) east of the most easterly corridor, and the next closest is about 1,700 feet (549 m) west of the intersection of Old Highway 80 and the main access road. Four federally- and/or state-listed plant species were recorded by the CNDDB to have the potential to occur in the vicinity of the alternative corridors (Appendix C.3); none of these species were observed during the rare plant surveys conducted during the blooming period for these plants. The state-listed endangered and federally-listed threatened Pierson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*) is not expected to occur since the alternative corridors are out of this plant's known elevation range. The federally- and state-listed endangered San Diego button-celery (*Eryngium aristulatum* ssp. *parishii*) is not expected to occur in the corridors due to lack of suitable habitat. There is suitable habitat for the federally-listed endangered variegated dudleya (*Helianthus niveus*); however CNDDB records do not record instances of the species in the vicinity of the alternative corridors. One state-listed threatened species shown on the figure, woven-spored lichen (*Texosporium sancti-jacobi*), has a moderate potential to occur within the alternative corridors; however no specimens were listed in the CNDDB.

In addition to federally-and state-listed species, the CNPS lists other rare plants in California that are typically also afforded protection. The CNPS list identified 26 rare plants (CNPS Lists 1B or 2) with the potential to occur in the vicinity of the alternative corridors. Of those, six have a moderate potential to occur and are described below, five have a low potential to occur and the remaining 15 species are unlikely to occur due to a lack of suitable habitat; there were no observations of any of these species during the rare plant surveys.

Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*) has a moderate potential to occur along the alternative corridors; a known occurrence was recorded in the CNDDB within 1 mile (1.6 km) of the corridors (CDFG 2009a). No individuals were detected during the rare plant surveys, although the surveys were conducted during the blooming period for this species and there is a lack of suitable habitat on-site. The five other plant species with a moderate potential to occur in the vicinity of the corridors are the elephant tree (*Bursera microphylla*), curly herissania (*Herissantia crispa*), hairy stickleaf (*Mentzelia hirsutissima*), Cove's cassia (*Senna covesii*), and

[4] The CNDDB query included six USGS quadrangles centered on the alternative corridors. These quadrangles included Jacumba, In-Ko-Pah Gorge, Sweeney Pass, Painted Gorge, Coyote Wells, and Carrizo Mountain.

desert spikemoss (*Selaginella eremophila*). Suitable habitat for elephant tree, curly herissantia, hairy stickleleaf, and desert spikemoss occurs along the alternative corridors; however the corridors are out of the species' known elevation range. There is suitable habitat for Cove's cassia near the corridors as well; however no individuals were observed during the rare plant survey and there are no CNDDB records for this species along the alternative corridors.

In addition to the List 1B and 2 plant species, the CNPS list identified three List 4 plant species with a moderate potential to occur in the vicinity of the corridors: Utah vine milkweed (*Cynanchum utahense*), Colorado Desert larkspur (*Delphinium parishii* ssp. *subglobosum*) and Thurber's beardtongue (*Penstemon thurberi*). Suitable habitat for all three occurs along the corridors and the main access road, although rare plant surveys conducted during the blooming period of the milkweed, larkspur and, perennial beardtongue did not document any instances of these three species. The results of CNDDB record searches for these species did not include a record of observation of these species in the vicinity of the corridors (EDAW, Inc. 2010b).

The CNPS also identified one species with low-moderate potential to occur in the vicinity of the corridors (Payson's jewelflower [*Caulanthus simulans*]); however, only limited suitable habitat for this species is present along the corridors and the main access road. Marginal habitat does occur onsite for two other species identified as having a low potential to occur in the vicinity of the corridors (Palmer's grappling hook [*Harpagonella palmeri*] and low bush monkeyflower [*Mimulus aridus*]). Although all of these species may not have been in bloom at the time rare plant surveys were conducted and a presence/absence determination could not be confirmed following the special-status plant surveys, there were no recorded observations in the CNDDB of observations of any of these species in the vicinity of the corridors (EDAW, Inc. 2010b).

3.1.1.5 Wildlife

The majority of the area along and near the alternative corridors and the main access road is of moderate value for wildlife species. Vegetation within this area provides suitable protective cover, foraging, migration, and breeding habitat for a variety of animals. Burrows observed along the corridors are suitable for a variety of small mammals and reptiles. Amphibian species are not expected to occur along the alternative corridors or access roads due to the arid conditions within the region and the limited availability of suitable vegetation, leaf litter, and perennial water sources. Similarly, the area does not contain any waterways that would support fish.

A complete list of the wildlife species detected during the 2008 and 2009 reconnaissance surveys is provided in Appendix C.4.

Invertebrates

Eleven butterfly species were documented within and adjacent to the 2008 and 2009 Quino checkerspot butterfly survey area, including painted lady (*Vanessa cardui*), red admiral (*Vanessa atalanta rubria*), ceraunus blue (*Hemiargus ceraunus*), and Chalcedon checkerspot (*Euphydryas chalcedona*) (RBC 2008, 2009). The 2009 survey conducted by EDAW, Inc., documented the presence of the black harvester ant (*Pogonomyrex californicus*), the preferred food item of the San Diego horned lizard (*Phrynosoma coronatum blainvillei*).

Reptiles

Most reptile species in open areas use rodent burrows for cover and protection from predators and extreme weather conditions. Rock outcroppings provide cover and foraging opportunities for reptiles. The desert scrub vegetation along the corridors and the main access road, as well as the rock outcroppings immediately to the east of the site, has the potential to support a variety of reptiles. Two reptile species were observed within the survey area: side-blotched lizard (*Uta stansburiana*), and tiger whiptail (*Aspidoscelis tigris*). Other common reptiles with potential to occur along the alternative corridors or on nearby rock outcroppings include rattlesnake (*Crotalus* spp.), gopher snake (*Pituophis melanoleucus*), and western banded gecko (*Coleonyx variegatus*).

Birds

The low diversity of vegetation communities within the alternative corridors and both options for the main access road has a corresponding limiting effect on bird species diversity. However, the rock outcroppings immediately to the east of the site offer cover and foraging habitat for an increased diversity of birds. The desert scrub vegetation community provides important habitat for various resident and migratory bird species such as black-throated sparrow (*Amphispiza bilineata*), western scrub-jay (*Aphelocoma californica*), ash-throated flycatcher (*Myiarchus cinerascens*), and western kingbird (*Tyrannus verticalis*). The corridors also provide foraging habitat for raptors such as the red-tailed hawk (*Buteo jamaicensis*), which could also perch on adjacent rock outcroppings.

During the surveys, 11 bird species were detected along and adjacent to the alternative corridors (Appendix C.4) including northern mockingbird (*Mimus polyglottos*), black-throated sparrow, and California horned lark (*Eremophilia alpestris actia*). Two bird species common to the region, red-tailed hawk and common raven (*Corvus corax*), were observed flying over the alternative corridors during surveys (EDAW, Inc. 2010b).

Mammals

The desert scrub vegetation community of the alternative corridors provides protective cover and foraging opportunities for a variety of small mammal species. In addition, adjacent rock outcroppings provide cover, breeding, denning, and foraging habitat for mammals. White-tailed antelope ground squirrel (*Ammospermophilus leucurus*), black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), and bobcat (*Felis rufus*), or signs of these species, were observed in the survey area. The ground squirrel and jackrabbit were confirmed through direct observation, and the coyote was detected through documentation of tracks and four medium-sized burrows (approximately 1 foot [0.3 m] in diameter). The bobcat was detected by observation of tracks.

Bats occur throughout most of southern California and may use any portion of the alternative corridor area as foraging habitat. Bat species with potential to occur along the alternative corridors include the Mexican long-tongued bat (*Choeronycteris mexicana*), Mexican free-tailed bat (*Tadarida brasiliensis*), spotted bat (*Euderma maculatum*), western mastiff bat (*Eumops perotis californicus*), and pocketed free-tailed bat (*Nyctinomops femorosacca*).

3.1.1.6 Special Status Wildlife Species

Special-status wildlife species potentially occurring within the alternative corridors or along the access road are discussed below. A list of special-status wildlife species that have the potential to occur along the alternative corridors and main access road (both options) based on available habitat and historic occurrence data, is provided in Appendix C.5. Of those special-status species potentially present, only two, the California horned lark (*Eremophila alpestris actia*) and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), were observed during the surveys. Four other species, Quino checkerspot butterfly (*Euphydryas editha quino*), northern red diamond rattlesnake (*Crotalus ruber ruber*), loggerhead shrike (*Lanius ludovicianus*), and Peninsular bighorn sheep (*Ovis Canadensis nelsoni*) are considered to have high potential for occurring in the survey area. These four species are discussed in more detail below. The remaining species listed in Appendix C.5 have either a moderate or low potential to occur in the survey area (EDAW, Inc. 2010b).

In addition to the list provided in Appendix C.5, on February 23, 2010, DOE initiated informal consultation under Section 7 of the federal Endangered Species Act and requested that USFWS provide a current list of federally-listed, proposed, and candidate species within the action area. USFWS responded to DOE's request on March 24, 2010. These letters are included in Appendices C.7 and C.8. The species listed by USFWS are Quino checkerspot butterfly, arroyo toad (*Bufo californicus*), southwestern willow flycatcher (*Empidonax traillii extimus*), California condor (*Gymnogyps californianus*), and least Bell's vireo (*Vireo bellii pusillis*). These species, along with other special-status species with potential to occur in the project vicinity, are described briefly below.

Quino Checkerspot Butterfly (*Euphydryas editha quino*)

In its comment letter on the project NOI, the USFWS stated that "Quino Checkerspot Butterfly are known to occur within or near the project area" and noted that federally-designated critical habitat for this species is "within or immediately adjacent to the proposed alternative alignments" (presented in Appendix C.6 of this EIS); however, since the project NOI was issued, the location of the alternative corridors has been confirmed to be located 3.6 miles (5.8 km) east of the Quino checkerspot butterfly critical habitat, although still within the survey area recommended by the USFWS. Therefore, surveys for Quino checkerspot butterfly were conducted by Rocks Biological Consulting in 2008 and 2009 according to USFWS protocol (USFWS 2002). Neither Quino checkerspot butterfly nor the host plants used during the species' larval stage were observed during the surveys, although nectar sites for butterflies were identified throughout the survey area (Rocks Biological Consulting 2008, 2009; survey reports are provided in Appendix C.1).

Arroyo toad (*Bufo californicus*)

The arroyo toad is federally-listed as endangered. The range of the arroyo toad extends from the Salinas River Basin in Monterey County to Arroyo San Simon in northern Baja California, Mexico. The toad prefers riparian habitats with sandy streambeds, shallow pools, and cottonwood, sycamore, and willow trees (San Diego Natural History Museum 2010). This species was not observed or detected during any of the surveys conducted along the alternative corridors. Further, due to the lack of surface waters and riparian habitat onsite (as detailed in the

Jurisdictional Waters Report, Appendix B), the arroyo toad is considered to have a low probability of occurring in the survey area.

Northern Red Diamond Rattlesnake (*Crotalus ruber ruber*)

The northern red diamond rattlesnake is a CDFG species of special concern (CDFG 2009b), and is also included in Group 2 of the County of San Diego's list of sensitive animals. This species is restricted to southern California and Baja California from Banning Pass to the tip of the Baja Peninsula, with the majority of its California range occurring in San Diego County, where it occurs from sea level to 3,000 feet (915 m) (Stebbins 2003). It is often present in chaparral, along creek banks, and in granite rock outcrops or piles of debris. When inactive, the northern red diamond rattlesnake occurs in rock crevices, animal burrows, brush piles, or similar micro-habitats. The survey area does not contain sage brush, chaparral, or rocky habitat preferred by this species; however, the ridge immediately adjacent and to the east of the survey area does provide suitable habitat.

California condor (*Gymnogyps californianus*)

The California condor is federally-listed as endangered. The habitat of the condor includes rocky, open-country scrubland, coniferous forest, and oak savanna. Cliffs, rocky outcrops or large trees are used as nest sites. In California, the birds have been known to occur in Los Angeles, San Bernardino, Ventura, Kern, Santa Barbara, Monterey, San Benito, and Santa Cruz counties. There is also a Baja California population that is largely confined to Sierra de San Pedro Martir (Birdlife International 2010). This species was not observed or detected during any of the surveys conducted along the alternative corridors; however, in April 2007, one California condor was documented flying in the skies above San Diego County. The bird flew from a release site in Sierra San Pedro de Martir, north along the Sierra Juarez mountain ridge and into the U.S. near the town of Jacumba. This was the first siting of a condor in San Diego County in nearly a century (San Diego Union Tribune 2007). Although the alternative corridors are within the range of the California condor, the limited distribution of condors within the historic range and the absence of confirmed recent sightings in the project vicinity (other the one mentioned above near Jacumba) indicate that the species has a very low probability of occurring in the project area.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher is state and federally-listed as endangered. It is a small bird that occurs in riparian habitats along rivers and streams where there are dense growths of willows, coyote brush, tamarisk, and Russian olive. In San Diego County, this species is known to breed along the San Luis Rey River and within Camp Pendleton (Craig and Williams 1998). This species was not observed or detected during any of the surveys conducted along the alternative corridors. Further, due to the lack of surface waters and riparian habitat onsite (as detailed in the Jurisdictional Waters Report, Appendix B), the southwestern willow flycatcher is considered to have a low probability of occurring in the survey area.

California Horned Lark (*Eremophila alpestris actia*)

The California horned lark is on CDFG List of Species to Watch (CDFG 2009b) and is also included in Group 2 of the County of San Diego's list of sensitive animals. Its range is limited to the coastal slopes of California, from Sonoma County to San Diego County, and includes most

of the San Joaquin Valley. In San Diego County, the species typically inhabits areas with sparse vegetation, including sandy shores, grasslands, mesas, and agricultural lands. Breeding occurs from March through July with peak activity occurring in May. California horned larks forage by walking and running on the ground and consume a diet of spiders, insects and insect larvae, snails, buds, berries, waste grains, and seeds from grasses, weeds, and forbs. California horned larks usually forage in flocks except during nesting. The population of this species has declined due to loss of habitat, urbanization, and human disturbance. California horned lark were observed foraging in the open areas between shrubs in the survey area, during the 2008 and 2009 surveys.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is a CDFG species of special concern (CDFG 2009b). This species is also included in Group 1 of the County of San Diego's list of sensitive animals. It is a common resident and winter visitor in lowlands and foothills throughout California. Within San Diego County, this is a fairly common breeding species that occurs throughout the County, except for mountainous areas. The species occupies a variety of habitats, primarily wherever bushes or trees are scattered on open ground. This species was not observed or detected during any of the surveys; however, due to the presence of suitable habitat and the relatively common occurrence of the species throughout the County, the loggerhead shrike has a high probability of occurring in the survey area.

Least Bell's Vireo (*Vireo bellii pusillis*)

The least Bell's vireo is state and federally-listed as endangered. The least Bell's vireo is typically found in woodlands in riparian areas with dense cover for nesting and foraging. In San Diego County, this species is known to occur along drainages within Camp Pendleton, and along the San Diego, Sweetwater, and Otay Rivers (Kus 2002). This species was not observed or detected during any of the surveys conducted along the alternative corridors. Further, due to the lack of surface waters and riparian habitat onsite (as detailed in the Jurisdictional Waters Report, Appendix B), the least Bell's vireo is considered to have a low probability of occurring in the survey area.

San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)

The San Diego black-tailed jackrabbit is a CDFG species of special concern (CDFG 2009b). This species is also included in Group 2 of the County of San Diego's list of sensitive animals. It ranges from near Mt. Pinos (at the Kern-Ventura County line) southward and west of the Peninsular Range into Baja California, Mexico (Hall 1981). This species, which occupies open or semi-open scrub habitats, occurs throughout southern California, with the exception of high-altitude mountains. This species breeds throughout the year, with the greatest number of births occurring from April through May. The black-tailed jackrabbit is strictly herbivorous, preferring habitat with ample forage such as grasses and forbs. Declines in San Diego black-tailed jackrabbit populations are due to a decline in suitable habitat as a result of urban development (EDAW, Inc. 2010b). A single San Diego black-tailed jackrabbit was observed onsite during the 2008 survey.

Peninsular Bighorn Sheep (*Ovis canadensis nelsoni*)

The federally-listed endangered and state-listed threatened/fully protected, Peninsular bighorn sheep is known to exist in the region; the nearest boundary for critical habitat for the species is approximately 2.3 miles (3.7 km) northeast of the Project area. The USFWS (2009b) documented the presence of bighorn sheep in the critical habitat that extends to the U.S.-Mexico border approximately 4.7 miles (7.6 km) east of the alternative corridors (see Figure 3.1-1). Discussions with the USFWS (EDAW, Inc. 2010b) indicated that based on tracked sheep locations there is a very low probability of the species using the Project area and surveys were not recommended by the USFWS. Although the alternative corridors and surrounding area includes some of the key foraging habitat requirements (e.g. valley bottoms and washes) identified as primary constituent elements for bighorn sheep recovery (USFWS 2009a), evidence of bighorn sheep use was not observed in the survey area. The most recent documented sighting of bighorn sheep in the general vicinity was of a small group of individuals that was more than 4.5 miles (7.2 km) northeast of the alternative corridors (Geller 2009).

3.1.1.7 Habitat Connectivity and Wildlife Corridors

The alternative corridors are bordered to the south by the U.S.-Mexico international border fence and to the north by Old Highway 80 and I-8. There is open space to the east and west of the corridors. Therefore, there are existing deterrents to regional wildlife movement, including that of large mammals, in the area. These existing features have the potential to fragment this portion of the landscape and inhibit wildlife movement through the alternative corridor area in a direct north-south orientation. However, because the corridors are adjacent to undeveloped, natural areas to the east and west (e.g., Jacumba Wilderness Area), and because there are relatively large areas of protected open space that are used for local and regional wildlife movement to the north of the highways (e.g., Jacumba National Cooperative Land and Wildlife Management Area, Anza Borrego State Park), wildlife is expected to use the alternative corridors for forage and cover, as well as a connection to adjacent local and regional movement corridors.

No known avian migration routes or major flight corridors or riparian corridors are associated with proposed location of the alternative corridors or the surrounding vicinity.

3.1.2 Environmental Impacts

3.1.2.1 Methodology

The impact analysis considers direct and indirect impacts to biological resources due to construction and operation of the alternatives as well as impacts in the U.S. from the ESJ Wind Project in Mexico. Resources considered include habitat/sensitive vegetation communities and sensitive biological resources (including special-status species and wildlife movement corridors).

ESJ-U.S., in consultation with County of San Diego staff, has proposed to incorporate measures into the Project that are designed to avoid and minimize impacts to biological resources. Those measures are included as design features and were considered in the analysis of impacts.

3.1.2.2 Alternative 1 – No Action

Under the No Action alternative, the proposed transmission line would not be constructed and the existing biological resources would remain as described in Section 3.1.1. No impacts to habitat/sensitive vegetation communities or to sensitive biological resources would occur.

3.1.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Vegetation and Wildlife

Construction of the 230-kV Route would result in both direct and indirect impacts to biological resources. Direct impacts would result primarily from clearing vegetation along the proposed access roads and grading required for the tower/pole pads and the construction staging and wire stringing site. In addition, due to fire safety considerations at the site, ESJ-U.S.'s Fire Protection Plan (discussed in greater detail in Section 3.9 [Fire and Fuels Management]) requires a cleared space of 30 feet (9.1 m) on all sides of each tower. These disturbance areas would not be revegetated and are considered direct, permanent impact areas (Figure 3.1-4). Additional disturbance would include excavation or drilling to construct foundations for the transmission line structures. The maximum area of disturbance at each tower site would be approximately 0.4 acre (0.2 ha); there would be a total of 2.2 acres (0.9 ha) affected if 5 structures are installed. In addition, approximately 1.98 acres (0.8 ha) would be disturbed during use of the construction staging and wire stringing site, and this area would not be revegetated.

Table 3.1-2 lists the habitat types that would be directly impacted as a result of construction. The tower pads and associated adjacent fire protection zones cleared of vegetation (including the ground disturbance associated with the proposed laydown/parking/stringing area), and the transmission line access road would permanently impact a total of 5.18 acres (2.1 ha) for the life of the project, including 5.06 acres (2.05 ha) of impacts to Sonoran Mixed Woody Scrub. The total amount of permanent disturbance would vary slightly depending on the option chosen for the property legal access road. Construction of Option A would permanently impact 0.55 acre (0.22 ha) of Sonoran Mixed Woody Scrub and 2.29 acres (0.9 ha) of Peninsular Juniper Woodland. Construction of Option B would permanently impact 1.14 acres (0.46 ha) of Sonoran Mixed Woody Scrub and 2.60 acres (1.1 ha) of Peninsular Juniper Woodland.

Table 3.1-2
Impacts to Vegetation Communities and Habitat Types

Vegetation Communities and Habitat (Cover) Types	Survey Area (Acres)	Area Affected in 230-kV Route and Main Access Road (acres)		
		230-kV Transmission Line	Property Access Option A	Property Access Option B
Sonoran Mixed Woody Scrub	46.38	5.06	0.55	1.14
Peninsular Juniper Woodland and Scrub	14.85	--	2.29	2.60
Disturbed Habitat	3.97	0.12	1.56	0.80
Total Cover	**65.20**	**5.18**	**4.40**	**4.54**

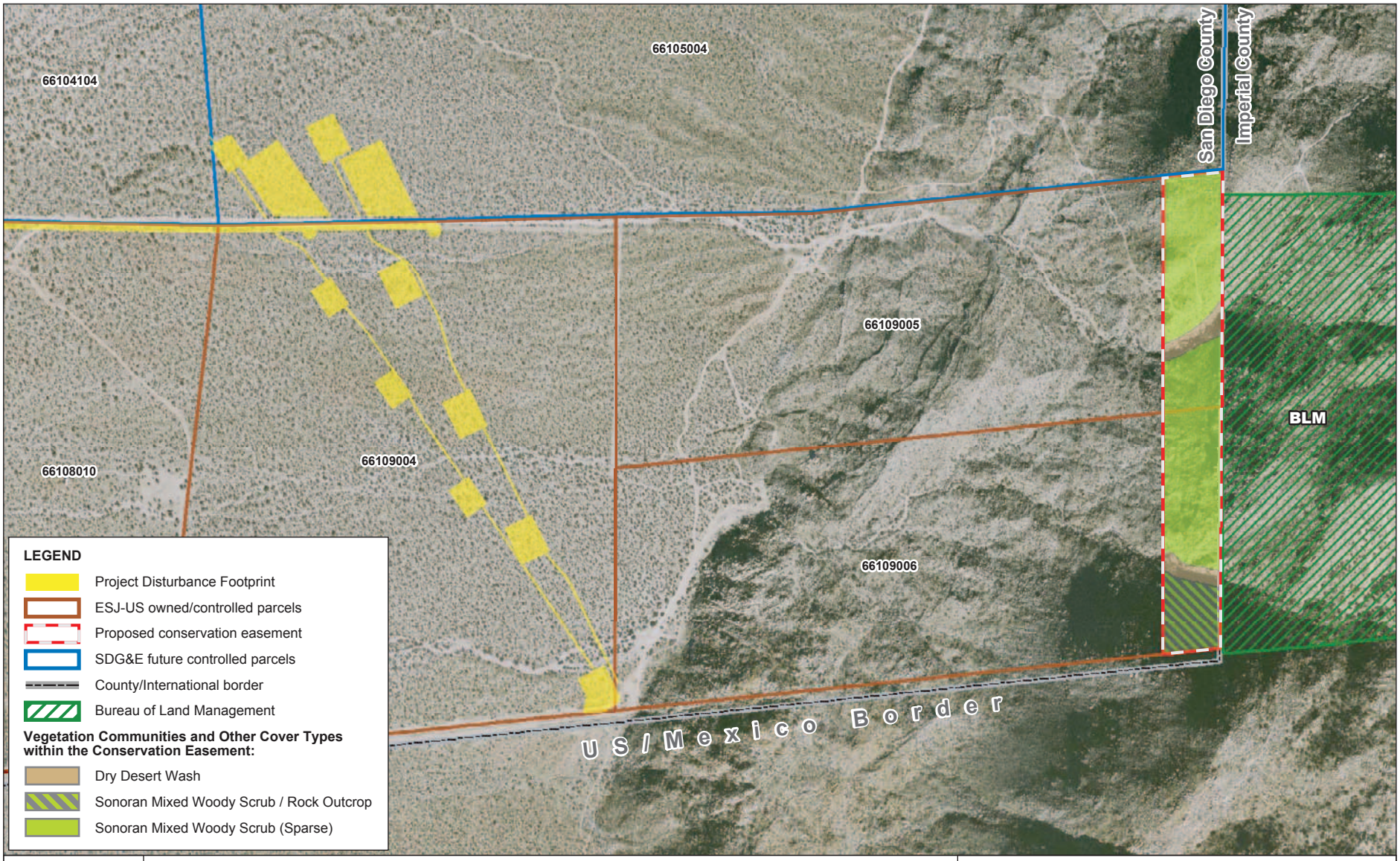
Source: EDAW, Inc. 2010b

County of San Diego Guidelines require mitigation of any impacts to the Sonoran Mixed Woody Scrub habitat type at a ratio of 1:1 and mitigation of impacts to Peninsular Juniper Woodland and Scrub habitat type at a 3:1 ratio (County of San Diego 2009a). Accordingly, ESJ-U.S. is working with the County of San Diego to provide a conservation easement to preserve habitat that is functionally similar to that impacted by project construction. ESJ-U.S. has proposed that either 12.48 acres (5.1 ha; if Option A is constructed) or 14.0 acres (4.72 ha; if Option B is constructed) on the eastern section of the parcels where the transmission line would be installed be placed in a conservation easement. This proposed area contains sparse Sonoran Mixed Woody Scrub vegetation along a rocky ridge and adjoins a large open space tract of land to the east owned by BLM (Figure 3.1-5). Placement of an easement in this portion of the undeveloped property would provide direct continuity with this large preserved tract of land. It would help to preserve a ridgeline travel route and wildlife corridor/landscape linkage between protected BLM land to the east and the proposed corridor. It would also be a sufficient distance from the transmission line right-of-way and the main access road to avoid or minimize effects of the project on the conservation site. No physical changes or improvements are anticipated at the conservation easement site.

Final selection of the conservation easement site is subject to further discussion between ESJ-U.S. and the County of San Diego. If the County of San Diego indicates that a different location is preferable (e.g., a site with closer habitat similarity to the impacted area), then ESJ-U.S. has sufficient land holdings in the project area to affect this change. In addition, ESJ-U.S. has developed a Conceptual Resource Management Plan to provide a framework for the interim and long-term management of the conservation easement site. According to this plan, ESJ-U.S. would work with the County to designate a Resource Manager for the site, although it is anticipated the ESJ-U.S. will ultimately convey the property to the BLM for long-term, in perpetuity management. To the extent that there are existing recreational trails on the designated easement, those trails would remain accessible and signs would be installed to direct users to remain on trails and thus avoid disrupting the biological function and value of the area (EDAW, Inc. 2010b).

Vegetation clearance along and adjacent to the transmission line right-of-way and the main access road could directly impact nesting birds by removing suitable nesting areas or active nests. Increased noise, dust, construction activities, and the presence of humans in the area could also alter the behavior and success of nesting birds and foraging raptors. To minimize such impacts, ESJ-U.S. would incorporate the following APMs into the project:

- Prior to construction or vegetation clearing, suitable nesting habitat within 500 feet (152 m) of the edge of ground disturbance would be surveyed for breeding activity to determine if raptors or special-status bird species are nesting. If nesting is confirmed, the following measures would be implemented to reduce noise levels below 60 dBA hourly L_{eq} and minimize disturbance to those adjacent birds:
    - Noise analyses would be performed during construction activities adjacent to sensitive habitats or active nests of special-status species
    - If necessary, temporary noise attenuation barriers would be erected to reduce construction-related noise to below 60 dBA hourly L_{eq}.





0 200 400 600 800 1,000 Feet
0 100 200 300 Meters

Source(s):
SanGIS 2009-2010; Figure adapted from EDAW 2010 (sources cited in EDAW 2010: DigitalGlobe 2008, Sempra Energy 2009, SANGIS 2008).

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.1-5

PROPERTY BOUNDARIES AND PROPOSED CONSERVATION EASEMENT AREA

August 2010

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Figure_3_1-5_ConservationEasements_11x8_v6.ai (07/29/2010, 06:18 am) R. Wurgler/T. Murphy

  - Heavy equipment would be repaired as far away as practical from habitats where nesting birds may be present.
  - Construction equipment, including generators and compressors, would be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, acoustical lagging, and/or engine enclosures).
  - The construction contractor would maintain all construction vehicles and equipment in proper operating condition and provide mufflers on all equipment.
  - Noise monitoring would be conducted to determine that measures are effective to reduce noise to below 60 dBA hourly L_{eq}.
- Vegetation clearing and construction activities within potential nesting habitat for special-status bird species, as determined by a qualified biologist, would occur outside of the bird breeding season (generally February 1 to September 15). If clearing or construction activities must occur in potential nesting habitat during the breeding season, a qualified biologist would conduct preconstruction surveys within two weeks of the start of the construction activity to identify and avoid active nests (e.g., occupied nests with eggs or young) that would otherwise be impacted. In addition, for any construction activities that coincide with the raptor breeding season (liberally defined as February 1 to September 30), a qualified biologist would monitor foraging raptors onsite during construction activities to determine if construction activities adversely affect such behaviors. If construction adversely affects raptor foraging the monitoring biologist would make recommendations to modify construction activities to avoid the adverse effects.

Potential indirect impacts to other biological resources include noise, temporary increases in dust, construction activity, human presence in the area, and the introduction of exotic species (invasive non-native plant species, pests, and/or domestic animals). To minimize those temporary impacts, ESJ-U.S. would incorporate the following measures into the project:

- The contractor(s) would be informed, prior to the bidding process, about the biological constraints of this project.
- The construction limits would be clearly marked on project maps provided to the contractor(s) and areas outside of the construction limits would be designated as "no construction" zones.
- ESJ-U.S. would establish equipment staging and refueling areas and no such activities would be permitted outside of the designated areas. Staging/storage areas for construction equipment and materials would be located away from sensitive biological resources.
- Soils from construction grading would be stockpiled either on an area within the right-of-way or at a site approved by the County of San Diego and other agencies, as appropriate.
- Construction areas would be kept clean of debris and construction materials that might be ingested or otherwise pose a risk to wildlife. Excavated materials, trash, and debris would be removed from the right-of-way and disposed of at an approved disposal facility.

- Construction fencing/flagging would be installed along the entire construction right-of-way to prevent construction equipment or workers from entering open space areas.

Potential mitigation measures in addition to the APMs described above as having the potential to further minimize potential impacts to biological resources are: Biology-1 (Worker Training) and Biology-2 (Wildlife Entrapment). These potential mitigation measures, which are described in Section 3.1.3, are intended to ensure that all construction workers are aware of and know how to deal with sensitive biological resources in or near the construction areas; and to ensure that wildlife do not become trapped in construction excavations or monopole segments (if used) stored onsite.

Construction could also indirectly result in the introduction of exotic plant species in the area along access roads or the transmission line right-of-way and the surrounding properties due to an increase in disturbance from construction and transport of seeds or other plant matter into the area. In particular, non-native weed species could establish in the cleared areas and in adjacent undisturbed areas after construction. The introduction of exotic species is particularly problematic in sensitive vegetation communities where non-native plants could potentially result in increased competition with native species, thereby altering the biological diversity and species composition of the community. The survival of special-status species could be adversely affected by the success of an introduced plant species. In addition, landscapes dominated by exotic plant species are prone to ignite more easily and spread fires quickly (see Section 3.9 [Fire and Fuels Management]). To reduce the potential for introduction and establishment/spread of non-native species, ESJ-U.S. would install flagging or construction fencing between work sites and adjacent open space areas to prohibit access into non-project areas. A potential mitigation measure in addition to the APM described above as having the potential to further minimize potential impacts to biological resources from invasive weeds is a Weed Control Plan (Biology-3). This plan would describe further measures of control for any identified weed populations in or near construction areas; to minimize the potential for weed introduction during construction; and to address post-construction maintenance and weed control procedures during the operational life of the project.

Special-Status Species

Although vegetation clearing activities would directly impact plants within and near construction areas, no special-status plants were observed in the survey area during rare plant surveys. Therefore, no impacts to such species are anticipated.

Four special-status wildlife species have a high potential to occur or were observed during the project surveys: northern red diamond rattlesnake, California horned lark, loggerhead shrike, and San Diego black-tailed jack rabbit. In addition, scoping comment letters received from the USFWS indicated that the transmission line corridor and access roads are in the vicinity of designated critical habitat for the Quino checkerspot butterfly and Peninsular bighorn sheep. In its March 24, 2010, letter to DOE, USFWS identified the following five federally-listed wildlife species as potentially occurring in the vicinity of the project: Quino checkerspot butterfly, arroyo toad, southwestern willow flycatcher, California condor, and least Bell's vireo. As discussed above in Section 3.1.1.6, the project site lacks suitable riparian and woodland habitat for arroyo toad, southwestern willow flycatcher, and least Bell's vireo; therefore, these species are considered to have a low potential to occur onsite and no impacts are expected to occur as a

result of construction activities. Potential impacts of construction to the remaining two federally-listed species, along with other special-status species, are discussed below.

Quino Checkerspot Butterfly. Designated critical habitat for the Quino checkerspot butterfly is approximately 3.6 miles (5.8 km) west of the most westerly portion of the proposed project and would not be affected by construction of the project. As discussed in Section 3.1.1, surveys of the 230-kV Route did not document the presence of any Quino checkerspot butterfly or populations of host plants used at the larval stage by the species. As a result, the species is not expected to occur in the project area and would not be impacted by the project.

Northern Red Diamond Rattlesnake. Boulders and rocky outcrops on the ridge approximately 500 feet (152 m) east of the right-of-way (at its closest point) provide potential habitat where this species could occur. However, the transmission line right-of-way and the area affected by construction of the main access road do not contain the preferred habitat of the rattlesnake. Therefore, construction is not expected to affect the northern red diamond rattlesnake population.

California Condor. Although the 230-kV Route is within the range of the California condor, this species is considered to have a very low probability of occurring in the project area based on limited distribution within its historic range and the absence of recent sightings in the project vicinity (with the exception of the 2007 siting near Jacumba). Therefore, construction of the project is not expected to result in adverse effects on California condors.

California Horned Lark. The California horned lark was observed foraging along the proposed transmission corridor and access road and the species could nest in vegetation in this area. Although vegetation clearance would remove available foraging and nesting habitat, environmental protection measures included in project design (e.g., nesting surveys and avoidance of active nests) would ensure the avoidance of direct impacts and minimize any indirect impact to breeding horned larks. In addition, the loss of habitat would be offset by establishment of the conservation easement, which is preliminarily proposed to be located on the eastern portion of the property (Figure 3.1-5). Therefore, the impacts of construction on this species would be minor.

Loggerhead Shrike. The loggerhead shrike typically forages in areas near scattered bushes and low trees. Although not observed or detected during any of the project surveys, based on the presence of suitable habitat and the relatively common occurrence of the species throughout the county, the loggerhead shrike has a high probability of occasionally using the habitats of the proposed right-of-way. Although vegetation clearance would remove potential foraging and nesting habitat, environmental protection measures included in the project design (e.g. nesting surveys and avoidance of active nests) would ensure the avoidance of direct impacts and minimize any indirect impact to the shrike. The loss of habitat would be offset by establishment of the conservation easement which is preliminarily proposed to be located on the eastern portion of the property (Figure 3.1-5). As a result, the impacts of construction on loggerhead shrike are expected to be minor but would last for the life of the project.

San Diego Black-tailed Jack Rabbit. Construction would remove cover and foraging habitat for the San Diego black-tailed jackrabbit and could destroy active burrows if present. This loss of

habitat would be offset by the conservation easement set aside on the eastern portion of the property (Figure 3.1-5).

Jackrabbits may also be trapped in excavation areas for the towers/poles if they are left open after workers leave for the day. Implementation of mitigation measures Biology-1 (Worker Training) and Biology-2 (Wildlife Entrapment) would minimize the potential for such impacts by educating construction personnel and covering open excavations at the end of a work day (see Section 3.1.3). Overall, the impact of construction on the black-tailed jack rabbit would be minor.

Peninsular Bighorn Sheep. As noted in Section 3.1.1, the Peninsular bighorn sheep is not likely to occur in the transmission line right-of-way. However, in its comment letter on the project NOI, the USFWS stated that the Peninsular bighorn sheep critical habitat is "immediately adjacent to the proposed alternative alignments" and bighorn sheep are "known to occur within or near the [transmission corridor]" (included in Appendix C.6 of this EIS); however, since the project NOI was issued on August 4, 2008, the location of the alternative corridors has been confirmed to be located approximately 2 miles (3.2 km) south of the designated critical habitat.

Although there was no evidence of bighorn sheep on or adjacent to the site during any of the project surveys, increased human activity and disturbance adjacent to and within bighorn sheep habitat may threaten populations by altering their normal behavior (USFWS 2009a). Vegetation clearing within the right-of-way and the main access road would result in permanent impacts to potential forage material for this species; however, the designated critical habitat and known bighorn sheep populations are approximately 2 miles (3.2 km) from the proposed right-of-way (Figure 3.1-2), and it is unlikely the bighorn sheep will occur along the transmission corridor or access road. In summary, construction of the proposed transmission line would not affect the designated critical habitat and the potential for impacts to bighorn sheep is minor.

Operation Impacts

Vegetation and Wildlife

The transmission line structures would be widely spaced and would not interfere with wildlife movements. Clearing of vegetation in accordance with the Fire Protection Plan may inhibit, but is unlikely to preclude, movement by small animals with limited mobility and/or small home ranges, and is unlikely to affect the movement of large animals.

Bird collisions with transmission lines generally occur when: 1) birds cross power lines in daily use areas (e.g., when moving between foraging and roosting habitat); and 2) migrants encounter lines while traveling at reduced altitudes (most species fly well above transmission lines and, except for landing and takeoff, few migrants are below 500-600 feet above ground level). Therefore, collision risk is higher for bird species whose foraging, nesting, and/or roosting areas are geographically separated on opposite sides of a transmission line and for migrants that fly at low altitudes (CPUC/USFS 2009). Collisions are more probable near wetlands that attract large flocks of waterfowl and shorebirds, valleys that are bisected by transmission lines, and within narrow passes where power lines run perpendicular to flight paths (CPUC/USFS 2009). The 230-kV Route would not be within any known bird migration corridors or major daily use areas.

Further, high-voltage transmission lines with large conductors and transmission support structures are relatively visible to birds, which minimize the potential for collisions.

Larger avian species, such as raptors are susceptible to electrocution from transmission lines with less than 60 inches (152 cm) of separation between energized and non-insulated phase conductors and grounded components. However, the design specifications of the proposed transmission line would follow industry standards for avian protection on power lines (APLIC 2006) resulting in minimal risk of avian electrocution.

Transmission line towers and associated structures provide elevated sites for perch-hunting, roosting, and nesting for some avian species, including raptors and the loggerhead shrike. This provision is particularly beneficial to such birds in open areas where elevated natural locations (e.g., trees, snags and cliffs) are absent or limited (APLIC 2006). In some cases, transmission structures can expand the nesting and foraging range of species into previously unoccupied habitat with corresponding effects on local prey populations.

Special-Status Species

Maintenance of the transmission line right-of-way during operation would require periodic reduction of vegetation cover to comply with the requirements of the fire plan. As noted above, no special-status plant species are known to occur in the vicinity of the project. Similarly, operation of the project would not affect Quino checkerspot butterfly or designated critical habitat of this species. Peninsular bighorn sheep are not known in the habitats of the corridor and would not be affected by operations. The following sections address the potential impacts of operation on those special-status wildlife species with potential to occur in the project area.

California Horned Lark. The California horned lark uses the right-of-way and the adjacent areas for foraging. The periodic maintenance of vegetation in the transmission line right-of-way to comply with the fire plan would reduce the amount of habitat in the area for this species. Overall, the impact on this species due to the loss of habitat during operation of the project would be minor but would last for the duration of the project. The loss of habitat would be offset by the establishment of the conservation easement (Figure 3.1-5). Therefore, the impacts of construction on the lark would be minor but would last for the life of the project.

Loggerhead Shrike. As noted in Section 3.1.1, there is a high probability that the loggerhead shrike occasionally uses the habitats of the right-of-way. Although the periodic maintenance of the right-of-way to comply with the fire plan would reduce the amount of habitat for the species in the area, the loss of habitat would be offset in part by establishment of the conservation easement which is preliminarily proposed to be located on the eastern portion of the property (Figure 3.1-5). This would result in a minor impact to the species that would last for the life of the project.

San Diego Black-tailed Jack Rabbit. The transmission line structures would increase the number of available raptor perches and may therefore increase predation on black-tailed jackrabbits in the vicinity of the right-of-way. This increase in predation would result in a minor impact to the species but would last for the life of the project. In addition, the periodic maintenance of vegetation in the transmission line right-of-way to comply with the Fire Protection Plan would reduce the amount of habitat in the area for the jack rabbit. The loss of

habitat would be offset by establishment of the conservation easement which is preliminarily proposed to be located on the eastern portion of the property (Figure 3.1-5). Overall, the impact of operation of the project on this species would be minor but would last for the duration of the project.

Impacts in the U.S. due to Related Activities in Mexico. Impacts to biological resources would also occur in the U.S. if construction or operation of the proposed ESJ Wind project and the associated transmission lines in Mexico impeded the cross-border movement of wildlife or resulted in take of those animals afforded international protection under MBTA. At present, cross-border movement of certain terrestrial wildlife species (particularly large mammals) is already impeded by the U.S.-Mexico Border Fence where present. The ESJ Wind project would consist of numerous wind turbines dispersed over a large geographic area in the general vicinity of La Rumorosa, Northern Baja California, Mexico. The wind development area would not be fenced; therefore, cross border movement of terrestrial wildlife species in the area would not be further impeded by the ESJ Wind project. In addition, as noted in the Sunrise Powerlink RDEIR/SDEIS (CPUC/BLM 2008b), construction and operation of the wind turbines is not expected to reduce terrestrial wildlife populations below self-sustaining levels within or adjacent to the wind farm. However, the construction and operation of the wind facilities, coupled with elevated levels of human activity from workers and visitors to the wind farm, could alter wildlife behavior, including possible avoidance of the area.

Because of the comparatively low elevation of San Diego County's mountains (lower than the San Bernardino and San Jacinto mountains to the north), many birds migrating to/from a winter range in western mainland Mexico to/from breeding range in northern California, the Pacific Northwest, or Alaska use San Diego County as a corridor for crossing from the desert to the coastal slope. This migration occurs all along the east side of the San Diego County mountains but is most concentrated in the canyons and valleys that lead from northwest to southeast, such as Grapevine Canyon in Anza Borrego Desert State Park (located about 39 miles [62.8 km] northwest of the alternative corridors) and San Felipe Valley (located about 37 miles [59.5 km] northwest of the alternative corridors) west of Anza Borrego Desert State Park near the town of Julian. San Felipe Valley is the most heavily used corridor (Skagen et al. 2004; Unitt 2007 as cited in CPUC/BLM 2008). As discussed above, the proposed ESJ U.S. Transmission Line project would not be constructed in a known major migration corridor or avian concentration zone.

Based on the general characteristics of the landforms within and near the ESJ U.S. project alternative corridors, and the contiguous landforms south of the border, it appears that the proposed transmission line segment in Mexico and the ESJ Wind project Phase 1 turbines would not be located within known major migration corridors or habitats such as extensive wetlands and riparian areas that would support large concentrations of birds. Nonetheless, cross-border migratory birds will traverse the border in the project area to various degrees (e.g., raptors often follow ridgelines), and thus the potential exists for Phase 1 and future phase operation of the ESJ Wind project to result in direct mortality of cross-border migratory birds due to collisions with transmission lines and wind turbines.

Although the ESJ Wind project would not be located within known major migration corridors or avian concentration zones, construction of the Phase 1 wind turbines could impact up to

7,500 acres (3,035 ha) of chaparral, pine forest, and possibly some desert communities in Mexico that may support birds protected under the MBTA (CPUC/BLM 2008b); and future phases would increase this development footprint. Construction of the ESJ Wind project could result in the destruction or abandonment of active migratory bird nests and operation of the turbines could result in the loss of migratory birds that collide with the turbine blades. Raptors, in particular, may be vulnerable to collisions with wind turbines when hunting prey, depending on the ground-to-rotor clearance and siting of turbines in relation to rim edges (raptor use has been shown to be higher on the prevailing upwind sides of ridges and turbines sited away from rim edges may reduce raptor fatality rates) (CPUC/BLM 2008b). Any incidental take of raptors or other migratory birds in Mexico, and/or environmental protection measures to prevent incidental take, would be under the authority of the Mexican Environmental, Natural Resources, and Fisheries Ministry. With respect to avian and bat species, the Mexican permit requires ESJ to conduct avian and bat monitoring studies in the project area for a period of at least one year prior to and after construction. Should the study identify impacts associated with possible collisions, measures for their protection or minimization of negative impacts associated with possible collisions shall be proposed and implemented.

In addition to birds, migratory bat species could be adversely affected by the ESJ Wind project turbines. Projected impact levels are unknown and could vary based on such factors as regional migratory patterns, patterns of local movements through the ESJ Wind project area, and the response of bats (both individually and collectively) to turbines (CPUC/BLM 2008b). Any incidental take of migratory bats in Mexico, and/or environmental protection measures to prevent incidental take, would be under the authority of the Mexican Environmental, Natural Resources, and Fisheries Ministry.

3.1.2.4 Alternative 3 – Single-Circuit 500-kV Transmission Line

The biological resources in the vicinity of Alternative 3 are essentially the same as those of Alternative 2 as the routes for these alternatives are adjacent to each other and construction, operation, and maintenance activities would be substantially the same for both alternatives. Consequently, the impacts to biological resources, including special-status species that would occur with Alternative 3 would be essentially the same as those described above for the 230-kV Route.

Construction of the 500-kV Route requires clearing of vegetation over a wider right-of-way than for the 230-kV Route alternative. Table 3.1-3 lists the areas cleared by vegetation community and other cover types. The tower bases and associated adjacent fire protection zones cleared of vegetation (including the ground disturbance associated with the laydown/parking/stringing area), and the transmission line access road would permanently impact a total of 6.23 acres (2.52 ha), of which the effects to 6.07 acres (2.62 ha) of impacts to Sonoran mixed woody scrub would warrant mitigation. Permanent land disturbance for the 500-kV Route is estimated to be 6.23 acres (2.52 ha), which includes the tower bases and adjacent fire protection zones cleared of vegetation (including the ground disturbance associated with the laydown/parking/stringing area), and the transmission line access road. Within the disturbed area, the effects to 6.07 acres (2.46 ha) of Sonoran Mixed Woody Scrub would warrant mitigation (Table 3.1-3). In addition, construction of Option A for the legal access road would permanently impact 0.55 acre (0.22 ha) of Sonoran Mixed Woody scrub, and 2.29 acres (0.93 ha) of Peninsular Juniper Woodland. If Option B is constructed, permanent impacts would include 1.14 acres (0.46 ha) of Sonoran

Mixed Woody scrub, and 2.60 (1.05 ha) acres of Peninsular Juniper Woodland. Based on these calculations, a total of either 13.49 acres (5.46 ha; if Option A is constructed) or 15.01 acres (6.07 ha; if Option B is constructed) would be placed in a conservation easement to offset permanent impacts of the 500-kV transmission line alternative and the main access road. This preserved area would adjoin a large open space tract of land to the east under ownership of BLM, as discussed above in Section 3.1.2.3.

Table 3.1-3
Impacts to Vegetation Communities and Habitat Types for the 500-kV Alternative

Vegetation Communities and Habitat (Cover) Types	Survey Area (Acres)	Area Affected Along the 500-kV Alternative Corridor and Main Access Road (acres)		
		500-kV Alternative	Property Access Road Option A	Property Access Road Option B
Sonoran Mixed Woody Scrub	46.38	6.07	0.55	1.14
Peninsular Juniper Woodland and Scrub	14.85	--	2.29	2.60
Disturbed Habitat	3.97	0.16	1.56	0.80
Total Cover	**65.20**	**6.23**	**4.40**	**4.54**

Source: EDAW, Inc. 2010b

3.1.3 Mitigation Measures

The following potential mitigation measures in addition to the APMs described above would further reduce potential impacts to habitats/vegetation communities, and special-status plants and animals.

Biology-1: Worker Training

Prior to the initiation of construction, ESJ-U.S. should provide training and area-specific information to contractor personnel to ensure that construction workers are aware of: (1) the sensitive biological resources potentially occurring along and adjacent to the construction right-of-way and the main access road, and (2) protection measures for sensitive resources that should be followed within those areas. The employee training session should be conducted by a qualified biologist and should include a description of sensitive biological resource and special-status species concerns as well as applicable regulations. The training should address various relevant topics in an adequate level of detail, commensurate with the size of the workforce and the scale and duration of construction activities. Suggested topics to be addressed in the worker training include the following:

- Temporary and permanent habitat protection measures;
- Worker rules of conduct (e.g., no pets in or adjacent to the construction area; avoid harm or harassment of wildlife; no firearms in or adjacent to the construction area except for security personnel);

- Actions to take if previously unidentified sensitive resources are encountered; and
- Points of contact for comments and questions about the material discussed in the program.

Each participant in the training should sign a statement declaring that the individual understands and will abide by the guidelines set forth in the training materials.

Biology-2: Wildlife Entrapment

Open excavations should be covered at the end of each work day to prevent wildlife entrapment. Covers should be secured in place prior to workers leaving the site, and should be strong enough to prevent wildlife from breaching the cover and becoming entrapped. If the excavations cannot be covered, exclusion fencing (i.e., silt fencing) should be installed around the excavation. Excavations should be inspected prior to filling to ensure absence of animals.

If a dead or injured individual of a listed species is found in the construction zone or along an access road, a qualified biologist should contact appropriate resource agencies (i.e., USFWS for federally listed species or CDFG for state-listed species) within 48 hours of the finding.

If monopoles are used, and segments of the monopoles are stored in the construction area, the open segments should be temporarily capped during storage to prevent wildlife from entering them. The segments should be inspected prior to capping to ensure no animals are inside.

Biology-3: Weed Control Plan

ESJ-U.S. should prepare and implement a weed control plan that describes the weed control measures during the pre-construction, construction, long-term operations phases. The measures should be developed by qualified individuals in consultation with appropriate agencies (e.g., the County of San Diego Agriculture Commissioner's Office and the California Invasive Plant Council) and should include at least the following elements:

- A list of identified non-native invasive weed species and their locations based on the vegetation mapping previously conducted (EDAW, Inc. 2010b);
- A plan for treatment of identified weed species including: (1) timing (based on plant phenology), (2) appropriate treatment methods (chemical, mechanical, and/or manual), and (3) best management procedures for treatment methods (e.g., no herbicides should be used when wind velocities are above 5 miles per hour);
- Construction best management procedures to prevent the introduction and/or spread of weeds at work sites including, but not limited to: (1) using only County of San Diego Agricultural Commissioner certified weed-free seed, straw, gravel, and fill materials, (2) ensuring vehicles are clean and free of any weed seeds prior to arriving at the work site, and (3) no washing of vehicles at the work site;
- Conduct post-construction surveys and implement the appropriate treatment methods to control the introduction and spread of weeds along the transmission line right-of-way and main access road at appropriate frequencies over the operational life of the project.

3.2 VISUAL RESOURCES

This section analyzes potential impacts to the existing visual setting from the ESJ U.S. Transmission Line project. The existing setting description and much of the analysis in this section is adapted from the *Visual Resources Report for the Energia Sierra Juarez U.S. Transmission LLC Generation-Tie Line Project* prepared for ESJ-U.S. by ICF Jones and Stokes (2010b). The analysis follows the County of San Diego *Guidelines for Determining Significance - Visual Resources* (2007) which were developed based on the widely used visual assessments utilized by the Federal Highway Administration (FHWA 1981), the U.S. Forest Service (USFS 1987) and the U.S. Bureau of Land Management (BLM n.d.). These guidelines provide a systematic approach to analyzing visual impacts using standard nomenclature. The approach generally begins with an inventory of the visual resources and aesthetic conditions of a particular site, and involves the following steps:

- Describe the existing visual character and visual resources of the project site/study area;
- Identify visually sensitive resources;
- Identify viewers and representative viewpoints to the project area; and
- Evaluate the impacts the proposed project would have on visual resources themselves (e.g., visual character and quality) and in regard to viewer response, and provide potential mitigation measures to avoid or reduce those impacts.

Visual character is defined by descriptive attributes in the landscape and is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by viewer sensitivity. These concepts are described below (as defined in the FHWA visual resources manual 1981):

Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.

Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes and in natural settings.

Unity is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual components in the landscape.

3.2.1 Affected Environment

3.2.1.1 Regional Setting and Viewshed

The alternative corridors are located in the eastern portion of San Diego County in the Jacumba Valley, in an area where the Peninsular Ranges and desert regions converge. The Jacumba Valley viewshed encompasses approximately 7.75 square miles (20 square kilometers) on the U.S. side of the international border with Mexico. The viewshed is linearly interrupted by the border fence, but the Jacumba Valley and its viewshed extends several miles south of the border

into the La Rumorosa area of Mexico. The unincorporated community of Jacumba occupies the southwest corner of the viewshed and is adjacent to the international border.

Elevations in the Peninsular Ranges within the viewshed vary from 3,000 to 6,000 feet (914 to 1,829 m) above mean sea level. The ranges are characterized by steep mountain slopes that are typically covered with granite boulders and chaparral vegetation on the western slopes, evergreen and temperate forests at and near the peaks, and desert chaparral on the eastern slopes. The largely undeveloped mountain areas surround scattered rural communities. Scenic resources are plentiful and include large open spaces including Anza-Borrego Desert State Park, BLM-managed land, and smaller county reserves.

Elevations within the desert region range from sea level to approximately 3,000 feet (914 m) above mean sea level, and the terrain includes mountains, foothills, alluvial fans, and desert floor. The desert region provides expansive views characterized by dramatic landforms, native desert habitat, and low desert valleys. The In-Ko-Pah and Jacumba Mountains rise above the surrounding landscape north of the corridors. The Grey and Table Mountains are visible landforms in the northern viewshed (ICF Jones and Stokes 2010b).

3.2.1.2 Alternative Corridors Visual Setting

The alternative corridor viewshed (within the greater Jacumba Valley viewshed) extends approximately 2 miles (3.2 kilometers) from west to east. To the east, the Jacumba Mountains restrict the enclosed viewshed to less than 1 mile (1.6 kilometers). Although the viewshed extends further south into Mexico, the international border fence defines the southern viewshed limits. The alternative corridors are located in the southeast quadrant of the viewshed in a low-lying, depositional pediment that is slightly concave and flat, and gently slopes 10 degrees to the southwest. As the site extends to the west, north, and east, it converges with the surrounding topography. The primary vegetative community within the corridors is characterized as Sonoran mixed woody scrub (refer to Section 3.1 [Biological Resources] for more detail regarding dominant vegetation types). This plant community varies in height from 1 to 6 feet (0.3 to 1.8 m) and ranges in color from dark to light green, transitioning to more intense hues of yellow and brown during the dry season. The vegetation exhibits a coarse and patchy texture, as vegetative coverage varies across the alternative corridors from approximately 30 to 40 percent.

The eastern portion of the viewshed has a very coarse texture, which is a product of the rocky underlying landform and the patchy, clumped desert scrub vegetative overcover. There are numerous volcanic erosional landforms that protrude conspicuously in the landscape (e.g., Airport Mesa, Jade Peak, and Table and Round Mountains) and exhibit a unique but slightly incongruent conical form in the viewshed. Due to their geologic composition, these landforms exhibit a noticeably rusty-red hue and darker color value than the surrounding granitic rock formations. Views from the alternative corridors are mostly panoramic, although the Jacumba Mountains enclose views from the site to the east. The Jacumba Mountains are steep and rocky, and nearly devoid of vegetation. The silhouette of these grey pyramidal forms creates a dramatic jagged line on the viewshed's eastern horizon. Carrizo Creek's headwaters originate in the eastern portion of the viewshed, and it meanders westward through the valley before turning north to the Imperial Valley through the steep landscape of the Carrizo Gorge.

The alternative corridor area exhibits linear uniformity and vegetative continuity; however, various man-made modifications (e.g., border fence, existing east–west and north–south access roads, the SWPL, Old Highway 80, I-8, and a telecommunications facility on Nopal Peak in the Jacumba Mountains) located throughout the area interrupt the continuous natural landscape. Each of these features introduces distinct and, in some cases, contrasting forms, lines, and colors into the landscape that compromises the visual quality of the viewshed. For example, the dark brown international border fence, directly south of the alternative corridors, creates a strong linear disruption in the corridor's uninterrupted landscape character. Similarly, the existing, approximately 40-foot-wide (12.2-m-wide) east–west access road creates a second break in the groundcover near the northern end of the corridors by introducing a vivid sand-colored line that contrasts starkly with the predominantly grey-green vegetative cover. The SWPL lattice towers and powerlines extend within the alternative corridor viewshed from the west to the east and introduce strong vertical and horizontal elements into the viewshed. The towers are most prominent against the blue sky, but tend to blend in and disappear into the mountain background. The most prominent man-made disturbance near the alternative corridors is I-8. Both east- and west-bound traffic on I-8 introduce motion/movement into the viewshed, which draws the eye away from the site. In addition, numerous dirt roads facilitate U.S. Border Patrol enforcement activities in the area. Patrol and scouting activities by the agents in their vehicles can create transitory negative visual effects by introducing motion and creating dust clouds. There are also developed checkpoints on I-8 and Old Highway 80 in the eastern portion of the valley. The presence of each of the features mentioned above is industrial and utilitarian in nature, and that incongruity disrupts the intactness, unity, and, in instances, vividness of the viewshed (ICF Jones and Stokes 2010b).

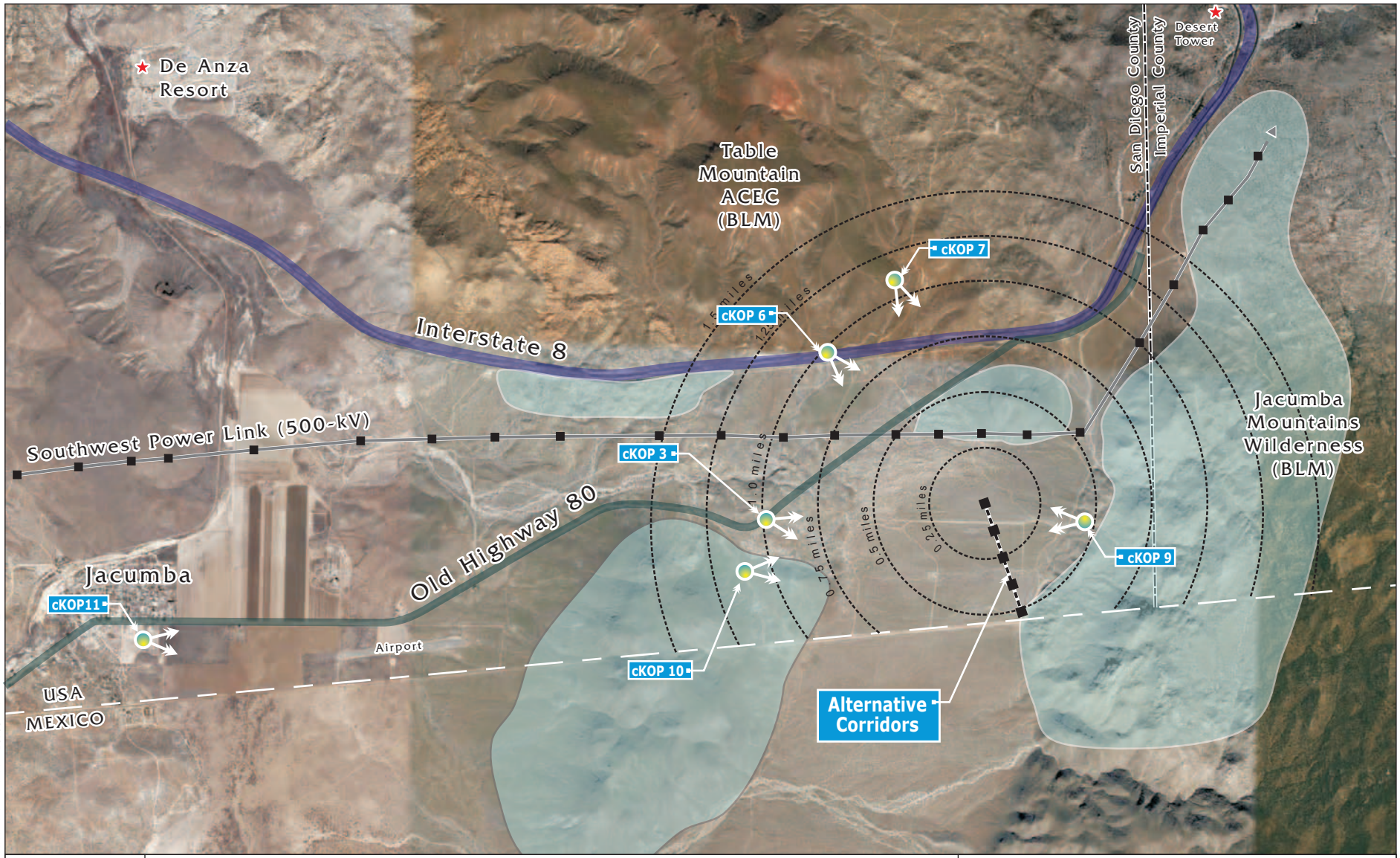
Key Observation Points

To capture the baseline visual setting of the alternative corridors as viewed by area users (motorists and recreationists), eleven candidate key observation points (KOPs) along Old Highway 80, I-8, BLM-managed lands, and residential lands were identified in the Visual Resources Report (ICF Jones and Stokes 2010b) where unobstructed views to the corridors are available (Figure 3.2-1). These candidate KOPs were assessed to determine which would be the most representative of the alternative's potential effects on the viewshed. As a result of this assessment KOPs 3, 6, 9, and 10 were selected as representative viewpoints for area users.[5] These KOPs are described below.

KOP 3

KOP 3 is located along Old Highway 80 approximately 0.25 mile (0.4 kilometer) from where the roadway curve transitions to the northeast. As shown in the photograph in Figure 3.2-2, the foreground of this KOP consists of scattered vegetation intermixed with large rock outcroppings and boulders. These elements create variety and add visual interest to the diagonally trending foreground, which is a boulder strewn transitional upland area. The view from this KOP was captured in the spring when the vegetation was green. After a summer's heat, the color of this vegetation will become brown and will contrast less with the sand-grey mountains.

[5] For the purposes of this analysis, DOE has retained the numbering of the KOPs from the technical report. The ESJ U.S. project alternative corridors would not be visible from any residential viewpoints; therefore, these viewers are not reflected in any of the selected KOPs.





LEGEND

- cKOP Location and View Direction
- Concentric distance zones
- Major Topographic Landform/Screening Element

0 0.5 1 Mile
0 0.5 1 1.5 Kilometers

Source:
Adapted from ICF Jones & Stokes 2010.

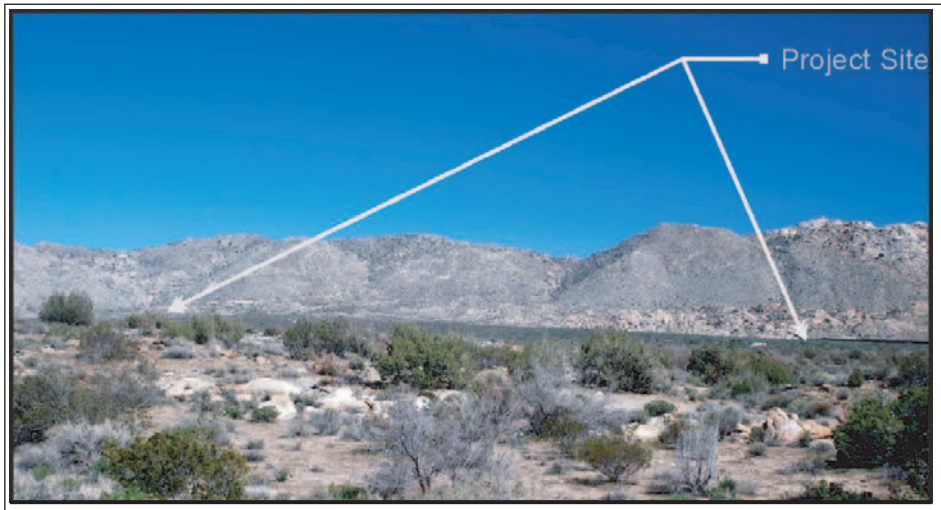
ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-1

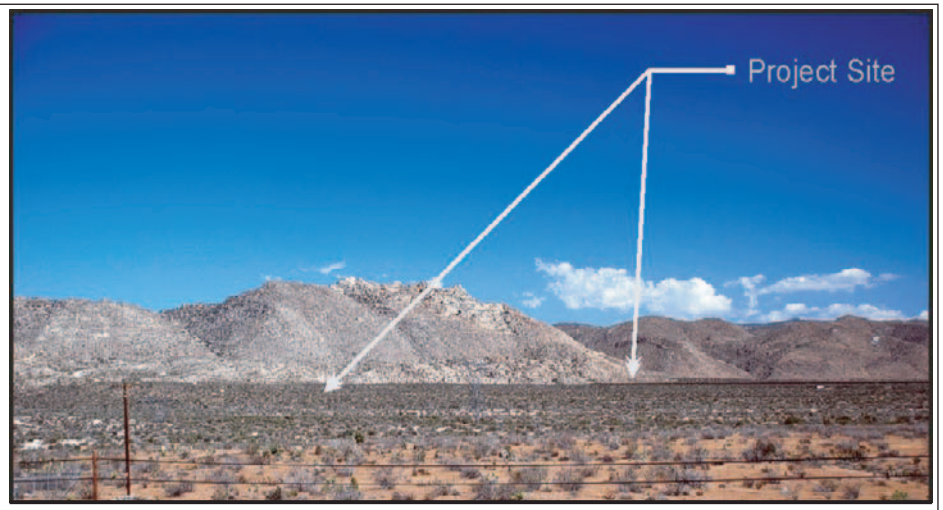
LOCATIONS OF CANDIDATE KEY OBSERVATION POINTS

August 2010

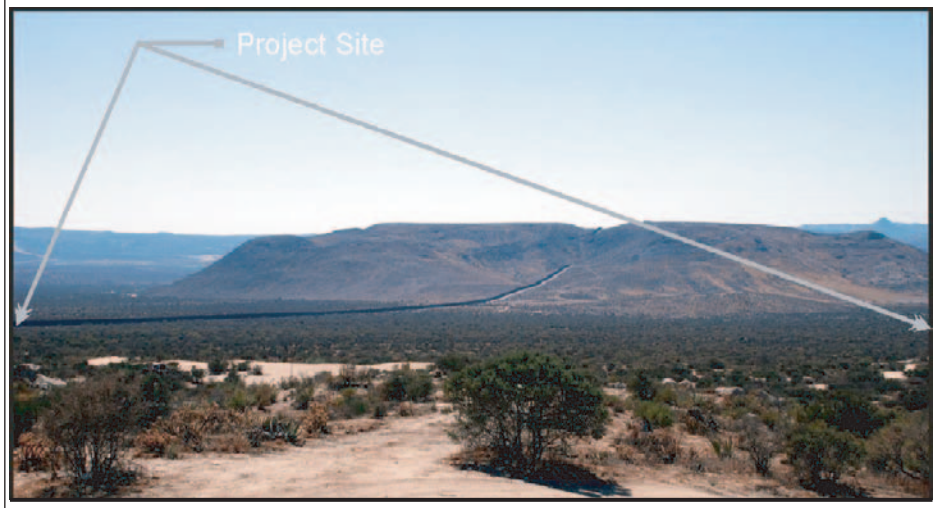
\\sacramento-nas\Data\Projects\Sempra-Energia_Sierra_Juarez_EIS-32183001\
Figure_3_2-1_LocationsOfKOPs_11x8_v4.ai (07/29/2010, 06:21 am) R. Wurgler/T. Murphy



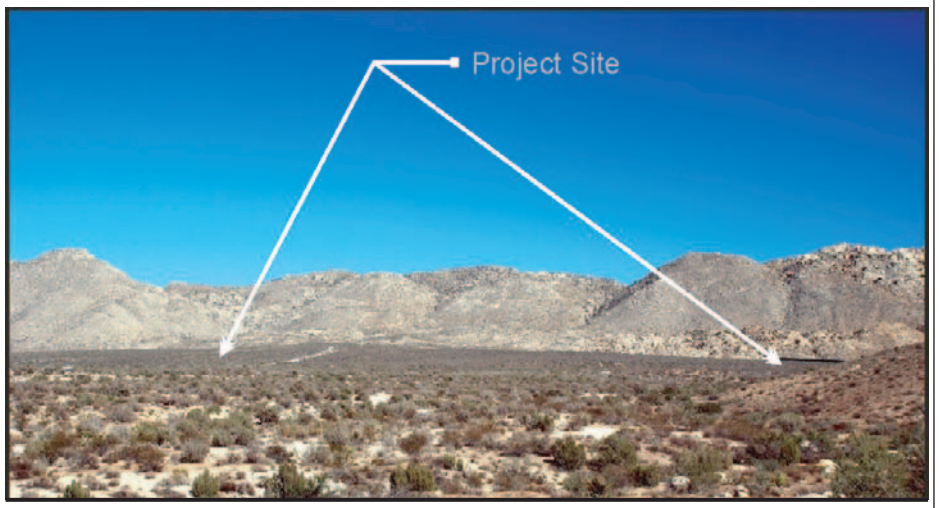
KOP 3—View towards the alternative corridors from Old Highway 80; view direction is east-southeast; project features are 1.01 miles (5,325 feet [1,623 m]) distant; camera azimuth is 97°



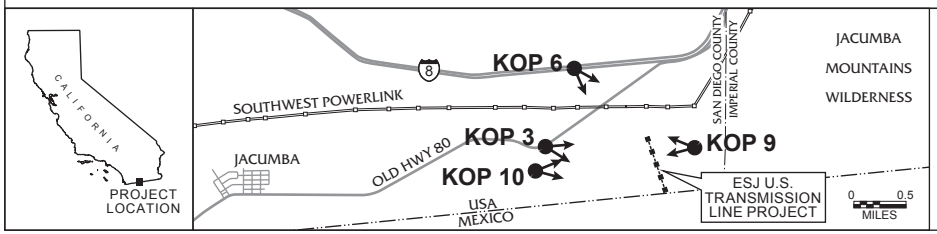
KOP 6—View towards the alternative corridors from I-8; view direction is south–southeast; project features are 0.97 mile (5,096 feet [1,553]) distant; camera azimuth is 136°



KOP 9—View towards the alternative corridors from the Foothills of the Jacumba Mountains; view direction is west–southwest; project features are 0.49 mile (2,570 feet [783 m]) distant; camera azimuth is 250°



KOP 10—View towards the alternative corridors from BLM land Airport Mesa; view direction is east; project features are 1.11 miles (5,869 feet [1,789 m]) distant; camera azimuth is 86°



Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-2

REPRESENTATIVE VIEWS OF THE ESJ U.S. PROJECT SITE FROM SELECTED KOPs

August 2010

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Figure_3_2-2_KOPs6-9-10_RepresentativeViews_11x8_v2.ai (07/29/2010, 06:21 am) R. Wurgler/T. Murphy
August 2010

A large portion of the middleground is obscured by the low hill at the distant edge of the foreground. The visible portion of the middleground includes a long expanse of scrub vegetation on the pediment surface up to the strong black horizontal line that is created by the international border fence. From this vantage point the Jacumba Mountains are a sequential series of relatively distinct pyramidal forms. The rugged silhouette of the Jacumba Mountains contrasts strongly against the brilliant blue sky and creates a positive memorable landscape view exhibiting vividness and unity. The nearest ESJ U.S. Transmission Line project structure to this KOP would be just over 1 mile (1.6 kilometers) to the east in the middleground of the view.

KOP 6

KOP 6 is located along eastbound I-8 near the Mica Gem Mine Undercrossing just under a mile west–northwest of the alternative corridors. It is anticipated that the nearest ESJ U.S. Transmission Line project element would be located approximately 1 mile (1.6 kilometers) to the east–southeast. This view is representative of what is afforded to motorists traveling on eastbound I-8. This viewshed's foreground consists of boulder strewn transitional uplands, which include a patchwork of green, brown, and grey-colored vegetation. Existing dirt roads create light sand-colored lines in the lower foreground, which contrast with the browner, more copper-hued dirt floor that dominates the foreground (Figure 3.2-2). Also, existing wooden pole utility lines introduce both strong vertical and horizontal elements into the foreground. The middleground is composed of an expanse of denser, coarser, multi-hued vegetative cover up to the point where the pediment meets with the strong black horizontal element created by the international border fence. Although somewhat transparent, an existing SWPL lattice tower is noticeable in the center of the near middleground.

From this perspective the interface between the pediment surface and the Jacumba Mountain foothills creates a strong horizontal line that appears to be an extension of the border fence. The distant middleground is composed of the Jacumba Mountains as they extend into Mexico. The lower background of this vantage point is blocked by the Jacumba Mountains, and the open sky comprises the upper portion of the background. The background of this view exhibits visual variety in that the Sierra de Juarez Mountains appear much smoother and browner than the Jacumba Mountains. Their ridgeline creates a pleasing silhouette along the horizon.

KOP 9

KOP 9 is located on the Jacumba Mountain Foothills, approximately 0.5 mile (0.8 kilometer) west–northwest of the alternative corridors. The nearest element of the ESJ U.S. Transmission Line project would be located approximately 0.5 mile (0.8 kilometer to the east–southeast. The immediate foreground is the dirt road that provides an access route to the upper reaches of the Jacumba Mountains (Figure 3.2-2). The distant foreground of this viewshed is composed of the gently sloping planar pediment, with scattered vegetation and occasional rock outcroppings located throughout the foreground. In addition, dirt roads used to access the Jacumba Mountains and the existing east–west access road create irregular patterns of light sand-colored patches of ground. The middleground is composed of an expanse of green vegetation, which exhibits a denser, coarser look and feel than in the immediate foreground. The international border fence disrupts the continuity of vegetative land-cover in the southern segment of this viewshed. Additionally, the yellow-colored herbaceous vegetation on the Airport Mesa landform juts into the middleground, blocking the majority of the distant background from this view. The

background, which is visible to the north and south of the Jacumba Airport, include the skyline created by the East County and Mexican Mountains.

KOP 10

KOP 10 is located on the eastern portion of the Airport Mesa landform approximately 1.1 miles (1.7 kilometers) west of the alternative corridors. A scattered patchwork of vegetation in alternating hues of brown and green establish this viewshed's foreground as the Airport Mesa landform transitions to pediment (Figure 3.2-2). The underlying land surface ranges from a harder textured, yellowish brown color in the immediate foreground to a sand-colored, smoother textured cover in the distant foreground. The existing east–west access road is a somewhat visible sand-colored interruption in the grey/green vegetation. A small segment of the international border fence disrupts the continuous earth-toned landscape character in the viewshed's distant middleground in the extreme south. The rugged silhouette and sequential pyramidal forms of the Jacumba Mountains compose the background.

3.2.1.3 Designated Scenic Highways

The County of San Diego identified the segment of I-8 from State Route 79 east to the Imperial County Line as a Third Priority Candidate Scenic Route in the Scenic Highway Element of the adopted County of San Diego General Plan (County of San Diego 1986); however, according to the California Department of Transportation (CalTrans) Scenic Highway Mapping System, no segments of I-8 have been officially designated as state or county scenic highways (CalTrans 2007). Unobstructed views of the alternative corridors are available intermittently from this segment of I-8 for approximately 0.6 mile (1 kilometer) in the vicinity of the Mica Gem Mine Undercrossing.

3.2.2 Environmental Impacts

The assessment of potential impacts to visual resources was adapted from the analysis provided in the Visual Resources Report for the Energia Sierra Juarez U.S. Generation-Tie Line prepared by ICF Jones and Stokes (2010b). To evaluate potential changes to the existing visual setting, daytime photographic surveys of the proposed location for the alternative corridors were conducted on days in which climatic conditions yielded exceptional visibility: April 7, June 22, June 26, September 16, and September 26, 2009. After the preliminary photographic survey, Geographic Information System (GIS) software was used to identify where and to what extent the transmission towers would be visible to visual receptors from identified KOPs (described in Section 3.2-1 above). Existing setting photographs and modeled images were rated individually by a team of experts at ICF Jones and Stokes on a scale of 0 (no degree of change, not noticeable) to 5 (high degree of change, very noticeable) for visual character and elements of visual quality (vividness, intactness, unity). The scores were then averaged to obtain the final rating for each category.

The images were also analyzed using anticipated viewer response, which was based upon a combination of viewer sensitivity ratings, viewer exposure ratings, and anticipated duration of view for different viewer groups. The overall level of impact to visual resources at each KOP (minor, moderate, or major) was determined by combining the severity of adverse change in the view with the degree to which anticipated viewers would likely perceive the change.

3.2.2.1 Alternative 1 – No Action Alternative

Under the No Action alternative, the existing visual resources would remain as described. Activities described under the action alternatives would not take place. Consequently, there would be no impacts to visual resources.

3.2.2.2 Alternative 2 – Double-Circuit 230-kv Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Use of staging areas and construction yards during construction of the proposed transmission line, as well as vegetation clearance around each of the proposed structures as required by the Fire Protection Plan (discussed further in Section 3.9 [Fire and Fuels Management]) would introduce unnatural vegetative lines and soil color contrast from the newly exposed soils (e.g., land scarring). As discussed further in Operations Impacts, land scarring would adversely affect the visual quality of the site as viewed by motorists and recreationists and is considered a potentially moderate permanent impact (lasting for the life of the project). However, much of the proposed access road improvements would occur on an existing roadway and the only new potential scar areas are the transmission line access road and the immediate area surrounding each of the proposed towers/monopoles. In addition, there are numerous other roadways and towers in the vicinity of the project which would be viewed in the same viewshed by recreationists and motorists. Mitigation measure Visual-1 (Reduce color contrast and views of land scars) is a potential mitigation measure not proposed as an APM that could reduce the long-term visibility of land scars to sensitive viewer groups and reduce impacts to moderate levels.

In addition to potential land scars, the presence and visual intrusion of construction vehicles, equipment, materials, and work force along the transmission line routes would result in temporary impacts to visual resources. Vehicles, heavy equipment, materials, and workers would be visible during access road clearing and grading, structure erection, conductor stringing, and site/right-of-way clean-up and restoration. Construction equipment and activities would be visible to various receptors in close proximity to the right-of-way, including motorists on I-8, Old Highway 80, and numerous BLM access roads, and recreationists at local recreation areas including Table Mountain ACEC, Anza-Borrego Desert State Park, and Jacumba Wilderness (although views of the construction site from recreation areas would be transected by existing views of I-8 and Old Highway 80). View durations from these vantage points would vary from intermittent (for motorists) to extended (for recreationists). Although, views of the construction site from recreation areas would be transected by existing views of I-8 and Old Highway 80, the visibility of construction activity would detract from the visual character of the viewshed. Therefore, impacts are considered temporary and minor.

Operations Impacts

The proposed transmission line would add industrial structures in a primarily rural, open space setting (although, as described in Section 3.2.1 (Affected Environment), the area includes a number of industrial features such as the SWPL transmission line and local electrical distribution lines). As described in detail in Section 2 (Proposed Action and Alternatives), implementation of this alternative would include up to five transmission line towers or monopoles that would rise

150 feet (46 m) above the desert floor, a service road, and five 50- x 50-foot (15.2- x 15.2-m) transmission tower pads cleared of vegetation. The effect of these elements on existing visual resources (visual quality/character) and the degree to which these elements would be noticeable (viewer response) were used to determine the level of impact. Accordingly, visual quality/character and viewer response were rated on a scale of 0 (no degree of change, not noticeable) to 5 (high degree of change, very noticeable) at each of the four representative KOPs described in Section 3.2.1 (Tables 3.2-1 and 3.2-2). Evaluations of visual quality/character and viewer response are described in detail by KOP below.

Table 3.2-1
Summary of the Visual Quality Assessment at Each KOP Based on Design With Transmission Towers

	KOP 3			KOP 6			KOP 9			KOP 10		
Visual Quality	Existing	With 230-kV	Change	Existing	With 230-kV	Change	Existing	With 230-kV	Change	Existing	With 230-kV	Change
Vividness	4	3.75	0.25	3.17	2.75	0.42	2.58	2.25	0.33	3.75	3.17	0.58
Intactness	3.42	2.92	0.50	2.25	1.42	0.83	1.75	1.08	0.67	3.67	2.83	0.84
Unity	4.08	3.33	0.75	2.42	1.67	0.75	1.75	0.92	0.83	3.67	3.00	0.67
Combined Rating	11.5	10	1.5	7.84	5.84	2.0	6.08	4.25	1.83	11.09	9	2.09
Viewer Response		2.4			2.4			3.2			3.1	

Rating: 0 = None, 1 = Low, 2 = Moderately Low, 3 = Moderate, 4 = Moderately High, 5 = High
Source: ICF Jones and Stokes 2010b

Table 3.2-2
Summary of the Visual Quality Assessment at Each KOP Based on Design With Monopoles

	KOP 3			KOP 6			KOP 9			KOP 10		
Visual Quality	Existing	With 230-kV	Change	Existing	With 230-kV	Change	Existing	With 230-kV	Change	Existing	With 230-kV	Change
Vividness	4	3.06	0.94	3.17	2.5	0.67	2.58	1.9	0.68	3.75	2.95	0.80
Intactness	3.42	2.56	0.86	2.25	1.3	0.95	1.75	1	0.75	3.67	2.78	0.89
Unity	4.08	2.9	1.18	2.42	1.56	0.86	1.75	0.87	0.88	3.67	2.66	1.01
Combined Rating	11.5	8.52	2.98	7.84	5.36	2.48	6.08	3.77	2.31	11.09	8.39	2.7
Viewer Response		2.4			2.4			3.2			3.1	

Rating: 0 = None, 1 = Low, 2 = Moderately Low, 3 = Moderate, 4 = Moderately High, 5 = High
Source: ICF Jones and Stokes 2010b

KOP 3

Visual Quality/Character - Vividness

Existing Conditions. As shown in Figure 3.2-3a, the change in patterns of texture, color, form, and line that define distance zones makes this a memorable view. Unique in the landscape is the rock ridgeline to the observer's right and its likeness in the tumbled mountain base below. The convergence of the linear border fence with the angular lines and steep eroding slopes of the mountain face provides an interesting contrast between temporal man-made modifications and natural landforms.

With Double-Circuit 230-kV Transmission Line. The transmission line would not adversely affect the essential components that contribute to the vividness of the view. If towers are constructed, the structures would not penetrate the visual breaks in distance zones and any changes to texture, color, form, and line that define these zones would be indistinguishable (Figure 3.2-3b). Although the lattice towers would be somewhat discernable, the transmission line would not block or detract from views to the jumbled rock mountain slopes. The patterns and elements that make this a distinctive view would remain visually dominant, and the transmission line with erected lattice towers would have only minor influence on the vividness of the site.

In contrast, if monopoles are erected, the poles would introduce distinct vertical elements into the view, which would contrast with the angular and curving lines of the Jacumba Mountains in the background (Figure 3.2-2b). The monopoles would create a series of new landscape focal points that would have a moderate influence on the vividness of the site.

Visual Quality/Character - Intactness

Existing Conditions. The site appears to be a natural, undisturbed setting. The border fence penetrates the site from the south; however, it tends to visually recede in the overall context of the expansive view.

With Double-Circuit 230-kV Transmission Line. The transmission line would be partially hidden from view by the foreground topography, and the textured and grey-toned mountains would visually absorb the lattice towers (if constructed), reducing their contrast in the landscape. Likewise, the cleared pads and service road would appear diminished and somewhat blurred by the intervening vegetation. In contrast, if monopoles are erected, the poles would introduce prominent vertical lines and repeating patterns that would disrupt the intactness of the view and contrast with the textured and grey-toned mountains in the background. The transmission line corridor would introduce an incongruent engineered element, decreasing the visual integrity of the natural viewscape.

Visual Quality/Character - Unity

Existing Conditions. KOP 3 offers a high quality view made memorable by the power of the composition. The view naturally divides into three distance zones defined by inherent landscape features. In the foreground is the coarse-textured, low-profile ground plane, stippled with randomly spaced vegetation, rock out crops, and boulders. Colors include the sandy and earth-toned ground plane, and the olive, grey, and brown-green vegetation. There is a slight break in topography that differentiates the foreground from the middleground, which comprises a

continuous strip of more finely textured grey green. The middleground plane forms a front with the background Jacumba Mountains, the third element of the composition. Visual coherence is reinforced by the repetition of colors. Middleground greens are repeated in the foreground, and the foreground beiges circle to the background to become the sand-colored tones of the mountains.

With Double-Circuit 230-kV Transmission Line. The transmission line would be located in the middleground zone and would adversely affect the compositional harmony of the view. Although a subdominant zone, the fluid plane of color and texture that comprise the middleground functions to visually separate foreground from background zones, and provide depth to the view; although it comprises a small percentage of the view, its contrasting features are an important component of the composition. Any visible change to the texture, color, and height of the middleground would have an adverse effect on the composition. The transmission line would introduce incongruent elements into the composition that would diminish the aesthetic coherence of the view.

Viewer Response

With Double-Circuit 230-kV Transmission Line. The anticipated viewers at this KOP are recreational motorists traveling along Old Highway 80. It is anticipated that motorists have chosen this slower road to enjoy its scenic surroundings and would be sensitive to any change in the view. However, based on viewer response to visual quality, the aesthetic coherence of the view would diminish by a greater amount if the monopoles were erected rather than the lattice towers (Tables 3.2-1 and 3.2-2).

KOP 6

Visual Character/Quality - Vividness

Existing Conditions. The transitional uplands area and barren Jacumba Mountains are distinct and commanding features in the view (Figure 3.2-4a). Combined with the gently sloping pediment, they form an intact representation of eroding mountain slopes and sediment deposition over geologic time. In contrast are the much more recent service corridors and man-made features that dominate the foreground and detract from the quality of the view. The uniform ground plane and sparse vegetation lacks visual interest.

With Double-Circuit 230-kV Transmission Line. The steep slopes of the Jacumba Mountains and the jagged ridgeline in the center of the frame are memorable components of the view. Although the ridgeline and mountain face would be unaffected by the transmission line, the transitional uplands area would be partially blocked by the somewhat transparent lattice towers (if constructed). Low in contrast, the lattice towers would interfere with the view of these uplands, which appear as the tumbled reflection of the ridgeline above (Figure 3.2-4b).

Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

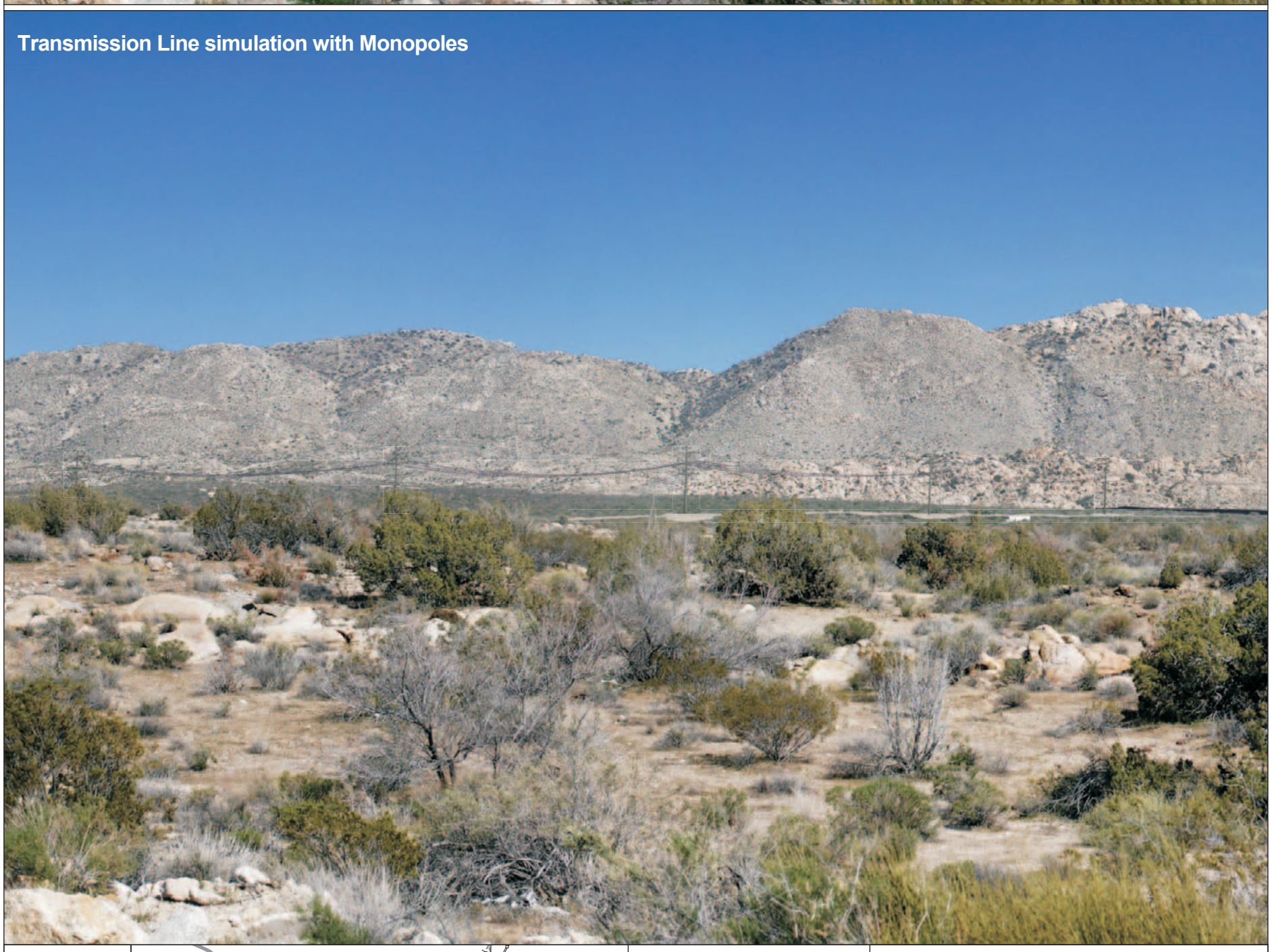
FIGURE 3.2-3a

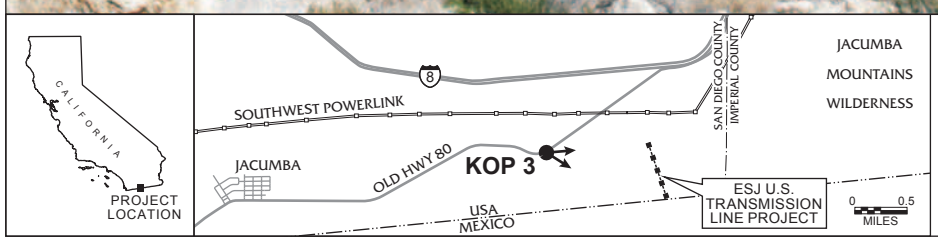
KOP 3
EXISTING CONDITIONS

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Figure_3_2-Xa_KOP3-6-9-10_ExistingViews_11x8_v3.ai (07/29/2010, 08:03 am) R. Wurgler/T. Murphy
August 2010







Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-3b

KOP 3 VISUAL SIMULATIONS WITH TRANSMISSION LINE

August 2010

Figure_3.2-Xb_KOP3-6-9-10_VisualSims-TransLine_11x17_v2.ai (07/29/2010, 08:03 am) R. Wurgler/T. Murphy
August 2010

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Similarly, if monopoles are constructed, the strong, opaque vertical and horizontal forms of the monopoles and monopole arms would interrupt the view of the Jacumba Mountains. The vertical lines would appear to slice through the background and would be incongruent with the light color and angular lines of the transitional uplands area. Furthermore, visual quality at KOP 6 would diminish more if monopoles were erected rather than lattice towers (Tables 3.2-1 and 3.2-2). The service road, angling down towards the viewer, would be a visible scar in the landscape and detract from the solid interface of the mountain front and pediment floor.

Visual Character/Quality - Intactness

Existing Conditions. Man-made features are a prominent component of the foreground; roads, fence lines, wood utility poles, and a metal lattice transmission tower introduce vertical and horizontal lines that contrast with the stippled and textured ground plane and rugged edges of the mountain backdrop. These modifications are highly visible on the desert floor.

With Double-Circuit 230-kV Transmission Line. The transmission line would introduce man-made elements in the middleground view, extending the zone of the built environment horizontally and vertically and encroaching on the relatively undeveloped pediment. Consequently, the transmission line would compromise the integrity of the view as represented by this KOP.

Visual Character/Quality - Unity

Existing Conditions. The visual composition is a combination of the natural forms of the mountains and desert pediment in the middle to background views and foreground views that have been altered by features of rural development and service. Middleground views are clearly demarcated by a change in color on the ground plane, as vegetation becomes less distinct and colors merge. The middleground vegetative cover forms a coarsely textured tapestry on what appears to be a flat and slightly ramplike surface. The background massive forms, tumbled landscape, and jagged lines contribute a rugged and imposing element to the landscape setting. While the overall unity of the desert view is compromised by encroaching man-made features, there is an interesting compositional harmony. Distant horizontal lines created by the border fence and visual break where the pediment and mountain meet are repeated in the foreground by roads, utility lines, and the property fence. These horizontal lines tend to unify the composition. Overall, however, the integrity of the view is diminished by the influence of disparate man-made elements and the lack of visual attributes on the ground plane.

With Double-Circuit 230-kV Transmission Line. From this distance, the transmission line would be noticeable, though somewhat subdued if lattice towers are constructed (more noticeable if monopoles are constructed). Both the lattice towers or monopoles would introduce elements disparate to the landscape, including geometric vertical lines and a smooth engineered steel texture that would contrast with the coarsely textured landscape; however, the lattice tower features would partially fade into the background patterns of the rocky hillslopes of the transitional uplands area. The monopoles, on the other hand, would not fade into the background patterns of the rocky slopes and the strong vertical lines would disrupt the unity of the horizontal lines of the desert floor, and existing utility lines. The tower or monopole foundations, cleared pads, and the service road would appear as permanent scars resulting from the contrast in color, density, and texture on the overlying vegetation cover.

Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-4a

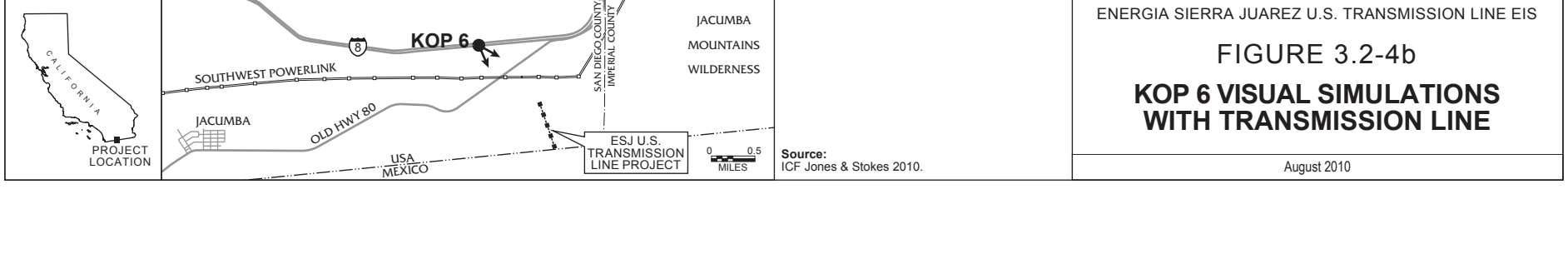
KOP 6
EXISTING CONDITIONS

August 2010

\\sacramento-nas\Data\Projects\Sempra-Energia_Sierra_Juarez_EIS-32183001\
Figure_3_2-Xa_KOP3-6-9-10_ExistingViews_11x8_v3.ai (07/29/2010, 08:03 am) R. Wurgler/T. Murphy
August 2010







Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-4b

KOP 6 VISUAL SIMULATIONS WITH TRANSMISSION LINE

August 2010

Figure_3_2-Xb_KOP3-6-9-10_VisualSims-TransLine_11x17_v2.ai (07/29/2010, 08:03 am) R. Wurgler/T. Murphy
August 2010

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The arbitrary relationship between the existing SWPL transmission tower and proposed transmission line confuses the middleground view; and the visible cut of the service road, in a contrary direction to the horizontal flow of the pediment, further disrupts the unity of the composition.

Viewer Response

With Double-Circuit 230-kV Transmission Line. The anticipated viewers at KOP 6 are motorists and commuters traveling along I-8. In general, motorists have a low sensitivity to visual changes in the environment because their attention is focused on the road and their destination. However, this segment of I-8 has been designated by the County of San Diego as a scenic highway and, by definition, views are highly sensitive. Viewer awareness of the transmission line from KOP 6 is likely to be moderately low due to highway speeds and short viewing duration, and minimal visual disturbance. Additionally, more dominant features in the viewshed would likely attract attention, including visual disturbance in the foreground and views of the mountains.

KOP 9

Visual Character/Quality - Vividness

Existing Conditions. Airport Mesa is a dominant and vivid element in this landscape. Although memorable, it tends to detract from the view. Visually damaged by the border fence and its concave front, the mesa lacks stature and its vividness rating is moderate low (Figure 3.2-5a). Layered mountains in the distance define the far edge of the panorama and define a memorable context for the view.

With Double-Circuit 230-kV Transmission Line. The straight line of the border fence indiscriminately bisects Airport Mesa, which is the essential component of vividness in the landscape (Figure 3.2-5b). From this viewpoint, evenly spaced transmission line towers would interrupt the expansiveness of the view by presenting a tall, implied horizontal line in the foreground view. Similarly, if monopoles are constructed, the repeating vertical lines and horizontal drape of the monopoles and transmission wires would form an implied screen that would distract the viewer from the view.

Visual Character/Quality - Intactness

Existing Conditions. The view is dominated by elements that diminish its visual integrity. Natural features are compromised by man-made alterations, which are major impositions to the view, including the straight but discontinuous line of the borderline fence that bisects Airport Mesa, the adjacent border patrol road and others that round up the mesa, and recreational roads in the foreground of the view.

With Double-Circuit 230-kV Transmission Line. The transmission line would decrease the visual integrity of the site by encroaching on the already disturbed environment. The proposed service road and pads would contribute geometric and high contrast forms on the desert pediment. Existing man-made modifications on the site, including roads and the border fence, fall horizontally on the ground plane. Both transmission line towers and monopoles would introduce vertical structures in the foreground view that would dominate the low-profile desert floor and interrupt the line of site from this elevation.

Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-5a

KOP 9
EXISTING CONDITIONS

August 2010



Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-5b

KOP 9 VISUAL SIMULATIONS WITH TRANSMISSION LINE

August 2010

Figure_3_2-Xb_KOP3-6-9-10_VisualSims-TransLine_11x17_v2.ai (07/29/2010, 08:03 am) R. Wurgler/T. Murphy
August 2010

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Visual Character/Quality - Unity

Existing Conditions. The view is composed of incongruous elements scattered throughout the landscape. Some visual containment is provided by the skyline of the distant mountains in East County, but for the most part, landscape components are disjointed and random and there is little visual harmony. The form of Airport Mesa dominates the middleground and is a massive visual obstruction in an otherwise uniform panoramic view.

With Double-Circuit 230-kV Transmission Line. The 230-kV Route would have a noticeably adverse impact on the composition of the view. Overall unity of the view would remain random and disjointed with the 230-kV Route in place. Based on the visualizations, the proposed towers (or monopoles) and cleared service road and pads would contribute to the compositional disarray. Because of the proximity of the transmission line and the viewer's elevated location, physical changes resulting from this alternative would be clearly evident. The evenly spaced geometric pads and linear service road would be prominent visual scars. Additionally, the towers or monopoles would be located in the foreground; however, the steel latticework of the towers would be partially absorbed by the grey tones and rough texture of the backdrop, whereas the opaque mass of the monopoles would contrast with the existing backdrop. The details and scale of the towers would be clearly noticeable. In addition, overall visual quality at KOP 9 is expected to diminish more if monopoles are erected rather than lattice towers (Tables 3.2-1 and 3.2-2).

Viewer Response

With Double-Circuit 230-kV Transmission Line. KOP 9 is a representative viewpoint for visitors located in the multiuse BLM lands on the foothills of the Jacumba Mountains. BLM lands are heavily used by local recreationists seeking the openness of public lands for outdoor recreation including hiking, sightseeing, off-highway vehicle use, and target shooting and hunting. These viewers tend to be most sensitive to changes in the landscape that would restrict their activities; it is anticipated that viewers would have a low sensitivity to visual changes resulting from the proposed project. However, these viewers would have a slight higher sensitivity rating due to their close proximity to the project site relative to other recreational areas.

KOP 10

Visual Character/Quality - Vividness

Existing Condition. The backdrop of the transitional uplands area and Jacumba Mountains are a striking component of the view (Figure 3.2-6a). Their rugged rock skyline and tumbled rock foothills have a commanding influence and are considered highly vivid features in this landscape.

With Double-Circuit 230-kV Transmission Line. The Jacumba Mountains are key components that contribute to the vividness of the view. Their most outstanding feature, the craggy ridgelines, would remain unobstructed by the 230-kV Route (Figure 3.2-6b). The transitional uplands area would also be unaffected because at this distance the towers or monopoles located in front of them would be barely distinguishable. As the corridor moves forward in the view, the transmission towers or monopoles would become more visible and the evenly spaced vertical grey lines and pyramidal towers (or vertical monopoles) would interrupt views to the barren mountain face that flanks the pediment and diminish the vividness of this

Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

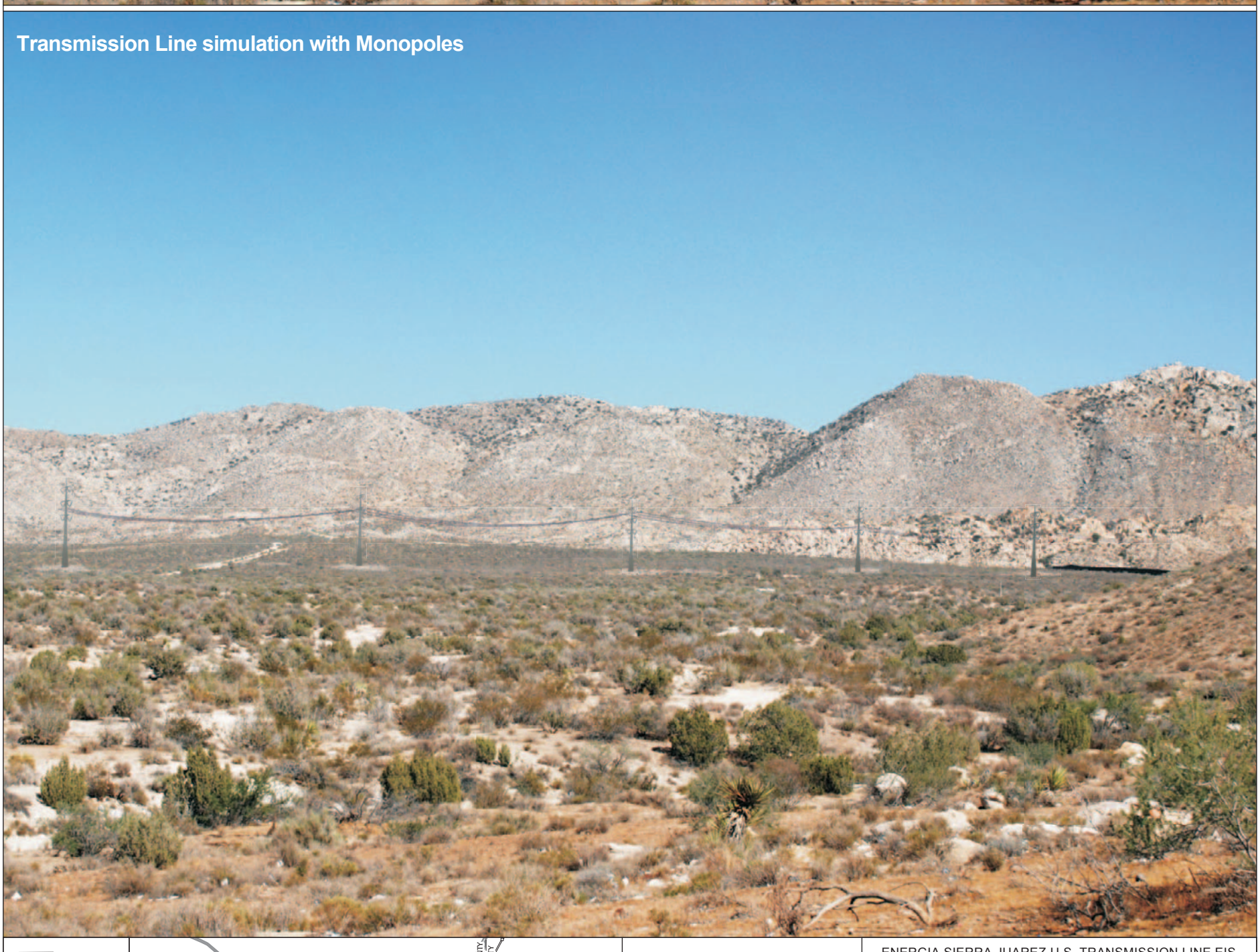
FIGURE 3.2-6a

KOP 10
EXISTING CONDITIONS

August 2010

Transmission Line simulation with Lattice Towers

Transmission Line simulation with Monopoles



Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-6b

KOP 10 VISUAL SIMULATIONS WITH TRANSMISSION LINE

August 2010

Figure_3_2-Xb_KOP3-6-9-10_VisualSims-TransLine_11x17_v2.ai (07/29/2010, 08:03 am) R. Wurgler/T. Murphy
August 2010

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otherwise natural appearing mountain front. Similar to the other KOPs, overall visual quality at this KOP would diminish more if monopoles were erected rather than lattice towers (Tables 3.2-1 and 3.2-2).

Visual Character/Quality - Intactness

Existing Condition. From KOP 10, the desert floor is a continuous, open, horizontal plane. As illustrated by the dirt road to the left of the view, ground plane modifications oriented downslope are clearly visible from this viewpoint. The border fence and a desert road intersect the middleground and encroach upon an otherwise intact landscape.

With Double-Circuit 230-kV Transmission Line. KOP 10 would provide an unobstructed view to the transmission line and features of the 230-kV line would be incongruent with the natural setting. While existing human-made features hug the ground, the transmission line towers or monopoles introduce structured, geometric, vertical lines that are discordant with the low-profile, horizontal pediment. The contrast of these vertical lines would be subdued by the angular lines, coarse texture, and grey tones of the mountain backdrop. Although visual disruption would be minimized, the transmission line would still encroach upon the view, compromising the integrity of this largely intact desert setting.

Visual Character/Quality - Unity

Existing Condition. The desert floor forms an extensive plane of continuous and repetitive pattern across the landscape. The coarse rigid structure of vegetation and mottled contrasting colors of exposed soils in the foreground make a gradual transition across the desert floor to merge in a fluid plane of blended colors and fine texture in the distance. Sharp contrasts in color, texture, and form separate the pediment floor from the rising mountain slopes. This contrast creates a clear break in the mountain front, creating a horizontal line that appears as distinct as the border fence to the south. When combined with the rising topography that frames the views to the right, the mountains provide enclosure, mass, scale, and diversity in the composition. The color of the sandy desert floor in the foreground view is repeated in the barren slopes of the mountain backdrop and helps unify the overall composition of the view.

With Double-Circuit 230-kV Transmission Line. The transmission line would adversely affect the composition of the view represented by KOP 10. The mountains form a backdrop and enclose the pediment, whose ramped and low profile function as a stage in the composition. Consequently, any features of the 230-kV transmission line located on the pediment would be highlighted.

Because of distance and backdrop, the three nearest towers (or monopoles) would have the greatest influence on the view; the eye is quick to form a connection to the towers that recede toward the border and trace the transmission line's linear corridor that angles across the plane. The sequence of transmission towers or monopoles would be incongruent to the compositional harmony because of its diagonal angle through a predominantly horizontal plane, the engineered and vertical lines of the steel towers, and the symmetrical placement of the pads. The overall unity of the view would be compromised.

Although visible, the components of this alternative tend to recede into the landscape. Both the steel lattice work towers and monopoles would be observed against a highly textured background

that diminishes their visibility. Additionally, the rectangular pads and service road would be evident as cleared vegetation; however, just as perspective compressed the widely spaced vegetation into a fluid swath of color, the depth of the pads are also compressed and not as visible as they would be from other viewing positions. These sand-colored soils are a repetitive theme in the foreground and background of this landscape, and are not an incongruent color in the landscape, although the geometric lines that give shape to the color are unnatural in the composition.

Viewer Response

With Double-Circuit 230-kV Transmission Line. The multi-use BLM lands at KOP 10 would attract similar viewers as KOP 9. Similarly, it is anticipated that viewers would have a low sensitivity to visual changes resulting from the transmission line. However, features of this alternative would be located farther away decreasing the response rating when compared to KOP 9.

Summary

Using the information presented in Tables 3.2-1 and 3.2-2, a final impact assessment at each of the representative KOPs was determined based on the change in rating for each of the visual quality/character features multiplied by the estimated viewer response rating (Table 3.2-3). As shown in the table, the most adverse visual impact would occur at KOP 10 which would experience the greatest change in visual quality as a result of the 230-kV Route. Impacts to visual resources as viewed from KOP 10 are considered moderate. Impacts to visual resources as viewed from KOPs 6 and 9 would be slightly less adverse and are considered minor to moderate if transmission towers are constructed and moderate if monopoles are constructed. The greatest impact would be to intactness of each of these views, followed by changes in compositional unity, in large part because the 230-kV Route would be located on a relatively undisturbed natural area of the view (from all KOPs). No matter what the degree of visibility, the 230-kV Route would be a noticeable man-made modification and detract from the intactness of the view. However, the overall change would not be major. Impacts to visual resources as viewed from KOP 3 would be the least adverse and are considered minor. Although impacts would not be major, mitigation measure Visual-2 (Reduce visual contrast of towers and conductors) is a potential mitigation measure not proposed as an APM that could reduce contrast and undesirable visual changes resulting from implementation of this alternative.

Table 3.2-3
Assessment of Potential Visual Resource Impacts

Visual Impact	KOP 3		KOP 6		KOP 9		KOP 10	
	Towers	Monopoles	Towers	Monopoles	Towers	Monopoles	Towers	Monopoles
Change in Visual Quality	1.5	2.98	2.0	2.48	1.8	2.31	2.1	2.7
Viewer Response Rating	2.4	2.4	2.4	2.4	3.2	3.2	3.1	3.1
Visual Impact [1]	3.6	7.15	4.8	5.95	5.8	7.39	6.5	8.37

[1]Visual Impact = Change in Visual Quality x Viewer Response Rating

Evaluation Thresholds:
1–3 = Minor visual impact
4–6 = Minor to Moderate visual impact
7–9 = Moderate visual impact
10–12 = Moderate to Major visual impact
13–15 = Major visual impact

Source: ICF Jones and Stokes 2010b

Impacts in the U.S. due to Related Activities in Mexico

The ESJ Wind project would be located near the town of La Rumorosa in northern Baja, Mexico. Several turbines that would be constructed during Phase 1 of the project would be visible to varying degrees from several U.S. locations including the communities of Jacumba and Boulevard, I-8, Old Highway 80, Table Mountain ACEC, Anza-Borrego Desert State Park, Jacumba Wilderness, and BLM administered lands in the Yuha Desert to the east. As described in Section 2.9 (ESJ Wind project), the timing and location for installation of subsequent phases have not been determined, but their current leaseholds would place the location of those subsequent phases south of the town of La Rumorosa. Therefore, turbines built in future phases would be less visible and more distant from these vantage points, if visible at all.

To assess the potential impacts to existing visual resources in the U.S., visual simulations of the ESJ Wind project were conducted using GIS and CADD modeling software. These simulations are presented in Figures 3.2-7, 3.2-8, and 3.2-9 and depict views of the ESJ Wind project from KOP 6 (I-8; described in Section 3.2-1), as well as two other KOPs, which offer views of Mexico. KOP 7 was selected because of its location in the Table Mountain ACEC, which is considered to have high viewer sensitivity. KOP 11 was also selected to represent the views of sensitive residential receptors in the community of Jacumba (refer to Figure 3.2-1 to see the location of each of these KOPs). As shown in all three simulations, the ESJ Wind project would introduce tall, highly visible vertical elements into the viewshed that would change the existing visual character. The hillside and ridgeline presence of the wind turbines would result in a substantial increase in industrial character, diminution of visual quality and increase in visual contrast, particularly as viewed from KOP 11 (community of Jacumba).

Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-7

KOP 6 VISUAL SIMULATION WITH WIND TURBINES

August 2010

Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-8

KOP 7 VISUAL SIMULATION WITH WIND TURBINES

August 2010

August 2010

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Figure_3_2-Y_KOP6-7-11_VisualSims-Turbines_11x8_v3.ai (07/29/2010, 08:04 am) R. Wurgler/T. Murphy

Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.2-9

KOP 11 VISUAL SIMULATION WITH WIND TURBINES

August 2010

As depicted in all three simulations, the numerous wind turbines would appear as an assemblage of light-colored vertical forms in a landscape predominantly natural in appearance.[6] The resulting visual contrast would be low-to-moderate as viewed from KOP 6 (I-8); and moderate-to-high from KOPs 7 (Table Mountain ACEC) and 11 (community of Jacumba). In the context of the existing landscape's visual sensitivity, the resulting visual impact is considered major and permanent.

During nighttime hours, aviation safety lighting would be visible from viewing points in the U.S. during clear weather. For the purpose of this EIS, it is assumed that such lighting would be required by Mexican agencies, and that the type and location of the lighting would be comparable to requirements in the U.S.; these requirements are summarized in Section 2 (Proposed Action and Alternatives).

There is no mitigation available to reduce visual impact of the ESJ Wind project to a level that would be minor. The open and highly exposed location along with numerous viewing locations do not lend the site to opportunities to either better screen the structures from view or blend them more effectively with a different background. Also, given the scale of the structures, landscape plantings would not be adequate to sufficiently screen the turbines from view. To the extent that feasible mitigations exist, such mitigations would need to be implemented in Mexico and imposed by the Mexican regulatory authorities.[7]

Future phases of the ESJ Wind project would increase the number of wind turbines in Mexico. According to ESJ-U.S., the timing and location for installation of subsequent phases have not been determined, but their current leaseholds would place the location of those subsequent phases south of the town of La Rumorosa (Figure 1-1), and thus farther from the border than Phase 1. Given the distance of future phase turbine development to the U.S.-Mexico border, no additional impacts from the U.S. viewing points are expected.

Given the distance of the turbine development area to the U.S.-Mexico border, the ground-level development disturbance within the turbine development area (e.g., road scars, buildings, meteorological towers, and above-ground electrical connection system) would not be visible from the U.S. Thus, no other visual resource impacts in the U.S. are identified. Therefore, for the purpose of this EIS, no mitigation measures are indicated for the ESJ Wind project.

[6] In late 2009, five wind turbines of comparable size were installed in the vicinity of the ESJ Wind project area. These turbines are not related to the ESJ Wind project and they were not yet installed at the time that the simulations for this EIS were developed. The existing turbines are not shown in this EIS, but are presently visible from certain vantage points in the Jacumba area. For more information, see the following sources:
http://www.windfair.net/press/6094.html
http://www.rechargenews.com/energy/wind/article172862.ece
http://www.wind-energy-the-facts.org/fr/environment/chapter-2-environmental-impacts/

[7] The literature indicates that certain mitigation measures are possible. For examples, see the following sources:
http://teeic.anl.gov/er/wind/mitigation/visual/index.cfm
http://www.wind-works.org/articles/design.html
http://www.wind-energy-the-facts.org/fr/environment/chapter-2-environmental-impacts/

3.2.2.3 Alternative 3 – Single-Circuit 500-kv Transmission Line

The existing visual resources site conditions for the 230-kV Route and the 500-kV Route are identical and both alternatives would entail the construction of 150-foot (46-m) tall structures. If monopoles are built, the 500-kV poles would be 170-foot (52-m), as compared to 150-foot (46-m) for the 230-kV Route. This slight increase in overall height would not materially increase the visibility of the poles; thus the simulated views of the monopoles presented in Figures 3.2-2, 3.2-3b, 3.2-4b and 3.2-5b are also reasonably representative of the 500-kV Route. Therefore, impacts for this alternative would be the same as described for the 230-kV Route and the same potential mitigation measures would apply.

3.2.3 Mitigation Measures

The following potential mitigation measures not proposed as APMs could reduce potential visual impacts from the transmission line.

Visual-1: Reduce Color Contrast and Views of Land Scars

Vegetation clearing within the right-of-way and ground clearing at the foot of each tower/monopole and between towers/monopoles should be limited to the clearing necessary to comply with electrical safety and fire clearance requirements. Contour grading should be used where possible to better blend graded surfaces with existing terrain. Access roads should be graded to follow the natural contours of the pediment surface to the greatest extent possible to reduce landform alteration.

Visual-2: Reduce Visual Contrast of Towers and Conductors

Measures to reduce visibility, glint, glare, and visual contrast should be included in the design. Such measures could include lattice towers that are composed of dull gray galvanized steel that would not reflect sunlight and conductors which are non-specular in design. This mitigation should be considered in light of possible safety requirements of other agencies (e.g., U.S. Border Patrol, FAA), which may be desirous of higher, rather than lower, visibility.

3.3 LAND USE

This section addresses potential impacts to existing and planned uses at the alternative corridors site and surrounding area and evaluates the consistency of alternatives with applicable County of San Diego plans and policies.

3.3.1 Affected Environment

3.3.1.1 Land Use

The alternative corridors would be located in an unincorporated portion of southeastern San Diego County near its border with Imperial County to the east and Mexico to the south. The alternative corridors and adjacent land are primarily undeveloped except for access roads, the border fence, existing power lines (local power lines and SWPL), and other electric utility infrastructure.

No prime farmland (designated as such by the U.S. Department of Agriculture), active agricultural operations, or Williamson Act (also known as the California Land Conservation Act of 1965) lands are present within or adjacent to the alternative corridors. The only residences within a 1-mile (1.6 km) distance from the alternative corridors include a home approximately 0.4 mile (0.7 km) northwest of the corridors and a mobile home located approximately 0.5 mile (0.8 km) west of the site; however, based on field observations, it is believed that the mobile home is unoccupied. The next nearest known occupied residences is located approximately 1.4 miles (2.2 km) east of the corridors in Imperial County and approximately 2 miles (3.2 km) west of the corridors in San Diego County. Further residential development in the area has been intentionally limited by the County of San Diego General Plan due to a limited supply of water (County of San Diego 1995). Currently, the alternative corridors are used extensively by the U.S. Border Patrol, which has created roads to monitor activity near the border fence (ESJ-U.S. 2009).

Surrounding land use consists primarily of public land owned by the BLM. The nearest public lands are located about 0.5 mile (0.8 km) east of the alternative corridors in Imperial County (Jacumba Mountain Wilderness Area) and 0.8 mile (1.3 km) west and north of the alternative corridors (Table Mountain ACEC). Other surrounding land uses include a BLM-managed shooting range (Carrizo Creek Range), located approximately 1 mile (1.6 km) west, and In-Ko-Pah County Park, located approximately 2 miles (3.2 km) to the north. In addition, a fiber optic facility right-of-way on BLM land is located approximately 0.5 mile (0.8 km) northwest of the alternative corridors along Old Highway 80.

3.3.1.2 Zoning and Planning

The alternative corridors are under jurisdiction of the County of San Diego, and land uses at the site are subject to the County of San Diego Zoning Ordinance, which regulates land uses within the unincorporated areas of the county, as well as the County of San Diego General Plan, which provides land use policies that guide both current and long-term growth and land development. The site is designated General Rural (S92) under the County of San Diego Zoning Ordinance. The use regulations for this zone are intended to provide appropriate controls for land that is defined as rugged terrain, watershed, dependent on groundwater for a water supply, desert, susceptible to fire and erosion, or subject to other environmental constraints. Utility uses are

allowed within the General Rural zone subject to a minor or major use permit pursuant to Section 2926.b of the Zoning Ordinance.

The alternative corridors are subject to General Plan Regional Category 1.4 Rural Development Area (RDA) and the Non-Urban Residential Land Use Designation of Multiple Rural Use. This designation is applied to lands with one or more of the following characteristics: not highly suited for intensive agriculture, rugged terrain, watershed, desert lands, lands susceptible to fires and erosion, lands that rely on groundwater for water supply, and other environmentally constrained areas (Figure 3.3-1). The Multiple Rural Use Designation is typically applied in remote areas to broad expanses of rural land with overall low population density and with an absence of most public services. Other than a single-family home on an existing lot, it is not intended that any development occur unless the proposed development has been carefully examined to assure that there will be no significant adverse environmental impacts, erosion and fire problems will be minimal, and no urban levels of service will be required. However, a Major Impact Service Utility such as a utility line is anticipated by the Multiple Rural Use Designation and such developments are allowed with the approval of a Major Use permit. Further, a public improvement project may be approved even when there are identified adverse environmental impacts if the County of San Diego decision-maker adopts findings that demonstrate that the adverse impacts have been mitigated to the greatest extent feasible and that the project is necessary to protect the public health and safety (County of San Diego 2003).

The alternative corridors are also subject to the Mountain Empire Subregional Plan of the County of San Diego General Plan (County of San Diego 1995). The policies contained in this plan are applications of broad General Plan policies that are designed to fit the specific or unique circumstances existing in the individual communities within this subregion. Although the plan does not specifically address new transmission lines, it includes the following policy related to general industrial use[8]:

Deny future industrial or commercial development, which adversely impacts the Mountain Empire Subregional area, such as wind turbine generators, for any of the following reasons:

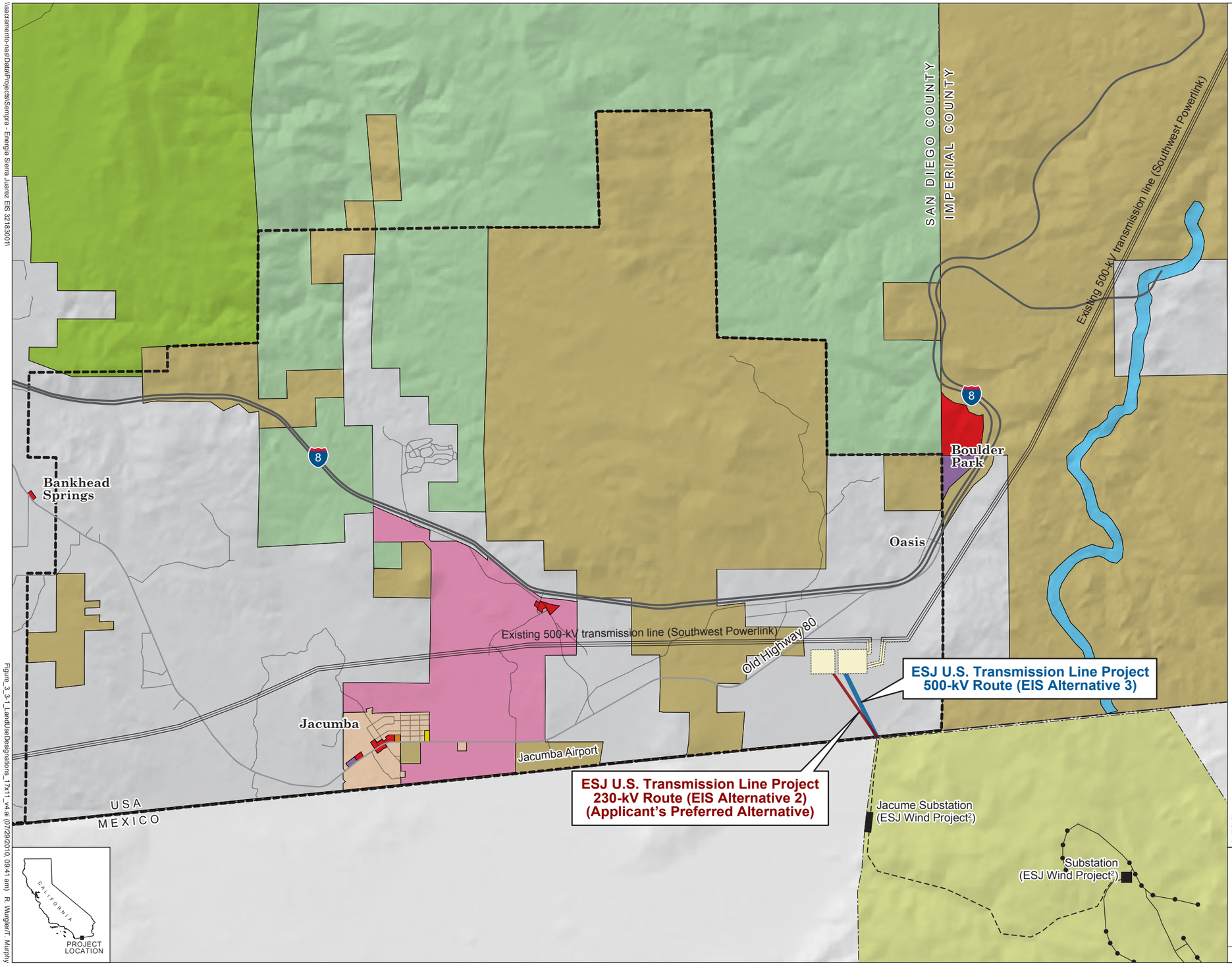
a) Safety of the general public;

b) Unmitigated visual impact on the rural environment;

c) Noise pollution emanating from the site exceeding 65 decibels (dB) at the property line, as it creates great human discomfort and adversely affects the tranquility of the rural environment;

d) Such development may lead to the economic devaluation of contiguous properties.

[8] Draft revisions to the General Plan recommended by County staff as part of the County of San Diego General Plan 2020 process would eliminate this policy from the Mountain Empire Subregional Plan (County of San Diego 2010).



LEGEND

SAN DIEGO COUNTY LAND USE DESIGNATIONS:

- Multiple Rural Use 1 dwelling unit/4, 8 or 20 acres
- State Parks / National Forest
- Public/Semi-public Lands
- General Agriculture 1 dwelling unit/10 or 40 acres
- Residential 1 dwelling unit/1, 2 or 4 acres
- Residential 14.5 dwelling unit/acre
- Office Professional
- General Commercial
- Service Commercial
- Specific Plan Area
- Jacumba Sponsor Group boundary

IMPERIAL COUNTY LAND USE DESIGNATIONS:

- Open Space
- Desert Residential
- Neighborhood Commercial
- Light Industry
- Floodway

OTHER FEATURES:

- Future East County Substation switchyards and Loop-In by San Diego Gas & Electric[1] (locations are approximate)
- ESJ Wind Project[2] Phase 1 (Jacume) lease area
- ESJ Wind Project[2] Phase 1 wind turbine location and electrical connection system (approximate)
- ESJ Wind Project[2] transmission line to ESJ U.S. Transmission Line Project
- Existing 500-kV transmission line (Southwest Powerlink)

[1] The East County Substation and Loop-In are not part of the ESJ U.S. Transmission Line Project, but are Connected Actions for the purpose of this EIS.

[2] The ESJ Wind Project is entirely within Mexico. This figure depicts part of the area of Phase 1, which would generate up to approximately 130 MW.

0 0.5 1 Mile
0 0.5 1 1.5 Kilometers

Source(s):
San Diego County 2003; Imperial County 1994; Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1979, 2006; Google Maps 2009; SanGIS 2009-2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.3-1

COUNTY LAND USE DESIGNATIONS IN THE PROJECT VICINITY

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Figure_3_3-1_LandUseDesignations_17x11_v4.ai (07/29/2010, 09:41 am) R. Wurgler/T. Murphy

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3.3.2 Environmental Impacts

3.3.2.1 Methodology

Direct impacts to land use were assessed by considering whether the proposed transmission line would be compatible with existing land uses and whether it would be an allowed use under the County of San Diego Zoning Ordinance and General Plan. Indirect impacts to land use and land use character were assessed based on analyses provided in a Land Use and Community Character Analysis (ICF Jones and Stokes 2010a) and Visual Resources Report for the ESJ U.S. project (ICF Jones and Stokes 2010b).

3.3.2.2 Alternative 1 – No Action

Under the No Action alternative, the proposed transmission line would not be constructed; therefore, no land use impacts would occur.

3.3.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Land Use. The 230-kV Route would be constructed on undeveloped land, and no residences or other sensitive land uses are located near the alternative corridors. The transmission line would be located in close proximity to the existing SWPL transmission line which is similar in character to the proposed transmission facilities. Construction of the 230-kV Route would require a Major Use permit but would not require a Zone Change or General Plan Amendment. The undeveloped nature of the proposed corridor and immediately surrounding area is such that there is not an existing community with a well-defined character that could be altered. Therefore, implementation of this alternative would not alter the local environmental setting or community character of the immediately surrounding area.

With regard to specific impacts during construction, transportation and use of heavy equipment and construction worker commutes would result in temporary minor increases in ambient noise and existing traffic levels (discussed further in Sections 3.6 [Noise] and 3.11 [Transportation and Traffic], respectively). These temporary noise and traffic impacts would result in minor, temporary impacts to existing land uses along the transportation routes and in the vicinity of the construction site, but would not preclude the continued use of these areas. Therefore, construction activity would not disturb land uses at or near the alignment, and no conflicts with existing land uses would occur.

Operations Impacts

As mentioned above, the 230-kV Route would be located on undeveloped private land that is surrounded by undeveloped land; therefore, the presence of the transmission line would not directly affect existing land uses along the alternative corridors or surrounding areas.

Zoning and Planning Consistency. Public utilities, such as the proposed transmission line, are a permitted use within the General Rural zone with a Major Use Permit. ESJ-U.S. submitted its initial application for a Major Use permit to the County of San Diego in June 2009.

As stated in the Land Use Element of the General Plan, development in a Multiple Rural Use area requires careful analysis to ensure that:

> *…no significant adverse environmental impacts would occur, erosion and fire problems would be minimal, and no urban levels of service would be required. The County of San Diego could, however, approve the Project if the County decision-maker adopts findings that demonstrate the significant adverse environmental impacts have been mitigated to the greatest extent feasible and the Project is necessary to protect the public health and safety.*

Implementation of this alternative would not require urban levels of service (e.g., potable water or sewer service or an increase in police or fire protection), and potential erosion problems would be effectively minimized by the implementation of measures described in the SWMP that has been prepared in compliance with the federal Clean Water Act (discussed in Section 3.11 [Water Resources]). Further, as is discussed in Section 3.9 (Fire and Fuels Management), although operational fire impacts are considered major and unavoidable (certain ignition sources are unavoidable), potential mitigation measures have been identified to reduce the potential for impacts to the greatest extent feasible. No other major, unavoidable environmental impacts are anticipated because feasible mitigation measures have been identified that would reduce any such impacts to minor levels. Potential mitigation measures have also been identified that would further reduce adverse impacts that are not considered major. The County of San Diego is required to make the final determination of consistency with the Zoning Ordinance, General Plan, and Subregional Plan and additional mitigation measures may be imposed by the County during their review.

In addition, as described above, the Mountain Empire Subregional Plan requires that the County consider land use impacts associated with safety of the general public, including the potential for the alternative to result in unmitigated visual impacts on the rural environment; noise pollution exceeding 65 dB at the property line; and property values. Implementation of this alternative would not result in public safety impacts (e.g., increased public exposure to contaminants or hazardous materials, electric/magnetic fields, or induced currents; see Section 3.8 [Public Health and Safety]). With regard to visual impacts, the 230-kV line would be consistent with the bulk, scale, and density of the existing SWPL structures and, as discussed in detail in Section 3.2 (Visual Resources), the overall change to the visual environment (as viewed by motorists, recreationalists, and residents) would not be major, and potential mitigation measures would further reduce the moderate adverse impacts. Implementation would not result in noise pollution; as discussed in Section 3.6 (Noise), operational noise levels at the property line would not exceed 65 dB. Lastly, as discussed later in Section 3.13 (Socioeconomics), no adverse impacts on property values are anticipated to result from implementation of this alternative. Therefore, the 230-kV alternative would be consistent with applicable policies in the Mountain Empire Subregional Plan. The County of San Diego is required to make the final determination of consistency with the Mountain Empire Subregional Plan and additional mitigation measures may be imposed by the County during their review.

Impacts in the U.S. due to Related Activities in Mexico

Construction and operation of the ESJ Wind project in Mexico would not change land uses or preclude the use of any land in the U.S. The presence of these structures would adversely affect

residential views in the town of Jacumba. This change in the viewshed would result in the introduction of an increased presence of industrialization in a primarily rural area surrounded by large tracts of open space and would noticeably alter the existing community character. However, the ESJ Wind project would be located in Mexico and would be outside the jurisdiction/planning area of the Mountain Empire Subregional Plan. Impacts to visual resources are discussed in greater detail in Section 3.2 (Visual Resources).

3.3.2.4 Alternative 3 – Single-Circuit 500-kV Transmission Line

The 500-kV Alternative would be located approximately 600 feet (183 m) east of the 230-kV Alternative and is under the same zoning and County of San Diego General Plan designations. The transmission line would be located slightly farther from residential land uses; the nearest potential residence (the unoccupied mobile home) would be approximately 2,600 feet (792 m) to the west. Similar to the 230-kV alternative, land use impacts would be minor. No mitigation measures are indicated.

3.3.3 Mitigation Measures

No mitigation measures are indicated.

3.4 RECREATION

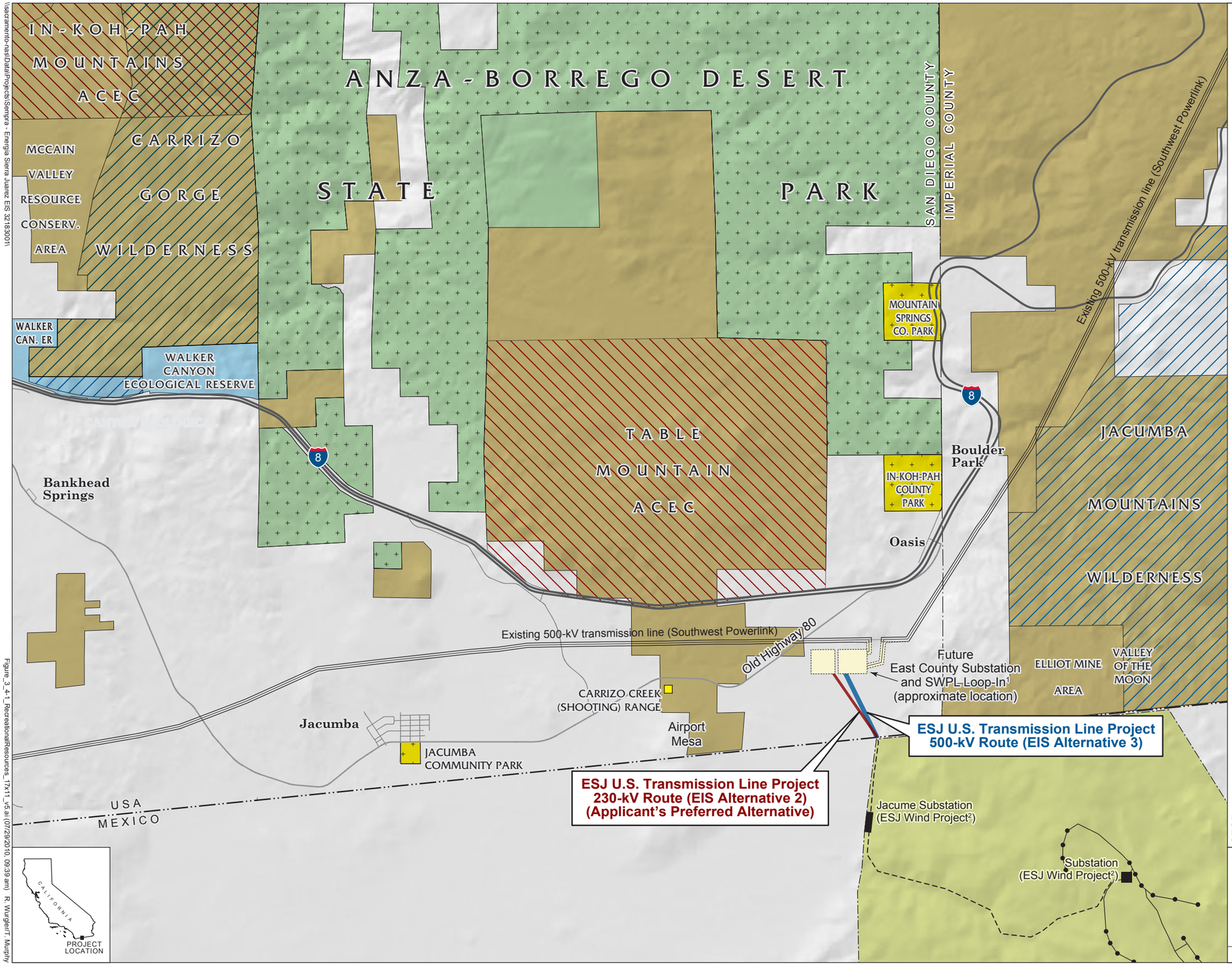
This section describes existing recreational areas in the vicinity of the alternative corridors and the potential impacts of the alternatives on recreational resources.

3.4.1 Affected Environment

Although the alternative corridor area is included within the BLM Eastern San Diego County Resource Management Plan planning area (BLM 2007a), the corridors are located entirely on private land and there are no state or federal wilderness or recreation areas within or immediately adjacent to the alternative corridors. However, a number of regional recreational areas are located in the vicinity of the alternative corridors, including the Jacumba Mountains Wilderness Area, Anza-Borrego Desert State Park, Table Mountain ACEC, McCain Valley Resource Conservation Area, Carrizo Gorge Wilderness, and the In-Koh-Pah Mountains, as well as a number of local parks. These facilities are shown in Figure 3.4-1 and discussed further below.

The approximately 30,000-acre (12,140-ha) Jacumba Mountains Wilderness Area, located approximately 0.5 mile (0.8 km) east of the alternative corridors at its nearest point, provides desert recreationists opportunities for hiking, hunting, fishing, horseback riding and camping (SDG&E 2009b). There are no specific campsites, but camping is allowed within 30 feet (9 m) of designated roads and trails. Within this Wilderness Area are the popular recreation areas Valley of the Moon, Blue Angel's Peak, and Elliot Mine, which attract many outdoor enthusiasts (CPUC/BLM 2008a). According to estimates by the BLM, the Valley of the Moon, a popular area for rock climbers and off-road motorists, attracts approximately 600 to 1,200 outdoor enthusiasts per year (Johnson 2009). Blue Angel's Peak, the tallest peak in Imperial County, is used primarily by recreational hikers. The Elliot Mine area contains diverse natural and cultural resources and provides opportunities for hiking to other more remote areas of the wilderness. There are two roads used for recreational access in the southwest portion of the wilderness: one leads to Valley of the Moon, and the other road leads to Elliot Mine (CPUC/BLM 2008a; BLM 2009c). The nearest publicly accessible trails within the Jacumba Mountains Wilderness Area are located approximately 1.5 miles (2.4 km) east of the alternative corridors.

Anza-Borrego Desert State Park, located north of I-8, approximately 2 miles (3.2 km) north of the alternative corridors, is the largest State Park in California. The park contains 500 miles (805 km) of dirt roads and 12 wilderness areas that are used for camping, hiking, wildlife viewing, picnicking, and horseback riding (SDG&E 2009b). On average, the park receives approximately 600,000 visitors annually. The majority of visitors to the park come in the spring (March and April), when wildflowers are in bloom and the least number of visitors arrive in late summer when temperatures are the highest (State Park and Recreation Commission 2005).



LEGEND

PUBLIC LANDS / OPEN ACCESS:

- Bureau of Land Management
- California Dept. of Parks and Recreation
- California Dept. of Fish and Game
- County/Local

SPECIAL LAND DESIGNATIONS:

- Wilderness Area
- Area of Critical Environmental Concern (ACEC)
- Park (state, county or community park)

OTHER FEATURES:

- Future East County Substation switchyards and Loop-In by San Diego Gas & Electric[1] (locations are approximate)
- ESJ Wind Project[2] Phase 1 (Jacume) lease area
- ESJ Wind Project[2] Phase 1 wind turbine location and electrical connection system (approximate)
- ESJ Wind Project[2] transmission line to ESJ U.S. Transmission Line Project
- Existing 500-kV transmission line (Southwest Powerlink)

[1] The East County Substation and Loop-In are not part of the ESJ U.S. Transmission Line Project, but are Connected Actions for the purpose of this EIS.

[2] The ESJ Wind Project is entirely within Mexico. This figure depicts part of the area of Phase 1, which would generate up to approximately 130 MW.

0 0.5 1 Mile
0 0.5 1 1.5 Kilometers

Source(s):
CPUC/BLM 2008; BLM 1994, 2009; www.carrizocreekrange.org, 2009; Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1979, 2006; Google Maps 2009; SanGIS 2009-2010.

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FIGURE 3.4-1

RECREATIONAL RESOURCES AND SPECIAL LAND DESIGNATIONS IN THE PROJECT VICINITY

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Table Mountain, also located north of I-8 and approximately 1 mile (1.6 km) from the alternative corridors, is managed by BLM and designated as an ACEC because of its abundant cultural resources. The Table Mountain ACEC is approximately 4,300 acres (1,740 ha) and is surrounded by Anza-Borrego Desert State Park. Two communication sites (towers) are located within the ACEC, and a joint use utility corridor is located immediately south of the ACEC which presently accommodates the single-circuit 500-kV SWPL transmission line and several buried fiber optic networks and telephone lines. Recreational activities at Table Mountain include camping, hiking, and rock hounding (BLM 2007a).

Also managed by BLM, the McCain Valley Resource Conservation Area occupies approximately 39,000 acres (15,780 ha) and is located approximately 1.5 miles (2.4 km) northwest of the alternative corridors. It provides a variety of uses, including wildlife conservation, livestock grazing, and recreation. Recreational activities include camping, hunting, hiking, horseback riding, backpacking, mountain biking, wildlife viewing, photography, and off-highway vehicle use (SDG&E 2009b; BLM 2007b).

Carrizo Gorge Wilderness is a narrow strip of land occupying approximately 15,000 acres (6,070 ha) located between the McCain Valley Resource Conservation Area and Anza-Borrego Desert State Park. The majority of the wilderness is within the In-Koh-Pah Mountains ACEC. Both areas are managed by BLM and provide opportunities for camping and hiking (BLM 2009a).

Additional surrounding recreational uses include a BLM-managed shooting range (Carrizo Creek Range) approximately 1-mile (1.6 km) to the west of the alternative corridors and south of Old Highway 80, as well as three local parks: In-Ko-Pah County Park and Mountain Springs County Park approximately 1.5 and 3 miles (2.4 and 4.8 km) to the north, respectively; and Jacumba Community Park approximately 3 miles (4.8 km) to the west.

3.4.2 Environmental Impacts

3.4.2.1 Methodology

Since the alternative corridors would be sited on private land, no direct effects to recreation would occur; however, activities associated with construction and operation of the proposed transmission line have the potential to indirectly impact surrounding recreational uses through increases in traffic, noise, and alterations of existing visual environment. The potential for alternatives to indirectly affect recreational resources during construction and operation was analyzed qualitatively based on the timing and duration of proposed activities and the location of nearby recreational areas in relation to the alternative corridors.

3.4.2.2 Alternative 1 – No Action

Under the No Action Alternative, the proposed transmission line would not be constructed and no impacts to recreational resources would occur.

3.4.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

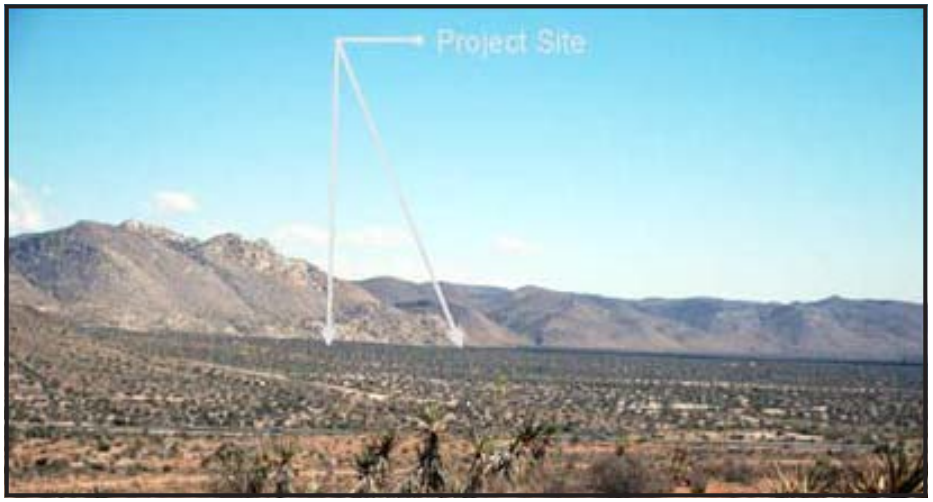
Construction of the 230-kV Route is expected to take several months. However, because of the short duration of the construction activity, the isolated nature of tower construction (towers are spaced every 1,500 feet [457 m] and construction activities move from one site to another), potential indirect disturbance to recreationists, if any, is expected to be temporary and minor. Minor increases in vehicle traffic associated with construction activities could potentially adversely affect the experience of visitors at nearby recreational areas and increase travel times to recreation areas; however, both I-8 and Old Highway 80 have enough capacity to accommodate the increased traffic without affecting level of service (see Section 3.7 [Transportation and Traffic]), therefore, any temporary impacts regarding access to recreational areas would be minor. In addition, based on the estimated noise levels of construction equipment, the distance to nearby recreational areas, and the intervening topographic features, it is not likely that noise from construction activities would be audible from publicly accessible areas within the Jacumba Mountains Wilderness Area (the nearest recreational facility), Table Mountain ACEC, or other recreation areas in the vicinity (see Section 3.6 [Noise] for further details).

Operations Impacts

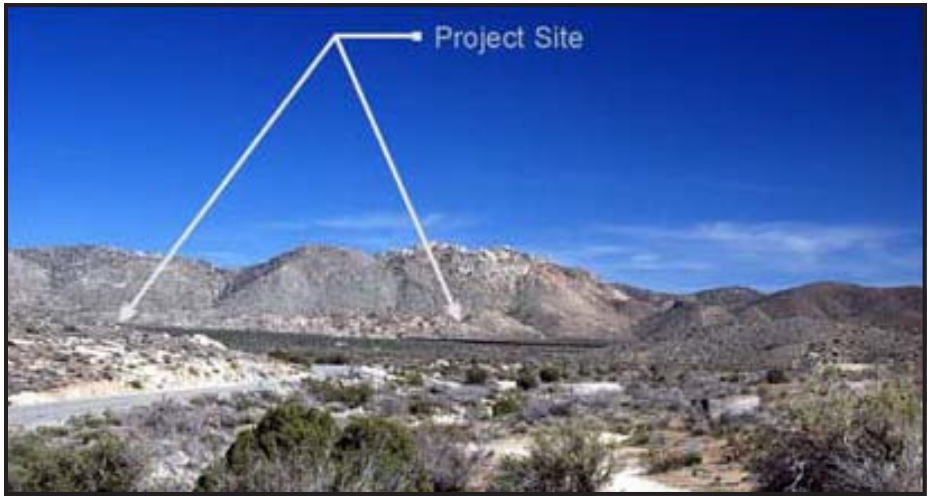
As discussed above, the nearest recreational facility to the proposed transmission line is the Jacumba Mountains Wilderness Area approximately 0.5 mile (0.8 km) to the east, although the nearest publicly accessible trails are 1-mile (1.6 km) further east. Operation of the transmission line would not preclude any recreational activities or result in any direct impacts to surrounding recreational areas. However, the presence of the transmission line would potentially result in indirect adverse effects to recreational areas due to alterations to existing scenic vistas and increases in ambient noise levels during foul weather (due to corona noise).

A visual assessment of the 230-kV Route was conducted to determine the extent to which the transmission line would be visible from surrounding recreation areas and the extent to which the presence of the transmission line would alter the existing aesthetics of the area (see Section 3.2, Visual Resources for greater detail). The assessment found that views of the 230-kV Route corridor from Table Mountain ACEC would be abundant and unobstructed due to the low vegetation and superior topographic position of the viewers (Figure 3.4-2; Photograph A). Likewise, views of the corridor from the eastern and northern slopes of Airport Mesa (to the east) are open and unobstructed (Figure 3.4-2; Photograph B). Views of the corridor from Jacumba Mountains are intermittent along the western roads and trails (Figure 3.4-2; Photograph C).

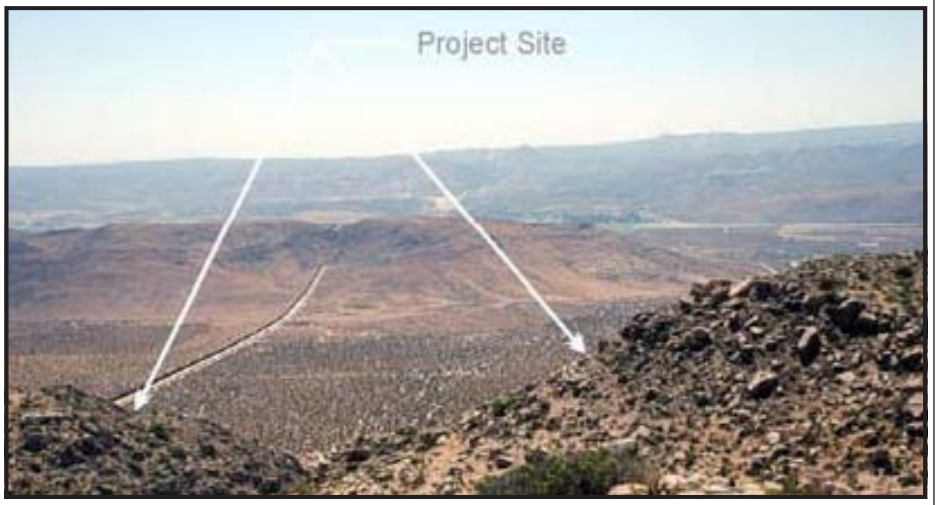
As discussed further in Section 3.2 (Visual Resources), an evaluation of the impacts to visual resources, using visual simulations of the 230-kV Route as viewed by recreationalists, found that changes to visual quality and character (e.g., vividness, intactness, unity) would be long-term but minor. Although, the transmission line would encroach upon the views and compromise the integrity of the largely intact desert setting, the overall change to the views from recreation areas would be low (ICF Jones and Stokes 2010). No mitigation measures are indicated.



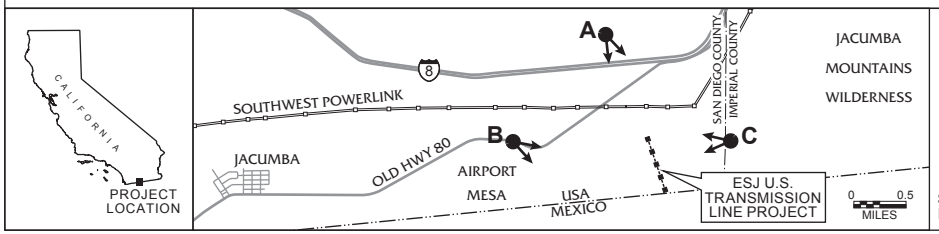
Photograph A. View of the 230-kV corridor from Table Mountain ACEC. View direction is south-southeast. 230-kV features are 1.13 miles (1.82 km) distant.



Photograph B. View of the 230-kV corridor from Airport Mesa. View direction is east. 230-kV features are 1.30 (2.1 km) miles distant.



Photograph C. View of the 230-kV corridor from an elevated portion of the Jacumba Mountains. View direction is west-southwest. 230-kV features are 1.07 (1.7 km) miles distant.



Source:
ICF Jones & Stokes 2010.

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FIGURE 3.4-2

REPRESENTATIVE VIEWS OF THE ESJ U.S. PROJECT SITE FROM SURROUNDING RECREATIONAL AREAS

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Figure_3_4-2_RepresentativeViews-Recreation_11x8_v2.ai (07/29/2010, 06:25 am) R. Wurgler/T. Murphy
August 2010

With regard to increases in ambient noise levels during foul weather due to corona noise, a noise analysis was prepared which modeled the expected potential increases in noise in the vicinity of the 230-kV Route due to corona effect in foul weather. The study found increases in ambient noise levels as observed approximately 0.5 mile (0.8 km) from the transmission corridor would range from 1.3 to 6.9 dB) (Burns & McDonnell 2009a; see Section 3.6 [Noise]). As stated above, although the nearest recreational area to the 230-kV Route is 0.5 mile (0.8 km) east (Jacumba Mountains Wilderness Area), the nearest publicly accessible area is 1 mile (1.6 km) further east. Given an attenuation rate of 6 dB for every doubling of distance, no increases in ambient noise during foul weather would occur at publicly accessible facilities within the Jacumba Mountains Wilderness Area. Similarly, based on the distances away from the transmission line, no increases in ambient noise levels are anticipated to occur at any other nearby recreational facilities due to corona effect. Further, based on the local climate, high winds, heavy rain, and other foul weather conditions which are conducive to corona noise are uncommon in the area (see Section 3.10 [Air Quality]). No mitigation measures are indicated.

Impacts in the U.S. due to Related Activities in Mexico

The ESJ Wind project wind turbines would be located at distances ranging from approximately 0.75 mile (1.2 km) to 7.0 miles (11.3 km) south of the international border. No direct impacts to recreation in the U.S. would result from construction and operation of the wind turbines. Similar to the 230-kV Route, the presence of the wind turbines would indirectly affect visitor experiences at nearby recreational areas due to alterations of the existing viewshed and potential increases in ambient noise.

A simulation of the view of the wind turbines as viewed from the Jacumba Mountains Wilderness Area is provided in Section 3.2 (Visual Resources; Figure 3.2-4) and Section 5.0 (Cumulative Impacts; Figure 5-3). The presence of the wind turbines would noticeably alter the character of views from recreational areas and result in a perceived increase of industrialization of the landscape. No mitigation is available that would reduce the impact to minor levels short of relocating the project to an entirely different area.

With regard to increased ambient noise levels, as discussed in Section 3.6 (Noise), based on the distance of the wind turbines from the nearest recreational area, recreationalists are unlikely to perceive any change in ambient noise levels. No impacts are anticipated.

3.4.2.4 Alternative 3 – Single Circuit 500-kV Transmission Line

The 500-kV Route would essentially be located in the same area as the 230-kV Route but would be approximately 0.25 mile (0.3 km) further east and, thus, closer to the Jacumba Mountains Wilderness Area. Since construction procedures for the 500-kV Route would be essentially the same as those for the 230-kV Route, indirect impacts with regard to noise and traffic would be the same, temporary and minor. Once operational, views of the 500-kV Route would be essentially the same when viewed from Table Mountain ACEC; however, the Route would be slightly more visible from the Jacumba Mountains Wilderness Area than the 230-kV Route. Impacts would be long-term and minor.

3.4.3 Mitigation Measures

No mitigation measures are indicated.

3.5 CULTURAL RESOURCES

This section considers and evaluates the potential impacts of the alternatives on cultural resources. The following terms are used to discuss the regulatory requirements and treatment of cultural and paleontological resources within this section:

Cultural Resource is a term used to describe several different types of properties: prehistoric and historical archaeological sites; architectural properties such as buildings, bridges, and infrastructure; and resources of importance to Native Americans.

Historic Property is a term defined by the National Historic Preservation Act (NHPA) as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register of Historic Places (NRHP), including artifacts, records, and material remains related to such a property.

Cultural Landscape is a term used to describe a geographic area, including both cultural and natural resources, associated with an historic event, activity, or person or exhibiting other cultural or aesthetic values.

Area of Potential Effect (APE) is a term defined by the NHPA as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effect is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.[9]

3.5.1 Affected Environment

3.5.1.1 Regional Prehistory

The prehistory of eastern San Diego County is generally divided into three major periods of occupation: Paleoindian, Archaic, and Late Prehistoric. The Paleoindian period is dated from 12,000 to 10,000 years before present (B.P.) and represents the earliest archaeological evidence for Native American occupation of the region. The Archaic period is dated from 12,000 to 7,000 B.P. and represents an expansion of Native American settlement and use of the southern California region. The Late Prehistoric period is dated from 1,500 to 450 B.P. and is characterized by higher population densities and elaborations in social, political, and technological systems across the region.

3.5.1.2 Regional Ethnography

The alternative corridors are in the traditional territory of the Kumeyaay, who are also known as Kamia, Ipai, Tipai, and Diegueño (Carrico 1983; Cline 1979; Hedges 1975; Ladastida and Caldeira 1995; Luomala 1978; and Shipek 1991). The Kumeyaay occupied the southern two-thirds of what is now San Diego County. Kumeyaay traditional territory extends east to near

[9] Per Section 2.0 (Proposed Action and Alternatives), two options exist for the main access road. Although Option B is beyond the APE, this area was surveyed by EDAW, Inc. in 2009 and no cultural resources were identified. However, the western end of the proposed Option B access road alignment would require a pedestrian survey should this option be selected for construction.

Yuma, Arizona, southwest to Todos Santos Bay in Baja California, west to the Pacific Ocean, and northwest to the San Luis Rey River and San Felipe Creek in northern San Diego County.

Kumeyaay were organized into autonomous tribelets under the control of a chief (*kwaaypaay*) who had at least one assistant (Ladastida and Caldeira 1995; Luomala 1978; and Shipek 1991). The position of chief was inherited from father to eldest son. The chief directed ceremonies and resolved differences within the group. Kroeber (1925) suggests that Tipai and Ipai populations numbered approximately 3,000 at the time of initial contact with Europeans, which occurred in the period from about 1770 to 1790. Subsequent to contact, the Native American population decreased, and the 1821 Mission San Diego records document a population of 1,711, which would have included Kumeyaay (Luomala 1978).

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). They exploited seasonally available plant resources on valley floors and in the foothills and mountains (Ladastida and Caldeira 1995). In the spring, blossoms and buds were collected from blooming plants in the foothills. During the summer, cactus fruits, agave, and mesquite pods were collected in valleys. Small animals were hunted during both seasons. During the fall and winter months, Kumeyaay moved into the mountains seeking shelter and food. Rock shelters and overhangs provided shelter from winter rain and snow, and acorns, pinyon nuts, and small game provided food.

3.5.1.3 Regional History

Spanish exploration of Southern California dates to the 1500s. The Spanish period in California (1769 to 1821) represents a time of European exploration and settlement from San Diego to Sonoma (north of San Francisco). The San Diego Presidio and the Mission San Diego de Alcalá were established in 1769. The mission system introduced horses, cattle, and other agricultural goods and implements to the area. It also disrupted traditional native lifeways, and generally marks the beginning of the decline of traditional Native American cultural practices.

Pedro Fages initiated exploration of what is currently eastern San Diego County in 1785. The Kumeyaay were hostile to the Spanish and formed an alliance with other groups that were actively resisting Spanish rule. Fages' exploration of the area east of San Diego did not result in settlement of the region. The Spanish generally did not exhibit interest in the eastern areas of modern San Diego County, but kept their settlements relatively close to the coast.

The discovery of gold in California in 1848 attracted individuals from around the world. At that time the town of Jacumba (approximately 4 miles [6.4 km] west of the corridors) began to expand because it was located along a well-travelled road from San Diego to Fort Yuma, Arizona. In the 1880s the Kumeyaay were evicted from the Jacumba area (Cook et al. 1997). The San Diego & Arizona Railway reached Jacumba in 1919 and was soon followed by construction of Highway 80. The highway improved access to and facilitated the growth of Jacumba. Hot springs in the area attracted tourists and the development of spas and recreational facilities (e.g., a race track). However, the construction of I-8 in 1967, which bypassed Jacumba, had a negative impact on the economic development of the town (Chace 1980).

3.5.1.4 Investigations of the Alternative Corridors and Access Road

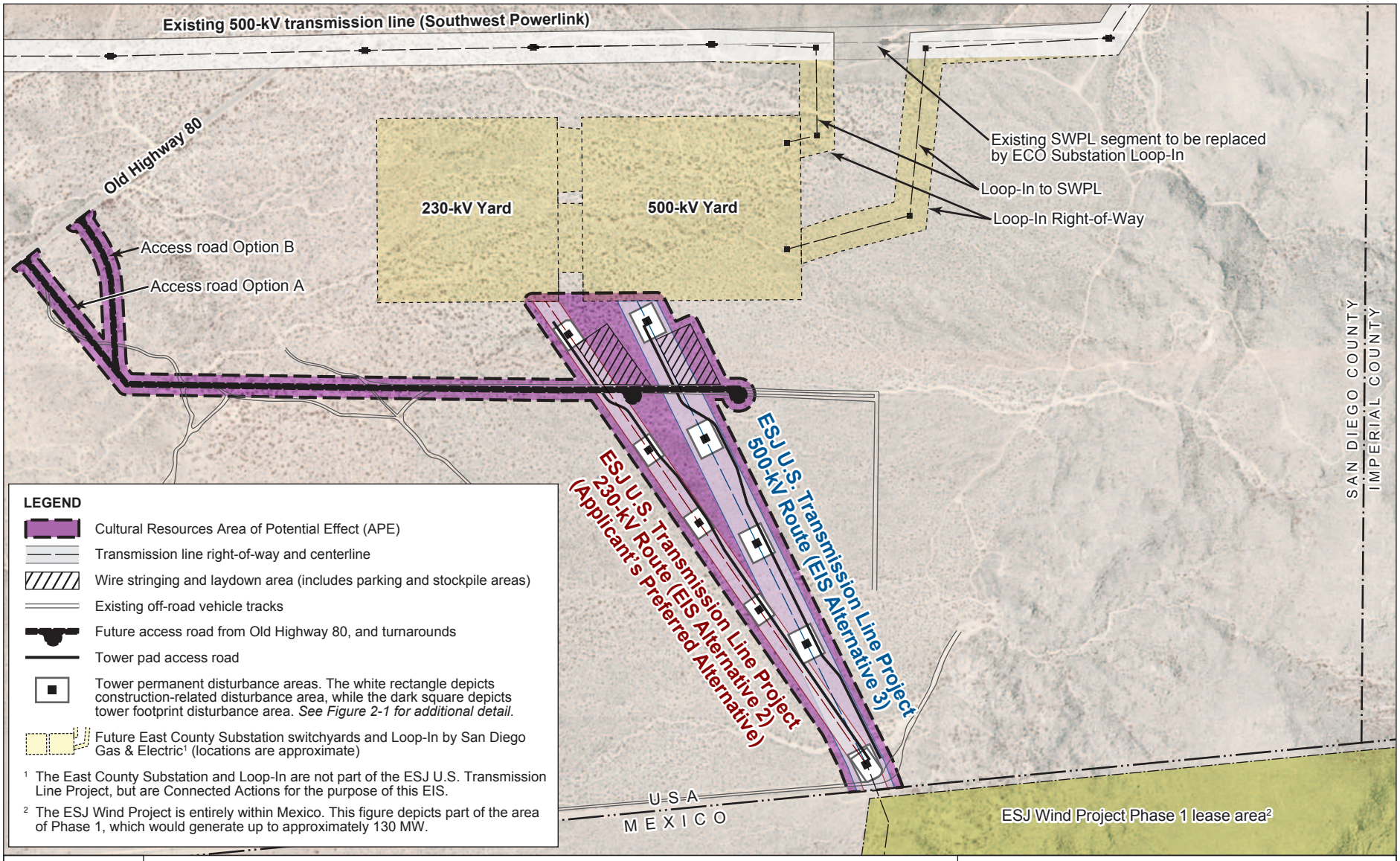
Ecology and Environment, Inc. and EDAW, Inc. conducted archaeological and historical investigations for the proposed project (EDAW, Inc. 2010a; Ecology & Environment 2009a). Ecology & Environment conducted initial archaeological and historical investigations for the alternative corridors in 2007 and 2008. These investigations included records searches at the South Coastal Information Center at San Diego State University and the Southeast Information Center at the Imperial Valley College Desert Museum, and a pedestrian surface survey of the alternative corridors' Area of Potential Effect (APE). As depicted in Figure 3.5-1, the 70-acre (28-hectare) project APE includes the rights-of-way of the alternative corridors from the U.S.-Mexico border to the proposed site of the ECO Substation switchyard, the main access road, and an area adjacent to those areas.

EDAW, Inc. conducted additional archaeological and historical investigations in 2009 of the proposed main access road from Old Highway 80 to the alternative corridors. These investigations included a pedestrian survey of the ground surface in a 2.6-acre (1-hectare) area along the alignment of the proposed main access road. EDAW, Inc. also contacted the California state Native American Heritage Commission, requesting a sacred lands search for the project APE, and prepared a report documenting its archaeological and historical investigations for the project (provided in Appendix D of this EIS).

In its reply to EDAW, Inc., the Native American Heritage Commission provided a list of Native American tribes that might have knowledge of cultural resources in the project area (Appendix D). The County of San Diego contacted the Native American groups on the consultation list provided by the Native American Heritage Commission. In accordance with the regulatory guidance of Executive Order 13084, DOE also contacted the appropriate Native American groups to offer them the opportunity to consult with DOE regarding the ESJ U.S. project on a government-to-government basis. Consultation with the Native American community regarding the ESJ U.S. project did not identify any significant cultural resources issues. Further information regarding consultation and coordination is provided in Section 9.0 (Consultation and Coordination), and copies of consultation letters are provided in Appendix D of this EIS.

Cultural Resources Identified in the Project APE

The archaeological and historical investigations conducted by Ecology & Environment and EDAW, Inc. indentified 11 prehistoric archaeological sites and six isolated prehistoric and historic artifacts within the project APE (Table 3.5-1). No human remains or any evidence to suggest the potential to discover human remains were identified during the investigations.



Source(s):
Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1998; Google Maps 2009; SanGIS 2009-2010.

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FIGURE 3.5-1

CULTURAL RESOURCES AREA OF POTENTIAL EFFECT

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Figure_3_5-1_CulturalResourcesAPE_11x8_v6.ai (07/29/2010, 09:42 am) R. Wurgler/T. Murphy

Table 3.5-1
Prehistoric Archaeological Sites and Isolated Artifacts in the Project APE

Site Number/Artifact Number	Type of Site/Isolate
Prehistoric Archaeological Sites	
CA-SDI-6119	Lithic scatter[1], roasting pit
CA-SDI-19480	Lithic scatter
CA-SDI-19484	Lithic scatter
CA-SDI-19485	Ceramic scatter
CA-SDI-19486	Lithic scatter
CA-SDI-19488	Lithic scatter
CA-SDI-19489	Lithic scatter
CA-SDI-19490	Lithic scatter
CA-SDI-19492	Lithic scatter
CA-SDI-19493	Lithic scatter, ceramic sherd
CA-SDI-19494	Lithic scatter
Isolated Prehistoric and Historic Artifacts	
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

[1]The remnants of stone tool manufacture.
Source: EDAW, Inc. 2010a

3.5.2 Environmental Impacts

3.5.2.1 Methodology

Impacts to cultural resources were evaluated based on the potential for project-related activity to affect known cultural resources within the project APE. A cultural landscape is a geographic area (1) with both cultural and natural resources that are associated with an historic event, activity, or person, or (2) that exhibits other cultural or aesthetic values (Birnbaum 1994). For this EIS, the evidence of human activity on a landscape was evaluated based on the following 11 characteristics that are presented in McClelland et al. (1999):

- **Landscape uses** such as fields, pasture, open range, cemeteries, and quarries;
- **Patterns of spatial organization** such as circulation networks, natural features, and clusters of features or structures;
- **Responses to the natural environment** such as adaptations to climate and natural features seen in land use, orientation of clusters, construction materials, design of buildings, and methods of transportation;
- **Cultural traditions** such as land use practices, buildings and structures, ethnic or religious institutions, community organization, construction methods, technology, trades and skills, use of plants, craftsmanship, and methods of transportation;
- **Circulation networks** such as paths, roads, streams, or canals, highways, railways, and waterways;
- **Vegetation related to land use** such as ornamental trees, fields for cropping, treelines along walls and roads, native vegetation, orchards, pastures, gardens, shelter belts, forests, and grasslands that may identify land uses and cultural traditions;
- **Buildings, structures, and objects** that may identify periods of occupation of an area, land uses, and cultural traditions;
- **Clusters** are village centers, crossroads, harbors, Native American archaeological sites, and ranching or mining complexes; and
- **Small-scale elements** such as foot bridges, cow paths, gravestones, isolated vegetation, fence posts, curbstones, trail ruts, culverts, foundations, and minor ruins.

The project APE (Figure 3.5-1) extends across a relatively uniform landscape that consists of woody scrub vegetation that is crisscrossed by dirt roads. The prehistoric archaeological sites in the project APE are primarily sparse lithic scatters that consist of minimal remnants of stone tool manufacture. These sites individually or as a group do not exhibit any of the 11 landscape characteristics that are typically used to identify specific uses of a landscape. Therefore, the impact analysis addresses the potential significance of the individual sites in the project APE rather than analyzing the project APE as a cultural landscape.

Although the known sites in the project APE are associated with Native American use of the area, they do not provide data related to specific activities (e.g., subsistence) or discrete patterns of land use (e.g., settlement systems) in the area. In addition, the landscape within the project APE is disturbed (e.g., dirt roads cross the project APE and the border wall and fence are at the southern end of the project APE) and does not exhibit a sense of history or have the characteristics typically associated with prehistoric occupation of an area by Native Americans. Further, consultation with the Native American community did not identify any traditional use of the project APE.

3.5.2.2 Alternative 1 – No Action

Under implementation of the No Action alternative, the ESJ U.S. project would not be implemented. Therefore, no impacts to cultural resources would occur.

3.5.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Known Cultural Resources

Of the 11 known prehistoric archaeological sites in the project APE, only three (CA-SDI-6119, CA-SDI-19488, and CA-SDI-19494) could be affected by construction of the ESJ U.S. project. Sites CA-SDI-6119, CA-SDI-19488 could be directly affected by construction of the project and site CA-SDI-19494, which is located immediately adjacent to a transmission line access road, could be indirectly affected by construction of the project. As indicated in Table 3.5-2, those sites would be affected by continued use of or widening of the main access road or constructing and using the access roads for the transmission line. ESJ-U.S. would avoid the remaining eight sites in the project APE during construction because they are not within proposed construction areas (i.e., they are not in or near access road alignments or disturbance areas for towers/poles).

ESJ–U.S. conducted subsurface excavations at the three sites listed in Tables 3.5-2 and 3.5-3 (below) in December 2009 and January 2010 to determine their potential to provide important information in regional or local prehistory and their eligibility for inclusion on the NRHP. The results of the subsurface excavations indicated that the sites had limited or no subsurface components and subsurface testing and surface collection exhausted each site's data potential (see Appendix D.2 for more information). Regardless of these findings, ESJ-U.S. has incorporated the following measures into the project design:

- Avoidance of impacts to significant cultural resources that have been identified in the project APE, where feasible by redesign of project elements such as transmission line access roads and layout/staging areas to avoid cultural resources;
- Monitoring of ground-disturbing activities during construction by a qualified archaeologist. A Native American representative would be invited to participate in site monitoring;
- Avoidance of cultural resource sites by redirecting pedestrian and vehicular traffic away from the site during construction and facility operation;
- Significance testing of any incidental discoveries during construction, as outlined in applicable agency guidelines; and
- Additional field surveys for areas that may be disturbed due to project changes.

Table 3.5-2
Known Prehistoric Archaeological Sites Affected by Construction of the 230-kV Transmission Line

Site Number	Type of Site	Potential Impact
CA-SDI-6119	Lithic scatter, roasting pit	Main Access road construction (both Option A and B)
CA-SDI-19488	Lithic scatter	Transmission Line Access road construction
CA-SDI-19494	Lithic scatter	Transmission Line Access road construction

Source: EDAW, Inc. 2010a

As a result, it is not anticipated that construction of the project would significantly impact any of the 11 known prehistoric archaeological sites in the project APE because the sites are either not eligible for inclusion on the NRHP and/or would be avoided during construction of the proposed project. Consequently, no additional mitigation is indicated.

Although the isolated artifacts identified during the cultural resource investigations are within the construction footprint, they were recorded to the State Historic Preservation Officer (SHPO) standards and, in accordance with the County of San Diego Resource Protection Ordinance; do not warrant any protective measures (County of San Diego 2007c). Therefore, no impacts to these isolated artifacts are anticipated.

Unanticipated Finds

Although the cultural resources investigations conducted for the project were adequate to identify known prehistoric and historic resources in the project APE, the potential exists for the unanticipated discovery of additional cultural resources and/or human remains during construction and maintenance. If human remains are discovered, ESJ-U.S. would adhere to the stipulations of Public Resources Code Section 5097.98 and Health and Safety Code 7050 and stop work within 50 feet (15 m) of the discovery; ESJ-U.S. would also contact the County of San Diego coroner and a professional archaeologist (i.e., an archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in archaeology and/or history) to determine the significance of the discovery. If appropriate, stipulations in the Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001 et seq. and its implementing regulations at 43 CFR 19 also shall be implemented.

Depending on the recommendations of the coroner and/or archaeologist, ESJ-U.S. would consult with the County of San Diego to establish additional feasible and appropriate mitigation measures to be implemented into the project. Potential measures include avoidance, preservation in place, excavation, documentation, curation, and data recovery. A potential mitigation measure not proposed as an APM that would further minimize the potential for cultural resources impacts during construction is mitigation measure Cultural-1 (Worker Training); this measure would ensure that all construction personnel are informed of the proper steps and procedures required to comply with the above codes and regulations in the event that unknown resources are discovered

(see Section 3.5.3). Therefore, potential impacts to currently unknown cultural resources, if any, would be minor.

Operations Impacts

Long-term maintenance activities would entail occasional activity within the previously disturbed footprint of development. No ground disturbances associated with operation of the transmission line outside of these areas. Therefore, no impacts to cultural resources during operation of the transmission line are anticipated.

Impacts in the U.S. due to Related Activities in Mexico

There would not be any impacts to cultural resources in the U.S. associated with construction of the ESJ Wind project. Consultation with Native American groups in the U.S. did not identify any culturally sensitive areas in Mexico that would likely be impacted by construction of the ESJ Wind project or any culturally sensitive issues related to the viewshed in the ESJ U.S. project area. Indeed, the landscape and viewshed in the ESJ U.S. project area is already compromised by several dirt roads, paved interstate highways, and other major roads, transmission lines, the U.S./Mexico border fence, wind turbines,[10] private residences, and commercial facilities that are located within and near the project APE. In summary, construction of the ESJ Wind project would not directly impact any known culturally sensitive areas in Mexico or indirectly impact the landscape or viewshed because they are already compromised in the project area by existing facilities (i.e., roads, U.S./Mexico border fence and wind turbines).

3.5.2.4 Alternative 3 – Single-Circuit 500-kV Transmission Line

Construction Impacts

Known Cultural Resources

Construction of the 500-kV Route could result in impacts to existing known cultural resources within the project APE. Three known sites (CA-SDI-6119, CA-SDI-19490, and CA-SDI-19493) have the potential of being affected by construction of the proposed project. Site CA-SDI-6119 would also be affected by the 230-kV Route, but sites CA-SDI-19490 and CA-SDI-19493 would only be affected by the 500-kV Route. As indicated in Table 3.5-3, those sites would be affected by continued use of or widening of the main access road or constructing the access roads for the transmission line and by installation of the foundations of two of the transmission line structures. As for the 230-kV Route alternative, ESJ-U.S. would avoid the remaining eight sites in the project APE during construction of the 500-kV Route because they are not within proposed construction areas (i.e., they are not in the access road alignments or disturbance areas for towers/poles) of that transmission line.

[10] As previously discussed in Section 3.2 (Visual Resources), there are existing wind turbines in Mexico and at the Campo Indian Reservation that are visible from the project APE as well as the Table Mountain ACEC and other high elevation prominent viewpoints surrounding the project APE.

Table 3.5-3
Known Prehistoric Archaeological Sites Affected by Construction of the 500-kV Transmission Line

Site Number	Type of Site	Potential Impact
CA-SDI-6119	Lithic scatter, roasting pit	Main access road construction (both Option A and B)
CA-SDI-19490	Lithic scatter	Tower/Pole construction
CA-SDI-19493	Lithic scatter, ceramic sherd	Tower/Pole construction

Source: EDAW, Inc. 2010a

ESJ–U.S. conducted subsurface excavations at the three sites listed in Table 3.5-3 in December 2009 and January 2010 to determine their potential to provide important information in regional or local prehistory and their eligibility for inclusion on the NRHP. The results of the subsurface excavations indicated that the sites had limited or no subsurface components and subsurface testing and surface collection exhausted each site's data potential (see Appendix D.2 for more information). In addition, ESJ-U.S. would implement all of the protection measures identified for the 230-kV Route alternative in Section 3.5.2.3. As a result, there would not be impacts to the 11 known prehistoric archaeological sites due to construction of the 500-kV Route.

Impacts to isolated artifacts would be as described for the 230-kV Route and no impacts to those resources would occur.

Unanticipated Finds

As with the 230-kV Route, unanticipated cultural resources could be discovered during construction of the 500-kV Route. However, ESJ-U.S. would implement the measures described in Section 3.5.2.3 and comply with all applicable state codes and regulations as described for the 230-kV Route in Section 3.5.2.3. Potential mitigation measure Cultural-1 (Worker Training) would ensure that all construction personnel are informed of the proper steps and procedures required to comply with the above number codes and regulations in the event that unknown resources are discovered (see Section 3.5.3). Therefore, impacts to such resources, if any, would be minor.

Operations Impacts

There would not be ground disturbances associated with operation of the transmission line, and therefore, there would not be any impacts to cultural resources during operation of the 500-kV Route.

3.5.3 Mitigation Measures

The following potential mitigation was identified to reduce potential impacts to cultural resources.

Cultural-1: Worker Training

Prior to the initiation of construction, ESJ-U.S. should provide training and area-specific information to contractor personnel to ensure that construction workers are aware of the potential

for archaeological discoveries during construction. The employee training session should be conducted by a qualified archaeologist and should include a description of the kinds of cultural resources that may be encountered during construction and the steps to be taken if such resources are encountered.

Each participant in the training should sign a statement declaring that the individual understands and will abide by the guidelines set forth in the training materials.

3.6 NOISE

This section addresses the sound levels associated with the proposed project and alternatives and potential noise impacts on humans. The impacts to wildlife due to project-generated sound levels are addressed in Section 3.1 (Biological Resources).

General Noise Characteristics

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. When sound becomes excessive or unwanted, it is referred to as noise. Noise may be continuous (constant noise and decibel level), steady (constant noise with a fluctuating decibel level), impulsive (having a high peak of short duration), stationary (occurring from a fixed source), intermittent (occurring at the same rate), or transient (occurring at different rates). Sound levels are quantified using units of decibels. The A-weighted scale, reported in A-weighted decibels (dBA), most effectively approximates the human ear's response to sounds. The A-weighted decibel scale (dBA scale) measures sound levels over the entire range of audible frequencies, weighted to accommodate the fact that humans hear middle range frequencies better than high or low frequencies. Typical sound levels in a variety of settings and from representative sources are listed in Table 3.6-1.

Table 3.6-1
Typical Sound Levels

Source/Activity	dBA
Rural night-time background	20-40
Quiet bedroom	35
Wind project at 1,100 feet (335 m)	35-45
Car at 40 mph at 300 feet (91 m)	55
Busy office	60
Truck at 30 miles per hour at 300 feet (91 m)	65
Jet aircraft at 800 feet (244 m)	105

Source: DOE 2008b

Several metrics have been developed to describe sound levels. Average levels over a period of minutes or hours are usually expressed as dB L_{eq}, the equivalent sound level. The period of time average may be specified; for example, $L_{eq(3)}$ is a 3-hour average. For continuous sources, such as roadways, sound levels are often averaged over a period of 24 hours and are normally weighted to account for greater human sensitivity to noise in the evening and nighttime hours. These 24-hour metrics are the Community Noise Equivalent Level (CNEL) and the Day-Night level (L_{dn}). The L_{eq24} is the level of steady sound with the same total (equivalent) energy as the time varying sound of interest, averaged over a 24-hour period. The L_{dn} is the L_{eq24} with 10 dBA added to nighttime sound levels between the hours of 10 p.m. and 7 a.m. (Eldred 1975).

3.6.1 Affected Environment

The alternative corridors would be located in a rural environment, consisting primarily of undeveloped open space where sound is generated primarily by natural sources, such as wind. However, traffic on roadways in the area also generates sound; the primary roadways are Old Highway 80 (about 0.5 mile [0.8 km] north-northwest of the alternative corridors) and I-8 (about 0.75 mile [1.2 km] north of the alternative corridors). In addition, occasional increases in sound levels result from activities at the Carrizo Creek shooting range (about 1 mile [1.6 km] west of the project) and occasional air traffic at Jacumba Airport (about 2.5 miles [4.0 km] west of the project). Average ambient sound levels in the vicinity of the alternative corridors generally are below 50 dBA during daytime hours and below 40 dBA during nighttime hours (CPUC/BLM 2008b; SDG&E 2009b).

Noise-sensitive receptors include residences, schools, libraries, hospitals, and other similar land uses where groups of people may gather, specifically the elderly, sick, and the very young, who can be most sensitive to noise. No schools, libraries, hospitals, or other similar land uses are located at or near the alternative corridors. Based on field observations, it is believed that the mobile home located approximately 1,600 feet (490 m) west of the 230-kV alternative construction area is unoccupied; however, since the home could be occupied in the future, it is considered a noise-sensitive receptor in this EIS. Other residential receptors in proximity to the alternative corridors include a residence located approximately 0.4 mile (0.6 km) northwest of the site and approximately 290 feet (88 m) south of I-8, and a residence located approximately 1.4 miles (2.3 km) northeast of the site, approximately 280 feet (85 m) north of I-8. There are also residences located approximately 2 miles (3.2 km) west of the site, near the intersection of Carrizo Gorge Road and Old Highway 80.

Areas in which a quiet setting is a basis for recreational use of the area may also be considered noise-sensitive receptors. Two recreational areas located in the vicinity of the alternative corridors were assessed as potential noise-sensitive receptors. The Table Mountain ACEC, which is used for hiking and other recreational purposes, is located north of I-8, and approximately 0.8 mile (1.3 km) northwest of the terminus of the proposed transmission line corridor. The southwestern portion of the Jacumba Mountains Wilderness Area is located approximately 0.5 mile (0.8 km) east of the transmission corridor at its nearest point and is used by rock climbers, jeep clubs, and hikers. There are no specific campsites, but camping is allowed within 30 feet (9 m) of designated roads and trails. There are two roads used for recreational access in the southwest portion of the wilderness: one leads to Valley of the Moon, and the other road leads to Elliott Mine. There are no BLM noise standards for wilderness areas (Johnson 2009). The nearest publicly accessible trails within the Jacumba Mountains Wilderness Area are located approximately 1.5 miles (2.4 km) east of the alternative corridors. These recreational areas are described further in Section 3.4 (Recreation).

3.6.2 Environmental Impacts

Temporary increases in sound levels would be generated by construction activities. Inspection, maintenance, and repair of the project would generate periodic increases in sound levels during the life of the project, and operation of the project would result in a long-term increase in sound levels in the vicinity of the transmission lines. Increased sound levels from transmission lines are due primarily to corona discharge, which is a small electrical discharge along the wire that

produces crackling and hissing sounds as well as small amounts of light. These discharges result from electrical energy passing over surface irregularities that occur along the transmission lines, such as scratches, nicks, dust, or water drops. These sounds typically occur when air is ionized around a gap, burr (i.e., raised area), irregularity, or some non-insulated component while electricity is being conducted through power lines. They are also produced when transmission lines deteriorate over time and their fastener components loosen, resulting in an air gap. The corona effect is most prominent during periods of rain, fog, or high humidity, conditions that are not common in the project area (See Section 3.10 [Air Quality] for a more detailed discussion of the climate in the vicinity of the alternative corridors). In addition, wind blowing across power lines and power poles can also generate increased sound levels in the vicinity of those facilities.

Methodology

Sound levels resulting from construction, inspection, and maintenance were determined based upon the types of equipment that would be used and the duration of their use. For the construction impact analysis, the sound levels associated with transmission line construction were estimated based on two recent studies: the Sunrise Powerlink Final Environmental Impact Report (EIR)/EIS (CPUC/BLM 2008a); and the Imperial Valley-Mexicali 230-kV Transmission Lines Project EIS (DOE 2004). Corona sound levels were estimated based on a noise analysis prepared for the ESJ U.S. project by Burns and McDonnell (2009a), which used the Corona Field Effects Program to predict performance. Increased sound levels generated by the ESJ Wind project in Mexico that could be audible in the U.S. were based on DOE estimates for other similar projects and a recent analysis of potential human health effects from wind turbines (Colby et al. 2009). Changes in sound levels at the property line and nearest sensitive receptors were calculated based on an attenuation rate of 6 dB for every doubling of the distance (FHWA 1996), and the resulting levels were compared to the County of San Diego noise standards**.**

The County of San Diego Code of Regulatory Ordinances, Chapter 4 (Noise Abatement) (County of San Diego 1982) provides guidance and standards for acceptable sound levels for various land uses and provides a definition for sensitive receptors. The following sections of the code are applicable to the ESJ U.S. project:

- Section 36.404 limits the average hourly sound level in rural areas (including the project corridor, which is on land designated General Rural) to 50 dBA between 7 a.m. and 10 p.m. and to 45 dBA between 10 p.m. and 7 a.m.
- Section 36.410 prohibits the operation of construction equipment between the hours of 7 p.m. and 7 a.m., as well as on Sundays and holidays. Construction activities may not cause average daytime noise levels that extend to properties that include a legal dwelling unit to increase above 75 dBA.
- Section 36.414 regulates general nuisance noise and defines schools, courts, churches, and hospitals as sensitive receptors.

There are no federal sound level or noise standards that directly regulate environmental noise or community noise.[11] In 1974, the U.S. Environmental Protection Agency (USEPA) published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (USEPA 1974). This document provides information for state and local governments to use in developing their ambient sound level standards. USEPA determined that the maximum sound level should be less than 55 dBA L_{dn} outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use. This standard is not a single event, or "peak" level, but represents averages of acoustic energy over periods of time, such as 8 hours or 24 hours, and over long periods of time, such as years; therefore, it is not used to assess the temporary sound level increases associated with construction.

3.6.2.1 Alternative 1 – No Action

The proposed transmission line would not be constructed under this alternative; therefore, ambient sound levels would not be affected, and no noise impacts would occur.

3.6.2.2 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

ESJ-U.S. would construct the project during the hours of the day allowed by County of San Diego ordinance and, thus, would be consistent with the County's requirements. Use of heavy machinery and other equipment during construction of the proposed transmission line would temporarily increase sound levels in the immediate vicinity of the project. The nearest potential noise-sensitive receptor would be the currently unoccupied mobile home located approximately 1,600 feet (490 m) to the west of the construction area.

In its Final EIS/EIR for the Sunrise Powerlink Project, CPUC and BLM conducted an analysis of the impacts to existing sound levels due to construction of the Sunrise Powerlink project (CPUC/BLM 2008), which would be constructed using the same methods and equipment as the proposed ESJ U.S. project. As a result, that impact assessment can be adapted to the proposed ESJ U.S. project. In summary, CPUC determined that sound levels associated with individual pieces of equipment would generally range from 70 to 90 dBA (U.S. DOT 2006, as cited by CPUC/BLM 2008a). Sound levels generated by typical pieces of construction equipment (at 50 feet [15 m]) are listed in Table 3.6-2. Maximum instantaneous construction noise levels would range from 80 to 90 dBA at 50 feet (15 m) from any work site, which equates to sound levels up to 78 dBA at a distance of 200 feet (61 m) from the noise source. Beyond 1,000 feet (305 m) from the source, sound levels from multiple pieces of equipment operating simultaneously would not exceed 70 dBA.

[11] USEPA does not have regulatory authority governing noise in local communities. In the past, USEPA coordinated all federal noise control activities through its Office of Noise Abatement and Control. In 1981, the Administration at that time concluded that noise issues were best handled at the state or local government level. As a result, USEPA phased out the Office's funding in 1982 as part of a shift in federal noise control policy to transfer the primary responsibility of regulating noise to state and local governments. The Noise Control Act of 1972 and the Quiet Communities Act of 1978, however, were not rescinded by Congress and remain in effect today, although essentially unfunded. Additional noise-related information is available online from USEPA at: http://publicaccess.custhelp.com/cgi-bin/publicaccess.cfg/php/enduser/std_adp.php?p_faqid=1765.

Table 3.6-2
Typical Sound Levels for Construction Equipment

Equipment	Typical Noise Levels (dBA, at 50 feet [15 m])
Front loaders	85
Backhoes, excavators	80-85
Tractors, bulldozers	83-89
Graders, scrapers	85-89
Trucks	88
Concrete pumps, mixers	82-85
Cranes (movable)	83
Cranes (derrick)	88
Forklifts	76-82
Pumps	76
Generators	81
Compressors	83
Pneumatic tools	85
Pneumatic tools	85
Jack hammers, rock drills	98
Pavers	89
Compactors	82
Drill rigs	70-85

Source: CPUC/BLM 2008a

In the Imperial Valley-Mexicali 230-kV Transmission Lines Project EIS, DOE (2004) used a similar estimate for construction equipment sound levels associated with transmission line construction to assess noise impacts from similar construction methods. For that project, a maximum estimated construction sound level of 90 dBA at 50 feet (15 meters) from the edge of the construction right-of-way was used, based on previous studies of projects using similar types of transmission line construction equipment (HMMH 1995, as cited in DOE 2004). Assuming a maximum sound level of 90 dBA at 50 feet (15 meters) from the edge of the construction right-of-way, the sound level at the unoccupied mobile home located approximately 1,600 feet (490 m) west of the 230-kV transmission line corridor would be approximately 60 dBA, which is below the County of San Diego's threshold for construction noise impacts.

Since the nearest boundary of the Table Mountain ACEC is about 0.8 mile (1.3 km) from the proposed project corridor, it is not likely that sound level increases generated by construction would be audible in the ACEC. In addition, sounds from vehicular travel on I-8 would mask sound level increases from construction. Similarly, it is not likely that increased sound levels from construction would be audible from publicly accessible areas within the Jacumba Mountain Wilderness Area due to the distance involved (0.5 mile [0.8 km] from the project site) and the intervening topographic features that would attenuate sounds from the construction area.

Construction-related truck traffic would also generate increases in sound levels. Typical daily construction-related traffic would be limited to about 7 to 12 heavy vehicles and 20-25 construction worker vehicles. In addition, heavy trucks would be used to import and export earthwork materials for development of the all-weather road surfacing along the property access road.[12] Construction vehicles would travel along I-8 to Carrizo Gorge Road (Exit 73), and then use Old Highway 80 east to the project corridor. Because of the existing high traffic levels on I-8 (approximately 15,000 trips per day), the increase in sound levels from trucks accessing the project in the vicinity of that roadway would not be perceptible. Increased sound levels due to an increase in traffic due to construction may be noticed at the two isolated residences along Old Highway 80 between Carrizo Gorge Road and the proposed route. However, construction-related trucks would use the roadway within the hours allowed by the County of San Diego, and the increase in sound levels would not exceed the County's noise threshold for construction activities. As a result, sound level impacts at these residences would be temporary and minor.

Operations Impacts

Operation of the proposed transmission line would result in intermittent increases in sound levels in the immediate vicinity of the lines due to the corona effect and to a lesser extent from wind blowing across power lines and power poles; based on the climate in the vicinity of the project corridor, corona discharge from the transmission line would be infrequent. ESJ-U.S. commissioned an Audible Noise Performance study to determine the predicted sound levels from corona effect at several locations along the ESJ-U.S. property boundary and under different conductor configurations (Burns & McDonnell 2009a; provided in Appendix E). ESJ-U.S.' property lines and noise prediction locations are depicted on a map in the study, and the study results are summarized in Table 3.6-3. As shown in this table, audible noise decreases with distance from the proposed transmission line. The noise analysis determined that during wet weather conditions both of the possible configuration options for conductors on a 230-kV line would meet the County of San Diego's nighttime property line sound level limit of 45 dBA (the model results indicate a maximum 8.8 dBA at the property line for the 230-kV configuration options); therefore, the long-term impact of corona-generated sound during operation of the project would be minor but long term.

[12] As described in Section 2.0 (Proposed Action and Alternatives), truck trips would be generated due to the one-time delivery of tower parts, and the import and export of earthwork materials for development of the all-weather road surfacing along the property access road (primarily decomposed granite), tower pad grading, and foundation excavation. Assuming a typical truck load of 18 cubic yards (14 cubic meters), these grading and construction activities would result in about 600 truck trips (about 540 export trips and about 55 import trips) for the 230-kV Route. Of this total, about 90 percent of truck deliveries would be associated with the property access road improvements, which are estimated to require about 9,300 cubic yards (7,110 cubic meters) of material to be delivered onsite (Burns & McDonnell 2009b; included in Appendix B of this EIS).

Operational activities would include inspection of the transmission line and support structures, insulator washing, occasional repair or replacement of project facilities, and access road repair.

Table 3.6-3
Foul Weather Noise Analysis

Location	Conductor Configuration	
	Two-Conductor "Bluebird"	Two-Conductor "Finch/ACSS"
	Audible Noise Level (dBA)	
On 230-kV Route Centerline	17.9	23.6
On Main Access Road (700 feet from 230-kV Route)	6.9	12.5
On Main Access Road (1,400 feet from 230-kV Route)	3.5	9.1
On East Property Line (1,500 feet from 230-kV route)	3.2	8.8
On West Property Line (2,200 feet from 230-kV Route)	1.3	6.9
Edge of 230-kV Right-of-Way (65 feet from Centerline)	16.7	22.3

Source: Burns and McDonnell 2009a

These activities would result in a minor, short-term increase in traffic along local roads and along the right-of-way and the occasional use of earthmoving equipment along right-of-way. The light-duty trucks that would be used during inspection would typically generate less than 75 dBA at 50 feet (15 m). Sound levels generated by equipment used for maintaining and repairing or replacing the transmission lines and maintaining the access roads would be similar to those generated during construction. As a result, sound level increases due to inspection, maintenance, and repair would be within County of San Diego guidelines. The impacts of those activities at nearby noise sensitive locations would be minor, at most, but would occur for the life of the project.

Impacts in the U.S. due to Related Activities in Mexico – Construction Phase

Impacts in the U.S. due to related activities in Mexico during the construction phase could occur if sound generated by activities associated with the ESJ Wind project in Mexico affects noise-sensitive receptors in the U.S. Construction of the transmission line in Mexico would include construction activities near the U.S.-Mexico border. Those activities would generally be similar to the construction activities described above for the ESJ U.S. Transmission Line project, although, ground conditions in Mexico may differ from those in the U.S. and could involve some construction on bedrock which may require blasting. Therefore, the sound levels generated by construction of the ESJ Wind project in Mexico could be louder than those generated in the U.S. However, construction activity in Mexico would be significantly farther from noise-sensitive receptors in the U.S. (0.7 mile [1.2 km] or more from the currently unoccupied mobile home located west of the ESJ U.S. Transmission Line project and southernmost portion of Jacumba Mountains Wilderness Area; and 2.5 miles [4 km] or more from the nearest occupied residence located east of Jacumba).

Construction in Mexico would be accomplished by a separate construction workforce that would access the construction right-of-way via roads within Mexico and would not result in sound level increases in the U.S. Wind turbine equipment may be transported to Mexico via U.S. roads, depending on the origin of the turbine equipment. Any such traffic within the U.S. would occur on established U.S. highways, would enter Mexico via established border crossings, and would result in a negligible increase in traffic. Therefore, there would not be perceptible increases in sound levels at noise sensitive locations in the U.S. due to transport of the turbine equipment, and there would be no noise impacts to sensitive receptors within the U.S.

In summary, sound level increases due to construction activities associated with the ESJ-U.S. transmission line and wind turbines in Mexico would not be perceptible at noise-sensitive locations in the U.S. and would not result in noise impacts in the U.S.

Impacts in the U.S. due to Related Activities in Mexico – Operations Phase

The proposed ESJ Wind project wind turbines would be located at distances ranging from approximately 0.75 mile (1.2 km) to 7.0 miles (11.3 km) south of the U.S.-Mexico border. Increased sound levels would result from rotation of the blades of the turbines and operation of the generators. The increased sound levels are typically due to the fluctuating aerodynamic sound (swish) in the 500 to 1,000 Hertz (Hz) range that occurs from the wind turbine blades disturbing the air, modulated as the blades rotate, which changes the sound dispersion characteristics in an audible manner. This fluctuating aerodynamic sound is the cause of most sound complaints regarding wind turbines, as it is harder to become accustomed to fluctuating sound than to sound that does not fluctuate. However, this fluctuation does not always occur, and a study completed in the United Kingdom showed that it had been a problem in only 4 out of 130 United Kingdom wind farms, and had been resolved in 3 of those cases (Moorhouse et al. 2007, as cited in Colby et al. 2009).

It is possible that sounds generated by the northernmost turbines would be audible from the extreme southern portions of the Jacumba Mountain Wilderness Area under certain wind conditions. However, based on the distance involved (minimum 0.75-mile [1.2-km] separation from the nearest turbine to the border) and the attenuation of sound levels over distance, the resultant sound levels would be well below acceptable standards. As shown in Table 3.6-1, the sound levels generated by a typical wind turbine range from 35 to 45 dBA at 1,100 feet (335 m) from the source (DOE 2004). Colby et al. (2009) indicate that 50 dBA at a distance of 1,500 feet (457 m) would be a conservative estimate for today's turbines. Assuming the standard attenuation of 6 dB for every doubling of the distance, sound level increases from the closest turbines could be as much as approximately 26 to 36 dBA at the U.S.-Mexico border using the DOE (2004) estimate, or as high as 45 to 46 dBA using the more conservative estimate. These sound levels would be well below the County of San Diego's thresholds for sensitive receptors.

Sounds generated by the turbines would not be perceptible at the Table Mountain ACEC due to the intervening distance (0.8 mile [1.3 km]); in addition, the existing sound levels generated by traffic along from I-8 would mask minor increases in sound levels. Sound levels during operation of the turbines would not be distinguishable from ambient sound levels at the nearest noise-sensitive receptor in the U.S. (the currently unoccupied mobile home, which is approximately 2.5 miles [4.0 km] from the nearest turbine).

Wind turbines also produce low levels of infrasound[13] and low frequency sound that may or may not be audible. Recent studies have been conducted to determine whether these sounds may affect human health. In a recent study, Colby et al. (2009) concluded that there is no credible scientific evidence that low levels of infrasound and low frequency sound levels from wind turbines are harmful.

Increases in sound levels due to inspection, maintenance, and repair of the transmission line in Mexico near the international border would be temporary and minor and would not be noticeable at the nearest noise-sensitive receptors in the U.S. Roads in the U.S. would not be used to access the transmission line right-of-way in Mexico, and there would not be an increase in traffic in the U.S. associated with inspection, maintenance, and repair of the transmission line in Mexico.

In summary, sound level increases associated with operation, inspection, maintenance, and repair of the ESJ Wind project components in Mexico would not be perceptible at noise-sensitive locations in the U.S. and would not result in noise impacts in the U.S.

3.6.2.3 Alternative 3 – Single-Circuit 500-kV Transmission Line

The 500-kV Route would begin at the same border crossing location as the 230-kV Route, extend 0.65 mile (1.1 km) northwest, and end approximately 600 feet (183 m) east of the terminus of the 230-kV Route. Therefore, the site terrain, vegetation, and topographic features along the 500-kV Route are essentially the same as those of the 230-kV Route. Construction of this alternative would be similar to the scale and duration of construction of the 230-kV Route, including truck traffic associated with construction. Consequently, the increases in sound levels associated with construction of the 500-kV single-circuit transmission line would be essentially the same as those of the 230-kV double-circuit transmission line. As for the 230-kV Route, the increases in sound levels would be consistent with County of San Diego's construction noise impact guidelines.

The nearest noise-sensitive receptor to the proposed route (an unoccupied mobile home) is slightly farther from this alternative, about 2,000 feet (610 m), as compared to about 1,600 feet (490 m) from the 230-kV Route. Therefore, increases in sound levels resulting from construction would be slightly less at this receptor location (a maximum of approximately 57 dBA from construction of the 500-kV Route compared to a maximum of 60 dBA from construction of the 230-kV Route). This level would be below the County of San Diego's threshold for construction noise. As for the 230-kV Route, there would not be perceptible increases in sound levels at the Table Mountain ACEC or in the Jacumba Mountains Wilderness Area due to construction of the 500-kV Route.

Sound generated by the corona effect of the 500-kV single-circuit transmission line would be greater than that of the 230-kV double-circuit transmission line because the corona effect increases with voltage. According to the Audible Noise Performance study prepared for this project (Burns & McDonnell 2009a; provided as Appendix E), modeling indicates that for the

[13] The following definition of infrasound is provided in Colby et al. (2009): According to the International Electrotechnical Commission (IEC 1994), infrasound is defined as acoustic oscillations whose frequency is below the low frequency limit of audible sound (about 16 Hz). However this definition is incomplete as infrasound at high enough levels is audible at frequencies below 16 Hz. (IEC 1994).

500-kV configuration options, conductor selection is a factor in the audible noise level limit (Table 3.6-4). ESJ-U.S. has indicated that, if the 500-kV Route were selected, they would select a conductor configuration that conforms to the County of San Diego property line Noise Ordinance standards. For example, the study results indicate that either a 2-conductor 2,156 kcmil[14] (two-conductor "Bluebird") configuration or a 3-conductor 795 kcmil (three-conductor "Drake") configuration would meet the county nighttime property line sound level limit of 45 dBA.

Table 3.6-4
Foul Weather Noise Analysis (500-kV Route)

Location	Conductor Configuration			
	Two-Conductor "Bluebird"	One-Conductor "Bluebird"	Two-Conductor "Cardinal"	Three-Conductor "Drake"
	Audible Noise Level (dBA)			
On 500-kV Centerline	52.8	69.1	60.1	49.4
On Main Access Road (1,300 feet from 500-kV Route)	38.0	54.3	45.2	34.6
On Main Access Road (1,100 feet from 500-kV Route)	35.8	52.1	43.1	32.4
On East Property Line (1,100 feet from 500-kV Route)	38.8	55.1	46.0	35.4
On West Property Line (3,000 feet from 500-kV Route)	33.8	50.1	41.1	30.4
Edge of 500-kV Right-of-Way (107 feet from Centerline)	49.7	66.0	57.0	46.3

Source: Burns and McDonnell 2009a

In general, the increased sound level due to implementation of this alternative would be indistinguishable from the ambient sound level at the nearest noise-sensitive receptors (the unoccupied mobile home and Table Mountain ACEC). Also, as noted earlier, the corona effect is most prominent during periods of rain, fog, or high humidity, conditions that are not common in the corridor area because of the arid climate. Due to the distance of noise-sensitive receptors from the right-of-way, the impact of corona-generated sound during operation of this alternative would be minor but would occur for the life of the project.

Sound level increases due to inspection, maintenance, and repair of the 500-kV Route would be essentially the same as those for the 230-kV Route, and thus, would be within the County of San Diego guidelines. The impacts of those activities at nearby noise-sensitive locations would be minor, at most, but would occur for the life of the project.

3.6.3 Mitigation Measures

No mitigation measures are indicated.

[14] A circular mil is a unit of area, equal to the area of a circle with a diameter of one millimeter (a millimeter is approximately 0.001 inch). A circular mil is a unit for referring to the area of the cross section of a wire or cable with a circular cross section; 1 kcmil = 1,000 cmils.

3.7 TRANSPORTATION AND TRAFFIC

This section describes existing roadway and intersection operations, as well as traffic congestion, and addresses the potential for traffic incidents resulting from the implementation of the alternatives. The section also addresses the potential impacts of the alternatives on transportation systems on surrounding roadways in southeastern San Diego County. In addition, the potential impacts of the alternatives on local air traffic, including the potential for interference with radio signals, are discussed. Given the location of the alternative corridors on private land, the distance from any populated area, and the lack of urban development along the corridors, no impacts to pedestrians or public transportation are expected; therefore, these issues are not discussed further.

3.7.1 Affected Environment

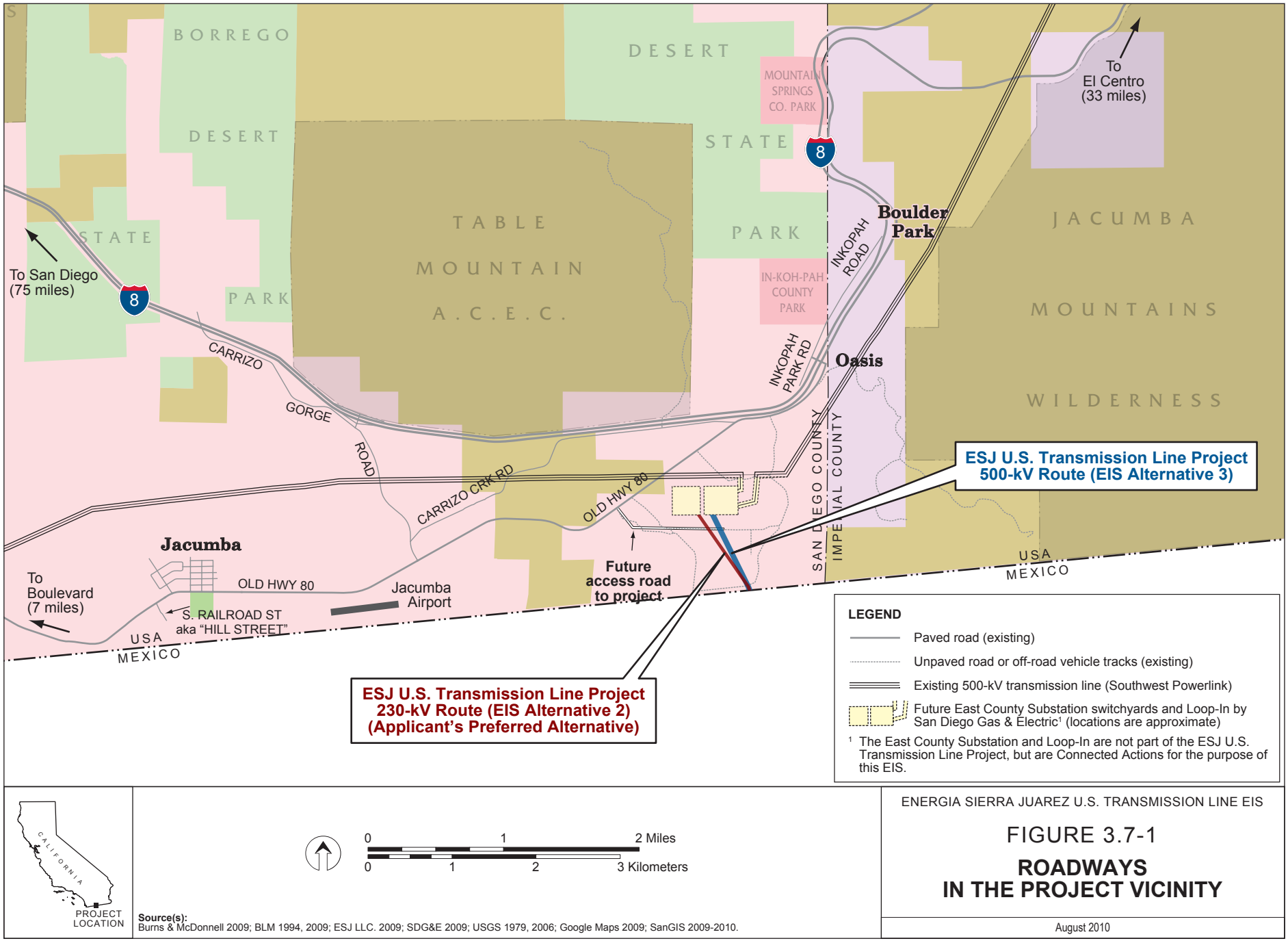
3.7.1.1 Area Roadways and Circulation

The alternative corridors are located in southeastern San Diego County. The principal east-west route in the vicinity of the corridors is I-8, the primary highway between San Diego, California, and Yuma, Arizona. Access to the alternative corridors is via I-8 to the Jacumba Exit (Exit 73) onto Carrizo Gorge Road south, and from there to Old Highway 80 east (Figure 3.7-1). From Old Highway 80, access to the corridors is from an existing unpaved turnoff along the eastbound (southerly) shoulder of the highway. From that access road, the corridors are accessed via a network of unpaved access roads, including an approximately 20- to 30-foot- (6- to 9-meter-) wide dirt road that extends east-west through the northern portion of the alternative corridors.

Other existing roads in the vicinity of the corridors consist of dirt trails that extend generally in a north-south direction. Some of the existing dirt roads provide access to residential trailers, and some roads are maintained by the U.S. Border Patrol, including an approximately 30-foot- (9-meter-) wide dirt road that extends across the southern perimeter of the corridors and parallels the U.S.-Mexico border.

3.7.1.2 Traffic Volumes

Traffic volume data for roadway segments in the vicinity of the alternative corridors are provided in Table 3.7-1. Traffic volumes for I-8 in the vicinity of the alternative corridors were compiled from 2008 CalTrans peak hour and annual average daily traffic counts (CalTrans 2008a). The most recent data for Old Highway 80 and other roadways in the area were compiled from the 2006 San Diego Association of Governments (SANDAG) Average Weekday Traffic Volume statistics (2-way, 24-hour daily volumes) for San Diego County (SANDAG 2007a).



Source(s):
Burns & McDonnell 2009; BLM 1994, 2009; ESJ LLC. 2009; SDG&E 2009; USGS 1979, 2006; Google Maps 2009; SanGIS 2009-2010.

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FIGURE 3.7-1

ROADWAYS IN THE PROJECT VICINITY

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Table 3.7-1
Traffic Volumes in the Vicinity of the Alternative Corridors

Roadway	Segment	Annual Average Daily Traffic (No. of Vehicles)	Peak Hour Traffic (No. of Vehicles)
I-8	In-Ko-Pah to Imperial County border	14,000	1,450
I-8	Carrizo Gorge to In-Ko-Pah	14,000	1,900
Old Highway 80	Carrizo Gorge Road to I-8	6,400	N/A
Carrizo Gorge Road	I-8 to Old Highway 80	300	N/A

N/A = not available
Source: CalTrans 2008a; SANDAG 2007a

The 2008 CalTrans State Highway Congestion Monitoring Program (the most recent data available) indicates areas within the San Diego area that experience morning and afternoon peak hour congestion. No congestion is indicated along I-8, Old Highway 80, or other roadways within the vicinity of the alternative corridors (CalTrans 2008b). Large truck traffic (two or more axles) accounts for approximately 14 percent of average daily traffic on I-8 east and west of the alternative corridors. Approximately 50 percent of the large trucks in this segment have four or more axles (CalTrans 2008c).

Congestion on roads under the jurisdiction of the County of San Diego is assessed in terms of level of service (LOS). Table 3.7-2 describes the Public Road Standards as developed by the County of San Diego Department of Public Works and Table 3.7-3 provides descriptions of each LOS as defined by the CalTrans Highway Capacity Manual. According to the County of San Diego General Plan Mobility Element, Old Highway 80 is designated a "Major Road," and Carrizo Gorge Road is designated a "Rural Collector" (County of San Diego 1999). Based on the Annual Average Daily Traffic (Table 3.7-1), both Old Highway 80 and Carrizo Gorge Road are classified LOS A.

Table 3.7-2
Level of Service Guidelines for San Diego County Public Roads

Class	Level of Service (Annual Average Daily Traffic in Number of Vehicles)				
	A	B	C	D	E
Expressway	<36,000	<54,000	<70,000	<86,000	<108,000
Prime Arterial	<22,200	<37,000	<44,600	<50,000	<57,000
Major Road	<14,800	<24,700	<29,600	<33,400	<37,000
Collector	<13,700	<22,800	<27,400	<30,800	<34,200
Town Collector	<3,000	<6,000	<9,500	<13,500	<19,000
Light Collector/Rural Collector/Rural Light Collector/Recreational Parkway/Rural Mountain	<1,900	<4,100	<7,100	<10,900	<16,200

Source: County of San Diego 1999

Table 3.7-3
Level of Service Descriptions

LOS	Description
A	This LOS represents completely free-flow conditions, where the operation of vehicles is virtually unaffected by the presence of other vehicles and only constrained by the geometric features of the highway and by driver preferences.
B	This LOS represents relatively free-flow conditions, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.
C	At this LOS the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles.
D	At this LOS, the ability to maneuver is notably restricted due to traffic congestion, and only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
E	This LOS represents operation at or near capacity. LOS E is an unstable level, with vehicles operating with minimum spacing for maintaining uniform flow. At LOS E, disruptions can not be dissipated readily thus causing deterioration down to LOS F.

Source: Transportation Research Board 2000

3.7.1.3 Accident Statistics

Accident data for roadways in the vicinity of the alternative corridors are presented in Table 3.7-4. CalTrans (Gray 2009) provided the most recent accident data available for I-8 (2007) for the two segments listed in the table.

Table 3.7-4
Accident Data in the Project Vicinity (2007)

Segment	Total Number of Accidents Involving Truck/Tractor with 2 or More Trailers	Total Number of Accidents Involving Any Vehicle Type	Actual Total Accident Rate (Accidents/Million Vehicle Miles [Kilometers])	Statewide Average Total Accident Rate (Accidents/Million Vehicle Miles [Kilometers])[1]
Segment 1[2]	28	502	0.54 (0.34)	0.59 (0.37)
Segment 2[3]	0	5	0.51 (0.32)	0.40 (0.25)

[1] Data based on statewide average total accident rate for similar type roadway segments (i.e., Segment 1 includes various segments with different number of lanes whereas Segment 2 involves a short segment with 2 lanes only).

[2] Segment 1 – Eastbound I-8 between Milepost 0.127 (southbound I-5/eastbound I-8) and Milepost 77.626 (just west of the San Diego County/Imperial County line).

[3] Segment 2 – Eastbound I-8 between Milepost 74.076 (Carrizo Gorge Road eastbound entrance ramp merge point) and Milepost 77.626 (just west of the San Diego County/Imperial County line).

Source: Gray 2009

3.7.1.4 Airports

The nearest airport to the alternative corridors is the Jacumba Airport, approximately 3 miles (4.8 km) due west of the corridors. The airport has a single gravel runway, approximately 2,500 feet (760 meters) in length and 100 feet (30 meters) wide. The runway is unmanned and unlighted. The airport had an estimated total of 2,500 aircraft operations in 2004 and is mainly used as a glider facility by single-engine aircraft and sailplanes operating in U.S. air space. No aircraft are based at the airport, and the no international travel is authorized. After take-off, which is most frequently to the west, the only traffic pattern is to the north due to the airport's proximity to Mexico on the south (San Diego County Regional Airport Authority 2006).

3.7.2 Environmental Impacts

3.7.2.1 Methodology

Project impacts on the local transportation network were evaluated through consideration of existing traffic conditions, planned transportation projects, and project-related traffic along specific road segments. Project impacts to air traffic safety were evaluated through consultations with the FAA and the U.S. Border Patrol.

3.7.2.2 Alternative 1 – No Action

Under the No Action Alternative, the proposed transmission line would not be constructed, and existing traffic conditions would continue without alternation as described above.

3.7.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

A review of the 2030 Regional Transportation Plan indicates that no major capital projects or other projects are planned to be implemented on I-8 or other county roads within San Diego County east of El Cajon (approximately 50 miles [80 km] west of the project right-of-way) while

the project is under construction (SANDAG 2007b); therefore, vehicle traffic associated with construction activity is not anticipated to conflict with planned transportation projects.

Typical daily construction-related traffic would be limited to about 7 to 12 heavy vehicles and 20 to 25 construction worker vehicles. Construction vehicles would travel along I-8 to Carrizo Gorge Road (Exit 73), and then use Old Highway 80 east to the project site. As described in Section 2.0 (Proposed Action and Alternatives), additional heavy truck trips would be generated due to the one-time delivery of tower parts, and the import and export of earthwork materials for development of the all-weather road surfacing along the property access road (primarily decomposed granite), tower pad grading, and foundation excavation. Assuming a typical truck load of 18 cubic yards (14 cubic meters), these grading and construction activities would result in about 600 truck trips (about 540 export trips and about 55 import trips) for the 230-kV Route during the construction period.[15] The total number of round trips could be somewhat reduced, if practical, by having import trucks leave the site with an export load rather than empty. The sources of the imported material and the destinations of export material have not yet been identified by ESJ-U.S.; therefore, it is assumed that vehicles carrying earthwork material could travel to the project corridor from either the east or west along I-8.

As shown in Tables 3.7-1 and 3.7-2, Old Highway 80 or Carrizo Gorge Road have ample capacity to accommodate the additional vehicle trips associated with construction personnel and delivery of equipment and materials without reducing the existing LOS. In addition, no temporary road or lane closures would be required for transportation of heavy equipment and materials associated with construction of the transmission line. Vehicle traffic entering and leaving the access road is not anticipated to disrupt traffic flow on I-8, Carrizo Creek Road, or Carrizo Gorge Road. In addition, ESJ-U.S. would implement a traffic control plan, as required by the County of San Diego prior to issuance of a Major Use Permit for transmission line construction. Therefore, impacts to traffic flow would be temporary and negligible.

The proposed project would involve improvements to the existing property access road and use of the access road for construction vehicles and heavy equipment. As discussed in Section 2.0 (Proposed Action and Alternatives), the project has two options for the property access road. A key safety design criterion at this location is the corner sight distance from the new access road along Old Highway 80. Based on the assumed speed of traffic on Old Highway 80 in the vicinity of the project (60 mph; 97 kph), the County of San Diego Standard Corner Sight Distance for the intersection of the access road and Old Highway 80 is 600 feet (183 m). The selected property access road option would be designed to meet or exceed this design criterion for safe entry and exit from the access road and all road improvements would be constructed according to the County of San Diego Public and Private Road Standards.

Transport of transmission line construction equipment could result in damage to roadways in the project vicinity due to the weight of the vehicles and their loads. A traffic control plan would be required by the County of San Diego prior to approval of construction or grading permits. This plan would require that ESJ-U.S. repair those portions of the routes that may be damaged by the

[15] Of this total, about 90 percent of truck deliveries would be associated with the property access road improvements, which are estimated to require about 9,300 cubic yards (7,110 cubic meters) of material to be delivered onsite (Burns & McDonnell 2009; included in Appendix B of this EIS).

heavy weight that loaded trucks place on the route. If required by the County of San Diego Department of Public Works, ESJ-U.S. would enter into an agreement that would include: (1) a cash deposit for emergency traffic safety repairs; (2) long-term security for expected increased maintenance on Old Highway 80; and (3) possible future asphaltic overlay requirements on Old Highway 80 (Vidales 2009). These requirements would be included as a condition of the County Major Use Permit.[16] With the implementation of the traffic control plan and agreement (if required), impacts to roadway conditions would be short term and minor.

Operation Impacts

Vehicle Traffic

Upon completion of construction activity, typical monitoring and maintenance of the transmission line would require the use of two utility maintenance vehicles along the right-of-way on a weekly basis. Additional vehicles would occasionally access the right-of-way for major maintenance and repairs. Based on the current transportation and traffic levels in the vicinity of the project, the addition of two vehicles per week for and the use of vehicles for occasional maintenance and repair activities would result in a negligible increase in traffic on the roadways used to access the right-of-way and would not result in impacts on traffic or to local roadway structure. As discussed above, the proposed improvements to the project access road at its intersection with Old Highway 80 would ensure that traffic hazards are avoided during transit along Old Highway 80.

Air Traffic Safety

The airport nearest the proposed project is the Jacumba Airport. According to the Jacumba Airport Land Use Compatibility Plan, structures such as cell phone towers, wind turbines and transmission lines are compatible land uses (i.e., they would not interfere with aircraft) when located at least 1,500 feet (457 meters) beyond either end of the runway (San Diego County Regional Airport Authority 2006). The proposed project would be located approximately 3 miles (4.8 km) east of the Jacumba Airport; therefore, the project would not interfere with aircraft activity. Further, on May 2009, the FAA made a determination of "No Hazard to Air Navigation" and stated that no marking or lighting is necessary on the transmission towers or poles for air navigation based on the coordinate positions and height of the proposed towers (the FAA determination is included in Appendix B). Although air traffic associated with the Jacumba Airport would not be affected, scoping comments received from the U.S. Border Patrol indicate that their aircraft patrol the U.S.-Mexico border in the vicinity of the proposed project. According to the Sunrise Powerlink RDEIR/SDEIS (CPUC/BLM 2008b), two incidents involving aircraft flying into the existing Southwest Powerlink transmission line have occurred. Both of these incidents occurred shortly after the transmission line was built. Since that time, SDG&E has established procedures to minimize the potential for such incidents to occur. The ESJ U.S. Transmission Line project would introduce about 0.65 mile (1 km) of new transmission line in a north-south orientation immediately north of the international border; thus the new line would present an obstacle to be avoided and would require additional attention from pilots. Based on the FAA determination of no hazard to aviation, and the short distance of this line relative to the existing SWPL loop-in, any potential hazard to aviation safety is considered minor, but the impact would last for the life of the project. Implementation of potential

[16] The Major Use Permit is discussed in greater detail in Section 3.3, Land Use.

Mitigation Measure Transportation-1 (coordination with U.S. Border Patrol) could reduce the project's potential for conflicts with Border Patrol aerial operations. As described in Section 3.7.3, under potential Mitigation Measure Transportation-1, ESJ-U.S. would provide written notification to all U.S. Border Patrol aircraft working in the county stating when and where the new transmission lines and towers are to be erected; provide project location and design details; and resolve any potential issues related to their ground and aerial operations.

Impacts in the U.S. from Related Activities in Mexico

Transmission Line Construction and Operations

During construction of the transmission line in the U.S.-Mexico border area, a separate construction crew would access the Mexican side of transmission corridor via existing roads in Mexico, such that there would be minimal cross-border activity during stringing of the transmission line between towers in Mexico and the U.S. During operations, maintenance, and operations, crews would access the Mexican side of the transmission corridor via existing roads in Mexico; access to the U.S. facilities would be from U.S. roads. Therefore, there would be no need for vehicles to cross the border in the project area, and no impacts in the U.S. are anticipated to result from transportation and traffic associated with ESJ Wind project transmission line construction and operations in Mexico. As discussed in Section 3.15 (Services and Utilities), under potential mitigation measure Services-1, ESJ-U.S. could further reduce the potential for impacts by coordinating with the U.S. Border Patrol to ensure minimal disruption to their operations in the project area and to prevent unauthorized use of the project access road during construction (e.g., by issuing construction vehicle and personnel identifications; and by use of private security).

Turbine Equipment Transport

Vehicle use for the ESJ Wind Project would be localized within the wind turbine development area in Mexico. However, as of this writing, ESJ-U.S. had not yet identified the source of the wind turbines that would be transported to the ESJ Wind project sites within Mexico, and thus, the transportation route for the wind turbine components has not yet been determined. If the wind turbines are manufactured in Mexico or shipped to a Mexican port, then no use of U.S. roads would occur. However, pending further information from ESJ-U.S., it is conservatively assumed that construction of the ESJ Wind project in Mexico may require the transport of the wind turbines and associated equipment from the U.S. into Mexico. For the purpose of this discussion, the following three potential truck routing scenarios have been identified for transport of wind turbines on U.S. roads:

- **Scenario 1.** Wind turbine components would be shipped to the U.S. from an overseas supplier and arrive at a southern California port (e.g., Port of Los Angeles, Port of Long Beach, or Port of San Diego). The designated San Diego County border crossings for large truck traffic are restricted to Otay Mesa and Tecate. According to ESJ-U.S., the Otay Mesa crossing, located approximately 16 miles (26 km) southeast of the Port of San Diego's commercial cargo handling facilities in National City, would be used in this scenario. Therefore, under Scenario 1, trucks traveling from a southern California port would be required to travel south on I-5 and then east on State Highway 905 to the border crossing at Otay Mesa (Figure 3.7-2).



Source(s):
EDAW 2010; ESJ LLC 2009; Google 2009; USGS 2006.

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FIGURE 3.7-2

POTENTIAL WIND TURBINE TRANSPORT ROUTES

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- **Scenario 2.** Wind turbine components would be shipped to the U.S. from an overseas supplier and arrive at a port in the Gulf of Mexico (e.g., Port of Houston). Turbines would then be transported overland by truck into Mexico via U.S. highways and one of the various border crossings between Texas and California. It is not feasible to determine which border crossing would be used in this scenario. However, based on the project location in northern Baja, it is likely that the turbines would remain on U.S. highways through Texas, New Mexico, Arizona and California and enter Mexico at either the Calexico/Mexicali crossing in Imperial County, or at the Otay Mesa crossing described above.
- **Scenario 3.** Wind turbine components are manufactured in the U.S. and are transported overland by truck via major U.S. highways to Mexico. It is not feasible here to determine which border crossing would be used in this scenario. However, based on the project location in northern Baja, it is likely that the turbines would cross the border through one of the California crossings described above (e.g., either Otay Mesa in San Diego County from the west, or Calexico/Mexicali crossing in Imperial County from the east).

The turbines would be transported as three separate components and assembled onsite; however, the weight and size of modern wind turbines would require special transportation equipment. On-road transport of one complete turbine may require up to 15 individual specialized (i.e., oversized) trucks. Transport of the oversize components by rail is feasible but can be limited by tunnel and overpass width and heights (DOE 2008; a good discussion is also available in the article, *Trains, Trucks, and Ships Make Wind Energy Possible* [http://www.go-explore-trans.org/2009/nov-dec/wind_turbines.cfm]).

Transport of wind turbine components via Scenarios 1, 2, or 3 (or a combination of these scenarios) could result in temporary impacts to U.S. roadways, including increased congestion, roadway damage and an increased potential for traffic accidents due to the increased number of oversized trucks traveling on major highways. Trucks would use established truck hauling routes on major U.S. highways to transport the turbines, and the increased volume of traffic would be a small percentage of overall shipping activity. Therefore, roadway damage due to the transport of the turbines on U.S. roadways would be negligible.

Regardless of the final transport route selected, the contracted hauling company would be required to follow each state's regulations for oversize vehicles and obtain the necessary permits from all applicable jurisdictions located between the original port of entry and the U.S. border. This would minimize the potential for impacts along U.S. roadways. An analysis of air pollutant and greenhouse gas emissions associated with turbine transport on U.S. roads is provided in Section 3.10 (Air Quality and Climate Change).

3.7.2.4 Alternative 3 – Single-Circuit 500-kV Transmission Line

Because of the proximity of the two alternative routes, the existing transportation routes and traffic volumes in the vicinity of the 500-kV Route are the same as those for the 230-kV Route. Construction, operation, and maintenance activities would be essentially the same for the two alternatives, and the benefits of implementing. Mitigation Measure T-1 (Consult with and inform U.S. Border Patrol) would be applicable to this alternative, as well. Although the 500-kV Route would require the same improvements to the existing property access road from Old Highway 80

as the 230-kV Route, there would be a 25 percent greater volume of associated truck trips with this alternative due to the greater length of access road needed to reach the 500-kV Route corridor as compared to the 230-kV Route. As a result, impacts to traffic and transportation that would occur with implementation of the 500-kV Route would be slightly greater than those described for the 230-kV Route.

The potential for impacts in the U.S. due to related activities in Mexico would be the same as for the 230-kV Route.

3.7.3 Mitigation Measures

Implementation of the following potential mitigation measure, not proposed by the applicant, would reduce potential impacts related to U.S. Border Patrol ground and air traffic operations.

Transportation-1: Consult With and Inform U.S. Border Patrol

Prior to construction, ESJ-U.S. should provide written notification to all U.S. Border Patrol aircraft working in the county stating when and where the new transmission lines and towers are to be erected, and coordinate with U.S. Border Patrol to resolve any potential issues related to their ground and aerial operations. Appropriate location and design details, including aerial photos or topographic maps clearly showing the new transmission lines and towers in the U.S. in relation to the U.S.-Mexico border should be provided.

3.8 PUBLIC HEALTH AND SAFETY

This section addresses the potential impacts to public health and safety from exposure to hazardous materials, contaminated soils, electric and magnetic fields (EMF), transmission tower failure, and acts of vandalism or terrorism. Public health and safety impacts related specifically to fire are addressed in Section 3.9 (Fire and Fuels Management).

3.8.1 Affected Environment

3.8.1.1 Hazardous Materials and Contaminated Soils

In a study conducted for the Sunrise Powerlink RDEIR/SDEIS, Environmental Data Resources, Inc. conducted a database search of hazardous materials that included 30 federal agency databases; 29 state, county, and city records; and three tribal databases (CPUC/BLM 2008b). The search included the area traversed by the alternative corridors. The database search did not identify any leaking underground storage tanks, active underground storage tanks, or other hazardous material sites in the vicinity of the corridors. In addition, the State Water Resources Control Board (2009) database does not identify any such sites or hazardous material storage facilities within 1 mile (1.6 km) of the corridors. USEPA now includes some border contamination sites in its database, and its Border 2012 Program (available at http://www.epa.gov/usmexicoborder/) focuses on environmental challenges along the U.S.-Mexico border region. As of November 2009, the program did not list any hazardous material sites adjacent to the proposed border crossing in Mexico.

AECOM, on behalf of ESJ-U.S., conducted a Phase I Environmental Site Assessment of the alternative corridors area. The assessment included the entire 360-acre (146-hectare) parcel area on which the alternative corridors and access roads are proposed. Based on a site visit; review of governmental databases and historical records; and interviews with selected individuals, no recognized environmental conditions or potential areas of contamination were identified (AECOM 2009). In addition, SDG&E conducted a Phase I Environmental Site Assessment at two alternative sites for the ECO Substation; the sites are at the northern ends of the ESJ-U.S. alternative corridors (see Figure 2-1). Information on the presence of hazardous materials on those sites and an assessment of potential impacts to human health are addressed in Section 4.0 (Connected Actions).

3.8.1.2 Electric and Magnetic Fields

Description of Electric and Magnetic Fields

EMF are separate phenomena that occur both naturally and as a result of human activity. Naturally occurring EMF is generated by electrical currents flowing deep in the earth and by air turbulence and other atmospheric activity. Human-induced fields are generated by communications equipment, appliances, and the generation, transmission, and local distribution of electricity. Information on EMF in the environment presented below without citations were obtained from the World Health Organization (WHO 2002), the National Institute of Environmental Health Sciences (NIEHS 2002), and DOE (2005).

In addition to EMF, electrical transmission lines generate sound due primarily to corona discharge, which is a small electrical discharge along the wire that produces crackling and

hissing sounds as well as small amounts of light; this generation of sound is termed the corona effect and is addressed in Section 3.6 (Noise).

Electric fields are created by voltage and increase in strength as voltage increases. An electric field is present even if there is not an electrical current. Electric field strength is measured in volts per meter (V/m) or in kilovolts per meter (kV/m).

Magnetic fields are created when electric current flows; the greater the current, the stronger the magnetic field. In the U.S., magnetic field strength is most commonly measured in "gaus" units. Magnetic field strengths associated with transmission lines and electrical appliances are generally in the milligaus range.

Both electric and magnetic fields are produced when transmission lines are energized. However, both field strengths attenuate rapidly with distance from the source. The EMF strength is inversely proportional to the square of the distance from the transmission line. For example, at a distance of 300 feet (91 m) from the transmission line, the EMF strength would be one-ninth the strength at a distance of 100 feet (30 m) from the line. In addition, electric fields associated with transmission lines are dampened by most objects, such as trees or houses, which shield receptors; however, magnetic fields are not easily shielded by objects or materials. As a result, the primary concern regarding potential health effects associated with EMF from transmission lines is related to magnetic fields.

Typical Magnetic Field Strength

NIEHS (2002) provided information on household levels of magnetic fields. Most people in the U.S. are exposed to magnetic field strengths that average less than 2 milligaus. At a distance of 4 feet (1.2 m) from the source, the magnetic field strength of most household appliances ranges from 1 to 4 milligaus, and at 2 feet (1.1 m) ranges from about 1 to 40 milligaus. NIEHS (2002) also reported the results of a study by the Electric Power Research Institute found that the average "all-room" magnetic field for 992 houses studied in the U.S. was 0.9 milligaus; the "all-room" measurements were made away from electrical appliances and primarily reflected the magnetic fields from household wiring and outside power lines.

NIEHS (2002) also reported typical magnetic field strength at a height of 3.3 feet (1 m) above the ground in the vicinity of electrical transmission lines as reported by the Bonneville Power Administration. Those values are listed in Table 3.8-1. As noted in Table 3.8-1, at a distance of 300 feet (91 m) from the transmission lines and at times of average electricity demand, the magnetic field strength is at the same level as typical background levels in most homes. During peak loads (about 1 percent of the time), magnetic fields are about twice as strong as the mean levels reported in Table 3.8-1.

Table 3.8-1
Typical Magnetic Field Levels for Electrical Transmission Lines

	Mean Magnetic Field (milligaus) by Transmission Line Voltage		
Distance from Transmission Line	**115-kV**[1]	**230-kV**	**500-kV**
Directly Under Transmission Line	29.7	57.5	86.7
50 feet (15 meters)	6.5	19.5	Not reported
65 feet (20 meters)	Not reported	Not reported	29.4
100 feet (30 meters)	1.7	7.1	12.6
200 feet (61 meters)	0.4	1.8	3.2
300 feet (91 meters)	0.2	0.8	1.4

[1] kV = kilovolt

Source: NIEHS (2002). Data reported are from Bonneville Power Administration for transmission lines in the Northwest and are average levels at a height of 3.3 feet (1 m) based on the 1990 annual mean loads.

EMF in the Vicinity of the Alternative Corridors

The alternative corridors traverse undeveloped areas where measurable EMF is not present except in the vicinity of existing power line corridors. The nearest power line that would emit EMF is the 500-kV SWPL, which is perpendicular to and just north of the corridors. EMF emitted from this power line would be as described in Table 3.8-1.

Regulations

There are no federal standards in the United States that limit occupational or residential exposure to EMF. Only two states, Florida and New York, have set standards for magnetic fields, and those are the maximum fields that existing lines produce at maximum load-carrying conditions (NIEHS 2002). Those standards range from 150 milligaus (for 69- to 230-kV systems) at the edge of the right-of-way to 250 milligaus (for "certain existing" 500-kV systems). Both states set a standard of 200 milligaus at the edge of the right-of-way for typical 500-kV transmission lines.

Although the existing data do not provide sufficient evidence to conclude that EMF causes cancer, both the International Agency for Research on Cancer and the California Department of Health Services list EMF as a potential carcinogen. In 2006, the CPUC updated its EMF Policy in Decision 06-01-042, reaffirming that health hazards from exposures to EMF have not been established and that state and federal public health regulatory agencies have determined that setting numeric exposure limits is not appropriate (CPUC 2006).

3.8.2 Environmental Impacts

3.8.2.1 Methodology

Impacts associated with the transport, use, and disposal of hazardous materials and the potential for accidents or upsets involving hazardous materials were analyzed qualitatively. The potential for construction to encounter contaminated soils also was assessed in consideration of current

land use and the lack of known contaminated sites in the area (see Section 3.8.1). The groundwater table is substantially below ground level in the vicinity of the alternative corridors, and excavation and drilling conducted during construction would not encounter groundwater (see Section 3.11 [Water Resources]). Therefore, there would not be an impact to public health due to exposure to contaminated groundwater or an impact to public health due to contamination of groundwater from accidental release of hazardous substances during construction.

Impacts from EMF associated with operation of the alternative transmission lines were evaluated based on reported information on the health effects of EMF, described above, and the distances to potentially sensitive receptors. The potential for public exposure to induced currents and the potential for electrical field interference were evaluated based on the project's compliance with regulatory safety criteria; impacts would be similar for both lattice towers and monopoles.

3.8.2.2 Alternative 1 – No Action

Under the No Action alternative, the transmission line would not be installed and the conditions related to public health and safety would remain unchanged. Without construction of the project, the impacts described below would not occur.

3.8.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Public Exposure to Contaminated Soils and Hazardous Materials[17]

There are no identified contaminated sites within the proposed construction corridor, and because of the remoteness of the corridor, there is little potential for unknown contaminated soils to be present. As a result, there is little potential for construction personnel or the public to be exposed to contamination during construction. A potential mitigation measure not identified by the applicant (Mitigation Measure Public Health-1; evaluate contaminated sites) would further minimize potential impacts to worker and public health and safety from releases of previously unidentified contaminated areas within the corridor by requiring that construction workers be trained to identify contaminated soil and that ESJ-U.S. follow specific procedures in the event that contaminated soils are encountered.

Minimal amounts of hazardous materials, such as vehicle fuels, oils, cleaners, and paints, would be used and stored during construction. Although there would be a potential for accidental releases of these hazardous materials, ESJ-U.S. would implement its SWMP to minimize and contain releases. The SWMP lists the procedures that ESJ-U.S. would follow when handling hazardous materials during construction of the project. The SWMP includes a Spill Prevention and Control Plan that also includes procedures that ESJ-U.S. would incorporate into project construction to minimize the release of hazardous materials. This plan identifies the potentially hazardous materials to be used during the project; describes the transport, storage, and disposal procedures for these substances; and describes the procedures to be followed in the event of a spill of a contaminating or toxic substance. Key procedures in the SWMP, including measures included in the Spill Prevention and Control Plan, are summarized below:

[17] Hazardous materials would consist primarily of construction-related vehicular fuels, lubricants, as well as paints and solvents.

- ESJ-U.S. would store the minimum amount of hazardous materials necessary at the construction site;
- Products would be kept in original containers with the original manufacturer's label;
- Hazardous waste material would be disposed of in the manner specified by the manufacturer and by local, state, and federal regulations;
- Hazardous materials would be stored aboveground, and bulk storage tanks having a capacity of greater than 55 gallons (212 liters) would be provided with secondary containment;
- Storage or hazardous materials, chemicals, fuels, oils, and fueling of construction equipment would not occur within 100 feet (30 m) of desert washes;
- Care would be taken to follow directions and warnings for products used onsite. The Material Safety Data Sheets, which provide pertinent information for each product, would be kept onsite;
- Vehicles at the construction sites would be monitored for leaks and receive regular maintenance to reduce the chance of leakage. Petroleum products would be stored in tightly sealed containers that are clearly labeled;
- Waste oil and other petroleum-based products would be disposed of at an existing disposal site in accordance with applicable regulations;
- Materials and equipment needed for cleanup procedures would be kept readily available on the site, either at an equipment storage area or on the contractors trucks;
- Personnel onsite would be made aware of cleanup procedures and the location of spill cleanup equipment;
- Spills would be contained and cleaned up immediately after discovery;
- Manufacturer methods for spill cleanup of a material would be followed as described on the material's Material Safety Data Sheets;
- Toxic, hazardous, or petroleum product spills required to be reported by regulation would be documented to the appropriate federal, state, and local agencies; and
- Spills would be documented and a record of the spills would be kept with the SWMP.

Given the implementation of the SWMP, including the measures in the Spill Prevention and Control Plan, the potential for a release of hazardous substances during construction is low. If an accidental release were to occur, implementation of the procedures would result in a rapid cleanup of the released material. In addition, the alternative corridor area is remote and rural and few individuals would be near the right-of-way during construction. Therefore, the use of hazardous substances used during construction is not expected to affect public health and safety.

Operation Impacts

During operation of the ESJ U.S. Transmission Line project, most potential impacts would be associated with the transmission of electricity. The following sections address the potential for impacts due to operation of the proposed project:

- Public Exposure to Contaminated Soils and Hazardous Materials;
- EMFs;
- Induced Currents;
- Electrical Field Interference;
- Structural Failures; and
- Terrorism.

Public Exposure to Contaminated Soils and Hazardous Materials

No substantial ground disturbance would occur during operations, and therefore, there would not be an impact on public health and safety due to exposure to contaminated soils. The procedures described above for the initial construction phase would also be implemented during routine maintenance and repair procedures. Soil contamination could result from accidental release of hazardous materials (e.g., vehicular fuels and lubricants) during maintenance of the proposed transmission line. If such releases occurred, they would likely be small and localized and would be cleaned up in accordance with regulatory requirements and the Spill Prevention and Control Plan. In addition, the project would be in a remote and rural area, and few, if any, individuals not associated with ESJ-U.S. would be in the vicinity of any such release prior to cleanup. As a result, the potential for impacts to public health and safety would be minor but would exist over the life of the project.

Electric and Magnetic Fields

Once energized, the transmission line would generate EMF, as do all alternating current circuits. As noted in Table 3.8-1, the typical magnetic field strength for a 230-kV transmission line at a distance of 65 feet (20 m) from the line is about 29.6 milligaus. The right-of-way for the 230-kV Route would be a total of about 130 feet (39.6 m) centered on the transmission line, and therefore, 29.6 milligaus is the approximate strength expected at the edge of the right-of-way. Beyond that distance, the strength of the field would decrease rapidly and would be at about the same level of household magnetic fields between about 200 and 300 feet (61 and 91 m) from the transmission line. Maintenance personnel and members of the public who are present in the immediate vicinity of the transmission line would be temporarily exposed to EMF from the project. However, there are no public trails, recreational areas, or other developments to cause visitors to linger in the vicinity of the transmission lines; thus, little public exposure is expected, and what exposure does occur would be brief.

The project would be located in an undeveloped area, which would minimize the potential for public exposure. The nearest potential residence is an unoccupied mobile home approximately 1,600 feet (490 m) to the west. EMF levels at this distance would be below typical household levels.

As reported by DOE (2005), for the past several decades, many studies of the potential adverse health effects caused by long-term exposure to magnetic fields have been conducted, particularly with regard to cancer and reproductive effects. As stated by DOE:

> *The consensus of scientific panels reviewing this research is that the evidence does not support a cause-and-effect relationship between magnetic fields and any adverse health outcomes.*

In addition, NIEHS (2002) stated the following:

> *In 1999, at the conclusion of the EMF RAPID Program, the NIEHS reported to the U.S. Congress that the overall scientific evidence for human health risk from EMF exposure is weak. No consistent pattern of biological effects from exposure to EMF had emerged from laboratory studies with animals or with cells. However, epidemiological studies (studies of disease incidence in human populations) had shown a fairly consistent pattern that associated potential EMF exposure with a small increased risk for leukemia in children and chronic lymphocytic leukemia in adults. Since 1999, several other assessments have been completed that support an association between childhood leukemia and exposure to power-frequency EMF. These more recent reviews, however, do not support a link between EMF exposures and adult leukemias. For both childhood and adult leukemias, interpretation of the epidemiological findings has been difficult due to the absence of supporting laboratory evidence or a scientific explanation linking EMF exposures with leukemia.*
>
> *In its 2002 report on the possible risks of EMF, the California EMF project concluded that EMF at elevated exposure levels could increase disease risk to some degree with regard to childhood leukemia, but otherwise agreed with the findings of the NIEHS (California EMF Program 2002). In its 2007 report on the health effects of EMF, WHO again concluded that the evidence for EMF causing childhood leukemia is weak, and further stated that the evidence is much weaker for other childhood cancers, cancers in adults, depression, suicide, cardiovascular disorders, reproductive dysfunction, developmental disorders, immunological modifications, neurobehavioural effects, and neurodegenerative disease (WHO 2007).*

As a result, no impact to public health and safety is expected due to magnetic fields generated during operation of the project.

Induced Currents

EMF generated by the proposed transmission line could induce currents and voltages in nearby conductive objects such as automobiles, and metal roofs, or buildings. The induced currents in these objects could result in a small electrical shock or a perceptible current if contacted by humans or animals. These small shocks are a nuisance, but do not cause physiological harm. These possible effects would only be experienced by people in vehicles using the access road along the transmission line right-of-way or by people touching fences that are in close proximity to the transmission line (e.g., the fencing proposed as part of the ECO Substation, see Section 2.6). As a result, the potential for such impacts would be limited to maintenance personnel and occasional users of the access road. The small induced current would not be a

danger but would be an annoyance to some who experience the small electrical shock; this does not represent an impact to public health and safety. This potential impact can be reduced with the use of electrical grounding of metallic objects (such as fences) within and near the right-of-way that have the potential for induced voltages. ESJ-U.S. would incorporate grounding features into the project design in accordance with industry design standards for electrical transmission structures. These grounding measures would effectively minimize and potentially eliminate the impacts from induced currents

Vandalism and theft attempts may result in significant electrical shocks due to induced currents. Nationwide, many would-be thieves have been electrocuted while attempting to steal equipment from energized facilities. Federal and other utilities use physical deterrents such as fencing, cameras, warning signs, and rewards to help prevent theft, vandalism, and unauthorized access to facilities. As discussed in Section 2.0, ESJ-U.S. would post warning signs in both English and Spanish on the transmission line structures to deter unauthorized access to facilities. Further, with the incorporation of grounding features into the project design, impacts from induced currents would be minimized.

Electrical Field Interference

The electrical fields associated with transmission lines have the potential to interfere with cardiac pacemakers, which could result in impacts to public health. There are two general types of pacemakers: asynchronous pacemakers that pulse at a predetermined rate; and synchronous pacemakers, that pulse only when the sensing circuitry of the device determines that pacing is necessary. Asynchronous pacemakers are generally immune to interference because they do not have sensing circuitry and are relatively uncomplicated. Synchronous pacemakers can be affected by electrical fields between 2- and 9-kV per meter that may cause an erroneous signal in the pacemaker's sensing circuitry (EPRI 1985 and 2004). However, prolonged asynchronous pacing is not considered a significant concern by cardiovascular specialists, who commonly induce this mode to evaluate pacemaker performance. In addition, the proposed route traverses an undeveloped area approximately 1,600 feet (490 m) from the nearest (unoccupied) residence; therefore, no impact to public health and safety is expected due to with interference to cardiac pacemakers due to operation of the project.

The occupational exposure guidelines developed by American Conference of Governmental Industrial Hygienists state that workers with cardiac pacemakers should not be exposed to a 60-Hz magnetic field greater than 1 gauss (1,000 milligaus) or a 60-Hz electric field greater than 1 kilovolt per meter (1,000 V/m) (NIEHS 2002). That magnetic field strength is substantially greater than the magnetic field strength of transmission lines, and there would be no effect on maintenance workers with cardiac pacemakers due to the magnetic field from the transmission lines.

During the public scoping meeting held for the project, a concern was raised regarding the potential for the proposed transmission line to interfere with radio frequency and signals at Jacumba Airport. Consultation with the County of San Diego Department of Public Works Airport Engineer confirmed that, based on the distance of the proposed project from the airport, no interference with airport radio signals would occur (Nelson 2009).

Intentionally Destructive Acts and Other Causes of Structural Failure

DOE considered the potential for impacts from intentionally destructive acts and other potential causes of transmission line structural failure. Transmission line structures used to support overhead transmission lines in California must meet the requirements of the CPUC's General Order No. 95, Rules for Overhead Electric Line Construction (CPUC 2009). In addition, transmission lines must meet both the requirements of the CPUC General Order and the National Electrical Safety Code for loading requirements related to wind conditions (IEEE 2006). Transmission support structures are designed to withstand different combinations of loading conditions, including extreme winds. These design requirements include use of safety factors that consider the type of loading as well as the type of material used (e.g., steel, wood, or concrete). The proposed transmission towers would be designed to withstand wind loading of up to 125 miles (200 km) per hour.

Failures of transmission line support structures are rare; however they may occur as a result of extremely high loading conditions such as tornadoes, ice storms, or Santa Ana winds. The 230-kV Route would be constructed on steel lattice towers or tubular steel monopoles, and failure would be extremely unlikely. In addition, the transmission line would extend through a rural area where the closest residence (an unoccupied mobile home) is about 1,600 feet (490 m) from the right-of-way and few if any people would be in the vicinity of the towers during periods of high loading conditions. Therefore, the potential for a tower failure to affect public safety would be minor, but would exist over the life of the project.

Failures may also occur as a result of intentional destructive acts. In the aftermath of the terrorist attacks that occurred on September 11, 2001, terrorism has become a very real issue for the facilities under DOE's jurisdiction. Increased security awareness has occurred throughout the electrical transmission industry and the nation. Due to the various motivations and abilities of terrorist organizations in conjunction with the extensive electrical transmission infrastructure within the U.S., the likelihood of future acts of terrorism occurring along the project corridor is unpredictable. The project would include aboveground electrical transmission lines and supporting towers or tubular steel monopoles within an unfenced utility right-of-way and would, therefore, be accessible to those desiring to damage the system. The transmission line support structures would be constructed on footings in the ground and would be difficult to dislodge. In general, the proposed transmission line presents no greater target for intentional destructive acts than any other high-voltage transmission lines or power plants in the U.S. While the likelihood for intentional destructive acts on the proposed structures is difficult to predict given the characteristics of the project, it is unlikely that such acts would occur based on past experience along the thousands of miles of electrical transmission lines in the country. If such an act were to occur and succeed in destroying towers or other project-related equipment, the main consequence for the public would be disruption of electrical service.

Impacts in the U.S. due to Related Activities in Mexico

No impacts to U.S. public health and safety are anticipated from construction and operation of the ESJ Wind project in Mexico due to the distance of the wind turbines and the associated transmission line from any populated areas in the U.S. (a minimum of 4 miles [6.4 km] from the transmission line corridor at the U.S.-Mexico border to the nearest community in the U.S.).

Impacts in the U.S. related specifically to fire are addressed in Section 3.9 (Fire and Fuels Management).

3.8.2.4 Alternative 3 – Single-Circuit 500-kV Transmission Line

The existing conditions related to public health and safety along the 500-kV Route are essentially the same as those described above for the 230-kV Route because the routes are adjacent to each other. The unoccupied mobile home is slightly farther from the 500-kV Route: the mobile home is about 2,000 feet (610 m) west of right-of-way of the 500-kV Route, as compared to about 1,600 feet (490 m) west the right-of-way of the 230-kV Route.

Construction, operation, and maintenance of the 500-kV Route system would be substantially the same as for the 230-kV Route, and therefore, the impacts to public health and safety would also be essentially the same, and the same potential mitigation measure would apply. The primary differences would be that 500-kV transmission lines generate higher levels of EMF than 230-kV lines, and the 500-kV Route would be constructed slightly farther from the unoccupied mobile home. The magnetic field strength at about 100 feet (31 m) from the transmission line (the approximate edge of the right-of-way), would be 12.6 milligaus; however, at 300 feet (91 m) from the transmission line, the magnetic field strength would be at or near the typical household level. At the mobile home, the magnetic field strength from the transmission line would be substantially lower.

3.8.3 Mitigation Measures

The following potential mitigation measure would further reduce potential impacts to public health and safety.

Public Health-1: Evaluate Contaminated Sites

Construction personnel installing the proposed transmission lines should be trained in identifying potential contamination prior to beginning work (e.g., through odor detection and visual observation of discolored soils or oil sheens). In the event that unknown contamination is discovered during excavation (e.g., discolored soils, oil sheens, etc.) the following steps would be implemented to prevent mobilization of contaminants and exposure of workers and the public:

- **Step 1.** A qualified environmental scientist should perform a characterization study of the site to determine the nature and extent of the contamination present at the location before construction activities proceed within the project right-of-way near the suspect site. The characterization should determine the need for further investigation and/or remediation of the soil conditions at or near the contaminated site and within areas of ground disturbance for the project (e.g., if there would be little or no contact with contaminated materials, industrial cleanup levels would likely be applicable).
- **Step 2.** If no human contact with potentially contaminated materials is anticipated, then no further mitigation would be required for the location. If it is determined that further excavation would disturb the suspect site or potentially result in mobilization of the potential contamination into groundwater, undertake a Phase II Environmental Site Investigation involving sampling and analytical characterization of potentially

contaminated areas with the project right-of-way or reroute the line away from the contamination area.

- **Step 3.** Should further investigation reveal high levels of hazardous materials, mitigate health and safety risk according to County of San Diego Certified Unified Program Agency or Regional Water Quality Control Board regulations or requirements. This would include site-specific Health and Safety Plans, Work Plans, and/or Remediation Plans.

3.9 FIRE AND FUELS MANAGEMENT

This section analyzes the potential impacts of the proposed project with regard to fire risk and fuels management, including potential impacts on fire protection services.

3.9.1 Affected Environment

3.9.1.1 Fire Conditions

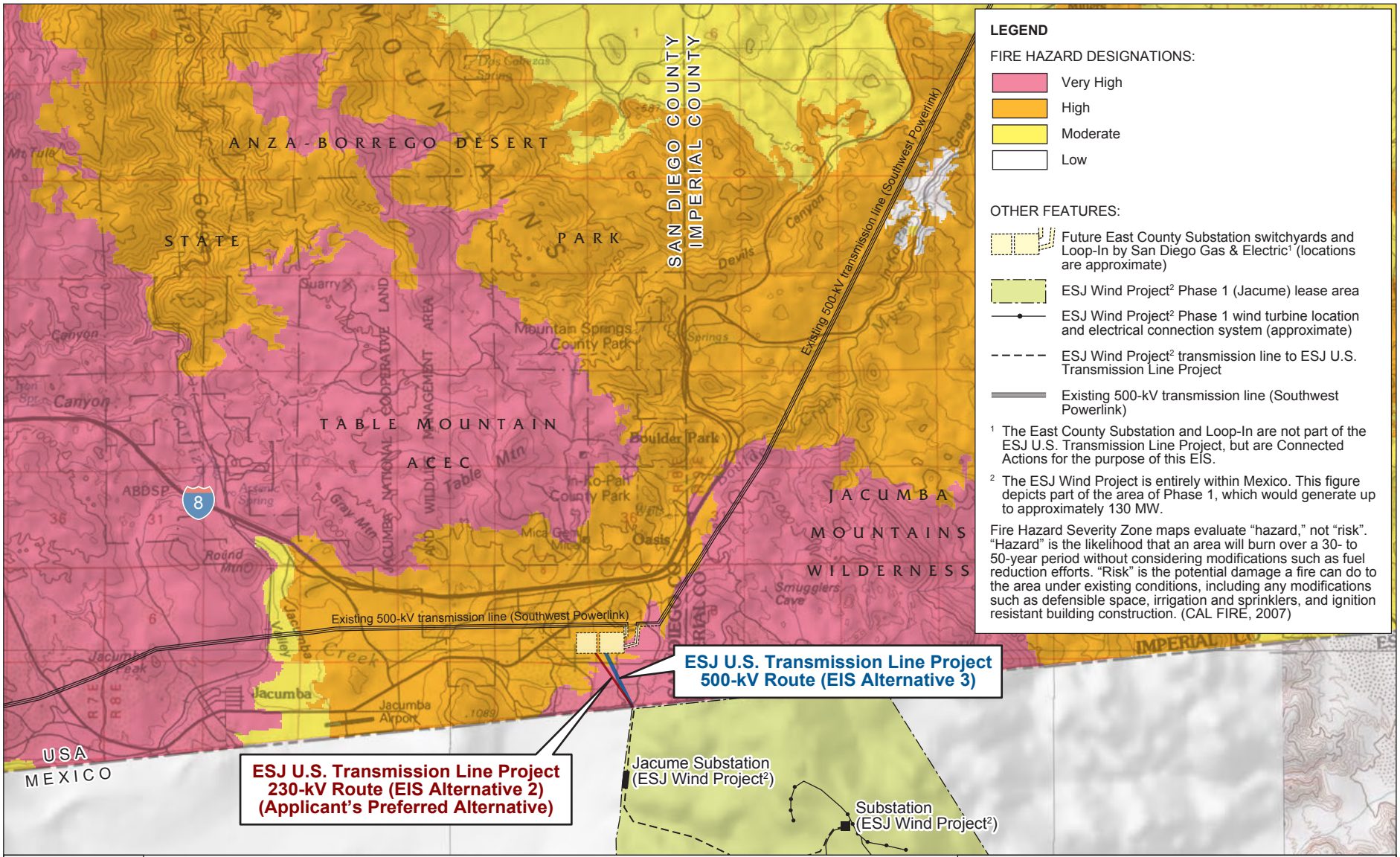
The climate in central San Diego County (mild, wet winters and hot, dry summers) supports dense, drought-adapted shrublands that are highly flammable, especially in the fall as fuel moistures reach very low levels. Most critically, winds originating from the Great Basin, locally known as the Santa Ana winds, create extreme fire weather conditions that are characterized by low humidity, sustained high-speed winds, and extremely strong gusts. Santa Ana winds create extremely dangerous fire conditions and have been the primary driver of most of California's catastrophic wildfires. Santa Ana winds are at their peak during fall and early winter months, which mark the height of fire season. Because of the presence of dense, dry fuels and periodic Santa Ana winds, southern California has been characterized as having one of the most fire-prone landscapes in the world.

Fire hazard is defined as a measure of the likelihood of an area burning and how it burns (e.g., intensity, speed, and embers produced). The California Department of Forestry and Fire Protection (CAL FIRE) Fire Resource and Assessment Program establishes fire hazard classification maps. Figure 3.9-1 depicts the CAL FIRE classifications of the alternative corridors and the surrounding area in eastern San Diego County and southwestern Imperial County. Most of that area is classified as either "very high" or "high" fire hazard area; in contrast, the fire hazard rating in central and eastern Imperial County is low due to the area's desert climate and low concentration of vegetation and other fuel materials (CPUC/BLM 2008b). As depicted on Figure 3.9-1, the alternative corridors extend primarily through the very high hazard zone; a small portion of the northern ends of the corridors is in the high hazard zone.

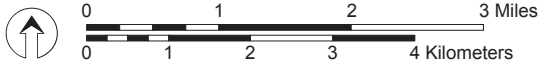
3.9.1.2 Firesheds

A fireshed is a regional landscape that is delineated using an array of fire behavior models and Geographic Information System (GIS) data; the delineation is based on fire history, fire regime, vegetation, topography, and potential wildfire behavior. The fireshed development process is used as an assessment tool to identify high fire risk areas[18] and predict future fires to better reduce fire risk and to protect communities. A summary of fireshed boundaries near the alternative corridors is provided below based on recent fireshed delineations prepared for the Sunrise Powerlink RDEIR/SDEIS project (CPUC/BLM 2008b).

[18] Fire risk is a measure of the potential for damage and includes consideration of the susceptibility of what is being protected from fire. Factors such as defensible space, non-flammable roofs, and ignition-resistant construction reduce fire risk.







Source(s):
CAL FIRE 2007; Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1979, 2006; Google Maps 2009; SanGIS 2009-2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.9-1

FIRE HAZARD SEVERITY ZONES IN THE PROJECT VICINITY

August 2010

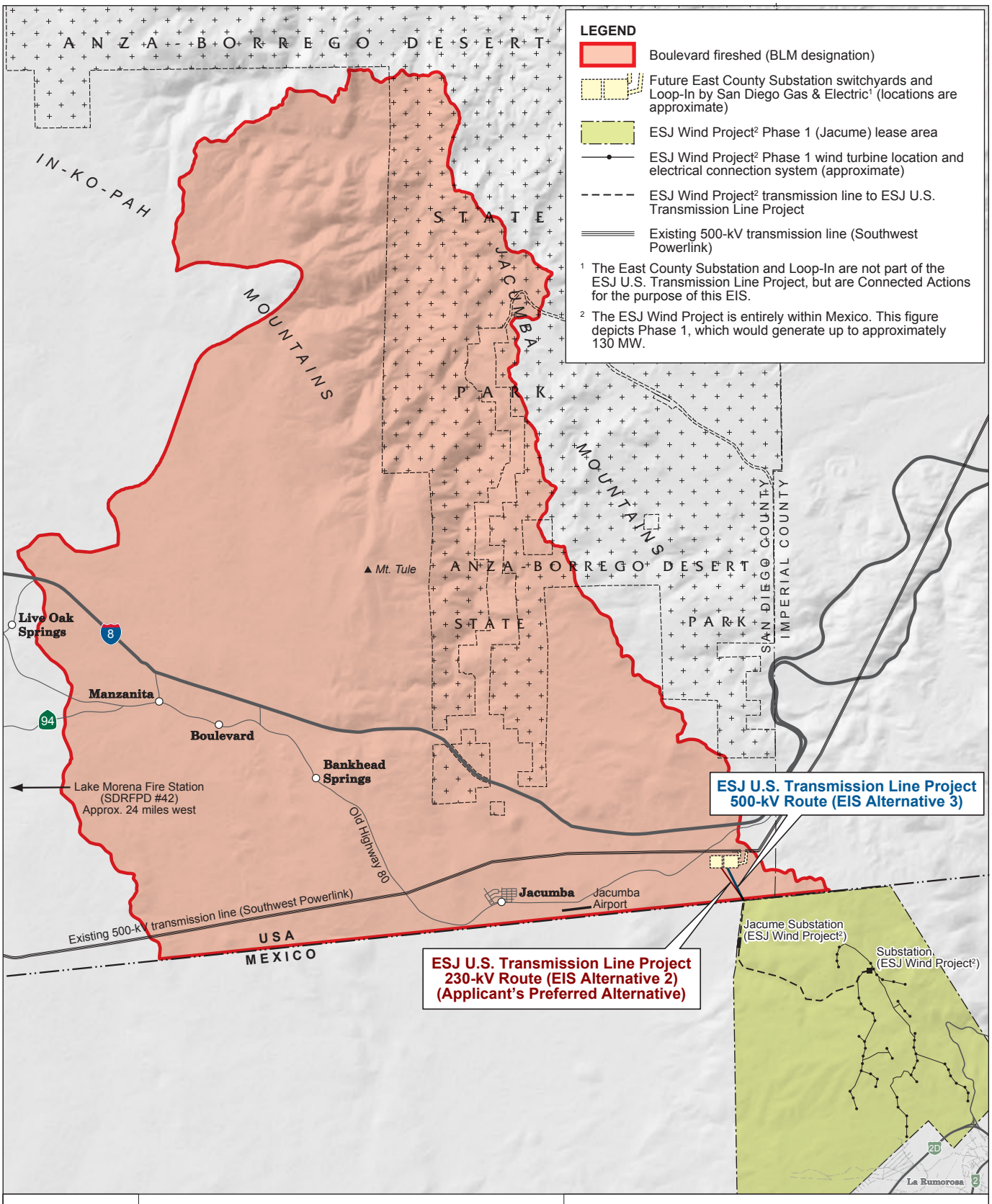
\\sacramento-nas\Data\Projects\Sempra - Energia Sierra Juarez EIS 32183001\
Figure_3_9-1_FireHazard_11x8_v6.ai (07/29/2010, 10:20 am) R. Wurgler/T. Murphy

As depicted on Figure 3.9-2, the alternative corridors are located on the eastern border of the Boulevard Fireshed, which is the most southeastern fireshed of those delineated for the Sunrise Powerlink RDEIR/SDEIS project. The Boulevard Fireshed consists of approximately 73,000 acres (29,540 ha) and encompasses the southeastern corner of San Diego County, including the towns of Jacumba, Manzanita, and Boulevard, which are all federally-designated communities at risk of wildfire. In addition, the In-Ko-Pah Mountains and the wilderness areas in the southern portion of Anza-Borrega Desert State Park, both of which are north of the corridors, are in the fireshed.

Elevations in the Boulevard Fireshed range from 1,640 feet (500 m) above mean sea level (msl) on the desert floor (approximately 7 miles [11 km] to the west of the alternative corridors) to 4,647 feet (1,416 m) on Mt. Tule in the In-Ko-Pah Mountains (approximately 8 miles [12.8 km] northwest of the alternative corridors). Average annual rainfall is between 8 and 14 inches (20 to 36 cm) per year. As a result, much of the area (including the alternative corridors) is bare, with sparse desert chaparral vegetation and granitic boulders. The sparse vegetation limits the spread of wildfires; however, in recent years, non-native invasive weeds, including cheatgrass (*Bromus tectorum*), medusa head (*Taenintherum caput-medusae*), and Sahara mustard (*Brassica tournefortii*), have started to invade the area. These weeds are fire-adapted and are able to spread quickly, which has resulted in alterations to the dominant plant community of the fireshed. Exotic, grass-dominated landscapes ignite more easily and tend to spread fires more rapidly than native desert vegetation.

The southeastern boundary of the Boulevard Fireshed is located at the U.S.-Mexico border. The presence of undocumented aliens crossing into the U.S. creates an additional human influence on the wildland areas in the vicinity of the alternative corridors; campfires and other activities of undocumented aliens caused about 10 percent of all reported ignitions[19] over a 13-year period (CPUC/BLM 2008b). Two fires that were ignited by undocumented aliens near the border in 2004 burned a combined 110 acres (45 ha) within the fireshed. However, while there have been a total of 225 recorded ignitions in the fireshed in the past 13 years, only 29 fires have been recorded in the Boulevard Fireshed since 1959. Of these 29 fires, three have burned over 1,000 acres (405 ha) and have been classified as major events. The largest fire in the Boulevard Fireshed in the last 50 years was the 1982 Tule Fire, which burned 4,645 acres (1,880 ha) within the fireshed. All other fires were relatively small, and much of the fireshed shows no recorded fire history (CPUC/BLM 2008b).

[19] An ignition is the initiation of combustion as evidenced by glow, flame, or explosion, whereas a fire is the rapid oxidation of a fuel following ignition and resulting in heat, light, and other byproducts. An ignition does not always result in a fire (CAL FIRE 2009).



Source(s):
CPUC/BLM, 2008; Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1979, 2006; Google Maps 2009; SanGIS 2009-2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.9-2

BOULEVARD FIRESHED

August 2010

\\sacramento-nas\Data\Projects\Sempra-Energia_Sierra_Juarez_EIS-32183001\Figure_3_9-2_BoulevardFireshed_8x11_v7.ai (07/29/2010, 10:05 am) R. Wurgler/T. Murphy

3.9.1.3 Fire Fighting Services

Fire protection along the alternative corridors is under the jurisdiction of the County of San Diego Rural Fire Protection District. Initial response to fires in the vicinity of the corridors is provided by Fire Station 48 in Jacumba, approximately 4 miles (6.4 km) west, which is staffed by one full-time fire fighter and four volunteers (Hunt Research Corporation 2009). Equipment at the station includes a 1,000 gallon-per-minute (3,850 liters-per-minute) fire engine and a 1,800-gallon (6,920-liter) water tender. The CAL FIRE San Diego Unit also provides fire fighting services in the area. In addition, the CAL FIRE San Diego Unit is responsible for protecting unincorporated portions of the county, including portions of the county that are protected by fire protection districts. The CAL FIRE station nearest to the corridors is the White Star station in Campo, approximately 10 miles (16 km) to the west (CAL FIRE 2009). This station maintains four full-time personnel during peak fire season (May through November) and two to three personnel the remainder of the year. Resources at the White Star station include one fire engine as well as a reserve engine that is shared among multiple stations (Custeau 2009). Other fire companies that respond to fires in the vicinity of the corridors include the Campo Indian Reservation Fire Department and the Boulevard Volunteer Fire Department, located 17 miles (27.4 km) and 10 miles (16 km) to the west, respectively. The next closest Rural Fire Protection District fire engine is located in Lake Morena, approximately 24 miles (39 km) to the west.

3.9.2 Environmental Impacts

3.9.2.1 Methodology

Potential impacts with regard to fire and fuels management were evaluated by assessing the site burn probability and the potential for ignition to result in a fire with implementation of the alternatives.

3.9.2.2 Alternative 1 – No Action

The proposed transmission line would not be constructed under this alternative; therefore, no impacts related to fire and fuels management would occur.

3.9.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Construction activities would occur in an area on the eastern border of the Boulevard Fireshed, and would include use of equipment such as earth movers, generators, vehicles, and chainsaws. That equipment along with the construction personnel would introduce a variety of potential wildfire ignition sources to surrounding vegetation fuels and combustible construction materials. Construction-related ignitions have the potential to escape containment and become fires. Because the right-of-way has moderate to low fuel loads, extends through generally level terrain, and is exposed to high winds, it has a moderate burn probability and a moderate potential for an ignition to escape containment and result in a fire. Due to the proximity of the community of Jacumba (approximately 4 miles [6.4 km] to the west), the potential for a wildfire caused during construction is considered temporary, but the impact of a fire could be potentially major. Implementation of the following potential additional mitigation measures (not identified by the

applicant), described more fully in Section 3.11.3, would reduce the probability of a wildfire during construction:

- Fire-1 (Develop and Implement Construction Fire Prevention Plan);
- Fire-2 (Coordinate with Emergency Fire Suppression Activities); and
- Fire-3 (Remove Hazards from Work Areas).

Construction of the proposed transmission line would also create the potential for the introduction and spread of non-native, invasive plants through movements of vehicles into and out of the construction area. As discussed in the environmental setting, certain invasive plants, such as cheatgrass, medusa head, and Saharan mustard, can contribute to changes in wildfire frequency, timing, and spread. Although these species have already been introduced into the Boulevard Fireshed, additional inadvertent introduction of such plants during construction of the proposed project would increase wildfire risks near the construction area; the increase in risk would be permanent and represents a moderate impact. However, this impact could be reduced to minor through implementation of a potential additional mitigation measure (Mitigation Measure Biology-3 Weed Control Plan), as described in Section 3.1 (Biological Resources).

The construction impacts described above would be the same for lattice towers and monopoles.

Operations Impacts

The transmission line would be a potential source of wildfire ignitions for the life of the project and would increase the risk of a wildfire. Fires can be started by electrical transmission lines in the following ways:

- Vegetation contact with conductors;
- Exploding hardware, such as transformers and capacitors;
- Floating or wind-blown debris contact with conductors or insulators;
- Conductor-to-conductor contact;
- Dust or dirt on insulators causing flashover;
- Bullet, airplane, or helicopter contact with conductors or support structures; and
- Other third-party contact, such as Mylar balloons, kites, and wildlife.

Line faults caused by any of the events listed above are unpredictable, although rare. A fire that starts in the transmission corridor could burn into the town of Jacumba or across the U.S.-Mexico border to the town of La Rumorosa (located approximately 2.4 miles [3.9 km] southeast of the southernmost point of the 230-kV line at the U.S.-Mexico border) during extreme weather conditions (e.g., Santa Ana winds), potentially placing many structures at risk. This impact would be reduced to some extent by implementation of the Fire Protection Plan developed for the project (Hunt Research Corporation 2009), which includes the following measures:

- Provide 30 feet (9 m) of fuel clearance on all sides of the towers;

- Maintain 10 feet (3 m) of vertical clearance between vegetation and transmission wires;
- Mark towers with tags to indicate they are "high voltage" (i.e., that they carry greater than 750 volts);
- Place no new plants, shrubs, trees, or other vegetation in the right-of-way or in the area within 30 feet (9 m) beyond the outer edges of the right-of-way; and
- Maintain the prescribed defensible space (e.g., clear all vegetation or cut all vegetation to no more than 6 inches [15 cm] in height) on at least an annual basis prior to May 1, or more often as necessary.

The Fire Protection Plan is provided in Appendix B. However, not all potential ignition sources can be eliminated by implementation of measures such as those included in the Fire Protection Plan. For example, ignition could occur due to line faults caused by unpredictable events such as conductor contact by floating debris, gun shots, and helicopter collisions. The right-of-way extends along a relatively flat, defensible landscape with sparse desert chaparral fuels, and access to the right-of-way would be modified to meet County of San Diego Public Safety and Fire Code Standards[20]; however, during a wildfire, the overhead transmission lines would reduce the effectiveness of ground fire-fighting efforts. General fire-fighting guidelines recommend that ground attacks be avoided within at least 500 feet (152 m) of a power line conductor. Those guidelines also recommend that when encountering a downed, energized power line, ground-based firefighters should remain at a distance equal to the distance between two towers in order to ensure firefighter safety (NIOSH 2002; CPUC/BLM 2008b).[21] Maintaining a minimum 500-foot (152-m) safety buffer between firefighters and downed power lines and structures greatly reduces the risk of electrical structure contact; however, it also reduces the effectiveness of ground-based frontal attacks. Therefore, in the event of a proximate fire, the proposed transmission line would create an obstacle to firefighting and wildfire containment and would reduce the effectiveness of firefighting efforts. If a fire were to occur during extreme weather conditions and could not be initially contained, it could grow to be a major fire. This represents a potential major impact to firefighting efforts that would last for the life of the project.

ESJ-U.S. would implement routine maintenance and inspections of the towers and conductors, including inspection of potential fire hazards. These procedures would reduce the risk from wildfires; however, even with routine maintenance and inspection, the project would increase the potential for fires for the life of the project.

Impacts in the U.S. due to Related Activities in Mexico

Impacts could occur in the U.S. due to activities associated with the ESJ Wind project if a wildfire were to originate in Mexico and travel north across the U.S.-Mexico border. This

[20] As described in Section 2.0, the permanent access road to the project right-of-way from Old Highway 80 (either Option A or B) would be widened to 28 feet (8.5 m) to accommodate fire-fighting apparatus in accordance with the Public/Private Road Standards and the County Fire Code, Section 96.1.503.

[21] Wildland firefighters working around energized power lines are exposed to electrical shock hazards, including direct contact with downed power lines, contact with electrically charged materials and equipment due to broken lines, contact with smoke that can conduct electricity between lines, and the use of solid-stream water applications around energized lines. Between 1980 and 1999 in the U.S., there were 10 firefighter fatalities due to electrical structure contact during wildfire suppression (NFPA 2001, as cited in CPUC/BLM 2008).

situation could result from an incident associated with the ESJ Wind project transmission lines in the vicinity of the border (similar to the operational risks scenario described above), or as a result of a fire that originates in the wind turbine development area. Wind turbines can be the source of wildfire ignitions due to power collection line failure, turbine malfunction or mechanical failure, and lightning- and bird-related incidents. When mechanical or electrical failures cause turbines to catch fire, they may burn for many hours due to the limited ability of fire suppression crews to effectively fight fires that are hundreds of feet above the ground. Wind-blown flaming debris from a turbine fire could ignite vegetation in the surrounding area (CPUC/BLM 2008b). However, based on wind pattern data, the prevailing wind direction tends to be from northwest to the southeast, rather than from south to north (see Section 3.10 [Air Quality and Greenhouse Gases]).

Phase 1 of the ESJ Wind project would occupy an area of approximately 4.6 square miles (11.8 square km) in the La Rumorosa area of northern Baja, Mexico. The distance between the U.S. border and the nearest turbine would be about 0.7 mile (1.1 km) (Figure 1-2). The distance between the community of Jacumba (the nearest community in the U.S.) and the nearest turbine would be about 6 miles (9.7 km). The total height of the combined tower structure and rotor blades would likely be up to 431 feet (130.5 m) depending on the tower height and the turbine rotor blade diameters. In addition, the turbines would be sited in steep terrain with chaparral fuels. The introduction of this equipment and associated operation and maintenance activity could thus increase the potential for fires. Furthermore, the height of the turbines, difficult terrain, the extensive overhead electrical connector system, and large geographic extent of the wind project could present challenges to firefighters in the event of a large wildfire.

Certain design features could be installed on individual turbines to reduce the probability of a fire. These features include lightning arresters and thermal monitoring systems that detect temperature increases and automatically shut off the generating system above a critical thermal threshold. It is not known whether the ESJ Wind project plans to incorporate these or other fire prevention and control measures. Operation of the ESJ Wind project could thus increase the potential for fires that originate in Mexico, and these fires could spread into the U.S. under certain weather conditions. Given the distance between the wind farm and the U.S., the more likely scenario for a cross-border fire would originate from the transmission line near the U.S. Mexico border. This impact is considered moderate, and it would last for the life of the ESJ Wind project.

3.9.2.4 Alternative 3 – Single-Circuit 500-kV Transmission Line

The 500-kV Route would be in the same general area as the 230-kV Route, and construction, operation, and maintenance activities would be essentially the same for both alternatives. Therefore, the same impacts would occur, and the same potential mitigation measures would apply.

3.9.3 Mitigation Measures

The following potential mitigation measure in addition to the APMs contained in the Fire Protection Plan for the project's operational period (described above) would further reduce potential impacts of the project with regard to fire risk and fuels management.

Fire-1: Develop and Implement a Construction Fire Prevention Plan

ESJ-U.S. should develop a multi-agency Construction Fire Prevention Plan for the project and monitor construction activities to ensure implementation and effectiveness of the Plan. Plan reviewers should include the County of San Diego Rural Fire Protection District and CAL FIRE. ESJ-U.S. should provide a draft copy of this Fire Prevention Plan to each of the above-listed agencies before the start of any construction activities. ESJ-U.S. should provide comments on the Fire Prevention Plan to all other participants and should resolve each comment in consultation with the County of San Diego Rural Fire Protection District. The final Fire Prevention Plan should be approved by the County of San Diego Rural Fire Protection District prior to the initiation of construction activities. ESJ-U.S. should implement the Fire Prevention Plan during all construction and maintenance activities. All construction work should follow the Fire Prevention Plan guidelines and commitments, and Fire Prevention Plan contents should be incorporated into the construction contracting agreements. Primary Fire Prevention Plan enforcement implementation responsibility should remain with ESJ-U.S. At a minimum, Fire Prevention Plan contents should include the requirements of Title 14 of the California Code of Regulations (CCR), Article 8 #918 "Fire Protection," all components of the Sempra Utilities Wildland Fire Prevention and Fire Safety Guide (2007), and the elements listed below:

- During construction of the project, ESJ-U.S. should conduct fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods.
- In addition to CCR Title 14, 918.1(a), (b), and (c), ESJ-U.S. should update in writing the Fire Suppression Resource Inventory, including the 24-hour contact information and onsite fire suppression equipment, tools, and personnel list on a quarterly basis and provide it to the State fire agencies.
- During Red Flag Warning events, as issued daily by the National Weather Service, all construction and maintenance activities should cease. However, an exception would be made for transmission line testing: a transmission line may be tested, one time only, if the loss of another transmission facility could lead to system instability or cascading outages. Utility and contractor personnel should be informed of changes to the Red Flag event status as stipulated by CAL FIRE.
- All construction crews and inspectors should be provided with radio and cellular telephones that are operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment should be tested and confirmed operational each day prior to initiating construction activities at each construction site.
- All ignitions which result in a fire should be reported to the County of San Diego Rural Fire Protection District immediately.
- Each crew member should be trained in fire prevention, initial attack firefighting, and fire reporting. Each member should carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts.

- Information on contact cards should be updated and redistributed to all crew members as needed prior to the initiation of construction activities on the day the information change goes into effect. Outdated cards should be destroyed.
- Each member of the construction crew should be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. Each crew member should at all times be within 100 yards (90 m) of a vehicle containing equipment necessary for fire suppression as outlined in the final Construction Fire Prevention Plan.

Fire-2: Coordinate with Emergency Fire Suppression Activities

ESJ-U.S. should ensure that personnel and construction equipment do not create obstructions to firefighting equipment or crews and that personnel comply with the following in consultation with fire agencies:

- Onsite ESJ-U.S. and contractor personnel should coordinate fire suppression activities through the active Fire Incident Commander.
- Emergency ingress and egress to construction-related access roads should remain unobstructed at all times.
- Construction in the work area should cease in the event of a fire within 1,000 feet (305 m) of the work area. The work area includes the transmission line right-of-way, construction laydown areas, pull sites, access roads, and any other sites adjacent to the right-of-way where personnel are active or where equipment is in use or stored.

Fire-3: Remove Hazards from Work Areas

ESJ-U.S. should clear brush and dead and decaying vegetation from work areas prior to starting construction and/or maintenance work. Work areas include only those areas where personnel are active or where equipment is in use or stored, and may include portions of the transmission line right-of-way, construction laydown areas, pull sites, access roads, parking pads, and other sites adjacent to the right-of-way where personnel are active or where equipment is in use or stored. Cleared dead and decaying vegetation should either be removed or chipped and spread on the right-of-way in piles no higher than six inches (15 cm).

3.10 AIR QUALITY AND CLIMATE CHANGE

This section addresses the potential impacts of the proposed project alternatives on local and regional air quality in the U.S. and on global climate change.

3.10.1 Affected Environment

The alternative corridors would be entirely in the San Diego Air Basin, which comprises all of San Diego County. Information regarding the affected environment was obtained from the County of San Diego Air Pollution Control District (SDAPCD) and the County of San Diego DPLU. The locations of the alternative corridors are depicted on Figures 1-1 and 1-2.

3.10.1.1 Climate

The climate of Southern California is classified as semiarid, although it contains three distinct zones of rainfall with corresponding vegetation characteristics. The three climatic zones are broadly defined as coastal, mountain, and desert; the alternative corridors are in the Jacumba Valley, which is a desert valley.

Jacumba, the nearest community to the alternative corridors, has an average low temperature of 34 degrees Fahrenheit (°F; 1 degree Celsius [°C]) in January and an average high temperature of 93°F (34°C) in July. This region is considered the driest climate in California. Annual average precipitation for the Jacumba Valley ranges between 14 and 16 inches (36 cm to 41 cm). Precipitation mostly occurs from November through May and from August through September. Distribution and intensity of rainfall events are sporadic (USEPA 1994).

Throughout much of the year, prevailing daytime winds typically come from offshore and push air south and east, which prevents air from Mexico being blown in the direction of the alternative corridors. Occasional weak outflows from land transport some air from Tijuana into the parts of San Diego that are adjacent to the U.S./Mexico border. These outflows are weak, and the morning sea breeze usually carries this transported air inland from the populated coastal area before contaminants in the air are photochemically changed into smog by the sun. The SDAPCD has been working with government agencies to identify ways to reduce emissions from vehicles licensed in Mexico traveling to the U.S. (SDAPCD 2009).

3.10.1.2 Air Quality Standards

Air quality in a given location is determined by the concentration of various pollutants in the atmosphere. National Ambient Air Quality Standards (NAAQS) have been established by the U.S. Environmental Protection Agency (USEPA).[22] The NAAQS represent maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect public health (primary standards) and welfare (secondary standards). The USEPA has defined six criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable and fine particulate matter (PM_{10} and $PM_{2.5}$, respectively),[23] and airborne lead (Pb). The Clean Air Act allows states to adopt ambient air quality standards and other regulations as long as they are at least as stringent as federal standards. The California Air Resources Board

[22] http://www.epa.gov/air/criteria.html

[23] PM_{10} refers to particulate matter 10 microns or smaller in diameter, and similarly for $PM_{2.5}$.

(CARB) has established the State Implementation Plan (SIP) which describes how the state will comply with the Clean Air Act; it consists of narrative, rules, technical documentation, and agreements that the state uses to maintain acceptable air quality and to improve air quality in areas with unacceptable levels of atmospheric contaminants. CARB also established the California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. Federal and California ambient air quality standards are presented in Table 3.10-1.

Table 3.10-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards[1]	
		ppmv	µg/m^3	ppmv	µg/m^3
Ozone (O_3)	1-hour	0.09	177	--	--
	8-hour	0.07	137	0.075	147
Nitrogen Dioxide (NO_2)	1-hour	0.18	338	--	--
	Annual	0.03	56	0.053	100
Sulfur Dioxide (SO_2)	1-hour	0.25	655	0.075	--
	3-hour (secondary)	--	--	0.50	1,309
	24-hour	0.04	105	0.14	367
	Annual	--	--	0.03	79
Carbon Monoxide (CO)	1-hour	20	22,898	35	40,071
	8-hour	9	10,304	9	10,304
Respirable Particulate Matter (PM_{10})	24-hour	--	50	--	150
	Annual	--	20	--	--
Fine Particulate Matter ($PM_{2.5}$)	24-hour	--	--	--	35
	Annual	--	12	--	15
Lead (Pb)	30-day	--	1.5	--	--
	Rolling 90-day	--	--	--	0.15
	Quarterly	--	--	--	1.5
Sulfates (as SO_4)	24-hour	--	25	--	--
Hydrogen Sulfide (H_2S)	1-hour	0.03	42	--	--
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	26	--	--
Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per km; visibility of 10 miles or more due to particles when relative humidity is less than 70%.		--	--

[1] Commonly known as the National Ambient Air Quality Standards (NAAQS)

ppmv = parts per million by volume; µg/m^3 = micrograms per cubic meter
For gases, µg/m^3 is calculated from ppmv based on pollutant molecular weight and standard conditions (Standard Temperature = 25 °C [77 °F]; Standard Molar Volume = 24.465 liter/g-mole)

Sources: CARB 2010, USEPA 2010

3.10.1.3 Attainment Status

Areas that violate federal and/or state air quality standards are designated as nonattainment areas for the relevant pollutants, as opposed to areas that comply with federal and/or state air quality standards, and hence are designated as attainment areas (i.e., areas that have attained compliance for the relevant pollutants). Areas where insufficient data are available are designated as unclassified areas.

A formal conformity determination is required for federally sponsored or funded actions in nonattainment areas or in certain maintenance areas when the total direct and indirect net emissions of nonattainment pollutants (or their precursors) exceed specified thresholds (Section 176(c) of the Clean Air Act Amendments of 1990). This regulation ensures that federal actions conform to the SIP and local agency (e.g., SDAPCD) NAAQS attainment plans. All local attainment plans must be approved by the state and incorporated into the SIP.

Most of San Diego County is currently designated a federal attainment or unclassifiable area for all criteria pollutants except O_3 (8-hour), for which the basin is classified as nonattainment. However, small portions of eastern San Diego County associated with the Campo, Cuyapaipe, La Posta, and the Manzanita Indian reservations are designated as being in full attainment. With regard to state criteria, the San Diego Air Basin is currently classified as a "serious" O_3 nonattainment area and a nonattainment area for PM_{10} and $PM_{2.5}$ (SDAPCD 2008). Table 3.10-2 lists the attainment status in San Diego County for each of the criteria pollutants.

Table 3.10-2
Attainment Status Summary - San Diego County

Criteria Pollutant	Federal Designation	State Designation
Ozone (O_3) (1-hour)	Attainment[1]	Serious Nonattainment
Ozone (O_3) (8-hour)	Nonattainment[2]	Nonattainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Carbon Monoxide (CO)	Attainment	Attainment
Particulates (as PM_{10})	Unclassified[3]	Nonattainment
Particulates (as $PM_{2.5}$)	Attainment	Nonattainment
Lead (Pb)	Attainment	Attainment
Sulfates (as SO_4)	(no federal standard)	Attainment
Hydrogen Sulfide (H2S)	(no federal standard)	Unclassified
Vinyl Chloride (C_2H_3Cl)	(no federal standard)	Unclassified
Visibility	(no federal standard)	Unclassified

[1] The federal 1-hour standard of 0.12 parts per million by volume (ppmv) was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for a long period and because this benchmark is addressed in the SIP (per SDAPCD).

[2] The 0.08 ppmv federal 8-hour ozone standard applied until May 27, 2008; after that the standard was changed to 0.075 ppmv.

[3] At the time of designation, if the available data do not support a designation of attainment or nonattainment, the area is designated as unclassified.

Source: SDAPCD 2008

3.10.1.4 Local Sources of Pollutants

The most significant regional sources of O_3, NO_2, and CO in ambient air are automobiles and other onroad vehicles. Ozone is not directly emitted; rather, photochemical O_3 is formed by the atmospheric reaction of volatile organic compounds (VOC)[24] and nitrogen oxide (NO_X as NO_2) in sunlight. VOC and NO_X are combustion products from gas and diesel engines, along with CO, SO_2, PM_{10}, and $PM_{2.5}$. Due to the alternative corridors' proximity to I-8 and Old Highway 80, vehicle emissions are the greatest contributors to local pollutants.

Local emissions of PM_{10} are primarily the result of fugitive dust from travel on unpaved roads, as well as construction and agricultural activities. Coarser particles also may be emitted from activities that disturb the topsoil. Other sources include wind-blown dust, pollen, salts, brake dust, and tire-wear. Although $PM_{2.5}$ is a subset of PM_{10}, it differs from the rest of PM_{10}. While the majority of ambient PM_{10} results from direct emissions of the pollutant, a significant amount of the ambient $PM_{2.5}$ results from chemical transformation (i.e., chemical reaction) of precursors and condensing of gaseous pollutants in the atmosphere. Other than direct $PM_{2.5}$ emissions, the key pollutants contributing to $PM_{2.5}$ concentrations in the atmosphere are SO_2, NO_X, VOCs, and ammonia (CARB 2005).

The SDAPCD ambient air monitoring station closest to the alternative corridors is the Alpine monitoring station, located at 2300 West Victoria Drive, Alpine, California, approximately 40 miles (64 km) northwest of the corridors. The Alpine monitoring station measures only O_3 and NO_2. Table 3.10-3 summarizes validated annual air quality data collected at Alpine and other air monitoring stations in the region during the most recent five-year period for which validated data are available, i.e., from 2004 through 2008. Table 3.10-4 compares these data against state and federal standards as applicable and indicates whether or not the pollutants meet or exceed the status. For O_3, the number of days exceeding the standards in any given year is also listed.

3.10.1.5 Odors

The alternative corridors are in a relatively remote and fairly pristine desert area with a small population and no typical sources of odors. There is no record of offensive (nuisance) odors reported in the vicinity of the corridors.

3.10.1.6 Sensitive Receptors

Sensitive receptors are those populations that are more susceptible to the effects of air pollution than the population at large and those located in close proximity to localized sources of hazardous air pollutants (also referred to as air toxics) and CO, which are of particular concern. Sensitive receptors can include long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, parks and recreations centers, and athletic facilities. For air quality analyses, sensitive receptors within 0.25 mile (0.4 km) of a site are typically identified; no sensitive receptors are located within this distance from either of the alternative corridors. The nearest potential sensitive receptor is a mobile home located approximately 0.5 mile (0.8 km) west of the proposed transmission line route. Based on field observations this residence appears to be unoccupied.

[24] Also referred to as reactive organic compounds (ROC) or reactive organic gases (ROG).

Table 3.10-3
Ambient Air Quality in Project Vicinity – Regional[1] Maxima and Averages

Pollutant	Period	Units	2008	2007	2006	2005	2004
Ozone (O_3)	1-hour max	ppmv	0.140	0.130	0.120	0.110	0.110
	8-hour max[2]	ppmv	0.110	0.090	0.100	0.090	0.090
Nitrogen Dioxide (NO_2)	1-hour max	ppmv	0.047	0.057	0.057	0.061	0.063
	Annual avg	ppmv	0.008	0.010	0.010	0.011	0.011
Sulfur Dioxide (SO_2)	24-hour max	ppmv	0.004	0.004	0.006	0.005	0.015
	Annual avg	ppmv	0.002	0.003	0.003	0.003	0.003
Carbon Monoxide (CO)	1-hour max	ppmv	5.6	5.2	5.7	5.9	5.3
	8-hour max	ppmv	2.8	3.2	3.6	3.1	3.6
Particulates (as PM_{10})	24-hour max	$\mu g/m^3$	40	48	47	48	55
	Annual avg	$\mu g/m^3$	27	26	27	28	30
Particulates (as $PM_{2.5}$)	24-hour max	$\mu g/m^3$	31	43	38	41	44
	Annual avg	$\mu g/m^3$	13	12	11	11	13

[1] Data are reported for the nearest air quality monitoring station that measures each pollutant, as follows:
O_3 and NO_2 – Alpine Monitoring Station (40 miles (64 km) northwest of the corridors)
SO_2 – Chula Vista Monitoring Station (55 miles (88 km) west-northwest of the corridors)
CO – Escondido Monitoring Station (65 miles (105 km) northwest of the corridors)
PM_{10} and $PM_{2.5}$ – El Cajon Monitoring Station (49 miles (79 km) west-northwest of the corridors)

[2] The 0.08 ppmv federal 8-hour ozone standard applied until May 27, 2008; 0.075 ppmv thereafter.

Source: SDAPCD 2010

Table 3.10-4
Ambient Air Quality in Project Vicinity - Compliance History[1]

Pollutant	Period	Criteria	2008	2007	2006	2005	2004
Ozone (O_3)[2]	1-hour	State	Exceed	Exceed	Exceed	Exceed	Exceed
		days[3]	13	17	21	13	5
	8-hour	Federal	Exceed	Exceed	Exceed	Exceed	Exceed
		days[3]	10	6	14	5	2
Nitrogen Dioxide (NO_2)	1-hour	State	Meet	Meet	Meet	Meet	Meet
	Annual	State	Meet	Meet	Meet	Meet	Meet
Sulfur Dioxide (SO_2)	24-hour	State	Meet	Meet	Meet	Meet	Meet
	Annual	Federal	Meet	Meet	Meet	Meet	Meet
Carbon Monoxide (CO)	1-hour	State	Meet	Meet	Meet	Meet	Meet
	8-hour	State	Meet	Meet	Meet	Meet	Meet
Particulates (as PM_{10})	24-hour	State	Meet	Meet	Meet	Meet	Exceed
	Annual	State	Exceed	Exceed	Exceed	Exceed	Exceed
Particulates (as $PM_{2.5}$)	24-hour	Federal	Meet	Exceed	Exceed	Exceed	Exceed
	Annual	State	Exceed	Meet	Meet	Meet	Exceed

[1] Data are reported for the nearest air quality monitoring station that measures each pollutant, as follows:

O_3 and NO_2 – Alpine Monitoring Station (40 miles (64 km) northwest of the corridors)
SO_2 – Chula Vista Monitoring Station (55 miles (88 km) west-northwest of the corridors)
CO – Escondido Monitoring Station (65 miles (105 km) northwest of the corridors)
PM_{10} and $PM_{2.5}$ – El Cajon Monitoring Station (49 miles (79 km) west-northwest of the corridors)

[2] The 0.08 ppmv federal 8-hour ozone standard applied until May 27, 2008; 0.075 ppmv thereafter.
[3] days = number of days standards were exceeded in the year

Source: SDAPCD 2010

3.10.1.7 Greenhouse Gases and Climate Change

The American Meteorological Society refers to climate change as any systematic change in the long-term statistics of climate elements (such as temperature, pressure, or winds) sustained over several decades or longer (American Meteorological Society 2009). The American Meteorological Society (2009) also indicated that climate change may be due to natural external forcings, such as changes in solar emission or slow changes in the Earth's orbital elements; natural internal processes of the climate system; or anthropogenic forcing. The climate system can be influenced by changes in the concentration of various gases in the atmosphere (greenhouse gases [GHG]) that affect the Earth’s absorption of radiation.

In its *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2007*, USEPA (2009) provided summary information on the work of the United Nations Framework Convention on Climate Change and the Intergovernmental Panel on Climate Change (IPCC); key information from that report is summarized below.

The United Nations Framework Convention on Climate Change defined climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods." In its Second Assessment Report of the science of climate change, the IPCC (1996, as cited in USEPA 2009) concluded that "human activities are changing the atmospheric concentrations and distributions of greenhouse gases and aerosols. These changes can produce a radiative forcing by changing either the reflection or absorption of solar radiation, or the emission and absorption of terrestrial radiation." Building on this conclusion, the IPCC Third Assessment Report (IPCC 2001, as cited in USEPA 2009) asserted that "concentrations of atmospheric greenhouse gases and their radiative forcing have continued to increase as a result of human activities."

The IPCC reports that the global average surface temperature of the Earth has increased by between 1.1 ± 0.4°F (0.6 ± 0.2°C) over the 20th century. This value is about 0.27°F (0.15°C) larger than that estimated by the Second Assessment Report, which reported for the period up to 1994, "owing to the relatively high temperatures of the additional years (1995 to 2000) and improved methods of processing the data."

While the Second Assessment Report concluded, "the balance of evidence suggests that there is a discernible human influence on global climate," the Third Assessment Report more directly connects the influence of human activities on climate. IPCC concluded that, "In light of new evidence and taking into account the remaining uncertainties, most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations."

In its most recent report (Fourth Assessment Report), IPCC (2007, as cited in USEPA 2009) stated that warming of Earth's climate is unequivocal, and that warming is very likely attributable to increases in atmospheric greenhouse gases caused by human activities. IPCC further stated that changes in many physical and biological systems, such as increases in global temperatures, more frequent heat waves, rising sea levels, coastal flooding, loss of wildlife habitat, spread of infectious disease, and other potential environmental impacts are linked to changes in the climate system, and that some changes might be irreversible.

There currently are no federal standards relating to GHG emissions, although the USEPA and other federal agencies have established voluntary programs with state and local agencies and businesses intended to increase energy and reduce GHG emissions from the electricity generation and transmission sector. The State of California has adopted the Global Warming Solutions Act of 2006 (Assembly Bill 32), which codifies California's goal of reducing statewide emissions of greenhouse gases to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on global warming emissions that will be phased in starting in 2012 to achieve maximum technologically feasible and cost-effective greenhouse gas emission reductions. California state law (California Health and Safety Code, Section 38505(g)) defines GHGs to include the following: carbon dioxide (CO_2), methane (CH_4), nitrous oxide

(N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). The most common GHG that results from human activity is CO_2, followed by CH_4 and N_2O (Office of Planning and Research 2008).

Global warming potential is defined by the United National Framework Convention on Climate Change (2009) as "an index representing the combined effect of the differing times greenhouse gases remain in the atmosphere and their relative effectiveness in absorbing outgoing infrared radiation" and is intended to serve as an estimate of how much a given mass of a particular GHG contributes to global warming. It is a relative scale that compares the mass of each GHG to the mass of a reference gas, namely CO_2 (USEPA 2009). The global warming potential of emissions is measured in metric tons of CO_2 equivalents. CO_2 equivalents are calculated by multiplying the mass of each emitted gas by the coefficient of its global warming potential and summing the results for all the different gases. Based on the most recently published inventory of California's estimated GHG emissions, statewide emissions of CO_2 equivalents equaled 480 million metric tons in 2006 (CARB 2009). San Diego County's estimated 2004 GHG emissions totaled 34 million metric tons of CO_2 equivalents, and more recent data indicate emission levels remained at this level through 2006 (University of San Diego 2008).

Neither the federal government nor California has established thresholds for determining the significance of GHG emissions and their contribution to climate change. In California, however, CARB has proposed an operational significance threshold of 7,000 metric tons of CO_2 equivalents per year for non-exempt industrial projects (CARB 2008). In this impact assessment, the proposed CARB threshold is shown in Tables 3.10-5 and 3.10-8 to provide a relative (i.e., non-binding) characterization of the potential impacts on climate change that would result due to implementation of the alternatives. No enforceable rules or regulations have been promulgated by CARB or any other state agency that define a significant source of GHG emissions. In addition, there are no applicable facility-specific emission limitations or caps for GHG emissions, either statewide or at the local Air Pollution Control District or Air Quality Management District level. Thus, there is no present state or local regulatory or guidance mechanism for determining whether a project advances or hinders California's GHG reduction goals (California Air Pollution Control Officers Association 2008).

The Council on Environmental Quality (CEQ) on February 18, 2010, issued *Draft Guidance on Considering Climate Change under NEPA* for public comment. In the draft guidance, CEQ states that a "…reference point of 25,000 metric tons of direct CO_2-equivalent GHG emissions may provide agencies with a useful indicator – rather than an absolute standard of significant effects – for agencies' action-specific evaluation of GHG emissions and disclosure in their NEPA documents. CEQ does not propose this reference point as an indicator of a level of GHG emissions that may significantly affect the quality of the human environment.

Table 3.10-5
Emissions Significance Thresholds

Type of Emissions	Construction		Operation	
	lb/day	tons/yr	lb/day	tons/yr
Reactive Organic Gases (ROG as CH_4)	75	14	55	n/a
Carbon Monoxide (CO)	550	100	550	n/a
Nitrogen Oxide (NO_X as NO_2)	250	40	55	n/a
Sulfur Dioxide (SO_X as SO_2)	250	40	150	n/a
Particulates (PM_{10})	100	15	150	n/a
Particulates ($PM_{2.5}$)	55	10	55	n/a
Carbon Dioxide Equivalents (CO_2 eqv)	n/a	7,716	n/a	7,716

lb/day = pounds per day; tons/yr = tons per year
Sources: SDAPCD 1998; ICAPCD 2007; County of San Diego 2007a; CARB 2008.

3.10.2 Environmental Impacts

3.10.2.1 Methodology

Impacts to air quality would result from gaseous and particulate emissions caused by construction equipment and vehicles. Detailed lists of construction equipment, the anticipated construction schedule, and emission calculations are provided in Appendix F. The analysis of air quality impacts of the alternatives was based on equipment specifications and planning estimates for the various construction activities as detailed in Appendix F.

Emission calculations were performed using the most recent (2008) emission factors published by the South Coast Air Quality Management District (SCAQMD 1993, with updates in 2008)[25] and the USEPA (2006, 2009). Although actual construction is expected to require approximately two months of planned work activities, construction could be distributed over a 6-month period if work stoppages are required as a result of inclement weather or other factors. Extending the schedule to 6 months would not affect the air quality analysis because it is based on maximum daily emissions (pounds per day) and total emissions (tons per year), which would remain unchanged. Air quality impacts were assessed using significance thresholds established by the SDAPCD for air quality impact analyses, which are listed in Table 3.10-5. The greatest potential for impacts would occur during the construction activities that result in ground disturbances. As discussed below, impacts from inspection and maintenance activities during operations were assessed qualitatively, through comparison to emissions from construction.

[25] SDAPCD does not publish its own set of emission factors. The SCAQMD factors are conservative pre-processed output from CARB's onroad vehicle and offroad equipment emission factor programs EMFAC and OFFROAD, respectively, which are based on federal emissions standards contained in 40 CFR 86 et seq. and 40 CFR 89.112.

Emissions from construction and operation emissions were also compared to applicable general conformity thresholds to determine if implementation of either alternative would require a formal federal conformity determination. An alternative would be exempt from a conformity determination if the total direct and indirect emissions from construction and operation activities would be less than the applicable thresholds. In San Diego County, general conformity thresholds have been established for ozone precursors and PM_{10}.[26] The applicable threshold levels are 50 tons per year for NO_X and VOCs, 70 tons per year for PM_{10}, and 100 tons per year for CO (40 CFR 93.153).

3.10.2.2 Alternative 1 – No Action

Under the No Action alternative, the proposed transmission line would not be installed; therefore, there would be no change from current levels of impact on air quality in the U.S. or on global climate change.

3.10.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Air Quality. Project construction would generate fugitive dust and exhaust emissions from the use of construction equipment and vehicles. Access road construction, marshalling of materials, structural foundation excavation and concrete placement, tower structure delivery and setup, conductor installation, and fugitive dust from travel along the right-of-way could each occur simultaneously in different places on any given day of the estimated 54-working-day construction period; however, construction emissions would vary substantially from day to day, depending on the level of activity, the specific type of activity, and, for dust, the prevailing weather conditions. Table 3.10-6 lists estimated equipment and vehicle requirements and maximum use during the various activity phases. Table 3.10-7 presents a summary of the estimated maximum construction emissions (conservative case; i.e., the estimates are higher than would likely occur on a daily basis) with implementation of the fugitive dust reduction measures that would be required by the SDAPCD. Consistent with SDAPCD Rule 55 – Fugitive Dust Control (adopted June 24, 2009; effective December 24, 2009), the following measures would be implemented where and as applicable:

- Water or non-toxic soil stabilizers would be applied to all unpaved access roads, parking areas, and staging areas with sufficient frequency to maintain an effective level of soil moisture or cohesion while avoiding excessive water application.
- Sites would be pre-watered 48 hours in advance of clearing and the amount of disturbed area would be reduced where possible in order to conserve water.
- Construction grading would be prohibited on days when the wind gusts exceed 25 mph (40 kilometers per hour [kph]) to the extent feasible to control fugitive dust and reduce water consumption.

[26] General conformity thresholds are only established for those pollutants for which area emissions exceed designated NAAQS. As shown in Table 3.10-2, San Diego County is a designated attainment area for all pollutants except ozone and PM_{10}.

- All trucks hauling soil and other loose material would be pre-moistened and covered or maintain at least 2 feet (0.6 m) of freeboard.
- Vehicle speeds would be limited to 15 mph (24 kph) on unpaved roads.
- Paved access roads would be machine-swept daily if visible soil material is carried onto adjacent public roads or streets. If necessary, trucks and equipment would be washed upon exiting the job site and before entering public roads or streets.
- Soil stabilizers would be applied to inactive construction areas on an as-needed basis.
- Exposed stockpiles of soil and other excavated materials would be contained within perimeter silt fencing, watered, treated with soil binders, or covered as necessary.
- Vegetative ground cover would be planted in disturbed areas as soon as possible following construction.
- A Dust Control Plan would be prepared and filed in advance of construction in accordance with SDAPCD guidelines pursuant to Rule 55. The plan would describe how these measures would be implemented and monitored at all locations of the Project. The Dust Control Plan would identify nearby sensitive receptors, such as residences (if any); and, specify the means of minimizing impacts on these receptors (for example, by locating equipment and staging areas away from sensitive receptors). The Dust Control Plan would emphasize water conservation by limiting water application strictly to necessary quantities.

Additionally, where applicable, water would be applied in sufficient amounts and frequency to maintain a stabilized surface starting from the point of intersection of a dirt or gravel road with the public road paved surface, or else rattle plates (grizzlies) would be used to minimize mud and dust from being transported onto paved roadway surfaces from dirt or gravel roads. Measures involving water use may need to be modified as appropriate depending on water supply conditions during construction.

Table 3.10-6
Estimated Equipment and Vehicle Use During Construction

Activity	Equipment and Vehicles				Working Days[1]	Daily		
	Type	Category	BHP	qty		hours	VMT	VKT
Survey Sites	pickup truck	onroad LD		1	6		50	80
Worker Commuting	pickup truck	onroad LD		20	54		1,000	1,609
Hauling, fill dirt	dump truck, 18 cubic yards	onroad HHD		25	24		1,250	2,012
Aerial Support	helicopter	aircraft	420	1	3	8		
Marshalling Yards (Staging Areas)	pickup truck	onroad LD		3	54		150	241
	water truck	onroad HHD		1	54		50	80
	tractor truck w/trailer	onroad HHD		1	48		50	80
	hydraulic crane, 25 ton	offroad	300	1	36	3.33		
	loader, model 980	offroad	300	1	48	3.75		
	forklift, 5 ton	offroad	155	1	48	3.75		
	portable generator	offroad	5	1	48	3.75		
Grading & Road Work	pickup truck	onroad LD		2	12		100	161
	water truck	onroad HHD		1	12		50	80
	bulldozer	offroad	285	1	12	8		
	steamroller	offroad	80	1	12	8		
Foundations	pickup truck	onroad LD		2	12		100	161
	water truck	onroad HHD		1	12		50	80
	concrete truck	onroad HHD		2	12		200	322
	drill rig	offroad	600	1	12	10		
Steel Assembly & Erection	pickup truck	onroad LD		3	12		150	241
	water truck	onroad HHD		1	12		50	80
	tractor truck w/trailer	onroad HHD		1	12		50	80
	crane, 40 ton	offroad	350	1	12	10		
	air compressor	offroad	75	1	12	10		
	portable generator	offroad	5	1	12	10		
Conductor Installation	pickup truck	onroad LD		2	12		100	161
	water truck	onroad HHD		1	12		50	80
	flatbed truck w/reels	onroad MD		1	12		50	80
	rigging truck	onroad MD		5	12		250	402
	dump truck	onroad HHD		1	6		50	80
	puller tensioner	offroad	165	1	12	10		
	splice rig	offroad	300	1	6	10		
	portable generator	offroad	5	1	12	10		
Cleanup	pickup truck	onroad LD		2	12		100	161

[1] Section 2 (Proposed Action and Alternatives) indicates that work would be completed over a six-month period; however, the work is expected to occur over a number of sporadic intervals. In no case would a continuous period of work exceed 54 days.

HHD = heavy heavy duty
LD = light duty
MD = medium duty
qty = quantity
VMT = vehicle miles traveled
VKT = vehicle kilometers traveled

For on-road vehicles, weight class applies in lieu of BHP rating

BHP = brake horsepower (measure of an engine's output without the loss in power caused by the gearbox, generator, differential, water pump, and other auxiliary components such as alternator, power steering pump, exhaust system, etc.)

Construction activities occur six days per week maximum; Daily operating hours, VMT and VKT are maximum estimates

Source: Sempra 2009, as cited in EDAW 2009d

Table 3.10-7
Estimated Maximum Construction Emissions[1]

Criteria Emissions	Peak lb/day	Threshold lb/day	Significant Yes/No	Total tons[2]	Threshold tons[2]	Significant Yes/No
Reactive Organic Gases (ROG as CH_4)	8	75	No	0.18	14	No
Carbon Monoxide (CO)	39	550	No	0.83	100	No
Nitrogen Oxide (NO_X as NO_2)	80	250	No	1.55	40	No
Sulfur Dioxide (SO_X as SO_2)	0	250	No	0.00	40	No
Combustion Particulates (C-PM_{10})	4	100	No	0.07	15	No
Combustion Particulates (C-$PM_{2.5}$)	3	55	No	0.06	10	No
Fugitive Dust (F-PM_{10})	282	100	Yes	3.82	15	No
Fugitive Dust (F-$PM_{2.5}$)	38	55	No	0.49	10	No

[1] Includes dust suppression measures required by the SDAPCD
[2] Entire project
Fugitive dust and combustion particulates are determined exclusively; C = combustion particle, F = fugitive dust
Sources: SCAQMD 1993, with updates in 2008; USEPA 2006; SDAPCD 1998; ICAPCD 2007; County of San Diego 2007a

As shown in Table 3.10-7, except for daily fugitive PM_{10}, maximum emissions of criteria pollutants are estimated to be well below applicable thresholds, including general conformity thresholds. Construction impacts would be temporary, localized, and minor, and a formal Conformity Determination is not required. Since estimated emissions are based on conservative assumptions (i.e., the maximum potential impact is estimated), actual emissions are expected to be lower. Fugitive dust emissions would be minimized through compliance with SDAPCD Rule 55 – Fugitive Dust Control, as previously discussed. Fugitive dust emissions would be largely associated with earthmoving and fill dirt hauling during roadwork and laying of foundations. Therefore, truck trips are assumed to occur for a brief period of 24 working days after which the bulk of fugitive dust emissions from project construction would permanently cease. Potential mitigation measures in addition to the APMs described above that could further reduce emissions from combustion and dust in the project area during construction are Mitigation Measures Air Quality-1 (use low-emission construction equipment), Air Quality-2 (minimize vehicle idling), and Air Quality-3 (encourage carpooling).

Climate Change. Construction would result in a minor amount of GHG emissions because of the short duration and relatively small number of emission sources (essentially vehicles). Table 3.10-8 lists the estimated maximum GHG emissions that would be emitted during construction activities.

Table 3.10-8
Estimated Maximum Construction GHG Emissions

Greenhouse Gas Emissions	Peak lb/day	Total tons[1]	Threshold tons[1]	Significant Yes/No
Carbon Dioxide (GHG - CO_2)	11,890	217	n/a	n/a
Methane (GHG - CH_4)	0.6	0.01	n/a	n/a
Nitrous Oxide (GHG - N_2O)	0.4	0.01	n/a	n/a
Carbon Dioxide Equivalents (CO_2 eqv)[2]	11,993	220	7,716	No

[1] Entire project

[2] Carbon dioxide equivalents (CO2 eqv) are calculated by summing the products of mass GHG emissions by species times their respective global warming potential (GWP) coefficients.

Sources: SCAQMD 1993, with updates in 2008; USEPA 2009; CARB 2008

As shown in Table 3.10-8, maximum GHG emissions (CO_2 equivalents) are estimated to be well below the threshold proposed by CARB. The construction emissions from the 230-kV transmission line would be equivalent to an estimated 0.00003 percent of California's estimated 2006 emissions (480 million metric tons of CO_2 equivalents [CARB 2009]), and 0.00045 percent of San Diego County's estimated 2006 emissions (34 million metric tons of CO_2 equivalents [University of San Diego 2008]). As a result, the contribution to climate change from GHG emissions during construction of the 230-kV Route would be extremely small when compared with local and state inventories and the impacts on climate change are expected to be minor. However, the estimated emissions are conservative-case and actual emissions would likely be lower. Although the release of GHG during construction would be temporary, the GHG emissions would likely remain in the atmosphere long term. Implementation of potential Mitigation Measures AQ-1 (use low-emission construction equipment), AQ-2 (minimize vehicle idling), and AQ-3 (encourage carpooling) would further reduce GHG emissions during construction.

Operations Impacts

Air Quality. Once constructed, there would not be any direct emission of air pollutants from the proposed transmission line. Its only function would be to transmit electricity generated by the ESJ Wind Project in Mexico. Because this electricity would be produced without burning carbon-based fuel, essentially no air pollutants would be generated per megawatt-hour of output dispatched (except for de minimis emissions related to inspections and maintenance [vehicle access], discussed below). Additionally, by transmitting electricity from the wind turbines, the 230-kV transmission line would aid in reducing the need to generate electricity within the U.S. using fossil-fuel generating resources, which could indirectly lead to reduced emissions from fossil fuel-fired power plants.

Inspection and maintenance activities would require occasional vehicle trips to patrol the right-of-way and conduct any necessary repairs. Equipment and vehicle usage would be considerably less than required during construction, and the incremental increase in emissions caused by such usage would of a de minimis nature and considerably below the applicable threshold shown in

Table 3.10-5. Impacts to air quality due to inspection and maintenance activities would be minor, periodic, and of short duration on each occasion, but would occur for the life of the ESJ U.S. Transmission Line project.

Climate Change. Sulfur hexafluoride (SF_6) is a highly potent GHG (GWP 22,800) that is used as a dielectric medium (gaseous insulator) in high-voltage switchgear and circuit breakers at electric substations to prevent arcing (IPCC 2007). It is not associated with transmission lines per se; rather, it is associated only with facilities that are connected to transmission lines (i.e., the ECO Substation switchyard). Operation of the 230-kV Route would not directly result in emissions of SF_6, however, since the ECO Substation switchyard is a connected action under CEQ's NEPA regulations, some of its fugitive SF_6 emissions are considered associated with the transmission line operation as proposed. According to SDG&E, the ECO Substation switchyard would lose about 0.03 metric tons (30 kilograms) per year of SF_6 or 684 metric tons per year CO_2 equivalents (SDG&E 2009b; IPCC 2007). To minimize fugitive SF_6 losses, SDG&E would implement a monitoring plan which would include inventorying SF_6 in its equipment, accounting for make-up quantities, identifying and repairing or replacing leaky equipment in a timely fashion, training employees on the climate change effects of SF_6, and including design elements to reduce energy consumption and thermal cycling of switchgear which helps reduce leakage (SDG&E 2009b).

As discussed above, the transmission line would transmit electricity generated by the ESJ Wind project without burning carbon-based (or any other) fuel; therefore, essentially no GHG would be generated per megawatt-hour of output dispatched (except for de minimis emissions related to inspections and maintenance). Additionally, by transmitting electricity from the wind turbines, the transmission line would aid in reducing the need to generate electricity using fossil-fuel generating resources, which could indirectly lead to reduced GHG emissions from fossil fuel-fired power plants, as estimated below.

The ESJ Wind project would potentially have an average annual generating capacity of approximately 5,475,000 megawatt-hours[27] which would otherwise cause to be emitted about 2,190,000 metric tons of CO_2 equivalents annually from mixed generating resources serving the California region[28] (TCR 2008). In addition to GHG, criteria pollutants (VOC, CO, NO_X, SO_X, PM_{10}, $PM_{2.5}$) from natural gas, coal, and biomass generating resources would otherwise be emitted elsewhere. Thus, the ESJ U.S. Transmission Line project would have a quantifiable positive effect on the environment over the long-term since GHG and criteria emissions from fuel combustion would be avoided.

Impacts in the U.S. due to Related Activities in Mexico

Air quality impacts in the U.S. due to related activities in Mexico would occur if criteria pollutant emissions resulting from construction or operation of the ESJ Wind project affected air quality in the U.S. Construction activities south of the border would result in fugitive dust and exhaust emissions from vehicles and other activities. However, because the prevailing wind in

[27] Assumes 1,250 MW total installed capacity operating at 50 percent average annual capacity factor.

[28] GHG emissions are 882 lb/MW-hr or 0.40 metric tons/MW-hr as CO_2 equivalents for the California region (TCR 2008).

the vicinity of the ESJ Wind project is from the northwest, most emissions would be transported farther south, in the direction of the prevailing winds. Therefore, any temporary air impacts in the U.S. from construction activity in Mexico are anticipated to be minor. No air emissions in the U.S. are anticipated during operation of the ESJ Wind project because the de minimis emissions from inspection and maintenance activities in Mexico would be typically directed southward.

With regard to climate change, impacts could occur in the U.S. as a result of GHG emissions during the transport of wind turbine components on U.S. Highways.[29] As discussed in Section 3.7 (Transportation and Traffic), it is assumed that construction of the ESJ Wind project in Mexico may require the transport of wind turbines and associated equipment from the U.S. into Mexico and transportation of each turbine may require up to 15 truckloads. The three potential transport scenarios identified would involve transport of turbine components from either the Port of Houston, the Port of San Diego, or from the Midwest along major U.S. highways to the Otay Mesa border crossing, which is approximately 5.4 miles (8.7 km) east of the San Ysidro (Tijuana) border crossing in San Diego County.

To estimate the potential GHG emissions of both scenarios, round trip distances were used to account for multiple trips needed to transport the wind turbine components proposed for Phase 1 of the ESJ Wind project. Vehicle requirements and utilization for turbine transport and estimated GHG emissions are listed in Tables 3.10-9 and 3.10-10, respectively. As shown in the tables, due to the much greater distance involved, GHG emissions associated with trucking turbine components from the Port of Houston or the Midwest would be considerably higher than from the Port of San Diego, although all would still comprise a temporary and incremental increase in total GHGs emitted (worst-case, Houston, would be less than 0.02 percent of San Diego's total emissions in 2006).

[29] Emissions of criteria pollutants during transport of turbine components are regulated as mobile source emissions and would not involve the creation of a new stationary source; therefore, criteria pollutants have not been estimated.

Table 3.10-9
Estimated Vehicle Use for Transport of Wind Turbines

Point of Origin	Vehicle Type	Category	Truckloads per Turbine	Travel Days per Truckload	Total Number of Turbines	VMT per Load	VKT per Load	Total VMT	Total VKT
Port of San Diego	Tractor truck w/ trailer	Onroad HHD	15	1	52	600	966	31,200	50,212
Port of Houston	Tractor truck w/ trailer	Onroad HHD	15	6	52	7,500	12,070	2,340,000	3,765,865
Midwest[1]	Tractor truck w/ trailer	Onroad HHD	15	8	52	7,500	12,070	3,120,000	5,021,153

HHD = heavy heavy duty
VMT = vehicle miles traveled
VKT = vehicle kilometers traveled

Daily VMT and VKT are maximum estimates

[1]Midwest origin estimated to require approximately 3,000 travel miles one-way as measured from major cities (e.g. Chicago, Minneapolis)

Source: Sempra 2009, as cited in EDAW 2009d

Table 3.10-10
Estimated Wind Turbine Trucking GHG Emissions

Greenhouse Gas Emissions	via San Diego Peak lb/day	via San Diego Total tons[1]	via Houston Peak lb/day	via Houston Total tons[1]	via Midwest Peak lb/day	via Midwest Total tons[1]
Carbon Dioxide (CO_2)	2,532	66	31,653	4,938	31,653	6,584
Methane (CH_4)	0.1	0.00	1.0	0.15	1.0	0.20
Nitrous Oxide (N_2O)	0.1	0.00	0.9	0.14	0.9	0.19
Total Carbon Dioxide Equivalents (CO_2 eqv)[2]	**2,557**	**66**	**31,956**	**4,985**	**31,956**	**6,647**

[1] Total emissions for transport of all turbines in Phase 1

[2] Carbon dioxide equivalents (CO_2 eqv) are calculated by summing the products of mass GHG emissions by species times their respective GWP coefficients.

Sources: SCAQMD 1993, with updates in 2008; USEPA 2009

3.10.2.4 Alternative 3 – Single Circuit 500-kV Transmission Line

The site terrain, topographic features, and air quality along the 500-kV Route are substantially similar to the 230-kV Route described above because the routes are adjacent to each other; and construction, operations, and maintenance activities for the 500-kV Route would be substantially the same as for the 230-kV Route. Consequently, the impacts that would occur under the 500-kV Alternative would be substantially similar to those described for 230-kV Alternative. Impacts would be temporary and minor during construction, and long-term but minor during operations. The same potential mitigation measures would apply, as described below.

3.10.3 Mitigation Measures

Implementation of the following potential air quality mitigation measures would reduce the already temporary and minor air quality impacts from construction.

Air Quality-1: Use Low-Emission Construction Equipment

Construction equipment should be maintained in accordance with the manufacturer specifications and ESJ-U.S. should use low-emission equipment (described below). All off-road construction equipment and portable equipment diesel engines not registered under the CARB Statewide Portable Equipment Registration Program, that have a rating of 50 horsepower (hp) or more, would meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, Sec. 2423(b)(1) unless that engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 100 hp, that engine would be equipped with a Tier 1 engine. If any engine larger than 100 hp does not meet Tier 1 standards, that engine should be equipped with a catalyzed diesel particulate filter (soot filter), unless the engine manufacturer indicates that the use of such devices is not practical for that particular engine type. ESJ-U.S. should substitute small electric-powered equipment for diesel- and gasoline-powered construction equipment, where feasible.

Air Quality-2: Minimize Vehicle Idling

To the extent feasible and when safe to do so, unnecessary construction vehicle idling time should be minimized. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. ESJ-U.S. should apply a “common sense” approach to vehicle use; if a vehicle is not required for use immediately or continuously for construction activities, its engine would be shut off. Construction foremen should include briefings to crews on vehicle use as a part of pre-construction conferences including a discussion of “common sense” regarding vehicle use. Nothing in this mitigation measure should be construed to create or contribute to a traffic hazard or obstruction on public roadways caused by stopped vehicles.

Air Quality-3: Encourage Carpooling

If suitable park-and-ride facilities are available in the vicinity of the alternative corridors, construction workers should be encouraged to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the Project would depend upon the proximity of carpool facilities to the job site, the geographical commute departure points of construction workers, and the extent to which carpooling would not adversely affect worker arrival time and the project’s construction schedule.

3.11 WATER RESOURCES

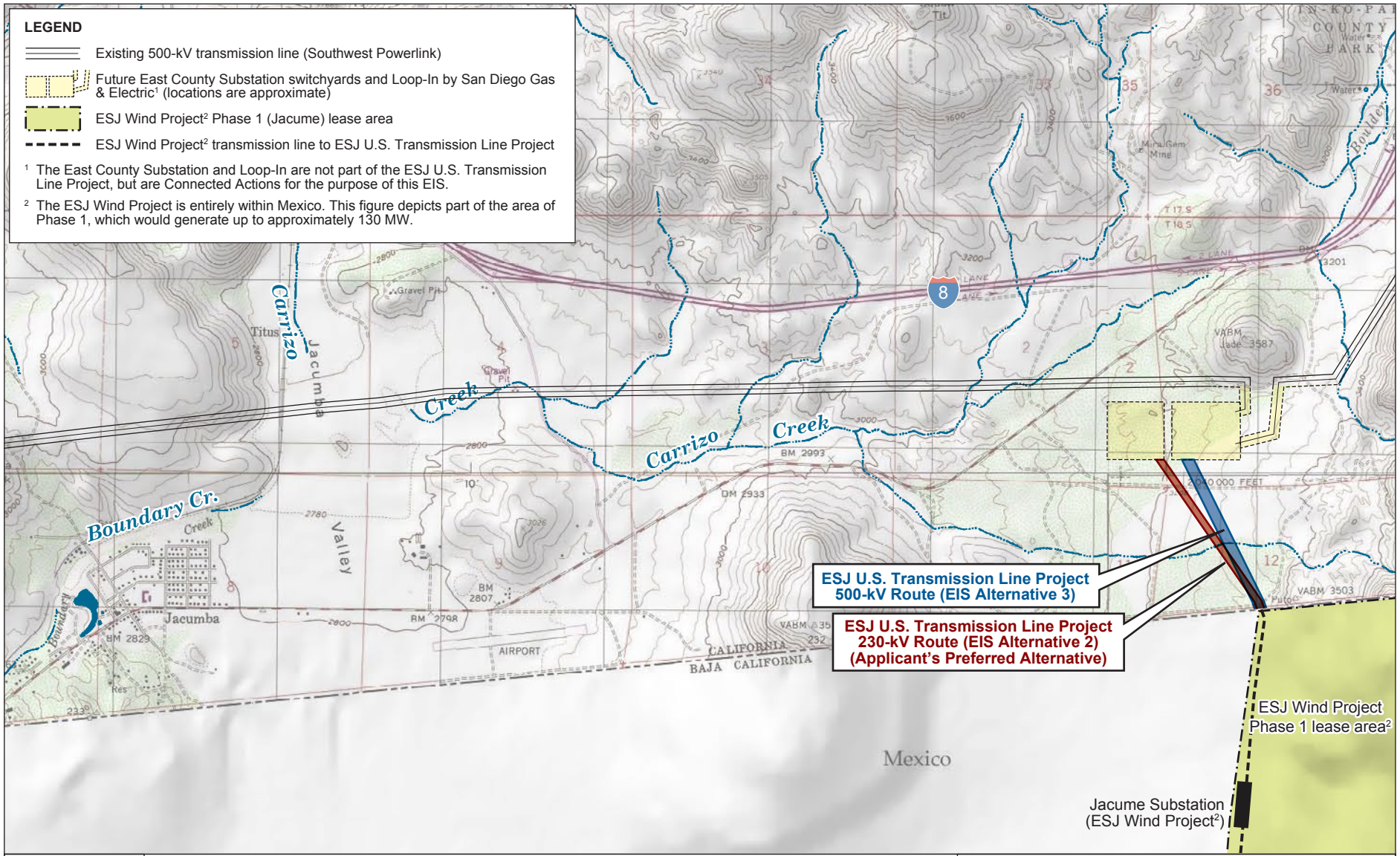
This section analyzes the potential impacts of the project on surface water and groundwater resources, including wetlands and floodplains.

3.11.1 Affected Environment

3.11.1.1 Surface Water Resources

The alternative corridors are located in the Anza-Borrego hydrologic unit within the Colorado River Hydrologic Basin as defined by the Colorado River Regional Water Quality Control Board. The basin encompasses approximately 20,000 square miles (51,200 square km) in the southeastern portion of California, including parts of San Bernardino, Riverside, and San Diego counties, and all of Imperial County. Drainage within the Anza-Borrego hydrologic unit flows to the Salton Sea, with the exception of two areas in the northwest corner of the unit that drain internally to the Clark and Borrego valleys. The alternative corridors are within a semi-arid, desert region that is dominated by dry washes and intermittent drainages. The average annual rainfall in the area, as measured in Boulevard, California (approximately 10 miles [16.1 km] west of the corridors) is 12.7 inches (32.2 cm), with the majority of precipitation occurring between November and May (Western Region Climate Center 2003). Surface water runoff primarily occurs during the winter in response to seasonal rainfall, with occasional runoff in the summer in association with local thunderstorms.

Surface water resources in the vicinity of the corridors consist of ephemeral creeks and washes that flow only in response to rainfall events. The USGS In-Ko-Pah Gorge quadrangle map (USGS 1975) depicts an intermittent stream flowing from east to west near the corridors as depicted in Figure 3.11-1. This drainage is located approximately 1,200 feet (370 m) south of the main access road into the area and approximately 1,700 feet (523 m) north of the U.S.-Mexico border. The results of a survey conducted by EDAW, Inc. in April 2009 indicate that the identified "intermittent stream" is actually an erosive drainage feature (Erosion Feature 1) associated with water runoff from the adjacent roadway used by the U.S. Border Patrol (EDAW, Inc. 2009b). It is described as a series of rill (narrow) erosive features that are generally 3 to 6 inches (8 to 15 cm) deep and 2 to 3 feet (0.6 to 0.9 m) wide. These erosion features converge to create a wider erosion feature that becomes indiscernible as the flow appears to transition to sheet flow (EDAW, Inc. 2009b) east of the alternative corridors. The EDAW, Inc. survey was conducted to determine whether or not there are jurisdictional waters of the U.S. (under Section 404 of the Clean Water Act or waters of the State of California (under Section 1600 *et seq.* of the California Fish and Game Code) within or near the alternative corridors. The results of the survey concluded that this drainage feature did not meet the criteria for jurisdictional waters of the U.S. since it appears to convey runoff for only a short distance over a short duration and it lacks evidence of a definable bed, bank, or ordinary high water mark (EDAW, Inc. 2009b). Accordingly, it is not considered a water of the U.S. under Section 404 of the Clean Water Act or a water of the State of California under Section 1600 *et seq.* of the California Fish and Game Code. The location of Erosion Feature 1, as mapped by EDAW, Inc. (2009b), is shown in Figure 3.11-2. Site photographs from the EDAW, Inc. (2009b) survey are presented in Figure 3.11-3 and this drainage feature is shown in Photograph 3. The map key for the site photographs is provided on Figure 3.11-2.



Source(s):
Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1975, 1979, 2006; Google Maps 2009; SanGIS 2009-2010.

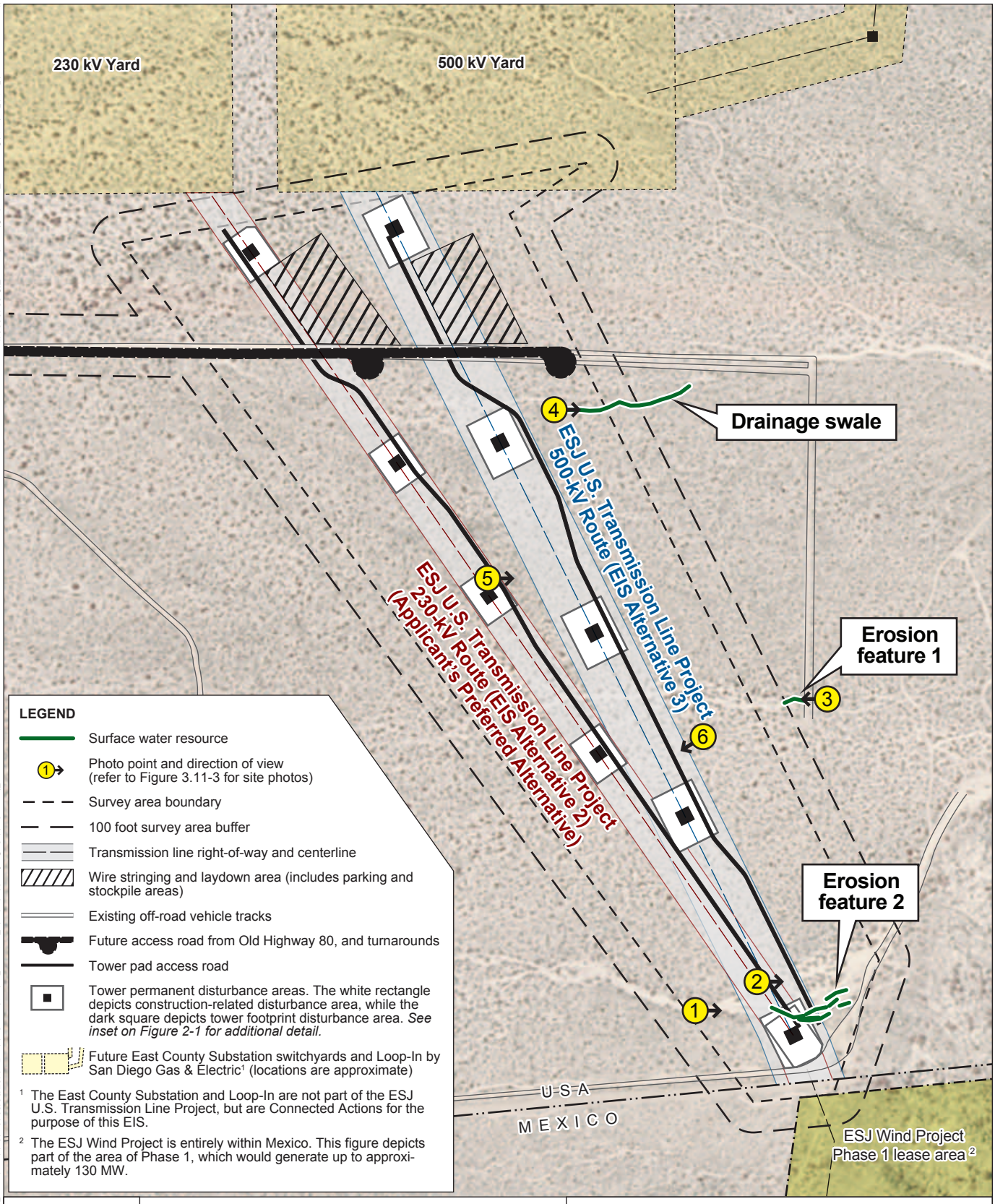
ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.11-1

SURFACE HYDROLOGIC FEATURES IN THE PROJECT REGION

August 2010

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Figure_3_11-1_SurfaceHydrologicFeatures-Regional_11x8_v5.ai (07/29/2010, 10:08 am)
R. Wurgler/C. Blankenhorn/T. Murphy



Source(s):
Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1979, 1998, 2006; Google Maps 2009; SanGIS 2009-2010.

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FIGURE 3.11-2

SURFACE HYDROLOGIC FEATURES IN THE PROJECT AREA

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View of southern erosive feature looking east, with roadway in top background. (source: EDAW, 2010)



View of southern erosive feature looking east, with roadway in top background. (source: EDAW, 2010)



View of middle erosive feature looking west. (source: EDAW, 2010)



View of northern swale, looking east. (source: EDAW, 2010)



Representative upland view, looking east. (source: EDAW, 2010)



Representative upland view, looking southwest. (source: EDAW, 2010)



Source:
EDAW 2010.

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FIGURE 3.11-3

SITE PHOTOS

August 2010

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Figure_3_11-3_SitePhotos-SurfaceHydrologicFeatures_8x11_v4.ai (07/29/2010, 06:28 am) R. Wurgler/T. Murphy

In addition to the drainage described above, two other drainage features were identified during the jurisdictional waters survey conducted by EDAW, Inc. These drainages are a swale that is located approximately 150 feet (46 m) south of the main access road into the project area (Figure 3.11-3, Photograph 4) and an erosive drainage feature (Erosion Feature 2; Figure 3.11-3, Photographs 1 and 2) that is located approximately 225 feet (78 m) north of the U.S.-Mexico border fence. The northerly drainage swale flows from east to west and is approximately 3 feet (0.9 m) wide. No evidence of an ordinary high water mark is present in the swale, and it becomes indiscernible as the flow appears to transition to sheet flow approximately 100 feet (30 m) into the survey area (EDAW, Inc. 2009b). Like Erosion Feature 1, Erosion Feature 2 flows from east to west and appears to be associated with water runoff from the roadway used by the U.S. Border Patrol. This drainage consists of rill (narrow) erosive features that are generally 3 to 6 inches (8 to 15 cm) deep and 2 to 3 feet (0.6 to 0.9 m) wide. These erosion features converge to create a wider erosion feature that becomes indiscernible as the flow appears to transition to sheet flow (EDAW, Inc. 2009b). As with Erosion Feature 1, the drainage swale and Erosion Feature 2 do not meet the criteria for jurisdictional waters of the U.S. because these features appear to convey runoff for only a short distance over a short duration and lack evidence of a definable bed, bank, or ordinary high water mark (EDAW, Inc. 2009b). Accordingly, the channels are not considered waters of the U.S. under Section 404 of the Clean Water Act or waters of the State of California under Section 1600 *et seq.* of the California Fish and Game Code.

3.11.1.2 Groundwater Resources

The alternative corridors are not within the boundaries of a designated groundwater basin as defined by the California Department of Water Resources (CDWR). The nearest CDWR designated basin is the Jacumba Valley Groundwater Basin which is located approximately 3 miles (4.8 km) west of the alternative corridors (CDWR 2004).

As defined by CDWR, the Jacumba Valley Groundwater Basin encompasses approximately 6,400 acres (2,590 hectares) and is bounded by faults on the east and west, the U.S.-Mexico border to the south, and the crystalline rocks of the Peninsular Ranges to the north (CDWR 2004). Groundwater levels within the basin are relatively stable with some seasonal fluctuations (Roff and Franzone 1994, as cited in CDWR 2004). Groundwater recharge primarily occurs through infiltration of precipitation and surface water runoff from the Boundary Creek and Flat Creek drainages (CDWR 2004) (Figure 3.11-2). Recharge from runoff in Boundary Creek was calculated as approximately 980 acre-feet/year (1.2-million cubic meters per year) (Roff and Franzone 1994, as cited in CDWR 2004) and recharge from runoff in both Boundary Creek and Flat Creek was calculated as approximately 2,700 acre-feet/year (3.3-million cubic meters per year) (Swenson 1980, as cited in CDWR 2004). Groundwater usage within the Jacumba Valley Groundwater Basin is estimated at approximately 810 acre-feet/year (1 million cubic meters per year) (Roff and Franzone 1994, as cited in CDWR 2004).

The primary water bearing units within the basin consist of the Holocene age alluvium and the Table Mountain Formation. The alluvial aquifer is unconfined and is estimated to be approximately 100 to 150 feet (30 to 46 m) thick primarily consisting of gravel, sand, and clay (Roff and Franzone 1994 and Swenson 1980, as cited in CDWR 2004). Groundwater in storage within the alluvial aquifer is estimated to range from 3,200 to 16,000 acre-feet (4 million to 20 million cubic meters per year) (Roff and Franzone 1994 and Swenson 1980, as cited in

CDWR 2004). Wells within the alluvial aquifer can yield more than 1,000 gallons/minute (3,800 liters/minute) (Roff and Franzone 1994, as cited in CDWR 2004).

The Table Mountain Formation is a semi-confined to confined aquifer that is up to 600 feet (183 m) thick (Swenson 1980, as cited in CDWR 2004). The formation is situated below the alluvial aquifer and is separated from the Holocene alluvial aquifer by the Jacumba volcanics (Swenson 1980, as cited in CDWR 2004). It consists of Tertiary age, medium- to coarse-grained sandstone and conglomerate that rest unconformably on crystalline basement rock (CDWR 2004). Groundwater in storage within the Table Mountain Formation is estimated to range from 84,000 to 169,000 acre-feet (104 million to 209 million cubic m) (Swenson 1980, as cited in CDWR 2004).

The nearest known well to the alternative corridors is a private water supply well located approximately 2 miles (3.2 km) to the north, immediately west of the intersection of Old Highway 80 and Carrizo Gorge Road. This well was drilled to a depth of approximately 213 feet (65 m) below ground surface (bgs) and depth-to-groundwater was recorded at approximately 90 feet (27 m) bgs (Bennett 2009).

3.11.1.3 Water Supply

The alternative corridors are in the service area of the San Diego County Water Authority (SDCWA), which has total water supplies of 709,940 acre-feet (876 million cubic m) (SDCWA 2008). Water supplies in the vicinity of the corridors are obtained from groundwater.

3.11.1.4 Water Quality

As required by Section 303 of the Clean Water Act, the Colorado River Regional Water Quality Control Board has identified beneficial uses of waters within the Colorado River Hydrologic Basin and developed water quality criteria to protect these designated uses. Waterbodies that do not meet the specified criteria are included on the 303(d) list of impaired water bodies. The surface water resources in the vicinity of the alternative corridors are not identified in the Colorado River Regional Water Quality Control Board 303(d) list and have no identified beneficial uses (Colorado River Regional Water Quality Control Board 2006).

The dominant groundwater types within the Jacumba Valley Groundwater Basin range from sodium chloride to sodium sulfate and calcium chloride to calcium sulfate (CDWR 2004). Total dissolved solids (TDS) concentrations range from 296 to 6,100 milligrams per liter (mg/L) and conductivity ranges from 499 to 8,030 µmhos (Roff and Franzone 1994, as cited in CDWR 2004). Groundwater quality degrades in the northern portion of the basin in the vicinity of the Carrizo Gorge where spring water has TDS concentrations ranging from 2,000 to 6,000 mg/L (CDWR 2004). Groundwater delivered by the public well in the community of Jacumba (located approximately 3.75 miles (6.04 km) west of the alternative corridors) meets all primary and secondary maximum contaminant level standards for inorganic constituents and nitrates (CDWR 2004).

3.11.1.5 Floodplains

Floodplains and flood control in San Diego County are managed by the County of San Diego Flood Control District. Floodplains in the eastern portion of the county, which includes the

alternative corridors, are associated with ephemeral creeks such as Potrero Creek and Carrizo Creek. The project area is designated as Zone D (FEMA 1997) in the Flood Insurance Rate Map (FIRM) for eastern San Diego County, indicating that the area has possible but undetermined flood risks. Since no significant watercourses are situated within or in the near vicinity of the corridors, the potential for flooding is expected to be low.

3.11.1.6 Wetlands

Wetlands are defined by the U.S. Army Corps of Engineers (USACE) and USEPA as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 [b]; 1984). Three criteria are necessary to define wetlands: hydrophytic vegetation, hydric soils, and wetland hydrology. Non-wetland water features that are considered jurisdictional under Section 404 of the Clean Water Act are considered waters of the U.S. and include all interstate waters and those features with defined bed, bank, and channel that have a clear link (nexus) to interstate waters.

National Wetland Inventory maps prepared by USFWS do not depict any wetlands within or near the alternative corridors (USFWS 2009b). In accordance with the County of San Diego (2009b) Guidelines, a site-specific wetland survey was conducted within an approximately 65-acre (26.3 hectare) corridor, which included both the 230-kV and the 500-kV transmission line Route alternatives and associated access roads. In addition, the survey was conducted within a 100-foot-wide (30-m-wide) area around the primary survey corridor (EDAW, Inc. 2009b; see Figure 3.11-2). The results of the survey indicated that no wetlands are present within either alternative corridor or in the vicinity of those corridors since neither hydrophytic vegetation nor field indicators of wetland hydrology were present (EDAW, Inc. 2009b).

3.11.2 Environmental Impacts

3.11.2.1 Methodology

As previously discussed, no jurisdictional waters of the U.S. are present within or near the alternative corridors. The three drainage features that were identified during the jurisdictional waters survey conducted in April 2009 (EDAW, Inc. 2009b) appear to convey runoff for only a short distance over a short duration and lack evidence of a definable bed, bank, or ordinary high water mark (EDAW, Inc. 2009b). Accordingly, the impact analysis did not address potential impacts to jurisdictional waters. In addition, impacts to wetland resources were not addressed since no wetlands are present in the vicinity of either alternative route. Finally, although the FEMA floodplain designation indicates that the area has "possible but undetermined flood risks," the impact evaluation did not address flooding since the potential for flooding is expected to be low due to the absence of significant watercourses within or in the near vicinity of the alternative corridors.

3.11.2.2 Alternative 1 – No Action

Under the No Action alternative, the proposed transmission line would not be constructed and the existing water resources would remain as described above. No impacts on local or regional hydrology, water quality, or water supply would occur.

3.11.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Groundwater. ESJ-U.S. estimates that 780,000 gallons (2.4 acre-feet or 2,950 cubic m) of water would be required during construction of the 230-kV Route for dust abatement, cleaning construction equipment, and concrete production for tower foundations. Dust suppression would occur on each day that grading takes place and on unpaved access roads. Dust suppression and other air quality protection measures are described in Section 3.10 (Air Quality and Climate Change). Comparatively small amounts of potable water would be needed for sanitary and drinking purposes. As described in Section 2.0 (Proposed Action and Alternatives), except for drinking water, the water used for construction would most likely be obtained from either an existing non-potable (brackish) water well about 4.5 miles [7.2 km] west of the site owned by the Jacumba Community Services District, or from groundwater wells located in the community of Alpine (located 40 miles [64 km] northwest of the project site). The water would be trucked to the construction area using tank trucks and stored on the right-of-way. In the event that an existing supply is not available, ESJ-U.S. would construct a new water well within the right-of-way.

Recharge of the Jacumba Valley Groundwater Basin is estimated at 2,700 acre-feet/year (3.3 million cubic m/year) and groundwater usage in the basin is estimated at approximately 810 acre-feet/year (1 million cubic m/year) (Roff and Franzone 1994 and Swenson 1980, as cited in CDWR 2004). The estimated volume of water (2.4 acre-feet or 2,950 cubic m) that would be required during short-term construction of the transmission line is relatively small (less than 0.1 percent) in comparison to the annual recharge and, therefore, would not impact the locally available water supply. Accordingly, impacts related to groundwater resources, the primary water supply in the area, during construction are considered temporary and minor. Nevertheless, water resources are generally scarce in the project area, and this short-term impact could be further reduced by the potential mitigation measure (not identified by the applicant) of preferentially selecting non-potable water sources to the extent practical for project-related uses (Mitigation Measure Water-1).

The alternative route is not within a designated groundwater basin as defined by CDWR. Groundwater quality impacts are not anticipated during construction because the depth to groundwater is estimated at approximately 90 feet (27 m) bgs at the nearest well, and this depth is well below the maximum depth of tower construction, which is approximately 20 feet (6 m) bgs.

Surface Water. The proposed transmission line would require the installation of up to five lattice towers or steel monopoles within California. Road improvements would include the realignment and widening of an existing east-west access road between Old Highway 80 and the northern portion of the transmission line corridor, and construction of a new north-south maintenance access road parallel to the transmission towers. Grading would be required at each tower or pole location, and along the access roadway and maintenance road. Due to the area's topography, which ranges from level to gently rolling, grading would not be extensive. Installation of the towers or monopoles is expected to result in the permanent disturbance of approximately 19,200 square feet (approximately 0.44 acre, or 0.2 hectare) at the base of each

tower separated by a distance of approximately 1,500 feet (457 m) (monopoles would result in a slightly smaller area of disturbance). Total permanent land disturbance would be approximately 9.7 acres (3.9 hectares) and would have a minimal impact on the overall surface water flows of the right-of-way.

Operation Impacts

No impacts to surface water quality or groundwater are anticipated during the operational life of the project. No new plants, shrubs, or trees would be planted in the right-of-way or in the 30-foot (9.1-m) area on each side of the right-of-way; therefore, no water will be required for site revegetation and restoration during the project operations.

Impacts in the U.S. due to Related Activities in Mexico

No surface water features traverse the U.S.-Mexico border in the project area. Therefore, construction and operation activities in Mexico would not result in effects in the U.S. related to surface water hydrology and water quality. Groundwater basins south of the project area in Mexico are not well understood. However, any potential impacts on groundwater supply and/or quality associated with construction of the ESJ Wind project would be localized due to the distance between the wind turbine work areas and the U.S. border.

3.11.2.4 Alternative 3 – Single-Circuit 500-kV Transmission Line

As shown on Figure 3.11-2, the 500-kV Route is essentially the same as the 230-kV Route and the existing conditions along this alternative route are also essentially the same as those of the 230-kV Route alternative. In addition, ESJ-U.S. would use the same construction and operational practices for the 500-kV Route as described for the 230-kV Route. Therefore, water resources impacts for the 500-kV Route would be the same as those described above for 230-kV Route.

3.11.3 Mitigation Measures

ESJ-U.S. would incorporate plans and procedures into the project to minimize the potential for adverse effects to water resources. The following potential additional mitigation measure (not identified by the applicant) would further reduce the potential short-term impact on local water resources.

Water-1: Use Non-Potable Water

To the extent that ESJ-U.S. has optional sources of water, preference should be given to the use of non-potable water for all project-related uses during construction.

3.12 GEOLOGY AND SOILS

This section presents an assessment of the potential impacts of the project to geologic, soil, mineral, and paleontological resources, and the potential effect of soils and geologic hazards on the project.

3.12.1 Affected Environment

3.12.1.1 Topography

Topography in the vicinity of the alternative corridors primarily consists of gently sloping hills and low-lying desert. Elevations range from 3,323 feet (1,013 m) above mean sea level (amsl) in the southeastern portion of the alternative corridors, near the U.S.-Mexico border, to 3,231 feet (985 m) amsl in the northwest portion of the site. A steep slope is located to the east of the corridors and rises to an elevation of 3,500 feet (1,067 m) amsl within about 0.5 mile (0.8 km) of the nearest corridor.

3.12.1.2 Geology

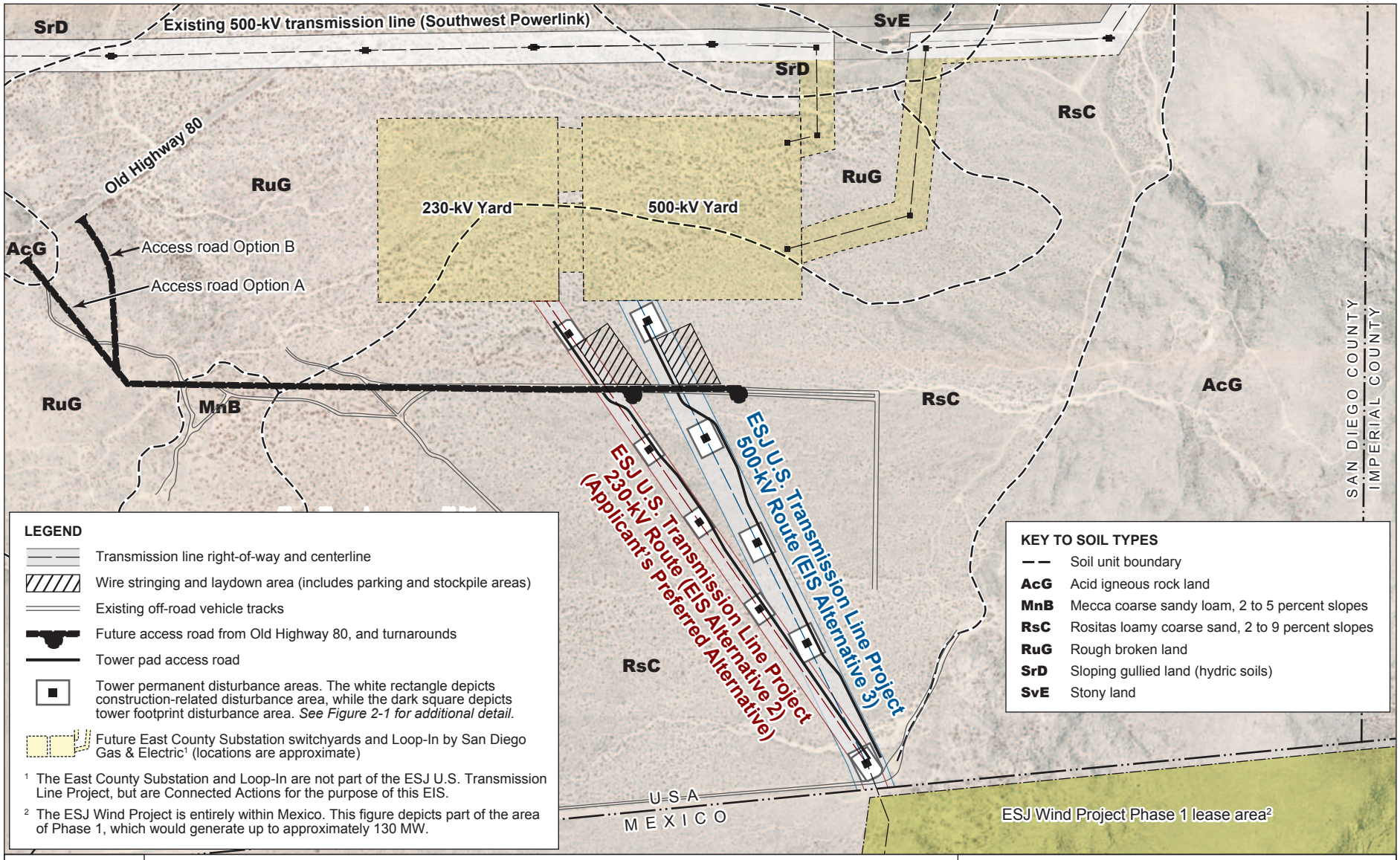
The alternative corridors are within the eastern escarpment of the Peninsular Range batholith, which was formed by the La Posta pluton, a large intrusive body of igneous rock (Walawender and Hanan 1991). The Peninsular Ranges include a series of north-northwest-trending mountains. The range is divided on the basis of age into the older western zone (greater than 100 million years old) and the younger eastern zone (less than 100 million years old). The alternative corridors are in the eastern zone of the Peninsular Ranges in the Jacumba Mountain area. The geology of this area primarily consists of Holocene age alluvium that is composed of unconsolidated stream, river, and alluvial fan deposits of gravel, sand, silt, and clay.

3.12.1.3 Soils

The soils underlying the corridors primarily are composed of Rositas soils with lesser areas of Rough Broken Land, Mecca soils, and Acid Igneous Rock Land as shown on Figure 3.12-1. These soils types are described below and in Table 3.12-1. No desert pavement is present in the vicinity of the alternative corridors.

Rositas soils are very deep, loamy coarse sands that are derived from eroding granite ridges. These somewhat excessively drained soils are variable in depth (0 to 60 inches [0 to 152 cm]) and are characterized by rapid permeability, a low shrink-swell potential, negligible to low runoff, and a slight erosion hazard (BLM 2008; NRCS 2007). Rositas soils have a high corrosion potential for steel, but low corrosion potential for concrete (BLM 2008; NRCS 2007).

Rough Broken Land is present along the western portion of the access road and north of the alternative line routes. This land-type consists of steep and very steep land dissected by many narrow V-shaped valleys and sharp tortuous divides. These areas are well to excessively drained with variable shrink-swell potential and rapid to very rapid runoff (BLM 2008; NRCS 2007). The erosion hazard in these areas is high (BLM 2008; NRCS 2007).



Source(s):
NRCS 2007; Burns & McDonnell 2009; EDAW 2010; ESJ LLC. 2009; SDG&E 2009; USGS 1998; Google Maps 2009; SanGIS 2009-2010.

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FIGURE 3.12-1
SOIL TYPES IN THE PROJECT VICINITY

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Figure_3_12-1_SoilTypes_11x8_v5.ai (07/29/2010, 09:59 am) R. Wurgler/T. Murphy

Table 3.12-1
Characteristics of Project Area Soils

	Erosion Hazard	Shrink/Swell Potential	Corrosion Potential	Runoff	Drainage
Rosita Coarse Loamy Sand	Slight	Low	High (steel) Low (concrete)	Negligible to low runoff	Somewhat excessively drained
Acid Igneous Rock	Severe	Low	N/A	Rapid	N/A
Mecca Sandy Loam	Slight to moderate	Low	High (steel) Low (concrete)	Slow	Well Drained
Rough Broken Land	High	Variable	N/A	Rapid to very rapid	Well drained to excessively drained

N/A = not available
Source: NRCS 2007

Mecca soils are present along the central portion of the existing and future access roads and consist of very deep, well-drained coarse sandy loam that is derived from granite alluvium. These soils are characterized by a low shrink-swell potential, slow runoff, and a slight to moderate erosion hazard (BLM 2008; NRCS 2007). Mecca soils have a high corrosion potential for steel, but low corrosion potential for concrete (BLM 2008; NRCS 2007).

Acid Igneous Rock Land is present along the western edge of the access road and immediately southeast of the alternative corridors. This land-type consists of rough, broken terrain that is primarily composed of large boulders and rock outcrops of granite, granodiorite, tonalite, quartz diorite, gabbro, basalt, or gabbro diorite. The soil material in these areas primarily consists of very shallow (0 to 4 inches [0 to 10.2 cm]) loamy to coarse sand that overlies decomposed granite or basic igneous bedrock (BLM 2008; NRCS 2007). These areas have a low shrink-swell potential, rapid runoff, and a severe erosion hazard (BLM 2008; NRCS 2007).

3.12.1.4 Seismicity

Major fault lines in the general vicinity of the alternative corridors primarily trend northwest-southeast. No active faults are present nearby; the nearest active faults are located near Julian and Elsinore, California, approximately 15 miles (24 km) north and 10 miles (16 km) north-northeast, respectively. However, geological maps indicate the presence of two inactive buried faults located adjacent to the corridors beneath the central portion of the proposed ECO Substation switchyard (see Section 4.0 [Connected Action]). Although both faults are relatively short, fault rupture could occur as a result of stress or movement related to large earthquakes on large faults in the region (SDG&E 2009). The California Geological Survey is tasked with zoning areas according to seismic hazard by the Alquist-Priolo Special Studies Zone Act of 1972. The seismic zone rating system establishes building requirements for an area based on the probability of a high seismic event occurring in that region. The alternative corridors are not located in a fault rupture hazard zone identified by the Alquist-Priolo Special Studies Zone Act;

however, faults in San Diego County have historically been active and, according to the California Geological Survey, a major seismic event (magnitude 6.2 or greater) can reasonably be expected to occur in San Diego County every 100 years (California Geological Survey 2007). Therefore, the California Geological Survey has placed San Diego County within Seismic Risk Zone 4, which is the highest rating and requires compliance with the strictest building standards. The seismic shaking hazard evaluation for the area traversed by the proposed corridors indicates that a peak ground acceleration of 20 to 30 percent of the acceleration of gravity (or higher) has a 10 percent chance of occurring during a 50-year period (California Geological Survey 2007).

In the past year, two seismic events (one major and one non-major) were felt in the alternative corridors area. On April 4, 2010, a magnitude 7.2 earthquake was centered approximately 54 miles (87 km) southeast of the alternative corridors. This event, named the Sierra El Mayor earthquake, occurred along the main plate boundary between the Pacific and North American plates; more specifically, along a strike-slip segment coinciding with the southeastern part of the Laguna Salada fault system (USGS 2010a). Although this earthquake was categorized as a major seismic event by the California Geological Survey, a USGS Instrumental Intensity Shakemap for this seismic event indicated that the peak ground acceleration in the area of the project corridors was between 3.9 and 18 percent of the acceleration of gravity, and potential damage to the area was classified as "light" to "very light" (USGS 2010b).

The second seismic event occurred on June 14, 2010. This magnitude 5.7 earthquake was centered approximately 12 miles (19.3 km) east-northeast of the alternative corridors. A USGS Instrumental Intensity Shakemap for this seismic event indicated that the peak ground acceleration in the area of the alternative corridors was between 3.9 and 9.2 percent of the acceleration of gravity, and potential damage to this area would be classified as "very light" (USGS 2010c).

3.12.1.5 Slope Stability

Areas that are susceptible to slope instability include moderate to steep slopes, slopes underlain by highly weathered and unconsolidated sediments, and areas of previous landslide activity. Slope instability issues can include landslides, rockfalls, and debris flows. The alternate line routes consist of gently sloping topography, and, therefore, the potential for slope instability is low. The southern portion of the corridors near the U.S.-Mexico border is situated near a relatively steep slope, but no evidence of slope instability such as landslides or rockfalls is present in this area.

3.12.1.6 Liquefaction

Liquefaction is a condition that occurs when loose, cohesionless, saturated soil is subjected to vibration or shock waves. Soil liquefaction can lead to landslides and earthflows, movement or failure of foundations and footings, and mobility of buried objects. Potential for liquefaction is primarily restricted to areas of shallow groundwater that are underlain by young alluvial and lacustrine deposits. Although the alternative corridors are located within a "Potential Liquefaction Area" as identified by the County of San Diego, as discussed in Section 3.11 (Water Resources), the depth to groundwater in the vicinity of the alternative routes is approximately 90 feet (27 m) bgs. Accordingly, the potential for liquefaction in the area is generally low.

3.12.1.7 Mineral Resources

No known active mineral resource sites, sand or gravel pits, or BLM mining claims are present in the vicinity of the alternative corridors. The nearest BLM mining claim is a "placer" claim that is located approximately 1 mile (1.6 km) northwest of the route (BLM 2009).

3.12.1.8 Paleontological Resources

The County of San Diego prepared a draft map that identifies areas with high, moderate, low, and no potential for paleontological resources. Based on the County's map, the geologic material in the area of the alternative corridors is Holocene age alluvium (less than 10,000 years in age). Typically formations of that age are not considered a paleontological resource. Therefore, the area traversed by the alternative corridors has a low potential for containing paleontological resources (County of San Diego 2010).

3.12.2 Environmental Impacts

3.12.2.1 Methodology

The analysis considered the potential for alternatives to affect geologic resources and soil erosion, and how the alternatives could be affected by geologic processes and soil properties. None of the alternatives would affect mineral resources since no claims are located within or near the right-of-way of either alternative corridor, and the alternatives would not affect paleontological resources since the area is composed of Holocene age alluvium that has a low potential for containing paleontological resources.

3.12.2.2 Alternative 1 – No Action

Under the No Action alternative, the proposed project would not be constructed and no impacts to geology or soils would occur.

3.12.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Soil disturbance associated with construction vehicle use and excavation and grading required for placement of towers could result in increased erosion during construction. As described in Section 2.0 (Proposed Action and Alternatives), ESJ-U.S. has restricted the area of construction vehicle and equipment use to the extent practical by limiting the width of the construction right-of-way and consolidating the construction staging areas, which would reduce the potential for erosion. As discussed in Section 3.8 (Public Health and Safety), ESJ-U.S. has prepared an SWMP; this plan includes measures that would minimize soil erosion. These measures are listed below and are depicted on the Preliminary Grading and Erosion Control Plan drawings for the ESJ U.S. project (Appendix B):

- Silt fences would be installed on the boundary of the construction area where there is a possibility that silt may migrate from the disturbed area. All silt barriers would be put in place during clearing and would be placed perpendicular to the direction of water flow and as close to the site contours as possible. No grading would be performed until silt barrier installation is complete;

- Sandbags would be placed perpendicular to the silt fence to form cross barriers every 492 feet (150 m) along each reach of the silt fence;
- The silt fence would be left in place until final stabilization has occurred;
- Any disturbed area left exposed for 14 days would be stabilized with mulch or temporary seeding;
- Erosion control measures would be regularly inspected and maintained at all times;
- Slope protection (the use of erosion control measures) would occur following the clearing or grading of slopes or for those slopes that are more than three feet (0.9 m) in height. Currently it is not anticipated that the design would include any slopes that are more than three feet (0.9 m) in height;
- To reduce wind erosion, temporary disturbed areas would be wetted as necessary;
- Temporarily disturbed areas would be revegetated after construction;
- Erosion control measures would be installed and maintained as specified by the California Department of Transportation Construction Site BMP Manual; and
- Erosion control measures would be inspected at least once per week and both prior to and after predicted rain events.

Given the implementation of these measures, construction impacts would be minor and temporary, generally lasting for only the six-month construction period. There is a potential for erosion impacts after completion of construction due to improperly controlled site runoff; these impacts would be minor provided that the control measures are left in place, inspected, and maintained until final stabilization has occurred. The potential for soil erosion during and after construction could be further reduced by limiting modifications to the access road to the extent practical in areas of Acid Igneous Rock or Rough Broken Land, which are very sensitive to disturbance and have a high erosion potential. Mitigation Measure Geology-1 (limit modification to access road) is an additional potential mitigation measure (not identified by the applicant) that would reduce potential erosion both during and after construction. This potential mitigation measure is detailed in Section 3.12.3.

Operations Impacts

Long-term erosion could occur as a result of maintenance activities and vehicle use on the project access roads (e.g., if the road is frequently used by U.S. Border Patrol vehicles). This impact is expected to be long-term but minor because the roads would be designed for heavy vehicle use, and the site topography (gently rolling slopes) is not conducive to rapid soil loss. Implementation of potential Mitigation Measure Geology-1 (limit modification to access road) would further reduce the potential for long-term soil erosion.

Onsite soils have a high potential for corrosion of structural components such as uncoated steel. However, ESJ-U.S. would not have uncoated steel in contact with onsite soils; and ESJ-U.S.' proposed inspection, maintenance, and repair program would likely identify and remedy corrosion problems before they result in a structural failure. As a standard industry practice, geotechnical review of onsite soils would be conducted during the detailed design phase of the

project to assess soil characteristics at the structure locations, and the recommendations of the geotechnical review would be incorporated into the final design. This would reduce the potential for support structure damage caused by problematic soils. Impacts of corrosive soils on project structures would be minor but would occur over the life of the project.

As noted above, no active faults are present nearby; the nearest active faults are located near Julian and Elsinore, California, approximately 15 miles (24 km) north and 10 miles (16 km) north-northeast, respectively, and geological maps indicate the presence of two inactive buried faults located adjacent to the corridors. Although both of the inactive faults are relatively short, the proposed transmission line could experience moderate to high groundshaking during a large earthquake associated with one of the major faults in the region (such as the magnitude 7.2 earthquake which occurred southeast of the corridor on April 4, 2010). Although such seismically-induced groundshaking could damage project facilities, overhead transmission lines and their support structures are designed for dynamic loading under variable wind conditions that generally exceed earthquake loads. This inherent design feature tends to minimize the potential for damage to structures from groundshaking related to earthquakes. Further, overhead transmission lines consist of a system of support structures and interconnecting wire that is inherently flexible, and industry experience has demonstrated that these facilities generally do not experience significant damage due to earthquakes (CPUC/BLM 2008). The potential for an earthquake to cause significant damage to project facilities is considered a minor impact based on these design features and due to the distance to active faults, but the potential for impact would occur over the life of the project.

The potential for liquefaction along the proposed route is low because the depth to groundwater in the area is approximately 90 feet (27 m) bgs, which is well below the maximum depth of tower or monopole foundations. No impacts related to liquefaction are anticipated.

Slope instability, seismically induced or otherwise caused, can include landslides, rockfalls, and debris flows. The 230-kV Route consists of gently sloping topography, and, therefore, the potential for slope instability is low. The southern portion of the corridor near the U.S.-Mexico border is situated near a relatively steep slope; however, no evidence of slope instability such as landslides or rockfalls is present in this area. Accordingly, no impacts related to slope instability are anticipated.

Impacts in the U.S. due to Related Activities in Mexico

Based on field observations and a review of aerial photography, the topography, soils, and geologic conditions along the U.S. portion of the proposed route are generally consistent with those on the portion of the route in Mexico. As in the U.S., impacts resulting from transmission line construction in Mexico would be localized and therefore would not affect geology and soils in the U.S. In addition, potential impacts to geology and soils in the U.S. due to sediment and pollutants, transported by Flat Creek (an east-to-west drainage feature located approximately 0.5 mile [0.8 km] south of the U.S.-Mexico border) and other drainages from construction of the ESJ Wind project and the associated transmission line in Mexico are not likely due to the relatively low gradients, ephemeral nature, and relatively high infiltration rates along these drainages. As a result, no impacts in the U.S. due to the ESJ Wind project would occur.

3.12.2.4 Alternative 3 – Single-Circuit 500-kV Transmission Line

The geologic characteristics and soils along the 500-kV Route are substantially the same as those along the 230-kV Route, and construction, operation, and maintenance procedures for the 500-kV Route would be essentially the same as those for the 230-kV Route. Consequently, the impacts that would occur due to implementation of the 500-kV Route would be essentially the same as those described above for the 230-kV Route.

3.12.3 Mitigation Measures

ESJ-U.S. has proposed to incorporate standardized engineering design measures, plans and procedures into the project to minimize adverse effects related to soil erosion during construction and operations. The following potential mitigation measure not proposed by the applicant would further reduce the potential for the project to affect soils resources and for geologic and soils resources to affect project structures.

Geology-1: Limit Modification of Access Roads

Widening or upgrading of existing access roads should be minimized to the extent practical in areas of Acid Igneous Rock or Rough Broken Land, which are very sensitive to disturbance and have a high erosion potential.

3.13 SOCIOECONOMICS

This section analyzes potential impacts on socioeconomic resources, including population growth, housing, and employment. The discussion of the socioeconomic setting and potential impacts are focused on conditions in San Diego County because that is where the ESJ U.S. Transmission Line project would be located. The ESJ U.S. Transmission Line project also could draw on resources in nearby Imperial County and provide economic benefits to that county, as well.

3.13.1 Affected Environment

3.13.1.1 Population

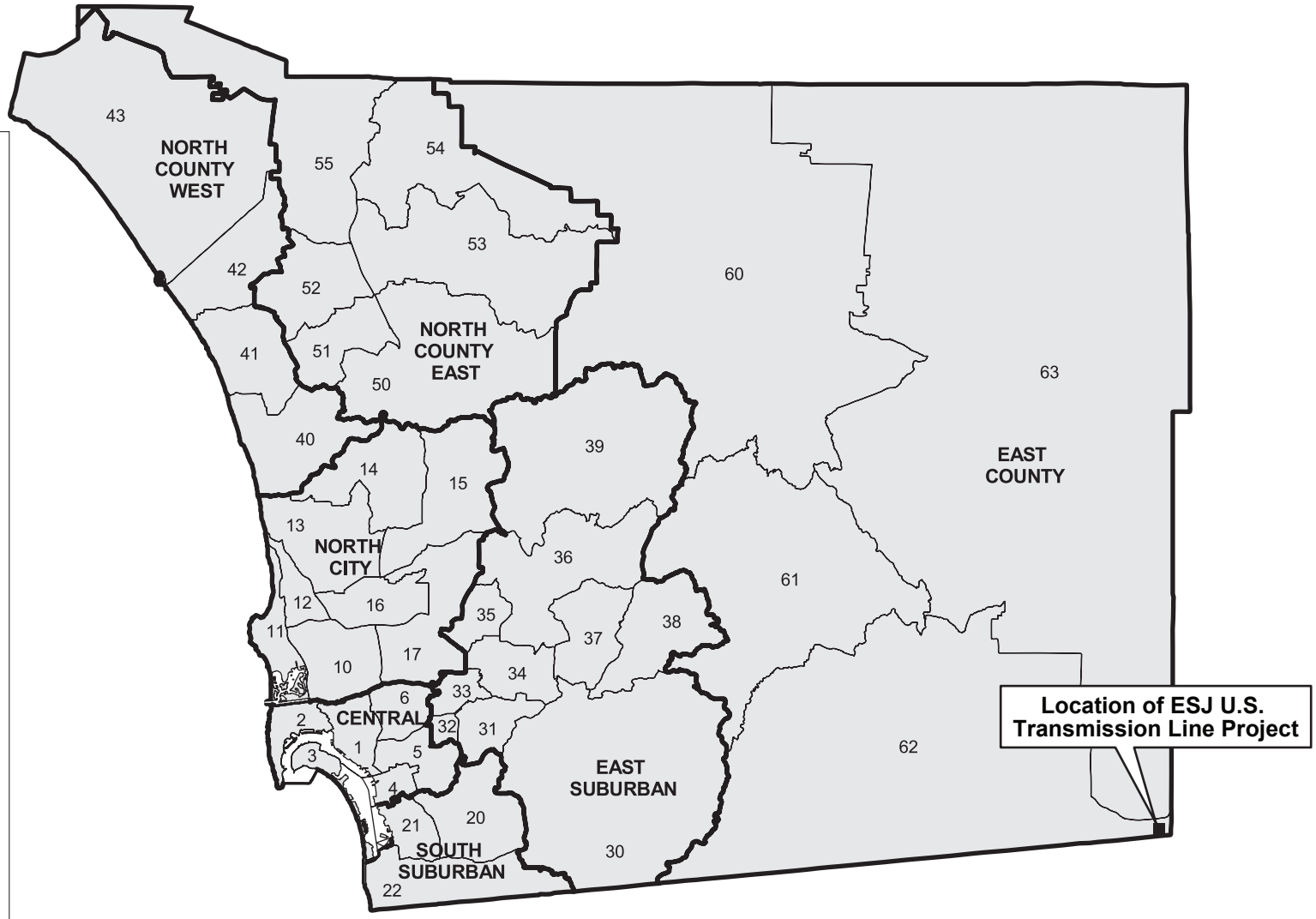
The SANDAG is the County of San Diego's Regional Planning Agency and maintains demographic information for all jurisdictions within San Diego County. In order to provide statistical information for smaller geographic areas, SANDAG has divided the county into Major Statistical Areas (MSA) and Subregional Areas (SRA). The alternative corridors are located within the SANDAG East County MSA 6 and Mountain Empire SRA 62 (Figure 3.13-1). Table 3.13-1 presents SANDAG's most recent population statistics for these areas in comparison to San Diego County as a whole, as well as projected populations for 2020, and 2030 and the anticipated percent change for these statistical areas. As shown in the table, while the total population of San Diego County is projected to increase by 27 percent from 2008 to 2030, both MSA 6 and SRA 62 are expected to experience much greater increases in population (174 percent and 151 percent, respectively).

3.13.1.2 Housing

The housing stock in San Diego County consisted of approximately 1,140,350 units in 2008 (SANDAG 2009). Approximately half of this stock was composed of single-family units, and 37 percent of the remaining stock was composed of multi-family units. As shown in Table 3.13-2, the number of housing units for the county is expected to increase 21 percent from 2008 to 2030. Similar to the population projections, much greater increases are projected for MSA 6 and SRA 62 over the same period.

Temporary Housing

Three hotels with a total of approximately 40 rooms are located in the vicinity of the alternative corridors (in the town of Boulevard). However, although temporary housing is limited in the local area, more than 54,000 temporary housing units (including hotels, casinos, bed and breakfasts, country inns, and health spas) are located in San Diego County. The combined average annual occupancy rate of all of available units is 72.9 percent (SDG&E 2009b).



LEGEND

Major Statistical Areas

Subregional Areas

CENTRAL
1 CENTRAL SAN DIEGO
2 PENINSULA
3 CORONADO
4 NATIONAL CITY
5 SOUTHEASTERN SAN DIEGO
6 MID-CITY

NORTH CITY
10 KEARNY MESA
11 COASTAL
12 UNIVERSITY
13 DEL MAR-MIRA MESA
14 NORTH SAN DIEGO
15 POWAY
16 MIRAMAR
17 ELLIOTT-NAVAJO

SOUTH SUBURBAN
20 SWEETWATER
21 CHULA VISTA
22 SOUTH BAY

EAST SUBURBAN
30 JAMUL
31 SPRING VALLEY
32 LEMON GROVE
33 LA MESA
34 EL CAJON
35 SANTEE
36 LAKESIDE
37 HARBISON CREST
38 ALPINE
39 RAMONA

NORTH COUNTY WEST
40 SAN DIEGUITO
41 CARLSBAD
42 OCEANSIDE
43 PENDLETON

NORTH COUNTY EAST
50 ESCONDIDO
51 SAN MARCOS
52 VISTA
53 VALLEY CENTER
54 PAUMA
55 FALLBROOK

EAST COUNTY
60 PALOMAR-JULIAN
61 LAGUNA-PINE VALLEY
62 MOUNTAIN EMPIRE
63 ANZA-BORREGO SPRINGS



AREA SHOWN IN THIS FIGURE

0 10 20 30 Miles
0 10 20 30 40 Kilometers

Source(s):
SANDAG/SourcePoint 2002.

*San Diego Association of Governments

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 3.13-1

SANDAG*-DEFINED MAJOR STATISTICAL AREAS AND SUBREGIONAL AREAS

August 2010

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Figure_3_13-1_SANDAG-DefinedStatisticalAreas_11x8_v4.ai (07/29/2010, 06:29 am) R. Wurgler/T. Murphy

Table 3.13-1
Population and Estimated Growth for San Diego County and Affected Subareas

	2008	2010	2020	2030	Percent Change
San Diego County	3,146,274	3,245,279	3,635,855	3,984,753	27%
MSA 6	21,082	25,008	37,331	57,838	174%
SRA 62	6,657	7,612	9,564	16,725	151%

Source: SANDAG 2009

Table 3.13-2
Total Housing Units and Estimated Growth for San Diego County and Affected Subareas

	2008	2010	2020	2030	Percent Change
San Diego County	1,140,349	1,174,180	1,309,340	1,383,803	21%
MSA 6	11,444	12,836	16,215	23,685	107%
SRA 62	2,775	3,129	3,650	6,104	120%

Source: SANDAG 2009

3.13.1.3 Employment

The San Diego region economy is based primarily on the service, retail trade, government, and manufacturing sectors. As of January 2009, the county average unemployment rate was 9.3 percent, just slightly below the state unemployment rate of 11.3 (California Employment Development Department 2009).

The estimated total employment for San Diego County, MSA 6, and SRA 62 is shown in Table 3.13-3. Overall county employment is expected to increase 38 percent by 2030. Much greater increases are projected for MSA 6 (140 percent) and SRA 62 (162 percent) in the same time period.

Table 3.13-3
Total Employment and Estimated Growth for San Diego County and Affected Subareas

	2000[1]	2010	2020	2030	Percent Change
San Diego County	1,384,676	1,573,742	1,741,033	1,913,682	38%
MSA 6	6,837	6,201	10,652	16,443	140%
SRA 62	2,030	2,123	3,635	5,323	162%

[1] From 2000 Census.
Source: SANDAG 2009

3.13.2 Environmental Impacts

3.13.2.1 Methodology

Impacts related to socioeconomics would occur if the proposed project resulted in short-term or long-term population growth that exceeded the available housing supply or reduced the availability of employment opportunities for existing residents. Socioeconomic impacts would also result if the proposed project resulted in changes to revenue of local businesses or affected the property value of nearby residents. Available statistics were reviewed and compared to the level of employment and duration of construction and operations associated with the 230-kV and 500-kV Route alternatives.

3.13.2.2 Alternative 1 – No Action

Under the No Action Alternative, the Presidential permit would not be issued and the proposed transmission line would not be constructed. Local housing and economic activity would continue at the levels described in Section 3.13.1.

3.13.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Construction of the 230-kV Route would involve a very small work force (20 to 25 workers) for a very short period of time (maximum 6 months). Given such a small and temporary labor requirement, and the availability of a large construction labor force in San Diego and Imperial counties, it is highly unlikely that project construction would result in the in-migration of any workers to the area. Therefore, any adverse impacts of project-related population growth on housing or public services are likely to be negligible. If construction workers need temporary housing while working on the project, there are three hotels with a total of approximately 40 rooms in the nearby town of Boulevard, and over 54,000 temporary housing units in all of San Diego County (SDG&E 2009b). In terms of beneficial impacts, the project would provide some short-term jobs and incomes for residents of San Diego and Imperial counties.

Local businesses are present approximately 2.75 miles (4.4 km) northwest of the 230-kV Route at the I-8 – Carrizo Gorge Road interchange, and in the community of Jacumba, approximately 4 miles (6.4 km) west of the project site. The 230-kV Route would not require the removal or relocation of any business uses; and given the distance to the proposed transmission line and the limited number of truck trips required, no nuisance effects related to noise or air emissions would occur.

Employment of construction personnel would provide a temporary beneficial impact on local businesses and the regional economy through increased expenditure of wages for goods and services. Personnel for construction would be drawn from local populations. A limited number of construction personnel may require temporary housing, likely in local hotels, and would purchase food, beverages, and other commodities, which would provide temporary benefits to the local economy.

Operations Impacts

Operation and maintenance of the proposed project would provide additional work for two existing workers. These two workers would perform needed services at the proposed transmission line in addition to their duties at other locations, so no new jobs would be created. Therefore, project operations and maintenance would not result in the in-migration of any workers to the area, and there would be no adverse impacts on housing or public services. In terms of beneficial impacts, the project would provide additional work for two workers who likely reside in San Diego County or Imperial County.

The presence of the 230-kV Route could potentially indirectly reduce the value of nearby properties. Claims of diminished property value for similar projects has been based on concerns about hazards to human health and safety; increased noise and traffic; and impacts to visual resources associated with living in close proximity to the transmission lines. As discussed in Sections 3.6 (Noise); 3.7 (Transportation and Traffic); and 3.8 (Public Health and Safety), no impacts with regard to increased noise and traffic or EMF concerns in relation to nearby sensitive receptors are anticipated; potential impacts to property values are related to impacts to visual resources. Substantial research regarding this issue was presented in the Sunrise Powerlink RDEIR/SDEIS, Section D.14.5.1 (CPUC/BLM 2008b). This research indicates that while there is some evidence that overhead transmission lines have the potential to reduce the value of nearby property, any effects are usually smaller than anticipated and difficult to quantify due to the individuality of properties/neighborhoods, differences in personal preferences of individual buyers/sellers, and the weight of other factors that contribute to a person's decision to purchase a property. Other factors (e.g., neighborhood factors, square footage, size of lot, irrigation potential) are more likely than overhead transmission lines to be major determinants of the sales price of property (Knoll and Priestly 1992; CPUC/BLM 2008b). Further, incremental effects on property values that may result from overhead transmission lines would diminish over time, and most likely disappear in five years (CPUC/BLM 2008b). Based on the studies discussed in the Sunrise Powerlink RDEIR/SDEIS, it is unlikely that the proposed transmission line would result in a major permanent impact on property values.

Impacts in the U.S. due to Related Activities in Mexico

The construction of wind turbines in Mexico could affect property values in the U.S. if property buyers and sellers reassessed property values downward as a result of perceived negative changes in the viewshed from U.S. properties. As discussed in Section 3.2 (Visual Resources), the wind turbines would be visible from private land in and around the community of Jacumba (see Figure 3.2-9 which provides a simulation of views of the wind turbines from Jacumba). To the extent that the wind turbines would substantially change the visual setting in a portion of the community's viewshed, the wind development could indirectly result in impacts on property values. The nature and severity of potential visual impacts are addressed in Section 3.2 (Visual Resources). The effect of wind turbines on property value is highly subjective and case-specific, depending on a number of factors including the distance of wind turbines to affected properties, existing conditions prior to development of the wind turbines, and the general economic climate. Few complete studies have been conducted relating property values to the presence of wind farms, and two of the most widely cited studies in the U.S. (Sterzinger et al. 2003; Haughton et al. 2004) reach contradictory conclusions on the subject. The Renewable Energy Policy Project recently performed a statistical analysis that compared changes in property values over time

among homes with wind farms in the viewshed and other comparable homes in the community. The study found that there was no statistical difference in property values among the datasets for all communities analyzed (Sterzinger et al. 2003). In contrast, as part of an economic analysis of a proposed wind farm off the coast of Nantucket, Haughton et al. (2004) conducted a survey of the affected homeowners that concluded property values could decrease by as much at 4 percent. As noted in the Sunrise Powerlink RDEIR/SDEIS (CPUC/BLM 2008), various other studies have concluded that any adverse property value impacts tend to diminish over time, and within five years the change is negligible. This is most likely due to increased screening as trees and shrubbery grow and/or diminished sensitivity to the project proximity in the absence of adverse publicity. Based on these studies, the potential for adverse property value impacts exists, but any decrease in property values is likely to be minor and short-term.

The construction of wind turbines in Mexico could also reduce recreational visitation to the public lands within the project area in the U.S., if visitors perceive the area's recreational resources as less desirable due to changes in the viewshed from vantage pints within U.S. In turn, this decrease in visitation could result in reduced visitor-serving commercial revenues within local communities. The nature and severity of potential visual impacts on recreational uses are addressed in Section 3.2 (Visual Resources), and recreational resources are described in Section 3.4 (Recreation). As with private property values, the effect of distant views of wind turbines on recreational use in the U.S. is highly subjective and case-specific, depending on the distance of wind turbines to the affected recreational lands; the existing recreational conditions prior to development of the wind turbines; the general values attributed to the recreational resource; and the relative proportion of local incomes that are attributable to recreational visitation. No studies have been found in literature that describe the indirect effect of recreational visitation after construction of wind turbines that alter distant views from recreational areas. Based on the Visual Resources analysis presented in Section 3.2, it is likely that any decrease in recreation visitation and associated visitor-serving income would be minor and short-term.

3.13.2.4 Alternative 3 – Single-Circuit 500-kV Transmission Line

Socioeconomic impacts for this alternative would be substantially the same as for 230-kV Route because the routes are adjacent to each other; construction, operations, and maintenance activities for the 500-kV Route would be substantially the same as for the 230-kV Route.

3.13.3 Mitigation Measures

No mitigation measures are indicated because any impacts related to socioeconomics would be either minor or beneficial. Socioeconomic impacts related to potential mitigation measures that are indicated for other issues would depend on the nature of the mitigation measures. In general, measures are likely to create local employment as a result of hiring and material procurement. Mitigation-related wage and salary spending and material expenditures would have a beneficial effect on the overall level of economic activity in the county.

3.14 ENVIRONMENTAL JUSTICE

This section describes the minority and low-income populations in the vicinity of the proposed transmission line and addresses the potential for disproportionately high or adverse impacts to these segments of the population. Assessment of environmental justice is required by E.O. 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 7629), signed in February 1994. E.O. 12898 directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

3.14.1 Affected Environment

3.14.1.1 Minority Populations

Per CEQ guidance, "minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population of other appropriate unit of geographic analysis" (CEQ 1997). Table 3.14-1 presents the most recent statistics (2008) on minority populations for census tracts in San Diego County located near the alternative corridors (Census Tracts 210 and 211) and for the nearest census tract east of the alternative corridors in Imperial County (Census Tract 123.01). The most recent statistics (2000) on minority population in all of San Diego and Imperial counties are also provided in Table 3.14-1. As shown in the table, minorities comprise 50 percent or more of the population in both counties, in Census Tract 210, which includes the alternative corridors, and in the other two nearby Census Tracts. The total percentage of minority population in Census Tract 210 is greater than the minority population percentage in San Diego County as a whole. Minorities comprise a greater percentage of the population east of the alternative corridors in Census Tract 123.01 and Imperial County than they do in Census Tracts 210 and 211 and San Diego County.

3.14.1.2 Low-Income Populations

Per CEQ Guidance, "low-income populations in the affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty" (CEQ 1997b, *Environmental Justice: Guidance Under the National Environmental Policy Act).* Table 3.14-2 presents the percent of population living below the poverty level in the areas nearest the alternative corridors. According to the 2000 Census (the most recent year for which data are available), 12 percent of all households in San Diego County and 23 percent of all households in Imperial County were below poverty level compared to 15 percent and 20 percent for Census Tract 210 (which includes the alternative corridors) and Census Tract 211, respectively (U.S. Census Bureau 2000). Although poverty levels are higher than the value for San Diego County as a whole, they are below the value for Imperial County as a whole, and the difference from the San Diego County value is not sufficiently large for the local area to be considered to contain low-income populations.

Table 3.14-1
Population and Ethnicity for Areas Near the Alternative Corridors

Race/Ethnicity	Census Tract 210[2] (San Diego)[a]	Census Tract 211 (San Diego)[a]	Census Tract 123.01 (Imperial)[b]	Imperial County[c]	San Diego County[a]
White	1,308	3,015	1,329	26,622	1,580,685
Black	229	344	1,465	5,449	166,284
Other	89	713	46	7,452	459,152
Hispanic [1]	1,875	2,585	2,362	122,124	940,153
Total	**3,501**	**6,657**	**5,202**	**163,972**	**3,146,274**
Total Minority	2,193	3,642	3,873	135,025	1,565,589
Percent Minority	63%	55%	74%	82%	50%

[1] The Hispanic category is an ethnic, rather than a racial distinction. These tables, therefore, include only non-Hispanic individuals in the black, white, and other categories to avoid over-counting.

[2] The alternative corridors are located in Census Tract 210.

Source: [a] SANDAG 2008; [b] U.S. Census Bureau 2008; [c] U.S. Census Bureau 2000 (more recent information is not available)

Table 3.14-2
Population below the Poverty Threshold for Areas near the Alternative Corridors[1]

	Census Tract 210[2] (San Diego)	Census Tract 211 (San Diego)	Census Tract 123.01[3] (Imperial)	Imperial County	San Diego County
Population below the Poverty Threshold	463	1,265	124	29,681	338,399
Total	**3,179**	**6,192**	**774**	**131,459**	**2,722,408**
Percent below Poverty Threshold	15%	20%	16%	23%	12%

[1] The most recent data set at the census tract level is for 1999.

[2] The alternative corridors are located in Census Tract 210.

[3] The total population of this census tract presented in the U.S. Census Bureau data is well below the total population presented in the population records and is displayed as provided by the U.S. Census Bureau.

Source: U.S. Census Bureau 2000

3.14.2 Environmental Impacts

3.14.2.1 Methodology

Potential impacts were assessed in the context of area demographics, including the proximity of populated areas, to determine whether they would disproportionately affect minority or low-income population groups.

3.14.2.2 Alternative 1 – No Action

Under the No Action alternative, the Presidential permit would not be issued, and the proposed transmission line would not be constructed. No adverse impacts to minority and low-income populations in the vicinity of the ESJ U.S. Transmission Line project would occur.

3.14.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

As described above, the census tract which includes the proposed transmission line right-of-way could be considered to include minority populations, as greater than half of the residents are classified as minorities and the percentage of minorities exceeds the percentage in San Diego County as a whole. There is no potential for construction of the 230-kV Route to cause disproportionately high and adverse effects to the minority populations because of the distance between the right-of-way and the nearest populations. The nearest occupied residences are approximately 2 miles (3.2 km) west of the right-of-way, and the nearest residential community, Jacumba, is located approximately 4 miles (6.4 km) west. As discussed elsewhere in Section 3, construction of the 230-kV Route would not result in major adverse health and safety, air quality, noise, socioeconomic, or other impacts and identified minor impacts would not disproportionately affect minority populations in comparison to the general population. Additionally, no information suggests that there are differential patterns of consumption of natural resources that would cause minority populations to experience impacts that are substantially different from impacts on the general population. With regard to low-income populations, no such populations were identified in the vicinity of the right-of-way. Therefore, there is no potential for construction of the 230-kV Route to cause disproportionately high and adverse effects to minority or low-income populations.

Operations Impacts

As discussed above, no low-income populations were identified in the vicinity of the 230-kV Route, but the census tract which includes the 230-kV Route could be considered to include minority populations. However, the nearest occupied residences are approximately 2 miles (3.2 km) west of the right-of-way and the nearest residential community is 4 miles (6.4 km) west. Further, as discussed elsewhere in Section 3, operation of the 230-kV Route would not result in major adverse health and safety, air quality, noise, socioeconomic, or other impacts on local communities. The identified minor impacts would not disproportionately affect minority populations in comparison to the general public. Additionally, no information suggests that there are differential patterns of consumptions of natural resources that would cause minority populations to experience substantially different impacts than the general population. Therefore, there is no potential for operation of the 230-kV Route to cause disproportionately high or adverse impacts to minority or low-income populations in comparison to the general population.

Impacts in the U.S. due to Related Activities in Mexico

As discussed elsewhere in Section 3, construction and operation of the ESJ Wind project in Mexico is not expected to adversely affect the communities in the vicinity of the ESJ U.S. Transmission Line project; therefore, there is no potential for the ESJ Wind project to disproportionately affect minority or low-income populations in the U.S.

3.14.2.4 Alternative 3 – Single-Circuit 500 kV Transmission Line

The existing conditions described for the 500-kV Route are the same as for 230-kV Route because the routes are adjacent to each other. Construction, operations, and maintenance activities for Alternative 3 would be substantially the same as for Alternative 2. Consequently, the impacts that would occur under the 500-kV Route would be as described for the 230-kV Route. No disproportionately high or adverse impacts to minority or low-income populations would occur.

3.14.3 Mitigation Measures

No mitigation measures are indicated.

3.15 SERVICES AND UTILITIES

This section addresses potential impacts of project implementation on public services (schools, hospitals, and law enforcement) and utilities (electrical power, sanitary waste, telecommunications, and solid waste). Fire protection, wildfire risk, and management of onsite fuels are addressed in Section 3.9 (Fire and Fuels Management). Water supplies are addressed in Section 3.11 (Water Resources).

3.15.1 Affected Environment

3.15.1.1 Services

Both of the alternative corridors are in the Mountain Empire Unified School District. The nearest school is approximately 4 miles (6.4 km) away in the community of Jacumba. The nearest hospital is located in El Centro, approximately 35 miles (56 km) east of the alternative corridors.

Local law enforcement services for the area that includes the alternative corridors are provided by the County of San Diego Sheriff's Department office in the community of Boulevard. The U.S. Border Patrol, San Diego Sector, Campo Station is responsible for the border area extending from approximately 4 miles (6.4 km) west of Tecate to the San Diego/Imperial County line and maintains a regular presence in the vicinity of the corridors. Since this area is largely undeveloped high desert land with minimally maintained roads, agents patrol the border on foot, horseback, mountain bikes, all-terrain vehicles (ATVs) and 4-wheel-drive vehicles (U.S. Department of Homeland Security 2007).

3.15.1.2 Utilities

SDG&E provides electrical service in the vicinity of the corridors. SDG&E maintains the existing SWPL transmission line that extends west and east through the Mountain Empire subregion of the county, which includes the alternative corridors. SDG&E has substation facilities located in Boulevard and Cameron Corners, which are west and northwest of the corridors site, respectively.

Sanitary waste in nearby communities is handled via private septic systems. SBC and Cox Communications provide telecommunications services in the vicinity of the alternative corridors.

There are many landfills in San Diego and Imperial counties. The two landfills closest to the corridors are:

- Allied Imperial Landfill (104 East Robinson Road, Imperial). This facility has a maximum permitted throughput of 1,135 tons/day, and a remaining capacity of approximately 1.9 million cubic yards (44% of its overall capacity) (California Department of Resources Recycling and Recovery 2009a); and

- Imperial Solid Waste Site (1705 West Worthington Road, Imperial). This facility has a maximum permitted throughput of 207 tons/day and a remaining capacity of approximately 184,000 cubic yards (9.5% of its overall capacity) (California Department of Resources Recycling and Recovery 2009b).

3.15.2 Environmental Impacts

3.15.2.1 Methodology

Project activities were examined for their potential to disrupt or increase the demand for services and utilities.

3.15.2.2 Alternative 1 – No Action

Under the No Action Alternative, the proposed transmission line would not be installed; therefore, no impacts related to existing services or utilities would occur.

3.15.2.3 Alternative 2 – Double-Circuit 230-kV Transmission Line (Applicant's Preferred Alternative)

Construction Impacts

Public Services

Construction would require between 20 and 25 construction workers during the 2- to 6-month construction period. Construction is expected to require approximately two months, although it could be distributed over six months if periodic work stoppages are required as a result of inclement weather or other factors. The majority of the construction workers would likely be from the relatively large labor pool within commuting distance of the 230-kV Route; therefore, construction would not result in an increase in the local population (see Section 3.13, Socioeconomics, for additional information). As a result, schools would not be affected, and any increased demand on hospitals would be temporary and minor.

In general, construction sites are targets for theft and vandalism. This issue has been prevalent at construction sites located near the U.S.-Mexico border (e.g., look-alike vehicles have been used by unauthorized individuals to gain access to construction sites and theft of construction equipment has occurred). Theft and vandalism from construction sites could increase impacts to public services by creating an increase in stolen goods trafficking and an increase in movement across the U.S.-Mexico border for illicit purposes. The U.S. Border Patrol, which is the main agency engaged in law enforcement activity in the vicinity of the project, has indicated that it would not alter its border protection mission by providing security at a commercial construction site (Soule 2009; included in Appendix G [Agency Consultations]). U.S. Border Patrol has suggested that certain measures can be taken to prevent unauthorized use of the improved access road and ensure the security of the construction areas. These actions may include contracting with a private security agency to assist in protecting the construction area; securing unused construction equipment; and establishing a means to positively identify all vehicles and personnel involved in the construction activities. Mitigation Measure Services-1 (Coordinate with U.S. Border Patrol and Local Law Enforcement and Secure Construction Site) is an additional mitigation (not identified by the applicant) that would address the effect of increased demand for border law enforcement by coordinating with the U.S. Border Patrol and local law enforcement, and identifying and implementing site-specific security measures. With implementation of this mitigation measure, any increased demand on law enforcement – in particular the U.S. Border Patrol and the County of San Diego Sheriff's Department - would be temporary and minor. No other law enforcement impacts are identified.

Utilities

The proposed project would not be co-located with existing utility systems and, therefore, would not affect these systems. The SWPL transmission line, which is owned and operated by SDG&E, would not be affected by project construction or operation.

Portable toilets would be provided for use by the construction workers. These facilities would be delivered to and removed from the construction right-of-way by a licensed portable sanitation company, and the waste material would be disposed of at an approved facility. As a result, there would be no installation of new septic systems and no impacts to existing local septic systems. As discussed in Section 2.4.3, project construction would require 20 to 25 workers. Although it is anticipated that some use of wireless communications would be required during construction activity, it is assumed that the workers already own or use devices with wireless technology and therefore, the project would not result in any increased demand in wireless communications or impact service to other customers.

Waste generation during construction would include packaging, excess building materials that would be returned to vendors or recycled, excess soil that would be used in grading other parts of the site, and small amounts of incidental waste that cannot be recycled. All waste material generated during project construction would be deposited in dumpsters or covered bins that would be removed from the construction right-of-way by a licensed waste hauler for proper disposal. The waste exported offsite would be a small percentage of the permitted throughput for the closest landfills, both of which have sufficient capacity to accommodate the solid waste generated by the project, and which together represent only a small fraction of the region's total landfill capacity. To minimize the volume of solid waste, ESJ-U.S. would segregate recyclable wastes in compliance with the County of San Diego construction and demolition debris ordinance. This ordinance requires that a minimum of 90 percent of inert material and 70 percent of other materials be recycled. Compliance with the ordinance would also require that ESJ-U.S. submit quarterly Debris Management Reports to the County of San Diego Department of Public Works Solid Waste Planning and Recycling Section during construction, including receipts for landfill disposal and recycling. As a result, impacts associated with solid waste disposal would be temporary and minor.

Operations Impacts

Project operations would not result in added population (refer to Section 3.13 [Socioeconomics]), and therefore, would not result in increased demand for public services or utilities. As there would be no permanent structures except the proposed towers or monopoles associated with the project, project operations would not result in increased demand for waste management services or utility connections. In addition, although project operations would not require increased patrols of the area by the U.S. Border Patrol or local law enforcement, the U.S. Border Patrol has indicated that their agents may use the project access road during patrols as necessary (Good and Soule 2009).

Impacts in the U.S. due to Related Activities in Mexico

There would not be impacts on U.S. utilities that result from related activities in Mexico. The only potential for an impact on public services would be associated with an increase need for law enforcement. That could result if the increased presence of personnel in the border area during

construction of the transmission line in Mexico increased the demand for County of San Diego law enforcement and U.S. Border Patrol services. However, because construction of the transmission line in Mexico would be separate from construction of the ESJ U.S. project, there would be minimal cross-border activity. At most, this would result in a minor and temporary impact on those agencies.

3.15.2.4 Alternative 3 – Single-Circuit 500-kV Transmission Line

Because of the proximity of the two alternative routes, the services and utilities setting for the 500-kV Route is the same as for the 230-kV Route. Construction, operations, and maintenance activities for the 500-kV Route would be substantially the same as for the 230-kV Route. Consequently, the services and utilities impacts that would occur under Alternative 3 would be essentially the same as those described for Alternative 2.

3.15.3 Mitigation Measures

The following potential mitigation measure not proposed by the applicant would reduce potential impacts on law enforcement services.

Services-1: Coordinate with U.S. Border Patrol and Local Law Enforcement and Secure Construction Site

ESJ-U.S. should coordinate with the U.S. Border Patrol and local law enforcement and implement appropriate actions to prevent unauthorized use of the improved access road and ensure the security of the construction right-of-way. These actions may include contracting with a private security agency to assist in protecting the construction area; securing unused construction equipment; and establishing a means to positively identify all vehicles and personnel involved in the construction activities.

3.16 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

Implementation of the ESJ U.S. Transmission Line project along either of the alternative routes would result in some unavoidable adverse environmental impacts in the U.S. These impacts are identified below by resource area.

3.16.1 Biological Resources

Due to fire safety conditions at the site, the ESJ-U.S. Fire Protection Plan requires a cleared space of 30 feet (9.1 m) on all sides of the proposed towers (or 10 feet [3 m] around monopoles). This would result in the permanent removal of vegetation with Sonoran Mixed Woody Scrub and Peninsular Juniper Woodland and Scrub habitat. ESJ-U.S. is working with the County of San Diego to provide a conservation easement to offset the impacts (as required by the County) and preserve habitat that is functionally similar to that impacted by project construction. Unavoidable impacts to wildlife include temporary increases in noise, dust, and the presence of humans during construction activity which could alter the behavior and success of nesting birds and foraging wildlife. ESJ-U.S. has incorporated a number of measures into project design to reduce such impacts to minimal levels.

3.16.2 Visual Resources

Construction of the access roads and transmission line towers or monopoles would introduce unnatural vegetation lines and soil color contrast (e.g., land scarring). Potential mitigation measures would reduce impacts to moderate levels but impacts would be permanent and unavoidable. The presence of the transmission line once constructed would add industrial structures to a primarily rural, open space area and result in minor to moderate long-term adverse impacts to visual resources. The ESJ Wind project would also introduce tall, highly visible vertical elements into the U.S. viewshed that would change the existing visual character. The hillside and ridgeline presence of the wind turbines would result in a substantial increase in industrial character, diminution of visual quality and increase in visual contrast, particularly as viewed from the community of Jacumba. In the context of the existing landscape's visual sensitivity, the resulting visual impact of these related activities in Mexico is considered unavoidable, major and permanent. There is no mitigation available to reduce visual impact of the ESJ Wind project to a level that would be minor.

3.16.3 Noise

During construction, daytime noise would increase in areas located near the right-of-way. There are no residences in these areas, and the nearest recreational area is about 0.5 mile (0.8 km) east. Since this impact is associated with the construction phase only, it would be temporary and short-term. During dry weather conditions (which is almost always the case in the study area), noise associated with corona effects would not be audible beyond the right-of-way. During very infrequent rainfall events, the noise level at the edge of the right-of-way would be less than 24 dBA. This is a low level (typical of the noise level in a library), which would not be expected to create a disturbance.

3.16.4 Fire and Fuels Management

Construction activities associated with the proposed project could increase wildfire risks in and near the construction area as a result of inadvertent introduction of non-native invasive plant

species and ignition sources in a fire-prone area. Potential mitigation measures would minimize the potential for a wildfire caused during construction, but the impact of a fire could be potentially major. Following completion of construction activity, the long-term presence of the transmission line would be a potential source of wildfire ignitions for the life of the project and would increase the risk of a wildfire. This impact would be reduced to some extent by implementation of the Fire Protection Plan developed for the project. However, not all potential ignition sources can be eliminated by implementation of measures such as those included in the Fire Protection Plan and impacts are considered potentially major and unavoidable. Similarly, operation of the ESJ Wind project could increase the potential for fires that originate in Mexico, and these fires could spread into the U.S. under certain weather conditions. Given the distance between the wind farm and the U.S., the more likely scenario for a cross-border fire would originate from the transmission line near the U.S. Mexico border. This impact is considered moderate and unavoidable, and it would last for the life of the ESJ Wind project.

3.16.5 Air Quality and Climate Change

Construction and maintenance of the transmission line would result in unavoidable emission of criteria pollutants in the San Diego Air Basin. Impacts from construction would include fugitive dust emissions generated by the operation of construction vehicles. Fugitive dust would be concentrated in the immediate vicinity of the transmission lines and would be of short duration. There would also be exhaust emissions from construction vehicles. Given the small number of vehicles involved, the short duration of construction, and the distance of the construction sites from populated areas, no substantial effect on air quality would occur.

The maintenance of the transmission line would likewise result in the emission of small quantities of dust and exhaust emissions. The emissions resulting from the relatively trips required for line maintenance would be of a de minimis nature and would occur infrequently, but last for the life of the project.

3.16.6 Water Resources

Construction of the transmission line would unavoidably consume water resources for dust abatement, cleaning construction equipment, and concrete production for tower foundations. The estimated volume of water (2.4 acre-feet or 2,950 cubic m) that would be required during short-term construction of the transmission line is relatively small in comparison to the annual recharge and, therefore, would not impact the locally available water supply. Accordingly, impacts related to groundwater resources, the primary water supply in the area, during construction are considered temporary and minor.

3.16.7 Geological Resources

The transmission line construction process would unavoidably have some effects on geological resources. Soils would be disturbed during the construction of towers or monopoles, and access roads. The construction of footings for towers or monopoles would result in the permanent displacement of soils. Removal of vegetation and compaction would occur in the work areas, with potential impacts on erosion. Soil displacement and compaction would also occur during the grading and use of access roads.

SECTION 4

CONNECTED ACTIONS (ECO SUBSTATION AND SWPL LOOP-IN)

4.1 ENVIRONMENTAL ANALYSIS OF CONNECTED ACTIONS

On August 11, 2009, SDG&E filed an application with the CPUC for a Permit to Construct the ECO Substation Project (CPUC Application A.09-08-003). The CPUC is in the process of evaluating the SDG&E ECO Substation Project under CEQA. CPUC and BLM published a NOI to prepare an EIR/EIS for the SDG&E ECO Substation Project on December 28, 2009 (74 FR 68860). It is anticipated that the EIR/EIS will provide a comprehensive analysis of potential impacts of these two actions. According to SDG&E, the purpose of the ECO Substation Project is to "provide an economical interconnection platform for renewable energy projects and to improve reliability to electric customers in southeastern San Diego County." As discussed in Section 1.1.2, the ECO Substation switchyards and SWPL loop-in (two components of the SDG&E ECO Substation Project) are considered connected actions to the proposed ESJ U.S. Transmission Line project. Detailed descriptions of the ECO Substation switchyards and SWPL loop-in are provided in Section 2.8.

This section provides a discussion of the potential impacts of construction and operation of the ECO Substation switchyards and SWPL loop-in based on recently completed analyses conducted jointly by the CPUC and BLM, as well as SDG&E. The Sunrise Powerlink RDEIR/SDEIS included an assessment of potential impacts of the proposed ECO Substation and SWPL loop-in as connected actions to the Sunrise Powerlink project[1] based on conceptual plans for the two actions (CPUC/BLM 2008b). More recently, SDG&E conducted an evaluation of the potential impacts associated with construction and operation of the ECO Substation and SWPL loop-in in a PEA[2] as part of their permit application package submitted to the CPUC (SDG&E 2009b). That document was prepared based on a detailed project description and is therefore considered a more complete assessment of the potential impacts of the ECO Substation and SWPL loop-in. The relevant analyses from those documents are incorporated into this EIS by reference and summarized below by issue area, consistent with the organization of Section 3 (Affected Environment, Impacts, and Mitigation Measures).

4.1.1 Biological Resources

Potential impacts to biological resources associated with the construction and operation of the connected actions are addressed in Section 4.4 of the SDG&E PEA and Section 2.2.2, starting at

[1] The RDEIR/SDEIS for the Sunrise Powerlink Project refers to the ECO Substation as the "Jacumba Substation" and the ESJ Wind Project as the "La Rumorosa Wind Project." The Sunrise RDEIR/SDEIS is available online at: http://www.cpuc.ca.gov/Environment/info/aspen/sunrise/toc-rdeir.htm.

[2] The ECO Substation application documents, including the PEA, are available online at: http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/ECOSUB.htm.

page 2-18, of the Sunrise Powerlink RDEIR/SDEIS. Associated mitigation measures listed in the Sunrise Powerlink RDEIR/SDEIS are provided in Appendix 12, beginning at page Ap.12-2. Potential impacts addressed in these analyses include:

- Temporary and permanent losses of native vegetation.
- Introduction of invasive, nonnative, or noxious plant species during construction activity.
- Creation of dust during construction activity that may result in degradation of plant species.
- Direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants.
- Disturbance to wildlife and potential wildlife mortality during construction and maintenance activities (including use of access roads).
- Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife.
- Loss of nesting birds and violation of Migratory Bird Treaty Act during construction activity.
- Adverse impacts to linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites during construction and operation activity.

According to the PEA, construction of the connected actions would result in the temporary removal of 8.3 acres (3.4 ha) of mixed desert scrub and 16.6 acres (6.7 ha) of juniper woodland as well as the permanent removal of 14.5 acres (9.3 ha) of mixed desert scrub and 74.3 acres (30.1 ha) of juniper woodland. The PEA states that all areas that are temporarily disturbed would be restored to pre-construction conditions[3]; however, permanent vegetation removal is not considered a significant impact because the vegetation proposed for removal is not a designated sensitive natural community, and the proposed activities would not conflict with any identified plans or policies.

In contrast, the RDEIR/SDEIS identifies the permanent removal of vegetation as significant and unavoidable even with the implementation of all recommended mitigation measures[4]. Based on our independent analysis of the two documents, permanent removal of particular vegetation communities (Sonoran Desert Mixed Scrub and Peninsular Juniper Woodland) would be considered a potentially major impact, as per the definition provided in Section 3.0, and hence, could require mitigation. As discussed in Section 3.1 (Biological Resources), County of San Diego Guidelines require mitigation of any impacts to the Sonoran Desert Mixed Scrub habitat

[3] In contrast to the ESJ U.S. project which does not include restoration of disturbed areas because of fire safety restrictions at the site, the project description for the SDG&E ECO Substation Project provided in the PEA states that all temporary disturbance areas would be revegetated. No information is provided in the PEA regarding consultation with the County of San Diego Rural Fire Protection District; therefore, it is unknown if the ECO Substation Project would be subject to the same vegetation clearance requirements as the ESJ U.S. project.

[4] The full text of CPUC and BLM's recommended mitigations related to ECO Substation Project are provided in Appendix 12 of Sunrise Powerlink Final EIR/EIS (CPUC/BLM 2008b). This document is available online at: http://www.cpuc.ca.gov/environment/info/aspen/sunrise/feir/apps/App 12.pdf.

type and Peninsular Juniper Woodland and Scrub habitat type on a 1:1 and 3:1 ratio, respectively (County of San Diego 2009a). Therefore, although not addressed in the PEA, SDG&E may be required by the County of San Diego to provide onsite or offsite compensatory mitigation for all permanent impacts to these vegetation communities. With the implementation of such mitigation, impacts with regard to temporary and permanent vegetation removal would be considered minor.

With regard to sensitive plant species, both documents state that rare plant surveys conducted in 2008 (RDEIR/SDEIS and PEA) and 2009 (PEA only) concluded that no special status plants occur at the proposed ECO Substation switchyard site. Based on our independent analysis of the two documents, no impacts to rare or sensitive plant species are anticipated to result from construction or operation of the ECO Substation switchyards and SWPL loop-in.

With regard to sensitive wildlife species, based on the current distribution of the federally-endangered Peninsular bighorn sheep and their potential habitat, the RDEIR/SDEIS concluded that the species has a high potential to occur along the SWPL loop-in and at the ECO Substation switchyard site. The RDEIR/SDEIS states that the impact to vegetation communities that are part of peninsular bighorn sheep habitat is considered a significant and unavoidable impact, although mitigation measures are recommended to partially provide compensatory mitigation[5]. However, according to the PEA, both the ECO Substation switchyards and SWPL loop-in would be located approximately 600 feet (183 m) west of designated critical habitat and there are no CNDDB records that indicate the presence of individuals within 1 mile (1.6 km) of either site. Further, surveys for Peninsular bighorn sheep were not recommended by the USFWS for the proposed sites. Based on our independent analysis of the two documents and the location of the connected actions south of an existing major wildlife movement barrier (I-8) and outside of designated critical habitat, no impacts to Peninsular bighorn sheep are expected. Furthermore, as stated in Section 3.1 (Biological Resources), as of May 14, 2009, the critical habitat area for Peninsular bighorn sheep is approximately 3 miles (4.8 km) east of the ECO Substation switchyards and SWPL loop-in.

With regard to the Quino checkerspot butterfly, both documents conclude that no impacts are anticipated to occur as a result of the connected actions. Protocol level surveys conducted for the RDEIR/SDEIS and PEA did not observe Quino checkerspot butterfly, host plants or nectar plants for the species at the connected action sites. According to the RDEIR/SDEIS, "because 2008 was a good year for the Quino checkerspot butterfly, the survey would have found Quino checkerspot butterfly or their host plants had they been present at the [ECO] Substation site." Further, following completion of construction activities, the PEA states that SDG&E would utilize the existing Habitat Conservation Plan for Quino checkerspot butterfly during all maintenance activities. Based on our independent analysis of both documents, no impacts to Quino checkerspot butterfly are expected.

[5] The Sunrise Powerlink RDEIR/SDEIS does not consider regulatory compliance measures or standard best management practices as part of the proposed Project and recommends such compliance measures as mitigation for identified significant impacts. In contrast, the PEA includes standard BMPs and APMs as part of the project description for the connected actions, and also considers compliance with federal, state, and local regulations as part of the project description. Therefore, many of the significant impacts identified in the Sunrise Powerlink RDEIR/SDEIS are considered less than significant in the PEA because recommended mitigation measures in the Sunrise Powerlink RDEIR/SDEIS are considered APMs or regulatory compliance in the PEA.

With regard to potential impacts to other sensitive species, a CNDDB search conducted for the PEA indicated 8 special status wildlife species with the potential to occur at the ECO Substation switchyard or SWPL loop-in site, including one reptile, three avian species, and four mammals. The PEA notes that temporary and permanent vegetation removal would result in the loss of suitable foraging and denning habitat, which could impact other sensitive species if present on the project site (e.g., northern red-diamond rattlesnake, pallid bat, San Diego desert woodrat). In addition, construction activity would result in indirect and direct impacts to these species due to disturbance caused by an increase in vehicle activity, direct mortality by vehicles, disruption of hibernating, feeding and breeding as a result of increased human activity, and direct removal of active burrows. The PEA states that permanent construction impacts to habitat for sensitive and common species would be limited because the percentage of suitable habitat that would be removed during construction of the ECO Substation switchyard and structures for the SWPL loop-in would be small in comparison to the total amount of available habitat in the area. Further, impacts to sensitive mammal species would be minor with the implementation of APMs[6], such as construction personnel training, pre-construction surveys, and construction monitoring. The PEA also notes that sensitive and common species of reptiles and mammals could potentially fall into and become trapped within ECO Substation switchyards retention basins; however, implementation of APMs that require escape ramps in the design and construction of the ponds would ensure that impacts to such species would be minor. Based on our independent evaluation of the two analyses, the potential for impacts to other sensitive wildlife species during construction and operation of the connected actions is considered minor.

With regard to sensitive bird species, large stick nests were observed on several transmission towers in the vicinity of the proposed ECO Substation switchyard site during reconnaissance surveys conducted for the PEA, indicating the potential for nesting raptors in the area that are protected under the Bald and Golden Eagle Protection Act. The PEA states that construction activities could result in disturbance of nesting raptors; however, with implementation of APMs such as pre-construction surveys and avoidance (e.g., maintaining a certain distance from identified nests and/or avoiding construction activities during nesting season), impacts would be reduced to minor levels. Similarly, the RDEIR/SDEIS concludes that potential impacts to nesting birds would be less than significant with the implementation of mitigation measures. Based on our independent review of both documents, as well as the conclusions of biological surveys conducted for the ESJ U.S. project, impacts to nesting bird species during construction of the connected actions are considered minor.

According to the PEA, operation of the ECO Substation switchyards would not require any new activities because SDG&E already operates other facilities in the area; therefore, operation of the ECO Substation switchyards would not impact any sensitive natural communities and would result in minor impacts to plant and animal species. Further, the PEA states that operation of the ECO Substation switchyards would not conflict with local policies or conservation plans. Based on our independent review of this analysis, it is anticipated that operation of the ECO Substation switchyards would result in minor impacts, if any, to biological resources and would not conflict with local policies or conservation plans.

[6] A complete list of all APMs included in the PEA can be found on page 3-71 of the PEA: http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/3%20Project%20Description.pdf

4.1.2 Visual Resources

Potential impacts to aesthetics and visual resources associated with the construction and operation of the ECO Substation switchyards and SWPL loop-in are addressed in Section 4.1 of the PEA and Section 2.3.2 of the Sunrise Powerlink RDEIR/SDEIS, starting at page 2-44. Associated mitigation measures are provided in their Appendix 12, beginning at page Ap.12-57. Potential impacts addressed in those analyses include:

- Short-term visibility of construction activities, equipment, and night lighting.
- Long-term visibility of land scars and vegetation clearance in arid and semi-arid landscapes (RDEIR/SDEIS only).
- Increased structure contrast, industrial character, view blockage, skylining, and glare when viewing the ECO Substation switchyards (e.g., Old Highway 80) (RDEIR/SDEIS only).

Both the PEA and Sunrise Powerlink RDEIR/SDEIS conclude that construction of the ECO Substation switchyards and structures for the SWPL loop-in would result in less than significant impacts to visual resources with the implementation of mitigation measures (RDEIR/SDEIS) and APMs (PEA). Construction activities would be visible to motorists traveling on Old Highway 80 and I-8; however, the views would be brief. Construction activities would also be visible to recreationists at nearby recreation areas, including Anza Borrego Desert State Park, Table Mountain ACEC, and the Jacumba Wilderness Area. Construction equipment and activity would not be visible from residential areas. While night lighting may be required, lighting would not be visible from occupied residences. Based on our independent review of the two analyses, temporary impacts are considered minor with implementation of the recommended measures.

The PEA notes that, following the completion of construction activities, the ECO Substation switchyards and SWPL loop-in would not be visible from designated state scenic highways, although portions of the substation would be visible from Old Highway 80 (as discussed in Section 3.2 [Visual Resources], the segment of Old Highway 80 from State Route 79 [located 28 miles (45 km) northwest of Jacumba] to I-8 is proposed as a County of San Diego-designated scenic highway in the updated General Plan). Figure 4.2-1 provides a simulated view of the completed ECO Substation switchyards and SWPL loop-in, as viewed from Old Highway 80. According to the PEA, the historic designation of Old Highway 80 does not preclude development (the PEA does not indicate any further conclusion regarding the severity of visual impacts to motorists traveling on Old Highway 80). By comparison, the Sunrise Powerlink RDEIR/SDEIS concludes that, even with the implementation of recommended mitigation measures, the ECO Substation switchyards as viewed from an identified Key Viewing Point located on Old Highway 80 (approximately the same location as the simulated view shown in Figure 3.2-2), would result in significant and unavoidable impacts to visual resources; however, no visual simulations of the ECO Substation switchyards were conducted for the RDEIR/SDEIS. Based on our independent evaluation of both documents, including a review of visual simulations, the brief nature of views from Old Highway 80 and the current visibility of the SWPL transmission line from the roadway (as shown in Figure 3.2-2a), the incremental additional impact of the ECO Substation switchyards and SWPL loop-in, as viewed by motorists, is considered moderate.



The East County Substation is not a part of the ESJ U.S. Transmission Project, but it is a Connected Action for the purpose of this EIS.

The viewpoint in this simulation is on Interstate 8, northwest of the project site. Landscaping is depicted at 8 years maturity.



Source:
SDG&E 2009.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 4.2-1

EAST COUNTY (ECO) SUBSTATION VISUAL SIMULATION

August 2010

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Figure_4_2-1_EastCountySubstationVisualSimulation_11x8_v4.ai (07/29/2010, 06:30 am) R. Wurgler / T. Murphy
August 2010

Additional visual simulations conducted for the PEA determined that the ECO Substation switchyard would be visible from the Jacumba Wilderness Area to the east, particularly Nopal Peak which provides limited access to hikers and off-road vehicles. The PEA analysis concludes that given the viewing distances (approximately 0.75 mile [1.2 km]) and perspective from Nopal Peak, visible sections of the substation would include the substation pad and graded slopes but that the transmission poles would be nearly imperceptible. Implementation of APMs is expected to minimize the potential visual contrast and reduce impacts to minor levels. Based on our independent review of the PEA visual simulations and analysis, impacts to visual resources, as viewed by recreationists are considered minor, although such impacts would last for the duration of the project. No additional potential impacts to visual resources have been identified and no other mitigation measures are indicated.

4.1.3 Land Use

Potential impacts to land use associated with the construction and operation of the ECO Substation switchyards and SWPL loop-in are addressed in Section 4.9 of the PEA and Section 2.4.2, starting at page 2-63, of the Sunrise Powerlink RDEIR/SDEIS. Potential impacts addressed in these analyses include:

- Temporary disturbance of existing land uses during construction.
- Division of an established community.
- Conflicts with applicable land use plans, policies, and regulations (PEA only).
- Conflicts with applicable habitat conservation plan (PEA only).

Similar to the ESJ U.S. Transmission Line project, the ECO Substation switchyards and structures associated with the SWPL loop-in would be located on undeveloped, private land designated for Multiple Rural Use in the County of San Diego General Plan and zoned General Rural by the County of San Diego Zoning Ordinance. The nearest residence to the connected actions would be a single trailer residence located approximately 0.4 mile (0.64 km) southwest. Because the site proposed for the ECO Substation switchyard and structures for the SWPL loop-in is undeveloped and not located in close proximity to any established communities (e.g., Jacumba or Boulevard), both the RDEIR/SDEIS and PEA conclude that construction and operation of the connected actions would not result in the division of an established community or disturb existing land uses. In addition, the PEA states that construction and operation of the connected actions would not conflict with applicable land use or habitat conservation plans, including the County of San Diego General Plan (County of San Diego 2003), the Eastern San Diego County Management Framework Plan (BLM 1981), the Eastern San Diego County RMP (BLM 2008a), the Mountain Empire Subregional Plan (County of San Diego 1995; 2010), SDG&E Subregional Natural Community Conversion Plan (CDFG 1995), SDG&E - Quino Checkerspot Butterfly Low-Effect Habitat Conservation Plan (USFWS 2008), and the San Diego County Multiple Species Conservation Program (County of San Diego 1998).

Based on an independent review of these analyses, construction and operation of the ECO Substation switchyards and SWPL loop-in are not anticipated to result in any impacts to existing land uses and would not conflict with applicable land use or habitat conservation plans. No

additional potential impacts related to land use have been identified and no mitigation measures are indicated.

4.1.4 Recreation

Potential impacts to recreation associated with the construction and operation of the ECO Substation switchyards and SWPL loop-in are addressed in Section 4.13 of the PEA and Section 2.5.2, starting at page 2-69, in the Sunrise Powerlink RDEIR/SDEIS. Associated mitigation measures are provided in Appendix 12, beginning at page Ap.12-57. Potential impacts addressed in these analyses include:

- Temporary reduction in access and visitation to recreation and wilderness areas during construction.
- Change in the character of a recreation area and diminishment of its recreational value.

Similar to the ESJ U.S. Transmission Line project, the ECO Substation switchyards and structures associated with the SWPL loop-in would be located on undeveloped, private land approximately 0.5 mile (0.8 km) from the nearest recreational area (Jacumba Mountains Wilderness Area to the east, described in Section 3.4 [Recreation]). Therefore, both the RDEIR/SDEIS and PEA concluded that no major impacts to recreation areas would result from construction, operation, or maintenance of the two actions. The same mitigation measures identified for visual resources are recommended in the RDEIR/SDEIS to reduce impacts to the character of nearby recreation areas. Based on an independent review of these analyses, potential impacts to nearby recreation areas are considered minor. No additional potential impacts related to recreation have been identified and no mitigation measures are indicated.

4.1.5 Cultural Resources

Potential impacts to cultural resources associated with the construction and operation of the ECO Substation switchyards and SWPL loop-in are addressed in Section 4.5 of the PEA and Section 2.7.2, starting at page 2-80, in the Sunrise Powerlink RDEIR/SDEIS. Associated mitigation measures are provided in Appendix 12, beginning at page Ap.12-78 of the Sunrise Powerlink RDEIR/SDEIS. Potential impacts addressed in these analyses include:

- Adverse changes to known historic properties, unknown significant buried prehistoric and historic archaeological sites, buried Native American remains, or Traditional Cultural Properties during construction activity.
- Adverse changes to known historic properties, unknown significant buried prehistoric and historic archaeological sites, buried Native American remains, or Traditional Cultural Properties during operation and maintenance activities.

Although the RDEIR/SDEIS states that one cultural resource located in the eastern portion of the ECO Substation switchyard site and three cultural resources located along the SWPL loop-in are potentially eligible for listing in the NRHP (Sites CA-SDI-2720, CA-SDI-6115, CA-SDI-7083, and CA-SDI-8307), according to the PEA, a review of archival information and survey results indicates that no known historical resources are located at the site proposed for the ECO

Substation switchyards and structures associated with the SWPL loop-in[7]. However, based on the density of prehistoric and historic resources in the vicinity, both documents state that there is a high potential for cultural resources to be encountered during construction of the ECO Substation switchyards and SWPL loop-in, and ground-disturbing construction activities could impact such resources. Both documents conclude that with the implementation of APMs (PEA) and recommended mitigation measures (RDEIR/SDEIS), including demarcation of known resources, training construction personnel, and compensatory mitigation (as discussed in Section 3.5 [Cultural Resources]), impacts to known and unknown cultural resources would be minor.

With regard to potential impacts to Native American cultural resources and human remains, the PEA states that, based on consultation with the NAHC[8], no known cemeteries or Native American remains are located on the site proposed for the ECO Substation switchyards and structures associated with the SWPL loop-in; therefore, the potential for encountering human remains during construction and operation is low. If any human remains are discovered during operation and maintenance activities, both documents conclude that direct impacts would be significant. However, in the event that human remains are discovered during construction, SDG&E would be required by the Native Graves Protection and Repatriation Act to halt all work and implement appropriate notification procedures; therefore, direct impacts are not anticipated.

Based on our independent analysis of the two documents and our own Native American tribal consultative process (Appendix D.1), as well as applicable laws and regulations, potential impacts to known and unknown cultural resources, including Native American resources, during construction of the ECO Substation switchyards and SWPL loop-in are considered minor. No additional potential impacts related to cultural resources have been identified and no additional mitigation measures are indicated.

4.1.6 Noise

Potential noise impacts associated with construction and operation of the ECO Substation switchyards and SWPL loop-in are addressed in Section 4.10 of the PEA and Section 2.8.2, starting at page 2-94, of the Sunrise Powerlink RDEIR/SDEIS. Associated mitigation measures in the Sunrise Powerlink RDEIR/SDEIS are provided in Appendix 12, beginning at page Ap.12-89. Potential impacts addressed in these analyses include:

- Construction-phase noise from on-road and off-road vehicle traffic and off-road construction equipment.
- Corona effects from ECO Substation switchyard equipment.
- Groundborne vibration during construction activity.
- Substantial temporary and permanent increase in ambient noise levels in the project vicinity (PEA only).

[7] The proposed location of the ECO Substation switchyard was shifted to the east after the publication of the Sunrise Powerlink RDEIR/SDEIS accounting for the difference in records search results.

[8] The PEA states that letters to initiate consultation were sent to representatives of the Campo Kumeyaay Nation, Manzanita Band of Kumeyaay Nation, Ewiiaaapaayp Tribal Office, and Kumeyaay Cultural Heritage Preservation Committee. At the time of writing the PEA, only one response had been received (from Campo Kumeyaay Nation requesting to be informed of progress).

Similar to the ESJ U.S. Transmission Line project, the nearest sensitive receptor to the ECO Substation switchyards would be a single mobile home residence located approximately 0.4 mile (0.64 km) to the southwest. The next closest receptor would be located north of I-8, approximately 1.4 miles (2.25 km) northeast of the ECO Substation switchyards. According to the noise study conducted for the PEA, existing average daytime and nighttime noise levels at the ECO Substation switchyard site are 46 and 37 dBA, respectively. Noise contours prepared for construction of the ECO Substation switchyard and structures associated with the SWPL loop-in indicate that noise levels at the property line would remain below the County of San Diego noise ordinance threshold (75 dBA). Similarly, noise contours depicting noise levels during operation of the ECO Substation switchyards and SWPL loop-in show that noise levels would remain below the County of San Diego Noise Ordinance threshold for lands zoned Rural Use (45 dBA). In addition, the PEA modeled anticipated groundborne vibration during construction activity and determined that because no residents or other receptors are within 100 feet (30 m) of the proposed site, no impacts would occur. Therefore, the PEA concludes that construction and operation of the ECO Substation switchyards and SWPL loop-in would not result in substantial temporary or permanent increases in ambient noise levels in the project vicinity. Although less quantitative than the PEA, the Sunrise Powerlink RDEIR/SDEIS also concludes that construction and operation of the ECO Substation switchyards and SWPL loop-in would not result in temporary or permanent noise impacts to sensitive receptors. Based on an independent review of the two analyses, impacts with regard to noise during construction and operation of the connected actions are expected to be minor.

With regard to corona noise, the PEA and Sunrise Powerlink RDEIR/SDEIS determined that because noise levels generally decrease in intensity by 6 dBA for each doubling of distance from the source, corona noise during poor weather conditions is expected to be less than 34 dBA at the nearest sensitive receptor and the associated increase in ambient noise would be less than 5 dBA; therefore, both documents conclude that impacts associated with corona noise would be minor and no mitigation measures (RDEIR/SDEIS) or APMs (PEA) are required. Based on an independent review of these analyses, corona noise impacts are considered minor. No additional potential impacts related to noise have been identified and no additional mitigation measures are indicated.

4.1.7 Transportation and Traffic

Potential impacts to transportation and traffic are addressed in Section 4.14 of the PEA and Section 2.9.2, starting at page 2-101, of the Sunrise Powerlink RDEIR/SDEIS. Associated mitigation measures are provided in Appendix 12, beginning at page Ap.12-91 of the Sunrise Powerlink RDEIR/SDEIS. Potential impacts addressed in these analyses include:

- Generation of additional traffic on vicinity roadways during construction.
- Temporary lane and/or road closures during construction activity (RDEIR/SDEIS only).
- Temporary disruptions to the operations of emergency service providers or result in inadequate emergency access.
- Increases in hazards due to design features and/or incompatible uses (PEA only).

- Physical damage to roadways from construction vehicles (RDEIR/SDEIS only).
- Conflicts with planned transportation projects.

Since the project sites are located in the same area in the southeastern corner of San Diego County, existing roadway conditions in the vicinity of the ECO Substation switchyards and SWPL loop-in would be identical to those described for the ESJ U.S. Transmission Line project. As described in the PEA, construction of the ECO Substation switchyards and structures associated with the SWPL loop-in would result in the daily addition of approximately 50 to 60 personal vehicle trips and 60 to 70 construction vehicle trips (including haul truck trips and water truck trips) on I-8 and the local roadway network for the duration of construction activity (approximately 5 months). In comparison to existing conditions (described in Section 3.7, Transportation and Traffic), the additional vehicles would result in estimated increase of average daily traffic by 0.5 and 0.2 percent in San Diego and Imperial Counties, respectively. Therefore, based on the expected scale of the ECO Substation switchyards (including the SWPL loop-in) and the short duration of construction activity, both the PEA and RDEIR/SDEIS conclude that impacts with regard to the generation of additional traffic on vicinity roadways would be minor. Based on an independent review of the two analyses, no major impacts to transportation or traffic are expected during construction of the connected actions.

The PEA further states that construction of the ECO Substation switchyards and structures associated with the SWPL loop-in would not require the closure of any vicinity roads, and any temporary lane closures would be brief (e.g., 10-15 minutes while pulling a conductor across a roadway). No road and lane closures would occur during operation or maintenance of the ECO Substation switchyards or SWPL loop-in. Therefore, both the PEA and RDEIR/SDEIS conclude that construction of the ECO Substation switchyards and structures associated with the SWPL loop-in would not result in disruptions to the operations of emergency service providers or result in inadequate emergency access. In the event that lane or road closures are required, the RDEIR/SDEIS recommends a mitigation measure to ensure advance coordination with emergency service providers in order to prevent emergency service disruptions. Based on an independent review of the two analyses, with implementation of the recommended mitigation measures, impacts with regard to emergency access are considered minor.

In addition to the impacts discussed above, the RDEIR/SDEIS states that construction activity associated with the ECO Substation switchyards and structures associated with the SWPL loop-in could potentially result in significant physical damage to vicinity roadways, including increased wear or deterioration; however, with the implementation of a recommended mitigation measure to repair damaged roads, the RDEIR/SDEIS concludes that impacts would be reduced to less than significant levels. As discussed in Section 3.7, such a measure would be included as a condition of the Major Use Permit, if required by the County of San Diego. Based on an independent review of this analysis, impacts with regard to roadway damage are considered minor.

With regard to planned transportation projects, as stated in Section 3.7 (Transportation and Traffic), no major transportation projects are planned in the vicinity of the ECO Substation switchyards or SWPL loop-in during the proposed schedule for construction. Prior to construction, SDG&E would obtain an encroachment permit to conduct work in the public right-

of-way; this permit process would ensure that no impacts or conflicts would occur. Based on our independent review of these analyses, no impacts with regard to planned transportation projects are anticipated. No additional potential impacts related to transportation and traffic have been identified, and no additional mitigation measures are indicated.

4.1.8 Public Health and Safety

Potential impacts to public health and safety are addressed in Section 4.7 of the PEA and Section 2.10.2 of the Sunrise Powerlink RDEIR/SDEIS, beginning on page 2-112. Associated mitigation measures identified in the Sunrise Powerlink Final EIR/EIS are described in Appendix 12, page Ap.12-94. Potential impacts addressed include:

- Accidental spill or release of hazardous materials during construction and/or operation which could contaminate soil and groundwater.
- Induced currents and shock hazards in joint use corridors (RDEIR/SDEIS only).
- Effects on cardiac pacemakers (RDEIR/SDEIS only).
- Hazards associated with wind and earthquake impacts to proposed structures.

SDG&E conducted a Phase I Environmental Site Assessment for the proposed ECO Substation Project site and included the results in the PEA. The assessment found no hazardous material sites within 2 miles (3.2 km) of the ECO Substation Project; however, three informal shooting ranges were identified on the ECO Substation switchyard parcel that may present concerns to environmental health and human safety and were identified as recognized environmental conditions. The RDEIR/SDEIS also conducted a database search of hazardous sites in the vicinity of the proposed site and reported the same results. Based on the ECO Substation switchyard site's remote location away from any sensitive receptors (see Section 4.6), and with the implementation of APMs (PEA) and recommended mitigation measures (RDEIR/SDEIS) regarding proper handing and disposal of hazardous materials, both documents conclude that any impacts associated with potential releases of hazardous materials during construction and operation would be minor and would not pose a major threat to public health or safety. Based on an independent review of these analyses and the results of the database search, impacts with regard to hazardous materials, if any, are considered minor.

With regard to potential safety issues associated with the potential for structure failure during high winds or earthquakes, the PEA states that the ECO Substation switchyards would be configured according to the Institute of Electrical and Electronics Engineers' "Recommended Practices for Seismic Design of Substations" (Standard 693-2005; IEEE 2005) in order to withstand anticipated ground motion. In addition, the RDEIR/SDEIS states that such structures must meet the requirements of CPUC General Order 95, "Rules for Overhead Electric Line Construction." Therefore, both documents conclude that any potential hazards to human health and safety resulting from wind or earthquake impacts to the proposed structures would be minor. In addition, the RDEIR/SDEIS addresses potential safety impacts of the electrical field at the ECO Substation switchyards to cardiac pacemakers and increased hazards of induced currents and shocks. The RDEIR/SDEIS concludes that while exposure to the electric fields may result in asynchronous pacing in older model pacemakers, such effects are not a problem to modern pacemakers and no impacts to human health are anticipated. Similarly, the potential for induced

currents and shocks would be minimal if all electrical structures are properly grounded; therefore, with the implementation of the recommended mitigation measure to implement grounding measures, the RDEIR/SDEIS concludes that no impacts to public health or safety would result from operation of the ECO Substation switchyards. Based on an independent review of these analyses, with the implementation of recommended mitigation measures, no impacts to public safety are anticipated. No additional impacts related to public health and safety have been identified and no additional mitigation measures are indicated.

4.1.9 Fire and Fuels Management

Potential impacts related to fire and fuels management are addressed in Section 4.7 and 4.12 of the PEA and Section 2.15.2 of the Sunrise Powerlink RDEIR/SDEIS, beginning on page 2-158. Appendix 12 of the Sunrise Final EIR/EIS, starting at page Ap.12-118 provides the full text of mitigation measures recommended in the Sunrise Powerlink RDEIR/SDEIS. Potential impacts addressed in these analyses include:

- Increased probability of a wildfire due to equipment used during construction and maintenance activities.
- Introduction of non-native plants that would contribute to an increased ignition potential and rate of fire spread (RDEIR/SDEIS only).
- Reduction in the effectiveness of firefighting efforts.
- Exposure of people or structures to a risk of loss, injury, or death related to wildland fires.

Similar to the ESJ U.S. Transmission Line project, the ECO Substation switchyard would be located in an area classified as a very high fire threat by the California Fire and Resource Assessment Program. Available fire fighting services in the vicinity would be the same as those described for the proposed project in Section 3.9 (Fire and Fuels Management). Both the RDEIR/SDEIS and the PEA indicate that construction of the ECO Substation switchyards could result in potentially major fire hazards and increased wildfire probability as a result of increased vehicle and human presence and heat or sparks from construction equipment. However, both documents conclude that impacts would be reduced to minor levels with implementation of APMs (PEA) and recommended mitigation measures (RDEIR/SDEIS) including development and implementation of a Construction Fire Prevention Plan and implementation of Sempra Utilities' Wildfire Prevention and Fire Safety Guide. Based on an independent analysis of these documents, with implementation of the recommended measures, impacts are considered minor.

In addition to potential ignitions from construction vehicles, the RDEIR/SDEIS addressed the potential for activities associated with the construction and operation of the ECO Substation switchyards to result in the spread of non-native invasive weeds. In particular, the RDEIR/SDEIS notes that certain invasive plants that are common in the region (such as cheatgrass, medusa head, and Saharan mustard) are highly flammable and contribute to changes in wildfire frequency, timing and spread. The introduction of such plants as a result of construction and operation activities could exacerbate wildfire risks in the vicinity of the ECO Substation switchyards. However, the RDEIR/SDEIS concludes that the potential for wildfire risks associated with invasive plants would be reduced to minor levels with the implementation

of the recommended mitigation measure to develop and implement a Weed Control Plan. Based on an independent review of this analysis, with implementation of the recommended measure, impacts are considered minor.

With regard to fire risks during operation of the ECO Substation switchyards, the PEA states that operation and maintenance would include regular vegetation clearing to provide fire breaks that would reduce the probability of wildfire and reduce the exposure of people and structures to wildland fires and the ECO Substation switchyards would have no impact on firefighting services. Therefore, the PEA concludes that operational impacts associated with fire and fuels management would be minor. As stated above in Section 4.2.1, the PEA does not provide any further details on vegetation clearing or consultation with the San Diego Rural Fire Protection Department (although the PEA project description does state that such consultation would take place prior to construction); therefore, it is unknown if the ECO Substation switchyards would require the same amount of vegetation clearance as the ESJ U.S. project (30-foot [9.1-m] radius around all structures). In contrast, the RDEIR/SDEIS states that the presence of the ECO Substation switchyards would create an ongoing source of potential ignitions due to line faults caused by unpredictable events such as conductor contact by floating debris; therefore, even following implementation of a recommended mitigation measure to maintain adequate vegetation clearance, the Sunrise RDEIR/SDEIS concludes that operational impacts associated with fire and fuels management would be significant and unavoidable.

The RDEIR/SDEIS also states that operation of the ECO Substation switchyards would result in the creation of indefensible space between the Substation and adjacent transmission lines. As discussed in Section 3.9 (Fire and Fuels Management), general fire-fighting guidelines recommend that ground attacks not be made within at least 500 feet (152 m) of a power line conductor and that ground-based firefighters maintain a clearance from downed, energized power lines equal to the distance between two towers in order to ensure firefighter safety (NIOSH 2002; CPUC/BLM 2008b). Maintaining a minimum 500-foot (152-m) safety buffer greatly reduces the risk of electrical structure contact; however, it also reduces the effectiveness of ground-based frontal attacks. Therefore, the RDEIR/SDEIS concludes that the proposed transmission line would create an obstacle to firefighting and wildfire containment thereby reducing the effectiveness of firefighting efforts in the immediate vicinity of the ECO Substation switchyards.

Based on an independent review of both analyses and the existing fire hazards in the area, even with implementation of recommended mitigation measures (RDEIR/SDEIS) and APMs (PEA), impacts with regard to potential ignitions and hazards to firefighting are considered major and unavoidable. No additional impacts related to fire and fuels management have been identified and no additional mitigation measures are indicated.

4.1.10 Air Quality and Climate Change

Potential impacts to air quality associated with construction and operation of the ECO Substation switchyards and SWPL loop-in are addressed in Section 4.3 of the ECO Substation PEA and Section 2.12.2, starting at page 2-122, of the Sunrise Powerlink RDEIR/SDEIS. The full text of the mitigation measures related to air quality impacts at the ECO Substation switchyards as proposed by the Sunrise Powerlink RDEIR/SDEIS are included in Appendix 12, at page Ap.12-101. Potential impacts addressed in these analyses include:

- Construction-phase and operations-phase fugitive dust and other pollutant emissions from on-road vehicles, off-road vehicles, and off-road equipment use.
- Greenhouse gas emissions from ECO Substation switchyard operations, including the GHG $SF_{6,}$ which is used as a dielectric medium in high-voltage switchgear and circuit breakers at substations.

Similar to the ESJ U.S. Transmission Line project, construction emissions would vary substantially from day to day, depending on the level of activity, the specific type of operation, and the prevailing weather conditions; however, air emissions are anticipated to be greater than described for the ESJ U.S. Transmission Line project due to the larger area of land disturbance associated with the ECO Substation switchyards. The PEA concludes that air emissions during construction of the ECO Substation switchyards would be minor for all criteria pollutants. The PEA analysis calculated the predicted emissions of pollutants using the URBEMIS model, based on actual construction days, equipment required, and area disturbed. The model results indicate that the pounds per day emission rate during construction activity would remain below SDAPCD and ICAPCD significance thresholds (Table 4.2-1; see Section 3.10 [Air Quality and Climate Change] for a list of the thresholds). In contrast, the RDEIR/SDEIS concludes that air quality emissions during construction of the ECO Substation switchyards and SWPL loop-in would result in significant and unavoidable impacts with regard to dust and exhaust emissions, even with incorporation of recommend mitigation measures including implementation of dust suppression methods, use of low-emission construction equipment, carpooling and limited idling of vehicles.

Table 4.2-1
PEA Estimated Construction Emissions for ECO Substation Switchyards and SWPL Loop-In

Project Component	Criteria Pollutant	Emissions (lbs per day)
ECO Substation Switchyards	$PM_{2.5}$	26.92
	PM_{10}	99.36
	NO_X	208.74
	SO_X	0.19
	CO	247.95
	VOC	38.69

Table 4.2-1
PEA Estimated Construction Emissions for ECO Substation Switchyards and SWPL Loop-In

Project Component	Criteria Pollutant	Emissions (lbs per day)
SWPL Loop-In	$PM_{2.5}$	2.51
	PM_{10}	4.50
	NO_X	76.55
	SO_X	0.01
	CO	33.49
	VOC	8.35

Based on an independent analysis of the PEA model assumptions, the calculated emissions for PM_{10} and NO_X are considered questionable (i.e., the calculated PM_{10} emission is 99 lb/day compared to the threshold of 100 lb/day and the calculated NO_X emission is 240 lb/day compared to the 250 lb/day threshold). Although a detailed reassessment of construction emissions was not performed for this EIS, the conservative assessment is that air quality impacts during construction could at least marginally exceed agency thresholds for determining significant impacts. The calculated emissions for all other criteria pollutants are considered reasonable and are not expected to exceed agency thresholds.

With regard to operational emissions, both the RDEIR/SDEIS and the PEA concluded that there would be no major impacts to air quality or GHG emissions. Although not discussed in the RDIR/SDEIS, the PEA provides a discussion of SF_6 which is used as a dielectric medium in high-voltage switchgear and circuit breakers at substations and is typically associated only with facilities which are connected to transmissions lines, such as the ECO Substation switchyards. The PEA states that the ECO Substation switchyards would emit 0.03 metric tons per year SF_6 (approximately 684 metric tons CO_{2eqv} per year). To minimize fugitive SF_6 losses, the PEA states that SDG&E would implement a monitoring plan which would include measuring SF_6 in its equipment, identifying and repairing or replacing leaky equipment in a timely fashion, training employees on the effects of SF_6, and including design elements to reduce energy consumption. The PEA also calculates potential CO emissions during operation and maintenance of the ECO Substation switchyards. Our preliminary independent analysis of potential CO emissions based on the information provided in the PEA Project Description and using current emission factors (using the EMFAC program which is based on federal emission factors described in 40 CFR 86 and 40 CFR 89.112 [see Section 3.10 for further explanation]) indicates that CO emissions would be approximately 37.04 lb/day; therefore, the anticipated emissions would be well below the SDAPCD threshold, and therefore a minor impact. No additional potential air quality impacts have been identified and no additional mitigation measures are indicated.

4.1.11 Water Resources

Potential impacts to water resources associated with construction and operation of the ECO Substation switchyards and SWPL loop-in are addressed in Section 4.8 of the ECO Substation

PEA and in Section 2.12.2, beginning on page 2-128, of the Sunrise Powerlink RDEIR/SDEIS. Associated mitigation measures are described in Appendix 12, page Ap.12-104 of the Sunrise Powerlink RDEIR/SDEIS. Potential impacts addressed in these analyses include:

- Depletion of local water supplies due to water required for dust suppression (PEA only).
- Degradation of water quality due to erosion and sedimentation during construction activity or substantial changes to the existing drainage of the site.
- Degradation of water quality due to accidental spills of potentially hazardous materials.
- Degradation of water quality due to accidental releases of contaminants during operation of the substation.
- Creation of new impervious surface areas.
- Alteration of existing drainage patterns.

The ECO Substation switchyards would permanently fill three, small desert swales (total of approximately 0.5 acre [0.2 ha]) that could potentially fall under the jurisdiction of the USACE, the RWQCB, and/or the CDFG. As described in the PEA, potential impacts to these drainages would be reduced to minor levels by obtaining permits from the appropriate regulatory agency and complying with applicable compensation requirements specified by the agency. Similar to the ESJ U.S. Transmission Line project, the ECO Substation switchyards and SWPL loop-in would not be located within the boundaries of a designated groundwater basin as defined by DWR. Further, the ECO Substation switchyards and SWPL loop-in would not be located within any FEMA-designated 100-year or 500-year floodplains. According to the PEA, construction activities associated with the ECO Substation switchyards and SWPL loop-in would require approximately 92 acre-feet (115,000 cubic meters) of water for dust control for the duration of construction activity; water would be provided by either a well installed at the ECO Substation switchyard site or purchased from the City of El Centro or the Imperial Irrigation District. The PEA concludes that water use during construction would result in minor impacts to local water supply. An independent analysis of proposed water use and the recharge rate of the Jacumba Valley Groundwater Basin (approximately 2,700 acre-feet per year [3.3 million cubic meters per year], as discussed in Section 3.11 [Water Resources]) confirms that if this volume of water is obtained from local groundwater sources, this use would result in minor and short-term impacts to the area's groundwater resources. Based on an independent review of this analysis, impacts with regard to local water supplies are considered minor.

Both the PEA and RDEIR/SDEIS state that the implementation of APMs (PEA) and recommended mitigation measures (RDEIR/SDEIS), including compliance with NPDES regulations, and proper disposal and cleanup of hazardous materials would ensure that any potential water quality impacts resulting from construction and operation activities would be minimal. Both documents address the creation of new impervious surfaces which could reduce groundwater recharge rates and affect stormwater drainage onsite. According to the PEA, construction of the ECO Substation switchyards would require substantial grading and the installation of an approximately 62-acre (25-ha) concrete building pad which would alter the natural drainage pattern of the proposed site and potentially reduce groundwater recharge; however, a drainage plan would be developed as part of the project and swales would be

installed to control stormwater (such controls are also recommended as mitigation measures in the RDEIR/SDEIS). The RDEIR/SDEIS and the PEA conclude that impacts to stormwater drainage and associated erosion would be minimal. Based on an independent review of these analyses, impacts to surface water resources are considered minor. No additional potential impacts to water resources have been identified and no additional mitigation measures are indicated.

4.1.12 Geology and Soils

Potential impacts to geology and soils associated with construction and operation of the ECO Substation switchyards and SWPL loop-in are addressed in Section 4.6 of the ECO Substation PEA and in Section 2.13.2, beginning on page 2-142, of the Sunrise Powerlink RDEIR/SDEIS. Associated mitigation measures as proposed in the Sunrise Powerlink RDEIR/SDEIS are described in Appendix 12, at page Ap.12-112. Potential impacts addressed in these analyses include:

- Triggering or accelerating erosion due to construction activity.
- Exposure of people and/or structures to adverse effects as a result of problematic soils, slope instability, or significant groundshaking.

Similar to the ESJ U.S. Transmission Line project, the ECO Substation switchyards and SWPL loop-in would be located on flat to gently sloping terrain. Geological mapping of the area indicates that the central portion of the ECO Substation switchyard site is crossed by two buried inactive faults (Brooks and Roberts 2003). Although these faults are relatively short and are not expected to generate large, significantly damaging earthquakes, fault rupture can occur along their traces as a result of stress or from sympathetic movement related to large earthquakes on the distant Elsinore Fault.

Soil types and soil hazards would be as described in Section 3.12 (Geology and Soils) of the EIS. Both the RDEIR/SDEIS and PEA also discuss the potential for soil erosion resulting from construction activities and conclude that impacts would be minor with the implementation of APMs (PEA) and recommended mitigation measures (RDEIR/SDEIS) including an Erosion Control and Sedimentation Plan, Stormwater Pollution Prevention Plan and associated best management practices. In addition, both documents conclude that with the implementation of APMs and recommended mitigation measures, including implementation of recommendations from a project-specific geotechnical report, impacts associated with exposing people and/or structures to adverse effects as a result of problematic soils or slope instability would be minor. Further, although the PEA notes that two inactive faults cross the proposed ECO Substation switchyard site, as discussed in Section 4.8 (Public Health and Safety), structures would be designed to withstand significant groundshaking; therefore, with the incorporation of standard engineering practices, both documents conclude that impacts would be minor. Based on an independent review of these analyses, with the implementation of the recommended measures, potential impacts with regard to geology and soils are considered minor. No additional potential impacts have been identified and no additional mitigation measures are indicated.

4.1.13 Socioeconomics

Potential impacts to socioeconomics associated with construction and operation of the ECO Substation switchyards and SWPL loop-in are addressed in Section 4.11 of the ECO Substation PEA and in Section 2.14.2, beginning on page 2-150, of the Sunrise Powerlink RDEIR/SDEIS. Potential impacts addressed in these analyses include:

- Housing requirements in excess of the local housing supply. (PEA only).
- Increases in local population. (PEA only).
- Changes in revenue for businesses, tribes, or governments due to the presence of the transmission line (RDEIR/SDEIS only).
- Property tax revenues and/or fees (RDEIR/SDEIS only).
- Property values (RDEIR/SDEIS only).

Similar to the ESJ U.S. Transmission Line project, the PEA states that construction personnel associated with the ECO Substation switchyards and SWPL loop-in would be drawn from the local region about 35 workers would be required during peak construction) and no additional employees would be required for operation of the Substation. Therefore, the PEA concludes that the majority of construction workers associated with the ECO Substation switchyards would be expected to commute to the site and no temporary increases in local population or demand for local housing are expected. Once operational, the PEA notes that the majority of operational activities would be unmanned and no permanent jobs would be created; therefore, the PEA concludes that operation of the ECO Substation switchyards would not result in permanent impacts to population or housing supply. Based on an independent review of these analyses, no impacts with regard to population and housing would result from construction or operation of the ECO Substation switchyards or SWPL loop-in.

The RDEIR/SDEIS addresses the potential economic impacts of the ECO Substation switchyards, including county revenue and property value. The analysis provided indicates that property taxes at the ECO Substation switchyard site would increase as a result of the construction and operation of the ECO Substation switchyards, which would generate additional county revenue. In addition, employment of construction personnel would be beneficial to local businesses through increased expenditure of wages for goods and services, including local hotel rooms, food, and beverages. Therefore, the RDEIR/SDEIS concludes that similar to the ESJ U.S. Transmission Line project, construction of the ECO Substation switchyards would result in minor beneficial impacts with regard to increased government revenue and spending at local businesses. With regard to property value, the Sunrise Powerlink RDEIR/SDEIS indicates that, similar to the ESJ U.S. Transmission Line project, the presence of the connected actions may incrementally reduce property values; however, such effects would be very small and diminish over time. Therefore, the Sunrise Powerlink RDEIR/SDEIS concludes that any potential impacts would be less than significant. Based on an independent review of this analysis, potential economic impacts of the connected actions are considered minor. No additional potential impacts related to socioeconomics have been identified and no additional mitigation measures are indicated.

4.1.14 Environmental Justice

Potential impacts associated with construction and operation of the ECO Substation switchyards and SWPL loop-in, and related to environmental justice, are addressed in Section F.1.2.4 of the Sunrise Powerlink RDEIR/SDEIS, starting at page F-17. The ECO Substation PEA does not address potential impacts related to environmental justice. Environmental justice is the consideration of any identified impacts that would result in disproportionately high or adverse impacts to minority or low-income populations.

Similar to the ESJ U.S. Transmission Line project, the ECO Substation switchyards would be located on undeveloped, private land. The nearest residence is a single mobile home located approximately 0.4 mile (0.64 km) north. As described in Section 3.14 (Environmental Justice), a total of two census block groups are located within 0.5 mile (0.8 km) of the proposed ECO Substation switchyard site. One of the groups is classified as medium-minority, medium-income and other is classified as low-minority, high-income. Since neither block group is classified as high minority or low income, no disproportionately high or adverse impacts to minority or low-income populations would occur. No mitigation measures are indicated.

4.1.15 Services and Utilities

Potential services and utilities impacts associated with construction and operation of the ECO Substation switchyards and SWPL loop-in are addressed in Section 4.12 and 4.15 of the ECO Substation PEA and in Section 2.14.2, beginning on page 2-148, of the Sunrise Powerlink RDEIR/SDEIS. Potential impacts addressed in these analyses include:

- Increased need for public services and utilities in the project area.
- Disruption of existing utility systems due to collocation accidents.

Since the ECO Substation switchyards and SWPL loop-in would be located in the same general area as the ESJ U.S. Transmission Line project, the existing setting for public services and utilities is the same as described in Section 3.15 (Services and Utilities). As discussed in the PEA, construction and operation of the ECO Substation switchyards and SWPL loop-in would not generate wastewater and would generate minimal amounts of solid waste. In addition, construction and operation of the ECO Substation switchyards or SWPL loop-in would not result in any temporary or permanent increases in local populations. Therefore, the RDEIR/SDEIS and the PEA conclude that construction and operation of the ECO Substation switchyards or SWPL loop-in would not result in an increased demand on public services (e.g., law enforcement, schools, or hospitals) and utilities. Although no major impacts to public services are identified, mitigation measures are recommended in the RDEIR/SDEIS to ensure maximum recycling activities would occur. In addition, given the remote location of the ECO Substation switchyards and SWPL loop-in, both the PEA and RDEIR/SDEIS conclude that disruptions to existing utility systems are unlikely and no APMs or mitigation measures are recommended. Based on an independent review of these analyses, impacts to utilities and services during construction and operation of the ECO Substation switchyards and SWPL loop-in are considered minor; however, similar to the ESJ U.S. project, security of the ECO Substation switchyards and SWPL loop-in construction sites may require additional security measures (see Section 3.15 for more information on these measures). No additional potential impacts have been identified and no additional mitigation measures are indicated.

SECTION 5

CUMULATIVE IMPACTS

Even if an individual project has a minor effect, significant environmental effects may result from the combination of the minor effects of multiple individual actions over time (CEQ 1997a). The CEQ regulations implementing the procedural provisions of NEPA define cumulative impacts as those impacts "on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). The regulations further explain that "cumulative effects can result from individually minor but collectively significant actions taking place over a period of time." This section addresses potential cumulative impacts of the ESJ U.S. Transmission Line project, when added to impacts from other past, present, and reasonably foreseeable future actions in the region.

5.1 METHODOLOGY

The cumulative impacts analysis presented in this document is based on the potential effects of the ESJ U.S. Transmission Line project when added to impacts from other past, present, and reasonably foreseeable future actions in the region. The potential effects are evaluated both for the period of project construction (anticipated to be up to 6 months), and for the post-construction (operation) period of the project.

The region of influence (ROI) varies for each resource area, depending on the distance a potential effect can travel or be experienced. For example, cumulative effects to visual resources are typically limited to other projects that occupy the same field of view as the alternative corridors. However, comments received during the public scoping process for the ESJ U.S. Transmission Line project indicate that members of the public and community groups are concerned with changes in the general visual quality of the region that may be diminished by the proliferation of visible structures, even if the changes are not within the same field of view as the alternative corridors. Therefore, for visual resources, the ROI is relatively large and includes southeastern San Diego County and southwestern Imperial County. In comparison, since impacts to geology and soils are limited to the existing resources onsite, the ROI for cumulative effects is the alternative corridors' rights-of-way. Cumulative issues relating to environmental justice could result from potential effects identified under all other resource areas, therefore, the ROI for environmental justice includes southeastern San Diego County and southwestern Imperial County. The ROI for the remaining resource areas is as follows: for biological resources, land use, recreation, and cultural resources, the ROI is southeastern San Diego County and southwestern Imperial County; for water resources, the ROI is the alternative corridors' rights-of-way and Jacumba groundwater basin; for socioeconomics, the ROI is the census tract that includes the alternative corridors and the towns of Jacumba and Boulevard; for transportation and traffic the ROI is the segment of I-8 between eastern San Diego County and western Imperial County; and for air quality, the ROI is the San Diego Air Basin, including the potential for wind transport of air pollutants generated by reasonably foreseeable actions from Mexico into

the air resources ROI (in the U.S.). The analysis includes actions that could be reasonably anticipated to occur and have cumulative effects within the ROI of each resource area.

5.2 REASONABLY FORESEEABLE ACTION IDENTIFICATION

The cumulative impact analysis incorporates the sum of the effects of the ESJ U.S. Transmission Line project in combination with past, present, and future actions, since impacts may accumulate or develop over time. The actions described in this analysis are those that have already occurred, are ongoing, or are "reasonably foreseeable"; that is, they are funded for future implementation, or are included in firm near-term plans. In addition, DOE has limited its identification of reasonably foreseeable projects to those proposals with the potential to be executed within the next 10 years. Projects predicted to occur beyond 10 years are generally presumed to be speculative and thus not reasonably foreseeable. Types of actions with firm near-term plans include:

- Actions for which NEPA and/or CEQA documents are in preparation or finalized;
- Actions in a detailed design phase;
- Actions listed in formal NOI published in the *Federal Register* or State publications;
- Actions for which enabling legislation has been passed or a Memorandum of Understanding has been signed; and
- Actions that have been submitted to Federal and State regulators to begin the permitting process.

Table 5.2-1 summarizes actions that have been identified as recently completed, ongoing, or reasonably foreseeable and are thus included in the analysis of cumulative impacts. These actions were identified through the scoping process for the ESJ U.S. Transmission Line project, discussions with regional resource agencies (e.g., CalTrans, BLM, County of San Diego, U.S. Border Patrol), review of the Cal-ISO Interconnection Queue[1], review of regional planning documents (e.g., County of San Diego General Plan), and NEPA and CEQA documents for other known actions in the area (e.g., Sunrise Powerlink and SDG&E ECO Substation Project). Each action is described in greater detail in the sections below and displayed in Figure 5-1.

[1] The Cal-ISO Interconnection Queue is periodically updated and lists energy-related facilities that have submitted requests to interconnect to the existing electric transmission system. The list is available online at: *http://www.caiso.com/14e9/14e9ddda1ebf0ex.html*

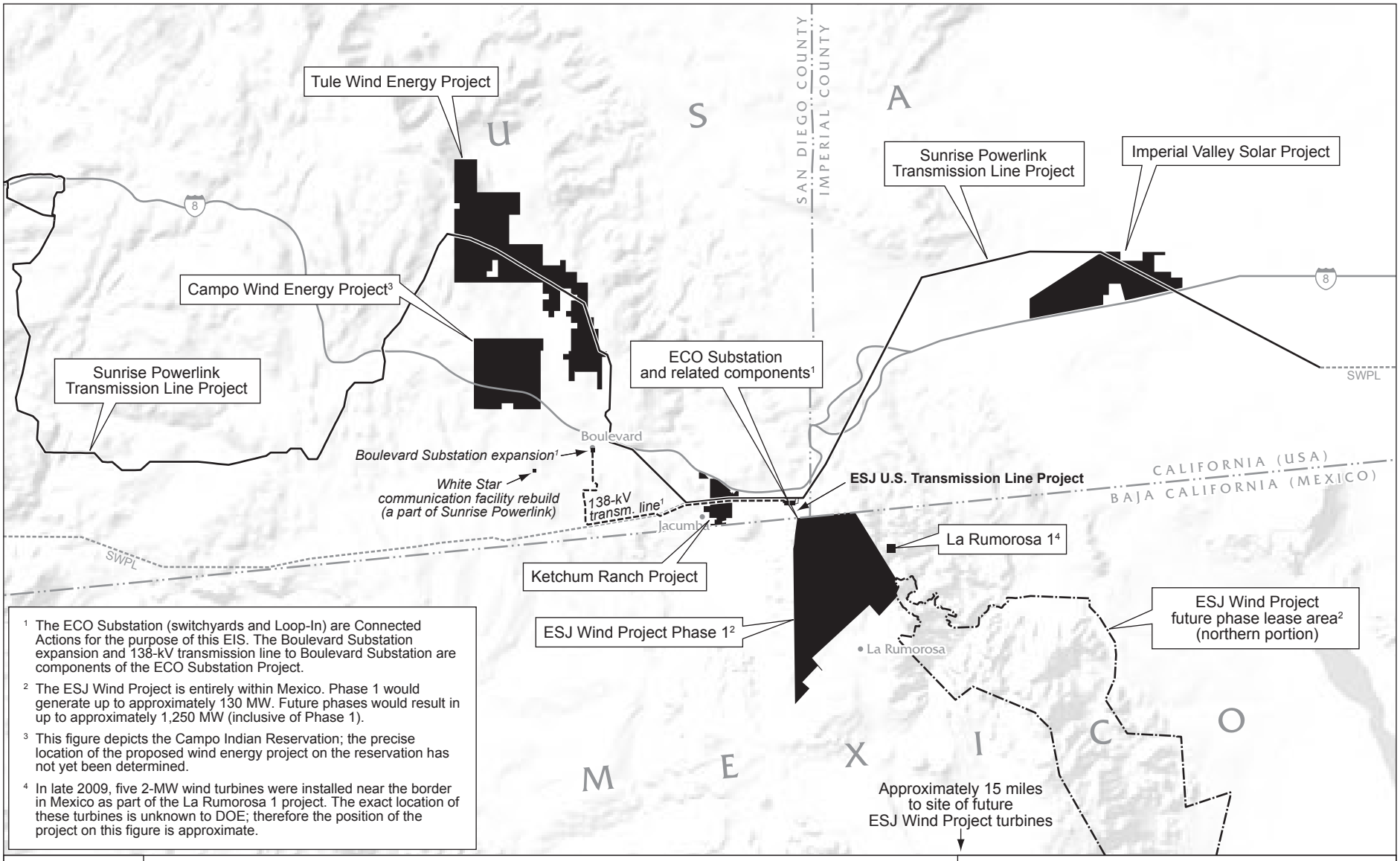
Table 5.2-1
Past, Present, and Reasonably Foreseeable Future Actions That May Cumulatively Affect Resources of Concern

Section Number	Project Name	Status	Primary Impact Location
Energy Projects			
5.2.1	Sunrise Powerlink Transmission Line Project	The ROD for the Final EIR/EIS was adopted in January 2009; however the decision was appealed in March 2009 and is the subject of ongoing litigation	Imperial County/San Diego County
5.2.2	SDG&E ECO Substation Project (138-kv Transmission Line, Boulevard Substation Expansion, White Star Communication Facility)[1]	Under environmental review by the CPUC and BLM – NOI/Notice of Preparation for an EIR/EIS published December 2009	Southeastern San Diego County
5.2.3	Tule Wind Energy Project	Under environmental review by the CPUC and BLM – NOI/Notice of Preparation for an EIR/EIS published December 2009	Boulevard
5.2.4	Campo Wind Energy Project	A Memorandum of Understanding was signed by the tribe, Invenergy LLC, and SDG&E in June 2009	Campo
5.2.5	Imperial Valley Solar Project	Under environmental review by the BLM and California Energy Commission – NOI for an EIS published October 2008. Draft Staff Assessment/EIS published February 12, 2010	Southwestern Imperial County
5.2.6	La Rumorosa I Project	Constructed in September 2009	Baja California and southeastern San Diego County
Development Project			
5.2.7	Ketchum Ranch	Application for development filed with County of San Diego	Jacumba

Table 5.2-1
Past, Present, and Reasonably Foreseeable Future Actions That May Cumulatively Affect Resources of Concern

Section Number	Project Name	Status	Primary Impact Location
Regional Planning Projects			
5.2.8	County of San Diego General Plan Update	Under environmental review by County of San Diego – Notice of Publication of Draft EIR published June 2009	San Diego County/ Mountain Empire Sub-Region
5.2.9	BLM South Coast Resource Management Plan Revision	NOI for development of the Resource Management Plan published August 2007	Portions of San Diego, Riverside, Los Angeles, Orange, and San Bernardino Counties
5.2.10	BLM Eastern San Diego County Resource Management Plan Revision	Adopted October 2008	Portions of San Diego County
5.2.11	East County Multiple Species Conservation Plan	Under development by County of San Diego	Portions of San Diego County
5.2.12	Solar Energy Development	Under environmental review by the DOE and BLM – NOI for a Programmatic EIS published May 2008	Jacumba Mountain Wilderness Area, Imperial County

[1]This cumulative assessment addresses all of the SDG&E ECO Substation Project components. Section 4 (Connected Actions) provides additional analysis of the ECO Substation switchyard and the SWPL loop-in as stand-alone projects because they are connected actions to the ESJ U.S. Transmission Line project.



[1] The ECO Substation (switchyards and Loop-In) are Connected Actions for the purpose of this EIS. The Boulevard Substation expansion and 138-kV transmission line to Boulevard Substation are components of the ECO Substation Project.

[2] The ESJ Wind Project is entirely within Mexico. Phase 1 would generate up to approximately 130 MW. Future phases would result in up to approximately 1,250 MW (inclusive of Phase 1).

[3] This figure depicts the Campo Indian Reservation; the precise location of the proposed wind energy project on the reservation has not yet been determined.

[4] In late 2009, five 2-MW wind turbines were installed near the border in Mexico as part of the La Rumorosa 1 project. The exact location of these turbines is unknown to DOE; therefore the position of the project on this figure is approximate.



AREA SHOWN IN THIS FIGURE

0 5 10 15 Miles
0 5 10 15 20 Kilometers

Source(s):
Argonne National Laboratory 2009; BIA 2007; BLM 2008; Burns & McDonnell 2009; Campo Band of Kumeyaay Indians 2008; CPUC/BLM 2008, 2010; EDAW 2010; ESJ LLC 2009; Google Maps 2009; Iberdrola Renewables 2009; SDG&E 2009; USGS 2006.

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FIGURE 5-1

PROJECTS CONSIDERED IN CUMULATIVE EFFECTS ANALYSIS

August 2010

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Figure_5-1_CumulativeProjects_plus_ESJ_11x8_v9.ai (07/29/2010, 06:30 am) R. Wurgler/T. Murphy

5.2.1 Sunrise Powerlink Transmission Line

SDG&E is planning to construct a new 150-mile (241.4 km) transmission line between Imperial and San Diego Counties that would consist of a new 91-mile (146.4 km) single-circuit 500-kV overhead electric transmission line connecting the existing Imperial Valley Substation to a proposed new Central East Substation (in San Diego County, near the community of San Felipe). Between the Central East Substation and the existing Pensaquitos Substation in the City of San Diego, SDG&E proposes to construct a new 59 mile (94.9 km) 230-kV double-circuit and single-circuit transmission line, portions of which would be underground. The CPUC voted in December 2008 to approve the Final Environmentally Superior Southern Route; this route would traverse the ESJ U.S. Transmission Line project area near Old Highway 80, parallel to the existing SWPL, and immediately north of the proposed ECO Substation Project. The BLM issued a ROD[2] for the project in January 2009 approving the same route. The U.S. Forest Service issued a ROD[3] for the project in July 2010 to allow construction through 19 miles (30.6 km) of the Cleveland National Forest. Construction of the line is expected to begin in the second half of 2010 and take place over a period of 2 years (BLM 2009f); however, BLM's decision was appealed to the Interior Board of Land Appeals on March 23, 2009, and is the subject of ongoing litigation.

White Star Communication Facility

SDG&E owns and operates a communications facility at White Star in an easement that is adjacent to an existing communication facility owned by the County of San Diego. As a part of the Sunrise Project, SDG&E would replace 2 wooden poles with one 75-foot (22.8-m) tall steel tubular pole at this site. The new equipment to be installed would include a 6-foot (1.8-m) diameter microwave antenna, waveguide, and grounding attached to the steel pole. The microwave dish would be attached to the tower approximately 50 feet (15.2 m) from the ground.

In addition, voice radio antennas may be attached to the tower to support electrical crews' fieldwork and operation safety. SDG&E would remove an existing equipment control shelter and install a small, pre-fabricated control building, 12 feet (3.7 m) by 16 feet (4.9 m) in size, adjacent to the new steel pole, which would house the microwave radio system and other telecommunication equipment. SDG&E would also be required to install a 48-VDC direct current battery, including a rectifier, and 1 backup generator. The new facility would be approximately 30 feet wide by 30 feet long (9.1 m by 9.1 m) and enclosed within a 6-foot (1.8-meter) high chain-link fence (SDG&E 2009b).[4]

[2] The BLM ROD for the Sunrise Powerlink Project can be found at the following website: http://www.cpuc.ca.gov/environment/info/aspen/sunrise/rod.pdf

[3] The USFS ROD for the Sunrise Powerlink Project can be found at the following website: http://www.fs.fed.us/r5/cleveland/projects/sunrise-powerlink/fs-rod-july-09-2010.pdf

[4] Additional information regarding the ECO Substation Project is available online at: http://www.cpuc.ca.gov/environment/info/dudek/ECOSUB/ECOSUB.htm

5.2.2 SDG&E East County Substation Project

As described in Section 2.5 and discussed in Section 4, SDG&E has filed an application with the CPUC for a Permit to Construct a new substation in eastern San Diego County (ECO Substation) which would loop into the existing SWPL transmission line. BLM and the CPUC published a joint NOI/Notice of Preparation for an EIS/EIR for the project in December 2009 (BLM 2009e). The proposed ECO Substation switchyards and SWPL loop-in would be located on the south side of I-8 and Old Highway 80, east of Jacumba, on the west side of the Jacumba Mountain range and north of the U.S.-Mexico border. The ECO Substation switchyards would be located entirely on privately-owned, undeveloped land. SDG&E would acquire up to 6 parcels to construct the ECO Substation switchyards, totaling approximately 498 acres (202 hectares) of land, of which the ECO Substation switchyards would occupy approximately 58 acres (23.5 hectares). The following subsections describe the additional components of the SDG&E ECO Substation Project.

138-kV Transmission Line

SDG&E is planning to construct a 13.3 mile (21.4-km) 138-kV transmission line to connect the ECO Substation switchyard facility with the existing SDG&E Boulevard Substation. The transmission line would include approximately 98 steel transmission poles. In addition, nine wooden distribution poles would be installed to replace the existing distribution Circuit 445 poles; this distribution line would be collocated on the new 138-kV transmission line structures near the intersection of Jewel Valley Road and Tule Jim Lane in Boulevard. Some service lines may need to be extended to the relocated distribution line. The final approximately 440 feet (134 m) of the 138-kV transmission line would be installed underground in a concrete duct bank, terminating at the rebuilt Boulevard Substation. One steel cable riser pole would be installed at the end of the overhead segment to connect the overhead conductors to the underground substation getaways.

This transmission line would exit the west side of the ECO Substation switchyard facility and then parallel the existing SWPL transmission line for approximately 5.7 miles (9.2 km) to the west. At this point, the line would cross under the SWPL and continue parallel for approximately 3.2 miles (5.1 km) along its north side until it intersects with an existing dirt access road. At this point, the line would turn and continue generally north for approximately 1.5 miles (2.4 km). The line would cross over Tule Jim Lane and run north along the west side of Tule Jim Lane for approximately 1.3 miles (2.1 km) until it crosses Eady Lane. At this point, the line would change from an aboveground line to an underground line and turn northeast for approximately 0.1 mile (0.2 km) until it enters the rebuilt Boulevard Substation (SDG&E 2009b).

Boulevard Substation

The interconnection of a 138-kV transmission line with the Boulevard Substation would require rebuilding and expansion of the Boulevard Substation. SDG&E acquired one 8.5-acre (3.4 hectare) parcel attached to the eastern property line of the existing substation, in which the Boulevard Substation would be rebuilt to operate at 138/69/12-kV. One residential home and eight associated structures located on this parcel would be demolished prior to expanding the substation. A new 25-foot (7.6 m) wide, asphalt-paved access road, approximately 190 feet (58 m) in length, would be constructed off of Old Highway 80 to the rebuilt substation site. A paved spur road off the main access road, approximately 210 feet (64 m) in length, would

provide secondary access into the substation. The fenced area of the new substation would be approximately 2 acres (0.8 hectare) (277 feet by 319 feet [84.4 m by 97.2 m]), allowing for the installation of new 138-kV, 69-kV, and 12-kV facilities to accommodate connection of the new 138-kV transmission line, as well as the potential for up to 4 generation tie-lines. In order to connect the existing 69-kV transmission line to the rebuilt Boulevard Substation, 2 new direct embedded steel poles, approximately 85 feet (26 m) tall, would be installed southwest of the rebuilt Boulevard Substation. The electrical facilities would include 138-kV, 69-kV and 12-kV air-insulated buses, transformers, circuit breakers, disconnect switches, communication equipment and protective relays (SDG&E 2009b).

5.2.3 Tule Wind Energy Project

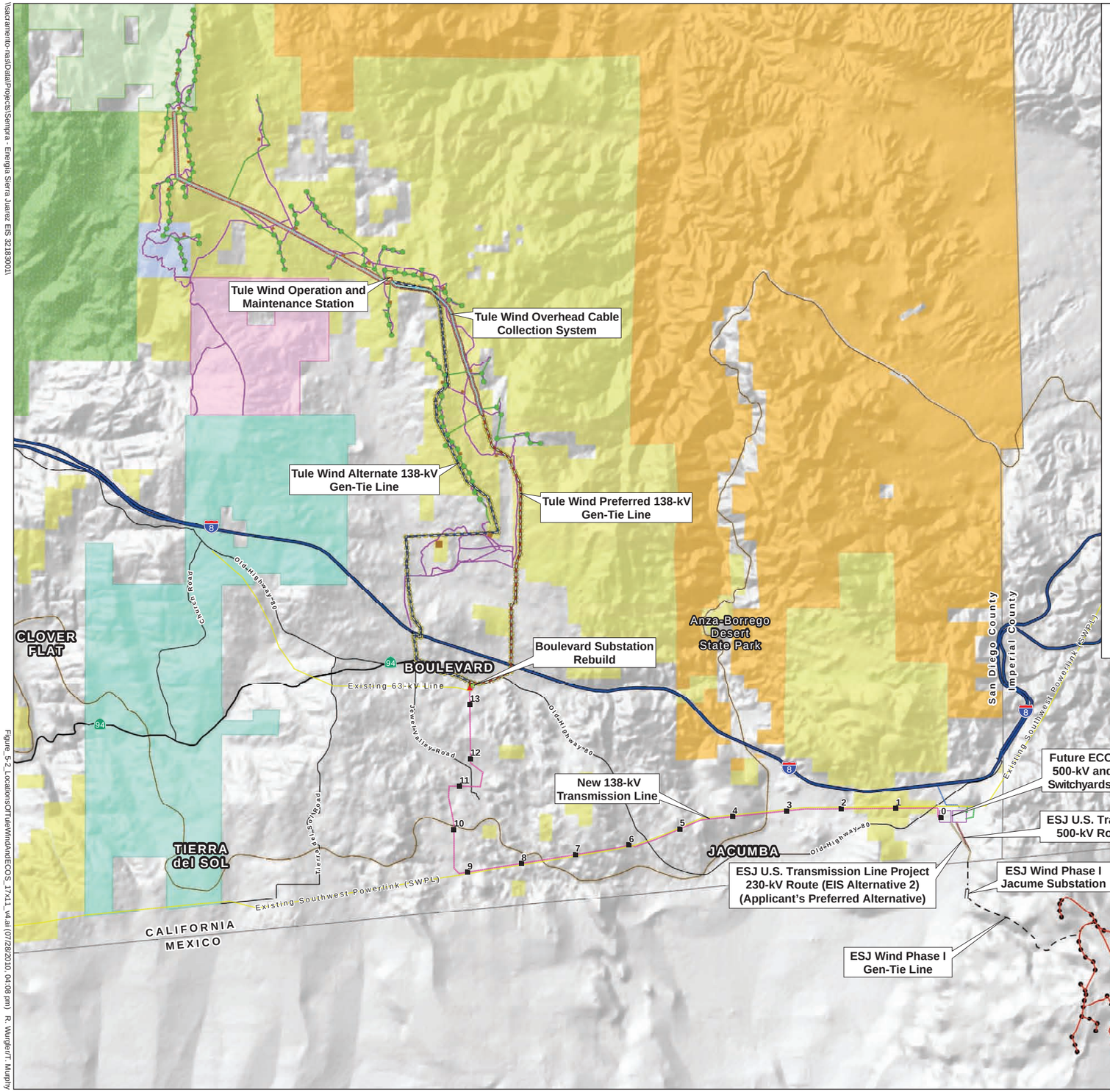
Iberdrola Renewables has submitted an application for a right-of-way to construction a wind energy project on BLM-managed land; and state, private, and tribal lands in the McCain Valley, which are north of I-8, the alternative corridors, and the existing Kumeyaay Wind Farm. The wind turbines (approximately 125) would be constructed on approximately 15,500 acres (6,272.7 hectares) and would provide up to 200 MW of power. Current plans for the Tule Wind Energy project would tie this project into the proposed Boulevard Substation rebuild component of the SDG&E ECO Substation Project (described above). BLM and the CPUC published a joint NOI/Notice of Preparation for an EIS/EIR for the project in December 2009[5] (BLM 2009e). Figure 5-2, developed by the BLM and CPUC to provide additional information during the NEPA and CEQA scoping processes is included here to illustrate project details (including potential wind turbine locations, the electrical connections system, and generation tie lines to the Boulevard substation).

5.2.4 Campo Wind Energy Project

The Campo Band of Mission Indians of the Kumeyaay Nation, Invenergy LLC and SDG&E signed a Memorandum of Understanding in June 2009 to build a 160 MW wind energy project on tribal land in eastern San Diego County, in addition to the existing 25 turbine project located on tribal lands that was completed in 2005. Although exact placement has not yet been determined, the project would involve as many as 100 new wind turbines. According to project developers, the project is expected to begin producing energy in late 2012[6] (SDG&E 2009c). No other information is currently available regarding this project and no formal applications have been files with the CPUC or California Department of Energy.

[5] Additional information regarding the Tule Wind Energy Project is available online at: http://www.blm.gov/ca/st/en/info/fed_reg_archives/2009/december/tule_wind_noi.html and http://www.iberdrolarenewables.us/tulewind/index.html

[6] Additional information regarding the Campo Wind Energy Project is available online at: http://www.invenergyllc.com/news/campo_project.pdf



LEGEND

SDG&E EAST COUNTY SUBSTATION (ECO) PROJECT COMPONENTS
- Proposed SWPL Loop-In
- Proposed 138-kV Transmission Line
- Proposed 12-kV Temporary Distribution Tap
- Existing Transmission Line
- Existing Boulevard Substation
- Proposed 138-kV Line Milepost
- Proposed ECO Substation
- Proposed Boulevard Substation Rebuild

CONNECTED ACTIONS
Pacific Wind Development (Iberdrola)
Tule Wind Project Components
- Proposed Wind Turbines
- Overhead Cable Collection System
- 34.5-kV Overhead Cable Collection Structures
- Underground Cable Collection System
- Operation and Maintenance Station
- Preferred 138-kV Gen-Tie Line
- Alternate 138-kV Gen-Tie Line
- Proposed 138-kV Transmission Line Structures
- Access Roads
- Staging Areas

Energia Sierra Juarez U.S. (ESJ U.S.)
- ESJ U.S. 500-kV Route
- ESJ U.S. 230-kV Route

Energia Sierra Juarez Wind (ESJ Wind Phase I)
- ESJ Wind Phase I Turbine Locations
- ESJ Wind Phase I Gen-Tie Line
- ESJ Wind Phase I Jacume Substation
- ESJ Wind Phase I Electrical Collection System

Land Jurisdictions
- Bureau of Land Management
- California State Parks
- California State Lands Commission
- Campo Reservation
- Ewiiaapaayp Reservation
- Manzanita Reservation
- United States Forest Service

Mapping Symbols
- Interstate
- Highway
- Major Roads
- Railroad

Source:
Adapted from CPUC/BLM, 2010.

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FIGURE 5-2

LOCATION AND DETAILS OF TULE WIND ENERGY AND ECO SUBSTATION PROJECTS

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Figure_5-2_LocationsOfTuleWindAndECOS_17x11_v4.ai (07/28/2010, 04:08 pm) R. Wurgler/T. Murphy

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5.2.5 Imperial Valley Solar Project

Stirling Energy System submitted an Application for Certification to the California Energy Commission in June 2008 to construct a 750 MW solar energy facility on a 6,500-acre (2,630-hectare) project site in Imperial County 14 miles (22.5 km) west of El Centro and 4 miles (6.4 km) east of Ocotillo Wells. The primary equipment for the generating facility would include approximately 30,000 25-kilowatt solar dish Stirling systems and associated infrastructure. The project would also include the construction of a new 230-kV substation located in the approximate center of the site and would be connected to the SDG&E Imperial Valley Substation via a 10.3-mile (16.6 km), double-circuit, 230-kV transmission line.

The double-circuit 230-kV transmission line would parallel the SWPL transmission line within the designated right-of-way (BLM 2008b). BLM published a NOI for the project on October 17, 2008, the California Energy Commission found the Application for Certification data adequate on October 8, 2009, and BLM published a Notice of Availability of the Draft EIS on February 12, 2010 (BLM 2010).[7]

5.2.6 La Rumorosa I Project

Turbo Power Services installed five 2-MW wind turbines on the road between Mexicali and Tijuana, Baja California, Mexico in September 2009. The project was implemented as a local-consumption project for the municipalities of Mexicali and Tijuana and is expected to generate the equivalent to half the electricity demand in the region, which includes about 35,000 families (Latin American Wind Energy Association 2009).[8]

5.2.7 Ketchum Ranch Project

The Ketchum Ranch Specific Plan proposes a residential community with recreational and visitor-oriented commercial uses on approximately 1,300 acres (526 ha) on the east side of Carrizo Gorge Road, on the east side of the community of Jacumba. The proposed Specific Plan would be developed in two phases.

Phase 1 would develop the southern 653 acres (264 ha) of the Ranch with 1,110 residential units and various support and neighborhood commercial and recreational uses such as a golf course, equestrian trails, clubhouse, tennis courts, swimming pools and other residential-orientated recreational uses. Phase 1 would also include a sewage treatment facility, and may include a hotel and visitor-serving recreational uses in the northern portion of the Specific Plan Area.

The proposed sewage treatment facility and trunk lines would be sized to serve future phases of development. Phase 2 would develop the northern 694 acres (281 ha) of the Specific Plan area with residential, light industrial, and commercial uses. Phase 2 would be deferred for a minimum

[7] Additional information regarding the Imperial Valley Solar project is available online at: http://www.energy.ca.gov/sitingcases/solartwo/index.html

[8] Additional information regarding the La Rumorosa I project is available online at: http://www.windfair.net/press/6094.html; http://www.greenmomentum.com/wb3/wb/gm/gm_content?id_content=1465; http://www.rechargenews.com/energy/wind/article172862.ece

of 3 years or until Phase 1 is expanded to include the northern portion of the Ranch (County of San Diego 2010).

5.2.8 County of San Diego General Plan Update

The County of San Diego DPLU has developed a Draft General Plan Update for the county. The Notice of Publication of the Draft EIR for the General Plan was published June 2009 and adoption of the General Plan Update by the County of San Diego Board of Supervisors is planned for fall 2010.[9] According to the Draft General Plan zoning of the parcels proposed for the ESJ U.S. Transmission Line project would be changed from Multiple Rural Use to Rural Lands (RL-80), which allows one dwelling unit per every 80 acres. The Rural Lands category would be applied to large open space and very low density private and publicly owned lands that provide for agriculture, managed resource production, conservation, and recreation and thereby retain the rural character for which much of unincorporated San Diego County is known. According to the Draft General Plan, rural areas are not appropriate for intensive residential or commercial uses due to significant topographical or environmental constraints, limited access, and the lack of public services or facilities. Also, according to the updated Mobility Element developed as part of the Draft General Plan, Old Highway 80 and Carrizo Gorge Road would be downgraded from their current classification as Major Collector (4 lanes) to Light Collector with Improvement Options (2+ lanes) (County of San Diego 2010).

5.2.9 South Coast Resource Management Plan Revision

The BLM is currently developing a revision to the South Coast Resource Management Plan (RMP). The revised South Coast RMP would provide guidance for the management of approximately 300,000 acres (121,400 ha) of BLM-administered public lands in portions of San Diego, Riverside, San Bernardino, Orange, and Los Angeles Counties. A NOI for the development of the RMP was published in the Federal Register in August 2007 (72 FR 44173).[10] Included in the Planning Area for this RMP is the BLM land north of the alternative corridors in San Diego County. As of May 2010, the Draft RMP had not yet been released (BLM 2008c). According to BLM staff, the Draft RMP planning area does not extend to BLM lands in vicinity of the ESJ U.S. Transmission Line project (Hill 2010).

5.2.10 Eastern San Diego County Resource Management Plan Revision

In October 2008, the BLM signed the ROD implementing the revised Eastern San Diego County RMP. The Planning Area for the revised RMP includes the area proposed for the alternative corridors, although the corridors are not located on BLM-administered land. Within the revised RMP, the alternative corridors rights-of-way are located in the Jacumba/Boulevard Destination Special Recreation Management Area (SRMA). The Boulevard/Jacumba Destination SRMA includes the most extensively used areas in the Planning Area. Land uses include the established campgrounds, horse corrals, and designated off-highway vehicle use area and route network. The SRMA also includes lands that are designated as wilderness areas, wilderness study areas, and ACECs. The primary activities in these areas are camping, off-highway vehicle use, equestrian

[9] Additional information regarding the County of San Diego General Plan Update is available online at: http://www.sdcounty.ca.gov/dplu/gpupdate/index.html

[10] Additional information regarding the South Coast Resource Management Plan is available online at: http://www.blm.gov/ca/st/en/fo/palmsprings/SCRMP_Revision.html

use, target shooting, hunting, mountain biking, hiking and backpacking, wildflower and wildlife viewing, rock hounding, and pleasure touring. The SRMA boundaries are not intended to confer BLM authority, responsibility, or jurisdiction over lands and waters that are not administered by the BLM. Instead, planning boundaries reflect the fact that these adjacent lands are vital in the appropriate management of the entire area. Under the revised RMP, this SRMA would be managed as a regional or national destination through collaborative partnerships in order to promote the continued use of the lands for these activities (BLM 2008a).[11]

5.2.11 East County Multiple Species Conservation Plan

The County of San Diego Multiple Species Conservation Program is a division of the County of San Diego DPLU that is tasked with preserving and protecting San Diego's native habitats and watersheds as well as ensuring compliance of projects with CEQA, NEPA, and the ESA. The Program has developed a draft Map for the East County Study Area which covers the area east of Alpine to the Imperial County line and north to Riverside County. The draft map was released for public review in December 2008. Although the alternative corridors are included in the Study Area as depicted on the draft map, it is not part of the Program area and has not been designated a Conservation Strategy Area (County of San Diego 2008).

5.2.12 Solar Energy Development

The DOE and BLM published a NOI for a Programmatic EIS to evaluate solar energy development and develop and implement agency specific programs related to solar energy development in May 2008 (73 FR 30908). The Proposed Action to be analyzed in the Programmatic EIS is the development and implementation of agency-specific programs that would facilitate environmentally responsible utility-scale solar energy development. The programs would establish policies and mitigation strategies related to solar energy development in six western states (Arizona, California, Colorado, New Mexico, Nevada, and Utah) that would apply to the deployment of DOE-supported solar energy projects on BLM-administered lands or other Federal, State, tribal, or private lands. As stated in the NOI, the Programmatic EIS will identify lands that are appropriate for solar development (DOE/BLM 2009). Study area maps released in June 2009 indicate the location of four BLM tracts of land that have been identified for in-depth study of solar development in California. The nearest study area to the ESJ U.S. Project includes 12,380 acres (5,010 ha) located in southeastern Imperial County, approximately 20 miles (32 km) east of El Centro along the U.S.-Mexico border (DOE/BLM 2009).[12]

5.3 CUMULATIVE IMPACTS ANALYSIS

The cumulative impacts analyses presented in the following sections encompass the direct and indirect impacts associated with both the ESJ U.S. Transmission Line project, and the potential impacting factors for each of the reasonably foreseeable future actions described in Section 5.2. The cumulative impact analysis considers the period of construction for the ESJ U.S. Transmission Line project and the post-construction period of operation.

[11] Additional information regarding the Eastern San Diego County Resource Management Plan is available online at: http://www.blm.gov/ca/st/en/fo/elcentro/esdrmp.html

[12] Additional information regarding the Programmatic EIS for solar energy development is available online at: http://solareis.anl.gov/

5.3.1 Biological Resources

Cumulative impacts to biological resources would result if the ESJ U.S. Transmission Line project, in combination with other projects considered in this analysis, resulted in impacts to special status plant or wildlife species, nesting birds, or loss of habitat. Existing linear development features including I-8 and Old Highway 80 to the north, and the U.S.-Mexico border fence to the south, have the potential to inhibit the north-south movement of large terrestrial wildlife species through the area. The ESJ U.S. Transmission Line project design incorporates widely spaced transmission towers (or monopoles), which would not substantially interfere with connectivity between blocks of habitat or potentially block or substantially interfere with the movement of terrestrial wildlife.

Biological surveys conducted in the area for the SDG&E ECO Substation Project found small mammal burrows in high densities throughout the site, as well as three inactive bird nests. In addition, four special status plant and wildlife species were found to occur or have a high potential to occur in the area. Construction activities associated with the ESJ U.S. Transmission Line project in combination with the ECO Substation switchyard could result in cumulative disturbance of wildlife due to temporary cumulative increases in ambient noise levels. However, environmental protection measures incorporated into the ESJ U.S. Transmission Line project design would ensure the ESJ U.S. Transmission Line project contributions to such noise increases would be minor. In addition, protocol-level surveys for the Quino checkerspot butterfly conducted for the ECO Substation Project in 2009 located individuals of the species and larval host plants at Jacumba Peak (within the designated critical habitat area), along the 138-kV transmission line route and over 5 miles (8 km) west of the ESJ U.S. Transmission Line project. As discussed in Section 4.0 (Connected Action), the surveys did not identify any individual or larval host plants at the ECO Substation switchyard facility. Therefore, the ESJ U.S. Transmission Line project would not contribute to any potential cumulative impacts to the Quino checkerspot butterfly.

Once operational, minor to moderate permanent cumulative impacts to biological resources would occur. Implementation of the projects considered in this analysis would result in the permanent loss of habitat; however, the ESJ U.S. Transmission Line project contribution to this cumulative impact would be minor (approximately 9 acres [14.4 ha] of permanent habitat loss) compared to the Sunrise Powerlink project and related components of the SDG&E ECO Substation Project, as well as proposed wind and solar projects. These impacts would be offset by the proposed conservation easement. The cumulative presence of the proposed transmission line and ESJ Wind project could result in impacts to migratory birds that could potentially collide with transmission lines, towers, or turbines. However, as described in Section 3.1 (Biological Resources), the alternative corridors and the ESJ Wind project turbines would not be located in a known flyway or migratory corridor. Similarly, the other wind projects considered in this cumulative analysis (Campo Wind Energy project and Tule Wind Energy project) would also be located outside of any known flyways or migratory corridors. Impacts to avian species would most likely consist of impacts to raptors, which are known to forage along ridgelines and could collide with the turbines. However, the Migratory Bird Treaty Act (of which both the U.S. and Mexico are signatories) is designed to minimize cumulative impacts to migratory birds (including raptors). The USFWS is the regionally responsible agency designated to ensure compliance with the Migratory Bird Treaty Act in the U.S. Through consultation with the

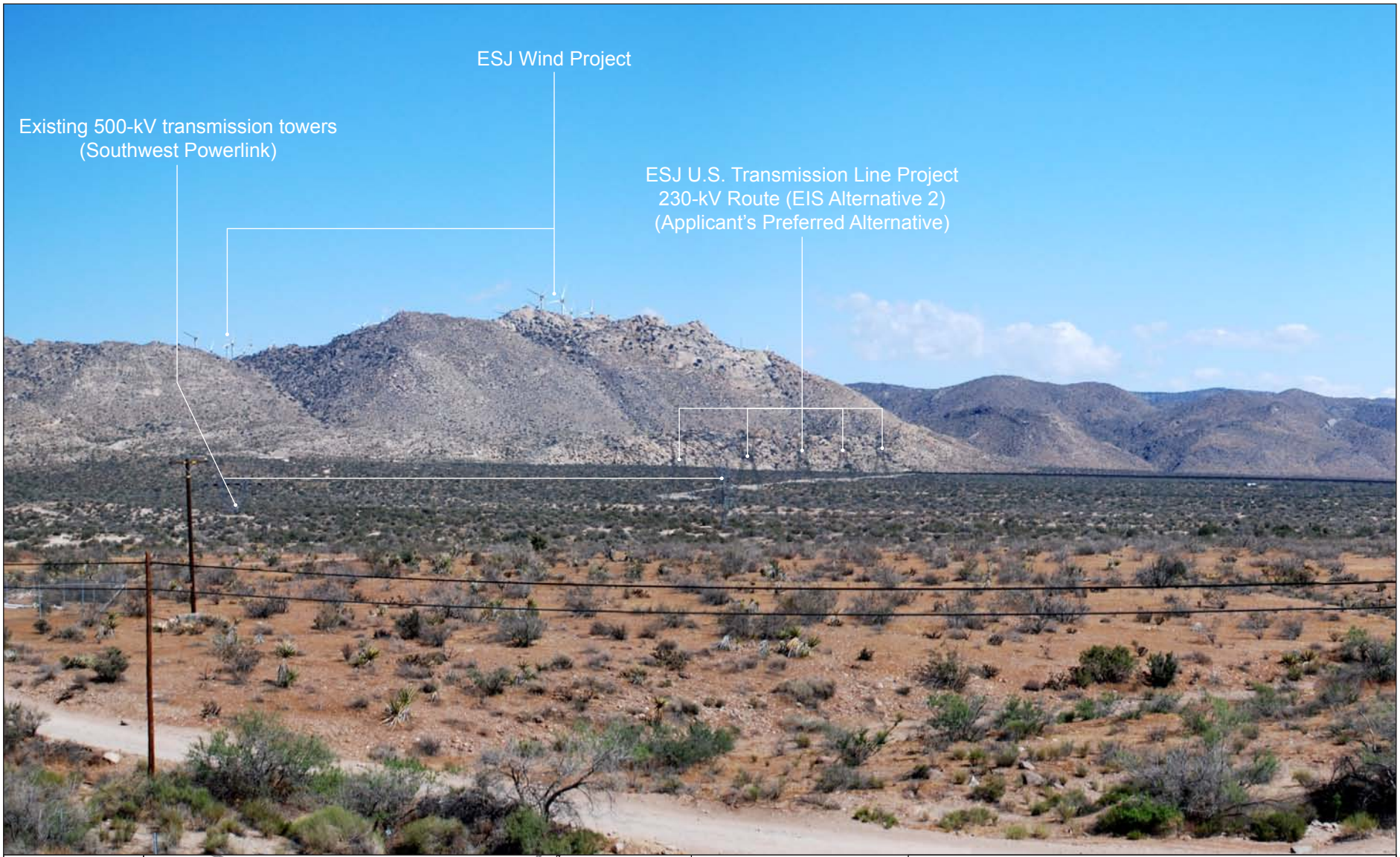
USFWS, each project would be required to implement measures to avoid and/or minimize impacts to migratory birds. Therefore, no major cumulative impacts to migratory bird species are anticipated.

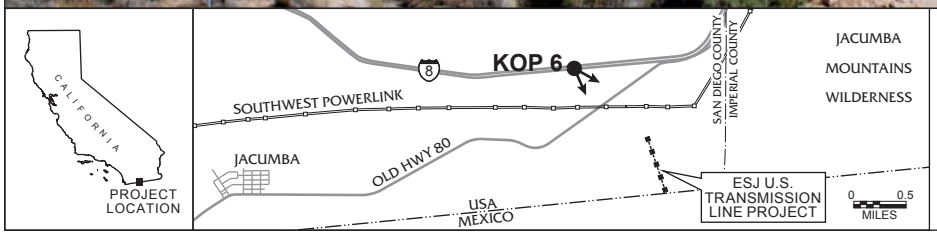
5.3.2 Visual Resources

The ROI for analysis of cumulative visual impacts is relatively large and includes southeastern San Diego County and southwestern Imperial County. Within this ROI, the ESJ U.S. Transmission Line project, when considered in conjunction with the other wind energy, solar power, and transmission line projects considered in this analysis, could result in a substantial increase in industrial character, structure prominence, and view blockage[13]. The combined effect of the projects would result in a perceived increase in industrialization of the landscape, diminished visual quality, and an increase in visual contrast in eastern San Diego County and western Imperial County. As discussed further in Section 3.2 (Visual Resources), although there are numerous existing man-made features including the interstate highway and regional roads, existing transmission structures, and the international border fence, these areas are currently largely rural in nature. Structures associated with the ESJ U.S. Transmission Line project, Sunrise Powerlink, ECO Substation switchyards and related components, Imperial Valley Solar, any future DOE solar projects (as identified in the Programmatic EIS), the Campo Wind Energy project, and the Tule Wind Energy project would all be visible to motorists traveling along I-8, residents in nearby rural towns, and recreational users of surrounding open space areas (e.g., portions of Table Mountain ACEC and Anza Borrego Desert State Park). These structures would introduce additional industrial character wherever they are viewable. The combined size and character of the introduced structures, as well as the large number of each required for the respective projects, would result in considerable structure contrast, view blockages, and skylining in the region and would cumulatively cause permanent, major impacts to the existing visual character of the region.

The combined ESJ U.S. Transmission Line, ECO Substation and ESJ Wind projects would be visible from surrounding BLM recreational areas (Table Mountain ACEC to the north, and Jacumba Wilderness to the east) (Figure 5-3; note – the ECO Substation switchyard facility is not simulated in the figure). As discussed in Section 3.4 (Visual Resources), the ESJ U.S. Transmission Line project structures in and of themselves would not substantially change the character of views from these areas due to the tendency of transmission towers to blend with the surrounding desert landscape when viewed from a distance, and because the new towers would be substantially similar in appearance to the existing SWPL transmission towers.

[13] In late 2009, five wind turbines of comparable size were installed near the border in Mexico as part of the La Rumorosa I project to supply power to the cities of Mexicali and Tijuana, Baja California, Mexico. These turbines were not yet installed at the time that the simulations for this EIS were developed. The existing turbines are not shown in this EIS, but are presently visible from certain vantage points in the Jacumba area.





Source:
ICF Jones & Stokes 2010.

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 5-3

SIMULATION OF VIEW OF PROJECTS CONSIDERED IN CUMULATIVE EFFECTS ANALYSIS (KOP 6)

August 2010

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Figure_5-3_VisualSimulationOfCumulative_11x8_v3.ai (07/29/2010, 06:31 am) R. Wurgler/T. Murphy
August 2010

Overall, it is clear that this is an area of active renewable energy development (see the following Web sites: http://www.20percentwind.org/20percent_wind_energy_report_revOct08.pdf; http://solareis.anl.gov; http://windeis.anl.gov). Much of that development is occurring in Mexico and is beyond the jurisdiction of U.S. regulatory agencies (see footnote 7). The ESJ U.S. Transmission Line project would be a relatively small contribution to the cumulative effect to visual resources. Each of the projects in the U.S. is subject to mitigation and other measures to address the visual impact of the developments. Therefore, the ESJ U.S. Transmission Line project would have a minor but permanent contribution to this visual change.

5.3.3 Land Use

The proposed and existing energy projects in eastern San Diego County would cumulatively increase the amount of industrial land uses in eastern San Diego County. This area of the county is designated Multiple Rural Use by the current County of San Diego General Plan. As discussed in Section 3.3 (Land Use), this land use designation is focused on maintaining and promoting the rural character of the local communities and open spaces. Each project would be required to obtain discretionary review and approval by the applicable local, state and federal agencies, prior to construction. The permitting processes of these agencies would entail a detailed review of the individual projects in relation to the agency's goals and policies related to preservation of rural land uses, including a consideration of cumulative land use effects. The County of San Diego DPLU staff has proposed changes to the County of San Diego General Plan. Adoption of the Plan is anticipated in fall 2010. If these changes are adopted, then the land use designation for the ESJ U.S. Transmission Line project and SDG&E ECO Substation Project areas would change slightly from Multiple Rural Use to Rural Lands (RL-80). This change would reduce allowed residential land use density from one unit per 20 acres to one unit per 80 acres; however, the designation would not alter the permitted uses. Relative to other proposed renewable energy projects in the region, the ESJ U.S. Transmission Line project's contribution to cumulative land use impacts, if any, is expected to be minor because the proposed transmission line would be located on private, undeveloped land, would not conflict with the existing or proposed land use designation, and would not be visible from residential areas. Furthermore, in areas from which the ESJ U.S. Transmission Line project structures would be visible (e.g., I-8, Old Highway 80, and surrounding recreational lands), the structures in and of themselves would not substantially contribute to a cumulative change in the visual character of the landscape due to the tendency of transmission towers to blend with the surrounding desert landscape when viewed from a distance, and because the new towers would be substantially similar in appearance to the existing SWPL transmission towers.

With regard to other applicable regional plans, the ESJ U.S. Transmission Line project would be located outside the planning area of the BLM's South Coast RMP and would not directly affect or be affected by the implementation of this plan. While the ESJ U.S. Transmission Line project would be within the planning area of the BLM's East County RMP, the ESJ U.S. Transmission Line project corridor is not owned or operated by the BLM and therefore the ESJ U.S. Transmission Line project would not affect, or be affected by, activities associated with this plan.

5.3.4 Recreation

Cumulative impacts to recreation would occur if the ESJ U.S. Transmission Line project, in conjunction with any of the other projects included in this analysis, resulted in either the

temporary or permanent preclusion of access to recreational areas or changes in the character of recreational areas. Construction of the ESJ U.S. Transmission Line project would not result in direct impacts to recreation because the project would be located entirely on private land. Further, although the proposed conservation easement would be located in an area contiguous with BLM-managed recreational land, any existing recreational trails would remain accessible. Similarly, the ECO Substation switchyard facility, which would be constructed near the ESJ U.S. Transmission Line project, would also be on private land. The access roads and rights-of-way for these projects would not be fenced, and would not obstruct access to existing or planned recreational areas.

Short-term construction traffic along I-8 and Old Highway 80 could cumulatively interfere with vehicles travelling to and from recreational areas, particularly if more than one project is under construction concurrently. However, given the existing low volume to capacity usage of these road segments (relative to County of San Diego thresholds for congestion); and considering the short-term nature of construction traffic, any such impacts would be minor and temporary, even if multiple projects were to be constructed concurrently.

To the extent that distant views of the surrounding landscape is a valuable component of recreational use of the project area, then any diminishment of this character could be considered an indirect and potentially major impact. Once operational, the ESJ U.S. Transmission Line project towers (or monopoles), in combination with the ECO Substation Project facilities and other renewable energy projects (e.g., Tule Wind, Campo, and Solar Two), could have both direct and indirect impacts on the recreational use of trails within nearby BLM-managed lands. Direct impacts could occur as a result of the Tule Wind project's placement of wind turbines and related roads and infrastructure in BLM lands that are currently accessible to recreational users. The combined ESJ U.S. project and ECO Substation switchyards would be visible from surrounding BLM recreational areas (Table Mountain ACEC to the north, and Jacumba Wilderness to the east). As discussed in Section 3.4 (Visual Resources), the ESJ U.S. Transmission Line project structures in and of themselves would not substantially change the character of views from these areas due to the tendency of transmission towers to blend with the surrounding desert landscape when viewed from a distance, and because the new towers would be substantially similar in appearance to the existing SWPL transmission towers. The ECO Substation switchyard facility would create a more substantial change in the visual landscape from these vantage points. Therefore, the ESJ U.S. Transmission Line project would have a minor, but a permanent, contribution to this change.

5.3.5 Cultural Resources

The geographic scope for the analysis of cumulative impacts on cultural resources is all of Imperial and San Diego Counties. The proximity of cultural resources to the ESJ U.S. Transmission Line project would be of interest only to the extent that proximity would considerably affect the context or integrity of the resource. This wide geographic scope is appropriate because it is likely that cultural resources similar to those in the ESJ U.S. Transmission Line project's APE are present throughout this area. There are numerous projects in the planning or construction phase within Imperial and San Diego Counties that have the potential to adversely affect cultural and paleontological resources, including the specific projects listed in Table 5.2-1. However, the actual number and type of resources that could be

adversely affected cannot be determined without a comprehensive inventory of the area within the geographic scope of the cumulative analysis. No such inventory is known to exist.

Typically, cultural resources are identified as part of the permitting process for individual undertakings, and often are discovered only during ground disturbing activities. Applicable laws and regulations afford specific protections to discovered resources. The project could contribute to cumulative impacts to cultural resources if construction activities affected known Native American sites. As discussed in Section 3.5 (Cultural Resources), with the implementation of applicant proposed measures, ESJ U.S. Transmission Line project impacts to cultural resources would be minor. Therefore, the ESJ U.S. Transmission Line project's contribution to cumulative impacts to cultural resources would also be minor.

The Quechan Tribe, in their letter dated March 9, 2009 (Appendix D), indicated a concern that the EIS analysis should consider the cultural landscape. As discussed in Section 3.5 (Cultural Resources), no impacts to the cultural landscape are identified. In the context of cumulative impacts, it is noted that multiple wind development projects in southeast San Diego County and northern Baja could be considered an adverse impact on cultural values in the region. Since the ESJ U.S. Transmission Line project has no impact on cultural resources, it would not contribute to this cumulative impact.

5.3.6 Noise

Cumulative construction noise impacts in the area are expected to be minor due to the lack of sensitive receptors in the project area, and the distances between the individual projects. In the event that the SDG&E ECO Substation Project and/or the Sunrise Powerlink project construction occurs concurrently with the ESJ U.S. Transmission Line project, the cumulative effect of construction activities would elevate ambient noise levels in the area; however, noise levels would not exceed the County of San Diego's threshold (75 dBA) as measured at the location of the nearest occupied residence. Therefore, cumulative noise impacts would be minimal during construction. During project operation, corona noise from the ESJ U.S. Transmission Line project and other proposed transmission lines (Sunrise Powerlink, ECO Substation and associated 138-kV Transmission Line) could result in occasional adverse cumulative impacts to residential receptors during wet weather. However, ESJ-U.S. has committed to selecting a conductor configuration that would not exceed the County of San Diego's noise threshold at the property line. Therefore, the ESJ U.S. Transmission Line project's contribution to long-term cumulative noise increases would be minor.

5.3.7 Transportation and Traffic

No foreseeable transportation improvement projects are proposed that would affect existing project area traffic and transportation conditions in the area of the projects considered in this analysis. Cumulative impacts to existing traffic conditions could occur if the ESJ U.S. Transmission Line project were constructed at the same time as any of the other projects considered in this analysis, particularly the SDG&E ECO Substation Project or other wind projects (due to the addition of commuters and over-sized trucks transporting construction materials on I-8 traveling to the area from the City of San Diego or cities in Imperial County). The timing of construction of the individual projects is difficult to predict. Based on recent project status reports, the Sunrise Powerlink and Imperial Valley Solar projects may be

constructed concurrent to construction of the ESJ U.S. Transmission Line project. Similarly the ECO Substation and the Tule Wind projects could be built concurrently with the ESJ U.S. Transmission Line project. Since the number of daily vehicle trips associated with ESJ U.S. Transmission Line project would be less than 0.1 percent of the existing average daily traffic on I-8 and one percent of existing traffic on Old Highway 80, with implementation of applicant-proposed measures described in Section 3.7, ESJ U.S. Transmission Line project contributions to cumulative transportation impacts during construction would be minor. Following completion of construction activity, the ESJ U.S. Transmission Line project would not contribute to cumulative transportation impacts; therefore no long-term cumulative transportation and traffic impacts are indicated.

5.3.8 Public Health and Safety

During construction, the ESJ U.S. Transmission Line project would handle hazardous materials and potentially contaminated soils in accordance with all applicable regulations; therefore, construction of the ESJ U.S. Transmission Line project would not contribute to any cumulative public health and safety issues.

Once operational, the electric fields associated with the ESJ U.S. Transmission Line project may be of sufficient magnitude to impact the operation of pacemakers but would not combine with the impacts of other projects because the impact would only occur in the immediate area of the ESJ U.S. Transmission Line project. The addition of other new lines (e.g., Sunrise Powerlink, SDG&E 138-kV Transmission Line) would not change the level of effect at any specific location. Similarly, impacts associated with EMF exposure from transmission lines would only occur in the immediate vicinity of the line. The ESJ U.S. Transmission Line project would not contribute to any cumulative public health impacts associated with EMF due to its distance away from any potential receptors.

5.3.9 Fire and Fuels Management

As shown in Table 5.2-1, numerous construction activities are planned in the vicinity of the ESJ U.S. Transmission Line project and nearby wildland areas in eastern San Diego County and western Imperial County. These projects increase the cumulative level of human influence adjacent to wildlands and could potentially increase the number of human-caused wildfire ignitions. Potential for wildfire ignitions during construction could be reduced but not eliminated, through potential additional mitigation measures described in Section 3.9.3. The ESJ U.S. Transmission Line project's contribution to increased probability of human-caused wildfire ignitions would be minor based on the short duration of construction activity and the scale of construction compared to other projects considered in this analysis (e.g., Sunrise Powerlink, SDG&E ECO Substation Project, wind development projects, and related infrastructure).

As stated in Section 3.9 (Fire and Fuels Management), the presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the ESJ U.S. Transmission Line project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions. These events are rare but would be unavoidable. When considered in combination with other planned projects in the surrounding area, the potential for wildfire ignitions is cumulatively significant. Implementation of the ESJ-U.S. proposed Fire Protection Plan and the potential additional mitigation measures described in

Section 3.9.3 could reduce the probability of igniting a wildfire and reduce the impacts of fires when they occur; however, the potential for ignition would remain. Therefore, this potential for ignition is considered a significant and unavoidable cumulative impact. No additional mitigation measures are available to reduce the ESJ U.S. Transmission Line project's contribution to the potential for ignition to less than considerable.

5.3.10 Air Quality and Climate

Criteria Pollutants

Cumulative impacts were assessed by determining if the ESJ U.S. Transmission Line project, in conjunction with other projects, would have the potential to contribute to a long-term impact on air quality. As described in the County of San Diego Guidelines for Determining Significance for Air Quality (County of San Diego 2007a), the SDAPCD and the County of San Diego assume that if project level emissions are less than significance thresholds and there is not a closely related project, then the project would not have a cumulatively considerable impact on air quality. As demonstrated in Section 3.10 (Air Quality and Climate Change), emissions associated with construction, operation, and maintenance of the ESJ U.S. Transmission Line Project would be below SDAPCD thresholds; therefore, the ESJ U.S. Transmission Line project impacts on air quality would not be cumulatively considerable and would be minor.

With regard to the SDG&E ECO Substation Project, emissions from construction of the substation may exceed SDAPCD thresholds, and combined with the transmission line and other projects, could result in cumulative impacts if built concurrently. The SDG&E ECO Substation Project, along with other projects considered in this analysis, would be subject to federal, state, and local regulations, including County of San Diego and SDAPCD permitting, which would result in project design changes or mitigation measures that would serve to reduce construction and operational emissions below applicable thresholds. The energy projects listed in Table 5.2-1 would also have very little contribution to a cumulative air quality effect. The development and planning projects considered in this analysis may have a larger air quality impact than the ESJ U.S. Transmission Line project; however, the combined emissions with the ESJ U.S. Transmission Line project are not anticipated to result in a cumulative impact on air quality.

Climate Change

As discussed in Section 3.10 (Air Quality and Climate Change), construction and operation of the ESJ U.S. Transmission Line project would result in minor emissions of GHG. These emissions would contribute incrementally to cumulative GHG emissions and associated global climate change. Implementation of potential mitigation measures described in Section 3.10 would reduce ESJ U.S. Transmission Line project emissions of GHG. As discussed in Section 3.10, GHG emissions from the ESJ U.S. Transmission Line project would likely be more than offset by the indirect net decrease in GHG and other emissions from fossil-fueled power plants. Any such net reduction of GHG emissions is considered a beneficial impact. This is also the case for the other renewable energy projects considered in this analysis (Sunrise Powerlink Transmission Line project, SDG&E ECO Substation Project, Tule Wind Energy project, Campo Wind Energy project, Imperial Valley Solar project, and La Rumorosa I project; see Section 5.2 for complete descriptions of these projects).

5.3.11 Water Resources

Surface water features near the alternative corridors are isolated and do not connect to other surface waters. Therefore, no cumulative effects related surface water impacts are indicated. Water required for construction uses, such as dust control would likely be trucked onsite from a County of San Diego-approved source; however, depending on final design and further discussion with the County of San Diego, construction water could be obtained from an onsite well or an existing brackish well near Jacumba. Regardless of the water source, the amount of water required for short-term construction use is small relative to groundwater availability in the vicinity of the ESJ U.S. Transmission Line project. Therefore, the ESJ U.S. Transmission Line project would make only a minor and short-term contribution to cumulative demands on local water supply.

5.3.12 Geology and Soils

The ESJ U.S. Transmission Line project would create a minor potential for erosion due to construction grading and disturbance; and during long-term maintenance activities (e.g., due to vehicle usage of the access roads). The adjacent ECO Substation switchyard facility would add to this potential for erosion in the vicinity of both projects. Both projects are located in gently sloping topography; and both projects propose to implement erosion control BMPs during construction and operations. Therefore, no cumulative impacts related to erosion are anticipated. Cumulative impacts related to seismic activity or other geologic hazards are not anticipated because the ESJ U.S. Transmission Line project, as well as the ECO Substation switchyard facility would be located in an area that is not in close proximity to active faults or susceptible to liquefaction; and both projects would be designed to meet applicable seismic and geotechnical design standards. Other projects may be susceptible to site-specific erosion or other geologic hazards (e.g., wind farm development on steep slopes); however, these developments would also be required to meet various design standards and are distant from the ESJ U.S. Transmission Line project. Therefore, no cumulative impacts related to geology and soils are indicated.

5.3.13 Socioeconomics

The projects considered in this analysis would cumulatively increase employment in the trade, transportation, and utilities sectors, and in manufacturing sectors in San Diego and Imperial Counties. During construction of the ESJ U.S. Transmission Line project, employment would increase temporarily; however, no new long-term jobs would be created to operate the transmission lines. Therefore, the ESJ U.S. Transmission Line project would not contribute to cumulative long-term in-migration or population impacts in either San Diego or Imperial County. Further, although the projects in this analysis would cumulatively generate government revenues through tax revenues, wage and salary expenditures, and material procurement, the socioeconomic impacts resulting from the ESJ U.S. Transmission Line project would be temporary and would not contribute significantly to beneficial or adverse cumulative impacts in San Diego or Imperial Counties. Another issue that was presented during the scoping period for the project is the cumulative impact of the energy projects in this analysis on property values in the area. As discussed in Section 3.13 (Socioeconomics), numerous studies cited in the Sunrise Powerlink RDEIR/SDEIS (CPUC/BLM 2008b) have concluded that the actual effects of industrial projects on property values is generally smaller than anticipated and that impacts diminish over time due to diminished sensitivity to the features. Therefore, although it is likely

that property values are adversely affected by the cumulative change in landscape character, the anticipated impacts are moderate. Further, based on the distance of the ESJ U.S. Transmission Line project from residential areas and the minor visual impact, the ESJ U.S. Transmission Line project contribution to this potential change in property values would be minor.

5.3.14 Environmental Justice

As discussed in Section 3.14 (Environmental Justice), no disproportionately high or adverse impacts to minority or low-income populations directly adjacent to the alternative corridors or surrounding areas (including the communities of Jacumba and Boulevard in eastern San Diego County and unincorporated areas in western Imperial County) have been identified as a result of the ESJ U.S. Transmission Line project. Although the ESJ U.S. Transmission Line project, in combination with the other projects considered in this analysis, could result in cumulatively substantial impacts to visual resources, such impacts would not disproportionately affect low-income or minority populations in comparison to impacts to the general public. Therefore, the ESJ U.S. Transmission Line project would not contribute to any cumulative environmental justice impacts.

5.3.15 Services and Utilities

The cumulative effects of the energy projects considered in this analysis are expected to be beneficial and provide additional sources of electrical energy to San Diego County and Imperial County. Construction activities associated with the projects in this analysis may result in increased demand on existing resources; however, the ESJ U.S. Transmission Line project contribution to this impact would be temporary and minimal based on the scale of the ESJ U.S. Transmission Line project in comparison to the other projects proposed. In addition, because operation of the ESJ U.S. Transmission Line project would not require the hiring of any new employees, the ESJ U.S. Transmission Line project would not contribute to any cumulative demands for schools, libraries, or other public facilities.

SECTION 6

IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

This section describes irreversible and irretrievable commitments of resources associated with the implementation of the action alternatives analyzed in this EIS. A resource commitment is considered *irreversible* when primary or secondary impacts from its use limit future use options. Irreversible commitment applies primarily to nonrenewable resources, such as minerals or cultural resources, and to those resources that are renewable only over long time spans, such as soil productivity. A resource commitment is considered *irretrievable* when the use or consumption of the resource is neither renewable nor recoverable for use by future generations. Irretrievable commitment applies to the loss of production, harvest, or natural resources.

6.1 LAND

The construction and operation of the proposed transmission line would require the commitment of land for the placement of 3 to 5 lattice towers (or monopoles), and a new access road. This commitment would be irreversible for the life of the transmission line. While it is possible that these structures and roads could be removed and the natural landscape renewed, this is unlikely in the foreseeable future. The action alternatives would involve the same kind of irreversible land use but would vary slightly in the amount of land permanently disturbed. The 230-kV Route alternative would result in the permanent disturbance of 9.35 acres (3.78 hectares) while the 500-kV Route alternative would permanently disturb 10.40 acres (4.21 hectares).

6.2 WATER

Limited amounts of water would be irretrievably consumed in the construction of the proposed transmission line and access road. ESJ-U.S. estimates that 780,000 gallons (2.4 acre-feet or 2,950 cubic m) of water would be required during construction of the 230-kV Route for dust abatement, cleaning construction equipment, and concrete production for tower foundations. Based on the estimated volume of water (2.4 acre-feet or 2,950 cubic m) that would be required during short-term construction of the transmission line in comparison to the annual recharge, the County of San Diego has determined that the project would not impact the locally available water supply.

6.3 CONSTRUCTION MATERIALS

Construction of the transmission line would also result in both the irreversible and irretrievable use of common construction materials. The materials used for constructing the towers (or monopoles) and the concrete for their anchors are ultimately recyclable but would remain an irreversible commitment of resources for the life of the transmission line. Both the 230-kV Route alternative and 500-kV Route alternative would require the construction of 3 to 5 steel lattice towers or steel monopoles.

Small quantities of fossil fuels would also be irretrievably consumed during the construction and maintenance of the transmission line. Diesel fuel and gasoline would be consumed by construction and maintenance equipment along the transmission line; however, the consumption of fuel during the construction phase would be of relatively short duration. These procedures would require the consumption of a relatively small amount of fuel that would not constitute a long-term drain on local resources.

6.4 BIOLOGICAL AND CULTURAL RESOURCES

The construction and operation of the transmission lines would result in limited irreversible and irretrievable commitments of natural and cultural resources. The areas occupied by the footings or anchors for towers or monopoles, as well as the access road, would be irreversibly removed from natural habitat for the life of the transmission lines. In addition, some of the desert soil surfaces disturbed in areas of temporary construction activity, such as work areas, pull sites, lay-down areas, and trenches, could result in changes that would be irreversible over the long-term. Although some sensitive species might be disturbed by construction (e.g., by temporary increases in ambient noise), it is unlikely that threatened or endangered species would be harmed since biological surveys did not observe the presence of any such species within the proposed rights-of-way.

Cultural resources, such as archaeological sites, are nonrenewable resources. Their loss is irreversible. A cultural survey of the alternative corridors resulted in the discovery of nine sites and seven isolates, none of which had been previously recorded. The project has been designed to avoid impacts to these sites; therefore, no impacts are anticipated.

SECTION 7

SHORT-TERM USE AND LONG-TERM PRODUCTIVITY

This section discusses the short-term use of the environment and the maintenance of its long-term productivity. A more detailed discussion of impacts and resource utilization associated with the ESJ U.S. Transmission Line project is presented in Section 3. For this EIS, *short-term* refers to impacts that would occur during the period of construction and require two to five years to recover, depending on the resource. *Long-term* refers to those impacts that would last for the life of the transmission line but would recover following removal of the ESJ U.S. Transmission Line project components.

The area subject to short-term use would be limited to the alternative corridors rights-of-way and the main and transmission line access roads. Work areas and pull sites would be needed during the erection of towers or monopoles and during the stringing of the conductors. The alternative corridors would be located on undeveloped private land that is not currently in use. The alternative corridors would not be located on or near any cultivated land; thus, no agricultural lands would be taken out of production. In addition, construction activities would not occur in any designated open space or recreational areas and the alternative corridors are not included in the designated critical habitat of any proposed or listed threatened or endangered species. Land clearing and construction activities would disperse any wildlife present on the site and temporarily eliminate some habitat; however, mitigation measures would prevent the loss of individual organisms belonging to species of concern.

The transmission line and associated access roads would have only limited effects on the long-term productivity of the natural environment, because of the relatively small area that would be occupied and the limited use of the area by maintenance and monitoring personnel. Long-term reductions in biological productivity are possible in some temporary work areas, since the effects of disturbance tend to be more pronounced in arid lands, such as the alternative corridors area, where biological communities tend to recover slowly. The permanent removal of vegetation and habitat due to the placement of towers (or monopoles) and a new access road would be the only long-term effect of occupancy by the ESJ U.S. Transmission Line project; however the proposed conservation easement would offset such impacts.

SECTION 8

APPLICABLE LAWS, REGULATIONS, PERMITS, AND EXECUTIVE ORDERS

Permits and approvals are required before construction of the proposed transmission line. Permits regulate many aspects of facility construction and operations, including the quality of construction, fugitive dust control requirements, and discharges of effluents to the environment. These permits, listed in Table 8-1, would be obtained, as required, from the appropriate federal, state, and local agencies.

The major federal laws, regulations, Executive Orders, and other compliance actions that apply to the ESJ U.S. Transmission Line project are identified in Table 8-2. A number of federal environmental statutes address environmental protection, compliance, or consultation. In addition, certain environmental requirements have been delegated to state authorities for enforcement and implementation. ESJ-U.S. would conduct its operations in an environmentally safe manner and in compliance with all applicable statutes, regulations, and standards. Although this chapter does not address pending legislation or future regulations, it is recognized that the regulatory environment is subject to change, and that the construction and operation of the projects must be conducted in compliance with all applicable regulations and standards.

Table 8-1
List of Potentially Required Permits/Approvals

Agency	Permit/Approval
U.S. Department of Energy	Presidential permit
California Office of Historic Preservation	Section 106 Consultation
Regional Water Quality Control Board – Colorado River Region	General Construction Storm Water permit
County of San Diego Department of Planning and Land Use	Major Use permits Right-of-Way permits
County of San Diego Department of Public Works	Grading permit Water Well permit
County of San Diego Rural Fire Districts	Fire District approval

Table 8-2
Federal Environmental Statutes Regulations and Orders

Resource Category	Statute / Regulation / Order	Citation	Administering Agency	Permits, Approvals, Consultations, and Notifications
Biological Resources	ESA	16 U.S.C. 1531|et seq.	USFWS	Requires consultation to identify endangered or threatened species and their habitats, assess impacts thereon, obtain necessary biological opinions, and, if necessary, develop mitigation measures to reduce or eliminate adverse effects of construction or operations. Applicability: Applicable.
	Migratory Bird Treaty Act	16 U.S.C. 703 et seq.	USFWS	Requires consultation to determine if there are any impacts on migrating bird populations due to construction or operation of project facilities. If so, the Applicant will develop mitigation measures to avoid adverse effects. Applicability: Applicable.
	E.O. 13112: Invasive Species	64 FR 6183 February 8, 1999	Federal Agencies	Requires agencies, to the extent practicable and permitted by law, to prevent the introduction of invasive species; to provide for their control; and to minimize the economic, ecological, and human health impacts that invasive species cause. Applicability: Applicable.
	Bald and Golden Eagle Protection Act	16 U.S.C. 668 et seq.	USFWS	Consultations should be conducted to determine if any protected birds are found to inhabit the area. If so, the Applicant must obtain a permit prior to moving any nests due to construction or operation of project facilities. Applicability: Applicable.
Visual Resources	Environmental Quality Improvement Act	42 USC Sec 4371-4375	CEQ	Requires each Federal agency conducting or supporting public works activities affecting the environment to implement policies established under existing law that provide for enhancement of environmental quality. Applicability: Applicable.

Table 8-2
Federal Environmental Statutes Regulations and Orders

Resource Category	Statute / Regulation / Order	Citation	Administering Agency	Permits, Approvals, Consultations, and Notifications
Cultural Resources	National Historic Preservation Act	16 U.S.C. 470 et seq.	DOE	Requires consultation with the SHPO, land management agencies, and in certain cases, the Advisory Council on Historic Preservation prior to construction to ensure that no significant historical properties (i.e., National Register of Historic Places-eligible properties, as defined in the NHPA) would be affected. Applicability: Applicable.
	Archaeological and Historical Preservation Act	16 U.S.C. 469 et seq.	DOI	Requires DOE to obtain permits for any disturbances of archaeological resources. Applicability: Applicable.
	Antiquities Act	16 U.S.C. 431-437	DOI	Requires DOE to comply with all applicable sections of the Act. Applicability: Applicable.
	American Indian Religious Freedom Act	42 U.S.C. 1996	DOI	Requires DOE to consult with local Native American Indian tribes prior to construction to ensure that their religious customs, traditions, and freedoms are preserved. Applicability: Applicable.
	Native American Graves Protection and Repatriation Act	25 U.S.C. 3001	DOI	Requires DOE to return certain Native American cultural items — human remains, funerary objects, sacred objects, and objects of cultural patrimony — to culturally affiliated Native American tribes and organizations. Applicability: Applicable.
	E.O. 13007: Protection and Accommodation of Access to "Indian Sacred Sites"	61 FR 26771 May 29, 1996	DOI	Requires DOE to consider the potential impact of its actions on Native American sacred sites, access to sacred sites, or use of sacred sites. Applicability: Applicable.

Table 8-2
Federal Environmental Statutes Regulations and Orders

Resource Category	Statute / Regulation / Order	Citation	Administering Agency	Permits, Approvals, Consultations, and Notifications
Cultural Resources (continued)	E.O. 13175: Consultation and Coordination with Indian Tribal Governments	63 FR 67249 November 9, 2000	DOI	Requires DOE to consult on a government-to-government basis with tribes and nations. Applicability: Applicable.
Noise	Noise Control Act	42 U.S.C. Sec 4901 et seq.	USEPA	Requires facilities to maintain noise levels that do not jeopardize the health and safety of the public. Applicability: Applicable to construction noise.
Public Health and Safety	Occupational Safety and Health Act	5 U.S.C. Sec 5108	OSHA	Requires agencies to comply with all applicable work safety and health legislation (including guidelines of 29 CFR 1960) and prepare, or have available, Material Safety Data Sheets. Applicability: Applicable.
	Hazard Communication Standard	29 C.F.R. 1910-1200	OSHA	Requires DOE to ensure that workers are informed of, and trained to handle all chemical hazards in the DOE workplace. Applicability: Applicable.
	Toxic Substances Control Act	42 U.S.C. 2011	USEPA	Requires the Applicant to comply with inventory reporting requirements and chemical control provisions of TSCA to protect the public from the risks of exposure to chemicals. TSCA imposes strict limitations on the use and disposal of polychlorinated biphenyl-contaminated equipment. Applicability: Applicable primarily to the construction phase.
	Hazardous Materials Transportation Act	49 U.S.C. 1801 et seq.	DOT	Requires the Applicant to comply with the requirements governing hazardous materials and waste transportation. Applicability: Applicable primarily to the construction phase.

Table 8-2
Federal Environmental Statutes Regulations and Orders

Resource Category	Statute / Regulation / Order	Citation	Administering Agency	Permits, Approvals, Consultations, and Notifications
Public Health and Safety (continued)	Emergency Planning and Community Right-to-Know Act	42 U.S.C. 11001 et seq.	USEPA	Requires the development of emergency response plans and reporting requirements for chemical spills and other emergency releases, and imposes right-to-know reporting requirements covering the storage and use of chemicals that are reported in toxic chemical release forms. Applicability: Applicable primarily to the construction phase.
	Pollution Prevention Act	42 U.S.C. 11001-11050	USEPA	Establishes a national policy that pollution should be reduced at the source and requires a toxic chemical source reduction and recycling report for an owner or operator of a facility required to file an annual toxic chemical release form under Section 313 of the Superfund Amendments and Reauthorization Act. Applicability: Potentially applicable.
Air Quality and Climate Change	Clean Air Act	42 U.S.C. Sec 7401 et seq.	USEPA	Requires sources to meet standards and obtain permits to satisfy: National Ambient Air Quality Standards (NAAQS), State Implementation Plans (SIPs), New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPs), and New Source Review (NSR). Applicability: No major source permit required under NESHAPs or NSR. No NSPS requirements. SIP requirements may apply.
	Clean Air Act: NAAQS SIP	42 U.S.C. Sec 7409 et seq.	USEPA, San Diego APCD	Requires compliance with primary and secondary ambient air quality standards governing sulfur dioxide, nitrogen oxide, carbon monoxide, ozone, lead, and particulate matter, and emission limits/reduction measures as designated in each state's implementation plan. Applicability: SIP requirements may apply.
	Interim NEPA/309 Diesel Emissions Guidance		USEPA/CEQ	Provides guidance on appropriate level of analysis for properly disclosing diesel emissions impacts and possible mitigation measures. Applicability: Not applicable. Project does not qualify for guidance list of "major/large issue" projects.

Table 8-2
Federal Environmental Statutes Regulations and Orders

Resource Category	Statute / Regulation / Order	Citation	Administering Agency	Permits, Approvals, Consultations, and Notifications
Hydrology and Water Quality	Clean Water Act	33 U.S.C. Sec 1251 et seq. (Section 401 and 404)	CRRWQCB/USACE	Requires permit for discharge of dredge or fill material into waters of the United States and certification of water quality. Applicability: Applicable.
	Clean Water Act	33 U.S.C. Sec 1313 (Section 402)	SWRCB/CRRWQCB	Requires EPA or state-issued permits, National Pollutant Discharge Elimination System (NPDES) permits and compliance with provisions of permits regarding discharge of effluents to surface waters and additional wetland protection requirements. Applicability: Would be required to obtain coverage under the General Construction Permit.
Environmental Justice	E.O. 12898: Federal Action to Address Environmental Justice in Minority Population and Low-Income Population	59 FR 7629 February 16, 1994	USEPA	Requires Federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Applicability: Minimal applicability since the land crossed by the proposed project is uninhabited.
Other	NEPA	42 U.S.C. 4321 et seq. 40 C.F.R. 1500-1508	CEQ	Directs all Federal agencies in the implementation of NEPA. DOE NEPA regulations are in 10 CFR Part 1021. Applicability: Applicable.
	Executive Orders 10485 and 12038		DOE	Issuance of a permit must be found to be consistent with the public interest and DOE must obtain concurrence of the Secretary of State and Secretary of Defense before permit can be issued. Applicability: Applicable

Table 8-2
Federal Environmental Statutes Regulations and Orders

Resource Category	Statute / Regulation / Order	Citation	Administering Agency	Permits, Approvals, Consultations, and Notifications
Other (continued)	Radio Frequency Device Kit	47 C.F.R. 1525	FCC	Provisions of these regulations prohibit operation of any devices producing force fields, which interfere with radio communications even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis. Staff usually recommends specific conditions of certification to ensure compliance with this FCC requirement. Applicability: Applicable.
	Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space	FAA Advisory Circular (AC) No. 70/460-2H	FAA	This circular informs each proponent of a project that could pose an aviation hazard of the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA. Applicability: Not Applicable.
	Obstruction Marking and Lighting	FAA AC No. 70/460-1G	FAA	This circular describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR. Applicability: Not Applicable.

APCD = Air Pollution Control District
CEQ = Council on Environmental Quality
DOE = Department of Energy
DOI = Department of Interior
E.O. = Executive Order
ESA = Endangered Species Act
FAA = Federal aviation Administration
FCC = Federal Communication Commission
NAAQS = National Ambient Air Quality Standards
NESHAP = National Emission Standards for Hazardous Air Pollutants
NPDES = National Pollutant Discharge Elimination System
NSPS = New Source Performance Standards
NSR = new source review
OSHA = Office Safety and Health Administration
SHPO = State Historic Preservation Office
SIP = State Implementation Plan
SWRCB = State Water Resources Control Board
TSCA = Toxic Substances Control Act
USACE = United States Army Corps of Engineers
USEPA = United States Environmental Protection Agency
USFWS = United States Fish and Wildlife Service

SECTION 9

CONSULTATION AND COORDINATION

Certain statutes and regulations require DOE to consider consultations with federal and state agencies and federally recognized Native American groups regarding the potential for the ESJ U.S. Transmission Line project to disturb sensitive resources. The consultations are generally required before any land disturbance can begin. Most of these consultations are related to biological, cultural, and Native American resources. Biological resource consultations generally pertain to the potential for activities to disturb sensitive species or habitats. Cultural resource consultations pertain to the potential for destruction of important cultural or archaeological sites. Native American consultations are concerned with identifying Tribal concerns and issues related to the proposed project, including the potential for disturbance of Native American ancestral sites or traditional practices or resources.

DOE has initiated consultations with federal and state agencies as well as federally recognized Native American groups regarding the potential of the action alternatives to disturb sensitive resources.[1] Table 9-1 summarizes the consultation activities conducted by DOE with agencies and Native American groups. Appendices C.6, D.1, and G contain copies of the consultation letters and correspondence. All agencies and Native American groups will be provided with a copy of the Draft EIS. Information provided in the responses from the agencies and Native American groups is incorporated into Section 3 of this document, as appropriate.

Table 9-1
Summary of Consultation Letters and Coordination Meetings

Subject	Agency	To/From	Date	Appendix
Request to Consult on Proposed Project	Quechan Indian Tribe	To: Jerry Pell, Principal NEPA Document Manager From: Bridget R. Nash-Chrabascz, Quechan Tribe Historic Preservation Officer	March 10, 2009	D.1
Sacred Lands File Search Request	NAHC	To: Dave Singleton, Program Analyst From: Cheryl Bowden-Renna, Archaeologist (EDAW)	March 19, 2009	Not Available
Comments on the NOI to Prepare an EIS	USFWS, Carlsbad Fish and Wildlife Office	To: Jerry Pell, Principal NEPA Document Manager From: Karen A. Goebel, Assistant Field Supervisor	March 26, 2009	C.6

[1] In some instances, DOE has authorized ESJ-U.S. or the ESJ-U.S. consultant to initiate consultation on its behalf. These consultations are also included in Table 9-1.

Table 9-1
Summary of Consultation Letters and Coordination Meetings

Subject	Agency	To/From	Date	Appendix
Sacred Lands File Search Results	NAHC	To: Cheryl Bowden-Renna, Archaeologist (EDAW) From: Dave Singleton, Program Analyst	March 27, 2009	D.1
Invitation to Consult on Proposed Project	Quechan Tribal Council	To: Mike Jackson, Sr., President From: Anthony J. Como, Acting Deputy Assistant Secretary	April 14, 2009	D.1
Invitation to Consult on Proposed Project	Ah-Mut-Pipa Foundation	To: Preston J. Arrow-weed From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Baron Group of the Capitan Grande	To: Edwin Romero, Chairperson From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Campo Kumeyaay Nation	To: Monique LaChappa, Chairperson From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Ewiiaapaayp Tribal Office	To: Will Micklin, Executive Director From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Kumeyaay Cultural Historic Committee	To: Ron Christman From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Kumeyaay Cultural Repatriation Committee	To: Steve Banegas, Spokesperson From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Kwaaymii Laguna Band of Mission Indians	To: Carmen Lucas From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	La Posta Band of Mission Indians	To: Gwendolyn Parada, Chairperson From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Manzanita Band of Kumeyaay Nation	To: Leroy J. Elliott, Chairperson From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Mesa Grande Band of Mission Indians	To: Mark Romero, Chairperson From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	San Pasqual Band of Mission Indians	To: Allen E. Lawson, Chairperson From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1

Table 9-1
Summary of Consultation Letters and Coordination Meetings

Subject	Agency	To/From	Date	Appendix
Invitation to Consult on Proposed Project	Santa Ysabel Band of Diegueno Indians	To: Johnny Hernandez, Spokesperson From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Sycuan Band of Kumeyaay Nation	To: Danny Tucker, Chairperson From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Viejas Band of Mission Indians	To: Bobby L. Barrett, Chairperson From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Invitation to Consult on Proposed Project	Kumeyaay Cultural Heritage Preservation	To: Paul Cuero From: Anthony J. Como, Acting Deputy Assistant Secretary	May 28, 2009	D.1
Request for a Consultation Meeting Between the Campo Band and DOE	Campo Environmental Protection Agency	To: Jerry Pell, Principal NEPA Document Manager From: Lisa N. Gover, Director	June 29, 2009	D.1
Consultation Meeting Summary Between the Campo Band and DOE	Campo Kumeyaay Nation ENTRIX, Inc., DOE's Environmental Contractor	Participants: Monique LaChappa, Chairperson; John A. Nadolski, Cultural Resources Specialist	September 16, 2009	D.1
Determination of No Hazard to Air Navigation	FAA	To: Joan Heredia From: Karen McDonald, Specialist	November 10, 2009	G
Invitation to Consult on Proposed Project	Department of Homeland Security, USM/OCAO/Occupational Safety and Environmental Programs	To: David Reese From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	Department of State, Office of Environmental Policy: OES/ENV, Bureau of Oceans and International Environmental and Scientific Affairs	To: Elizabeth Orlando From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	FAA	To: Thomas Cuddy From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	FERC, Office of Energy Projects	To: Jeff C. Wright, Director From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G

Table 9-1
Summary of Consultation Letters and Coordination Meetings

Subject	Agency	To/From	Date	Appendix
Invitation to Consult on Proposed Project	International Boundary and Water Commission, U.S. Section	To: Alfredo J. Riera From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	USACE	To: Harold Hartman From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	U.S. Border Patrol	To: Henry Soule From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	BLM, El Centro Field Office	To: Vicky Wood From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	U.S. Department of the Interior, Oakland Regional Office	To: Patricia S. Port, Regional Environmental Officer From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	U.S. Department of the Interior, Office of Environmental Policy and Compliance	To: Willie R. Taylor, Director From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	USEPA, Environmental Review Office	To: Ann McPherson, DOE Reviewer From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	USEPA, Office of Federal Activities	To: Susan Bromm, Director From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	CDFG, San Diego Office	To: Ed Pert From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	California Department of Parks and Recreation, Office of Historic Preservation	To: Milford Wayne Donaldson, SHPO From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	California State Parks, Colorado Desert District	To: California State Parks, Colorado Desert District From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	California State Parks, Ocotillo Wells District	To: California State Parks, Ocotillo Wells District From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G

Table 9-1
Summary of Consultation Letters and Coordination Meetings

Subject	Agency	To/From	Date	Appendix
Invitation to Consult on Proposed Project	California State Parks, San Diego Coast District	To: California State Parks, San Diego Coast District From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Invitation to Consult on Proposed Project	Western Interstate Energy Board	To: Doug Larson, Executive Director From: Jerry Pell, Principal NEPA Document Manager	November 17, 2009	G
Acceptance to Consult on Proposed Project	FAA	To: Jerry Pell, Principal NEPA Document Manager From: Thomas W. Cuddy	November 30, 2009	G
Deferral to Consult on Proposed Project	Quechan Indian Tribe	To: Jerry Pell, Principal NEPA Document Manager From: Bridget R. Nash-Chrabascz, Quechan Tribe Historic Preservation Officer	November 30, 2009	D.1
Acceptance to Consult on Proposed Project	California State Parks, Colorado Desert District	To: Jerry Pell, Principal NEPA Document Manager From: Gail Sevrens, District Services Manager	December 3, 2009	G
Acceptance to Consult on Proposed Project	International Boundary and Water Commission, U.S. Section	To: Jerry Pell, Principal NEPA Document Manager From: John Merino, Principal Engineer	December 15, 2009	G
Acceptance to Consult on Proposed Project	U.S. Border Patrol	To: Jerry Pell, Principal NEPA Document Manager From: Henry S. Soule, Deputy Commander	December 17, 2009	G
Request to Participate as a Cooperating Agency	BLM, El Centro Field Office	To: Jerry Pell, Principal NEPA Document Manager From: Daniel Steward, Acting Field Manager	December 21, 2009	G
Acceptance to Consult on Proposed Project	CDFG, San Diego Office	To: Jerry Pell, Principal NEPA Document Manager From: Erinn Wilson, Staff Environmental Scientist	December 30, 2009	G
Acceptance to Consult on Proposed Project	U.S. Border Patrol, Customs and Border Protection, Air and Marine, San Diego Branch, Brown Field Air Unit	To: Jerry Pell, Principal NEPA Document Manager From: Richard Villa, Air Interdiction Agency	January 6, 2010	G
Initiation of Informal Consultation	USFWS, Carlsbad Fish and Wildlife Office	To: Karen Goebel, Assistant Field Supervisor From: Jerry Pell, Principal NEPA Document Manager	February 23, 2010	C.7

Table 9-1
Summary of Consultation Letters and Coordination Meetings

Subject	Agency	To/From	Date	Appendix
Request for Informal Section 7 Consultation	USFWS, Carlsbad Fish and Wildlife Office	To: Rick Williams, Senior Consultant (ENTRIX, Inc.) From: Karen Goebel, Assistant Field Supervisor	March 24, 2010	C.8

SECTION 10

REFERENCES

Note to Reader: This list of references identifies Web pages and associated URLs where reference data were obtained. It is likely that at the time of publication of this DEIS, some of these Web pages may no longer be available or their URL addresses may have changed. Thus, DOE has maintained hard copies of the information and data obtained from the referenced Web pages. DOE has also maintained hard copies of all other references which are not available on the Web.

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SECTION 11

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SECTION 12

Glossary

Acre-foot: The volume of water that covers 1 acre (43,560 sf) to a depth of 1 foot (0.30 meters).

Advisory Council on Historic Preservation: A body appointed to advise the President and Congress in the coordination of actions by Federal agencies on matters relating to historic preservation. This organization participates in NHPA Section 106 consultations that are controversial or precedent setting.

Aesthetics: Referring to the perception of beauty.

Affected environment: Existing biological, physical, social, and economic conditions of an area subject to change, both directly and indirectly, as the result of a proposed human action.

Air pollutant: An airborne substance that could, in high enough concentrations, harm living things or cause damage to materials. From a regulatory perspective, an air pollutant is a substance for which emissions or atmospheric concentrations are regulated or for which maximum guideline levels have been established due to potential harmful effects on human health and welfare.

Air quality standards: The level of pollutants prescribed by regulation that may not be exceeded during a specified time in a defined area.

Air shed: An area where emitted pollutants may interact or increase in concentration. The delineation of an air shed may be influenced by topographic features such as a land-water interface.

Alluvium: Earth, sand, gravel, and other materials carried and deposited by moving surface water.

Alquist-Priolo Earthquake Fault Zoning Act (1972): California's Alquist-Priolo Act prohibits the building of most types of structures across the traces of active faults and strictly regulates construction in the corridors along active faults. It also defines criteria for identifying active faults.

Ambient air: Any unconfined portion of the atmosphere; open air, surrounding air. That portion of the atmosphere, external to buildings, to which the general public has access.

American Indian Religious Freedom Act of 1978: This act requires federal agencies to consult with Tribal officials to ensure protection of traditional religious and cultural rights and practices.

Amperes: Measure of the flow of electric current; source of a magnetic field.

Aquifer: A body of rock or sediment in a formation, group of formations, or part of a formation that is saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.

Archaeological sites (resources): Any location where humans have altered the terrain or discarded artifacts during either prehistoric or historic times.

Archaeology: A scientific approach to the study of human ecology, cultural history, and cultural process.

Artifact: An object produced or shaped by human workmanship of archaeological or historical interest.

Attainment area: An area which the USEPA has designated as being in compliance with one or more of the NAAQS for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. Any area may be in attainment for some pollutants but not for others.

Atmospheric dispersion: The dispersion of particulates or gaseous species (such as air pollutants) into the troposphere. It is a function of wind and atmospheric stability.

Background noise: The total acoustical and electrical noise from all sources in a measurement system that may interfere with the production, transmission, time averaging, measurement, or recording of an acoustical signal.

Batholith: A large body of intrusive igneous rock formed from cooled magma in the earth's crust. Includes rock-types such as granite, quartz, and diorite.

Blading: The use of a steel blade or steel fork attachment on a tracked or rubber-tired vehicle that removes vegetation through a combination of pushing and/uplifting motions.

Candidate species: Plants and animals for which the USFWS has sufficient information on biological vulnerability and threats to justify proposing to add them to the threatened and endangered species list, but cannot do so immediately because other species have a higher priority for listing.

Capacity: The load for which a generator, turbine, transformer, transmission circuit, apparatus, station, or system is rated. Capacity is also used synonymously with capability.

Carbon monoxide (CO): A colorless, odorless gas that is toxic if breathed in high concentrations over a period of time. It is formed as the product of the incomplete combustion of hydrocarbons (fuel).

Class I, II, and III Areas: Area classifications, defined by the Clean Air Act, for which there are established limits to the annual amount of air pollution increase. Class I areas include international parks and certain national parks and wilderness areas; allowable increases in air pollution are very limited. Air pollution increases in Class II areas are less limited and are least limited in Class III areas. Areas not designated as Class I start out as Class II and may be reclassified up or down by the state, subject to Federal requirements. Specified Federal lands, including certain national parks and wilderness areas, are mandatory. Class I areas and may not be redesignated to another classification. All other prevention of significant deterioration areas of the country are designated Class II areas. Currently there are no Class III areas.

Clean Air Act: (42 USC 7401 et seq.) Establishes (1) national air quality criteria and control techniques (Section 7408); (2) National ambient air quality standards (Section 7409 defines the highest allowable levels of certain pollutants in the ambient air. Because the USEPA must establish the criteria for setting these standards, the regulated pollutants are called criteria pollutants); (3) state implementation plan requirements (Section 4710); (4) federal performance standards for stationary sources (Section 4711); (5) national emission standards for hazardous air pollutants

(Section 7412); (6) applicability of CAA to Federal facilities (Section 7418), (federal agency must comply with federal, state, and local requirements respecting control and abatement of air pollution, including permit and other procedural requirements, to the same extent as any person); (7) federal new motor vehicle emission standards (Section 7521); (8) regulations for fuel (Section 7545); (9) aircraft emission standards (Section 7571).

Clean Air Act Conformity Requirement: Section 176 (c) of the Clean Air Act requires Federal agencies to ensure that their actions conform to applicable implementation plans (in most cases, the SIP) for achieving and maintaining the NAAQS for criteria pollutants.

Clean Water Act: (33 U.S. Code 1251 et seq.) Establishes requirements for (1) technology-based effluent limitations (Section 301); (2) water quality-based effluent limitations (Section 302); (3) individual control strategies for toxic pollutants (Section 304[l]); (4) new source performance standards (Section 306); (5) regulation of toxics (Section 307); (6) federal facilities' pollution control (provisions for presidential exception) (Section 313); (7) thermal discharges (Section 316); (8) permits under the NPDES (Section 402); (9) permits for the discharge or dredged or fill materials into navigable waters (Section 404).

Climatology: The science that deals with climates and investigates their phenomena and causes.

Code of Federal Regulations (CFR): All Federal regulations in force are published in codified form in the Code of Federal Regulations.

Community (biotic): All plants and animals occupying a specific area under relatively similar conditions.

Conductor: Transmission line wire strung between transmission line structures to transmit electricity from one location to another.

Corona effect: Electrical breakdown of air into charged particles. It is caused by the electric field at the surface of conductors.

Council on Environmental Quality (CEQ): Established by NEPA CEQ regulations (40 CFR Parts 1500–1508) describe the process for implementing NEPA, including preparation of environmental assessments and EISs, and the timing and extent of public participation.

Criteria pollutant: An air pollutant that is regulated by the NAAQS. The USEPA must describe the characteristics and potential health and welfare effects that form the basis for setting or revising the standard for each regulated pollutant. Criteria pollutants are sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter.

Critical habitat: Habitat essential to the conservation of an endangered or threatened species that has been designated as critical by the USFWS following the procedures outlined in the *Endangered Species Act* and its implementing regulations (50 CFR 424). See endangered species and threatened species.

Cultural resources: Districts, sites, structures, and objects and evidence of some importance to a culture, a subculture, or a community for scientific, traditional, religious, and other reasons. These resources and relevant environmental data are important for describing and reconstructing

past lifeways, for interpreting human behavior, and for predicting future courses of cultural development.

Cumulative impact: The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.17).

Current: Flow of electrical charge.

Decibel (dB): A unit for expressing the relative intensity of sounds on a logarithmic scale from zero for the average least perceptible sound to about 130 for the average level at which sound causes pain to humans. For traffic and industrial noise measurements, the dBA, a frequency-weighted noise unit, is widely used. The A-weighted decibel scale corresponds approximately to the frequency response of the human ear and thus correlates well with loudness.

Deposition: In geology, the laying down of potential rock-forming materials; sedimentation. In atmospheric transport, the settling out on ground and building surfaces of atmospheric aerosols and particles ("dry deposition") or their removal from the air to the ground by precipitation ("wet deposition" or "rainout").

Direct embedment: Type of pole installation that requires excavation of a shaft wider than the pole using a caisson-drilling rig and then subsequent backfilling around the pole.

Direct impacts: Impacts that are caused by the action and occur at the same time and place.

Distance zones: The relative visibility from travel routes or observation points.

Double-circuit: Two sets of lines (circuits) on a single tower (a single circuit consists of three conductors).

Drinking water standards: The prescribed level of constituents or characteristics in a drinking water supply that cannot be legally exceeded.

Ecology: A branch of science dealing with the interrelationships of living organisms with one another and with their nonliving environment.

Ecosystem: A community of organisms and their physical environment interacting as an ecological unit.

Effects: As used in NEPA documentation, the terms effects and impacts are synonymous. Effects can be ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health; effects can be direct, indirect, or cumulative. Effects include both beneficial and detrimental impacts.

Elevation: Height above sea level.

Eligible cultural resource: A cultural resource that has been evaluated and reviewed by an agency and the SHPO and recommended as eligible for inclusion in the NRHP, based on the criteria of significance. The criteria of significance consider American history, architecture, archeology, engineering, and culture. The criteria require integrity and association with lives or events, distinctiveness for any of a variety of

reasons, or importance because of information the property does or could hold.

Electromagnetic field: A physical field produced by electrically charged objects that may surround a transmission line or other electrical equipment (e.g., conductors) and affects the behavior of charged objects in the vicinity of the field.

Embedment: See direct embedment.

Emissions: Pollution discharged into the atmosphere from smoke stacks, other vents, and surface areas of commercial or industrial facilities, residential chimneys, and vehicle exhausts.

Emission standards: Requirements established by a State, local government, or the USEPA Administrator that limit the quantity, rate, or concentration of emissions of air pollutants on a continuous basis.

Endangered species: Plants or animals that are in danger of extinction throughout all or a significant portion of their ranges and that have been listed as endangered by the USFWS or the National Marine Fisheries Service following the procedures outlined in the Endangered Species Act and its implementing regulations (50 CFR Part 424). Some states also list species as endangered.

Endangered Species Act*:* (16 U.S. Code 1531 et seq.) Provides for the listing and protection of animal and plant species identified as in danger, or likely to be in danger, of extinction throughout all or a significant portion of their range. Section 7 places strict requirements on federal agencies to protect listed species.

Environmental impact statement (EIS): The detailed written statement that is required by section 102(2)(C) of the NEPA for a proposed major Federal action significantly affecting the quality of the human environment. A DOE EIS is prepared in accordance with applicable requirements of the CEQ NEPA regulations in 40 CFR Parts 1500–1508 and DOE NEPA regulations in 10 CFR Part 1021. The statement includes, among other information, discussions of the environmental impacts of the proposed action and all reasonable alternatives, adverse environmental effects that cannot be avoided should the proposal be implemented, the relationship between short-term uses of the human environment and enhancement of long-term productivity, and any irreversible and irretrievable commitments of resources.

Environmental justice: An identification of potential disproportionately high and adverse impacts on low-income and/or minority populations that may result from proposed federal actions (required by E.O. 12898).

Energy: That which does or is capable of doing work. It is measured in terms of the work it is capable of doing; electric energy is usually measured in kilowatt-hours.

Ephemeral stream: A stream that flows only after a period of heavy precipitation.

Erosion: Wearing away of soil and rock by weathering and the actions of surface water, wind, and underground water.

Ethnographic: Information about cultural beliefs and practices.

Fault: A fracture or a zone of fractures within a rock formation along which vertical, horizontal, or transverse slippage has occurred.

Federal Land Policy and Management Act: Requires the Secretary of the Interior to issue regulations to manage public lands and the property located thereon for the long term.

Field effect: Induced currents and voltages as well as related effects that might occur as a result of electric and magnetic fields at ground level.

Fireshed: A regional landscape delineated using an array of fire behavior models and GIS operations based on fire history and regime, vegetation, topography, and potential future wildfire behavior that is used as an assessment tool to identify high fire risk areas and predict fire behavior in order to better reduce fire risk and protect communities.

Floodplain: The lowlands adjoining inland and coastal waters and relatively flat areas, including at a minimum that area inundated by a 1% or greater chance flood in any given year. The base floodplain is defined as the 100-year (1%) floodplain. The critical action floodplain is defined as the 500-year (0.2%) floodplain.

Flow: The volume of water passing a given point per unit of time. Same as streamflow.

Formation: In geology, the primary unit of formal stratigraphic mapping or description. Most formations possess certain distinctive features.

Generation: The act or process of producing electricity from other forms of energy.

Generator: A machine that converts mechanical energy into electrical energy.

Global warming potential: A relative scale which compares the mass of each greenhouse gas to a reference gas, namely CO_2, used to measure of how much a given mass of a particular greenhouse gas is estimated to contribute to global warming

Groundborne vibration: Rapidly fluctuating motions within the ground that have an average motion of zero.

Groundwater: Water within the earth that supplies wells and springs.

Groundwater basin: Subsurface structure having the character of a basin with respect to collection, retention, and outflow of water.

Hazardous air pollutants (HAPs): Air pollutants that are not covered by ambient air quality standards, but that may present a threat of adverse human health effects or adverse environmental effects. They are regulated under Section 112 of the Clean air Act.

Hazardous waste: A category of waste regulated under Resource Conservation and Recovery Act (RCRA). To be considered hazardous, a waste must be a solid waste under RCRA and must exhibit at least one of four characteristics described in 40 CFR 261.20 through 261.24 (i.e., ignitability, corrosivity, reactivity, or toxicity) or be specifically listed by the USEPA in 40 CFR 261.31 through 261.33.

Heavy metals: Metallic elements with high atomic weights (e.g., mercury, arsenic, and lead). They can damage living things at low concentrations and tend to accumulate in the food chain.

Historic properties: Under the NHPA, these are properties of national, State, or local significance in American history, architecture, archaeology, engineering, or culture that are worthy of preservation.

Igneous: Rocks produced under conditions involving intense heat, including those of volcanic origin or crystallized from molten magma.

Impacts (effects): In this EIS, as well as in the CEQ regulations, the word impact is used synonymously with the word effect. See effects.

Indirect impacts: Effects that are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Infrastructure: The basic installations and facilities on which the continuance and growth of a community or state (e.g., roads, schools, power plants, transportation, communication systems) are based.

Intensity (of an earthquake): A measure of the effects (due to ground shaking) of an earthquake at a particular location, based on observed damage to structures built by humans, changes in the earth's surface, and reports of how people felt the earthquake. Earthquake intensity is measured in numerical units on the Modified Mercalli scale.

Interested parties: Those groups or individuals that are interested, for whatever reason, in the project and its progress. Interested parties include, but are not limited to, private individuals, public agencies, organizations, customers, and potential customers.

Intertie: A transmission line that links two or more regional electric power systems.

Invasive species: An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. "Alien species" means, with respect to a particular ecosystem, any species, including its seed, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

Invertebrate: Animals characterized by not having a backbone or spinal column, including a wide variety of organisms such as insects, spiders, worms, clams, and crayfish.

Isolated occurrence: A grouping of less than 10 archaeological artifacts or a single undatable feature. These often consist of redeposited material of questionable locational context that are not related to nearby archaeological sites.

Kilovolt (kV): The electrical unit of power that equals 1,000 volts.

Landscape: An area composed of interacting ecosystems that are repeated because of geology, land, soils, climate, biota, and human influences throughout the area. Landscapes are generally of a size, shape, and pattern that is determined by interacting ecosystems.

Level of service: A measure of the vehicular capacity of a roadway based on speed, travel time, traffic interruptions or restrictions, freedom to maneuver, safety, driver comfort, convenience, and economy

Liquefaction: A phenomenon in which the strength and stiffness of soil is reduced by earthquake shaking or other rapid loading; occurs in saturated soils.

Load: The amount of electric power required at a given point on a system.

Low-income population: A population that is classified by the U.S. Bureau of the Census 2000 as having an aggregated mean 1999 income level for a family less than $17,463. This level is adjusted through the poverty index using a standard of living percentage change where applicable.

Magnitude (of an earthquake): A quantity characteristic of the total energy released by an earthquake, as contrasted to "intensity," which describes its effects at a particular place. Magnitude is calculated using common logarithms (base 10) of the largest ground motion. A one-unit increase in magnitude (e.g., from magnitude 6 to magnitude 7) represents a 30-fold increase in the amount of energy released. Three common types of magnitude are Richter (or local) (ML), P body wave (mb), and surface wave (Ms).

Maintenance area: Area redesignated as attainment within the last 10 years under the Clean Air Act. See attainment area.

Major source: Any stationary source or group of stationary sources in which all of the pollutant-emitting activities emit, or have the potential to emit, 100 or more tons per year of any regulated air pollutant, 10 tons per year of a single hazardous air pollutant (HAP), or combined HAP emissions exceeding 25 tons per year.

Mammal: Animals in the class *Mammalia* that are distinguished by having self-regulating body temperature, hair, and in females, milk-producing mammary glands to feed their young.

Management Indicator Species (MIS): Species selected by the USFWS for monitoring and analysis because their population changes are believed to indicate the effects of management activities.

Megawatt (MW): The electrical unit of power that equals 1 million watts or 1,000 kilowatts.

Mesa: An isolated relatively flat-topped natural elevation.

Meteorology: The science dealing with the dynamics of the atmosphere and its phenomena, especially relating to weather.

Mineral: Naturally occurring inorganic element or compound.

Minority Population: Individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic are minorities. The CEQ identifies these groups as minority populations when either (1) the minority population of the affected area exceeds 50%, or (2) the minority population percentage in the affected area is meaningfully greater than the minority population percentage in the general population or appropriate unit of geographical analysis.

Mitigation: The alleviation of adverse impacts on environmental resources by avoidance through project redesign or project relocation, by protection, or by adequate scientific study. Mitigation includes (1) avoiding an impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of an action and its implementation; (3) rectifying an impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of an action; or (5) compensating for an impact by replacing or providing substitute resources or environments.

National Ambient Air Quality Standards (NAAQS): Standards defining the highest allowable levels of certain pollutants in the ambient air. Because the USEPA must establish the criteria for setting these standards, the regulated pollutants are called criteria pollutants. The criteria pollutants are sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. See *Clean Air Act.*

National Environmental Policy Act (NEPA): (42 USC 4341, passed by Congress in 1969) NEPA established a national policy designed to encourage consideration of the influences of human activities (e.g., population growth, high-density urbanization, industrial development) on the natural environment. NEPA also established the CEQ. NEPA procedures require that environmental information be made available to the public before decisions are made. Information contained in NEPA documents must focus on the relevant issues in order to facilitate the decision-making process.

National Historic Preservation Act (NHPA): (16 USC 470) Provides for an expanded NRHP to register districts, sites, buildings, structures, and objects significant to American history, architecture, archaeology, and culture. Section 106 requires that the President's Advisory Council on Historic Preservation be afforded an opportunity to comment on any undertaking that adversely affects properties listed in the NRHP.

National Pollutant Discharge Elimination System (NPDES) Permit: Federal regulation (40 CFR Parts 122 and 125) that requires permits for the discharge of pollutants from any point source into the waters of the United States regulated through the Clean Water Act.

National Register of Historic Places (NRHP): A list maintained by the Secretary of the Interior of districts, sites, buildings, structures, and objects of prehistoric or historic local, state, or national significance. The list is expanded as authorized by Section 2(b) of the Historic Sites Act of 1935 (16 U.S.C. 462) and Section 101(a)(1)(A) of the National Historic Preservation Act.

Native American: Person culturally identified with a Tribe that is indigenous to the United States and who belongs to a federally-recognized Tribe.

Native American Graves Protection and Repatriation Act: This act provides requirements for the treatment, repatriation, determination of ownership, and control of human remains and cultural items on federal or Tribal lands.

Native vegetation: Plant life that occurs naturally in an area without agricultural or cultivation efforts. It does not include species that have been introduced from other geographical areas and have become naturalized.

Noise: Unwanted or undesirable sound, usually characterized as being so loud as to interfere with, or be inappropriate to, normal activities such as communication, sleep, or study. (See background noise.)

Nonattainment area: An area that the USEPA has designated as not meeting one or more of the NAAQS for criteria pollutants. An area may be in attainment for some pollutants but not others.

Noxious weed: Invasive plant species regulated under federal or state law. See invasive species.

Obligate species: Plant species that almost always occur in wetlands (i.e., greater than 99% of the time).

Offsets: The concept whereby emissions from a proposed facility that may be a new source of air pollution are balanced by reductions from existing sources to stabilize total emissions in a particular area.

Ozone (O_3): The triatomic form of oxygen. In the upper atmosphere, ozone protects the earth from the sun's ultraviolet rays, but in the lower levels of the atmosphere, ozone is considered an air pollutant. In the lower atmosphere, ozone is formed primarily from a photochemical reaction between nitrogen oxides and volatile organic compounds. Small amounts of ozone can be formed from corona effects on transmission lines.

Particulate Matter: Any finely divided solid or liquid material, other than uncombined pure water.

Peak capacity: The maximum capacity of a system to meet loads.

Peak demand: The highest demand for power during a stated period of time.

Peak hour: The hour of day that observes the highest traffic volumes.

Permeability: The ability of rock or soil to transmit a fluid.

pH: A measure of the relative acidity or alkalinity of a solution, expressed on a scale from 0 to 14, with the neutral point at 7.0. Acid solutions have pH values lower than 7.0, and basic (i.e., alkaline) solutions have pH values higher than 7.0. Because pH is the negative logarithm of the hydrogen ion (H+) concentration, each unit increase in pH value expresses a change of state of 10 times the preceding state. Thus, pH 5 is 10 times more acidic than pH 6, and pH 9 is 10 times more alkaline than pH 8.

$PM_{2.5}$: Airborne particulate matter with a mean aerodynamic diameter less than or equal to 2.5 μm; regulated under the NAAQS.

PM_{10}: Airborne particulate matter with a mean aerodynamic diameter less than or equal to 10 μm; regulated under the NAAQS.

Prehistoric: Of, relating to, or existing in times antedating written history. Prehistoric cultural resources are those that antedate written records of the human cultures that produced them.

Present value: The worth of future returns or costs in terms of their current value. To obtain a present value, an interest rate is used to discount these future returns and costs.

Prevention of Significant Deterioration (of air quality) (PSD): Regulations established to prevent significant deterioration of air quality in areas that already meet the NAAQS. Among other provisions, cumulative increases in sulfur dioxide, nitrogen dioxide, and PM_{10} (particulate matter with mean aerodynamic diameter of 10 μm or less) levels after specified baseline dates; must not exceed specified maximum allowable amounts.

Prime farmland: Soil types with a combination of characteristics that make them particularly productive for agriculture.

Public Involvement Plan: Methodology used by the agency to encourage public participation.

Quaternary: A subdivision of geological time (the Quaternary period), including

roughly the last two million years up to the present.

Raptor: Birds of prey, including various types of hawks, falcons, eagles, vultures, and owls.

Record of Decision (ROD): A concise public document that records a Federal agency's decision concerning a proposed action for which the agency has prepared an EIS. The ROD is prepared in accordance with the requirements of the CEQ NEPA regulations (40 CFR 1505.2). A ROD identifies the alternatives considered in reaching the decision, the environmentally preferable alternatives, factors balanced by the agency in making the decision, whether all practicable means to avoid or minimize environmental harm have been adopted, and if not, why they were not.

Recognized environmental condition (REC): A condition indicating the presence or likely presence of any hazardous substances or petroleum products on a property that may be the result an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.

Region of influence (ROI): The geographical region that would be expected to affect a specific resource in some way by the proposed action and/or alternative(s).

Reliability: The ability of the power system to provide customers uninterrupted electric service. Includes generation, transmission, and distribution reliability.

Resource Conservation and Recovery Act: Regulates the storage, treatment, and disposal of hazardous and nonhazardous wastes.

Right-of-way: An easement for a certain purpose over the land of another, such as a strip of land used for a transmission line, roadway, or pipeline.

Rill: A small channel (usually only a few inches deep) eroded into the soil by surface runoff.

Riparian: Of or pertaining to the bank of a river, stream, lake, or other water bodies.

Runoff: The portion of rainfall, melted snow, or irrigation water that flows across the ground surface and may eventually enter streams.

Saturated zone: The zone in which the voids in the rock or soil are filled with water at a pressure greater than atmospheric pressure. The water table is the top of the saturated zone in an unconfined aquifer.

Scoping: An early, open part of the NEPA process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action.

Section 106 process: A NHPA (16 U.S.C. §470 et seq.) review process used to identify, evaluate, and protect cultural resources eligible for nomination to the NRHP that may be affected by Federal actions or undertakings.

Sedges: Grasslike plants.

Seismic: Pertaining to any earth vibration, especially an earthquake.

Sensitive receptors: Those populations that are more susceptible to the effects of air pollution, noise pollution, and other potentially hazardous effects of a proposed project that are located in close proximity to the project site. Sensitive receptors can include long-term health care facilities,

rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, parks and recreations centers, and athletic facilities.

Sensitive species: Those plants and animals identified by the USFWS Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trend in populations or density and significant or predicted downward trend in habitat capability.

Socioeconomics: The social and economic condition in the study area.

Soil association: A natural grouping of soil types based on similarities in climatic or physiographic factors and soil parent materials. It may include a number of soil associates provided that they are all present in significant proportions.

Solid waste: In general, solid wastes are nonliquid, nonsoluble discarded materials ranging from municipal garbage to industrial wastes that contain complex and sometimes hazardous substances. Solid wastes include sewage sludge, agricultural refuse, demolition wastes, and mining residues.

Sound: Mechanical energy transmitted by pressure waves in a compressible medium such as air.

State Historic Preservation Officer (SHPO): The official within each state, authorized by the state at the request of the Secretary of the Interior, to act as liaison for purposes of implementing the NHPA.

State Implementation Plan (SIP): A plan developed at the State level and enforceable by the USEPA, in which the State explains how it will comply with air quality standards.

Stratigraphic: Of, relating to, or determined by stratigraphy; the superposition of layers (soil, rock, and other materials) often observed at archaeological sites.

Substation: Facility with transformers where voltage on transmission lines changes from one level to another.

Surface water: All bodies of water on the surface of the earth that are open to the atmosphere, such as rivers, lakes, reservoirs, ponds, seas, and estuaries.

Switchyard: Facility with circuit breakers and automatic switches to turn power on and off on different transmission lines.

Tap: To tie a substation into an existing transmission line through a connection.

Tap point: The point where two transmission lines interconnect.

Threatened species: Any plants or animals that are likely to become endangered species within the foreseeable future throughout all or a significant portion of their ranges and which have been listed as threatened by the USFWS or the National Marine Fisheries Service following the procedures set out in the *Endangered Species Act* and its implementing regulations (50 CFR Part 424).

Traditional cultural property/use area: Areas of significance to the beliefs, customs, and practices of a community of people that have been passed down through generations.

Transformer: A device for transferring energy from one circuit to another in an alternating current system. Its most frequent use in power systems is for changing voltage levels.

Transmission line: The structures, insulators, conductors, and other equipment used to transfer electrical power from one point to another.

Tribe: A Federally recognized American Indian political entity.

U.S. Environmental Protection Agency (USEPA): The independent federal agency, established in 1970, that regulates federal environmental matters and oversees the implementation of Federal environmental laws.

Vertebrate: Animals that are members of the subphylum Vertebrata, including the fishes, amphibians, reptiles, birds, and mammals, all of which are characterized by having a segmented bony or cartilaginous spinal column.

Volatile Organic Compounds (VOCs): A broad range of organic compounds that produce vapors at relatively low temperatures, such as gasoline and solvents.

Volt: The unit of voltage or potential difference. It is the electromotive force which, if steadily applied to a circuit having a resistance of one ohm, will produce a current of one ampere.

Voltage: Potential for an electric charge to do work; source of an electric field.

Water rights: Permits or licenses issued by the State Water Resources Control Board.

Watershed: The land area that drains into a stream. The geographic region within which water drains into a particular river or body of water.

Watt: The absolute meter-kilogram-second unit of power equal to the work done at the rate of one joule per second or to the power produced by a current of one ampere across a potential difference of one volt.

Wetland: An area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas.

Yield: A measure of the availability of water to meet authorized purposes, sometimes defined in terms of the ability to meet project needs within specific time periods.

Appendix A Scoping Report

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Appendix A.1 Energia Sierra Juarez Transmission Line Project Scoping Report (September 2009)

Appendix A.2 Notice of Intent to Prepare an Environmental Impact Statement (February 25, 2009)

Appendix A.3 Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings (August 4, 2008)

Appendix A.1 Energia Sierra Juarez Transmission Line Project Scoping Report (September 2009)

Energia Sierra Juarez Transmission Line Project

Scoping Report

September 2009

U.S. Department of Energy
Office of Electricity Delivery and Energy Reliability
Washington, DC 20585

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1. Introduction

On December 18, 2007, Baja Wind U.S. Transmission, LLC (now, Energia Sierra Juarez U.S. Transmission, LLC (ESJ)), a subsidiary of Sempra Generation (Sempra), applied to the U.S. Department of Energy (DOE) for a Presidential permit in accordance with Executive Order (EO) 10485, as amended by EO 12038, and 10 CFR §205.320 *et seq* (2000).[1] The Presidential permit (OE Docket Number PP-334), if issued, would authorize ESJ to construct, operate, maintain, and connect the U.S. portion of the ESJ project, which consists of an electric transmission line that would cross the international border between the U.S. and Mexico, near the town of Jacumba, California. A project overview is provided below, and additional project details are provided in ESJ's December 18, 2007, application letter to DOE, as amended on March 19, 2008, and August 25, 2008. All of these documents are available on the ESJ project Web site at http://ESJProjectEIS.org, and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

For the purposes of this Scoping Report and the EIS, the term "ESJ U.S. Transmission Line Project" refers to all ESJ project transmission line activities within the U.S., and the term "ESJ Wind Project" refers to all ESJ project activities within Mexico.[2]

DOE initially determined that the appropriate level of environmental review under the National Environmental Policy Act of 1969 (NEPA) for granting the requested Presidential permit was an Environmental Assessment (EA). Accordingly, on August 4, 2008, DOE published in the Federal Register its *Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings; Baja Wind U.S. Transmission, LLC.* (73 FR 45218). The Notice of Intent (NOI) explained that DOE would be assessing potential environmental impacts and issues. The NOI was sent to interested parties including federal, state and local officials; agency representatives; tribes; conservation organizations; local libraries and newspapers; and local stakeholder organizations and individuals in the vicinity of the proposed transmission line. Issuance of the NOI commenced a 30-day public comment period that ended on September 3, 2008. The NOI also stated that, "[if] at any time during preparation of the EA DOE

[1] According to Sempra's August 28, 2009, letter to DOE (available on the ESJ project Web site), in its initial application, Sempra made reference to Baja Wind, S. de R.L. de C.V. (Baja Wind), a subsidiary of Sempra Energy Mexico, as the entity undertaking the development in Mexico of the La Rumorosa Wind Energy Project. Baja Wind, S. de R.L. de C.V., was renamed Energia Sierra Juarez S. de R.L. de C.V. (ESJ Wind) to more accurately reflect the location of the Project. Sempra Energy no longer refers to the project as La Rumorosa Wind or any such derivatives and instead uses the term Energia Sierra Juarez, ESJ, or ESJ Wind. Energia Sierra Juarez S. de R.L. de C.V. remains a subsidiary of Sempra Energy Mexico.

[2] The term "transmission" is used throughout this document for purposes of clarity. It is understood that, in accordance with Federal Energy Regulatory Commission (FERC) terminology, the proposed transmission line will be a generation tie-line ("Gen-Tie"). As such, the transmission line, if approved and constructed, will not be required to provide open access transmission capability, as defined in applicable FERC regulations.

determines that an Environmental Impact Statement (EIS) rather than an EA is needed, DOE will issue a Notice of Intent to prepare an EIS in the Federal Register. In that case, this scoping process will serve as the scoping process that normally would follow a Notice of Intent to prepare an EIS. Accordingly, DOE will consider any comments on the scope of the EA received during this scoping process in preparing such an EIS."

DOE conducted two scoping meetings in San Diego County, California, in the town of Jacumba on August 26, 2008, during the public comment period on the NOI. The meetings provided the public with the opportunity to learn more about the proposed project and to provide comments on potential environmental issues associated with the project. A total of 18 people spoke at the meetings, and their comments were transcribed by a court reporter. (Transcripts of the scoping meetings are posted on the aforementioned ESJ project Web site and on the DOE Web site.) In addition, DOE received scoping comments in the form of eight written letters from private citizens, government agencies, and non-governmental organizations. All of these comments are available on the ESJ project Web site.

Several issues and concerns were identified during scoping, including: (1) visual impacts, (2) avian mortality, (3) impacts on protected, threatened, endangered, or sensitive species of animals or plants, or their critical habitats, (4) impacts on cultural or historic resources, (6) impacts on human health and safety with particular focus on wildfire hazards, (6) impacts on air, soil, and water, (7) impacts on land use, (8) impacts of seismic activity, and (9) impacts from development of wind generation. There were also several expressions of concern that an EA was not adequate, and that an EIS should be prepared.

Based on these comments and the potential for public controversy, DOE determined an EIS to be the proper NEPA compliance document. Accordingly, on February 25, 2009, DOE issued in the Federal Register its *Notice of Intent to Prepare an Environmental Impact Statement; Energia Sierra Juarez U.S. Transmission, LLC* (74 FR 8517). Similar to the first NOI, the NOI was sent to interested parties including federal, state and local officials; agency representatives; tribes; conservation organizations; local libraries and newspapers; and local stakeholder organizations and individuals in the vicinity of the proposed project. The NOI did not announce the opening of an additional scoping period, but it did indicate that any additional comments received by March 27, 2009, would be considered by DOE in defining the scope of the EIS, and that comments received or postmarked after that date would be considered to the extent practicable. In response to the February 25, 2009, NOI, DOE received seven written letters or emails from private citizens, government agencies, and non-governmental organizations, including one letter from a Native American Tribe. All comments received in response to the two NOIs are available on the ESJ project Web site.

On June 29, 2009, DOE received a letter from the Campo Band of the Kumeyaay Nation requesting a consultation meeting between the Campo Band and DOE on this project to discuss cultural resources and historic preservation activities. A member of the EIS preparation team met with the Campo Band on September 16, 2009, to discuss the project and provide for further coordination during the EIS preparation.

Table 1 summarizes the major issues raised during the overall scoping process and indicates which sections of DOE's EIS will address these concerns as presently envisioned. DOE's Draft EIS will also contain a section that summarizes the comments received during scoping and how they are addressed. Table 2 provides a list of the commenters. A more detailed list of comments received during scoping is included in the Appendix.

2. Project Chronology to Date

The following timeline summarizes the scoping process events described above:

December 18, 2007	DOE received Baja Wind (now ESJ) project application
March 19, 2008	DOE received amended Baja Wind (now ESJ) project application, including additional information on the 230-kilovolt (kV) optional transmission line design
August 4, 2008	DOE issued Federal Register NOI to Prepare an EA
August 25, 2008	Second letter amendment to the Baja Wind project application to change the project name from Baja Wind U.S. Transmission, LLC, to Energia Sierra Juarez U.S. Transmission, LLC (ESJ)
August 26, 2008	Public scoping meetings in Jacumba, California
September 3, 2008	Scoping period ended
February 25, 2009	DOE issued Federal Register NOI to Prepare an EIS
March 27, 2009	End of period to submit additional comments on the scope of the EIS

3. Project Overview

The ESJ project is described in the December 18, 2007, application letter to DOE as amended by additional correspondence on March 19, 2008, and August 25, 2008. All of these documents are available on the ESJ project Web site at http://ESJProjectEIS.org and on the DOE Web site at

http://www.oe.energy.gov/permits_pending.htm; see PP-334.

According to ESJ's application and subsequent amendments, either a double-circuit 230-kilovolt (kV) or a single-circuit 500-kV electric transmission line would interconnect up to 1250 megawatts (MW) of energy from renewable energy generators to be located in the general vicinity of La Rumorosa, Northern Baja California, Mexico (Ejido Jacume), with the Imperial Valley-Miguel segment of the Southwest PowerLink (SWPL)[3] 500-kV transmission line. The proposed transmission line would have a total length of approximately 1.65 miles (including both the U.S. and Mexican portions of the line). The proposed line would be constructed on lattice towers or steel monopoles, extending south from the point of interconnection with SWPL for about 0.65 miles to the U.S.-Mexico international border. From the international border, the proposed line would continue south for approximately one more mile to its first point of interconnection inside Mexico. If the interconnecting line is at 230 kV, the 230/500 kV transformation would occur at a new substation that would be built in the U.S. by San Diego Gas and Electric Company (SDG&E) as part of its East County (ECO) Substation project. If the interconnecting line is at 500 kV, a substation would also be required in Mexico.

The proposed action considered in this EIS is the issuance of a Presidential permit by DOE that would authorize the construction, operation, maintenance, and connection of that portion of the proposed transmission line that would be located in the U.S. (i.e., the ESJ U.S. Transmission Line project, approximately 0.65 miles in length). In addition, the EIS considers potential impacts within the U.S. from connected transmission facilities in Mexico and from the associated renewable generation project in Mexico (the ESJ Wind project) (e.g., visual impacts in the U.S. from transmission lines and wind turbine facilities in Mexico or dust from construction in Mexico entering the U.S.). The ESJ U.S. Transmission Line project would include approximately four or five 150-foot tall support structures, either monopole towers or steel lattice towers similar to the existing 500-kV SWPL structures. Towers would be spaced approximately 1,500 feet apart.

At the interconnection point with the SWPL, a loop-in substation (East County (ECO) Substation) would be constructed, owned, operated, and maintained by SDG&E, a public utility. The ECO Substation would occupy approximately 80 acres between the ESJ U.S. Transmission Line project transmission line and Old Highway 80, in close proximity to the existing SWPL. The specific design, location, and acreage requirement for the ECO Substation are expected to be determined as a result of a decision process between SDG&E and the California Public Utilities Commission (CPUC). SDG&E states that it

[3] "San Diego Gas & Electric's (SDG&E) single 500 kV interconnection to the grid is the Southwest PowerLink (SWPL), a 500 kV transmission line connecting the Palo Verde Nuclear Generating Station in Arizona and SDG&E's Miguel Substation in California. … The SWPL is owned jointly by SDG&E, Arizona Public Service, and the Imperial Irrigation District." (http://www.sdge.com/sunrisepowerlink/info/PEA/Chapter_1/Chapter1_executive_summary.pdf)

needs to build the ECO Substation for purposes unrelated to the ESJ U.S. Transmission project, but the ESJ transmission project would require the addition of adequate infrastructure to the substation facility. Accordingly, the construction of the ECO Substation is considered to be a connected action for the purpose of this EIS.

The ESJ Wind project in Mexico would be constructed in phases. A maximum of 52 wind turbines would be constructed in Phase I, depending on the selected manufacturer and specific model, resulting in up to 130 MW of power (assuming 2.5 MW per turbine). Phase I would be constructed on the furthest-north portion of the land leased by ESJ (Ejido Jacume), north of the town of La Rumorosa, Mexico. Figure 1 depicts the general location of the project in eastern San Diego County and Baja California. Figure 2 provides a more detailed map of Phase I of the ESJ Wind project and proposed project locations. The wind turbine locations shown on Figure 2 are preliminary and subject to refinement based on ongoing siting studies. As shown on Figure 2, the wind turbines nearest to the U.S. would be located approximately 0.7 miles south of the U.S. border. Figure 3 provides additional details of the ESJ U.S. Transmission Line project components that are proposed to be constructed in the U.S.

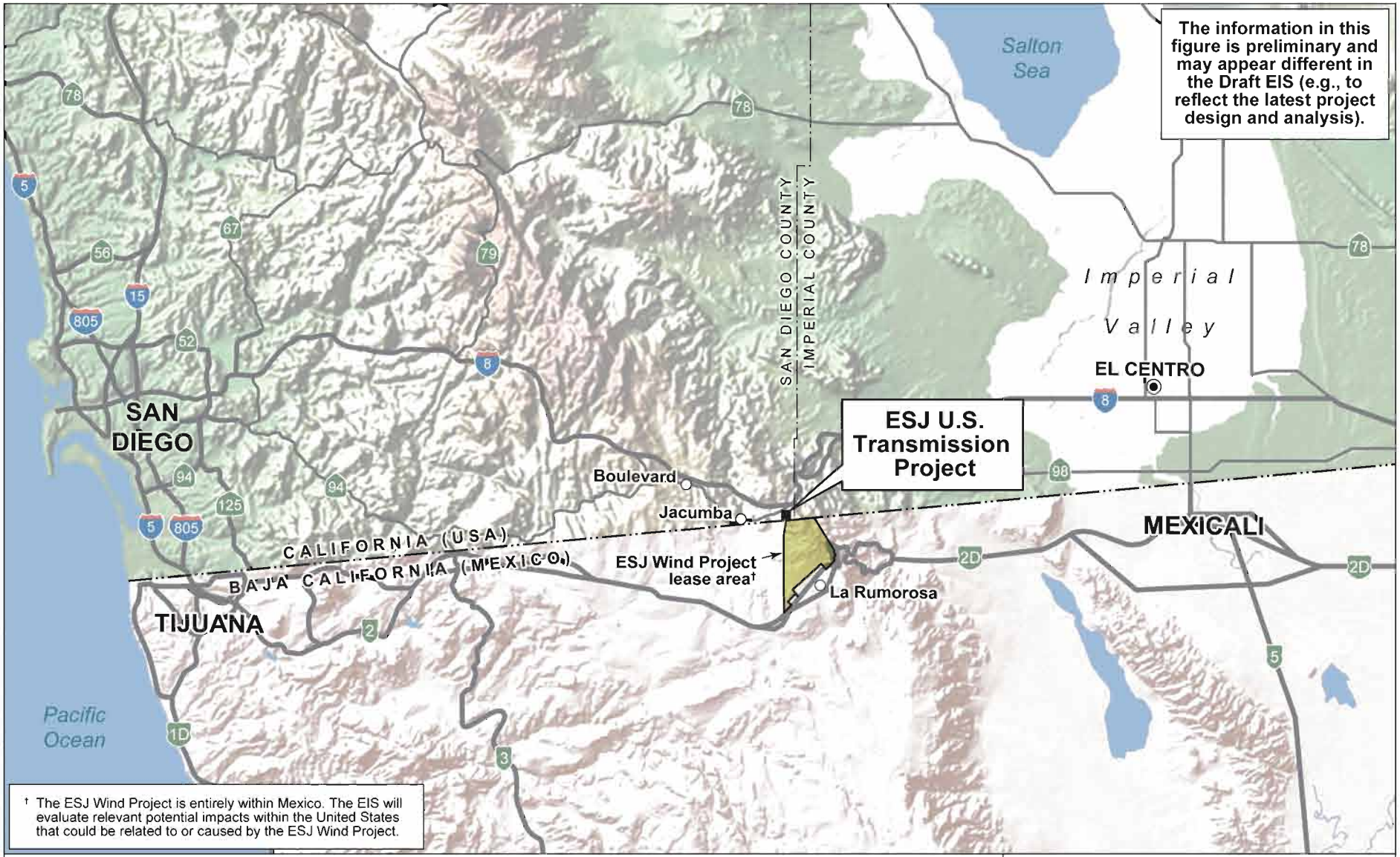
Subsequent expansion of the ESJ Wind project in Mexico would consist of additional phases of wind generation, up to a maximum build-out of 1250 MW[4]. The timing and location for installation of subsequent phases have not been determined, but current leaseholds would place the location of those subsequent phases south of the town of La Rumorosa. The location and scale of subsequent phase development, to the extent known, is considered in the EIS to the degree that such development could result in effects in the U.S.

4. Scoping Comments

The complete collection of scoping comments, including written letters and meeting transcripts, are available on the aforementioned ESJ project Web site. A summary of the comments is provided in this report in Tables 1 and 2 below. Table 1 provides a summary of the issues raised during the scoping process, arranged by the section heading which will address each issue in the DOE's EIS. Table 2 lists the individual commenters and date of each comment. A more detailed list of the comments received is included in the Appendix, arranged by commenter.

[4] According to Sempra's August 28, 2009, letter to DOE (available on the project Web site), "ESJ U.S. Transmission requests that the import capacity in the Presidential permit be limited to the physical capacity of the [transmission] line (1250 MW) and that power on this line be limited to renewable energy projects." The letter states that, to date, "Sempra has submitted three interconnection requests to the California Independent System Operator (Cal-ISO), totaling 1120 MW. Although it is possible to submit interconnection requests to completely fill the physical capacity of the [transmission] line, interconnection requests to the Cal-ISO are very expensive and have a limited shelf life. It is unclear how long it will take ESJ Wind to reach the 1120 MW that it currently has in interconnection requests, and therefore it is not prudent to submit additional requests to completely fill the line's capacity."

DOE's Draft EIS will also contain a section that summarizes the comments received during scoping and how they are addressed.



Source(s): EDAW, June 9, 2009 *(ESJ U.S. Transmission Project)*. Sempra Generation, July 15, 2009 *(ESJ Wind Project)*. National Atlas/USGS/Google Maps, 2009 *(background map)*.

ENERGÍA SIERRA JUÁREZ TRANSMISSION LINE EIS

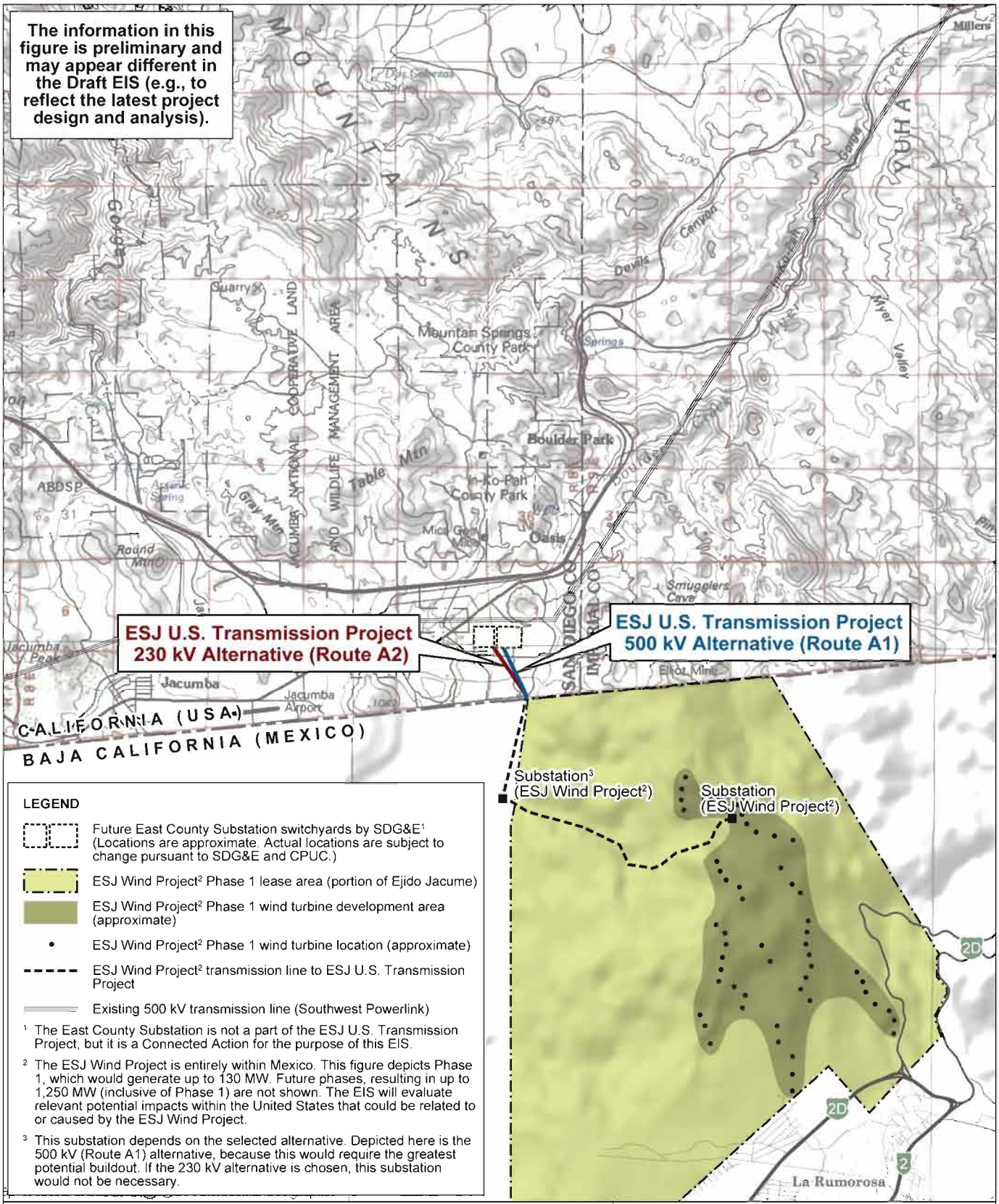
FIGURE 1

PROJECT REGIONAL MAP

ENTRIX Environmental and Natural Resource Management Consultants Aug. 2009

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Figure_1_Scoping_ProjectRegion_11x8.ai (08/26/2009, 02:07 pm) R Wurgler/T Murphy



Source(s): SDG&E, August 2009 *(East County Substation switchyards and SWPL)*. Sempra Generation, July 15, 2009 *(ESJ Wind Project)*. USGS/National Geographic/Google Maps, 2009 *(background map)*.

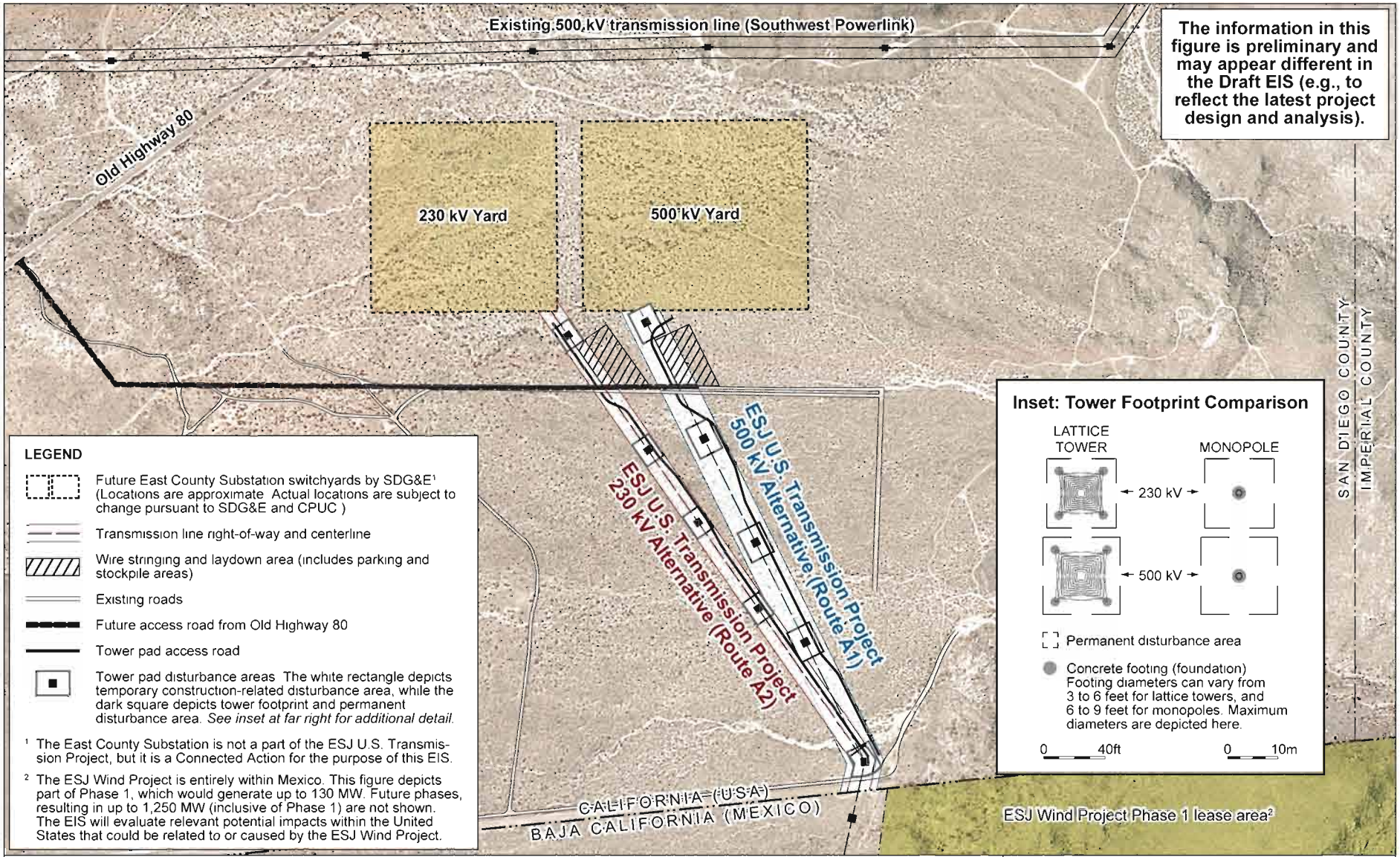
ENERGÍA SIERRA JUÁREZ TRANSMISSION LINE EIS

FIGURE 2

PROJECT VICINITY MAP

ENTRIX Environmental and Natural Resource Management Consultants Sept 2009

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Figure_2_Scoping_ProjectVicinity100k_8x11a.ai (09/22/2009, 06:25 pm) R Wurgler/T Murphy



Source(s): Burns & McDonnell Engineering, June 9, 2009 *(ESJ U.S. Transmission Project)*. SDG&E, August 2009 *(East County Substation switchyard locations)*. Sempra Generation, July 15, 2009 *(ESJ Wind Project)*. Ecology and Environment, February 2009 *(SWPL)*. USDA-FSA-APFO, 2000 *(aerial photo)*.

ENERGÍA SIERRA JUÁREZ TRANSMISSION LINE EIS

FIGURE 3

PROJECT ALTERNATIVES

ENTRIX Environmental and Natural Resource Management Consultants Sept. 2009

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Figure_3_Scoping_ProjectAreaAndRoutes_11x8.ai (09/22/2009, 02:54 pm) R Wurgler/T Murphy

Table 1. Summary of Scoping Comments Received by DOE	
Where Addressed in the EIS	**Concerns/Comments**
Introduction	• Level of environmental review in an EA will be inadequate, and an EIS is required, due to level of controversy related to SWPL, and potentially significant direct, indirect and cumulative effects related to federally protected species (including Peninsular bighorn sheep and Quino checkerspot butterfly); various native plant species; cultural resources; visual resources; community character; wildfire hazards; power reliability; and greenhouse gases. • Include assessment and mitigation of impacts related to proposed project components in Mexico; the ecosystem effects in Mexico will also be felt in California due to the cross-border interconnectedness of the systems. • Review BLM analysis of impacts in the Sunrise Powerlink Project RDEIR/S, and reconcile any different conclusions reached in the ESJ analysis. • Require the recommended permit conditions contained in March 24, 2008 letter; and include a permit condition that would restrict the project to transmission of wind power (e.g., similar to Presidential Permit No. PP-235-2). • Clarify the project's relationship to the National Interest Electric Transmission Corridor (NEITC). • Clarify the process for future amendments to the Presidential permit. • The document should address all of the significant impacts related to the Baja Wind (now ESJ) project that were identified in the SWPL EIR/EIS. • Discuss relationship of the project with other power sources in the region. Address the indirect impacts of increased capacity on SWPL due to lack of capacity to handle the proposed project's power supply. Discuss the effects of the proposed power to offset power from other sources (e.g., by taking priority over the Mexicali Power Plant). • Explain the purpose of the project and demonstrate the need for the project. • Discuss reliability of power imported from Mexico, which is outside of U.S. control.
Proposed Action and Alternatives	• Include in the Project Description additional specific project details (e.g., more information on turbine locations, acreage requirements, assumed design and operational standards, and monitoring data in support of design). • Assess alternatives of expanding existing transmission infrastructure within Mexico.

Table 1. Summary of Scoping Comments Received by DOE	
Where Addressed in the EIS	**Concerns/Comments**
Proposed Action and Alternatives (cont.)	• Assess alternative of undergrounding all or portions of the power line. • Assess alternatives for fire safety risks based on recent industry and agency reports. • Discuss the need for gas-powered backup generation, and assess related impacts. • Provide a rationale for the proposed 100-foot easement; this width appears larger than needed based on other narrower easements.
Affected Environment, Impacts, and Mitigations (all resource areas)	• Include assessment and mitigation of impacts related to proposed project components in Mexico. • Review BLM analysis of impacts in the Sunrise Powerlink Project RDEIR/S, and reconcile any different conclusions reached in the ESJ analysis. • The document should address all of the significant impacts related to the Baja Wind (now ESJ) project that were identified in the SWPL EIR/EIS.
Biological Resources	• Include assessment of impacts related to proposed project components in Mexico; the ecosystem effects in Mexico will also be felt in California due to the cross-border interconnectedness of the systems. • Minimize impacts on present and potential future preserve lands within the Las Californias Binational Conservation Initiative; avoid land that would be necessary to meet preserve objectives. • Include sufficient data on migratory birds and assess turbine locations to minimize impacts on birds. • Assess impacts from road construction on habitats. • Discuss wildlife movement, including Peninsular bighorn sheep. Discuss avoidance and minimization measures to offset unavoidable impacts. • Assess impacts on federally protected species including Peninsular bighorn sheep and Quino checkerspot butterfly, as well as California condor flyway and various native plant species. • Peninsular bighorn sheep and Quino checkerspot butterfly proposed and designated critical habitats are within or immediately adjacent to the proposed alternative alignments. Address species and critical habitat, including increased non-native invasive plants, fire, etc. from the transmission line on the critical habitats elements.

Table 1. Summary of Scoping Comments Received by DOE	
Where Addressed in the EIS	**Concerns/Comments**
Biological Resources (cont.)	• Quantify direct and indirect impacts of each project component on listed species (e.g., Peninsular bighorn sheep and Quino checkerspot butterfly) and their habitats. Include maps that depict the locations of project features, vegetation types, known occurrences of listed species, suitable habitat for listed species, and proximity of project alignments to designated and proposed critical habitats. Use up-to-date habitat assessments and species survey data.
Visual Resources	• Assess visual effects of substation and wind turbines. • Assess night lighting impacts due to night lighting fixtures on the turbines and at the proposed East County Substation. • Discuss visual impacts due to size of the turbines. • The photo simulations for the visual assessment need to be realistic. • The visual assessment needs to account for the fact that the turbines will be in motion, and thus the project will attract the attention of viewers. • Visual assessment should account for the repeating pattern of long turbine shadows and the effect of these shadows on the viewing experience. • The area of disturbance and visual effect should be broadly considered to include more than the immediate project footprint; it should also include surrounding area affected by traffic-induced dust; and include all areas affected electromagnetically.
Land Use	• Assess project's compatibility with San Diego County's planning goals related to preservation of rural character and effects of increased industrialization of the project area.
Cultural Resources	• The project area has significant archeological resources. The EIS should consider the cultural resources within the project area and in the natural landscape. • The project is within the Quechan Tribe's traditional land area and there are several resources affiliated with the Tribe in the area. Allow the Tribe to participate in the cultural resource evaluation.
Public Health and Safety	• Increased road construction could lead to increased illegal activity related to the U.S./Mexico border. • Increased overhead transmission lines could lead to fire hazards and safety hazards for Border Patrol aircraft.

Table 1. Summary of Scoping Comments Received by DOE	
Where Addressed in the EIS	**Concerns/Comments**
Public Health and Safety (cont.)	• Discuss reliability of the power line due to its location near the border and its vulnerability to damage due to illegal border activity.
Fire and Fuels Management	• Discuss fire hazards related to turbine fires. • Discuss ability to maintain clear areas under power lines.
Air Quality and Climate Change	• Project area air quality is a concern. Assess the proposed project's effects related to traffic-induced dust due to increased off-road vehicle traffic and increased Border Patrol traffic. • Discuss the overall project's greenhouse gas impacts in the context of the U.S. and California regulations related to greenhouse gases. • Incorporate measures to reduce emissions of sulfur hexafluoride.
Water Resources	• Assess potential groundwater impacts; groundwater is scarce in the project area.
Environmental Justice	• Assess Environmental Justice.
Connected Action	• Include assessment of other infrastructure projects that could be linked, in particular the Sunrise Powerlink Project and the East County Substation Project. • Assess night lighting impacts due to night lighting fixtures on the turbines and at the proposed East County Substation.
Cumulative Impacts	• Include assessment of other infrastructure projects that could be linked, in particular the Sunrise Powerlink Project and the East County Substation Project. • Assess cumulative impacts on cultural resources due to multiple projects being proposed in the area. Assess the cultural landscape from a holistic perspective. • Assess cumulative effects related to of the expansion of the Boulevard Substation. Cumulative effects include electric and magnetic effects and nuisance noise due to substation expansion.
Electrical Transmission System Operation and Reliability	• Discuss reliability of power imported from Mexico, which is outside of U.S. control.

Table 2. Directory of Stakeholder Comments as of May 7, 2009	
Stakeholder Name and Affiliation	**Comment Date and Source**
Federal Agencies	
Karen A. Goebel, Assistant Field Supervisor, US Department of the Interior, Fish and Wildlife Service, Ecological Services, Carlsbad Fish and Wildlife Office	March 26, 2009, letter to DOE
Native American Tribes	
Bridget R. Nash-Chrabascz, Quechan Tribe Historic Preservation Officer, Quechan Indian Tribe	March 9, 2009, email to DOE
State Agencies	
No State agency comments were received.	
Local Government Agencies	
Dianne Jacob, Second District Supervisor, San Diego County Board of Supervisors	September 3, 2008, letter to DOE
Eric Gibson, Director, San Diego County Department of Planning and Land Use	March 27, 2009, letter to DOE September 3, 2008, letter to DOE
Non-Governmental Organizations and Individuals	
Aaron Quintanar, Border Power Plant Working Group	March 27, 2009, letter to DOE
Steven Siegel, Center for Biological Diversity and Sierra Club	September 3, 2008, letter to DOE March 24, 2008, letter to DOE
Barbara Chamberlain, Chairman, and Robin M. Simmons, Vice-Chairman, The Committee for Responsible Growth	September 2, 2008, letter to DOE
Donna Tisdale, President, Backcountry Against Dumps	April 10, 2009, email to DOE March 27, 2009, letter to DOE
Donna Tisdale, Boulevard Planning Group	March 27, 2009, letter to DOE September 3, 2008, letter to DOE August 26, 2008, public scoping meeting June 23, 2008, letter to DOE March 21, 2008, letter to DOE
Bill Parsons	August 26, 2008, public scoping meeting
Anita Williams	August 26, 2008, public scoping meeting
Gary Hoyt	August 26, 2008, public scoping meeting
Ray Lutz	August 22, 2008, email to DOE August 26, 2008 public scoping meeting
Edie Harmon	August 26, 2008, public scoping meeting
Dennis Berglund	August 26, 2008, public scoping meeting

Table 2. Directory of Stakeholder Comments as of May 7, 2009 (cont.)	
Stakeholder Name and Affiliation	**Comment Date and Source**
Mark Ostrander	August 26, 2008, public scoping meeting
LeAnn Carmichael	August 26, 2008, public scoping meeting
Diane Conklin	August 26, 2008, public scoping meeting
Gerald Yops	August 26, 2008, public scoping meeting
Dennis Trafecanty	August 26, 2008, public scoping meeting
Bill Powers, Power Plant Working Group	August 26, 2008, public scoping meeting
Aaron Quintanar, Border Power Plant Working Group	August 26, 2008, public scoping meeting
Kevin Krekelberg, Citizens United for Sensible Power	August 26, 2008, public scoping meeting
Jeffrey McKernan	August 26, 2008, public scoping meeting
Karen McIntyre	August 26, 2008, public scoping meeting
Laura McKernan	August 26, 2008, public scoping meeting

Appendix
Stakeholder Comment Log

Introduction

The following table summarizes the individual comments made by each commenter. For the purposes of this Scoping Report, the comments are paraphrased and condensed from the actual comments; however, the environmental analysis included in the EIS will rely on the full text of the comments as submitted. A copy of the actual complete comments is available on the ESJ project Web site at http://www.esjprojecteis.org/documents.htm.

Appendix - Energia Sierra Juarez Project EIS - Stakeholder Comment Log			
Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Federal Agencies			
Karen A. Goebel, Assistant Field Supervisor, U.S. Department of the Interior, Fish and Wildlife Service, Ecological Services, Carlsbad Fish and Wildlife Office Role: Biological resources	• The project may impact wildlife movement, including Peninsular bighorn sheep. This potential impact should be assessed in the EIS including a discussion of appropriate avoidance and minimization measures. Mitigation to offset unavoidable impacts should be addressed in the context of the NEPA analysis.	Biological Resources	March 26, 2009, letter to Dr. Jerry Pell, DOE
	• Peninsular bighorn sheep and Quino checkerspot butterfly proposed and designated critical habitats are within or immediately adjacent to the proposed alternative alignments. Impacts on the species and critical habitat should be addressed, including increased non-native invasive plants, fire, etc. from the transmission line on the primary constituent elements of the critical habitats.	Biological Resources	
	• The EIS should include all the necessary information to accurately quantify the potential direct and indirect impacts of each project component on listed species *(*e.g., Peninsular bighorn sheep and Quino checkerspot butterfly) and their habitats. A series of maps should be included that depict the locations of project features, such as towers, permanent and temporary access roads, and staging areas. These maps, at a minimum, should also include vegetation types, known occurrences of listed species, suitable habitat for listed species, and proximity of project alignments to designated and proposed critical habitats. The information requested above should be based on up-to-date habitat assessments and species surveys in the project area.	Biological Resources	
	• The federally-listed Peninsular bighorn sheep and Quino checkerspot butterfly are known to occur within or near the project area; therefore, consultation under Section 7 of the Endangered Species Act may be required.	Biological Resources	

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Native American Tribes			
Bridget R. Nash-Chrabascz, Quechan Tribe Historic Preservation Officer, Quechan Indian Tribe Role: Cultural Resources	• The EIS should consider the cultural and biological resources within the project area and in the natural landscape. • The project is within the Tribe's traditional land area and there are several resources affiliated with the Tribe in the area. • The Tribe requests that they be allowed to participate in the evaluation of cultural resources. • The landscape should be assessed from a holistic perspective. • The EIS should assess cumulative impacts due to multiple projects being proposed in the area.	Cultural Resources Biological Resources Cultural Resources Cultural Resources Cultural Resources Cumulative Impacts	March 9, 2009, email to Dr. Jerry Pell, DOE
State Agencies			
No State agency comments were received.			
Local Government Agencies			
Dianne Jacob, Second District Supervisor, San Diego County Board of Supervisors Role: Stakeholder and Permitting Agency	• Level of environmental review in an EA will be inadequate. An EIS is required due to potentially significant direct and indirect effects related to biological resources, cultural resources, visual resources, community character, wildfire hazards, and power reliability. • Project should not be considered independently of other infrastructure projects that could be linked, in particular the Sunrise Powerlink Project and the East County Substation Project. • Project would be inconsistent with San Diego County's planning goals related to preservation of rural character.	Land Use Visual Resources Public Health and Safety Electrical Reliability Cumulative Impacts Connected Action	September 3, 2008, letter to DOE

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Dianne Jacob (cont.)	• Reliability of power imported from Mexico is a concern because this area is out of the U.S. control.	Land Use Electrical Reliability	
Eric Gibson, Director, San Diego County Department of Planning and Land Use Role: Stakeholder and Permitting Agency	Note: the County of San Diego's March 27, 2009 and September 3, 2008 letters are very similar; therefore the comments are combined below to reduce repetition. • County concurs that an EIS is appropriate. • County is concerned about quality of life in project area communities. • Project could have negative effects on lands purchased by the County for conservation and impact planning efforts for an East County Plan being developed under the Multiples Species Conservation Plan (MSCP). • Refer to County staff's September 3, 2008 written comments and August 26, 2008 oral comments. • County supports alternative energy such as wind and solar. • NOI should be corrected to disclose that ESJ will rely upon the Sunrise Power Link (SPL) or other transmission upgrade. • The EIS should evaluate impacts and develop mitigations using the County's Guidelines, available online. • The conclusions related to connected actions reached by BLM in the SPL project should also be applied to the ESJ project. Effects of La Rumorosa should be analyzed in the EIS using available information regarding turbine siting, roads, etc. • Analyze cumulative impacts from connected actions including SPL, ECO Substation, new 69 kV line, communication tower, and expanded Boulevard Substation. • Cumulative impacts should also consider ESJ right-of-way for pipelines to import natural gas from Mexico to U.S.; other renewable energy or	 Socioeconomics Land Use N/A N/A N/A N/A N/A Cumulative Impacts Connected Actions Cumulative Impacts	March 27, 2009, letter to Dr. Jerry Pell, DOE and September 3, 2008, letter to Ellen Russell, DOE

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Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Eric Gibson (cont.)	other energy projects in border region; East County MSCP; County General Plan Update. • Cumulative impacts should also consider the DOE/BLM Solar PEIS, the BLM South Coast Resource Management Plan (RMP) Revision, and the BLM Eastern San Diego County Resource Management Plan (RMP) Revision. • Impose a condition on ESJ that limits power transmitted from La Rumorosa wind project • Analyze the project need, capacity, proposed locations, and wildfire risks; take into consideration the alternative of using urban structures for renewable energy; the importation of renewable energy imported from Imperial County. • Indicate the specific region or urban area for which the energy is needed. • Indicate whether the power is needed to meet federal renewable energy goals, California renewable energy goals, such as SB107, or energy goals in general. • Evaluate cultural resources impacts of the project and connected actions; consult South Coastal Information Center and the Museum of Man. • The area has high scenic and recreational use qualities. Evaluate impacts on recreational uses. • Evaluate trans-boundary effects in accordance with Council on Environmental Quality (CEQ) guidelines. • Place conditions on the Presidential permit that minimize harm in the U.S. while recognizing Mexico's sovereignty. • The ESJ project and related projects could alter the rural character of the area. Evaluate growth inducing effects of new industrial facilities,	Cumulative Impacts Purpose and Need Purpose and Need Proposed Action and Alternatives Purpose and Need Purpose and Need Cultural Resources Connected Action Visual Resources Recreation All resource areas All resource areas Land Use Socioeconomics	

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Eric Gibson (cont.)	and evaluate impacts to the rural character of the existing communities. • Clarify and evaluate maintenance activities. • Evaluate effects on minority and low income communities (environmental justice). • Improve the accessibility of meetings, documents, and notices. • Evaluate impacts on the Jacumba Airport for flight safety and radio frequency interference. • Evaluate scenic view sheds and vistas, including private residential areas, public parks and recreation areas, public roads. Address property value impacts. • ESJ and connected actions including La Rumorosa should be sited to reduce or eliminate visual impacts. • Evaluate corona noise from ESJ and connected actions; construction noise; turbine noise and vibration; and potential blasting that may be felt in the County. • Evaluate ignition potential (due to increased human activity, downed power lines, etc); increased hazard related to fire susceptibility (including cross-border fires). • Evaluate undergrounding in the alternatives analysis. • Discuss coordination of fire fighting between U.S. and Mexico. • Evaluate fugitive dust and other air pollutants from construction, maintenance, decommissioning, and operations, and from vegetation removal, including cross-border impacts. • Identify water source for construction, including construction and concrete mixing in Mexico; consider shared groundwater basins. Evaluate water used for revegetation and restoration.	Project Description Environmental Justice N/A Public Health and Safety Visual Resources Visual Resources Noise Fire and Fuels Management Alternatives Fire and Fuels Management Air Quality Water Resources	

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Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Eric Gibson (cont.)	• Evaluate impacts on greenhouse gas emissions and climate change; consider greenhouse gas and climate change impacts of alternatives including urban renewable locations; fossil fuel power generation that could use the same transmission lines.	Air Quality	
	• Evaluate impacts on greenhouse gas emissions and climate change resulting from potential increased reliance on fossil fuel in Mexico as a result of their exporting renewable power to the U.S.; this could defeat the purpose of SB107 and result in increased air emissions in San Diego County from cross-border air pollution.	Air Quality	
	• Evaluate impacts on designated areas of high biological value in the County's MSCP; demonstrate consistency with the MSCP and proposed covered species.	Biological Resources	
	• Consider impacts on preliminary preserve design for regional habitat linkages and wildlife corridors, including cross-border corridors.	Biological Resources	
	• Use the most current biological survey data.	Biological Resources	
	• Evaluate impacts on raptors, bats and nesting birds, including species that may migrate between U.S. and Mexico.	Biological Resources	
	• Evaluate introduction of non-native species; direct loss of habitat; dust impacts; impacts on wildlife movement and migratory behavior due to wind turbines; consistency with Migratory Bird Treaty Act and Endangered Species Act; electrocution and collision with transmission lines by birds; increased predation.	Biological Resources	
	• Discuss impacts on County maintained roads; discuss road closures; coordinate with County Department of Public Works traffic staff to develop traffic plans and obtain traffic control permits and encroachment permits; indicate where the proposed access roads will traverse and/or connect to County maintained roads.	Transportation and Traffic	
	• Provide operational assessment for any new driveways/access points.	Transportation and Traffic	

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Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Eric Gibson (cont.)	• Consider a permit condition that is linked to a commitment that La Rumorosa will comply with U.S. environmental standards and use best available technologies. • Include an integrated pest management plan. Time the construction to avoid impacts on wildlife. Use existing roads to the extent feasible. Consider a fire management strategy. • Include available details of the project elements in Mexico. • Describe status of permitting and related data and studies for project elements in Mexico; if this information has not gone through environmental review, consider postponing or conditioning the ESJ project so that it does not receive final approval until La Rumorosa has been finalized.	Transportation and Traffic Biological Resources Fire and Fuels Management Proposed Action and Alternatives Proposed Action and Alternative	
Non-Governmental Organizations and Individuals			
Aaron Quintanar, Border Power Plant Working Group	• The ESJ project is subject to the findings/conclusions of the BLM and CPUC Final EIR/EIS. • Industrialization of the area will impact ecosystems and bioregions, including cross-border habitat for Peninsular bighorn sheep, Quino checkerspot butterfly, and California condor. Address risk of electrocution to condors; bird collisions with turbines. • Maintenance roads will impact plant communities and introduce non-native invasive species. • Project will impact the Las Californias Binational Conservation Initiative (LCBCI) conservation efforts by introducing large scale industrial project into the conservation site. • Address adverse impacts related to vegetation type conversion due to wildfires caused by transmission lines.	N/A Biological Resources Biological Resources Biological Resources Biological Resources	March 27, 2009, letter to Dr. Jerry Pell, DOE

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Aaron Quintanar (cont.)	• Roads could serve as conduits for undocumented immigrants and illegal drugs entering the U.S. • Consider alternatives of "in-basin" energy supplies (e.g., as part of the No Project Alternative). Refer to the July 2003 San Diego County Energy 2020 document.	Public Health and Safety Proposed Action and Alternatives	
Steve Siegel, Center for Biological Diversity and Sierra Club Role: Environmental Group	• Explain purpose and need of project. • Assess alternatives of expanding existing infrastructure. • Assess alternative of undergrounding all or portions of the power line. • Level of environmental review in an EA will be inadequate, and an EIS is required, due to potentially significant direct, indirect and cumulative effects related to federally protected species (including Peninsular bighorn sheep and Quino checkerspot butterfly); various native plant species; and greenhouse gases. • Review BLM analysis of impacts in the Sunrise Powerlink Project RDEIR/S, and reconcile any different conclusions reached in the ESJ analysis. • Include assessment of impacts related to project components in Mexico; the ecosystem effects in Mexico will also be felt in California due to the cross-border interconnectedness of the systems. • Minimize impacts on present and potential future preserve lands within the Las Californias Binational Conservation Initiative; avoid land that would be necessary to meet preserve objectives. • Include sufficient data on migratory birds and assess turbine locations to minimize impacts on birds. • Assess alternatives for fire safety risks based on recent industry and agency reports.	Purpose and Need Proposed Action and Alternatives Proposed Action and Alternatives Biological Resources All resource areas All resource areas Biological Resources Biological Resources Fire and Fuels Management	March 24, 2008, and September 3, 2008, letters to DOE

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Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Steve Siegel (cont.)	• Require the recommended permit conditions contained in March 24, 2008, letter (summarized below); and include a permit condition that would restrict the project to transmission of wind power (e.g., similar to Presidential Permit No. PP-235-2). • Include in the Project Description additional specific project details than is provided in the application (e.g., more information on turbine locations, assumed design and operational standards, and monitoring data in support of design).	Fire and Fuels Management Proposed Action and Alternatives	

Steve Siegel, Center for Biological Diversity and Sierra Club
 	
Role: Environmental Group
	• Specific wind development location information is needed, including data on wind speed and direction, wind shear, temperature and humidity; these data can be used to assess impacts on birds, and to assess fire risks.
	• Site testing is needed for the Quino checkerspot butterfly habitat.
	• Refer to all of the impacts and mitigations identified in the Sunrise DEIR/DIES, including the following impacts:
	  • Change in rural character due to introduction of industrial features.
	  • Project appears to be located on the documented Jacumba Quino checkerspot butterfly population.
	  • Construction of access roads and project structures will lead to loss of sensitive habitat vegetation in US and Mexico.
	  • Tree trimming could violate Migratory Bird Treaty Act.
	  • Increased risk of wildfire could lead to type conversion of habitat, and introduction of non-native invasive species.
	  • Construction will impact jurisdictional waters.
	  • Construction dust will impact vegetation.
		Proposed Action and Alternatives
		Biological Resources
		
		Biological Resources
		
		Land Use
		
		Biological Resources
		
		Biological Resources
		Biological Resources
		
		Biological Resources
		Water Resources
		Biological Resources
			March 24, 2008, letter to DOE

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Steve Siegel (cont.)	• Construction and maintenance will have direct and indirect impacts on threatened and endangered wildlife including Peninsular bighorn sheep, Quino checkerspot butterfly, and barefoot banded gecko.	Biological Resources	
	• Loss of nesting birds and bat nesting colonies.	Biological Resources	
	• Listed migratory birds and bats could collide with transmission lines and turbines.	Biological Resources	
	• California condors could be electrocuted in transmission lines.	Biological Resources	
	• Refer to applicable testimony in the Sunrise proceeding related to the regional cross-border ecosystem and relate management efforts; potential habitat loss for listed species; high fire-prone nature of the project areas; direct and indirect effects of transmission lines; and change in rural character.	Biological Resources	
	• Incorporate the applicable recommended permit conditions in the Sunrise DEIR/DIES, including:		
	• Limit the permitted use to wind generation.		
	• Incorporate safety recommendations from an investigation and rulemaking requested by SDG&E regarding wildfire risk from overhead power lines.	Fire and Fuels Management	
	• Reduce emissions of sulfur hexafluoride from transmission line operations consistent with SCE and PG&E procedures.	Air Quality	
	• Incorporate California Energy Commission's Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development and guidelines from the Avian Power Line Interaction Committee.	Biological Resources	
	• Incorporate mitigations identified through consultation with U.S. Fish and Wildlife Service; ensure the power line is located outside the habitat needed by Peninsular bighorn sheep and	Biological Resources	

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Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Steve Siegel (cont.)	Quino checkerspot butterfly. • Include measures to reduce light pollution. • Do not impair planning vision for Las Californias Binational Conservation Initiative.	Visual Resources Biological Resources	
Barbara Chamberlain, Chairman, and Robin M. Simmons, Vice-Chairman, The Committee for Responsible Growth Role: Citizen Group	• Level of environmental review in an EA will be inadequate, and an EIS is required, due to potentially significant direct and cumulative effects on eastern San Diego County residents and wildlife • Assess visual effects of substation and turbines • Assess night lighting impacts • Assess wildfires • Assess Environmental Justice • Assess impacts from road construction on habitats	Biological Resources Visual Resources Connected Actions Fire and Fuels Management Environmental Justice Biological Resources	September 2, 2008, letter to DOE
Donna Tisdale, President, Backcountry Against Dumps Role: Citizen Group	• Incorporate BLM's April 9th News Release, "BLM Cautions Public Regarding Border Violence" into earlier comments. • Adding energy infrastructure in the border region could impact energy reliability or security; projects could provide cover for and exacerbate criminal activities in the area.	Public Health and Safety Electrical Reliability Public Health and Safety	April 10, 2009, email DOE
Donna Tisdale, President, Backcountry Against Dumps Role: Citizen Group	• NOI lacks information on connected actions and potential for project to be used to export non-renewable energy from Mexico to the U.S. • Request local scoping hearing to address new information and cumulative impacts since the EA scoping was held in Fall 2008.	Purpose and Need Cumulative Impacts	March 27, 2009, letter to DOE

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Donna Tisdale, Boulevard Planning Group Role: Citizen Group	• A new round of scoping meetings is needed based on new information that should be considered in the EIS, including: health impacts from noise and vibration from turbines; air pressure impacts on the lung tissue of bats; missing details about the ESJ Project. • Cumulative impacts of industrial development will change the rural character. The segmented review process of multiple major projects does not adequately address the cumulative impacts of the projects. Cumulative impact assessment should address other planned projects, including other wind development projects in the La Rumorosa area McCain Valley and Campo reservation lands; and solar projects in the Imperial Valley. • EIS should consider reasonable alternatives, including a combination of retrofitted power plants, in-basin peaker generation, and roof-top solar; and use of feed-in tariffs. • Ensure adequate setbacks (e.g., 2 miles) between turbines and property boundaries, international border, buildings, roads, recreation areas, and sensitive habitat to avoid impacts from blade shedding, tower collapse, noise and vibration, flicker effect, turbine fires, and flaming debris, • Turbine placement should avoid impacts on radio communications and aviation operations, including gliders that use Jacumba Airport. • Refer to recent regional economic data for statistics on local area's high unemployment rate and low per capita income. • BHS have been recently sighted in Jacumba Mountains within the designated BHS critical habitat, in close proximity to ESJ and other proposed projects. (Reference attached March 19, 2009, email from Kevin Geller, Border Patrol Agent, to Donna Tisdale) • Clarify whether local roads will be used, and whether road improvements will be needed for turbine construction and other project	Proposed Action and Alternatives Cumulative Impacts Proposed Action and Alternatives Biological Resources Public Health and Safety Environmental Justice Biological Resources Proposed Action and Alternatives	March 27, 2009, letter to DOE

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Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Donna Tisdale (cont.)	component development. EIS should disclose any engineering challenges that will require additional development impacts.		
Donna Tisdale, Boulevard Planning Group Role: Citizen Group	• Other projects with connected, related, direct, indirect, and/or cumulative impacts, and effects include: Sempra's wind energy project; Sempra's existing LNG gas transmission pipeline in the project area; SDG&E's existing 500kV Southwest Powerlink; SDG&E's 500 kV Sunrise Powerlink; SDG&E's ECO Substation; SDG&E's Boulevard Substation expansion; new 69 kV line between ECO Substation and Boulevard Substation; BLM's recent changes to the McCain Valley Resource Conservation Area downgrading the Visual Resource Management classification and increasing the wind energy access; new substation and 69 kV line from PPM Energy/Iberdrola Renewables' 200 MW wind project on BLM land in McCain Valley to Boulevard Substation. • Level of environmental review in an EA will be inadequate, and an EIS is required due to the range and magnitude of potential impacts. The range of impacts covers numerous issues (38 topics listed) including issues related to cumulative impacts; public safety; environmental justice; community character; compliance with local land use policies; visual resources; property values; groundwater and surface water; tourism and recreation; growth inducement; electric reliability; cultural and biological resources; critical habitats; and designated parks, wilderness and areas of critical environmental concern. • Name change and hearing date changes creates confusion and discourages public participation • Concerned that the original 7,500 acres proposed for the wind farm is understated. • Sempra's statement at the August 26, 2009 scoping meeting regarding the availability of 314,000 acres under lease in northern Mexico	Proposed Action and Alternatives Cumulative Impacts Connected Action All resource areas N/A Proposed Action and Alternatives Proposed Action and Alternatives	September 3, 2008, letter to DOE

Appendix - Energia Sierra Juarez Project EIS - Stakeholder Comment Log			
Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Donna Tisdale (cont.)	represents new information and the potential for increased impacts that should be addressed in a full EIS. • Concerned that other non-renewable power sources are reasonably foreseeable and that the proposed electric generation-tie line will not be limited to transmission of wind power based on presence of LNG gas transmission line, and planned water pipeline in Project vicinity, which suggest that other gas fires power plants may eventually be constructed and rely on the proposed line. • Concerned that infrastructure development in this Border region, and potential future changes in the Mexican government, does not maintain or increase electric reliability. • Wind turbines could impact California condors. • The required 6,000 gallons of water for each turbine foundation could impact U.S. water supply, and no cross-border water transfers should be allowed. • Turbines will be visible from multiple locations in Jacumba, Boulevard, and various recreational and wilderness areas. Cumulative visual effects will be significant. • The SDG&E ECO Substation will have impacts on water supply, cultural resources, and night skies.	Proposed Action and Alternatives Electrical Reliability Biological Resources Water Resources Visual Resources Water Resources Cultural Resources Visual Resources	
Donna Tisdale, Boulevard Planning Group Role: Citizen Group	• Name change creates confusion • Level of environmental review in an EA will be inadequate, and an EIS is required due to the range and magnitude of potential impacts. • Concerned that other non-renewable power sources are reasonably foreseeable and that the proposed electric generation-tie line will not be limited to transmission of wind power based on presence of LNG gas transmission line, and planned water pipeline in Project vicinity,	Proposed Action and Alternatives N/A Cumulative Impacts	August 26, 2008, public scoping meeting

Appendix - Energia Sierra Juarez Project EIS - Stakeholder Comment Log			
Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
	which suggest that other gas fires power plants may eventually be constructed and rely on the proposed line. • Concerned that the acreage proposed for the wind farm is understated. • Concerned that potential impacts in Mexico have not been adequately addressed or mitigated. • Project should not be considered independently of other infrastructure projects that could be linked, including the Sunrise Powerlink Project, the East County Substation Project, Boulevard Substation expansion, and other projects in the region. • Discuss the need for gas-powered backup generation, and associated impacts. • Clarify the Project's relationship to the National Interest Electric Transmission Corridor (NEITC) • Discuss visual impacts due to size of the turbines and night lighting fixtures on the turbines; assess impacts of night lighting at the proposed East County substation. • Discuss fire hazards related to turbine fires	Proposed Action and Alternatives Cumulative Impacts Connected Action Proposed Action and Alternatives Proposed Action and Alternatives Visual Resources Fire and Fuels Management	
Donna Tisdale, Boulevard Planning Group Role: Citizen Group	• Delay DOE scoping hearings on PP-334 until late July or August 2008 based on the June 20, 2008 CPUC ruling ordering recirculation of the Sunrise Power Link Project DEIR/EIS.	Introduction	June 23, 2008, letter to DOE
Donna Tisdale, Boulevard Planning Group Role: Citizen Group	• Increase in industrial character; increased visual contrast and reduced visual quality; day and night aviation lighting will impact panoramic views and dark sky quality. • Cumulative impacts from ESJ, Sunrise project, and other area projects	Visual Resources Land Use Cumulative impacts	March 21, 2008, letter to DOE

Appendix - Energia Sierra Juarez Project EIS - Stakeholder Comment Log			
Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Donna Tisdale (cont.)	• Increased risk of wildfire. • Negative impact on rural community character, quality of life, property values; proposal is too massive and industrial in scale to fit in with existing rural community character • Impacts on PBS and QCB habitat, and area conservation lands, including cross-border land conservation and management efforts. • Environmental Justice issues in Jacumba, Boulevard, Jacume, and La Rumorosa • Growth-inducing effects of future expansion potential, including cross-border LNG and new power plants in Mexico. • Groundwater and surface water redirected or contaminated from drilling/blasting turbine foundations and turbine construction. • Cross-border construction air quality impacts from equipment operation and erosion. • Explain need for cross-border transmission.	Fire and Fuels Management Land Use Socioeconomics Biological Resources Environmental Justice Socioeconomics Water Resources Air Quality Purpose and Need	
Bill Parsons Role: Individual	• Level of environmental review in an EA will be inadequate, and an EIS is required because the Project is linked to other projects. • The photo simulations for the visual assessment need to be realistic • The visual assessment needs to account for the fact that the turbines will be in motion, and thus the project will attract the attention of viewers. • Visual assessment should account for the repeating pattern of long turbine shadows, and the effect of these shadows on the viewing experience. • The area of disturbance and visual effect should be broadly considered to include more than the immediate project footprint; it should also include surrounding area affected by traffic-induced dust; and include	Cumulative impacts Visual Resources Visual Resources Visual Resources Visual Resources Air Quality	August 26, 2008, public scoping meeting

Appendix - Energia Sierra Juarez Project EIS - Stakeholder Comment Log			
Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
	all areas affected electromagnetically • Discuss the cultural effects and compatibility with San Diego County land use policies (particularly related to preservation of rural character) due to increased industrialization of the project area	Cultural Resources Land Use	
Anita Williams Role: Individual	• The Project area has significant archeological resources • Groundwater is scarce in the Project area • The Project is linked to other projects.	Cultural Resources Water Resources Cumulative Impacts	August 26, 2008, public scoping meeting
Gary Hoyt Role: Individual	• The Project is linked to other projects, in particular the planned expansion of the Boulevard Substation. • Project area air quality is a concern. The proposed project would have direct effects related to traffic-induced dust due to increased off-road vehicle traffic; increased Border Patrol traffic. • Increased road construction could lead to increased illegal activity related to the Border • Increased overhead transmission lines could lead to fire hazards and safety hazards for Border Patrol aircraft. • Concerned that the proposed 100-foot easement to larger than needed, based on other narrower easements. • The project would contribute to cumulative effects related to of this expansion of the Boulevard Substation. Cumulative effects include electric and magnetic effects and nuisance noise due to substation expansion. • Clarify the process for future amendments to the Presidential permit	Cumulative Impacts Connected Action Air Quality Public Health and Safety Fire and Fuels Management Proposed Action and Alternatives Cumulative Impacts Introduction	August 26, 2008, public scoping meeting

Appendix - Energia Sierra Juarez Project EIS - Stakeholder Comment Log			
Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Ray Lutz Role: Individual	• The Project is linked to other projects, in particular the Sunrise Powerlink Project, and a full EIS is needed. • Concerned that the project description is changing in terms of the amount and acreage and location, which will affect the density of the wind farm. The location and acreage of the wind turbines needs to be clearly established. • Concerned that the power line is oversized for the project, and that other non-renewable projects would eventually use the line.	Purpose and Need Cumulative Impacts Proposed Action and Alternatives Proposed Action and Alternatives	August 22, 2008, email, and August 26, 2008, public scoping meeting
Edie Harmon Role: Individual	• The Project is linked to other projects, in particular the Sunrise Powerlink Project.	Cumulative Impacts	August 26, 2008, public scoping meeting
Dennis Berglund Role: Individual	• The Project is linked to other projects, in particular the Sunrise Powerlink Project. • Concerned about the reliability of the power line due to its location near the border and its vulnerability to damage due to illegal border activity • Consider running the power line underground. • The project is not needed at the proposed location based on availability of other sites within the U.S., and lack of demand in San Diego County • Concerned that the power line is oversized for the project, and that other non-renewable projects would eventually use the line.	Cumulative Impacts Electrical Reliability Proposed Action and Alternatives Purpose and Need Proposed Action and Alternatives	August 26, 2008, public scoping meeting
Mark Ostrander Role: Individual	• Concerned that new overhead transmission lines could increase risk of wildfire hazards. Discuss ability to maintain clear areas under power lines. Consider buried power lines. • An EIS is needed.	Fire and Fuels Management N/A	August 26, 2008, public scoping meeting

Appendix - Energia Sierra Juarez Project EIS - Stakeholder Comment Log			
Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
LeAnn Carmichael Role: Individual	• An EIS is needed to consider other related projects. • The document should address all of the Class I and Class II impacts related to the Baja Wind project that were identified in the SWPL EIR/EIS. • Demonstrate the need for the project	Cumulative Impacts All resource areas Purpose and Need	August 26, 2008, public scoping meeting
Diane Conklin Role: Individual Diane Conklin (cont.)	• Confirm that the proposed power line would not be used for other non-renewable energy projects. • Confirm the end user of power • Confirm the source of backup power • Discuss the overall project's greenhouse gas impacts in the context of the U.S. and California regulations related to greenhouse gases. • An EIS is required due to the range and magnitude of potential impacts.	Purpose and Need Proposed Action and Alternatives Proposed Action and Alternatives Air Quality N/A	August 26, 2008, public scoping meeting
Gerald Yops Role: Individual	• An EIS is required.	N/A	August 26, 2008, public scoping meeting
Dennis Trafecanty Role: Individual	• Explain the need for the generation-tie line based on availability of existing power lines in Mexico. • Discuss reliability of power source originating in Mexico • An EIS is required due to the range and magnitude of potential impacts, in particular the potential impacts on California condor and BHS; need to discuss existing cross-border wildlife coordination efforts. • Discuss fire hazards	Purpose and Need Electrical Reliability Biological Resources Fire and Fuels Management	August 26, 2008, public scoping meeting

Appendix - Energia Sierra Juarez Project EIS - Stakeholder Comment Log			
Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Bill Powers, Power Plant Working Group Role: Environmental Group	• Discuss indirect impacts of increased capacity on SWPL due to lack of capacity to handle the proposed project's power supply. • Discuss effects of the proposed power offsetting power from other sources (e.g., by taking priority over the Mexicali Power Plant) • Prepare an EIS in order to provide greater validity to the assessment, in consideration of the controversy related to SWPL.	Purpose and Need Cumulative impacts N/A	August 26, 2008, public scoping meeting
Aaron Quintanar, Border Power Plant Working Group Role: Environmental Group	• An EIS is required to provide a high level of assessment of impacts on endangered species, in particular the potential impacts on California condor and BHS corridor; need to discuss existing cross-border wildlife coordination efforts. • Assess secondary impacts of new roads, which can lead to urban sprawl	Biological Resources Land Use	August 26, 2008, public scoping meeting
Kevin Krekelberg, Citizens United for Sensible Power Role: Environmental Group	• Prepare an EIS, and obtain a clear project description with acreage, location, etc.	Proposed Action and Alternatives	August 26, 2008, public scoping meeting
Jeffrey McKernan Role: Individual	• Visual simulations need to be realistic • Concerned that a foreign government could affect project reliability. • Prepare an EIS	Visual Resources Electrical Reliability N/A	August 26, 2008, public scoping meeting
Karen McIntyre Role: Individual	• Turbines could significantly degrade the visual setting, thus reducing the quality of life for local residents. • Concerned that a foreign government could affect project reliability.	Visual Resources Land Use Electrical Reliability	August 26, 2008, public scoping meeting

Appendix - Energia Sierra Juarez Project EIS - Stakeholder Comment Log			
Stakeholder Name, Affiliation, and Role on Project	**Concerns/Comments**	**Resource Topic to be Addressed in EIS**	**Comment Source**
Laura McKernan Role: Individual	• Turbines could significantly degrade the visual setting, thus reducing the quality of life for local residents.	Visual Resources Land Use	August 26, 2008, public scoping meeting
Note: N/A – not applicable			

Appendix A.2 Notice of Intent to Prepare an Environmental Impact Statement (February 25, 2009)

PLEASE SEE BELOW

NOTE: Energia Sierra Juarez U.S. Transmission, LLC, (ESJ) was formerly known as Baja Wind U.S. Transmission, LLC.

DEPARTMENT OF ENERGY

[OE Docket No. PP–334]

Notice of Intent To Prepare an Environmental Impact Statement; Energia Sierra Juarez U.S. Transmission, LLC

AGENCY: Department of Energy (DOE).

ACTION: Notice of Intent to Prepare an Environmental Impact Statement (EIS).

SUMMARY: The Department of Energy (DOE) announces its intention to prepare an EIS on the proposed Federal action of granting a Presidential permit to construct a new electric transmission line across the U.S.-Mexico border in southeastern California. DOE has determined that issuance of a Presidential permit for the proposed

project would constitute a major Federal action that may have a significant effect upon the environment within the meaning of the National Environmental Policy Act of 1969 (NEPA). For this reason, DOE intends to prepare an EIS entitled *Energia Sierra Juarez Transmission Line Environmental Impact Statement* (DOE/EIS–0414) to address potential environmental impacts from the proposed action and reasonable alternatives. The EIS will be prepared in compliance with NEPA and applicable regulations, including DOE NEPA implementing regulations at 10 CFR Part 1021. Because of previous public participation activities, DOE does not plan to conduct additional scoping meetings for this EIS. However, any timely written comments submitted will be considered by DOE in determining the scope of the EIS.

DATES: As discussed below, the public participation process that DOE conducted following publication of a notice of intent to prepare an environmental assessment will serve as the scoping for this EIS. DOE will consider any additional comments received or postmarked by March 27, 2009 in defining the scope of the EIS. Comments received or postmarked after that date will be considered to the extent practicable.

ADDRESSES: Comments on the scope of the EIS and requests to be added to the document mailing list should be addressed to: Dr. Jerry Pell, Office of Electricity Delivery and Energy Reliability (OE–20), U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585; by electronic mail to *Jerry.Pell@hq.doe.gov*; or by facsimile to 202–318–7761.

For general information on the DOE NEPA process contact: Ms. Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (GC–20), U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585; or by facsimile at 202–586–7031.

FOR FURTHER INFORMATION CONTACT: Dr. Jerry Pell, 202–586–3362, or *Jerry.Pell@hq.doe.gov*. For general information on the DOE NEPA process, contact Ms. Carol M. Borgstrom at 202–586–4600 or leave a message at 800–472–2756.

SUPPLEMENTARY INFORMATION: Executive Order (EO) 10485, as amended by EO 12038, requires that a Presidential permit be issued by DOE before electric transmission facilities may be constructed, operated, maintained, or connected at the U.S. international border. The EO provides that a Presidential permit may be issued after a finding that the proposed project is consistent with the public interest and after favorable recommendations from the U.S. Departments of State and Defense. In determining consistency with the public interest, DOE considers the environmental impacts of the proposed project under NEPA, determines the project's impact on electric reliability (including whether the proposed project would adversely affect the operation of the U.S. electric power supply system under normal and contingency conditions), and considers any other factors that DOE may find relevant to the public interest. The regulations implementing the EO have been codified at 10 CFR 205.320–205.329. DOE's issuance of a Presidential permit indicates that there is no Federal objection to the project, but does not mandate that the project be undertaken.

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly Baja Wind U.S. Transmission, LLC), has applied to DOE's Office of Electricity Delivery and Energy Reliability (OE) for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line on either lattice towers or steel monopoles. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project) to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink (SWPL) 500-kV transmission line. The ESJ Presidential permit application, including associated maps and drawings, can be downloaded in its entirety from the DOE program Web site at *http://www.oe.energy.gov/permits_pending.htm* (see PP–334).

One portion of the proposed transmission project would consist of two miles of transmission located in Mexico that would be constructed, owned, operated, and maintained by a subsidiary of Sempra Energy Mexico and would be subject to the permitting requirements of the Mexican Government. The remaining portion of the proposed transmission project would consist of a one-mile transmission line constructed by ESJ within the United States on private land. The entire electrical output of the La Rumorosa Project (1250 megawatts) would be dedicated to the U.S. market and delivered using the proposed international transmission line. For reasons discussed below, the EIS will consider only impacts that occur inside the United States.

ESJ's proposed transmission line would connect to a substation to be constructed by the San Diego Gas & Electric Company in response to requests by power suppliers to connect to the SWPL. The substation, to be known as the East County Substation, would be located just south of the SWPL right-of-way near the community of Jacumba, California, and would contain equipment for accepting interconnections at both the 230-kV and the 500-kV level. The 230-kV connection equipment would be located just to the west of the 500-kV connection equipment, both within the confines of the substation boundary. Accordingly, ESJ has identified two routing/voltage alternatives to coincide with interconnection at the 230-kV or at the 500-kV level.

Agency Purpose and Need, Proposed Action, and Alternatives

The purpose and need for DOE's action is to decide whether to grant ESJ's application for a Presidential permit for the proposed international electric transmission line. DOE's proposed action is to issue a Presidential permit for the construction, operation, maintenance, and connection of the proposed international electric transmission line. If granted, the Presidential permit would authorize only the one-mile portion of the applicant's proposal that would be constructed and operated wholly within the United States.

Both of ESJ's proposed route alternatives would cross the U.S.-Mexico border at the same location. However, the route alternative identified as A1 in the Presidential permit application would be constructed at 500-kV and would be the eastern alternative; the other route alternative, identified as A2, would be constructed at 230-kV and be located to the west of the A1 alternative. Both alternatives would be located wholly within private property in eastern San Diego County near the unincorporated community of Jacumba. In addition to the alternatives proposed by ESJ, DOE will also consider the environmental impacts of a ''No Action'' alternative.

DOE originally considered an environmental assessment (EA) (to be titled *Baja Wind U.S. Transmission Environmental Assessment*) to be the appropriate level of review under NEPA. DOE published a Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings in the **Federal Register** on August 4, 2008 (73 FR 45218). In that notice DOE stated ''if at any time during preparation of the EA DOE determines that an environmental impact statement (EIS) is needed * * * DOE will consider any comments on the scope of the EA received during [the EA

scoping process] in preparing such an EIS.''

Identification of Environmental Issues

When publishing its notice of intent to prepare an EA on August 4, 2008, DOE opened a 30-day scoping period during which the public was invited to participate in the identification of potential environmental impacts that may result from construction of the ESJ transmission line project and reasonable alternatives. DOE conducted two scoping meetings in Jacumba. Nine issues and concerns were identified as a result of the scoping opportunity. These issues and concerns are (1) visual impacts, (2) avian mortality, (3) impacts to protected, threatened, endangered, or sensitive species of animals or plants, or their critical habitats, (4) impacts to cultural or historic resources, (6) impacts to human health and safety, (6) impacts to air, soil, and water, (7) land use impacts, (8) impacts of seismic activity, and (9) impacts from development of wind generation. In the EIS DOE will analyze these issues and others it finds appropriate to address, such as greenhouse gas emissions and global climate change and also intentional destructive acts, such as terrorism. No additional construction or routing alternatives were proposed as a result of the scoping process.

Several commenters in this proceeding have asked DOE to evaluate the impacts associated with activities that will occur inside Mexico (*e.g.,* from the construction and operation in Mexico of the wind generators). NEPA does not require an analysis of environmental impacts that occur within another sovereign nation that result from approved actions by that nation. The EIS, however, will evaluate all relevant environmental impacts within the U.S. related to or caused by project-related activities in Mexico.

Based on comments received during the initial EA process, and the potential for public controversy, DOE has determined an EIS to be the proper NEPA compliance document.

EIS Preparation and Schedule

In preparing the Draft EIS, DOE will consider comments received during the scoping period. Because of previous public participation activities, DOE does not plan to conduct additional scoping meetings for this EIS. However, any timely additional written comments submitted will be considered by DOE in determining the scope of the EIS.

DOE anticipates issuing a Draft EIS in the fall of 2009. DOE will provide a public comment period of at least 45 days from the Environmental Protection Agency's (EPA's) Notice of Availability (NOA) of the Draft EIS and will hold at least one public hearing during the public comment period.

DOE will include all comments received on the Draft EIS, and responses to those comments, in the Final EIS. DOE will issue a Record of Decision no sooner than 30 days from EPA's NOA of the Final EIS.

Persons who submitted comments during the scoping process will receive a copy of the Draft EIS. Other persons who would like to receive a copy of the document for review when it is issued should notify Dr. Jerry Pell at the address provided above.

Issued in Washington, DC, on February 18, 2009.

Patricia A. Hoffman,

Acting Assistant Secretary, Office of Electricity Delivery and Energy Reliability.

[FR Doc. E9–4049 Filed 2–24–09; 8:45 am]

BILLING CODE 6450–01–P

Appendix B Project Details

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Appendix B.1 Preliminary Plot Plans – Drawings P01 to P10, Revision 1 (June 2009)

Appendix B.2 Preliminary Grading Plans – Drawings C01 to C08, Revision 1 (June 2009)

Appendix B.3 Estimated Equipment and Vehicle Requirements and Utilization Table

Appendix B.4 Short Form Fire Protection Plan (September 10, 2009)

Appendix B.5 FAA Determinations of No Hazard to Air Navigation (November 10, 2009)

Appendix B.1 Preliminary Plot Plans – Drawings P01 to P10, Revision 1 (June 2009)

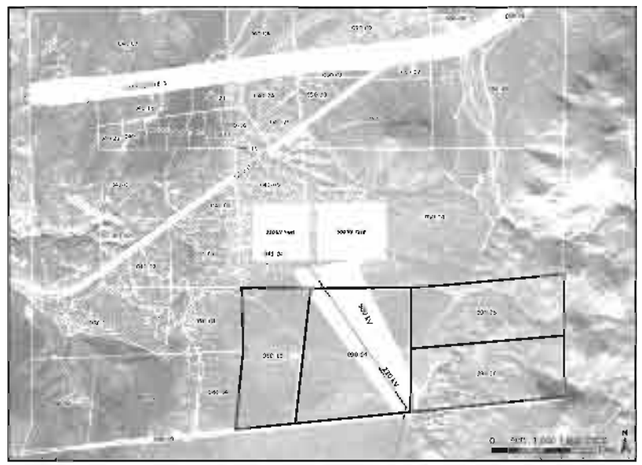
ESJ U.S.

Energia Sierra Juaréz Gen-Tie Line Project
San Diego County, California

June 2009

52573

Preliminary Plot Plans



DRAWING LIST

DWG. NO.	REVSION	TITLE
P01	1	COVER-INDEX
P02	1	OVERALL LAYOUT SHEET
P03	1	230KV STEEL LATTICE TOWER PLAN & PROFILE
P04	1	230KV STEEL MONOPOLE PLAN & PROFILE
P05	1	230KV ALTERNATIVE PRELIMINARY PLOT PLAN SHEET 1 OF 2
P06	1	230KV ALTERNATIVE PRELIMINARY PLOT PLAN SHEET 2 OF 2
P07	1	500KV STEEL LATTICE TOWER PLAN & PROFILE
P08	1	500KV STEEL MONOPOLE PLAN & PROFILE
P09	1	500KV ALTERNATIVE PRELIMINARY PLOT PLAN SHEET 1 OF 2
P10	1	500KV ALTERNATIVE PRELIMINARY PLOT PLAN SHEET 2 OF 2

OWNER: ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LLC. (ESJ U.S.)
101 ASH STREET
HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

ENGINEER: BURNS & MCDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
(816) 333-9400

VICINITY MAP
N.T.S.

PROJECT PARCEL #'s:
APN 661-080-10
APN 661-090-04
APN 661-090-05
APN 661-090-06

ECO SUBSTATION PARCEL #'s:
APN 661-050-04
APN 661-041-04
APN 661-041-05

ACCESS PARCEL #'s:
APN 661-041-03
APN 661-041-02
APN 661-080-08

PRELIMINARY - NOT FOR CONSTRUCTION

NOTE:
DEPICTION OF SDG&E'S ECO SUBSTATION IS APPROXIMATE AND SUBJECT TO FINAL DESIGN BY SDG&E.

NOTE:
THERE ARE TWO SEPERATE GEN-TIE ALTERNATIVES SHOWN WITHIN THESE PLANS, A 230KV ALTERNATIVE AND A 500KV ALTERNATIVE. ONLY ONE OF THE TWO OPTIONS IS TO BE CONSTRUCTED UNDER THIS APPLICATION, BUT THE FINAL ALTERNATIVE IS YET TO BE DETERMINED. FUTURE PLANS WILL BE REVISED TO ONLY INCLUDE THE ALTERNATIVE THAT IS TO BE CONSTRUCTED.

no.	date	by	ckd	description

Burns & McDonnell

ESJ U.S. Gen-Tie Line Project
MUP 09-008
KIVA 09-0107420

P01

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APN# 661-050-03

APN# 661-050-04

APN# 661-090-05

APN# 661-090-06

APN# 661-041-05

APN# 661-090-04

EX SWPL 500kV T/L

EXISTING SWPL 500kV T/L

FUTURE 500kV YARD BY SDG&E
(FINAL DIMENSIONS SUBJECT TO
CHANGE BY SDG&E)

EX. DESERT ROAD

40' EASEMENT

1352.59'

1234.66'

N 00°33'00" E 2414.69'

PROPOSED PROJECT ACCESS ROAD (PA) TURN
AROUND W/ MINIMUM 36' RADIUS.
(500kV ALTERNATIVE ONLY)

3129.80'

500KV GEN-TIE ALTERNATIVE

1160.03'

150' BORDER SETBACK

PROPOSED PROJECT ACCESS
ROAD (PA) TURN AROUND W/
MINIMUM 36' RADIUS.
(230kV ALTERNATIVE ONLY)

3350.42'

230KV GEN-TIE ALTERNATIVE

FUTURE 230kV YARD BY SDG&E
(FINAL DIMENSIONS SUBJECT TO
CHANGE BY SDG&E)

1328.89'

3438.87'

PROPOSED 28' PROJECT ACCESS (PA) ROAD
CLEARING, GRUBBING, & GRADING REQUIRED
(24' TO BE IMPROVED WITH DECOMPOSED
GRANITE PER COUNTY OF SAN DIEGO AND
RURAL FIRE PROTECTION DISTRICT STANDARDS)

729.39'

APN# 661-041-01

APN# 661-090-04

150' BORDER SETBACK

UNITED STATES OF AMERICA

CALIFORNIA - MEXICO

BAJA CALIFORNIA - MEXICO

1030.54'

1342.10'

APN# 661-041-04

EX. DESERT ROAD

N 84°35'00" E 3468.51'

150' BORDER SETBACK

APN# 661-041-03

APN# 661-080-10

N 00°39'57"E 1243.08'

1116.69'

OLD HIGHWAY 80

EX. DESERT ROAD

40' EASEMENT

APN# 661-080-08

N 07°11'01"E 1514.08'

APN# 661-080-04

APN# 661-041-02

PROPOSED 28' PROJECT ACCESS (PA) ROAD
CLEARING, GRUBBING, & GRADING REQUIRED
(24' TO BE IMPROVED WITH DECOMPOSED
GRANITE PER COUNTY OF SAN DIEGO AND
RURAL FIRE PROTECTION DISTRICT STANDARDS)

SAN DIEGO COUNTY, CA

no.	date	by	ckd	description

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

NOTE:
THERE ARE TWO SEPERATE GEN-TIE ALTERNATIVES SHOWN WITHIN THESE PLANS, A 230KV ALTERNATIVE AND A 500KV ALTERNATIVE. ONLY ONE OF THE TWO OPTIONS IS TO BE CONSTRUCTED UNDER THIS APPLICATION, BUT THE FINAL ALTERNATIVE IS YET TO BE DETERMINED. FUTURE PLANS WILL BE REVISED TO ONLY INCLUDE THE ALTERNATIVE THAT IS TO BE CONSTRUCTED.

GRAPHIC SCALE

(IN FEET)
1 inch = 200 ft.

PRELIMINARY - NOT FOR CONSTRUCTION

Burns & McDonnell

date: JUNE 1, 2009	detailed: J. KANITZ
designed: J. KANITZ	checked: J. STAHULAK

MUP 09-006
KIVA 09-0107420

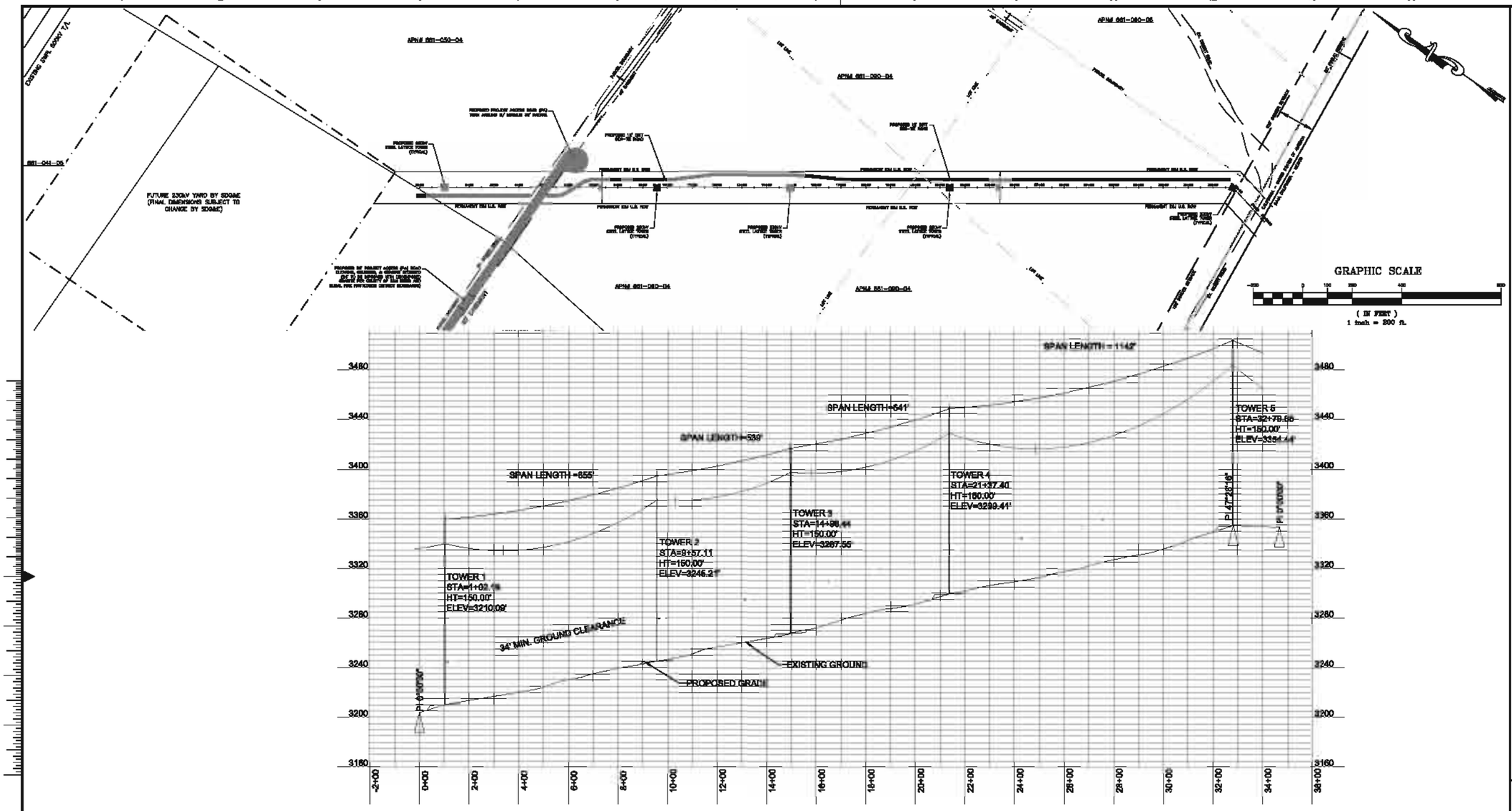
ESJ U.S.
230kV & 500kV GEN-TIE LINE ALTERNATIVES
OVERALL LAYOUT PLAN

project: 52573	contract:
drawing: P02	rev.: 1
sheet: 2 of 10 sheets	

file ESJ-BASE11.DWG

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230 kV LATTICE TOWER PROFILE

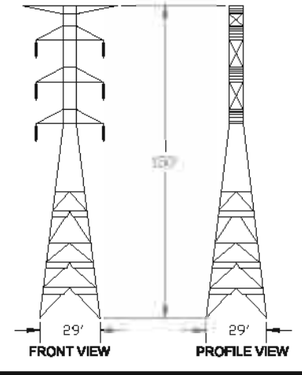
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1"=40' VERTICAL

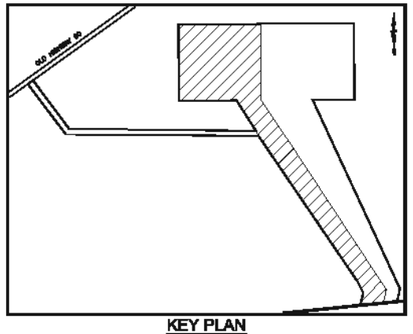
LEGEND

- PARCEL BOUNDARY LINE
- EASEMENT LINE
- FUTURE SUBSTATION BOUNDARY
- EXISTING DESERT ROAD
- 28' PROJECT ACCESS (PA) ROAD
- 12' PROPOSED GEN-TIE ROAD
- PROPOSED 230kV STEEL LATTICE TOWER

PRELIMINARY - NOT FOR CONSTRUCTION

TYPICAL 500kV STEEL LATTICE TOWER





KEY PLAN
NTS

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

no.	date	by	ckd	description

Burns & McDonnell

date: JUNE 1, 2009	detailed: J. KANITZ
designed: J. KANITZ	checked: J. STAHULAK

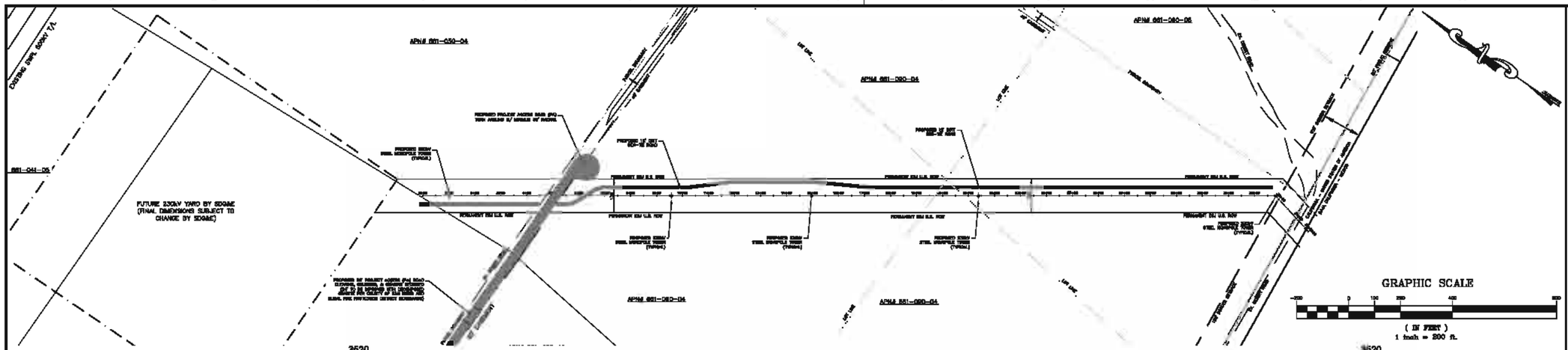
MUP 09-006
KIVA 09-0107420

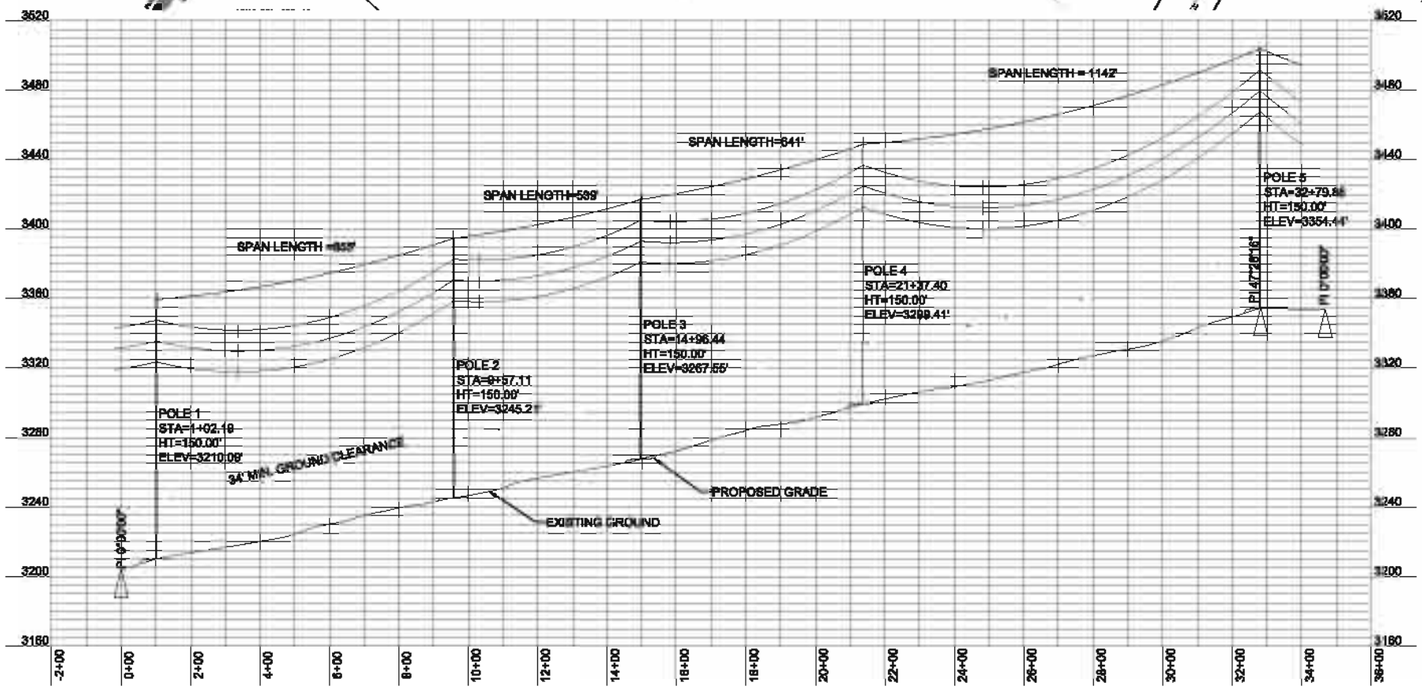
ESJ U.S.
230 kV GEN-TIE LINE ALTERNATIVE
LATTICE TOWER PLAN/PROFILE

project: 52573	contract:
drawing: P03 – rev. 1	
sheet 3 of 10 sheets	
file ESJ-BASE11.DWG	

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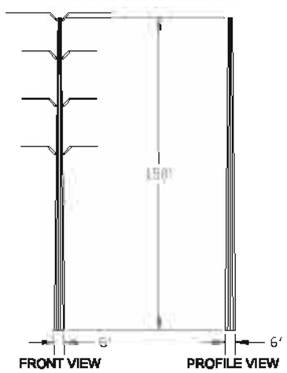
230 kV MONOPOLE PROFILE

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1"=40' VERTICAL

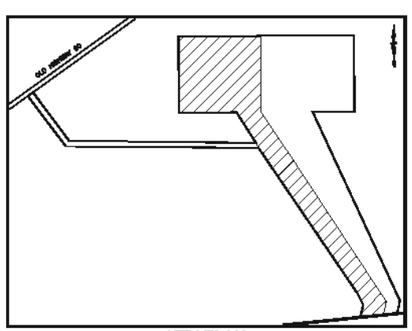
LEGEND

- PROPERTY BOUNDARY LINE
- EASEMENT LINE
- FUTURE SUBSTATION BOUNDARY
- EXISTING DESERT ROAD
- 28' PROJECT ACCESS (PA) ROAD
- 12' PROPOSED GEN-TIE ROAD
- PROPOSED 230kV STEEL MONO-POLE

TYPICAL 230kV STEEL MONOPOLE



PRELIMINARY - NOT FOR CONSTRUCTION



KEY PLAN
NTS

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

no.	date	by	ckd	description

Burns & McDonnell

date: JUNE 1, 2009	detailed: J. KANITZ
designed: J. KANITZ	checked: J. STAHULAK

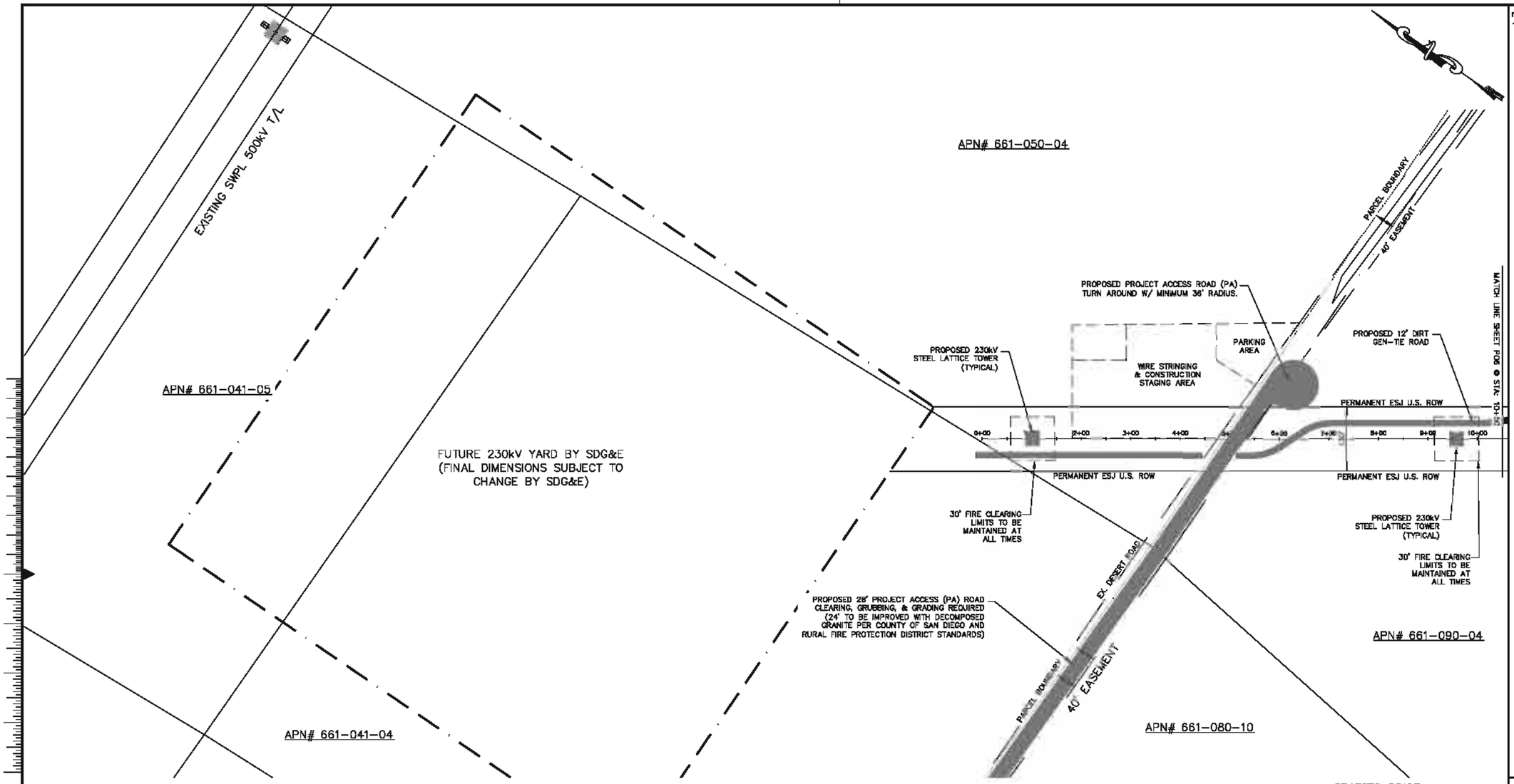
MUP 09-006
KIVA 09-0107420

ESJ U.S.
230 kV GEN-TIE LINE ALTERNATIVE
MONOPOLE PLAN/PROFILE

project: 52573	contract:
drawing: P04	rev.: 1
sheet: 4 of 10 sheets	
file: ESJ-BASE11.DWG	

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SAN DIEGO COUNTY, CA

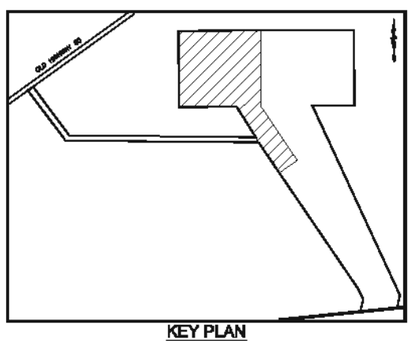
PRELIMINARY - NOT FOR CONSTRUCTION

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

LEGEND

- PROPERTY BOUNDARY LINE
- EASEMENT LINE
- FUTURE SUBSTATION BOUNDARY
- EXISTING DESERT ROAD
- 28' PROJECT ACCESS (PA) ROAD
- 12' PROPOSED GEN-TIE ROAD
- PROPOSED 230kV STEEL LATTICE TOWER
- PROPOSED 230kV STEEL MONO-POLE



KEY PLAN
NTS

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

no.	date	by	ckd	description

Burns & McDonnell

date	JUNE 1, 2009
designed	J. KANITZ
detailed	J. KANITZ
checked	J. STAHULAK

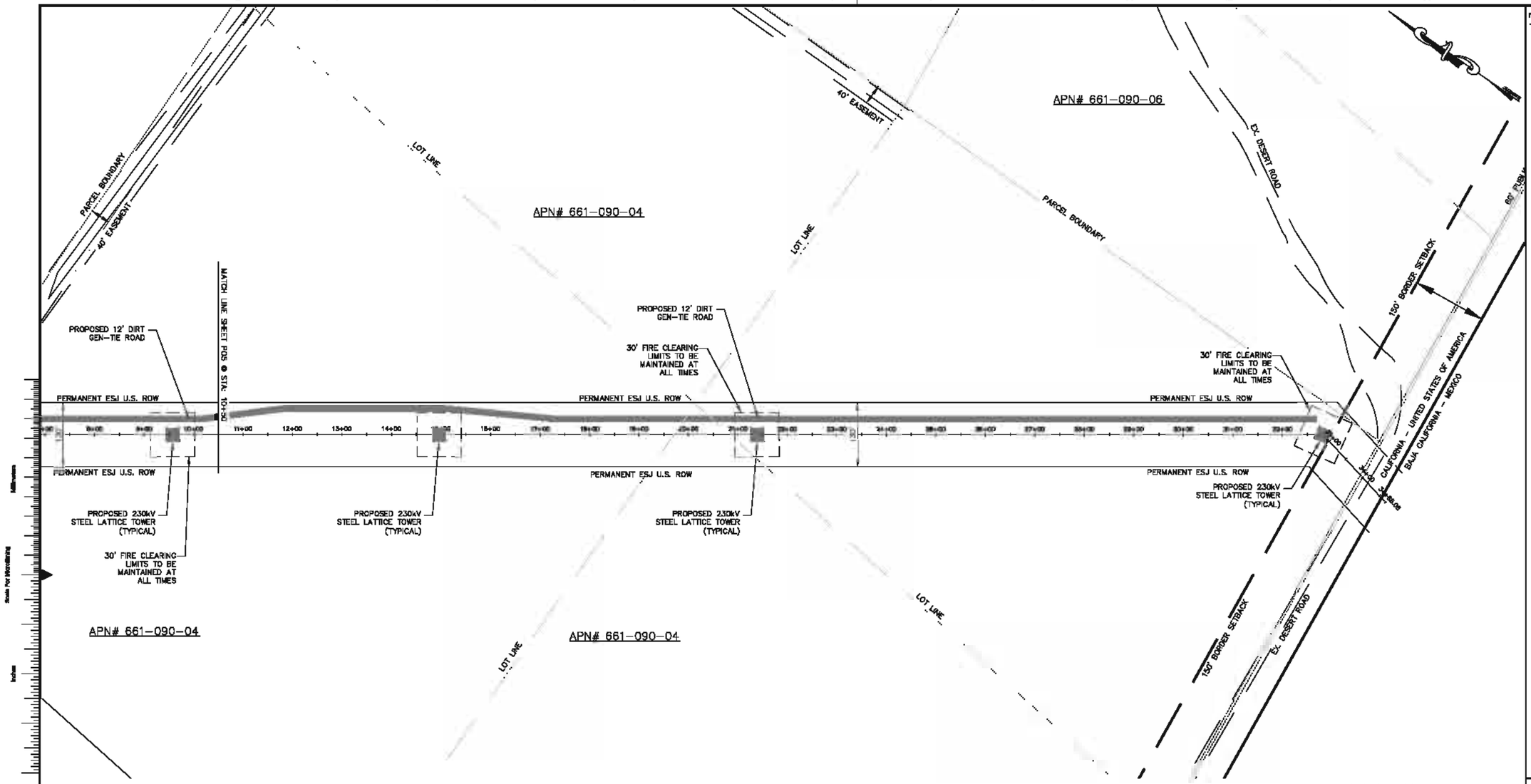
MUP 09-006
KIVA 09-0107420

ESJ U.S.
230 kV GEN-TIE LINE ALTERNATIVE
LAYOUT PLAN

project	52573
contract	
drawing	P05
rev.	1
sheet	5 of 10 sheets
file	ESJ-BASE11.DWG

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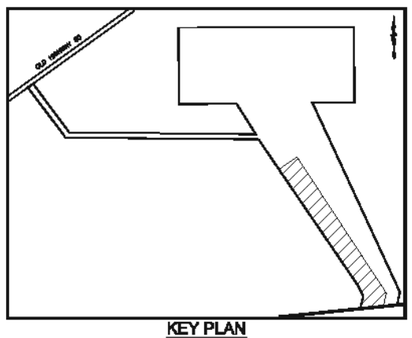
SAN DIEGO COUNTY, CA

PRELIMINARY - NOT FOR CONSTRUCTION

GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.

LEGEND

- PROPERTY BOUNDARY LINE
- EASEMENT LINE
- FUTURE SUBSTATION BOUNDARY
- EXISTING DESERT ROAD
- 28' PROJECT ACCESS (PA) ROAD
- 12' PROPOSED GEN-TIE ROAD
- PROPOSED 230kV STEEL LATTICE TOWER
- PROPOSED 230kV STEEL MONO-POLE



KEY PLAN
NTS

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

no.	date	by	ckd	description

Burns & McDonnell

date	JUNE 1, 2009
designed	J. KANITZ
detailed	J. KANITZ
checked	J. STAHULAK

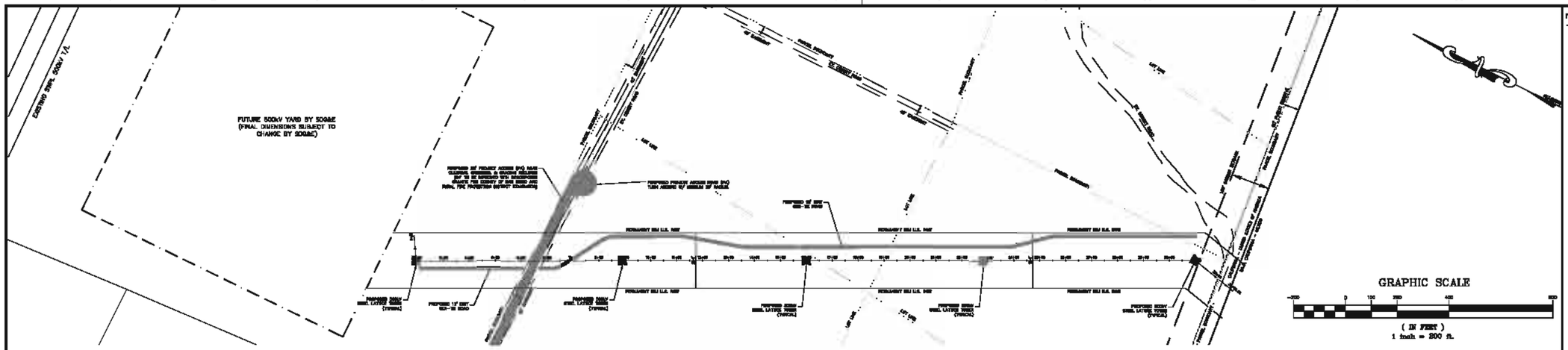
MUP 09-006
KIVA 09-0107420

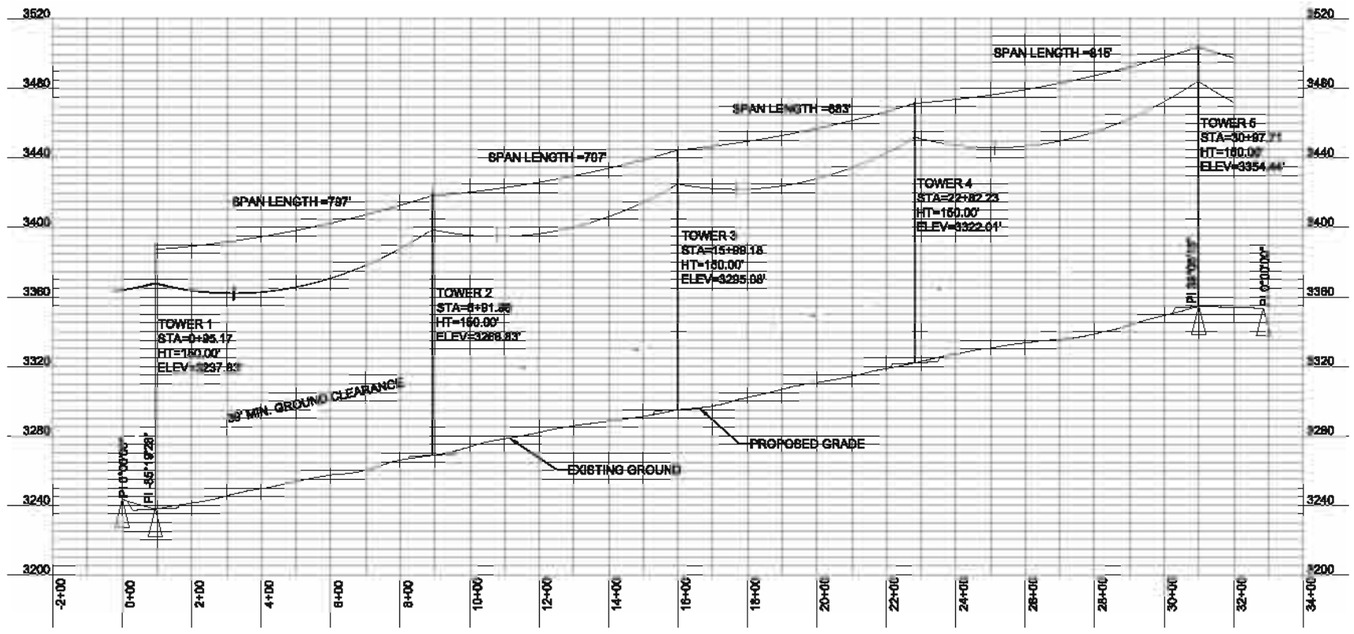
ESJ U.S.
230 kV GEN-TIE LINE ALTERNATIVE LAYOUT PLAN

project	52573
contract	
drawing	P06 – 1
sheet	6 of 10 sheets
file	ESJ-BASE11.DWG

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500 kV LATTICE TOWER PROFILE

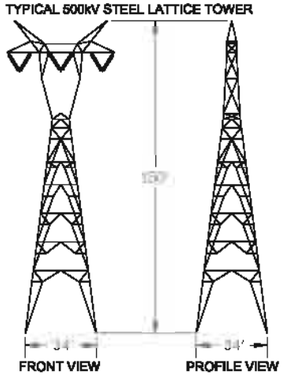
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1"=40' VERTICAL

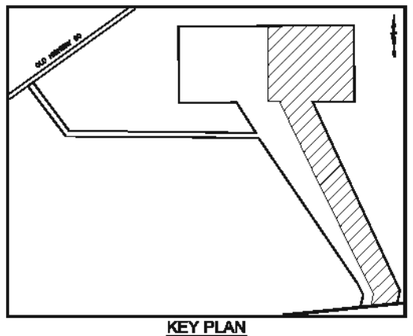
LEGEND

- PARCEL BOUNDARY LINE
- EASEMENT LINE
- FUTURE SUBSTATION BOUNDARY
- EXISTING DESERT ROAD
- 28' PROJECT ACCESS (PA) ROAD
- 12' PROPOSED GEN-TIE ROAD
- PROPOSED 500kV STEEL LATTICE TOWER

PRELIMINARY - NOT FOR CONSTRUCTION

TYPICAL 500kV STEEL LATTICE TOWER





OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

no.	date	by	ckd	description

Burns & McDonnell

date	detailed
JUNE 1, 2009	J. KANITZ
designed	checked
J. KANITZ	J. STAHULAK

MUP 09-006
KIVA 09-0107420

ESJ U.S.
500 kV GEN-TIE LINE ALTERNATIVE
LATTICE TOWER PLAN/PROFILE

project	contract
52573	

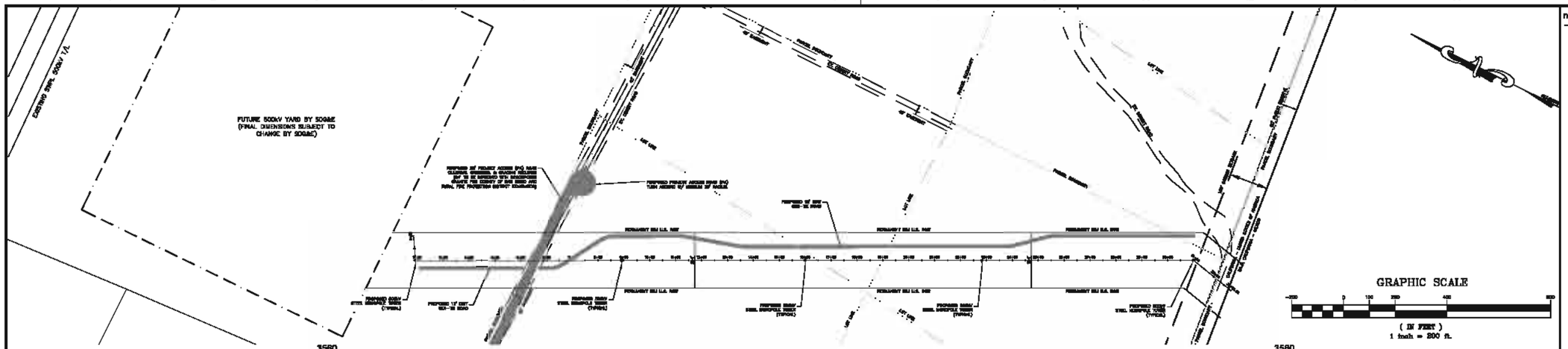
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sheet 7 of 10 sheets

file ESJ-BASE11.DWG

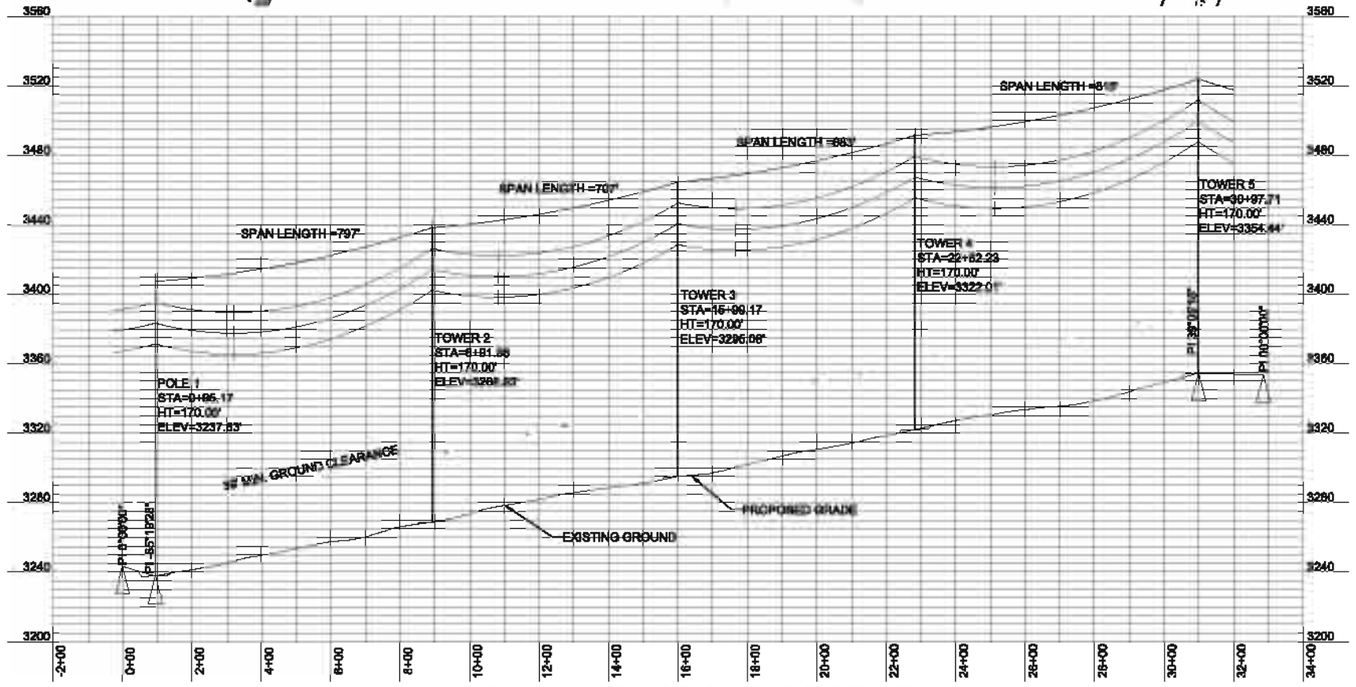
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GRAPHIC SCALE

(IN FEET)
1 inch = 800 ft.



500 kV MONOPOLE PROFILE

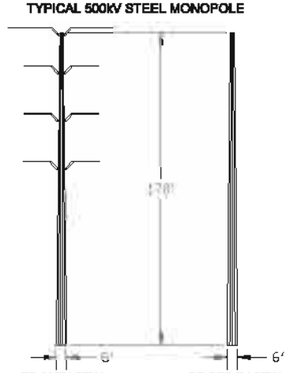
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1"=40' VERTICAL

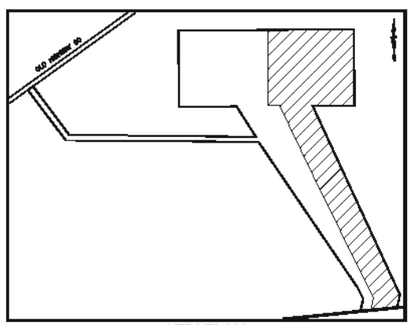
LEGEND

- PROPERTY BOUNDARY LINE
- EASEMENT LINE
- FUTURE SUBSTATION BOUNDARY
- EXISTING DESERT ROAD
- 28' PROJECT ACCESS (PA) ROAD
- 12' PROPOSED GEN-TIE ROAD
- PROPOSED 500kV STEEL MONOPOLE

PRELIMINARY - NOT FOR CONSTRUCTION

TYPICAL 500kV STEEL MONOPOLE





OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

no.	date	by	ckd	description

Burns & McDonnell

date: JUNE 1, 2009	detailed: J. KANITZ
designed: J. KANITZ	checked: J. STAHULAK

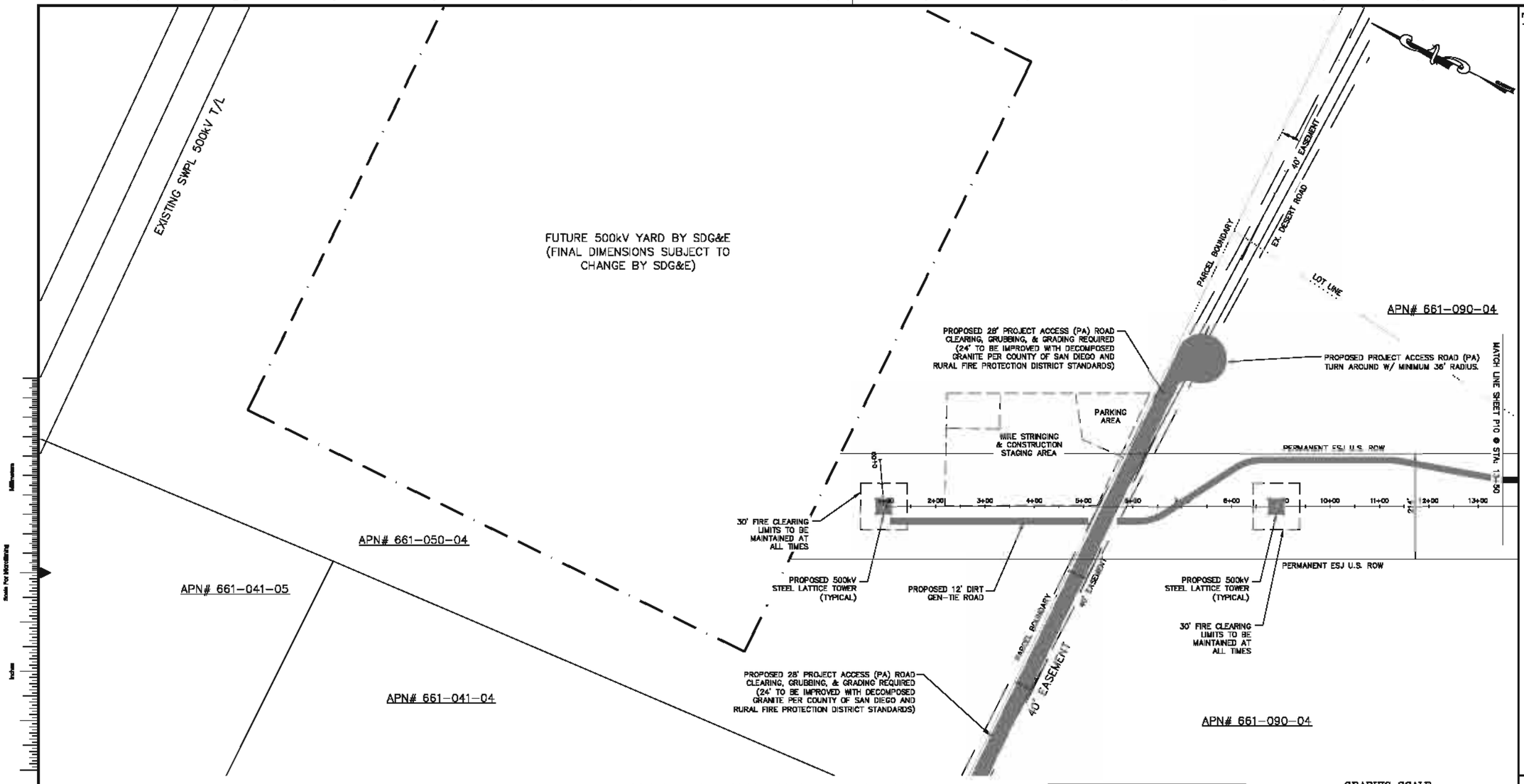
MUP 09-006
KIVA 09-0107420

ESJ U.S.
500 kV GEN-TIE LINE ALTERNATIVE
MONOPOLE TOWER PLAN/PROFILE

project: 52573	contract:
drawing: P08	rev.: 1
sheet: 8 of 10 sheets	
file: ESJ-BASE11.DWG	

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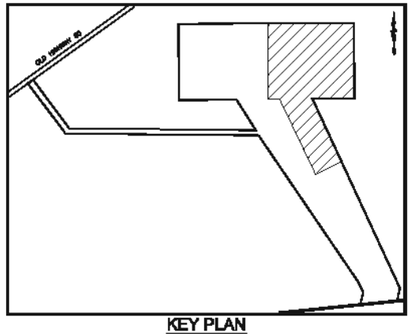
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LEGEND

- PROPERTY BOUNDARY LINE
- EASEMENT LINE
- FUTURE SUBSTATION BOUNDARY
- EXISTING DESERT ROAD
- PROJECT ACCESS (PA) ROAD
- PROPOSED GEN-TIE ROAD
- PROPOSED 500kV STEEL LATTICE TOWER
- PROPOSED 600kV STEEL MONO-POLE

PRELIMINARY - NOT FOR CONSTRUCTION

GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.



KEY PLAN
NTS

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

Burns & McDonnell

date	detailed
JUNE 1, 2009	J. KANITZ
designed	checked
J. KANITZ	J. STAHULAK

MUP 09-006
KIVA 09-0107420

ESJ U.S.
500 kV GEN-TIE LINE ALTERNATIVE LAYOUT PLAN

project	contract
52573	

drawing **P09** – rev. **1**

sheet 9 of 10 sheets

file ESJ-BASE11.DWG

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APN# 661-090-05

40' EASEMENT

PARCEL BOUNDARY

EX. DESERT ROAD

APN# 661-090-04

LOT LINE

PROPOSED PROJECT ACCESS ROAD (PA) TURN AROUND W/ MINIMUM 36' RADIUS.

MATCH LINE SHEET P09 @ STA. 13+50

PROPOSED 12' DIRT GEN-TIE ROAD

30' FIRE CLEARING LIMITS TO BE MAINTAINED AT ALL TIMES

150' BORDER SETBACK

80' PUBLIC RESERVE

CALIFORNIA - UNITED STATES OF AMERICA
BAJA CALIFORNIA - MEXICO

PERMANENT ESJ U.S. ROW

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00

PROPOSED 500kV STEEL LATTICE TOWER (TYPICAL)

APN# 661-090-04

SAN DIEGO COUNTY, CA

PRELIMINARY - NOT FOR CONSTRUCTION

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

LEGEND

- PROPERTY BOUNDARY LINE
- EASEMENT LINE
- FUTURE SUBSTATION BOUNDARY
- EXISTING DESERT ROAD
- 28' PROJECT ACCESS (PA) ROAD
- 12' PROPOSED GEN-TIE ROAD
- PROPOSED 500kV STEEL LATTICE TOWER
- PROPOSED 600kV STEEL MONO-POLE

KEY PLAN
NTS

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

no.	date	by	ckd	description

Burns & McDonnell

date	JUNE 1, 2009
designed	J. KANITZ
detailed	J. KANITZ
checked	J. STAHULAK

MUP 09-006
KIVA 09-0107420

ESJ U.S.
500 kV GEN-TIE LINE ALTERNATIVE LAYOUT PLAN

project	52573
contract	
drawing	P10
rev.	1
sheet	10 of 10 sheets
file	ESJ-BASE11.DWG

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Appendix B.2 Preliminary Grading Plans – Drawings C01 to C08, Revision 1 (June 2009)

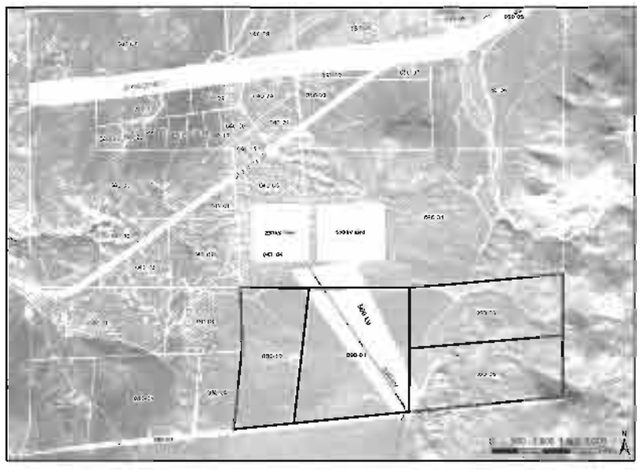
ESJ U.S.

Energia Sierra Juaréz Gen-Tie Line Project
San Diego County, California

June 2009

52573

Preliminary Grading Plans

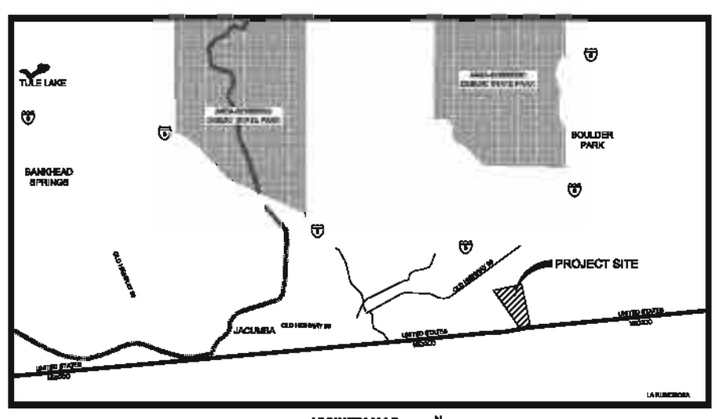


DRAWING LIST

DWG. NO.	REVSION	TITLE
C01	1	COVER-INDEX
C02	1	OVERALL PRELIM. GRADING & EROSION CONTROL PLAN
C03	1	230KV ALTERNATIVE PRELIM. GRADING & EROSION CONTROL PLAN SHEET 1 OF 2
C04	1	230KV ALTERNATIVE PRELIM. GRADING & EROSION CONTROL PLAN SHEET 2 OF 2
C05	1	500KV ALTERNATIVE PRELIM. GRADING & EROSION CONTROL PLAN SHEET 1 OF 2
C06	1	500KV ALTERNATIVE PRELIM. GRADING & EROSION CONTROL PLAN SHEET 2 OF 2
C07	1	GRADING & EROSION CONTROL DETAILS
C08	1	PROJECT DRAINAGE MAP

OWNER: ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LLC. (ESJ U.S.)
101 ASH STREET
HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

ENGINEER: BURNS & MCDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
(816) 333-9400



VICINITY MAP
N.T.S.

PROJECT PARCEL #'s:
APN 661-080-10
APN 661-090-04
APN 661-090-05
APN 661-090-06

ECO SUBSTATION PARCEL #'s:
APN 661-050-04
APN 661-041-04
APN 661-041-05

ACCESS PARCEL #'s:
APN 661-041-03
APN 661-041-02
APN 661-080-08

PRELIMINARY - NOT FOR CONSTRUCTION

NOTE:
DEPICTION OF SDG&E'S ECO SUBSTATION IS APPROXIMATE AND SUBJECT TO FINAL DESIGN BY SDG&E.

NOTE:
THERE ARE TWO SEPERATE GEN-TIE ALTERNATIVES SHOWN WITHIN THESE PLANS, A 230KV ALTERNATIVE AND A 500KV ALTERNATIVE. ONLY ONE OF THE TWO OPTIONS IS TO BE CONSTRUCTED UNDER THIS APPLICATION, BUT THE FINAL ALTERNATIVE IS YET TO BE DETERMINED. FUTURE PLANS WILL BE REVISED TO ONLY INCLUDE THE ALTERNATIVE THAT IS TO BE CONSTRUCTED.

no.	date	by	ckd	description

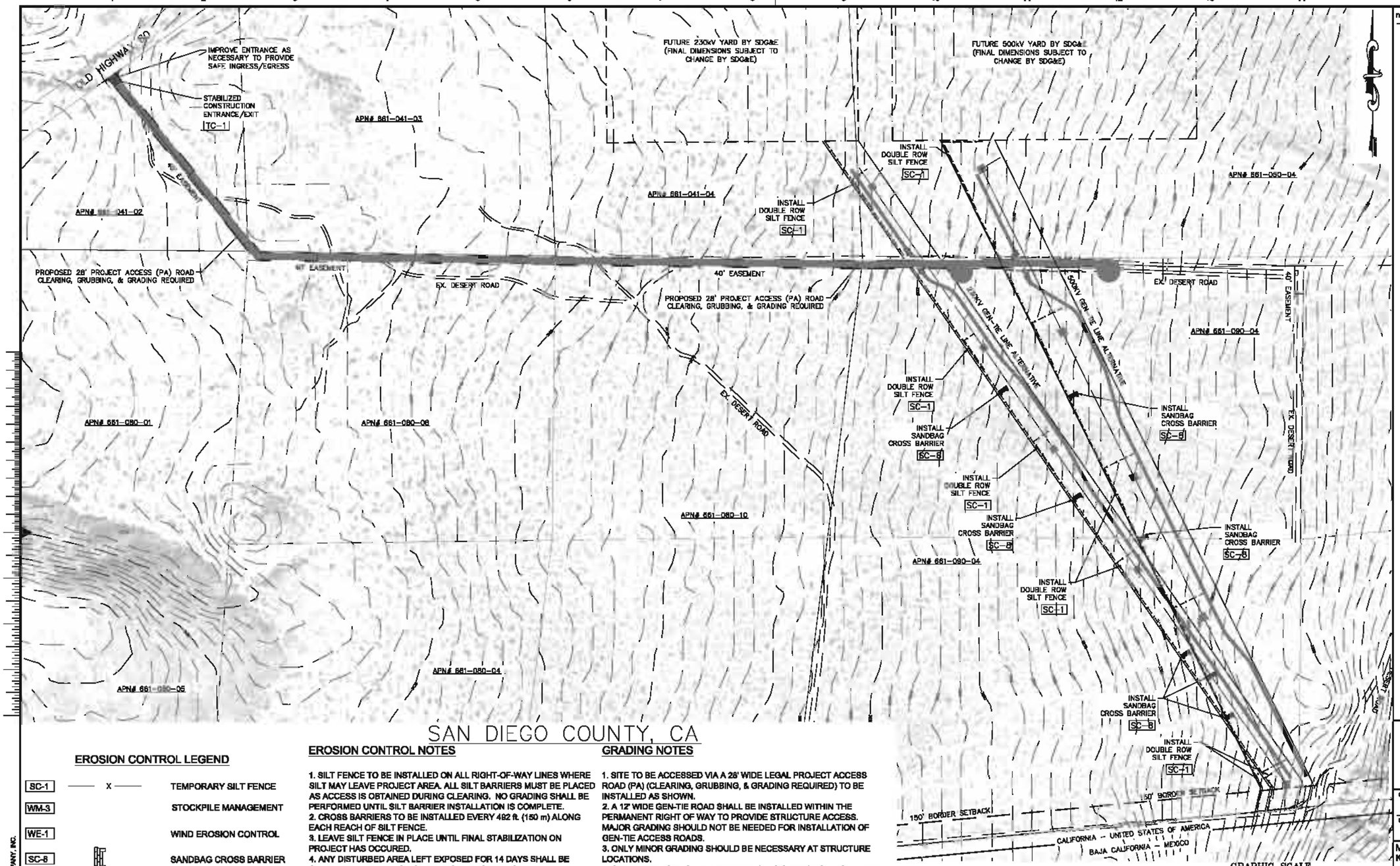
Burns & McDonnell

ESJ U.S. Gen-Tie Line Project
MUP 09-008
KIVA 09-0107420

C01

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SAN DIEGO COUNTY, CA

GRAPHIC SCALE

(IN FEET)
1 inch = 200 ft.

EROSION CONTROL LEGEND

SC-1	—— x ——	TEMPORARY SILT FENCE
WM-3		STOCKPILE MANAGEMENT
WE-1		WIND EROSION CONTROL
SC-6		SANDBAG CROSS BARRIER
TC-1		STABILIZED CONSTRUCTION ENTRANCE/EXIT

*SEE SHEET C07 FOR GRADING & EROSION CONTROL DETAILS

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1. SILT FENCE TO BE INSTALLED ON ALL RIGHT-OF-WAY LINES WHERE SILT MAY LEAVE PROJECT AREA. ALL SILT BARRIERS MUST BE PLACED AS ACCESS IS OBTAINED DURING CLEARING. NO GRADING SHALL BE PERFORMED UNTIL SILT BARRIER INSTALLATION IS COMPLETE.
2. CROSS BARRIERS TO BE INSTALLED EVERY 492 ft. (150 m) ALONG EACH REACH OF SILT FENCE.
3. LEAVE SILT FENCE IN PLACE UNTIL FINAL STABILIZATION ON PROJECT HAS OCCURED.
4. ANY DISTURBED AREA LEFT EXPOSED FOR 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.
5. EROSION CONTROL MEASURES TO BE MAINTAINED AT ALL TIMES.
6. ALL SLOPES STEEPER THAN 3:1 SHALL BE COVERED WITH EROSION CONTROL BLANKET.
7. TO REDUCE WIND EROSION, ALL TEMPORARY DISTURBED AREAS SHALL BE WETTED AS NECESSARY.
8. ALL TEMPORARILY DISTURBED AREAS SHALL BE RE-VEGETATED AFTER CONSTRUCTION IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN, OR AS REQUIRED BY SAN DIEGO COUNTY. A 30' BUFFER WILL REMAIN UNVEGETATED AROUND EACH TOWER FOR FIRE PROTECTION.
9. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED AS SPECIFIED BY THE CALIFORNIA DEPARTMENT OF TRANSPORTATION CONSTRUCTION SITE BMP MANUAL.

GRADING NOTES

1. SITE TO BE ACCESSED VIA A 28' WIDE LEGAL PROJECT ACCESS ROAD (PA) (CLEARING, GRUBBING, & GRADING REQUIRED) TO BE INSTALLED AS SHOWN.
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3. ONLY MINOR GRADING SHOULD BE NECESSARY AT STRUCTURE LOCATIONS.
4. SEE EARTHWORK SUMMARY TABLE (THIS SHEET) FOR A SUMMARY OF THE PROJECT EARTHWORK.
5. TOPOGRAPHIC INFORMATION BASED ON U.S.G.S. NATIONAL ELEVATION DATA SET.

EARTHWORK SUMMARY

TASK	230 kV ALTERNATIVE	500 kV ALTERNATIVE
PROJECT ACCESS ROAD	10,852 CY (CUT) 1,550 CY (FILL) 9,302 CY (NET EXPORT)	14,729 CY (CUT) 2,602 CY (FILL) 12,127 CY (NET EXPORT)
GEN TIE ROADS	BALANCED (NO NET IMPORT/EXPORT)	BALANCED (NO NET IMPORT/EXPORT)
PAD GRADING	910 CY (IMPORT)	680 CY (IMPORT)
FOUNDATION EXCAVATION	300 CY (EXPORT)	600 CY (EXPORT)
NET PROJECT EARTHWORK	8,692 CY (EXPORT)	12,147 CY (EXPORT)

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

PRELIMINARY - NOT FOR CONSTRUCTION

no.	date	by	ckd	description

Burns & McDonnell

date JUNE 1, 2009	detailed J. KANITZ
designed J. KANITZ	checked J. STAHULAK

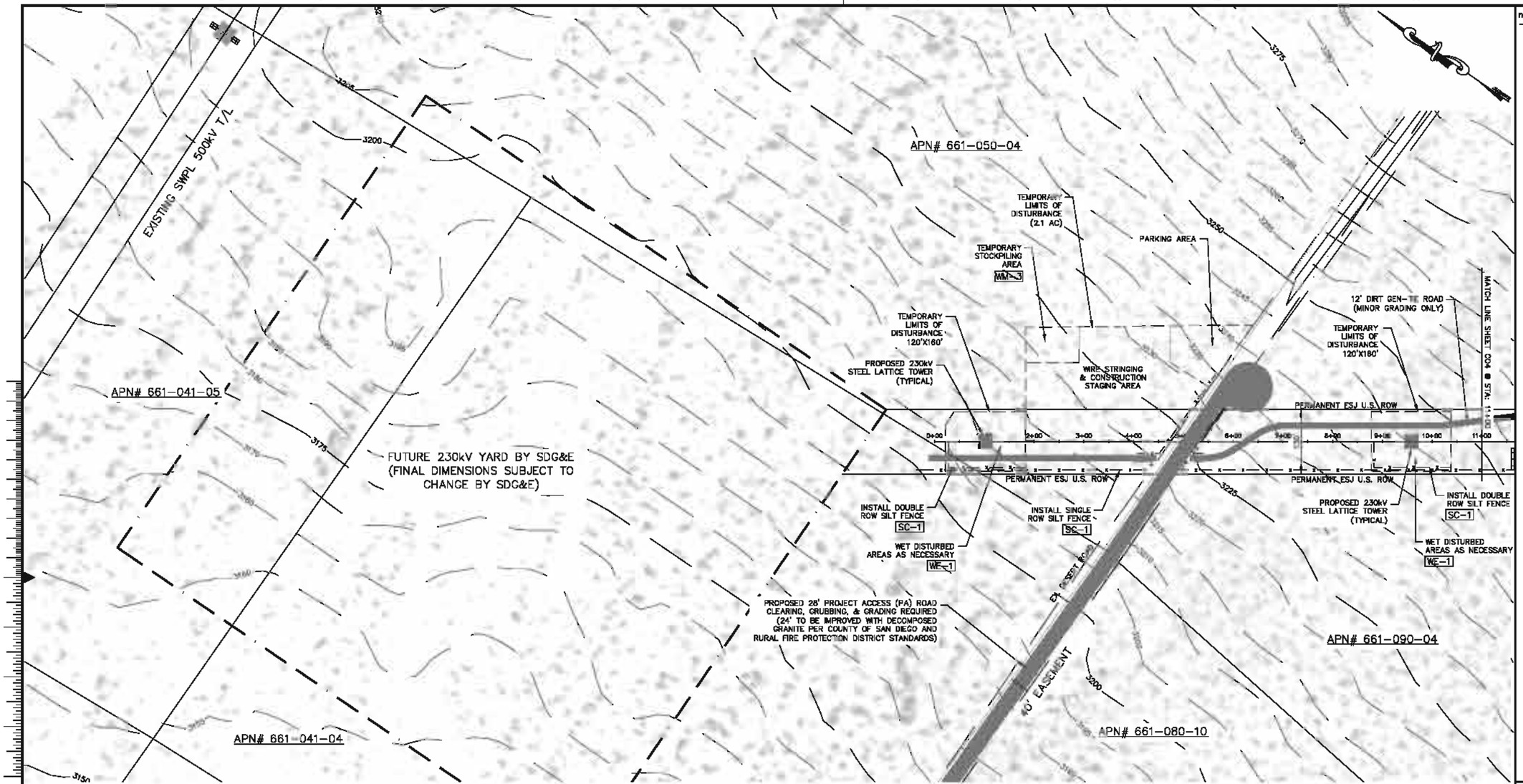
MUP 09-006
KIVA 09-0107420

ESJ U.S.
230kV & 500kV GEN-TIE LINE ALTERNATIVES
OVERALL PRELIMINARY GRADING & EROSION CONTROL PLAN

project 52573	contract
drawing C02	rev. 1
sheet 2 of 8 sheets	
file ESJ-BASE11.DWG	

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SAN DIEGO COUNTY, CA

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

EROSION CONTROL LEGEND

SC-1	x	TEMPORARY SILT FENCE
WM-3		STOCKPILE MANAGEMENT
WE-1		WIND EROSION CONTROL
SC-6		SANDBAG CROSS BARRIER
TC-1		STABILIZED CONSTRUCTION ENTRANCE/EXIT

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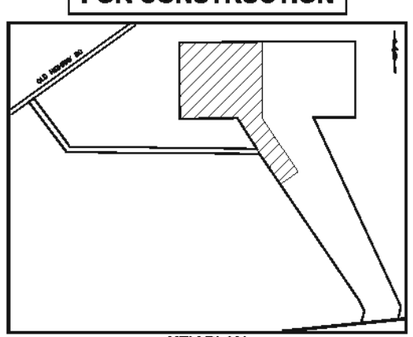
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5. TOPOGRAPHIC INFORMATION BASED ON U.S.G.S. NATIONAL ELEVATION DATA SET.

PRELIMINARY - NOT FOR CONSTRUCTION



KEY PLAN
NTS

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

Burns & McDonnell

no.	date	by	ckd	description

date	detailed
JUNE 1, 2009	J. KANITZ
designed	checked
J. KANITZ	J. STAHULAK

MUP 09-006
KIVA 09-0107420

ESJ U.S.
230 kV GEN-TIE LINE ALTERNATIVE
PRELIMINARY GRADING & EROSION CONTROL PLAN

project	contract
52573	

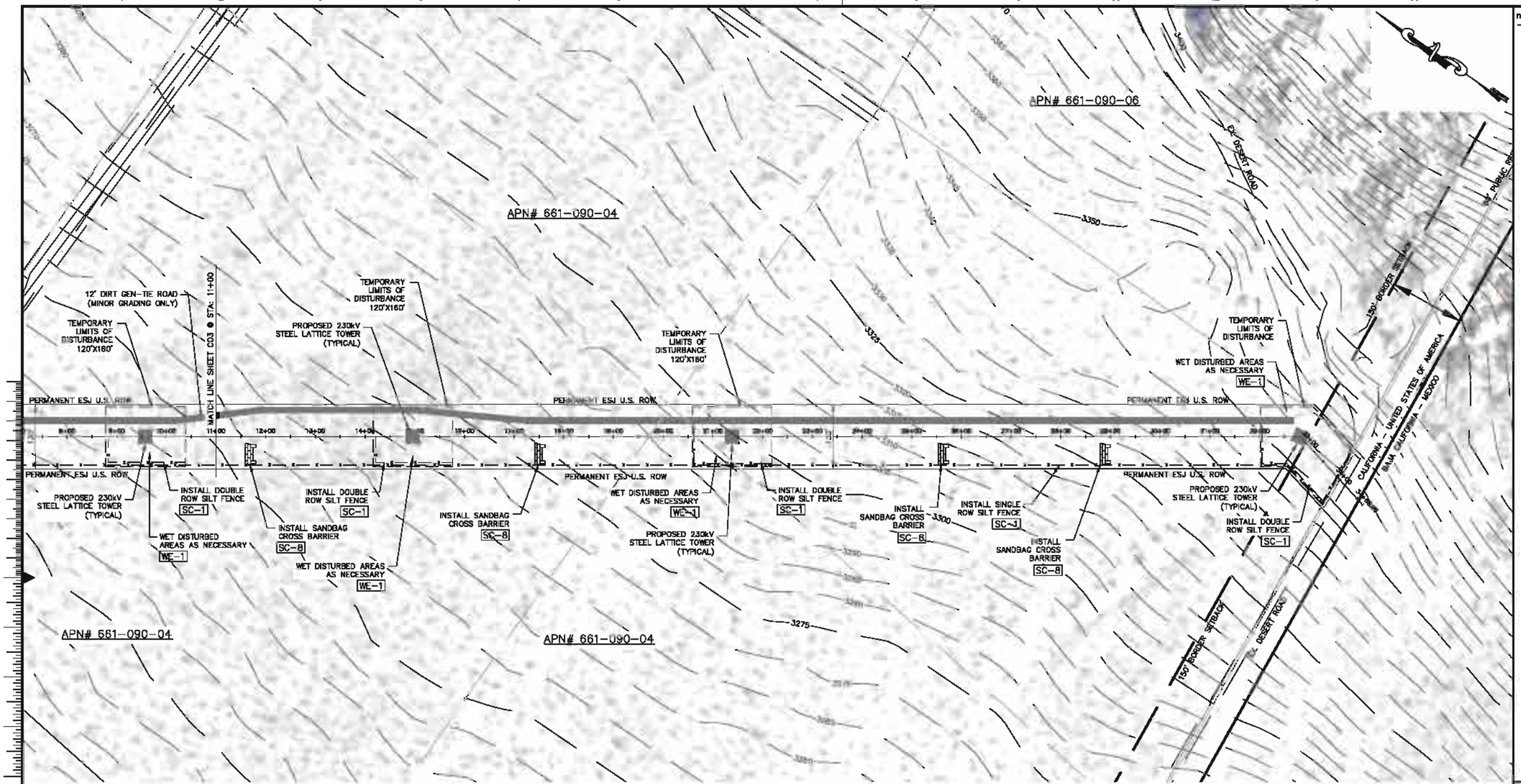
drawing C03 – rev. 1

sheet 3 of 8 sheets

file ESJ-BASE11.DWG

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EROSION CONTROL LEGEND

SC-1	x	TEMPORARY SILT FENCE
WM-3		STOCKPILE MANAGEMENT
WE-1		WIND EROSION CONTROL
SC-8		SANDBAG CROSS BARRIER
TC-1		STABILIZED CONSTRUCTION ENTRANCE/EXIT

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SAN DIEGO COUNTY, CA

EROSION CONTROL NOTES

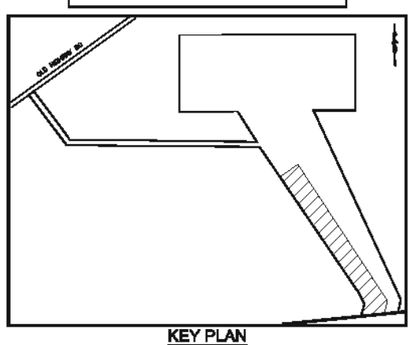
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PRELIMINARY - NOT FOR CONSTRUCTION

GRAPHIC SCALE
(IN FEET)
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KEY PLAN
NTS

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

no.	date	by	ckd	description

Burns & McDonnell

date: JUNE 1, 2009	detailed: J. KANITZ
designed: J. KANITZ	checked: J. STAHULAK

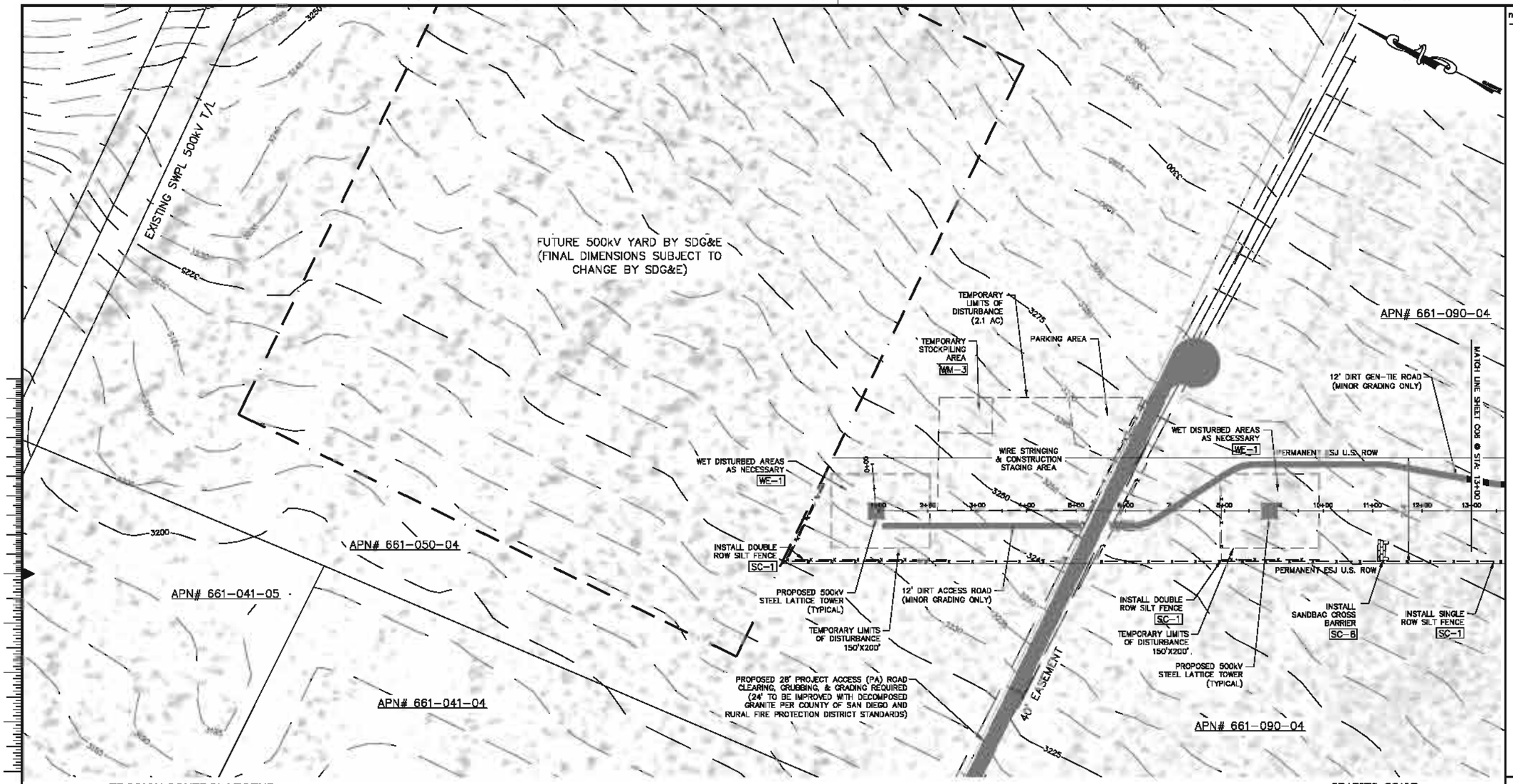
MUP 09-006
KIVA 09-0107420

ESJ U.S.
230 kV GEN-TIE LINE ALTERNATIVE
PRELIMINARY GRADING & EROSION CONTROL PLAN

project: 52573	contract:
drawing: C04 –	rev.: 1
sheet: 4 of 8 sheets	
file: ESJ-BASE11.DWG	

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SAN DIEGO COUNTY, CA

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

EROSION CONTROL LEGEND

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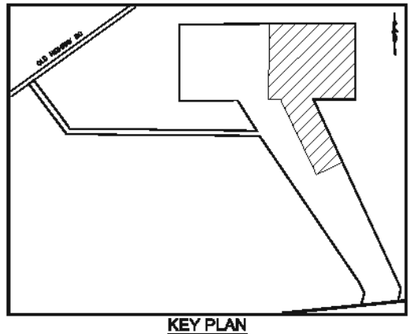
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PRELIMINARY - NOT FOR CONSTRUCTION



KEY PLAN
NTS

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

no.	date	by	ckd	description

Burns & McDonnell

date JUNE 1, 2009	detailed J. KANITZ
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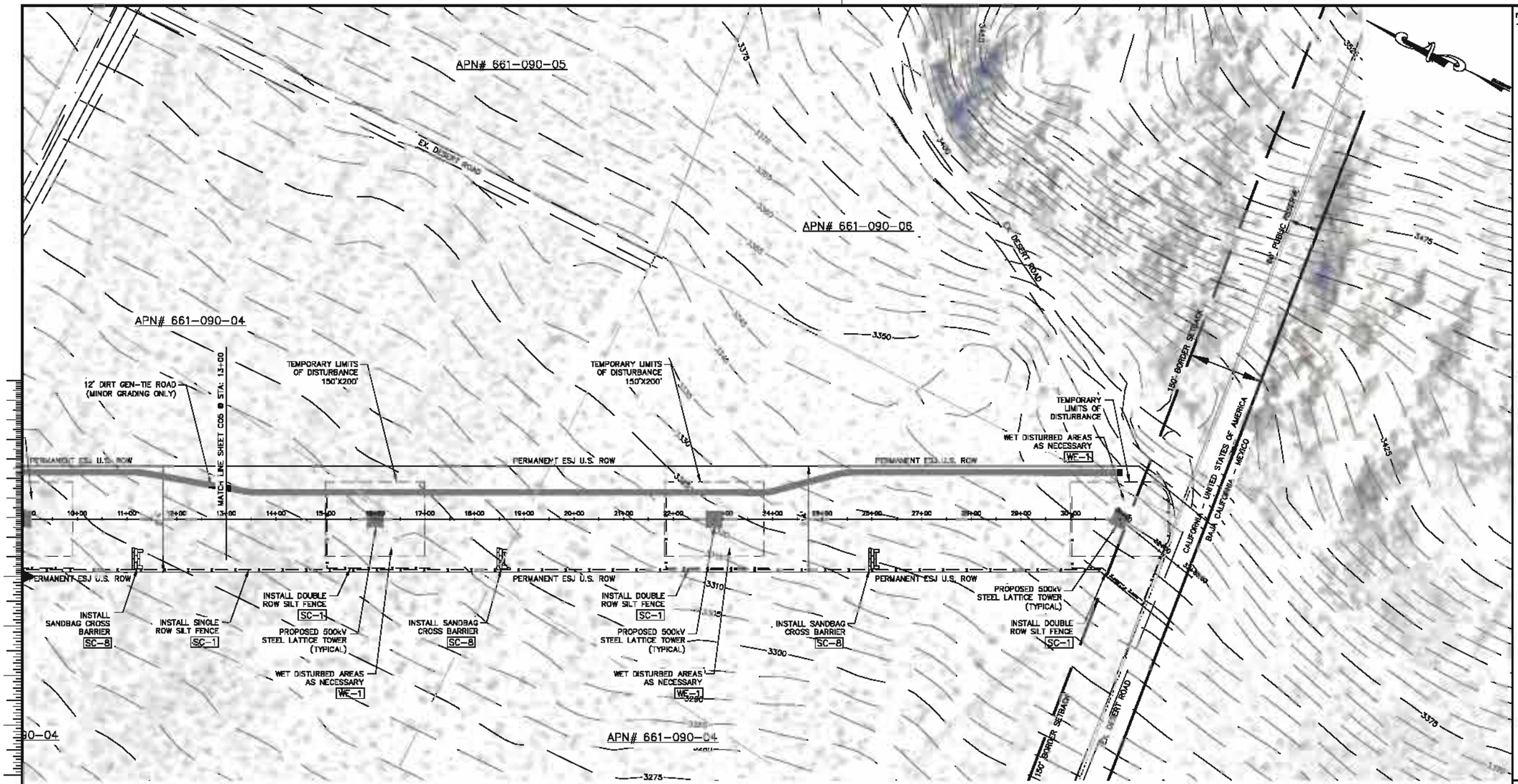
MUP 09-006
KIVA 09-0107420

ESJ U.S.
500 kV GEN-TIE LINE ALTERNATIVE
PRELIMINARY GRADING & EROSION CONTROL PLAN

project 52573	contract
drawing C05	rev. 1
sheet 5 of 8 sheets	
file ESJ-BASE11.DWG	

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SAN DIEGO COUNTY, CA

EROSION CONTROL LEGEND

SC-1	x	TEMPORARY SILT FENCE
WM-3		STOCKPILE MANAGEMENT
WE-1		WIND EROSION CONTROL
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EROSION CONTROL NOTES

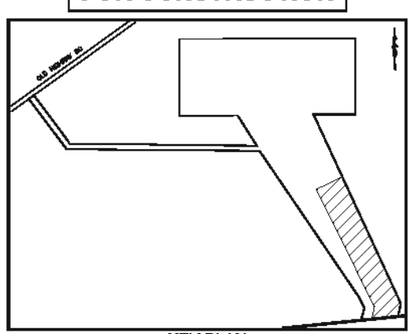
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GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.

PRELIMINARY - NOT FOR CONSTRUCTION



no.	date	by	ckd	description

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

Burns & McDonnell

date	detailed
JUNE 1, 2009	J. KANITZ
designed	checked
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MUP 09-006
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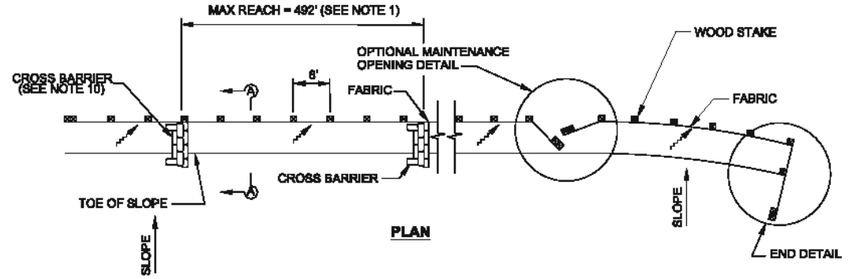
ESJ U.S.
500 kV GEN-TIE LINE ALTERNATIVE
PRELIMINARY GRADING & EROSION CONTROL PLAN

project	contract
52573	

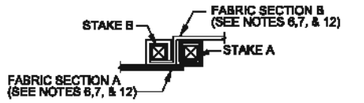
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sheet 6 of 8 sheets
file ESJ-BASE11.DWG

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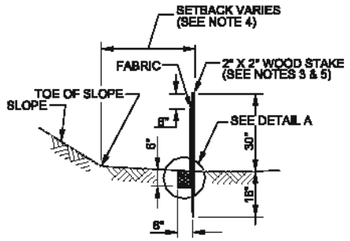
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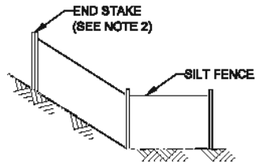
JOINING SECTION DETAIL (TOP VIEW)



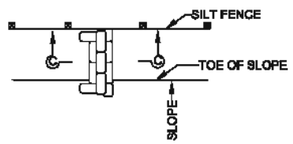
END STAKE DETAIL (TOP VIEW)



SECTION A-A

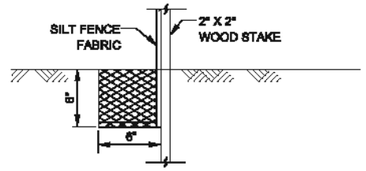


END DETAIL



CROSS BARRIER DETAIL

SECTION C-C



DETAIL A

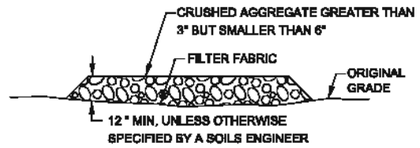
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SC-1 **TEMPORARY LINEAR SEDIMENT BARIER (TYPE SILT FENCE)**

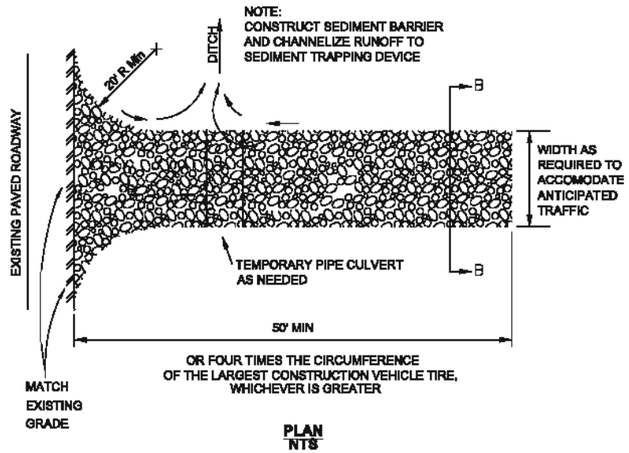
NO SCALE

NOTES

1. CONSTRUCT THE LENGTH OF EACH REACH SO THAT THE CHANGE IN BASE ELEVATION ALONG THE REACH DOES NOT EXCEED ⅓ THE HEIGHT OF THE LINEAR BARRIER, IN NO CASE SHALL THE REACH LENGTH EXCEED 492'.
2. THE LAST 8' OF FENCE SHALL BE TURNED UP SLOPE.
3. STAKE DIMENSIONS ARE NOMINAL.
4. DIMENSIONS MAY VARY TO FIT FIELD CONDITION.
5. STAKES SHALL BE SPACED AT 8' MAXIMUM AND SHALL BE POSITIONED ON DOWNSTREAM SIDE OF FENCE.
6. STAKES TO OVERLAP AND FENCE FABRIC TO FOLD AROUND EACH STAKE ONE FULL TURN. SECURE FABRIC TO STAKE WITH 4 STAPLES.
7. STAKES SHALL BE DRIVEN TIGHTLY TOGETHER TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT. THE TOPS OF THE STAKES SHALL BE SECURED WITH WIRE.
8. FOR END STAKE, FENCE FABRIC SHALL BE FOLDED AROUND TWO STAKES ONE FULL TURN AND SECURED WITH 4 STAPLES.
9. MINIMUM 4 STAPLES PER STAKE. DIMENSIONS SHOWN ARE TYPICAL..
10. CROSS BARRIERS SHALL BE A MINIMUM OF ⅓ AND A MAXIMUM OF ½ THE HEIGHT OF THE LINEAR BARRIER.
11. MAINTENANCE OPENINGS SHALL BE CONSTRUCTED IN A MANNER TO ENSURE SEDIMENT REMAINS BEHIND SILT FENCE.
12. JOINING SECTIONS SHALL NOT BE PLACED AT SUMP LOCATIONS.
13. SANDBAG ROWS AND LAYERS SHALL BE OFFSET TO ELIMINATE GAPS.



SECTION B-B
NTS



PLAN
NTS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TC-1 **STABILIZED CONSTRUCTION ENTRANCE/EXIT (TYPE I)**

NO SCALE

no.	date	by	ckd	description

Burns & McDonnell

date	detailed
JUNE 1, 2009	J. KANITZ
designed	checked
J. KANITZ	J. STAHULAK

MUP 09-006
KIVA 09-0107420

ESJ U.S.
GEN-TIE LINE
GRADING & EROSION CONTROL DETAILS

project	contract
52573	

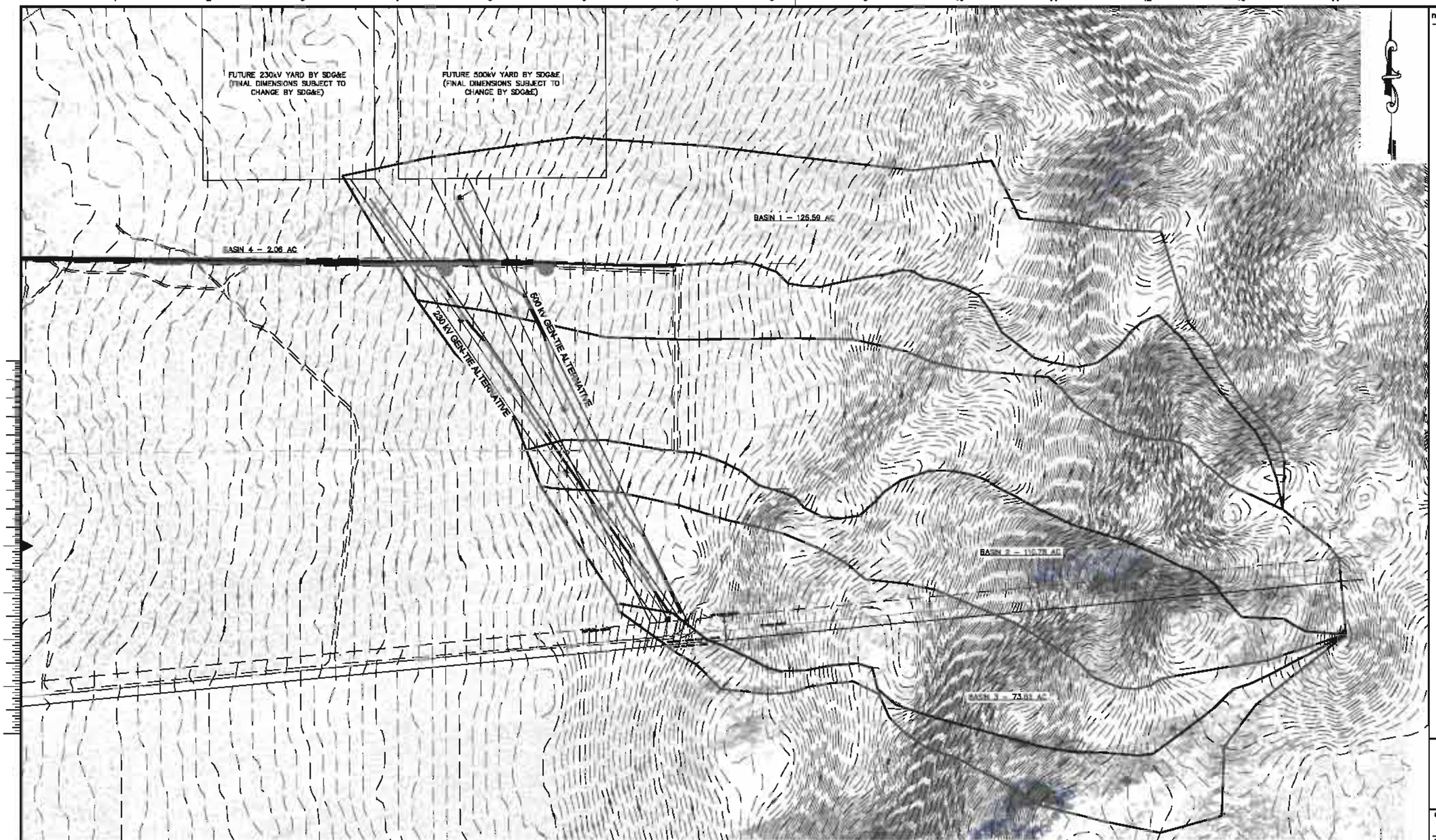
drawing C07 – rev. 0

sheet 7 of 8 sheets

file ESJ-BASE11.DWG

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BASIN ANALYSIS

BASIN #	AREA(Ac)	Post Dev CN	10 YR PRE-DEVELOPED Q (c.f.s)	10 YR POST-DEVELOPED Q (c.f.s)
1.	146.01	64.3	10.04	10.04
2.	159.53	72.5	40.03	40.03
3.	92.27	75.8	34.62	34.62
4.	2.06	67.3	.049	.197

NOTE: THE PROPOSED DEVELOPMENT HAS NO SIGNIFICANT DOWNSTREAM IMPACT. THE SMALL AMOUNT OF IMPERVIOUS SURFACE ADDED IS NOT LARGE ENOUGH TO AFFECT THE POST-DEVELOPED CN, AND THEREFORE DOES NOT INCREASE THE POST-DEVELOPED RUNOFF (Q). FOR FURTHER INFORMATION REFER TO THE FULL HYDROLOGY REPORT.

SAN DIEGO COUNTY, CA

GRAPHIC SCALE

(IN FEET)
1 inch = 300 ft.

OWNER:
ESJ U.S. TRANSMISSION LLC.
101 ASH STREET HQ #14
SAN DIEGO, CA 92101
(619) 696-2121

24-HR CONTACT: TBD

no.	date	by	ckd	description

Burns & McDonnell

date	detailed
JUNE 1, 2009	J. KANITZ
designed	checked
J. KANITZ	J. STAHULAK

MUP 09-006
KIVA 09-0107420

ESJ U.S.

PROJECT DRAINAGE MAP

project	contract
52573	

drawing C08 – rev. 1

sheet 8 of 8 sheets

file ESJ-BASE11.DWG

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Appendix B.3 Estimated Equipment and Vehicle Requirements and Utilization Table

Appendix B.3
Estimated Equipment and Vehicle Requirements and Utilization

Activity	Equipment and Vehicle				Working Days	Daily Hours	Daily VMT
	Type	Category	BHP	Qty			
Survey Sites	Pickup truck	On-road LD		1	6		50
Worker Commuting	Pickup truck	On-road LD		20	54		1,000
Marshalling Yards	Pickup truck	On-road LD		3	54		150
	Water truck	On-road HHD		1	54		50
	Tractor truck w/trailer	On-road HHD		1	48		50
	Hydraulic crane, 25 ton	Off-road	300	1	36	3.33	
	Loader, model 980	Off-road	300	1	48	3.75	
	Forklift, 5 ton	Off-road	155	1	48	3.75	
	Portable generator	Off-road	5	1	48	3.75	
Grading & Road Work	Pickup truck	On-road LD		2	12		100
	Water truck	On-road HHD		1	12		50
	Bulldozer	Off-road	285	1	12	8	
	Roller	Off-road	80	1	12	8	
Foundations	Pickup truck	On-road LD		2	12		100
	Water truck	On-road HHD		1	12		50
	Concrete truck	On-road HHD		2	12		200
	Drill rig	Off-road	600	1	12	10	
Steel Assembly & Erection	Pickup truck	On-road LD		3	12		150
	Water truck	On-road HHD		1	12		50
	Tractor truck w/trailer	On-road HHD		1	12		50
	Crane, 40 ton	Off-road	350	1	12	10	
	Air compressor	Off-road	75	1	12	10	
	Portable generator	Off-road	5	1	12	10	
Conductor Installation	Pickup truck	On-road LD		2	12		100
	Water truck	On-road HHD		1	12		50
	Flatbed truck w/reels	On-road MD		1	12		50
	Rigging truck	On-road MD		5	12		250
	Dump truck	On-road HHD		1	6		50
	Puller tensioner	Off-road	165	1	12	10	
	Splice rig	Off-road	300	1	6	10	
	Portable generator	Off-road	5	1	12	10	
Cleanup	Pickup truck	On-road LD		2	12		100

Notes:
LD = light duty; MD = medium duty; HHD = heavy heavy duty; BHP = brake horsepower; VMT = vehicle miles traveled
Construction activities occur 6 days per week maximum; daily operating hours and daily VMT are maximum estimates.
Source: Sempra 2009, as cited in EDAW 2009d.

Appendix B.4 Short Form Fire Protection Plan (September 10, 2009)

Hunt Research Corporation
9-10-09 *Founded 1979*
JAMES W. HUNT, President

David Nissen
Fire Chief
Rural Fire Protection District
14145 Campo Rd (Highway 94)
Jamul Calif 91935

County of San Diego
Department of Planning and Land Use
Paul Dawson
County Fire Marshal
5201 Ruffin Road, Suite B
San Diego Cal 92123

Gentlemen:

Subject: **SHORT FORM FIRE PROTECTION PLAN; LETTER REPORT; REVISED.**
Energia Sierra Juarez U.S. Transmission Gen-Tie Project (ESJ Gen-Tie.); Jacumba

1.INTRODUCTION:

This revised Fire Protection Plan letter report is being submitted as an evaluation, pursuant to the requirement of the Rural Fire Protection District (RFPD) Fire Chief, and the County DPLU, of the adverse environmental effects that the proposed Energia Sierra Juarez Gen-Tie (ESJ Gen-Tie) project may have from wildland fire and mitigation of those impacts to ensure that the project does not unnecessarily expose people or structures to a significant risk of loss, injury or death involving wildland fires. The use of the short form Fire Protection Plan has been approved by RFPD Fire Chief David Nissen, and by the DPLU County Fire Marshal, Paul Dawson. Revisions in the original plan, dated 5-22-09, have been made in this edition to comply with the comments of 7-15-09, from the DPLU Fire Marshal. The RFPD has approved this Fire Protection Plan.

Emergency Response:

The project is within in the Rural Fire Protection District, who is the "Authority Having Jurisdiction". Staffing is by CALFIRE. Initial response is provided from Fire Station 43 at 1255 Jacumba Street, in Jacumba. Response distance is approximately 4 miles. The staffing currently includes two firefighters 24/7 year around plus 4 volunteers. This station has the following apparatus: A 1,000 GPM structural fire engine and a 1,800-gallon water tender. This station currently responds to about 7-10 calls per week. The additional responding Fire Companies for emergencies, are:

POST OFFICE BOX 291 • SOLVANG, CALIFORNIA 93464 • PHONE: (805) 688-4625 • 1-800-737-2826 • FAX: (805) 688-0275
E MAIL: jhunt2@gte.net WEBSITE: www.huntresearch.com

- CDF Whitestar Fire Station in Campo (staffed 24-7; CDF Schedule A contract).
- Campo Indian Reservation Fire Department.
- Boulevard Volunteer Fire Department; Volunteer.

The next closest Rural Fire Protection District Fire Engine is Lake Moreno, which is about a 20-minute response. This is also a volunteer Fire Station.

Other Fire Companies are available as needed per the County and State Mutual Aid response agreements.

2. PROJECT DESCRIPTION:

The ESJ Gen-Tie project is a high voltage generator tie line to connect new renewable wind power in Northern Baja Mexico into the existing Southwest Power Link transmission line. The line would be either a single circuit 500 kV line or double circuit 230 kV line, a fiber optic line, and a grounding cable, supported on steel lattice or steel monopole towers. Towers have a concrete base. There would be 3 to 5 structures up to about 150' high for lattice towers and up to 170' high for monopoles. There are no buildings. The Right of Way (ROW) is less than 1 mile long from the International Border to the terminus in the U.S. at a proposed San Diego Gas and Electric Co. (SDG&E) East County substation (ECO Substation). The ECO substation is 3.75 miles east of Jacumba, and is south of the Old Highway 80. The facilities in Mexico are out of the scope of this report and the proposed SDG&E substation would be subject to separate fire protection approvals

3. ENVIRONMENTAL SETTING:

Location:

The site is in the O Neil Valley, approximately four miles Southeast of Jacumba and adjoining the border. This is Thomas Guide page # 430. It is approximately 2 miles southeast of the closest stick built structures. There is a trailer 0.28 miles southwest of the proposed 230 KV Gen-Tie line. The State CALFIRE FRAP fire hazard classification maps classify this area as a "Very High Fire Hazard Area".

Topography:

The average slope of the property is less than 15%. The actual Right of Way appears to be substantially flat with a slight sloping. There are no hills on the right of way. There are hills offsite.

Geology:

Soil in the ROW appears to be dirt. The legal property access road would be a 24-foot wide dirt road, with a DG surface (see Section 5 below) leading from Old Highway 80 to the power line tie in to the future SDG&E substation.

Flammable Vegetation:

The vegetation on site is considered Semi-desert Chaparral. It appears to be a BEHAVE fuel model SH-2. It is observed to be about one foot high with some jackpots that are about five foot high. It has some spacing between vegetation. Refer to site photos attached.

Climate:

The temperatures in this area can reach an extreme maximum temperature between July and October. The maximum recorded temperature occurred in July, with a temperature of about 112 degrees f. Average maximum temperature in July-September was 92 degrees f in August. Winds used in the fire models were 50 mph at 20' for a fall fire and a 20-foot wind speed of 25 mph for a summer fire. Therefore wind driven fires can occur in times when weather is hot and fuel moistures are low. A 1000-acre fire started in Mexico burned across this site in 2006. Flame lengths were reportedly about 15'.

Environmental Issues:

EDAW, Inc, the Biology and Archeology consultant for ESJ U.S., reports that there is sensitive habitat (vegetation and wildlife) present in the Right Of Way. They also state there are Cultural sites in the Right of Way. Therefore, per EDAW, fuel modification cannot be done in areas of the Cultural sites, and machinery cannot be used for fuel modification along the ROW. Fuel Modification (other than the 30' around towers which would be done) cannot be done without providing required offsetting mitigation.

4. WATER SUPPLY:

There are no buildings involved in this project and therefore there are no water requirements.

5.ACCESS ROADS:

Location:

The Fire access road would be off Old Highway 80, and would be a dirt road. It will be a twenty eight foot (28') graded width which shall be improved to about 24' in width with decomposed granite (DG) where it connects from old Highway 80 to the power line tie in (this project) to the future SDG&E substation. A turnaround will be required within 150' of the termination of the road at the substation. Consultant recommends that this

preferably be at the termination of the road. A 20' wide, dirt, access road will be provided along the right of way for maintenance of the Gen-Tie line and for patrolling of the property. Road grade on the roads is estimated to be less than 10%.

6. BUILDING CONSTRUCTION:

There will be no buildings in the scope of this project. There will only be steel towers and electrical lines. The closest structures are a trailer about 0.28 mile southwest of the property, and stick built structures about 2 miles west. The town of Jacumba is 3.75 miles west.

7. FENCING:

There will be no fencing.

8.FIRE PROTECTION SYSTEMS:

There are no buildings in this project so there are no Fire Protection systems required or necessary.

9.AIR OPERATIONS:

The applicant shall obtain letters of approval from CALFIRE Air operations, due to the potential for the operation of CALFIRE aircraft in the area during a fire. In addition, there is a small airport in Jacumba. The towers will need to comply with any applicable FAA regulations, and may need warning lights on them due to proximity of the airport and the potential for Firefighting aircraft to operate in the area.

10.DEFENSIBLE SPACE:

Per this Fire Protection Plan, this site will have 30 feet (30') of fuel modification on all sides of the towers. Within that 30 feet (30'), the area may be cleared, concreted, graveled or vegetation would be cut to 6 inches (6") high.

The PRC, Sections 4292 and 4293 Code require 10-foot (10') clearance from base of poles (or towers) and 10 feet (10') between vegetation and wires.

In addition, the CALFIRE Power Line Fire Prevention Field Guide, dated 10-08, and co authored by Sempra Energy, SDGE, and other power companies requires 10-foot (10') clearance from the base of poles (or towers), 10 feet (10') between vegetation and wires and marking of poles. The requirements in this guide would be complied with, as and where applicable to this line. This guide is on the Office of State Fire Marshal website at OSFM.Fire.Ca.Gov; click "programs", click "Wildland Fire Prevention Engineering", click "Power Line Fire Prevention Field Guide".

ESJ has agreed to provide 30' tower clearance, 10 feet (10') between vegetation and wires, and marking of towers. ESJ would also comply with any new, applicable, regulations by the PUC, CPUC, or other jurisdictional agencies.

It is the strong recommendation of the consultant that there must be no new plants, shrubs, trees, etc planted in the Right of Way or in the area 30 feet (30') on each side of the ROW, as this would increase the fire hazard and present a risk to the towers and the power lines, and can result in potentially causing arcing to the ground from wires during a fire on the ROW. Wires can also slap together during high winds and cause sparks to fall into vegetation. If new vegetation is mandated by the County for screening purposes, then there must be no new vegetation, including trees, in the ROW and 30 feet (30') on each side. In addition there must be no new vegetation, including trees, beyond the 30 feet (30') to each side of the ROW, and on the property, that is found on the Prohibited Plant List attached to this report.

It is understood, from EDAW consultants, that no fuel modification can be done in sensitive habitat, or archeological sites, or if otherwise prohibited, without permission of the County DPLU and the Resource Agencies. It is also understood that the Fire District can require additional Fuel Modification, upon inspection, subject to constraints of the sensitive habitat and Archeological sites. Per EDAW, machinery should not be used for Fuel Modification on the ROW due to the sensitive areas.

During Fuel Modification, consideration would be given, by applicant, to potentials for erosion and slope instability, in order to prevent damage to tower foundations.

11.VEGETATION MANAGEMENT:

Prescribed defensible space would be maintained on at least an annual basis, prior to May 1, or more often as needed by the applicant. All present and future owners/operators must be put on legal notice by a legally binding recorded instrument as to the requirement to maintain the vegetation in a fire safe manner.

12. FIRE BEHAVIOR MODELING

A computerized Fire Behavior Model is not required for this project per the Fire District, or the County DPLU.

However, BEHAVE modeling was done by the consultant to evaluate the on site fire risk and needed fuel modification. The SH-2 model was used. Vegetation canopy height was assumed to be 5'. The results are:

Fire	Flame Length	Rate of Spread	Spotting downwind
Summer	9.4'	0.33 MPH	0.5 miles
Fall	15.8'	1 MPH	1.2 miles

The spotting distance would be 0.4 miles.

The power lines are approximately 150 to 170' above grade.

Note: models are guidelines only. Actual fire behavior can be more or less intensive.

The modeling shows that airborne burning embers may reach a potentially habitable trailer, which is located off the property, about 0.28 miles to the southwest. This may require that a Fire Engine Crew go to that trailer during a fire to provide protection for it, and extinguish spot fires, during a wind driven fire.

13. FIRE DISTRICT REQUIREMENTS:

ESJ LLC agrees, and fully intends, to work with the Rural Fire Protection District Fire Chief to resolve any of his concerns and any Fire District requirements for equipment, mitigation fees, etc. All final approvals and agreements are to be obtained from the Fire Chief. The Fire District has approved this Fire Protection Plan.

14. SUMMARY/DISCLAIMER

Engineering, Architecture, Landscape Architecture, design and construction are out of the scope of this plan and are the responsibility of others. Applicant may submit requests for review and approval of alternative materials and methods which have the same practical effect and equivalency as the materials and methods required or recommended in this plan.

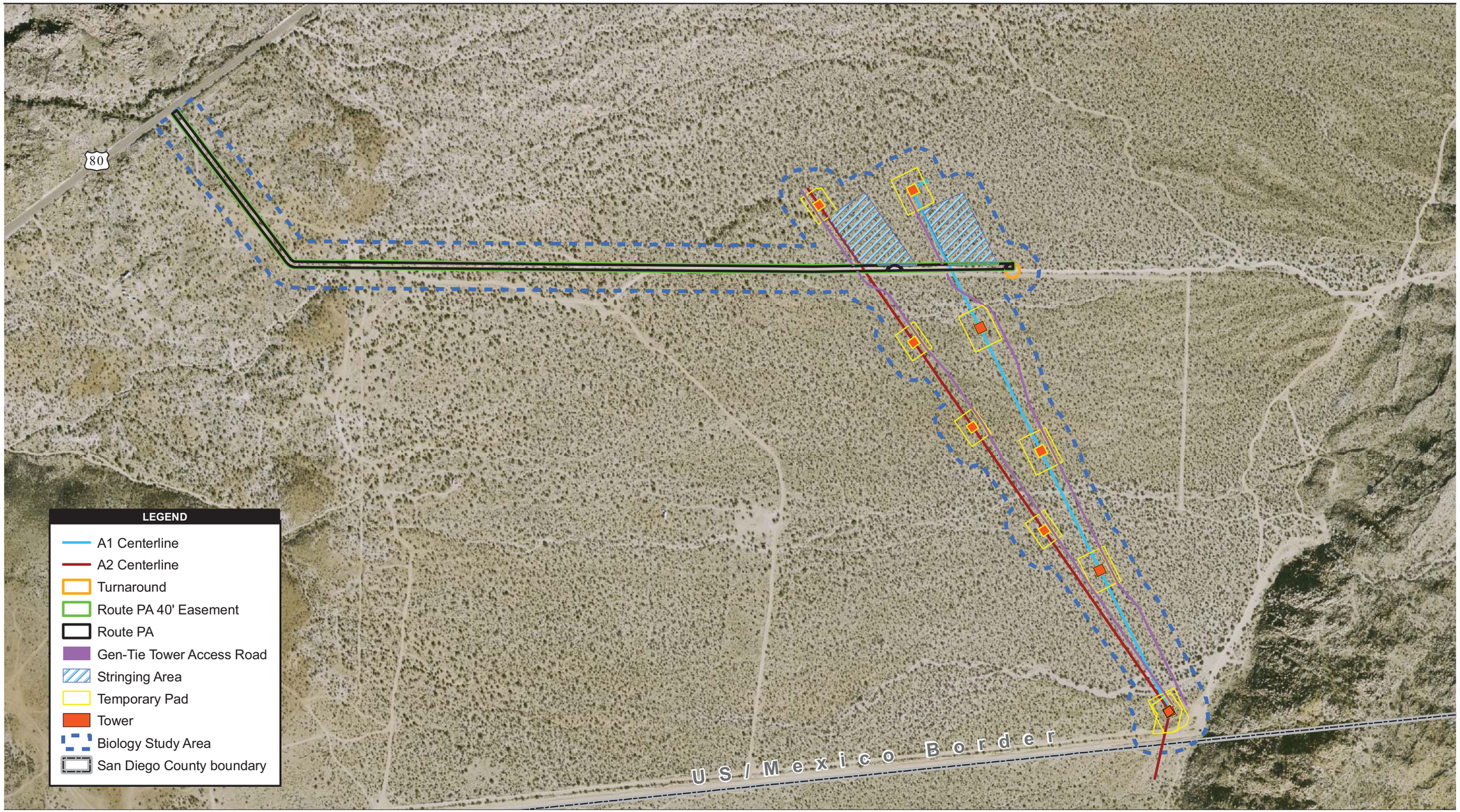
As Fire is unpredictable and dynamic, this plan cannot guarantee that a fire will not occur or will not cause damage to property or injury or death to humans or animals. There are no guarantees made, expressed or implied, regarding the effectiveness or adequacy of any recommendations or requirements in this plan for all fire situations. However, the Fire Protection concepts proposed in this plan should lessen the impact upon the Fire District.

Any official Fire Protection requirements and approvals will be set forth by the RFPD and the County DPLU Fire Marshal.

James W Hunt, President Hunt Research Corporation
Prepared by _____, President. Date 9-11-09

_____ Agreed to on behalf of ESJ U.S. Transmission LLC by (Signature, Date, and printed name)

Attach: Figure 1-2 Project Area Map
Attach: Site Photos
Attach: Prohibited Plant List



Source: DigitalGlobe 2008, Sempra Energy 2009, SANGIS 2008

500 250 0 500 Feet

Scale: 1 = 6,000; 1 inch = 500 feet

Figure 1-2
Project Area Map

Path: P:\2009\09080001 ESJ Gen-Tie\6.0 GIS\6.3 Layout\FireProtectionPlan_Fig_1-2.mxd, 11/03/09, AugelloP

Site Photos: (fence in distance is Border. Top photo shows offsite trailer in distance)







Some Examples of Prohibited Plants

Botanical Name	Common Name	Comment*
Trees		
Abies species	Fir	F
Acacia species (numerous)	Acacia	F, I
Agonis juniperina	Juniper Myrtle	F
Araucaria species (A. heterophylla, A. araucana, A. bidwillii)	Araucaria (Norfolk Island Pine, Monkey Puzzle Tree, Bunya Bunya)	F
Callistemon species (C. citrinus, C. rosea, C. viminalis)	Bottlebrush (Lemon, Rose, Weeping)	F
Calocedrus decurrens	Incense Cedar	F
Casuarina cunninghamiana	River She-Oak	F
Cedrus species (C. atlantica, C. deodara)	Cedar (Atlas, Deodar)	F
Chamaecyparis species (numerous)	False Cypress	F
Cinnamomum camphora	Camphor	F
Cryptomeria japonica	Japanese Cryptomeria	F
Cupressocyparis leylandii	Leyland Cypress	F
Cupressus species (C. fobesii, C. glabra, C. sempervirens,)	Cypress (Tecate, Arizona, Italian, others)	F
Eucalyptus species (numerous)	Eucalyptus	F, I
Juniperus species (numerous)	Juniper	F
Larix species (L. decidua, L. occidentalis, L. kaempferi)	Larch (European, Japanese, Western)	F
Leptospermum species (L. laevigatum, L. petersonii)	Tea Tree (Australian, Tea)	F
Lithocarpus densiflorus	Tan Oak	F
Melaleuca species (M. linariifolia, M. nesophila, M. quinquenervia)	Melaleuca (Flaxleaf, Pink, Cajeput Tree)	F, I
Olea europea	Olive	I
Picea (numerous)	Spruce	F
Palm species (numerous)	Palm	F, I
Pinus species (P. brutia, P. canariensis, P. b. eldarica, P. halepensis, P. pinea, P.	Pine (Calabrian, Canary Island, Mondell, Aleppo, Italian Stone, Monterey)	F

Some examples of Prohibited Plants

Botanical Name	Common Name	Comment*
radiata, numerous others)		
Platycladus orientalis	Oriental arborvitae	F
Podocarpus species (P. gracilior, P. macrophyllus, P. latifolius)	Fern Pine (Fern, Yew, Podocarpus)	F
Pseudotsuga menziesii	Douglas Fir	F
Schinus species (S. molle, S. terebenthifolius)	Pepper (California and Brazilian)	F, I
Tamarix species (T. africana, T. aphylla, T. chinensis, T. parviflora)	Tamarix (Tamarisk, Athel Tree, Salt Cedar, Tamarisk)	F, I
Taxodium species (T. ascendens, T. distichum, T. mucronatum)	Cypress (Pond, Bald, Monarch, Montezuma)	F
Taxus species (T. baccata, T. brevifolia, T. cuspidata)	Yew (English, Western, Japanese)	F
Thuja species (T. occidentalis, T. plicata)	Arborvitae/Red Cedar	F
Tsuga species (T. heterophylla, T. mertensiana)	Hemlock (Western, Mountain)	F
Groundcovers, Shrubs & Vines		
Acacia species	Acacia	F, I
Adenostoma fasciculatum	Chamise	F
Adenostoma sparsifolium	Red Shanks	F
Agropyron repens	Quackgrass	F, I
Anthemis cotula	Mayweed	F, I
Arbutus menziesii	Madrone	F
Arctostaphylos species	Manzanita	F
Arundo donax	Giant Reed	F, I
Artemisia species (A. abrotanium, A. absinthium, A. californica, A. caucasica, A. dracunculus, A. tridentata, A. pynocephala)	Sagebrush (Southernwood, Wormwood, California, Silver, True tarragon, Big, Sandhill)	F
Atriplex species (numerous)	Saltbush	F, I
Avena fatua	Wild Oat	F
Baccharis pilularis	Coyote Bush	F
Bambusa species	Bamboo	F, I
Bougainvillea species	Bougainvillea	F, I
Brassica species (B. campestris, B. nigra, B. rapa)	Mustard (Field, Black, Yellow)	F, I

Some examples of Prohibited Plants

Botanical Name	Common Name	Comment*
Bromus rubens	Foxtail, Red brome	F, I
Castanopsis chrysophylla	Giant Chinquapin	F
Cardaria draba	Hoary Cress	I
Carpobrotus species	Ice Plant, Hottentot Fig	I
Cirsium vulgare	Wild Artichoke	F,I
Conyza bonariensis	Horseweed	F
Coprosma pumila	Prostrate Coprosma	F
Cortaderia selloana	Pampas Grass	F, I
Cytisus scoparius	Scotch Broom	F, I
Dodonaea viscosa	Hopseed Bush	F
Eriodictyon californicum	Yerba Santa	F
Eriogonum species (E. fasciculatum)	Buckwheat (California)	F
Fremontodendron species	Flannel Bush	F
Hedera species (H. canariensis, H. helix)	Ivy (Algerian, English)	I
Heterotheca grandiflora	Telegraph Plant	F
Hordeum leporinum	Wild barley	F, I
Juniperus species	Juniper	F
Lactuca serriola	Prickly Lettuce	I
Larix species (numerous)	Larch	F
Larrea tridentata	Creosote bush	F
Lolium multiflorum	Ryegrass	F, I
Lonicera japonica	Japanese Honeysuckle	F
Mahonia species	Mahonia	F
Mimulus aurantiacus	Sticky Monkeyflower	F
Miscanthus species	Eulalie Grass	F
Muhlenbergia species	Deer Grass	F
Nicotiana species (N. bigelovii, N. glauca)	Tobacco (Indian, Tree)	F, I
Pennisetum setaceum	Fountain Grass	F, I
Perovskia atroplicifolia	Russian Sage	F
Phoradendron species	Mistletoe	F
Pickeringia montana	Chaparral Pea	F
Rhus (R. diversiloba, R. laurina, R. lentii)	Sumac (Poison oak, Laurel, Pink Flowering)	F
Ricinus communis	Castor Bean	F, I
Rhus Lentii	Pink Flowering Sumac	F

Some examples of Prohibited Plants

Botanical Name	Common Name	Comment*
Rosmarinus species	Rosemary	F
Salvia species (numerous)	Sage	F, I
Salsola australis	Russian Thistle	F, I
Solanum Xantii	Purple Nightshade (toxic)	I
Silybum marianum	Milk Thistle	F, I
Thuja species	Arborvitae	F
Urtica urens	Burning Nettle	F
Vinca major	Periwnkle	I

*F = flammable, I = Invasive

NOTES:

1. Plants on this list that are considered invasive are a partial list of commonly found plants. There are many other plants considered invasive that should not be planted in a fuel modification zone and they can be found on The California Invasive Plant Council's Website www.cal-ipc.org/ip/inventory/index.php. Other plants not considered invasive at this time may be determined to be invasive after further study.
2. For the purpose of using this list as a guide in selecting plant material, it is stipulated that all plant material will burn under various conditions.
3. The absence of a particular plant, shrub, groundcover, or tree, from this list does not necessarily mean it is fire resistive.
4. All vegetation used in Vegetation Management Zones and elsewhere shall be subject to approval of the Fire Marshal.
5. Landscape architects may submit proposals for use of certain vegetation on a project specific basis. They shall also submit justifications as to the fire resistivity of the proposed vegetation.
6. This list was prepared by Hunt Research Corporation and Dudek and associates and reviewed by, Scott Franklin Consulting co.

Appendix B.5 FAA Determinations of No Hazard to Air Navigation (November 10, 2009)

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-AWP-4974-OE

Issued Date: 11/10/2009

Joan Heredia
Sempra Global
101 Ash St HQ8B
San Diego, CA 92101

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Transmission Line 230Ar1
Location:	jacumba, CA
Latitude:	32-37-05.24N NAD 83
Longitude:	116-06-57.68W
Heights:	170 feet above ground level (AGL) 3470 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 170 feet above ground level (3470 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/10/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will

void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

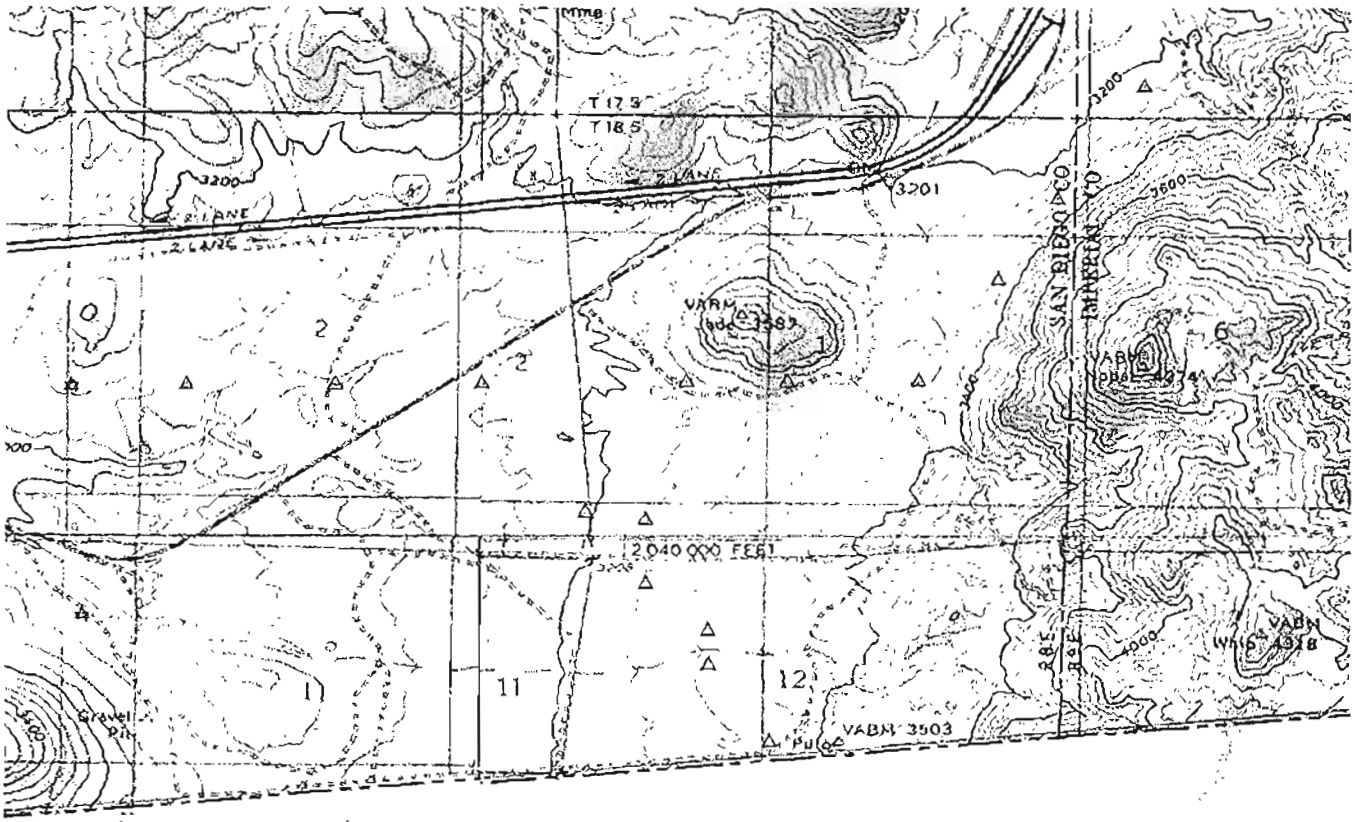
If we can be of further assistance, please contact our office at (310) 725-6557. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-AWP-4974-OE.

Signature Control No: 659748-120096361 (DNE)
Karen McDonald
Specialist

Attachment(s)
Case Description
Map(s)

Case Description for ASN 2009-AWP-4974-OE

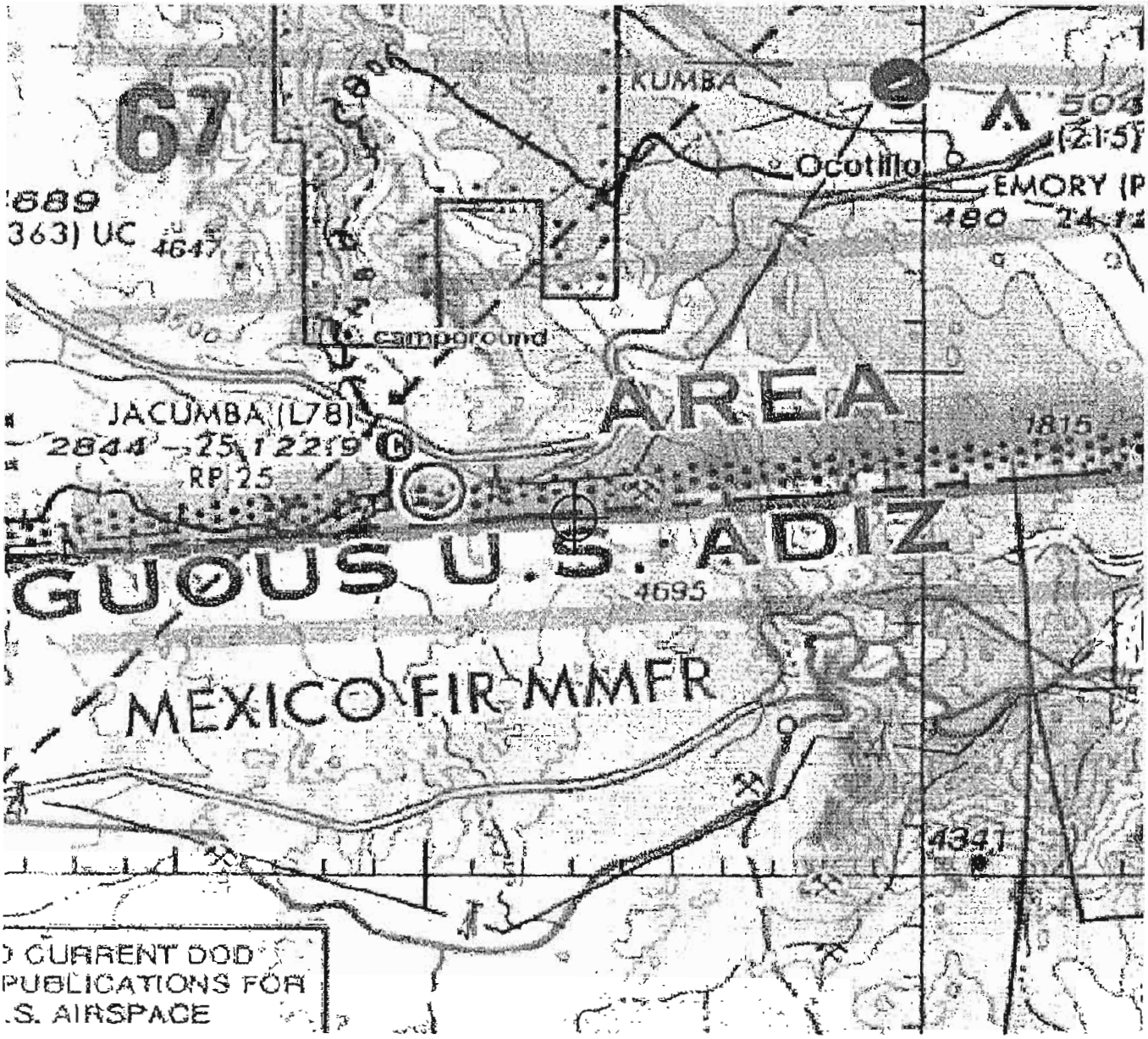
Installation of a 230kV transmission line



Mexico

Mexico

Sectional Map for ASN 2009-AWP-4974-OE



Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-AWP-4976-OE

Issued Date: 11/10/2009

Joan Heredia
Sempra Global
101 Ash St HQ8B
San Diego, CA 92101

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Transmission Line 230Br1
Location:	jacumba, CA
Latitude:	32-37-14.59N NAD 83
Longitude:	116-07-05.20W
Heights:	170 feet above ground level (AGL) 3458 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 170 feet above ground level (3458 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/10/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

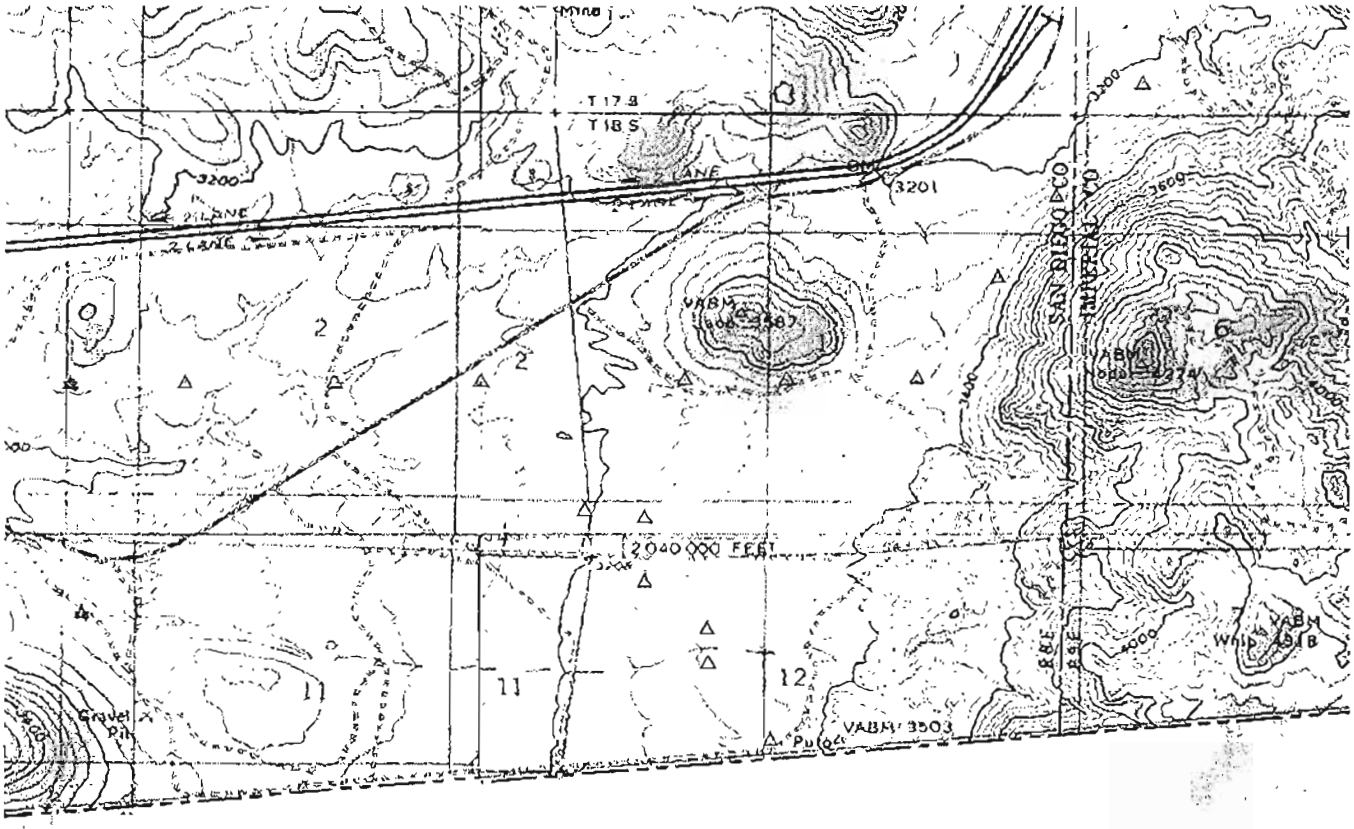
If we can be of further assistance, please contact our office at (310) 725-6557. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-AWP-4976-OE.

Signature Control No: 659750-120096359 (DNE)
Karen McDonald
Specialist

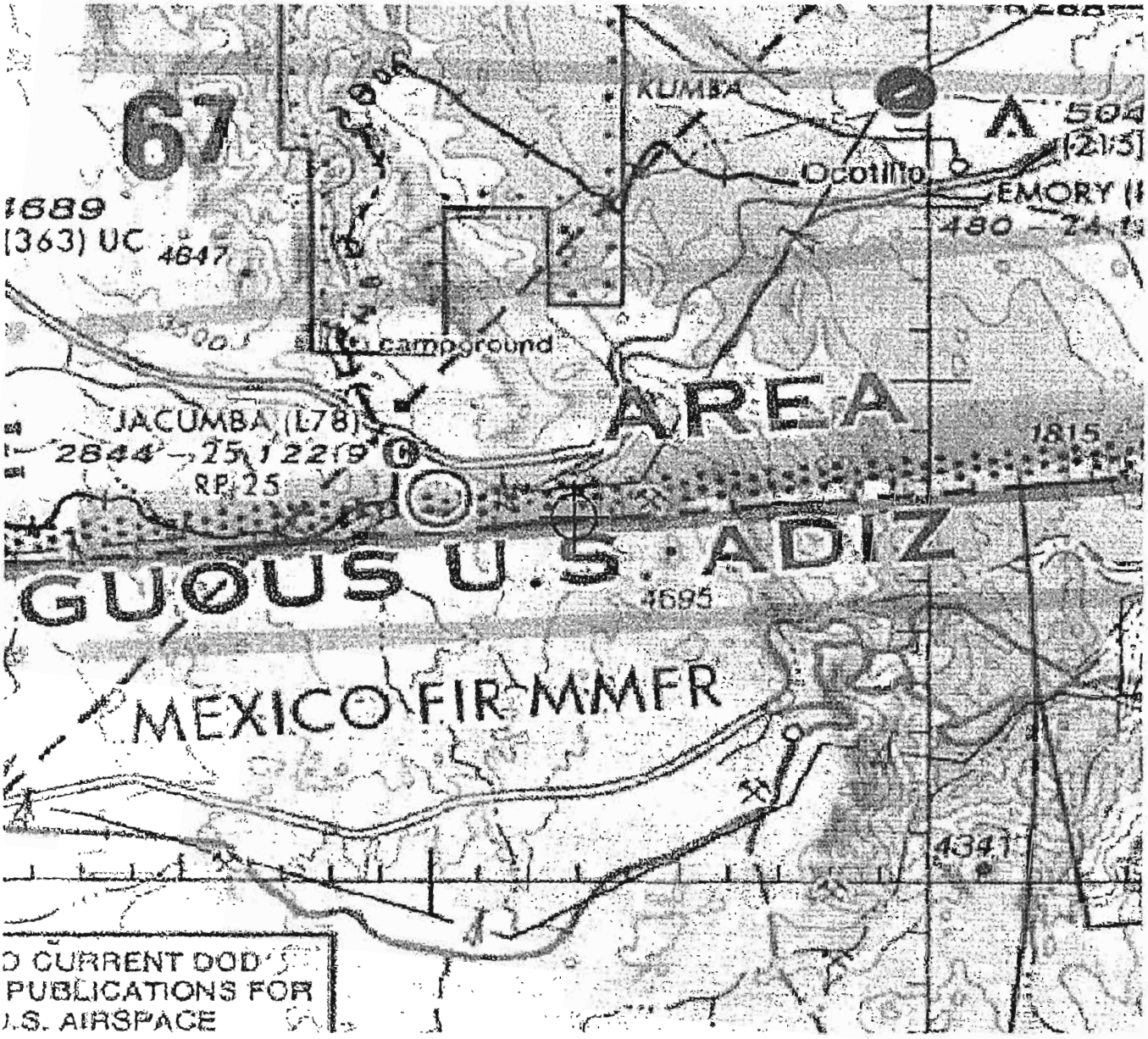
Attachment(s)
Case Description
Map(s)

Case Description for ASN 2009-AWP-4976-OE

Installatin of a 230 kV transmission line


T17S
T18S
3200
3201
SAN DIEGO CO
VABM 3587
VABM 3734
2040 000 FEET
R8E
R9E
4000
VABM 4918
Whip
VABM 3503
Gravel Pit
Mexico
Mexico

Sectional Map for ASN 2009-AWP-4976-OE



Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-AWP-4977-OE

Issued Date: 11/10/2009

Joan Heredia
Sempra Global
101 Ash St HQ8B
San Diego, CA 92101

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Transmission Line 230Cr1
Location:	jacumba, CA
Latitude:	32-37-24.26N NAD 83
Longitude:	116-07-12.96W
Heights:	170 feet above ground level (AGL) 3415 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 170 feet above ground level (3415 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

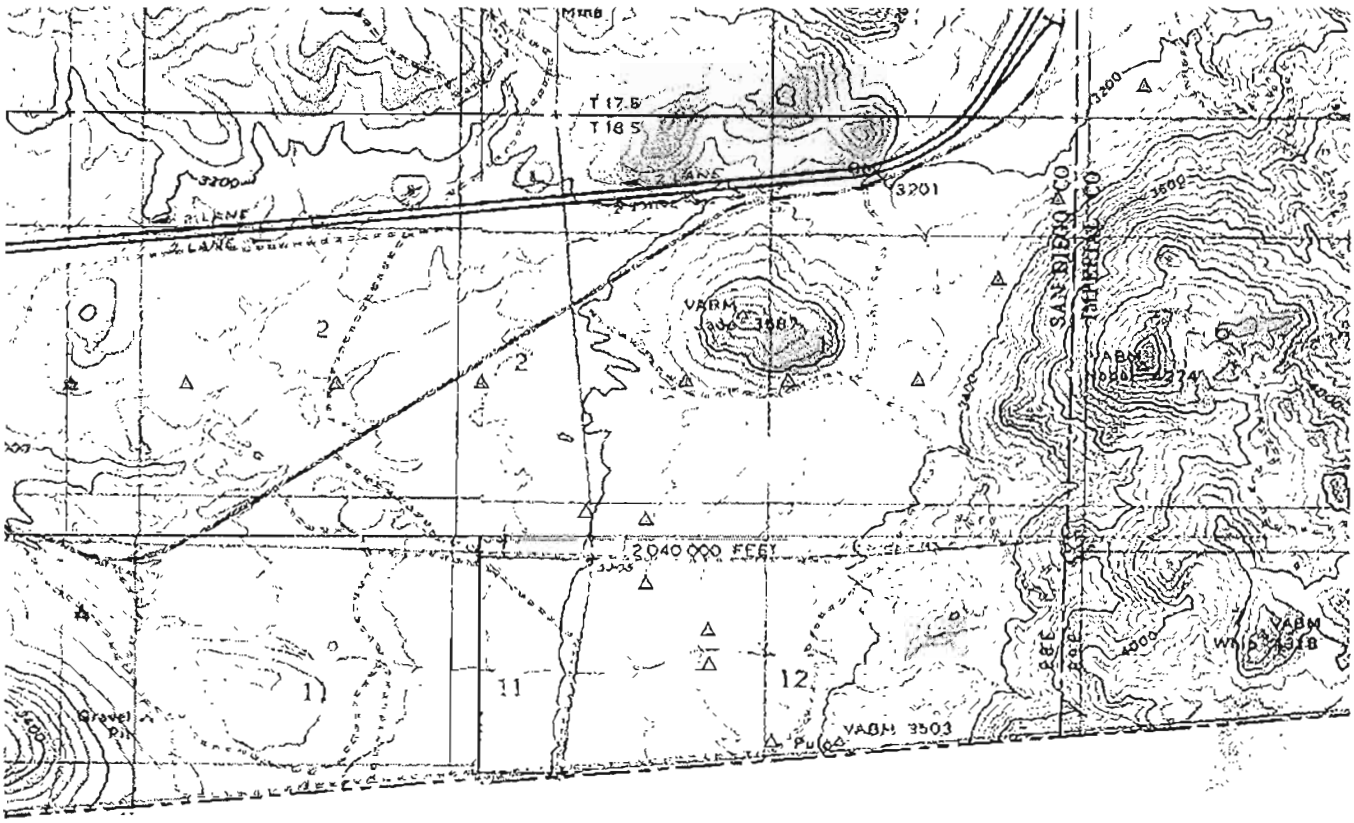
If we can be of further assistance, please contact our office at (310) 725-6557. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-AWP-4977-OE.

Signature Control No: 659751-120096360 (DNE)
Karen McDonald
Specialist

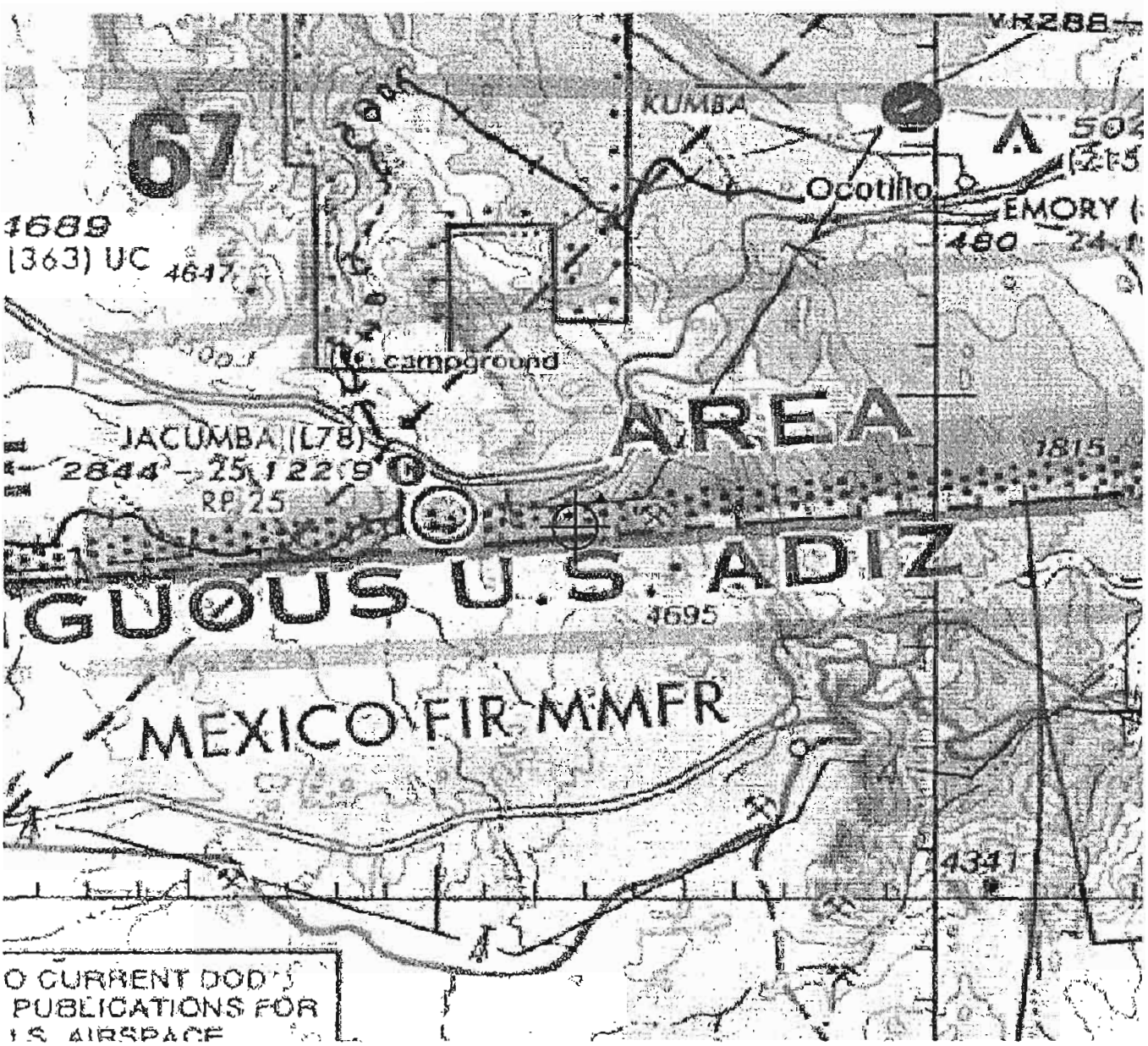
Attachment(s)
Case Description
Map(s)

Case Description for ASN 2009-AWP-4977-OE

Installatin of a 2300 kV transmission line


T 17 S
T 18 S
3201
SAN DIEGO CO
IMPERIAL CO
VABM
3887
VABM
3503
2040 000 FEET
Gravel Pit
Mexico
Mexico

Sectional Map for ASN 2009-AWP-4977-OE



Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-AWP-4979-OE

Issued Date: 11/10/2009

Joan Heredia
Sempra Global
101 Ash St HQ8B
San Diego, CA 92101

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Transmission Line 230Dr1
Location:	Jacumba, CA
Latitude:	32-37-32.97N NAD 83
Longitude:	116-07-20.31W
Heights:	170 feet above ground level (AGL) 3370 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 170 feet above ground level (3370 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/10/2011 unless:

(a) extended, revised or terminated by the issuing office.
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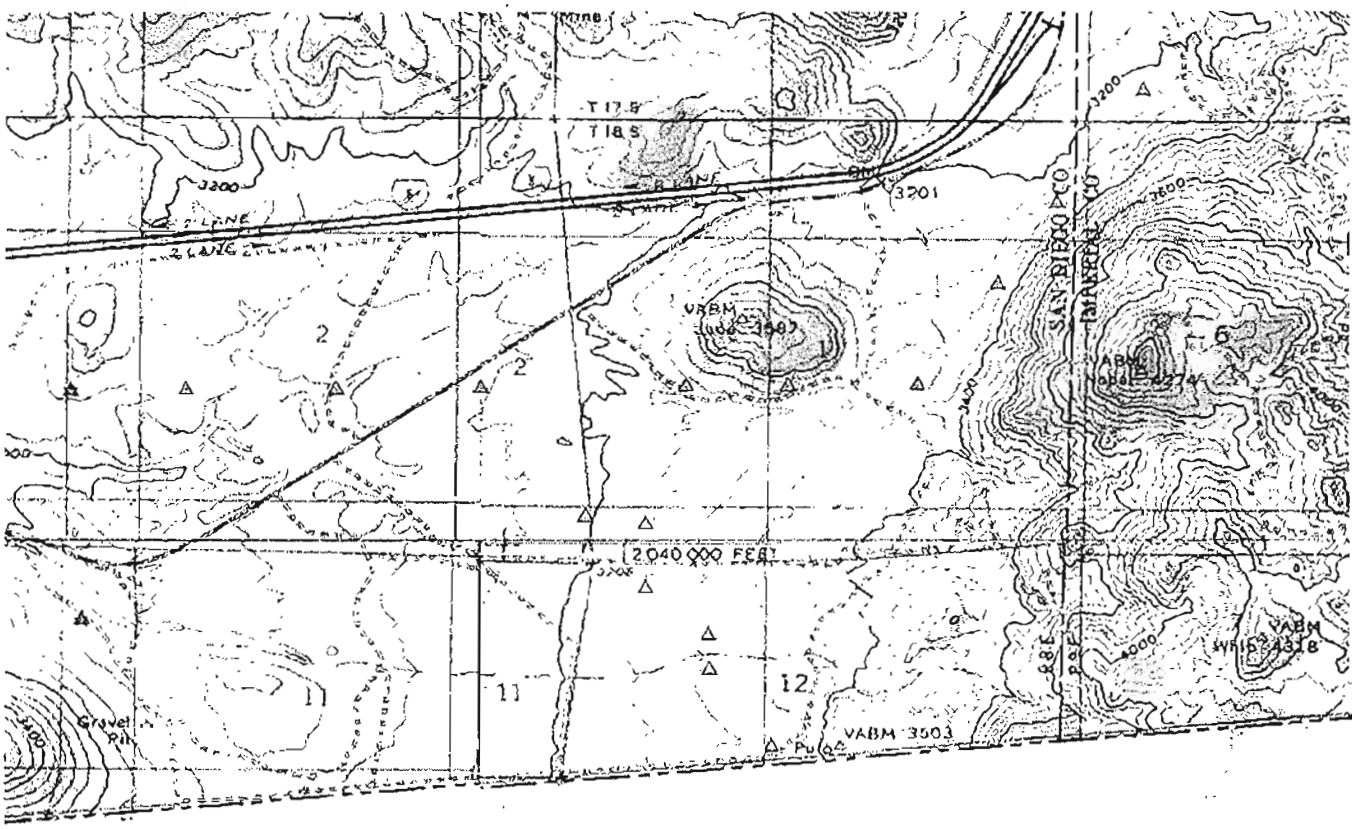
If we can be of further assistance, please contact our office at (310) 725-6557. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-AWP-4979-OE.

Signature Control No: 659756-120096362 (DNE)
Karen McDonald
Specialist

Attachment(s)
Case Description
Map(s)

Case Description for ASN 2009-AWP-4979-OE

Installatin of a 230kV transmission line

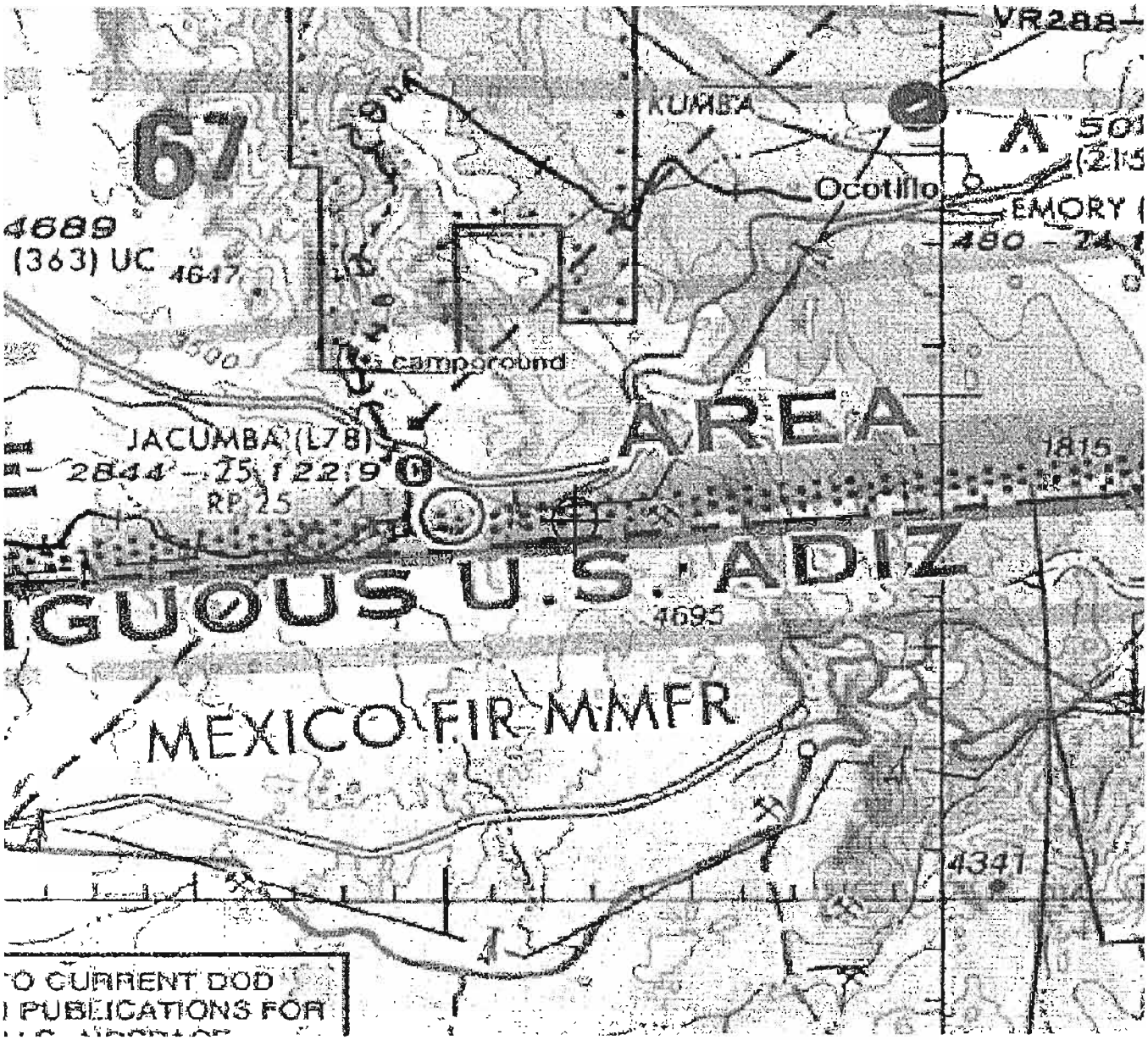


Mexico

Mexico



Sectional Map for ASN 2009-AWP-4979-OE



Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-AWP-4978-OE

Issued Date: 11/10/2009

Joan Heredia
Sempra Global
101 Ash St HQ8B
San Diego, CA 92101

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Transmission Line 500Br1
Location:	jacumba, CA
Latitude:	32-37-18.64N NAD 83
Longitude:	116-07-05.36W
Heights:	170 feet above ground level (AGL) 3459 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 170 feet above ground level (3459 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

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If we can be of further assistance, please contact our office at (310) 725-6557. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-AWP-4978-OE.

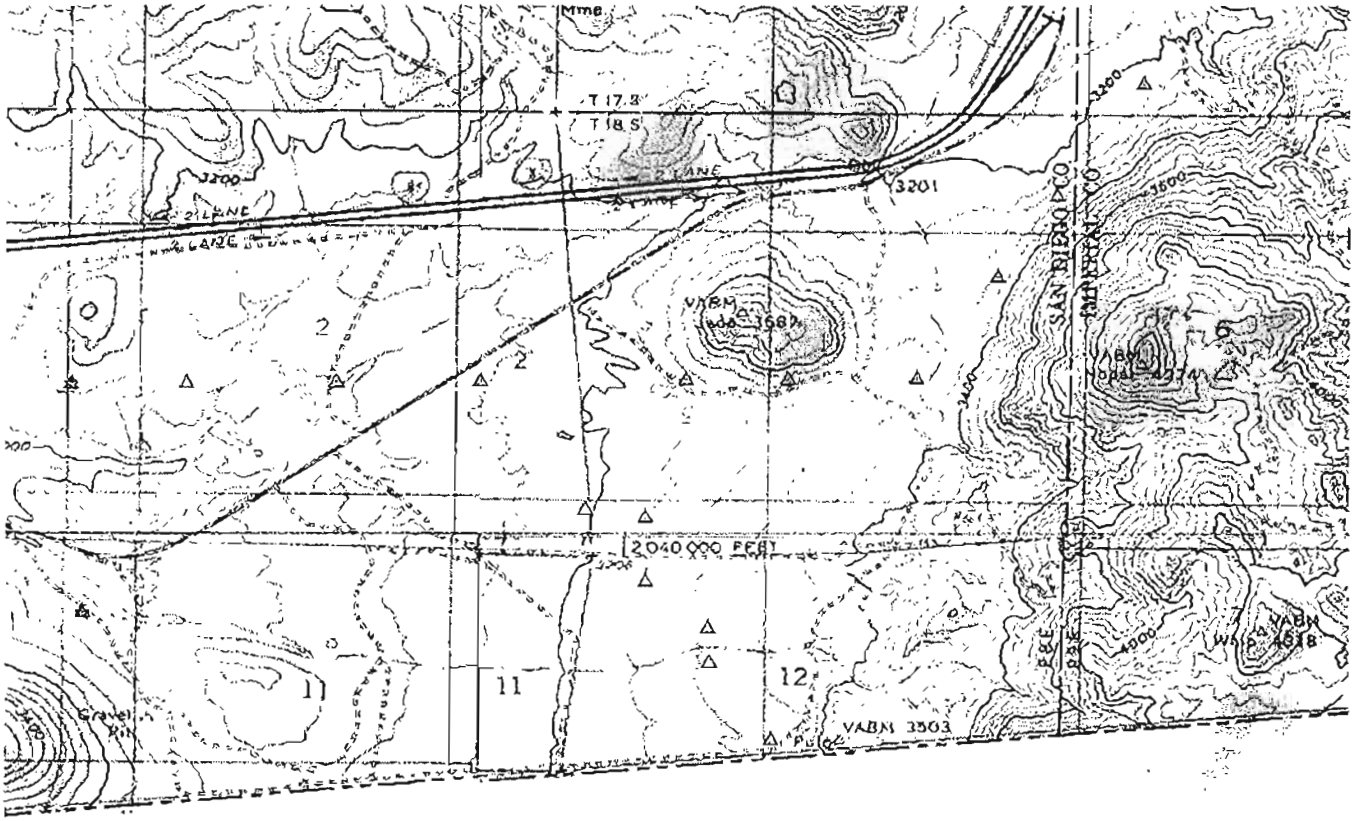
Signature Control No: 659752-120096357 (DNE)
Karen McDonald
Specialist

Attachment(s)
Case Description
Map(s)

Case Description for ASN 2009-AWP-4978-OE

Installation of a 500 Kv line

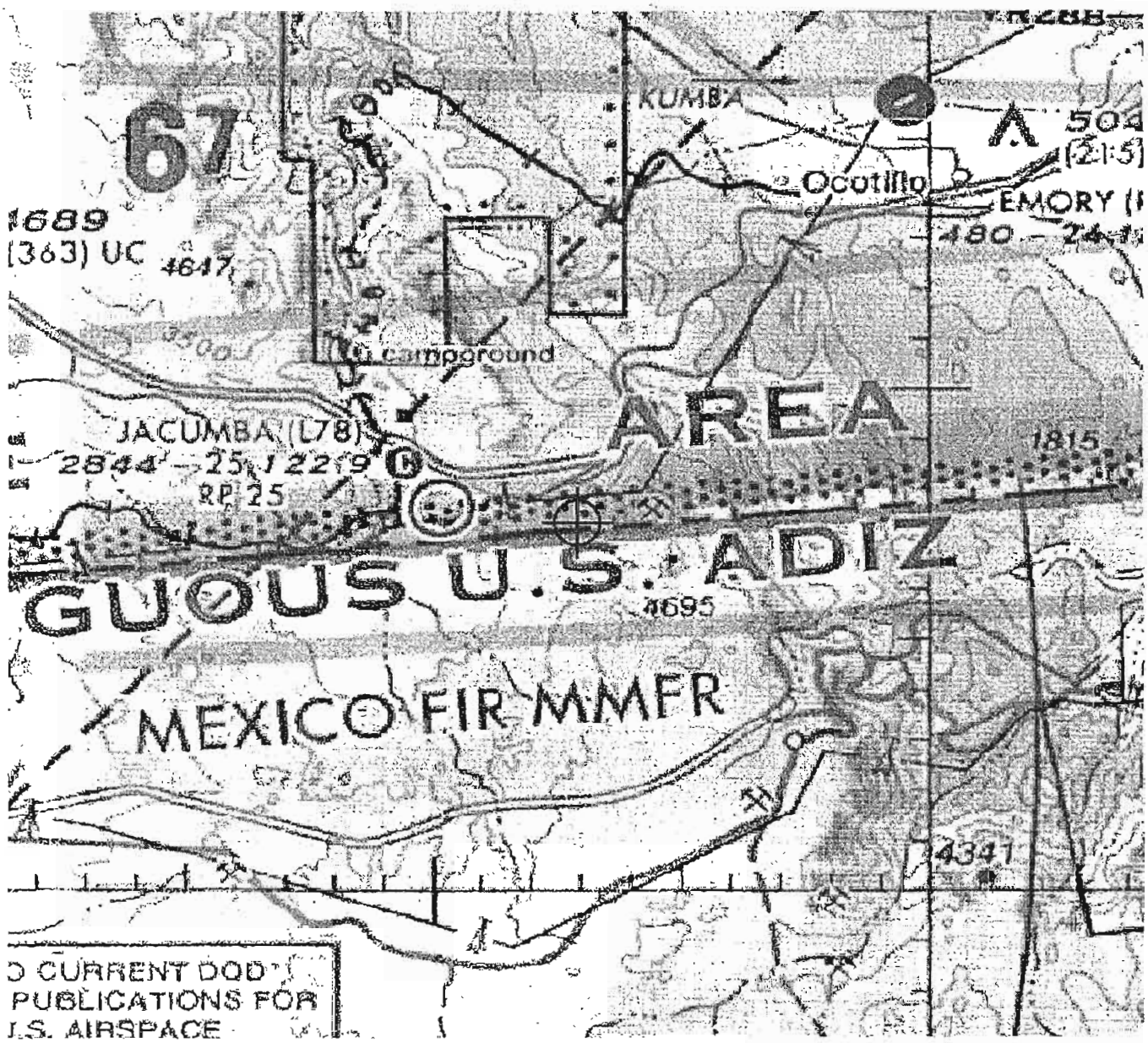
Verified Map for ASN 2009-AWP-4978-OE



Mexico

Mexico

Sectional Map for ASN 2009-AWP-4978-OE



Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-AWP-4975-OE

Issued Date: 11/10/2009

Joan Heredia
Sempra Global
101 Ash St HQ8B
San Diego, CA 92101

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Transmission Line 500Cr1
Location:	jacumba, CA
Latitude:	32-37-32.00N NAD 83
Longitude:	116-07-13.00W
Heights:	170 feet above ground level (AGL) 3407 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 170 feet above ground level (3407 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/10/2011 unless:

(a) extended, revised or terminated by the issuing office.
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If we can be of further assistance, please contact our office at (310) 725-6557. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-AWP-4975-OE.

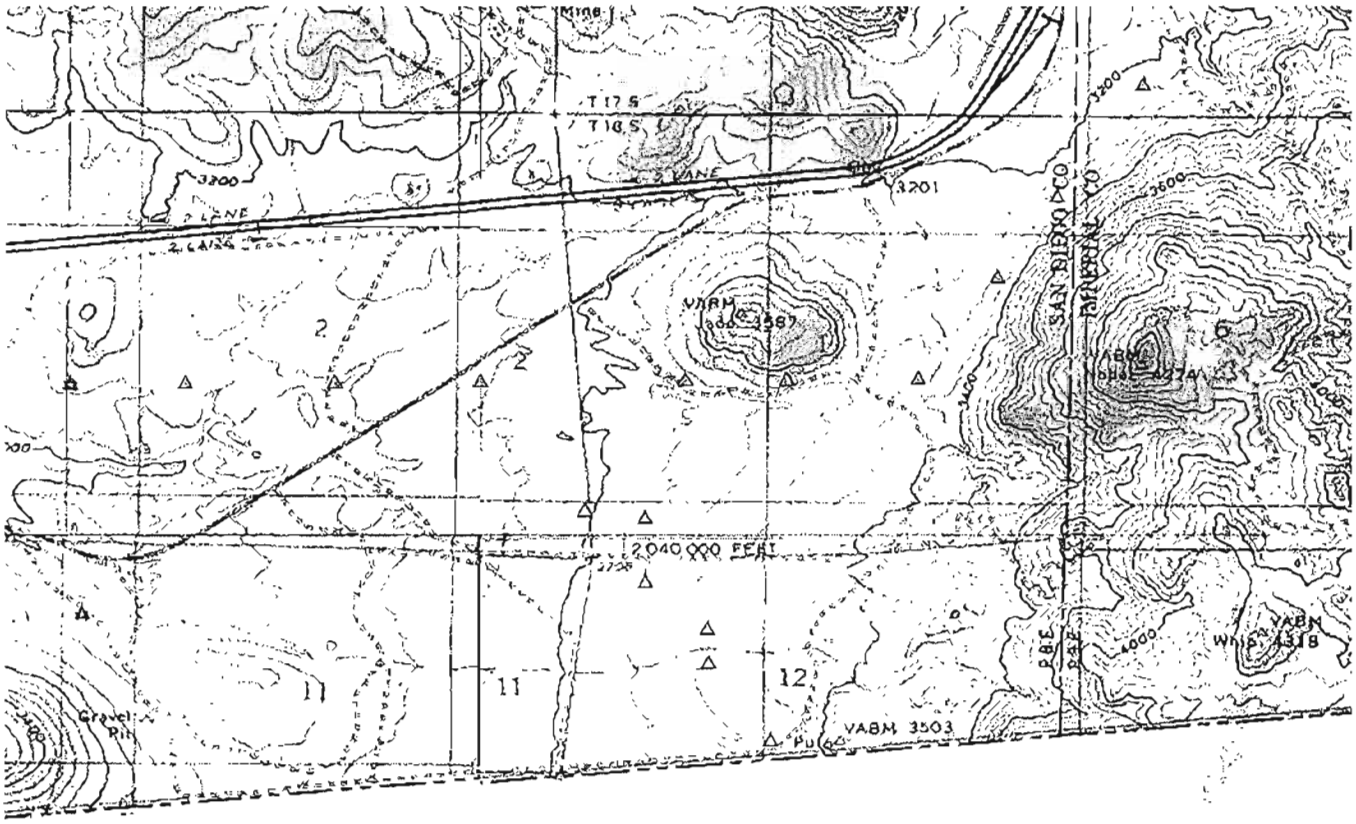
Signature Control No: 659749-120096358 (DNE)
Karen McDonald
Specialist

Attachment(s)
Case Description
Map(s)

Case Description for ASN 2009-AWP-4975-OE

Installation of a 500 kV transmission line

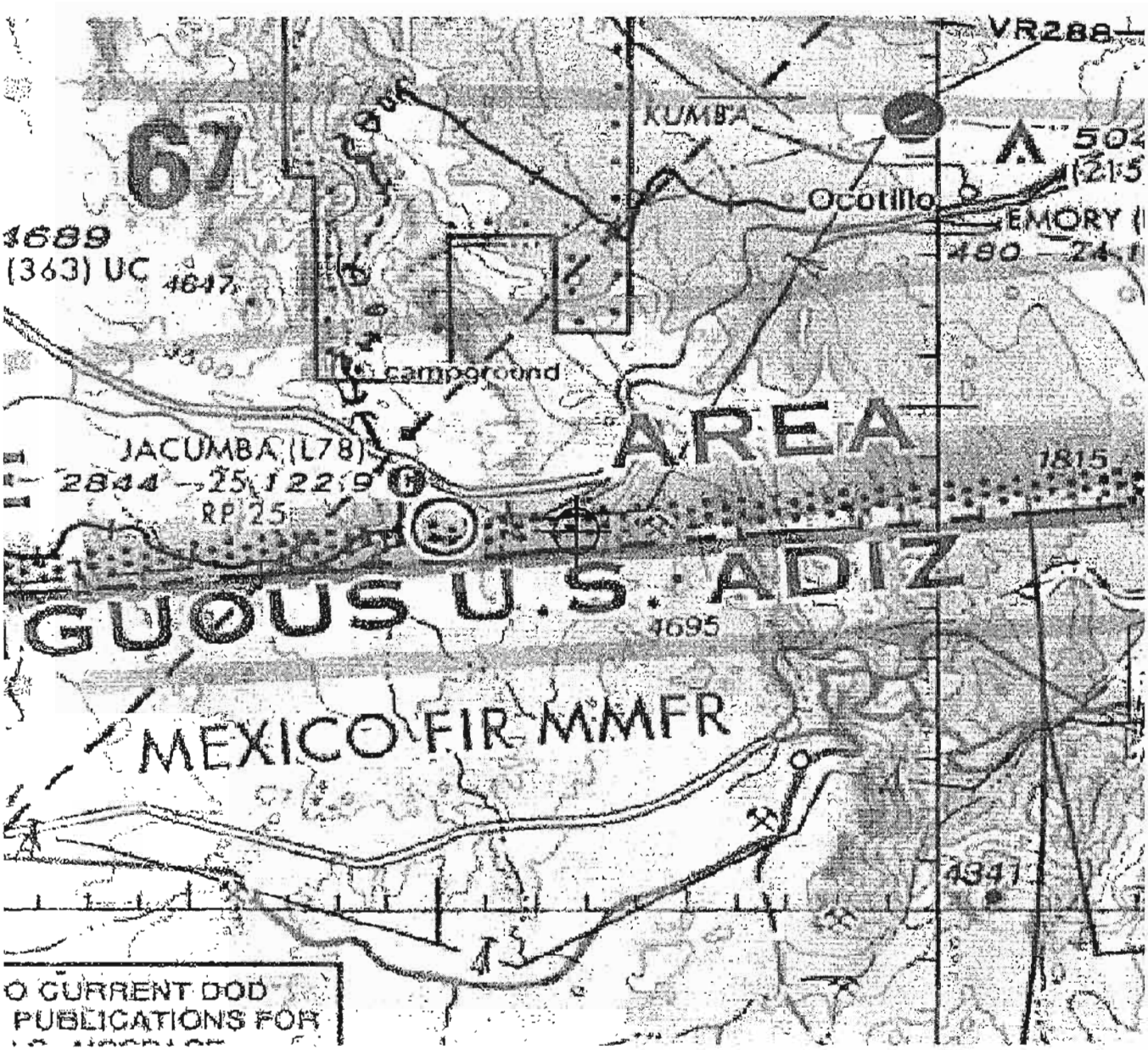
Verified Map for ASN 2009-AWP-4975-OE



Mexico

Mexico

Sectional Map for ASN 2009-AWP-4975-OE



Appendix C Biological Resources Technical Report

CONTENTS

Appendix C.1 2008 & 2009 Quino Checkerspot Butterfly Survey Reports

Appendix C.2 Floral Species Documented on and Adjacent to the ESJ U.S. Transmission Line Project Site[1]

Appendix C.3 Special-status Plant Species Known or Potentially Occurring at the ESJ U.S. Transmission Line Project Site[1]

Appendix C.4 Wildlife Species Observed/Detected on the ESJ U.S. Transmission Line Project Site[1]

Appendix C.5 Special-status Wildlife Species Known or Potentially Occurring at the ESJ U.S. Transmission Line Project Site[1]

Appendix C.6 March 26, 2009 Comment Letter from USFWS: Comments on the NOI to Prepare an EIS; Energia Sierra Juarez U.S. Transmission, LLC

Appendix C.7 February 23, 2010, Letter from DOE to USFWS: Initiation of Informal Consultation under Section 7 of the Endangered Species Act

Appendix C.8 March 24, 2010, Letter from USFWS: Request for Informal Section 7 Consultation on the Proposed Energia Sierra Juarez Transmission Line

[1] Excerpted from the Biological Resources Report for the Proposed Energia Sierra Juarez U.S. Gen-Tie Line Project (EDAW 2010)

Appendix C.1 2008 & 2009 QCB survey reports

ROCKS BIOLOGICAL CONSULTING

June 9, 2008

U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Rd.
Carlsbad, CA 92009

Attention: Ms. Sandy Marquez

Permitted Biologists:
Jim Rocks: TE-063230-3
Cynthia Jones Daverin: TE-811615-4

Subject: Year 2008 45-Day Report for Quino Checkerspot Butterfly Surveys at the Proposed Baja Wind U.S. Transmission Line Project Site near Jacumba, CA

Dear Ms. Marquez:

This letter presents the 45-Day Report for Quino Checkerspot Butterfly (*Euphydryas editha quino,* QCB) surveys at the proposed Baja Wind U.S. Transmission Line Project Site (site), near Jacumba in San Diego County, CA. Survey results were negative for both QCB and larval host plant populations during the 2008 surveys. The survey, including the habitat assessment, was conducted from March 6 to April 28, 2008. Figures showing the survey area boundary and copies of field notes are attached to this report.

Location
The proposed Baja Wind U.S. Transmission Line Project will be located sited within an approximately 87-acre area located east of the town of Jacumba, CA, south of Old Highway 80, and immediately north of the international border. The site is on the USGS 7.5'Jacumba Quadrangle (see Figure 1). The site is in the U.S. Fish and Wildlife Service (FWS) recommended Survey Area 1 (2002).

The site is undeveloped, but there are existing dirt roads that are frequently used by the Border Patrol for border surveillance and evidence of trash dumping along the eastern edge of the site. The site is surrounded by relatively undisturbed open space on all sides with Interstate 8 offsite to the north and the US/Mexico border to the south. Figure 2 shows the project site boundary on an aerial photograph. The figures included in this report were provided by Ecology and Environment, Inc. and are assumed to be an accurate representation of the limits of the intended survey area.

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Habitat Assessment
The site is relatively flat to gently sloping with deep alluvial granitic soils in most areas. Several ephemeral washes supporting a relatively high diversity of herbaceous annuals run west-east across the site. Elevation of the site is approximately to 3,100 feet above mean sea level (msl).

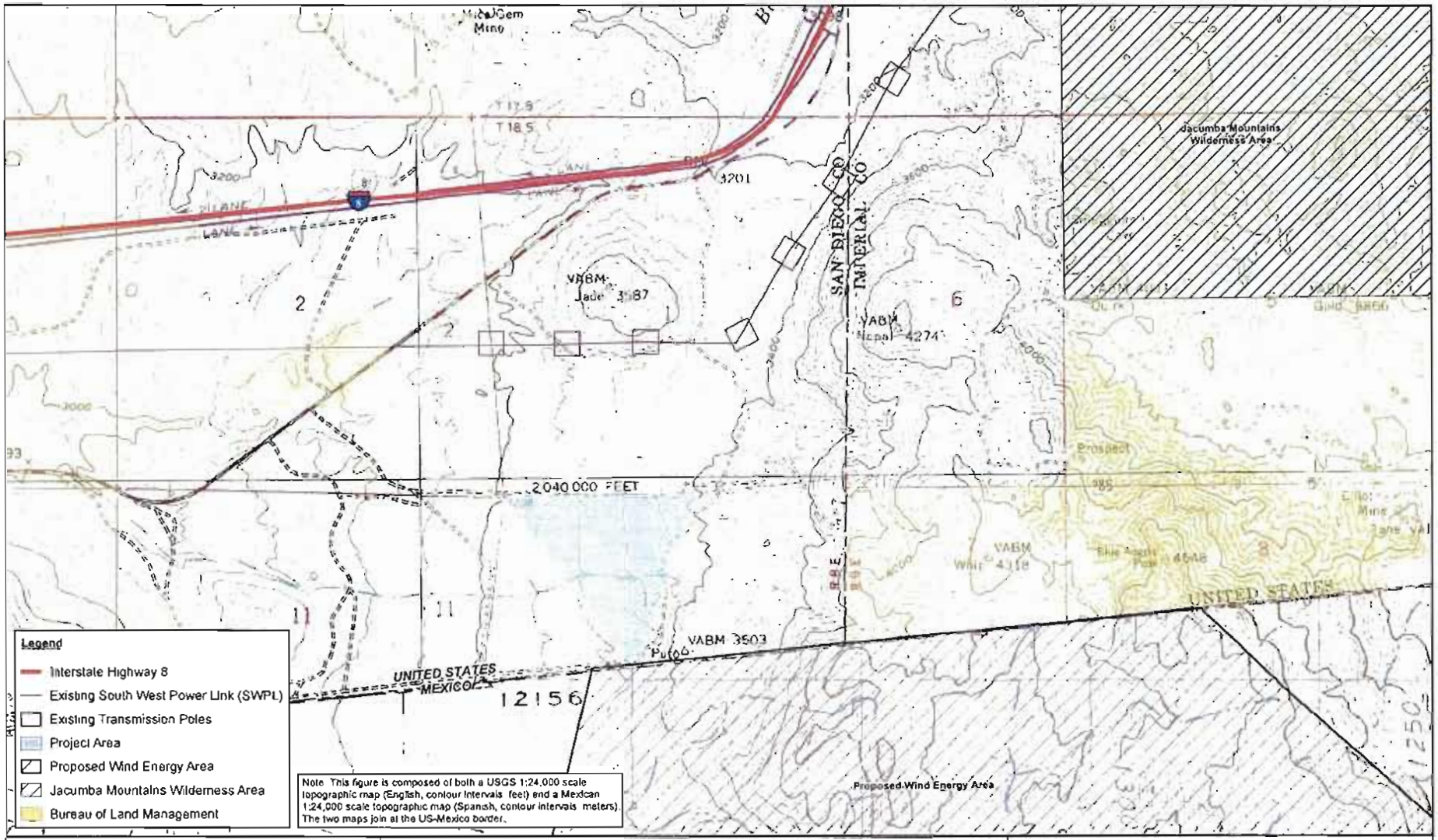
The habitat assessment was conducted on March 6, 2008 to assess the phenology of larval host plants and nectar sources if present. The vegetation communities, soils, and general conditions onsite were assessed for their suitability to support QCB. The vegetation community onsite is best classified as Desert Chaparral or Mixed Desert Scrub. Common shrub or perennial species in this habitat include Jojoba (*Simmondsia chinensis*), Waterjacket (*Lycium andersonii*), Lotebush (*Ziziphus parryi* var. parryi), Ephedra (*Ephedra* spp.), Gander's Cholla (*Cylindropuntia ganderi* var. *ganderi*), Mohave Yucca (*Yucca schidigera*) and Creosote (*Larrea tridentata*). Annuals present 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.).

Methods
Surveys were performed in accordance with the FWS's "*Quino Checkerspot Butterfly (Euphydryas editha quino) Survey Protocol Information*" dated February 2002. On February 27, 2008, a pre-survey notification letter (the 10-day letter) was sent to the USFWS announcing the intent to conduct surveys for the QCB (Appendix B). The letter included a map of the project site and approximate time the surveys would begin. One field visit to assess the status of host plants and/or nectar sources was performed and six protocol level surveys were completed. More detailed information on the field visit and surveys is presented below. This report is being submitted within the required 45 days to the FWS.

The flight season of QCB is dependent upon adequate rainfall and warm weather to produce supplies of foodplants sufficient for allowing QCB larvae to feed, pupate, and emerge during the spring. In 2008, both in the southwestern and eastern portions of the QCB's range, rain fell in winter and early spring causing the germination of annual plants, but conditions became very dry as spring progressed and many surveyors reported rapid drying and senescence of potential host plants.

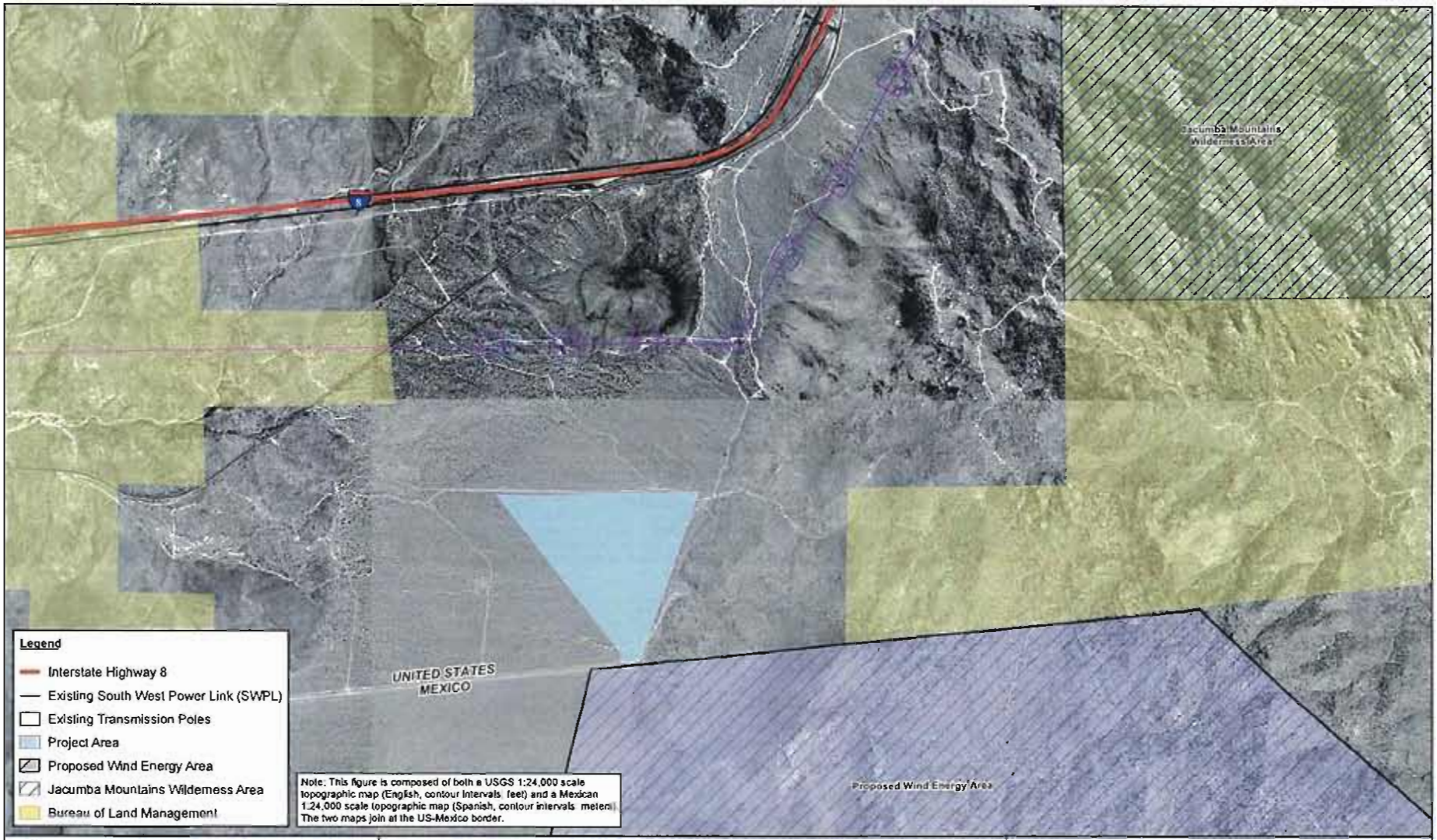
Following the rains of late February, a site check for presence of conditions that indicate QCB flight season is imminent or has started was conducted. These conditions include the presence of certain blooming annuals that could potentially be nectar sources, and larval host plants to support caterpillars. Conditions were not ready for surveys on March 6, 2008 as development of annual plants was not sufficient.

Mr. Rocks visited the FWS Jacumba "reference site" on March 29 and April 16, 2008 to compare the phenology of host plants and nectar sources between the reference site and


Legend
Interstate Highway 8
Existing South West Power Link (SWPL)
Existing Transmission Poles
Project Area
Proposed Wind Energy Area
Jacumba Mountains Wilderness Area
Bureau of Land Management
Note: This figure is composed of both a USGS 1:24,000 scale topographic map (English, contour intervals feet) and a Mexican 1:24,000 scale topographic map (Spanish, contour intervals meters). The two maps join at the US-Mexico border.
Jacumba Mountains Wilderness Area
Proposed Wind Energy Area
SAN DIEGO CO
IMPERIAL CO
UNITED STATES
MEXICO
2040 000 FEET
VABM 3503
VABM Jade 3187
VABM Nepal 4274
VABM White 4118
Blue Angel Peak 4648
Mine
Prospect
12156
T17S
T18S
R8E
R9E
0 0.125 0.25 0.5 0.75
Miles
Scale 1:16,000
Map Reference
Baja Wind US Transmission LLC
SE San Diego County, California
Figure 1
PROJECT AREA MAP
Date: 6/9/2008
GIS: avh
Job Number: 002510.SG08.01

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Map Reference:

Baja Wind US Transmission LLC

SE San Diego County, California

Figure 2
PROJECT AREA MAP

Date	GIS.	Job Number
6/9/2008	avh	002510.SG05.01

\\edms project\true\002510\figure 1 project area map.mxd

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the survey area to best assess the appropriate survey commencement and duration to maximize the likelihood of observing QCB. In addition, the FWS's "2008 Season Quino Checkerspot Butterfly (*Euphydryas editha quino*) Monitored Reference Site Information" website was frequently monitored to obtain information on 2008 QCB observations and locations. On March 24, the site area conditions were deemed to be acceptable to initiate QCB protocol level surveys.

Please see Table 1 for survey dates, conditions, and personnel. All surveys were conducted by Jim Rocks (Permit# TE-063230-3) and Cynthia Jones Daverin (Permit# TE-811615-4).

The focus of this report is the Baja Wind U.S. transmission line area (87 acres). The 87 acre area was fully surveyed per FWS QCB protocol guidelines. It should be noted that the Baja Wind U.S. project area adjoins a 295 acre site where a transmission substation that will be owned, permitted, constructed, and operated by San Diego Gas and Electric (SDG&E) is proposed. The 295 acre proposed substation area was also surveyed for QCB by Mr. Rocks and Ms. Daverin in 2008. The survey results for that area were negative and a separate 45-day report will be submitted to FWS by Mr. Rocks and Ms. Daverin. Please note that Table 1 and the attached field notes include some time surveying a portion of the substation area, in addition to the 87 acre transmission line area. During each survey, the number of acres surveyed per hour within suitable QCB habitat averaged approximately 10-15 acres per biologist.

Table 1. Quino Checkerspot Butterfly Survey Dates/Conditions
Baja Wind Transmission Line Site
Jacumba, San Diego County, CA

Date	3-06-08	3-24-08	3-31-08	4-7-08	4-14-08	4-21-08	4-28-08
Time on site	1050-1350	0945-1615	1000-1600	1000-1500	930-1500	1000-1630	1030-1530
Temp (°F) Start-End	59-63	66-78	60-64	64-68	75-85	65-74	81-85
Sky Cover (%) (start-end)	0-0%	0-0%	0-0%	40-0%	0-0%	0-0%	30-10%
Wind Speed (MPH)	1-10	0-3	3-8	4-12	0-8	10-14	5-11
Personnel	JR	JR, CJD	JR, CJD	JR, CJD	JR, CJD	JR, CJD	JR, CJD

Personnel: JR = Jim Rocks; CJD = Cynthia Jones Daverin

Results

Survey results were negative for both QCB and larval host plant populations during the 2008 surveys. In general, the survey area supports a relatively low diversity of butterfly

species. Butterfly species detected during the surveys are presented in Table 2 and a list of nectar sources and other plant species observed on the site is presented in Table 3.

Nectar sources for butterflies were present throughout the site, but the density varied widely with extremely dense patches in some areas and few to no nectar sources in adjacent areas. The primary nectar sources onsite include Common Goldfields, Desert Dandelion, Scale-bud, California butterweed, California Coreopsis, Wild-Heliotrope, and Pincushion.

During the initial surveys (weeks 1-3) the percent cover of nectar sources was very dense, with up to 90% cover in some areas near the southern site boundary. During weeks 4-6, nectar sources in the washes remained viable as other areas declined. Overall, the amount was sharply reduced and conditions for butterfly nectar sources worsened generally across the site.

Please call me at (619) 843-6640 if you have any questions.

This report represents an accurate account of my work on the survey site.

Sincerely,

Jim Rocks, Principal Biologist
Rocks Biological Consulting
Permit Number TE-063230-3

This report represents an accurate account of my work on the survey site.

Cynthia Jones Daverin

Cynthia Jones Daverin
Mariposa Biology
Permit Number TE-811615-4

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Table 2. Butterfly Species Detected by Survey Date

Sempra Baja Wind U.S. Transmission Line Site							
Jacumba, San Diego County, CA							
Species Detected		**Survey Date**					
Common Name	***Scientific Name***	3-24-08	3-31-08	4-7-08	4-14-08	4-21-08	4-28-08
Painted Lady	*Vanessa cardui*	▪	▪	▪	▪	▪	▪
Common White	*Pontia protodice*	▪	▪	▪	▪	▪	▪
Ceraunus Blue	*Hemiargus ceraunus*	▪					
Sara's Orangetip	*Anthocharis sara*	▪					
Funereal Duskywing	*Erynnis funeralis*	▪	▪				
Sulphur	*Colias sp.*	▪	▪		▪		
Red Admiral	*Vanessa atalanta*			▪			
Chalcedon Checkerspot	*Euphydryas chalcedona*			▪			
Becker's White	*Pontia beckeri*				▪		
Anise Swallowtail	*Papilio zelicaon*	▪			▪		▪
Black Swallowtail	*Papilio polyxenes*					▪	

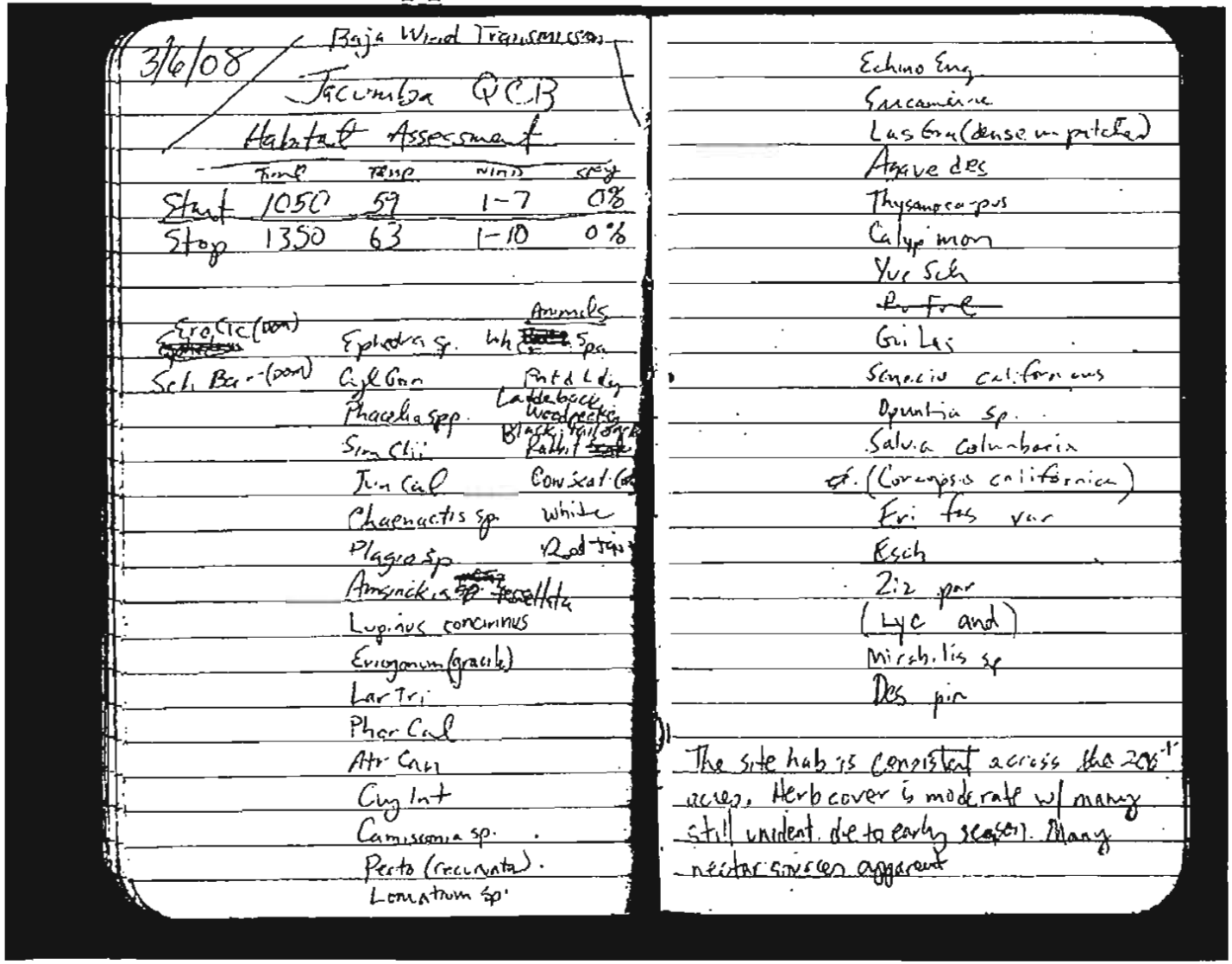
Table 3. Potential QCB Nectar Sources and Other Noted Plants, March-April, 2008

Sempra Baja Wind U.S. Transmission Line Site	
Floral List (March-April 2008)	
Potential QCB Nectar Sources	**Common Name**
Amsinckia menziesii var. *intermedia*	Rancher's Fiddleneck
Amsinckia tessellata var. *tessellata*	Checker Fiddleneck
Anisocoma acaulis	Scale-Bud
Calochortus splendens	Splendid Mariposa Lily
Chaenactis fremontii	Pincushion
Chaenactis stevioides	Desert Pincushion
Cryptantha intermedia	Nievitas Cryptantha
Descurainia pinnata	Tansy-Mustard
Eriogonum thurberi	Thurber's Buckwheat
Eriophyllum wallacei	Wallace's Woolly Daisy
Gilia spp.	Gilia
Guillenia lasiophylla	California Mustard
Lasthenia gracilis	Common Goldfields
Lotus strigosus	Bishop's/Strigose Lotus
Mentzelia affinis	Hydra Stick-Leaf
Pectocarya linearis var. *ferocula*	Slender Pectocarya
Pectocarya recurvata	Curvenut Combseed
Pectocarya setosa	Bristly Pectocarya
Phacelia distans	Wild-Heliotrope
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Platystemon californicus	Cream Cups
Salvia columbariae	Chia
Senecio californicus	California Butterweed
Senecio flaccidus var. *monoensis*	Mono Butterweed
Other Plants Onsite	**Common Name**
Agave deserti	Desert Agave
Allium fimbriatum var. *fimbriatum*	Desert Onion
Ambrosia [*Hymenoclea*] *salsola*	Cheesebush, Burrobrush
Atriplex canescens var. *canescens*	Four-Wing Saltbush/Shadscale
Bromus rubens	Red Brome
Calyptridium monandrum	Common Calyptridium
Camissonia californica	False-Mustard
Camissonia sp.	Primrose
Cylindropuntia ganderi var. *ganderi*	Gander's Cholla
Coreopsis californica var. *californica*	California Coreopsis
Chorizanthe brevicornu var. *brevicornu*	Brittle Spineflower
Chorizanthe fimbriata var. *fimbriata*	Fringed Spineflower
Delphinium sp.	Larkspur
Echinocereus engelmannii	Englemann's Hedgehog Cactus
Emmenanthe penduliflora var. *penduliflora*	Whispering Bells
Ephedra californica	California Ephedra

Ephedra nevadensis	Nevada Ephedra
Ephedra viridis	Green Ephedra
Eriastrum eremicum	Desert Woolly-Star
Ericameria pinifolia	Pine Goldenbush
Eriogonum fasciculatum var. *polifolium*	Mountain Buckwheat
Eriogonum gracile	Slender Buckwheat
**Erodium cicutarium*	Red-Stem Filaree/Storksbill
Eschscholzia californica	California Poppy
Filago sp.	Filago
Galium sp.	Bedstraw
Larrea tridentata	Creosote Bush
Loeseliastrum schottii	Schott's Calico
Lomatium mohavense	Mohave Lomatium
Lotus scoparius var. *brevialatus*	Deerweed
Lupinus concinnus	Bajada Lupine
Lycium andersonii	Waterjacket
Malacothrix glabrata	Desert Dandelion
Mirabilis laevis	Wishbone Plant
Nama demissum var. *demissum*	Purple Mat
Opuntia chlorotica	Pancake Prickly-Pear
Opuntia phaecantha	Desert Prickly-Pear
Phoradendron californicum	Desert Mistletoe
Prunus fremontii	Desert Apricot
Purshia tridentata var. *tridentata*	Antelope Bitterbrush
Rhus ovata	Sugar Bush
Ribes quercetorum	Oak Gooseberry
**Schismus barbatus*	Arabian Schismus
Sidotheca [Oxytheca] trilobata	Three-Lobe Starry Puncturebract
**Sisymbrium altissimum*	Tumble/Jim Hill Mustard
Simmondsia chinensis	Jojoba
Stephanomeria sp.	Wreath-Plant
Stillingia linearifolia	Linear-Leaf Stillingia
Tetradymia canescens	Spineless Horsebrush
Thamnosma montana	Turpentine-Broom
Thysanocarpus curvipes	Lacepod, Fringepod
Yucca schidigera	Mohave Yucca
Ziziphus parryi	Lotebush
* Non-native species	

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Appendix A. Field Notes



3/6/08 Baja Wind Transmission
Jacumba QCB
Habitat Assessment

	Time	Temp	Wind	Sky
Start	1050	59	1-7	0%
Stop	1350	63	1-10	0%

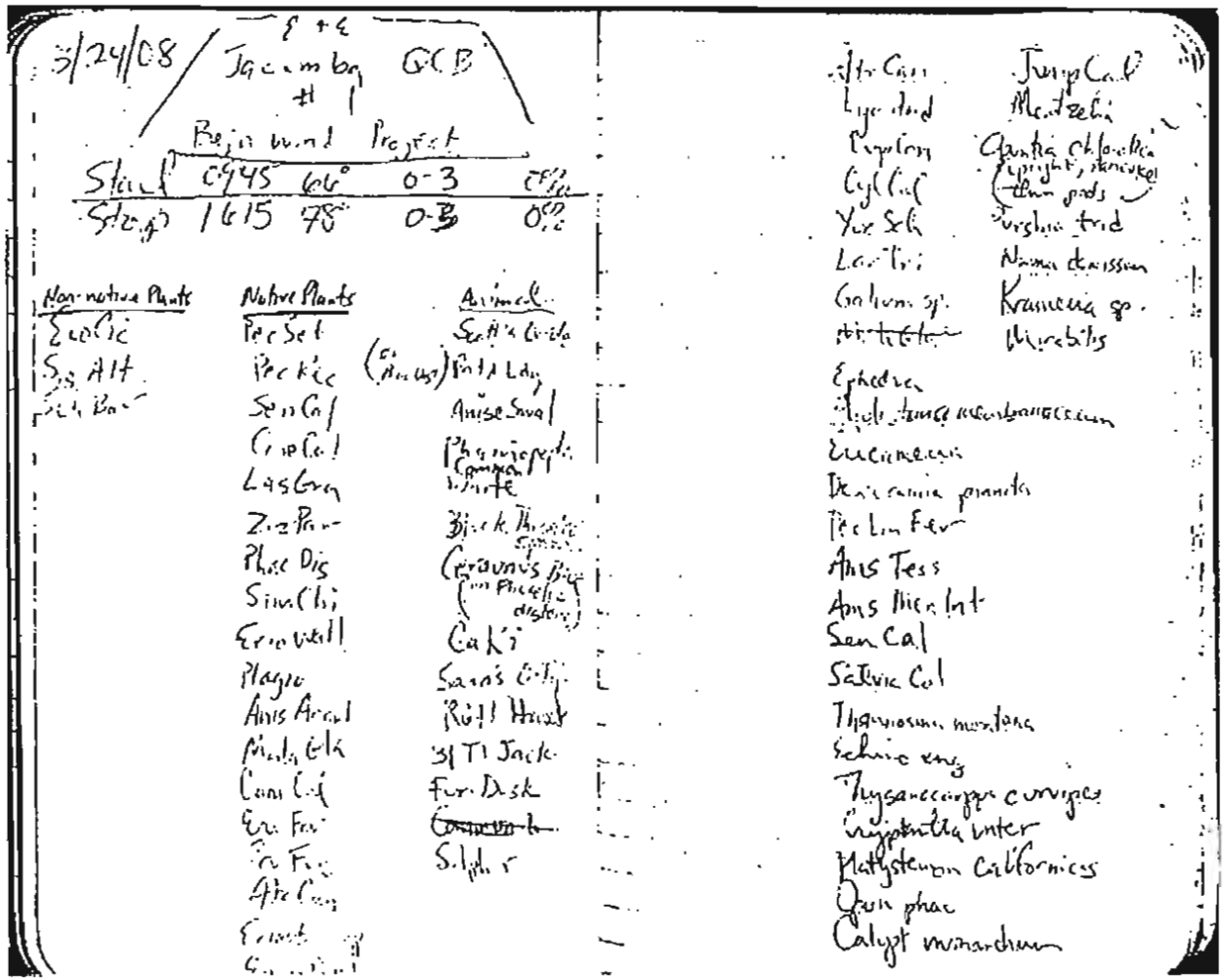
Eriogonum (com)
Sch. Bar - (com)
Ephedra sp.
Cyl Cyn
Phacelia spp.
Sim Cli
Jun Cal
Chaenactis sp.
Plagio sp.
Amsinckia spp. tessellata
Lup. ivo concinnus
Eriogonum (gracile)
Lar Tri
Phar Cal
Atr Can
Cyl Int
Camissonia sp.
Perto (reclinata)
Lomatium sp.

Animals
Wh Spa
Bnt d Ldy
Ladderback Woodpecker
Black tailed Rabbit
Conical Co
White
Red Tail

Echino Eng
Encelia
Las Gra (dense in patches)
Agave des
Thysanocarpus
Calyp mon
Yuc Sch
Ru Fre
Gri Las
Senecio californicus
Opuntia sp.
Salvia Columbaria
cf. (Coreopsis californica)
Eri fas var
Esch
Ziz par
(Lyc and)
Mirab. lis sp
Des pin

The site hab is consistent across the 20+ acres. Herb cover is moderate w/ many still unident. due to early season. Many nectar sources apparent

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3/24/08 Jacumba GCB #1

Regional Project

Start	0745	66°	0-3	0%
Stop	1615	78°	0-3	0%

Non-native Plants
Eucalyptus
Sis Alt
Pep Bar

Native Plants
Per Set
Pac Sic
Sen Cal
Cry Cal
Las Gra
Ziz Pal
Phac Dis
Sim Chi
Eri wall
Plagio
Anis Arca
Mim Gla
Cam Cal
Eri Fas
Eri Fas
Ste Cra
Eriod
Cry

Animals
Scal's Curl
(Pinacate) Pal Lay
Anise Swal
Pharmacophis Empusa
White
Black Phoebe
Gravid's Big (Pacific dist)
Cal Ti
Sara's Orb
Red Hawk
3/4 Ti Jack
Fox Disk
Coyote
Spider

Jim Cass Jump Cal
Lyc Hirs Mentzelia
Eriogonum Opuntia chlorotica (upright, stenopet thin pads)
Cyl Cal
Yuc Sch Yucca brev
Lar Tri Nama dem
Gal Uni Sp. Krameria sp.
Ant Ste Mirabilis

Ephedra
Euphorbiaceae
Cucurbitaceae
Dendromecon plants
Pec Lan Fav
Anis Tess
Anis Mer Int
Sen Cal
Salvia Col
Thamnosma montana
Salvia eng
Thysanocarpus curvipes
Cryptantha inter
Platystemon Californicus
Gayophac
Calypt monarchum

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3/31/08 Jacumba QCB #2

w/ Cindy, Jess Powers

	Time	Temp	Wind	Sky Cover
Start	1020	60°	3-5	0%
Stop	1600	64	6-8	0%

Starting on middle of site

Birds
Wildlife still look good but starting to fade slightly

Mediterranean effects - some yellow, less lush, parking dried out some - shrubs are exposed to open sandy areas

Animals
Painted Lady
Common White
Funereal Duk
Sulphur sp.
Black Tip Sparrow
Sphinx moth - 3 perching on [illegible]

GoTi
Brewer's Sparrow
[illegible]

Phacelia
Nuttall
Scott's Scrub

E.T.E. Baja Calif

4/7/08 Jacumba QCB Survey #3

	Time	Temp	Wind	Sky Cover
Start	1020	64	8-12	40%
Stop	1600	68	4-5 gusts to 10	0%

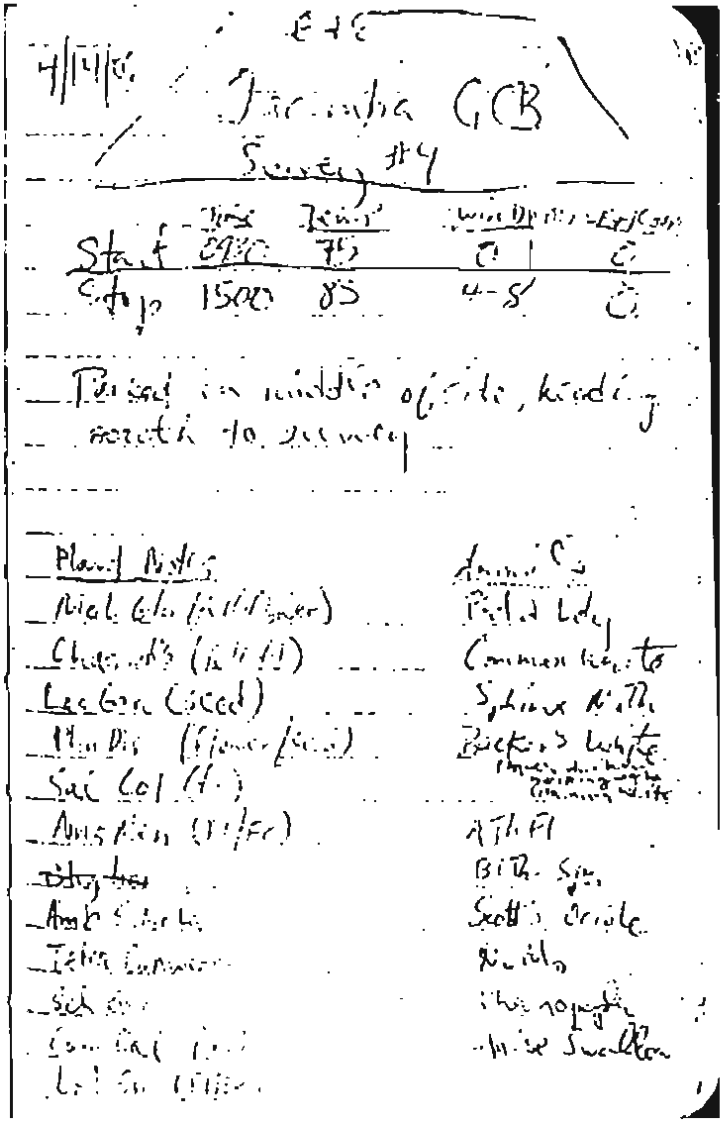
Ambrosia salsola
Rhus

Animals
Red Admiral
Painted Lady
Phacelia
Scott's Oriole
Brewer's Sparrow
White Crowned Sparrow
Chalcedon Checkerspot

Common White

*No QCB observed

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4/14/08 Jacumba GCB Survey #4

	Time	Temp	Wind Dir	Wind Speed
Start	0930	75	C	C
Stop	1500	85	4-5	C

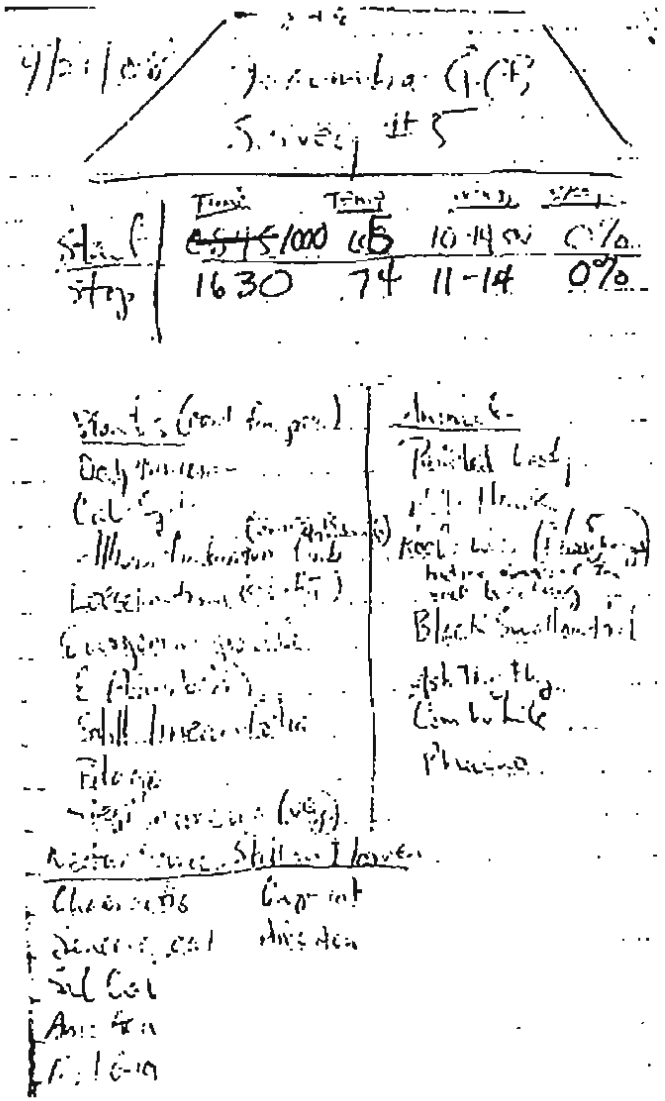
Parked in middle of site, heading north to survey

Plant Notes

Nick Gh (Hill Slope)
Chaparral (Hill)
Lac Gra (Seed)
Mal Dic (Flower/Seed)
Sal Col (Fl)
Ambrosia (Fl/Fr)
Brickellia
Amb Cha
Isocoma
Sal Col
Cam Cal (Fl)
Lot Scr (Fl)

Animals

Pocket Mouse
Cactus Wren
Common Raven
Sylvilagus Audubonii
Black-tailed Jackrabbit
Flicker
Phainopepla
White-crowned Sparrow



4/21/08 Jacumba GCB Survey #5

	Time	Temp	Wind	Cloud
Start	~~0545~~ 1000	68	10-14 mi	0%
Stop	1630	74	11-14	0%

Plant Notes (Seed for prop)

Ochthocosmus
Calochortus
Allium fimbriatum (Fl)
Lotus scoparius (Fl/Fr)
Eriogonum gracile
Eriophyllum
Salvia lineata/dorrii
Filago
Nicotiana attenuata (Fl/Fr)

Animals

Pocket Mouse
Desert Cottontail
Black-tailed Jackrabbit
Roadrunner (Flushed from bushes and ran down road)
Black-throated Sparrow
Ash-throated Flycatcher
Common Raven
Phainopepla

Raptor Survey: Shallow Haven

Chaparral
Jacumea Col
Sal Col
Amb Dum
Filago

Cooper's Hawk
Red-tailed Hawk

→ Andersonii
Lycium (calyx tube short ½ corolla tube
Corolla lobes short

Ambrosia Filago (arizonica)
Stylo Gnap
Chaenactis stevioides
Lyt: ChamAlbo
Chaenactis fremontii
-Most of the Lac Gra is dried and in seed. Still some in Fl in protected areas

Oxytheca trif
Layia glandulosa
Scott's Oriole

Jim Rocks
Castilleja gracilis - now completely in seed w/ a couple of exceptions.

4/28/08 Sempra | E+E

Jacumba QCB #6

	Time	Temp	Wind	Sky
Start	1030	81	5-10	30%
Stop	1530	85°	5-11	15% thin

- Nectar sources very scarce now

Senecio flaccidus var. monoensis
Mal Gla
Chae (ster) Ath Fly
Cryptantha No Mo
Sal Col Phoe
Stillin Common Yellowthroat
Eriophyllum Rufous Hum
Phac Dis Ca Qu
Phor Cal (on Z. ve Par) BH Sparrow
Ribes quercetorum Blue-Gray Gnat
  Sage thrasher
  Barn Swallow

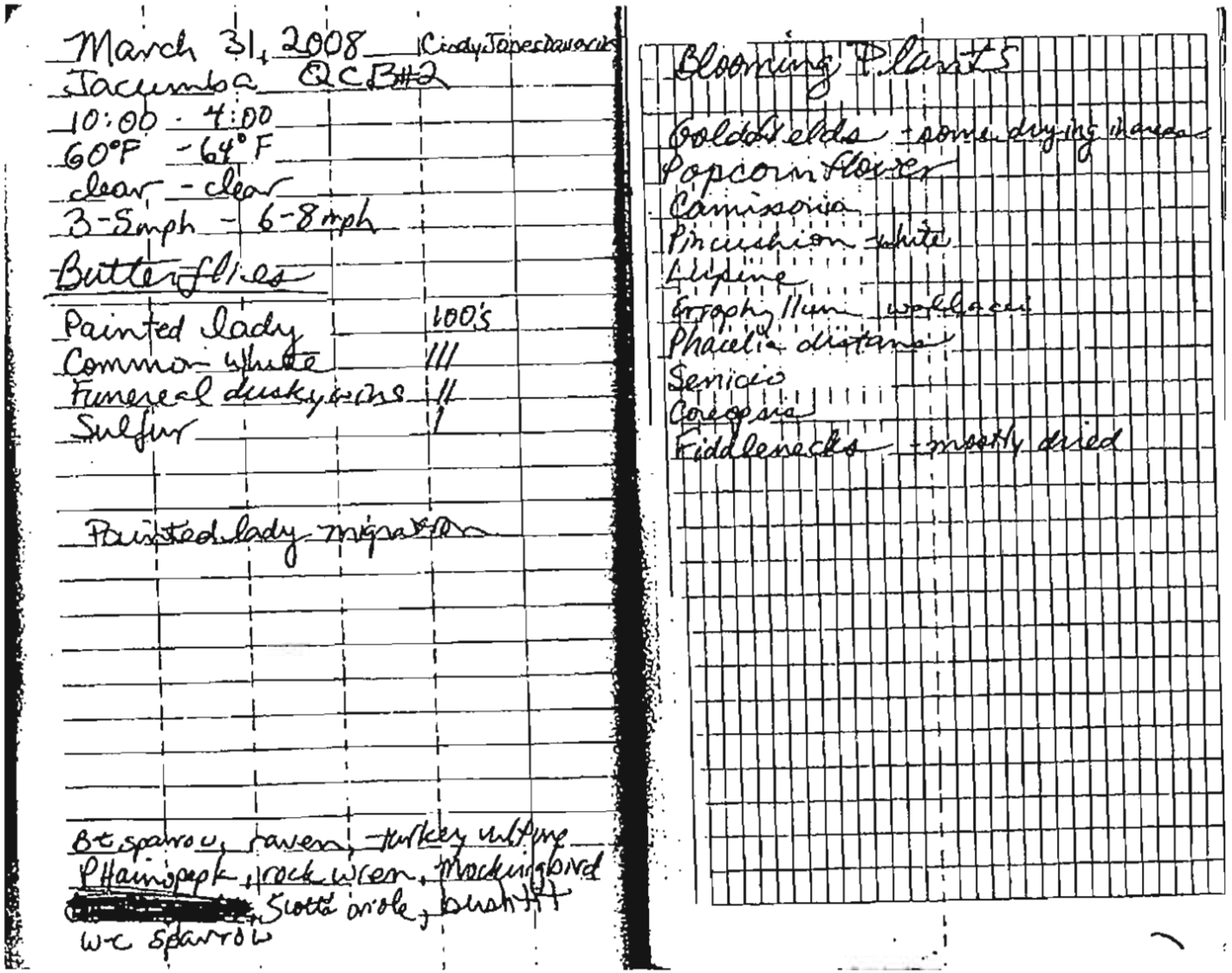
Geraea canescens - found offsite to the west
~25 indiv.

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March 24, 2008 Cindy Jones Daverin
Jacumba CCB #1
9:45 - 4:15 66°F - 78°F
clear - clear 0-3mph / 0-3mph
Butterflies
Painted lady 50
Painted lady migration
Anise swallowtail 1
White (checkered) 20
Common blue 1
Sara orangetip 1
Sulfur 1
Birds
Brewer's sparrow Black throated gray
Phainopepla W. kingbird
N. mockingbird R-t hawk
W.C. sparrow

Blooming Plants
Goldfields
Amsinckia
Gilia
Pectocarya (2)
Phacelia
Chicory Coreopsis
Green stem (white)
Camissonia
Oxy
Daisys
Tansy mustard
Lupine
Astragalus
Cream cups
Mentzelia
Eriophyllum wallacei
Senecio californica

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March 31, 2008 Cindy Tapestry work
Jacumba QCB#2
10:00 - 4:00
60°F - 64°F
clear - clear
3-5mph - 6-8mph

Butterflies

Painted lady	100's
Common White	111
Funereal dusky wings	11
Sulfur	1

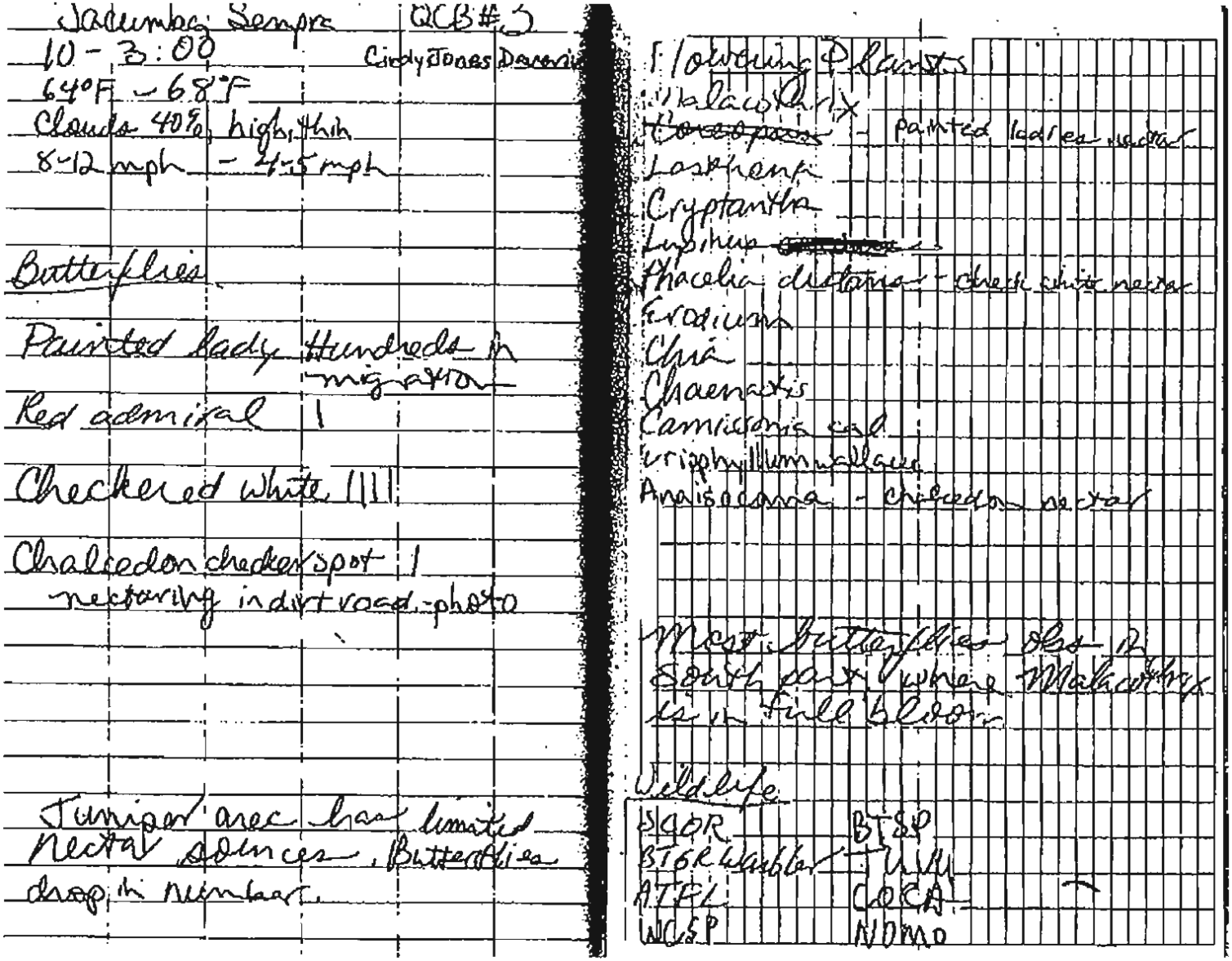
Painted lady migration

Bt sparrow, raven, turkey vulture
Phainopepla, rock wren, Mockingbird
[redacted], Scott oriole, Brushoff
WC Sparrow

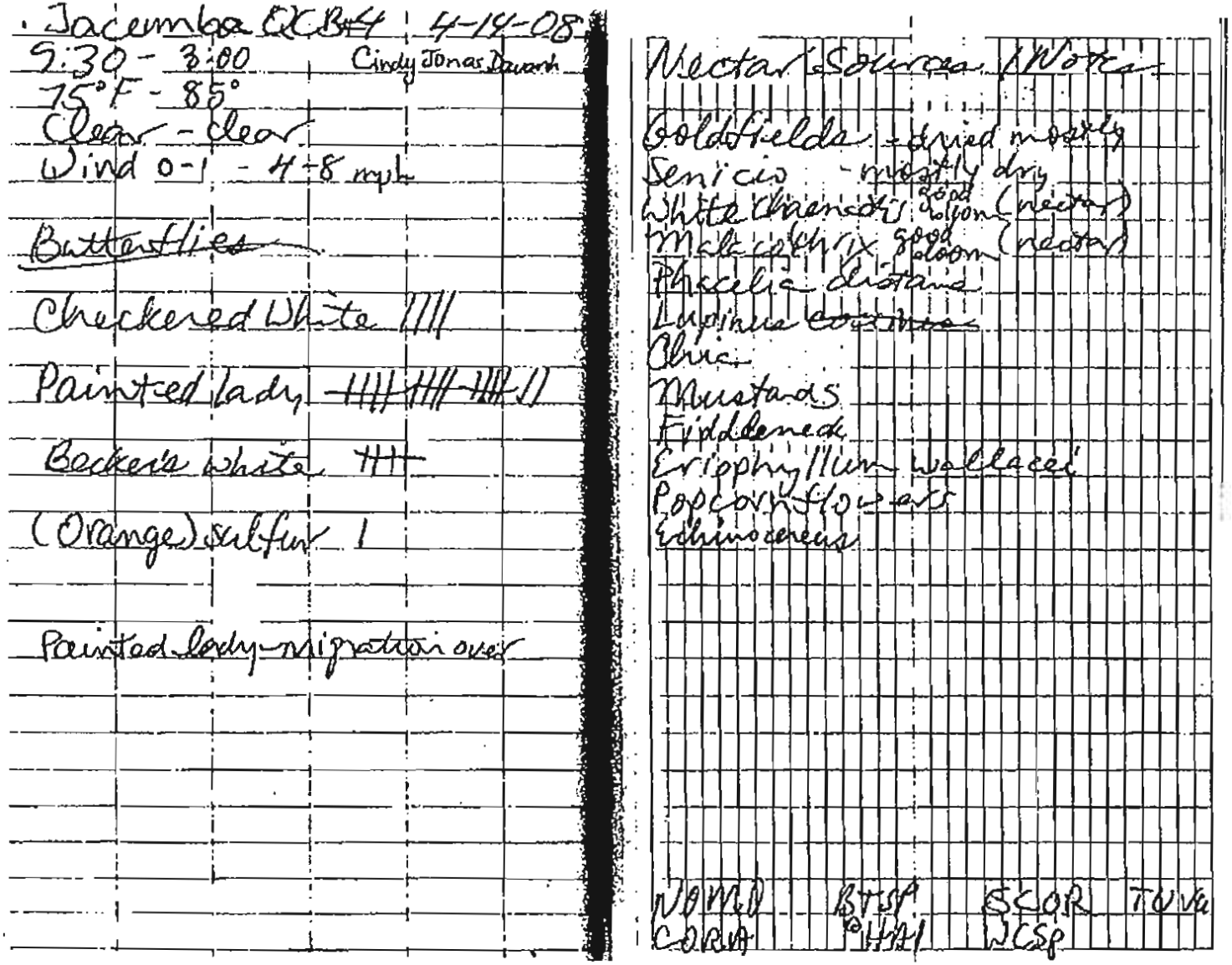
Blooming Plants

Goldfields + some drying annuals
Popcorn flower
Camissonia
Pincushion - white
Lupine
Eriophyllum wallacei
Phacelia distans
Senecio
Coreopsis
Fiddlenecks - mostly dried

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· Jacumba ECBH 4-14-08
9:30 - 3:00 Cindy Jonas Dawn
75°F - 85°
Clear - clear
Wind 0-1 - 4-8 mph

Butterflies

Checkered White ////

Painted lady ////-////-////-//

Becker's white ///

(Orange) sulfur 1

Painted lady-migration over

Nectar Sources / Notes

Goldfields - dried mostly

Senicio - mostly dry

White Thistle good bloom (nectar)

Milkwort/x good bloom (nectar)

Phacelia distant

Lupinus ~~common~~

Chrc.

Mustards

Fiddleneck

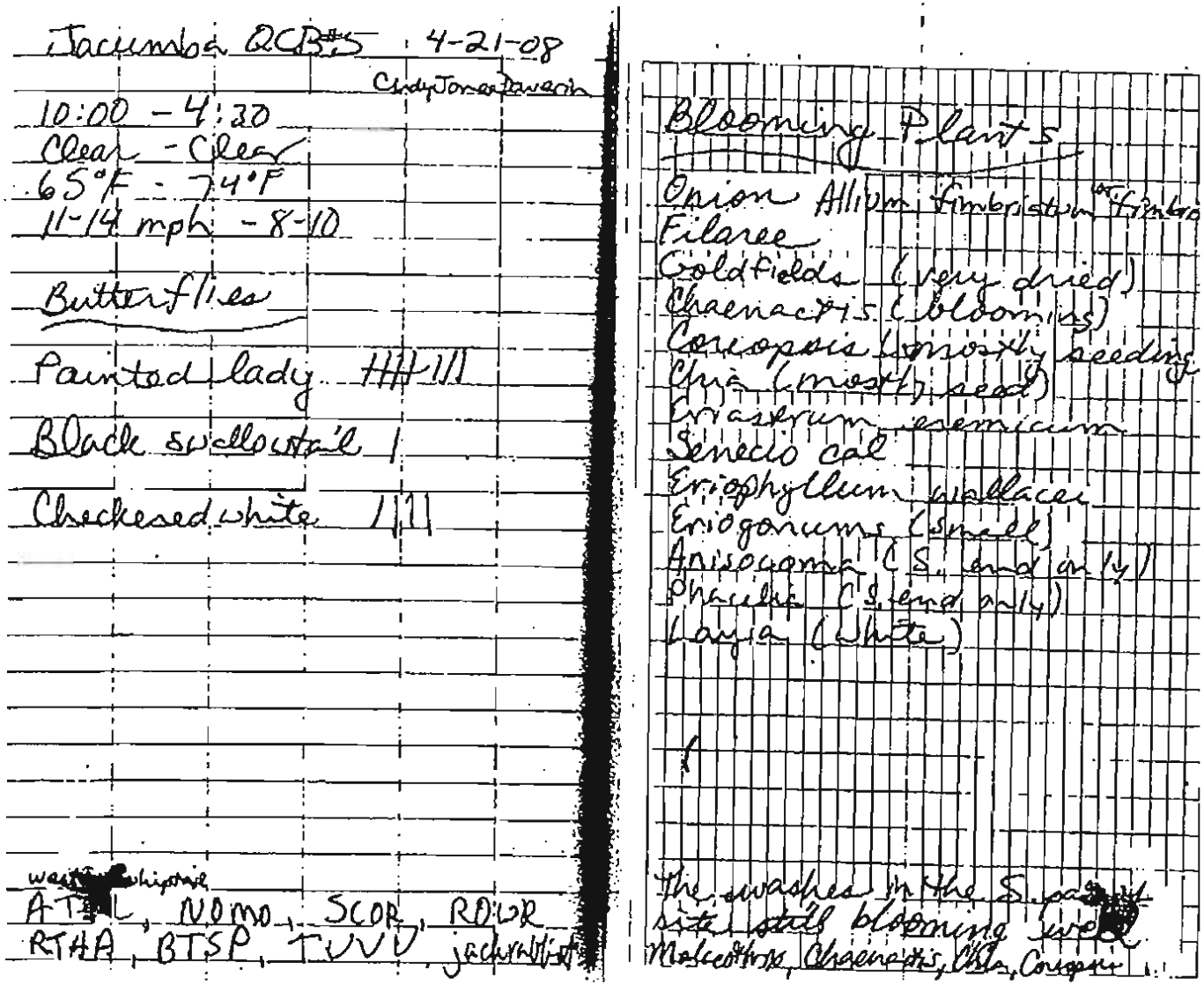
Eriophyllum wallaceii

Popcorn flowers

Echinocereus

NOMI BTSP SCOR TOVa
CORI ////1 WCSP

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Jacumba QCB#5 4-21-08
Cindy Jones Dawson

10:00 - 4:30
Clear - Clear
65°F - 74°F
11-14 mph - 8-10

Butterflies

Painted lady HH-III
Black swallowtail I
Checkered white III

ATTL, NOMO, SCOR, RDVR
RTHA, BTSP, TVVD, jackrabbit

Blooming Plants

Onion Allium fimbriatum or fimbria
Filaree
Goldfields (very dried)
Eschscholzia (bloomin)
Coreopsis (mostly seeding)
Chia (mostly seed)
Erysimum insulare
Senecio cal
Eriophyllum wallacei
Eriogonums (small)
Anisocoma (S. and on hill)
Phacelia (S. end only)
Lasia (White)

The washes in the S. part of site still blooming well
Malacothrix, Chaenactis, Cleo, Coreopsis

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Appendix B. 10-day Letter

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ROCKS BIOLOGICAL CONSULTING

February 27, 2008

Ms. Sandra Marquez
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, CA 92011

Subject: 10-day Notification Letter for Quino Checkerspot Butterfly Protocol Surveys

Ms. Marquez:

This letter is to inform you that I will be conducting a U.S. Fish and Wildlife Service (FWS) protocol Quino Checkerspot Butterfly surveys in Jacumba, CA and Jamul, CA. I have attached maps of both sites for your information and review. Based on the 2006 FWS map, the sites are both located in Survey Area 1.

The Jacumba survey area consists of approximately 230-acres of desert-transition habitat including Pinyon-Juniper, Yuccas, and Cactus. I will be assisted on this survey by Cindy Jones Daverin (Permit # 811615).

The Jamul, CA site consists of approximately 2-acres of dense Chaparral and Coastal Sage Scrub.

Per the protocol, a thorough habitat assessment of both proposed project areas will be conducted for the Quino Checkerspot Butterfly host plants as well as other plants and environmental variables associated with known habitat of the butterfly, such as nectar sources, openings in Coastal Sage Scrub, Grassland and other habitats, and intact soil crusts.

Please contact me at (619) 843-6640 if you have any questions or concerns about this protocol survey.

Sincerely,



Jim Rocks, Principal Biologist
USFWS Permit No. 063230-3

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ROCKS BIOLOGICAL CONSULTING

May 22, 2009

U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, CA 92009

Attention: Ms. Sandra Marquez

Permitted Biologists:
Jim Rocks: TE-063230-3
Cynthia Jones Daverin: TE-811615-4

Subject: Year 2009 45-Day Report for Quino Checkerspot Butterfly Surveys at the Proposed Energia Sierra Juarez Gen-Tie Project Site near Jacumba, California

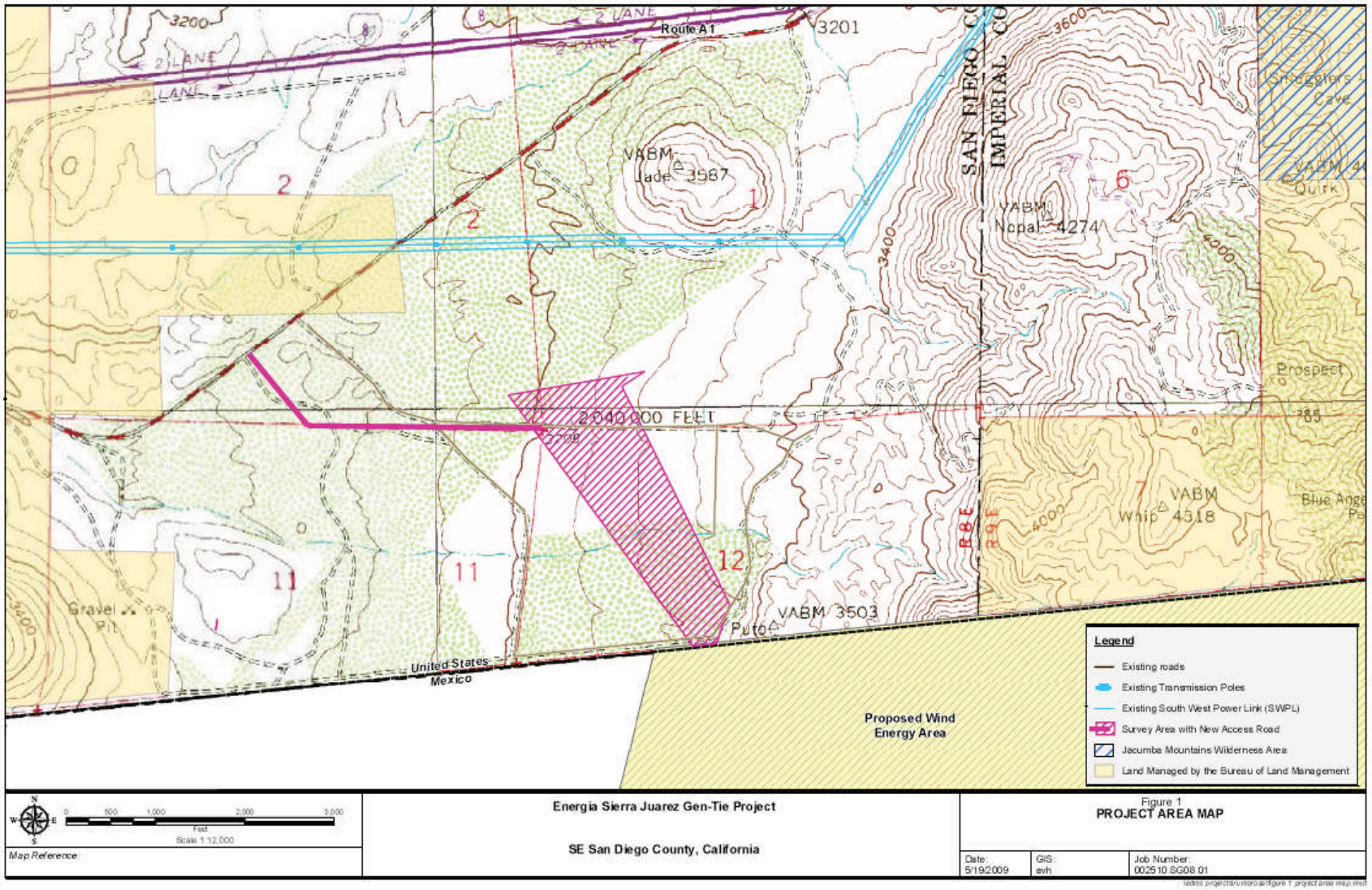
Dear Ms. Marquez:

This letter presents the 45-Day Report for Quino Checkerspot Butterfly (*Euphydryas editha quino,* QCB) surveys at the proposed Energia Sierra Juarez Gen-Tie Project site (site), near Jacumba in San Diego County, California. Survey results were negative for both QCB and larval host plant populations during the 2009 surveys. The 2009 survey for QCB is the second survey for this project; the first QCB survey and habitat assessment on the site were conducted in 2008. Surveys in 2008 were negative for both QCB and larval host plants. The 2009 survey was conducted from March 23 to April 22, 2009. Figures showing the survey area boundary and copies of field notes are attached to this report.

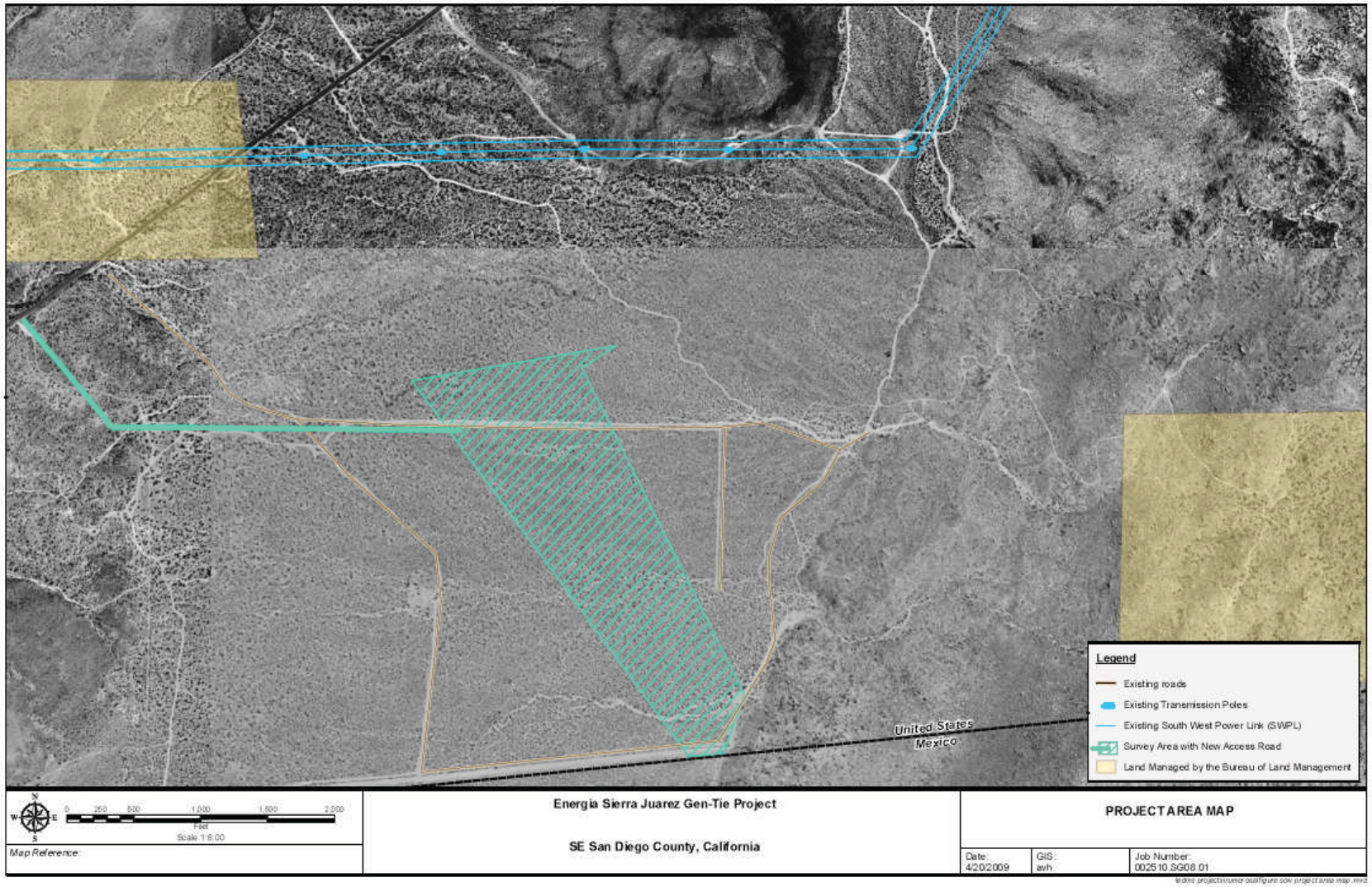
Location
The site is within an approximately 60-acre area located east of the town of Jacumba, California, south of Old Highway 80, and immediately north of the international border. The site is on the U.S. Geological Survey 7.5'Jacumba Quadrangle (see Figure 1). The site is in the U.S. Fish and Wildlife Service (USFWS) recommended Survey Area 1 (2002).

The site is undeveloped, but there are existing dirt roads that are frequently used by the Border Patrol for border surveillance, and there is evidence of trash dumping along the eastern edge of the site. The site is surrounded by relatively undisturbed open space on all sides with Interstate 8 about 0.7 miles to the north and the U.S./Mexico border marking the southern boundary of the project site (Figure 2). The figures included in this report were provided by Ecology and Environment, Inc. and are assumed to be an accurate representation of the limits of the intended survey area.

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Habitat Assessment

The site is relatively flat to gently sloping with deep alluvial granitic soils in most areas. Several ephemeral washes, supporting a relatively high diversity of herbaceous annuals, run west-east across the site. Elevation of the site is approximately 3,100 feet above mean sea level. The site is at the western base of a mountain composed of large granitic outcrops.

The habitat assessment was conducted on March 10, 2009, to assess the phenology of the nectar source plants on and near the site. The vegetation communities, soils, and general conditions on site were assessed for their suitability to support QCB in 2008 and were deemed suitable for surveys according to USFWS guidelines. The vegetation community on site is best classified as Desert Chaparral or Mixed Desert Scrub. Common shrub or perennial species in this habitat include Jojoba (*Simmondsia chinensis*), Waterjacket (*Lycium andersonii*), Lotebush (*Ziziphus parryi* var. parryi), Ephedra (*Ephedra* spp.), Gander's Cholla (*Cylindropuntia ganderi* var. *ganderi*), Mohave Yucca (*Yucca schidigera*) and Creosote (*Larrea tridentata*). Annuals present 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 fremontii*).

Washes, with looser and sandier soils, contained many of the same plant species as the Mixed Desert Scrub. Additional species found in the washes include Cheesebush (*Ambrosia salsola*), Woolly-star (*Eriastrum densifolium* ssp. *elongatum*), Wallace's Woolly Daisy (*Eriophyllum wallacei*), and Schott's Calico (*Loeseliastrum schottii*).

The boulder-covered hills immediately east of the site provide additional plant species important to butterflies such as Yellow Bush Penstemon (*Keckiella antirrhinoides* var. *antirrhinoides*) and Deerweed (*Lotus scoparius* var. *brevialatus*), in addition to most of the Desert Chaparral species.

Methods

Surveys were performed in accordance with the FWS's "*Quino Checkerspot Butterfly (Euphydryas editha quino) Survey Protocol Information*" dated February 2002. On March 15, 2009, a pre-survey notification letter (the 10-day letter) was sent to the USFWS announcing the intent to conduct surveys for the QCB (Appendix B). One field visit to assess the status of nectar sources was performed, and five protocol level surveys were completed. More detailed information on the field visit and surveys is presented below.

The flight season of QCB is dependent upon adequate rainfall and warm weather to produce supplies of food plants sufficient for allowing QCB larvae to feed, pupate, and emerge during the spring. In 2009, both in the southwestern and eastern portions of the QCB's range, rain fell in winter and early spring causing the germination of annual plants. Most of the annual plants that appeared during early surveys had dried by the final survey.

Following the winter rains, a site check for the presence of conditions that indicate QCB flight season is imminent or has started was conducted on March 10, 2009. These conditions include the presence of certain blooming annuals that could potentially be nectar sources and larval host

plants to support caterpillars. Conditions were not ready for surveys as development of annual plants was not yet sufficient.

The USFWS's "2009 Season Quino Checkerspot Butterfly (*Euphydryas editha quino*) Monitored Reference Site Information" website was frequently monitored to obtain information on 2009 QCB observations and locations. On March 13, the website announced that QCB were observed flying on Jacumba Peak. This initiated the QCB surveys on the site.

Please see Table 1 for survey dates, conditions, and personnel. All surveys were conducted by Jim Rocks (Permit# TE-063230-3) and Cynthia Jones Daverin (Permit# TE-811615-4). Because weather conditions prior to and during the 2009 QCB flight season were regarded as very good across the known range of the species, site surveys were extended to a sixth week. Furthermore, at the end of the fifth survey, the site still supported flowering nectar sources, and other spring butterflies that are commonly present with QCB were still in flight. We think the combination of these two factors warranted conducting a sixth protocol survey.

Table 1. Quino Checkerspot Butterfly Survey Dates/Conditions

Date	3-23-09	3-30-09	4-6-09	4-16-09	4-22-09	4-24-09
Time on Site	1545-1715	1415-1630	0900-1115	1100-1300	1345-1615	1430-1630
Temp (°F) Start-End	66-64	63-62	64-67	65-68	85-81	69
Sky Cover (%) (start-end)	0-0%	0-0%	0-0%	0-0%	0-0%	50-60%, thin clouds
Wind Speed (MPH)	1-10	1-10	1-7	1-4	3-12, gusts to 20	4-12
Personnel	JR, CJD	JR, CJD	JR	JR, CJD	JR, CJD	JR

Personnel: JR = Jim Rocks; CJD = Cynthia Jones Daverin

Results

Survey results were negative for both QCB and larval host plant populations during the 2009 surveys. In general, the survey area supports a relatively low diversity of butterfly species. Butterfly species detected during the surveys are presented in Table 2, and a list of nectar sources and other plant species observed on the site is presented in Table 3.

Common species observed include Painted Lady (*Vanessa cardui*), Common White (*Pontia protodice*), Sara's Orangetip (*Anthocaris sara*), and Chalcedon Checkerspot (*Euphydryas chalcedona*). Becker's White (*Pontia beckeri*) and Bernardino Dotted-Blue (*Euphilotes bernardino*) appeared during the end of the surveys. The number of butterflies present on site in 2009 exceeded the number present in 2008.

Nectar sources for butterflies were present throughout the site, but the density varied widely with extremely dense patches in some areas and few to no nectar sources in adjacent areas. The

primary nectar sources on site include Common Goldfields, Desert Dandelion, Scale-bud, California butterweed, California Coreopsis, Wild-Heliotrope, and Pincushion. Butterflies were particularly attracted to a variety of nectar sources in a small gully at the base of the rock outcrops adjacent to the international border. Larval food plants for butterflies were more common in the outcrops than on the project site. Various Mustards and Rancher's Fiddleneck (*Amsinckia intermedia* spp. *intermedia*) provided nectar sources in the gully.

During the first survey, few nectar sources were blooming. The greatest numbers of nectar sources were present during the middle surveys. By the final survey, most nectar sources had declined or were senescent, with the exception of wash areas and areas beneath large shrubs. Overall, the number of flowering plants was lower in 2009 than in 2008.

This report represents an accurate account of my work on the survey site.

Sincerely,



Jim Rocks, Principal Biologist
Rocks Biological Consulting
Permit Number TE-063230-3

This report represents an accurate account of my work on the survey site.



Cynthia Jones Daverin
Mariposa Biology
Permit Number TE-811615-4

Table 2. Butterfly Species Detected by Survey Date

Common Name	Scientific Name	3-23-09	3-30-09	4-6-09	4-16-09	4-22-09	4-24-09
Common White	*Pontia protodice*	x	x	x	x	x	
Becker's White	*Pontia beckeri*				x	x	x
Pearly Marble	*Euchloe hyantis*			x			
Sara Orangetip	*Anthocaris sara*		x	x	x	x	
Sulphur	*Colias sp.*				x		
Western Pygmy-blue	*Brephidium exile*			x	x		
Bernardino blue	*Euphilotes battoides bernardino*					x	
Chalcedon Checkerspot	*Eyphydryas chalcedona*	x	x	x	x	x	x
Painted Lady	*Vanessa cardui*	x	x	x	x		x
Common Buckeye	*Junonia coenia*		x				
Monarch	*Danaus plexippus*				x		

Table 3. Potential QCB Nectar Sources and Other Noted Plants, March-April, 2009

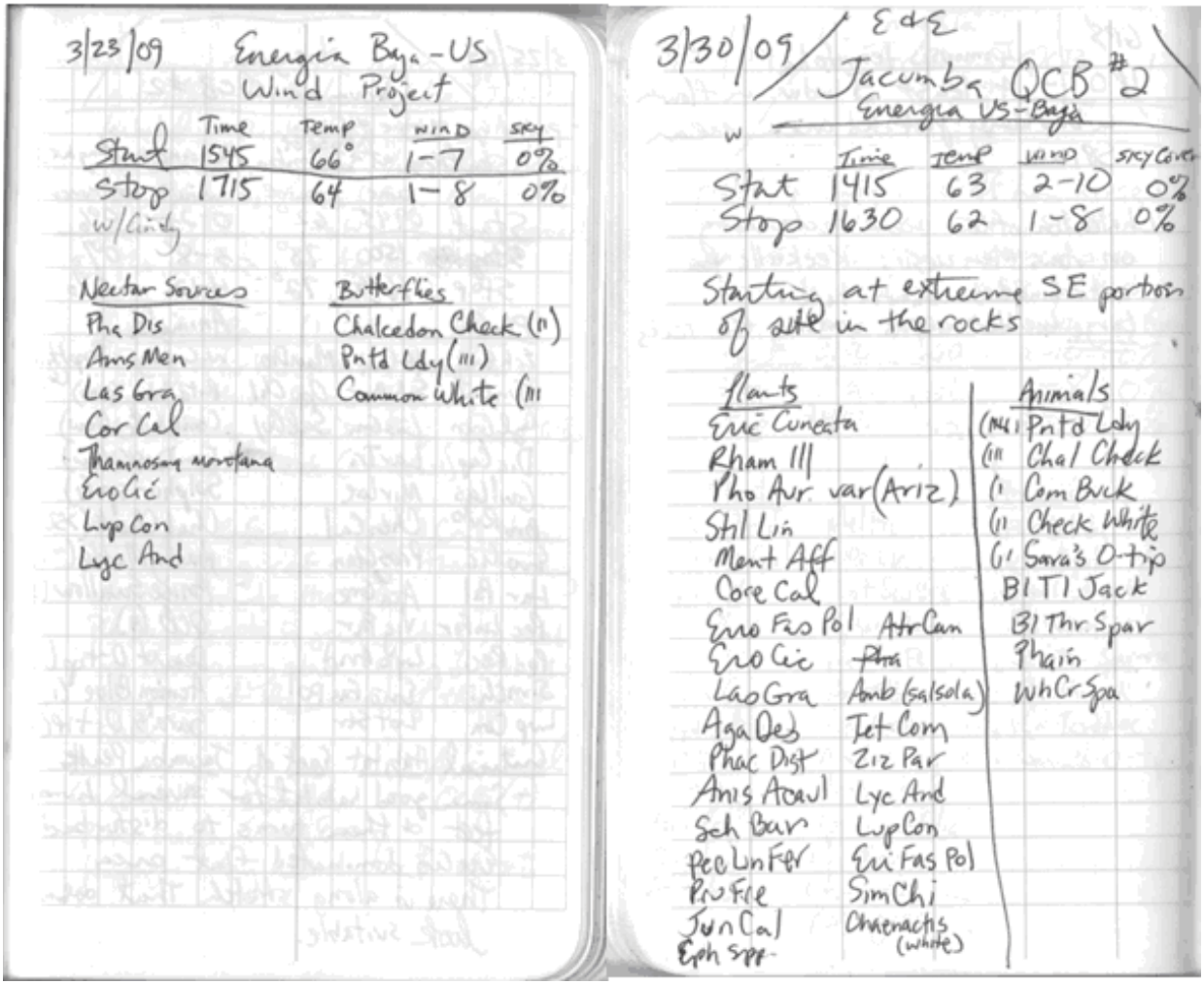
Potential QCB Nectar Sources	
Scientific Name	**Common Name**
Amsinckia menziesii var. *intermedia*	Rancher's Fiddleneck
Amsinckia tessellata var. *tessellata*	Checker Fiddleneck
Anisocoma acaulis	Scale-Bud
Calochortus splendens	Splendid Mariposa Lily
Camissonia californica	False-Mustard
Camissonia sp.	Primrose
Chaenactis fremontii	Pincushion
Chaenactis stevioides	Desert Pincushion
Coreopsis californica var. *californica*	California Coreopsis
Cryptantha intermedia	Nievitas Cryptantha
Descurainia pinnata	Tansy-Mustard
Emmenanthe penduliflora var. *penduliflora*	Whispering Bells
Eriogonum thurberi	Thurber's Buckwheat
Eriophyllum wallacei	Wallace's Woolly Daisy
Gilia spp.	Gilia
Guillenia lasiophylla	California Mustard
Larrea tridentata	Creosote Bush
Lasthenia gracilis	Common Goldfields
Lotus scoparius var. *brevialatus*	Deerweed
Lotus strigosus	Bishop's/Strigose Lotus
Lupinus concinnus	Bajada Lupine
Lycium andersonii	Waterjacket
Malacothrix glabrata	Desert Dandelion
Mentzelia affinis	Hydra Stick-Leaf
Pectocarya linearis var. *ferocula*	Slender Pectocarya
Pectocarya recurvata	Curvenut Combseed
Pectocarya setosa	Bristly Pectocarya
Phacelia distans	Wild-Heliotrope
Pholistoma membranaceum	White Fiesta Flower
Plagiobothrys sp.	Popcornflower
Platystemon californicus	Cream Cups
Prunus fremontii	Desert Apricot
Salvia columbariae	Chia
Senecio californicus	California Butterweed

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Potential QCB Nectar Sources	
Scientific Name	**Common Name**
Senecio flaccidus var. *monoensis*	Mono Butterweed
**Sisymbrium altissimum*	Tumble/Jim Hill Mustard
Thamnosma montana	Turpentine-Broom
Ziziphus parryi	Lotebush
Other Plants on Site	
Scientific Name	**Common Name**
Agave deserti	Desert Agave
Ambrosia [*Hymenoclea*] *salsola*	Cheesebush, Burrobrush
Atriplex canescens var. *canescens*	Four-Wing Saltbush/Shadscale
Bromus rubens	Red Brome
Calyptridium monandrum	Common Calyptridium
Cylindropuntia ganderi var. *ganderi*	Gander's Cholla
Chorizanthe brevicornu var. *brevicornu*	Brittle Spineflower
Chorizanthe fimbriata var. *fimbriata*	Fringed Spineflower
Echinocereus engelmannii	Englemann's Hedgehog Cactus
Ephedra californica	California Ephedra
Ephedra nevadensis	Nevada Ephedra
Ephedra viridis	Green Ephedra
Eriastrum densifolium var. *elongatum*	Chaparral Woolly-Star
Eriastrum eremicum	Desert Woolly-Star
Ericameria linearifolia	Goldenbush
Eriogonum fasciculatum var. *polifolium*	Mountain Buckwheat
Eriogonum gracile	Slender Buckwheat
**Erodium cicutarium*	Red-Stem Filaree/Storksbill
Eschscholzia californica	California Poppy
Filago gallica	Filago
Galium sp.	Bedstraw
Juniperus californica	California Juniper
Loeseliastrum schottii	Schott's Calico
Lomatium mohavense	Mohave Lomatium
Lycium andersonii	Waterjacket
Mirabilis laevis	Wishbone Plant
Nama demissum var. *demissum*	Purple Mat
Opuntia phaecantha	Desert Prickly-Pear
Phoradendron californicum	Desert Mistletoe

Other Plants on Site	
Scientific Name	**Common Name**
Prunus fremontii	Desert Apricot
Rhus ovata	Sugar Bush
Ribes quercetorum	Oak Gooseberry
**Schismus barbatus*	Arabian Schismus
Sidotheca [*Oxytheca*] *trilobata*	Three-Lobe Starry Puncturebract
Simmondsia chinensis	Jojoba
Stephanomeria pauciflora	Wreath-Plant
Stillingia linearifolia	Linear-Leaf Stillingia
Thysanocarpus curvipes	Lacepod, Fringepod
Yucca schidigera	Mohave Yucca
Ziziphus parryi var. *parryi*	Lotebush
* Non-native species	

Appendix A. Field Notes



3/23/09 Energia Baja - US Wind Project

	Time	Temp	Wind	Sky
Start	1545	66°	1-7	0%
Stop	1715	64	1-8	0%

w/Cindy

Nectar Sources
Pha Dis
Ams Men
Las Gra
Cor Cal
Thamnosma montana
Eri Cic
Lyp Con
Lyc And

Butterflies
Chalcedon Check. (11)
Pntd Ldy (111)
Common White (111

3/30/09 E&E

Jacumba QCB #2
Energia US-Baja

	Time	Temp	Wind	Sky Cover
Start	1415	63	2-10	0%
Stop	1630	62	1-8	0%

Starting at extreme SE portion of site in the rocks

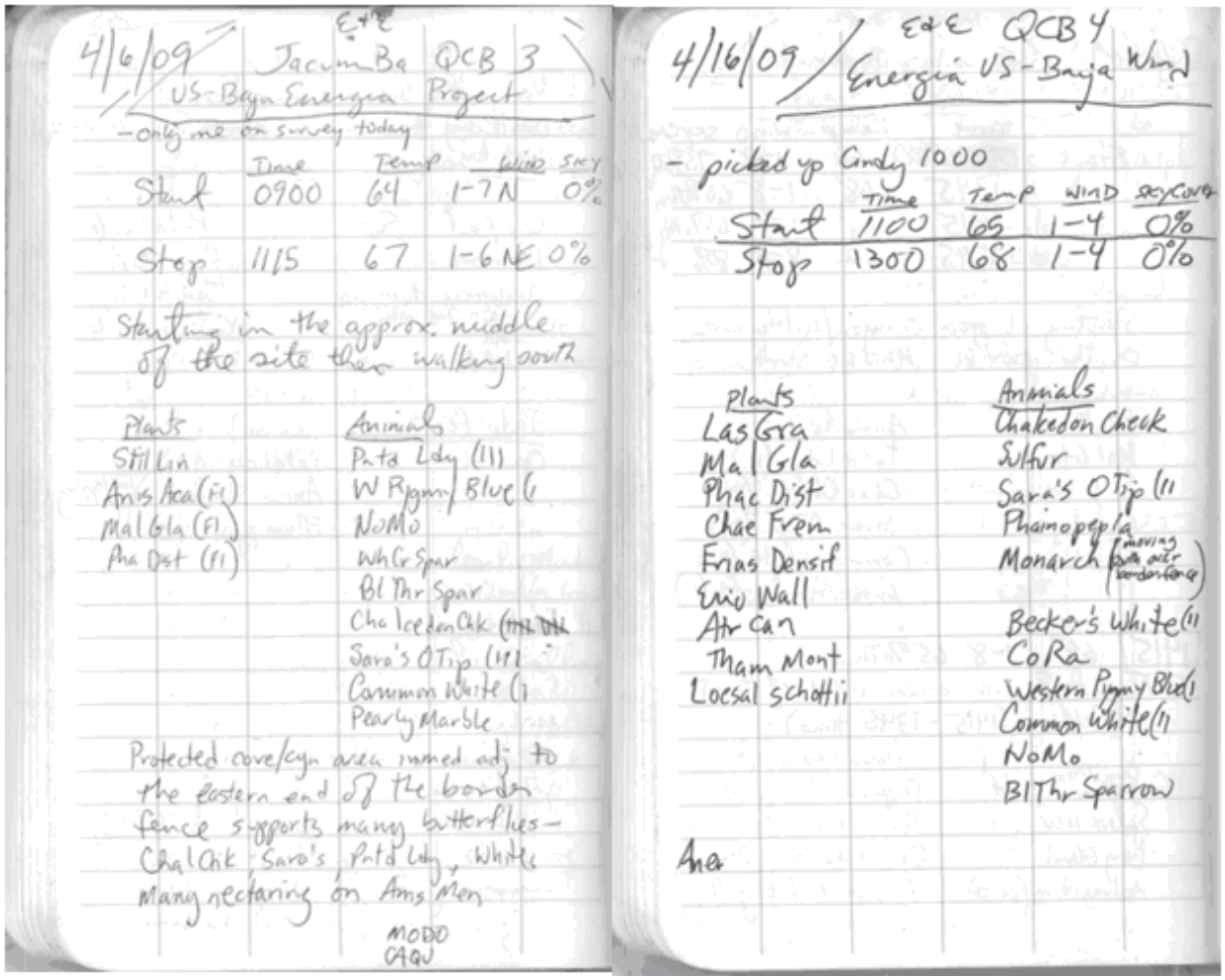
Plants
Eri Cuneata
Rham III
Pho Aur var (Ariz)
Stil Lin
Ment Aff
Core Cal
Ere Fas Pol
Ere Cic
Lao Gra
Aga Des
Phac Dist
Ams Acaul
Sch Bur
Pec Lin Fer
Pro Fre
Jun Cal
Eph spp.

Atr Can
~~Phra~~
Amb (Galsola)
Tet Com
Ziz Par
Lyc And
Lyp Con
Eri Fas Pol
Sim Chi
Chaenactis (white)

Animals
(1441 Pntd Ldy
(111 Chal Check
(1 Com Buck
(11 Check White
(1 Sara's O-tip
Bl T1 Jack
Bl Thr Spar
Phain
WhCr Spa

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Appendix A. Field Notes



4/6/09 E&E Jacumba QCB 3
US-Baja Energia Project
-only me on survey today

	Time	Temp	Wind	Sky
Start	0900	64	1-7N	0%
Stop	1115	67	1-6 NE	0%

Starting in the approx. middle of the site then walking south

Plants
Stillin
Anis Aca (Fl)
Mal Gla (Fl)
Pha Dist (Fl)

Animals
Pata Lady (11)
W Pygmy Blue (
NoMo
WhCr Spar
Bl Thr Spar
Cha Iced Chk
Sara's OTip (12
Common White (1
Pearly Marble

Protected cove/cyn area immed adj to the eastern end of the border fence supports many butterflies – ChalChk, Sara's, Pat'd Lady, Whites Many nectaring on Anis Men

MODO
CAQU

4/16/09 E&E QCB 4
Energia US-Baja Wind

- picked up Cindy 1000

	Time	Temp	WIND	SkyCover
Start	1100	65	1-4	0%
Stop	1300	68	1-4	0%

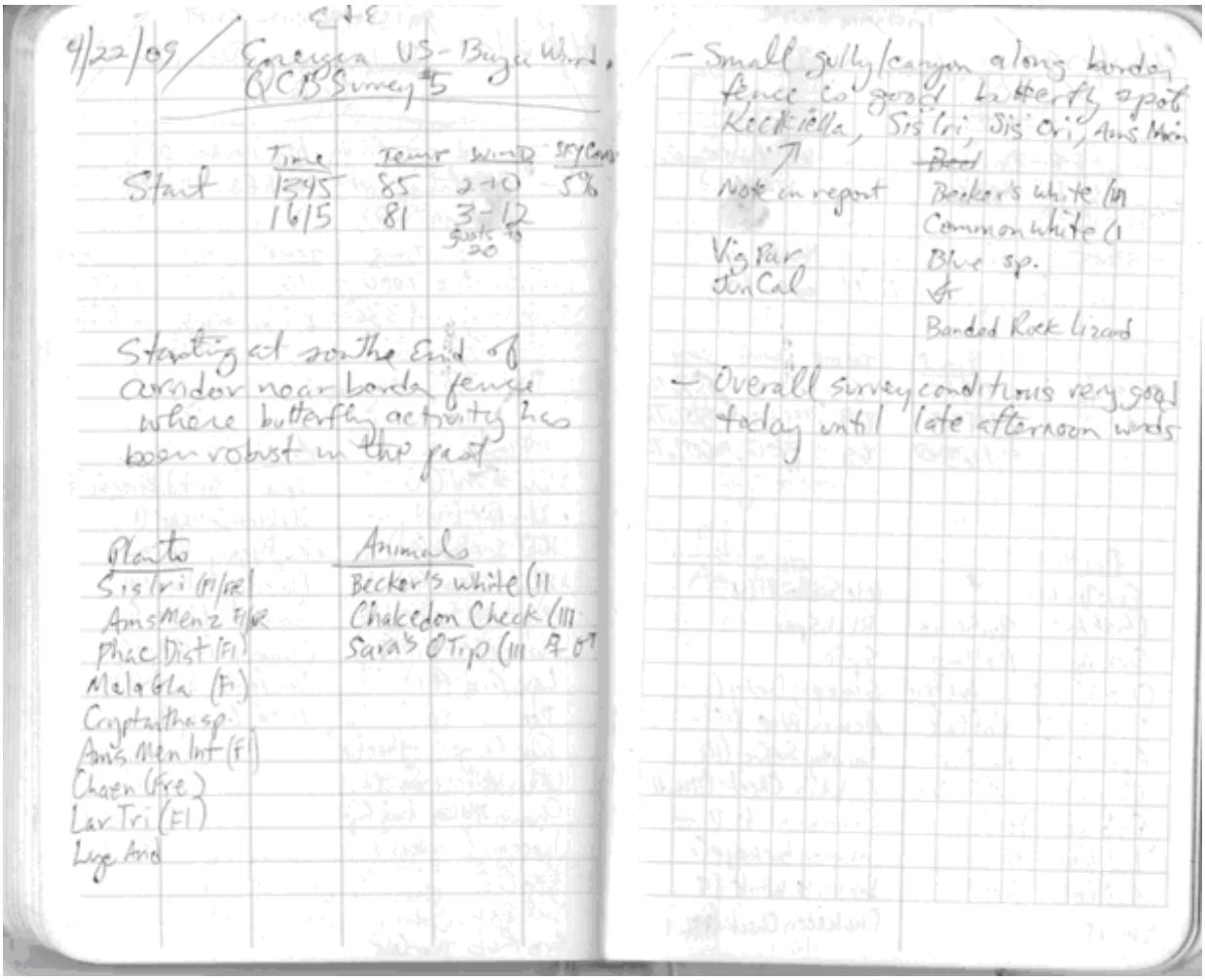
Plants
Las Gra
Mal Gla
Phac Dist
Chae Frem
Frias Densif
Erio Wall
Atr can
Tham Mont
Locsal schottii

Animals
Chalcedon Check
Sulfur
Sara's OTip (1
Phaenopepla
Monarch (moving both ways on border fence)
Becker's White (1
CoRa
Western Pygmy Blue
Common White (1
NoMo
BlThr Sparrow

Ana

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Appendix A. Field Notes



4/22/09 Energia US-Big Wind. QCB Survey #5

	Time	Temp	Wind	SkyCond
Start	1545	85	2-10	5%
	1615	81	3-12 Gusts to 20	

Starting at south end of corridor near Landa fence where butterfly activity has been robust in the past

Plants
Sis Tri (Fl/Fr)
Ams Menz Fl/Fr
Phac Dist (Fl)
Mela Gla (Fl)
Cryptantha sp.
Ams Men Int (Fl)
Chaen (Fr/Fl)
Lav Tri (Fl)
Lyg And

Animals
Becker's white (11
Chalcedon Check (11
Sara's Orange Tip (11 ♂♀

- Small gully/canyon along Landa fence is good butterfly spot
Rock Hills, Sis Tri, Sis Ori, Ams Men
Note on report
Vig Par
Jun Cal
Becker's white (11
Common white (1
Blue sp.
♂
Banded Rock Lizard
- Overall survey conditions very good today until late afternoon winds

Appendix A. Field Notes



E+E

4/24/09 Energia - US Baja Wind GCB #6

Start	1430	69	4-12	5% Rain
Stop	1630	69	8-12	60% Rain

Plants
Ambrosia Mon Int
Sis Ori
Koe Ant
Chae Fre
Loes Sch
Mal Gla

Animals
Becker's White (1
Chaketon Check (1
Pnted Lady (1

Site now very dry; butterfly activity waning

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Appendix B. 10-Day Notification Letter

March 15, 2009

Ms. Sandra Marquez
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, CA 92011

Subject: 10-day Notification Letter for Quino Checkerspot Butterfly Protocol Surveys for San Diego Gas & Electric East County 500/230/60kV Substation Project near Jacumba, CA.

Ms. Marquez:

This letter is to inform you that I will be conducting a U.S. Fish and Wildlife Service (FWS) protocol Quino Checkerspot Butterfly surveys in Jacumba, CA. The survey area consists of an approximately 250-acre substation site and 13.5 miles of transmission line corridor. I have attached a map of the survey area for your information and review. Based on the 2006 FWS map, the site is located in Survey Area 1.

The survey area consists of suitable habitat including openings in Desert-transition Chaparral, Red-Shank Chaparral, and Chamise Chaparral. I will be assisted by one or more of the following biologists on this survey: Cindy Jones Daverin (Permit # 811615-4), David Faulkner (838743-5), Erik LaCoste (TE-027736-4), and Darin Busby TE-115373-0.

Per the protocol, a thorough habitat assessment of the proposed survey area will be conducted. Host plants as well as other plants and environmental variables associated with known habitat of the butterfly, such as nectar sources, openings in scrub, grassland and other habitats, and intact soil crusts will be documented.

Please contact me at (619) 843-6640 if you have any questions or concerns about this protocol survey.

Sincerely,



Jim Rocks, Principal Biologist
USFWS Permit No. 063230-3

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Appendix C.2 Floral Species Documented on and Adjacent to the ESJ U.S. Transmission Line Project Site

APPENDIX C.2

FLORAL SPECIES DOCUMENTED ON AND ADJACENT TO THE ESJ GEN-TIE PROJECT SITE (Source: EDAW 2009)

Scientific Name	Common Name
Acacia greggii	Catclaw acacia
Agave deserti	Agave
Allium fimbriatum var. *fimbriatum*	Desert onion
Amsinckia menziesii var. *intermedia*	Rancher's fiddleneck
Amsinckia tessellata	Checker fiddleneck
Anisocoma acaulis	Scale bud
Atriplex canescens	Four-wing saltbush
Bromus rubens (non-native invasive)	Red brome
Calochortus splendens	Splendid Mariposa lily
Calyptridium monandrum	Common calypatridium
Camissonia californica	False mustard
Camissonia sp.	Primrose
Chaenactis stevioides	Desert pincushion
Chamaesyce albomarginata	Rattlesnake weed
Chorizanthe brevicornu	Brittle spineflower
Chorizanthe fimbriata	Fringed spineflower
Coreopsis californica var. *californica*	California coreopsis
Cryptantha intermedia	Nievitas cryptantha
Cylindropuntia ganderi	Gander's buckhorn cholla
Delphinium sp.	Larkspur
Descurainia pinnata	Tansy mustard
Dichelostemma capitatum	Blue dicks
Echinocereus engelmannii	Engelmann's hedgehog cactus
Emmenanthe penduliflora	Whispering bells
Ephedra californica	California ephedra
Ephedra nevadensis	Nevada ephedra
Ephedra viridis	Green ephedra
Eriastrum eremicum	Desert woollystar
Ericameria pinifolia	Pinebush
Eriogonum fasciculatum var. *polifolium*	Mountain buckwheat
Eriogonum gracile	Slender buckwheat
Eriogonum thurburi	Thurbur's buckwheat
Eriophyllum wallacei	Wallace's wooly daisy
Erodium cicutarium (non-native)	Filaree
Eschscholzia californica	California poppy
Filago sp.	Filago
Galium sp.	Bedstraw
Gilia spp.	Gilia
Guillenia lasiophylla	California mustard
Hymenoclea salsola	Cheesebush
Juniperous californica	California juniper
Larrea tridentata	Creosote bush
Lasthenia gracilis	Common goldfields
Loeseliastrum schottii	Schott's calico
Logfia depressa	Dwarf cottonrose
Lomatium mohavense	Mohave lomatium
Lotus scoparius var. *brevialatus*	Deerweed

Scientific Name	Common Name
Lotus strigosus	Strigose lotus
Lupinus concinnus	Bajada lupine
Lycium andersonii	Waterjacket
Malacothrix glabrata	Desert dandelion
Mentzelia affinis	Hydra stick-leaf
Mirabilis laevis	Wishbone
Nama demissum var. *demissum*	Purple mat
Opuntia chlorotica	Pancake prickly pear
Opuntia phaecantha	Mojave prickly pear
Pectocarya linearis var. *ferocula*	Slender pectocarya
Pectocarya recurvata	Curvenut combseed
Pectocarya setosa	Bristly pectocarya
Phacelia distans	Wild heliotrope
Pholistoma membranaceum	White fiesta flower
Phoradendron californicum	Desert mistletoe
Plagiobothrys sp.	Popcorn flower
Platystemon californicus	cream cups
Prunus fremonti	Desert apricot
Purshia tridentata	Antelope bitterbrush
Rafinesquia neomexicana	Desert chicory
Rhus ovata	Sugar bush
Ribes quercetorum	Oak gooseberry
Salvia columbariae	Chia
Schismus barbatus	Arabian schismus
Senecio californicus	California butterweed
Senecio flaccidus var. *monoensis*	Mono butterweed
Sidotheca trilobata	Three-lobe starry puncturebract
Simmondsia chinensis	Jojoba
Sisymbrium altissimum (non-native)	Tumble mustard
Stephanomeria sp.	Wreath plant
Stillingia linearifolia	Linear-leaved stillingia
Stylocline gnaphaloides	Everlasting nest straw
Tetradymia canescens	Spineless horsebrush
Thamnosma montana	Turpentinebroom
Thysamnocarpus curvipes	Fringepod
Yucca schidigera	Mojave yucca
Ziziphus parryi	Lotebush

Appendix C.3 Special-status Plant Species Known or Potentially Occurring at the ESJ U.S. Transmission Line Project Site

APPENDIX C.3

SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING WITHIN THE PROPOSED ENERGIA SIERRA JUAREZ GEN-TIE PROJECT SITE (Source: EDAW 2009)

Species	State/ Federal Status	CNPS List	County of San Diego	Habitat/Blooming Period	Comments
Astragalus douglasii var. *perstrictus* Jacumba milk-vetch	–/–	1B	Group A	Chaparral, cismontane woodland, valley and foothill grassland/rocky; blooms Apr-May.	Moderate, though undetected. Not expected to occur, as this species would have been detected during surveys. Furthermore, there is a lack of suitable habitat on-site. A known occurrence occurs within1-mile of the project site.
Astragalus magdalenae var. *peirsonii* Peirson's milk-vetch	SE/FT	1B	Group A	Perennial herb; desert dunes; blooms Dec-Apr; elevation 180-820 ft.	Not expected to occur as project site is well out of species known elevation range.
Ayenia compacta Ayenia	–/– 4		Group B	Mojave desert scrub, Sonoran desert scrub/rocky.	Not observed. Not expected to occur, as this species would have been detected during surveys.
Berberis fremontii Fremont barberry	--/--	3	Group C	Chaparral, Joshua tree woodland, piñon and juniper woodland/rocky; blooms Apr-June	Not observed. Not expected to occur, as this species would have been detected during surveys. Furthermore, there is a lack of suitable habitat on-site.
Bursera microphylla Elephant tree	--/--	2	Group B	Deciduous tree; Sonoran Desert scrub (rocky); blooms June-July, elevation 656-2,296 feet.	Moderate potential to occur. Suitable habitat does occur onsite. However, the project site is out of the species' known elevation range.
Calliandra eriophylla Fairyduster	--/--	2	Group B	Sonoran Desert scrub (sandy or rocky); blooms Mar-Apr.	Not observed. Not expected to occur, as this species would have been detected during surveys.
Caulanthus simulans Payson's jewelflower	--/--	4.2	Group D	Annual herb; chaparral, coastal scrub on sandy, granitic substrate; blooms (Feb) Mar-May (June); elevation 295-7,282 ft.	Low to moderate potential to occur based on habitat preference; CNDDB search did not show known occurrences within the vicinity of the project.

Species	State/ Federal Status	CNPS List	County of San Diego	Habitat/Blooming Period	Comments
Chamaesyce platysperma Flat-seeded spurge	--/--	1B	Group A	Sonoran Desert (Coachella Valley) on sandy soils; blooms in May	Low potential to occur. There is a known occurrence in Coachella valley, approximately 23 miles away from the project site directly. Widespread in southwest Arizona.
Croton wigginsii Wiggin's croton	--/--	2	n.a.	Sand dunes; blooms Mar-May	Not observed. Not expected to occur, as this species would have been detected during surveys.
Cynanchum utahense Utah vine milkweed	--/--	4.2	Group D	Perennial herb; Mojavean desert scrub, Sonoran desert scrub on sandy or gravelly substrate; blooms Apr-June, elevation 492-4,707 ft.	Moderate potential to occur based on habitat preferences; CNDDB search did not show known occurrences within the vicinity of the project. Rare plant survey conducted during blooming period in April.
Deinandra floribunda Tecate tarplant	--/--	1B	Group A	Chaparral, coastal scrub; blooms Aug-Oct.	Not expected to occur onsite due to lack of suitable habitat.
Delphinium parishii ssp. *subglobosum* Colorado Desert larkspur	--/--	4.3	Group D	Perennial herb; Chaparral, cismontane woodland, pinyon and juniper woodland, Sonoran desert scrub; blooms Mar-June; elevation 1,968-5,904 ft.	Moderate potential to occur based on habitat preferences; CNDDB search did not show known occurrences within the vicinity of the project. Surveys conducted during the peak of the blooming period did not document the species.
Dieteria asteroids var. *lagunensis* Mount Laguna aster	–/–	2	n.a.	Cismontane woodland, lower montane coniferous forest; blooms Aug-Oct.	Not expected to occur onsite due to lack of suitable habitat.
Eryngium aristulatum ssp. *parishii* San Diego button-celery	SE/FE	1B	Group A	Annual/perennial herb; coastal scrub, valley and foothill grassland, vernal pools/mesic; blooms Apr-June; elevation 66-2,034 ft.	Not expected to occur onsite due to lack of suitable habitat.
Eucnide rupestris (=*Hemizonia conjugens*) Rock nettle	--/--	2	Group B	Sonoran Desert scrub; blooms Dec-Apr.	Not observed. Not expected to occur, as this species would have been detected during surveys.
Geraea viscida Sticky geraea	–/–	2	Group B	Chaparral (often in disturbed areas); blooms May-June.	Not observed. Not expected to occur due to lack of suitable habitat

Species	State/ Federal Status	CNPS List	County of San Diego	Habitat/Blooming Period	Comments
Harpagonella palmeri Palmer's grappling hook	--/--	4.2	Group D	Annual herb; Chaparral, coastal scrub, valley and foothill grassland on clay substrates; blooms Mar-May; elevation 65-3,132 ft.	Low potential to occur based on habitat preferences; CNDDB search did not show known occurrences within the vicinity of the project.
Helianthus niveus Variegated dudleya	--/E 1B		n.a.	Open sandy places; blooms Sept-May.	Not observed. Not expected to occur, as this species would have been detected during surveys.
Herissantia crispa Curly herissantia	--/--	2	Group B	Annual/perennial herb; Sonoran Desert scrub; blooms Apr (uncommon)/Aug-Sept; elevation 2,296-2,378 ft.	Moderate potential to occur. Suitable habitat does occur onsite. However, the project site is out of the species' known elevation range.
Heuchera brevistaminea Laguna Mountains alumroot	--/-- 1B		Group A	Riparian, chaparral, foothill woodland, mixed evergreen forest; blooms Apr-Jul/Sept. (uncommon).	Not observed. Not expected to occur due to lack of suitable habitat
Hulsea californica San Diego sunflower	–/–	1B	Group A	Openings in yellow pine forest; blooms Apr-Jun.	Not observed. Not expected to occur due to lack of suitable habitat
Hulsea mexicana Mexican hulsea	--/--	2.3	Group B	Annual/perennial herb; chaparral (volcanic, often on burns or disturbed areas); blooms Apr-June; elevation 3,936 ft.	Low potential to occur based on habitat preferences; CNDDB search did not show known occurrences within the vicinity of the project.
Ipomopsis tenuifolia Slender-leaved ipomopsis	--/--	2	Group B	Chaparral, piñon and juniper woodland, Sonoran Desert scrub/gravelly or rocky soils; blooms Mar-May.	Not observed. Not expected to occur, as this species would have been detected during surveys.
Linanthus bellus Desert beauty	--/--	2	Group B	Chaparral (sandy); blooms Apr-May.	Not observed. Not expected to occur, as this species would have been detected during surveys.
Lotus haydonii Pygmy lotus	--/--	1B	Group A	Piñon and juniper woodland, Sonoran Desert scrub (rocky); blooms Mar-Jun	Not observed. Not expected to occur, as this species would have been detected during surveys.
Lupinus excubitus var. *medius* Mountain Springs bush lupine	–/–	1B	Group A	Piñon and juniper woodland, Sonoran Desert scrub; blooms Mar-Apr.	Not observed. Not expected to occur, as this species would have been detected during surveys.

Species	State/ Federal Status	CNPS List	County of San Diego	Habitat/Blooming Period	Comments
Mentzelia hirsutissima Hairy stickleaf	--/--	2	Group B	Annual herb; Sonoran Desert scrub (rocky); blooms Apr-May; elevation 0-2,296 ft.	Moderate potential to occur. This species may have been detected during surveys. Suitable habitat does occur onsite. However, the project site is out of the species' known elevation range.
Mentzelia tridentata Creamy blazing star	–/–	1B	n.a.	Mojave Desert scrub/rocky, gravelly, sandy; blooms Apr-May.	Low potential to occur. Marginally suitable habitat does occur onsite.
Mimulus aridus low bush monkeyflower	--/--	4.3	Group D	Evergreen shrub; chaparral; blooms Apr-July; elevation 2,460-3,608 ft.	Low potential to occur based on habitat preferences; CNDDB search did not show known occurrences within the vicinity of the project.
Nemacaulis denudata var. *gracilis* Slender woolly-heads	--/--	2	Group B	Dunes; coastal strand, creosote bush scrub; blooms Mar-May.	Not observed. Not expected to occur, as this species would have been detected during surveys. Furthermore, there is a lack of suitable habitat on-site.
Opuntia munzii Munz's cholla	--/--	1B	Group A	Stem succulent; Sonoran Desert, flats, hills, sandy to rocky soils; blooms in May; elevation 492-1,968 ft.	Low potential to occur. Suitable habitat does occur onsite. However, the project site is well out of the species' known elevation range.
Penstemon thurberi Thurber's beardtongue	--/--	4.2	Group D	Perennial herb; chaparral, Joshua tree woodland, pinyon and juniper woodland, Sonoran desert scrub; blooms May-July; elevation 3,936-4002 ft.	Moderate potential to occur based on habitat preferences; CNDDB search did not show known occurrences within the vicinity of the project. Surveys did not document this perennial herb, or any other *Penstemon* species onsite.
Rhus trilobata var. *simplicifolia* Single-leaved skunk bush	--/--	2.3	Group B	Deciduous shrub; pinyon and juniper woodland; blooms Mar-Apr; elevation 4,002-4,494	Low potential to occur. Suitable habitat does occur onsite. However, the project site is slightly out of the species' known elevation range and it was not detected during surveys.
Selaginella eremophila Desert spikemoss	--/--	1B	Group B	Rhizomatous herb; Sonoran Desert scrub (gravelly or rocky); blooms June/May and July (uncommon); elevation 656-2,952 ft.	Moderate potential to occur. Suitable habitat does occur onsite. However, the project site is out of the species' known elevation range.
Senecio aphanactis Chaparral ragwort	--/--	2.2	Group B	Annual herb; chaparral, cismontane woodland; coastal scrub/sometimes alkaline: blooms Jan-Apr; elevation 49-2,624 ft.	Not expected to occur. Marginal habitat onsite, project is slightly out of the species' known elevation range.

Species	State/ Federal Status	CNPS List	County of San Diego	Habitat/Blooming Period	Comments
Senna covesii Cove's cassia	--/--	2.2	Group B	Perennial herb; Sonoran desert scrub; blooms Mar-June; elevation 1,000-3,510	Moderate potential to occur based on habitat preference; CNDDB search did not show known occurrences within the vicinity of the project.
Tetrococcus dioicus Parry's tetracoccus	--/--	1B	Group A	Chaparral, coastal scrub; blooms Apr-May	Not observed. Not expected to occur due to lack of suitable habitat
Texosporium sancti-jacobi woven-spored lichen	ST/--	n.a.	n.a.	Lichen; organic matter and organic soil in sagebrush, old fenceposts, or other wood	Moderate potential to occur.

STATUS CODES

State/Federal Status
FE = Federally listed endangered
FT = Federally listed threatened
SE = State listed endangered
ST = State listed threatened
SR = State listed rare

County of San Diego Status
Group A = Plants rare, threatened, or endangered in California and elsewhere.
Group B = Plants rare, threatened, or endangered in California but more common elsewhere.
Group C = Plants which may be quite rare, but need more information to determine true rarity status.
Group D = Plants limited in distribution and uncommon but not presently rare or endangered.

California Native Plant Society Status
1A = Species presumed extinct.
1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.
2 = Species rare, threatened, or endangered in California but more common elsewhere. These species are eligible for state listing.
3 = Species for which more information is needed. Distribution, endangerment, and/or taxonomic information is needed.
4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.

Appendix C.4 Wildlife Species Observed/Detected on the ESJ U.S. Transmission Line Project Site

APPENDIX C.4

WILDLIFE SPECIES OBSERVED/DETECTED ON THE ESJ GEN-TIE PROJECT SITE (Source: EDAW 2009)

Common Name	Scientific Name	Identification Method	Notes
Mammals			
White-tailed antelope ground squirrel	*Ammospermophilus leucurus*	sightings	
Coyote	*Canis latrans*	tracks, probable burrows	
Bobcat (unconfirmed)	*Felis rufus*	possible tracks	
Black-tailed jack rabbit	*Lepus californicus*	sightings	
Unidentified small rodent		tracks, burrows	
Medium-size animal burrow		~1' diameter burrows	
Birds			
Black-throated sparrow	*Amphispiza bilineata*	sightings	perched
Western scrub jay	*Aphelocoma californica*	sightings	perched
Red-tailed hawk	*Buteo jamaicensis*	sighting	Briefly soaring over sight
Common ravens	*Corvus corax*	sighting	Two flying over the site
Horned lark	*Eremophila alpestris*	audio and visual	
Northern mockingbird	*Mimus polyglottos*	sighting	perched
Ash-throated flycatcher	*Myiarchus cinerascens*	sighting	perched
Scott's oriole	*Icterus parisorum*	sightings	perched
Ladder-backed woodpecker (unconfirmed)	*Picoides scalaris*	possible sighting	Foraging on agave flower stalks
Western kingbird	*Tyrannus verticalis*	sighting	perched
White-crowned sparrow	*Zonotrichia leucophrys*	sighting	perched
Unidentified inactive bird nests		sightings	~5-inch diameter, cup-like, in *Lycium/Ziziphus*
Reptiles			
Tiger Whiptail	*Aspidoscelis tigris*	sighting	
Unidentified lizard		sightings	Small (3 to 5 inches)
Butterflies			
painted lady	*Vanessa cardui*	sightings	QCB survey
common white	*Pontia protodice*	sightings	QCB survey
Ceraunus blue	*Hemiargus ceraunus*	sighting	QCB survey
Sara's orangetip	*Anthocharis sara*	sighting	QCB survey
funereal duskywing	*Erynnis funeralis*	sightings	QCB survey
sulphur	*Colias* sp.	sightings	QCB survey
red Admiral	*Vanessa atalanta*	sighting	QCB survey
Chalcedon checkerspot	*Euphydryas chalcedona*	sighting	QCB survey
Becker's white	*Pontia beckeri*	sighting	QCB survey
anise swallowtail	*Papilio zelicaon*	sightings	QCB survey
black swallowtail	*Papilio polyxenes*	sighting	QCB survey

Appendix C.5 Special-status Wildlife Species Known or Potentially Occurring at the ESJ U.S. Transmission Line Project Site

APPENDIX C.5
SENSITIVE WILDLIFE SPECIES OBSERVED OR POTENTIALLY OCCURRING WITHIN THE PROPOSED ENERGIA SIERRA JUAREZ GEN-TIE PROJECT SITE (Source: EDAW 2009)

Scientific Name	Common Name	Federal Status	State Status	BLM	County of San Diego	Habitat	Potential to Occur Onsite
Birds							
Accipiter cooperii	Cooper's hawk	--	SSC		Group 1	Forests and open woodland habitats	Low (foraging); not expected to nest, due to lack of habitat.
Aquila chrysaetos canadensis	Golden eagle	BEGEPA	CFP		Group 1	Requires vast foraging areas in grasslands, broken chaparral or sage scrub. Secluded cliffs with overhanging ledges and large trees for nesting and cover.	Low (foraging); not expected to nest, due to lack of habitat.
Agelaius tricolor	Tricolored blackbird	--	SSC	BLM Sensitive	Group 1	Dairies and ripening grain heads, rice districts, cattail marshes	Not expected due to lack of habitat.
Athene cunicularia	Western burrowing owl	--	SSC	BLM Sensitive	Group 1	Deserts with burrowing animals	Low.
Cathartes aura meridionalis	Turkey vulture	--			Group 1	Open stages of habitats that provide cliffs and large trees.	Not expected due to lack of habitat.
Circus cyaneus	Northern harrier (nesting)	--	SSC		Group 1	Coastal lowland, marshes grassland, agricultural fields	Low (foraging); not expected to nest, due to lack of habitat.

Scientific Name	Common Name	Federal Status	State Status	BLM	County of San Diego	Habitat	Potential to Occur Onsite
Eremophila alpestris actia	California horned lark	--	SSC		Group 2	Sandy shores, mesas, disturbed areas, grasslands, agricultural lands, sparse creosote bush scrub	Observed
Falco mexicanus	Prairie falcon	--	SSC		Group 1	Open country	Moderate (foraging); not expected to nest, due to lack of habitat.
Falco peregrinus anatum	American peregrine falcon	D	E		Group 1	Open country, especially along rivers; also near lakes, along coasts, and in cities	Low (foraging); not expected to nest, due to lack of habitat.
Lanius ludovicianus	Loggerhead shrike	--	SSC		Group 1	Open foraging areas near scattered bushes and low trees	High
Parabuteo unicinctus	Harris' hawk	--	SSC			River woods, mesquite, brush, cactus deserts	Low (foraging); not expected to nest, due to lack of habitat.
Piranga rubra	Summer tanager		SSC		Group 2	Desert riparian habitat dominated by cottonwood and willow.	Not expected due to lack of habitat.
Toxostoma crissale	Crissal thrasher	--	SSC		Group 1	Dense thickets of shrubs or low trees in desert riparian and desert wash habitats	Low due to lack of habitat.
Toxostoma lecontei lecontei	Leconte's thrasher	--		BLM Sensitive	Group 2	Desert scrub habitats; prefers breeding in saltbush/shadscale vegetation or cholla cacti in sandy substrate.	Moderate

Scientific Name	Common Name	Federal Status	State Status	BLM	County of San Diego	Habitat	Potential to Occur Onsite
Vireo bellii pusillus	Least Bell's vireo	E	E		Group 1	Riparian	Not expected due to lack of habitat.
Vireo vicinior	Gray vireo	--	SSC	BLM Sensitive	Group 1	Hot, semi-arid, shrubby habitats, especially mesquite and brushy pinyon-juniper woodlands; also chaparral, desert scrub. Thorn scrub, oak-juniper woodland, pinyon-juniper, juniper-cholla, mesquite, dry chaparral. Nests in mature, closed vegetation. Dependent upon elephant tree in the winter.	Low

Scientific Name	Common Name	Federal Status	State Status	BLM	County of San Diego	Habitat	Potential to Occur Onsite
Reptiles							
Coleonyx switaki	Barefoot banded gecko	--	T		Group 2	Arroyos and rocky hillsides, especially near large boulders or rocky outcrops	Not expected due to lack of habitat.
Phrynosoma mcalli	Flat-tailed horned lizard	--	SSC	BLM Sensitive	Group 1	Dunes and sandy flats of low desert	Not expected due to lack of habitat.
Salvadora hexalepis virgultea	Coast patch-nosed snake	--	SSC		Group 2	Grasslands, chaparral, sagebrush, desert scrub in sandy and rocky areas	Low
Crotalus ruber ruber	Red diamond rattlesnake	--	SSC		Group 2	Desert scrub and riparian, coastal sage scrub, open chaparral, grassland, and agricultural fields	High
Phrynosoma coronatum blainvillei	San Diego horned lizard	---	SSC		Group 2	Coastal sage, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest; loose, fine soils with a high sand fraction, an abundance of native ants or other insects, and open areas with limited overstory for basking and low but relatively dense shrubs for refuge	Low
Uma notata notata	Colorado Desert fringe-toed lizard	--	SSC	BLM Sensitive	Group 1	Desert dunes, flats, riverbanks, and washes with loose sand and scant vegetation	Not expected due to lack of habitat.

Scientific Name	Common Name	Federal Status	State Status	BLM	County of San Diego	Habitat	Potential to Occur Onsite
Mammals							
Chaetodipus californicus femoralis	Dulzura California pocket mouse	--	SSC		Group 2	Chaparral, desert grassland.	Low
Corynorhinus townsendii pallescens	Townsend's big-eared bat	--	SSC	BLM Sensitive	Group 2	Caves, mines, buidlings. Variety of habitats, arid to mesic. Individual or colonial. Sensitive to disturbance.	Not expected due to lack of habitat.
Eumops perotis californicus	Great western mastiff bat	--	SSC	BLM Sensitive	Group 2	Woodlands, rocky habitat, arid and semiarid lowlands, cliffs, crevices, buildings, tree hollows.	Low
Felis concolor	Mountain lion	--	CFP		Group 2	Many habitats, wherever deer are found.	Low
Lasiurus blossevillii	Western red bat	--	SSC		Group 2	Forests and woodlands from sea level up through mixed conifer woodlands. Not found in desert areas.	Not expected due to lack of habitat.
Myotis ciliolabrum	Small-footed myotis	--		BLM Sensitive	Group 2	Arid wooded and brushy uplands near water.	Low
Nyctinomops macrotis	Big free-tailed bat	--	SSC		Group 2	Prefers rugged rocky canyons. Buildings, caves, holes in trees.	Not expected due to lack of habitat.
Ovis canadensis cremnobates	peninsular bighorn sheep	E	T		Group 1	Dry, rocky, low-elevation desert slopes	Low, per discussions with USFWS.

Scientific Name	Common Name	Federal Status	State Status	BLM	County of San Diego	Habitat	Potential to Occur Onsite
Onychomys torridus ramona	southern grasshopper mouse	--	SSC		Group 2	Alkali desert scrub and desert scrub preferred; also succulent scrub, wash, and riparian areas; coastal sage scrub, mixed chaparral, sagebrush, low sage, and bitterbrush; low to moderate shrub cover preferred	Moderate
Neotoma lepida intermedia	San Diego desert woodrat	--	SSC		Group 2	Coastal sage scrub, chaparral, most desert habitats	Moderate; no woodrat middens documented onsite
Perognathus longimembris internationalis	Jacumba little pocket mouse	--	SSC		Group 2	Desert scrub and grasslands on loosely packed or sandy soils with sparse to moderately dense vegetation.	Low
Lepus californicus bennettii	San Diego black-tailed jackrabbit	--	SSC		Group 2	Semi-open scrub habitats throughout southern California	Observed
Taxidea taxus	American badger	--	SSC		Group 2	Grasslands, Sonoran Desert scrub	Moderate
Macrotus californicus	California leaf-nosed bat	--	SSC	BLM Sensitive	Group 2	Low deserts, caves, mines, buildings.	Moderate foraging, no roosting
Antrozous pallidus	Pallid bat	--	SSC	BLM Sensitive	Group 2	Arid deserts and grasslands; shallow caves, crevices, rock outcrops, buildings, tree cavities, esp. near water	Moderate foraging, no roosting

Scientific Name	Common Name	Federal Status	State Status	BLM	County of San Diego	Habitat	Potential to Occur Onsite
Euderma maculatum	Spotted bat	--	SSC	BLM Sensitive	Group 2	Wide variety of habitats: caves crevices, trees; prefers sites with adequate roosting sites	Low
Corynorhinus townsendii pallescens	Pale big-eared bat	--	SSC	BLM Sensitive	Group 2	Caves, mines, buildings; variety of habitats, arid and mesic	Low
Nyctinomops femorosaccus	Pocketed free-tailed bat	--	SSC		Group 2	Crevices in rocks, slopes, cliffs; lower elevations	Moderate foraging, no roosting
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	--	SSC		Group 2	Chaparral, open, sandy areas	Low
Invertebrates							
Euphydryas editha quino	Quino checkerspot butterfly	E	--		Group 1	Coastal sage scrub	Moderate

Status Codes:

State/Federal Status

BEGEPA = protected under the federal Bald Eagle and Golden Eagle Protection Act.
BLM Sensitive = species that may require federal T/E listing, or with small and widely dispered populations, or inhabiting ecological refugia or unique habitats.
CFP = California Fully Protected species.
D = Delisted.
E = Endangered.
SSC = California Species of Special Concern.
T = Threatened.

County of San Diego Status

Group I = animal species that are listed as threatened or endangered or have very specific natural history requirements that must be met.
Group II = animal species that are becoming less common, but are not yet so rare that extirpation or extinction is imminent without immediate action.

Appendix C.6 March 26, 2009 Comment Letter from United States Fish and Wildlife Service: Comments on the Notice of Intent to Prepare an Environmental Impact Statement; Energia Sierra Juarez U.S. Transmission, LLC

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Serviees
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-SDG-09B0210-09FA0023

MAR 26 2009

Dr. Jerry Pell
Office of Electricity Delivery and Energy Reliability (OE-20)
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585

Subject: Comments on the Notice of Intent to Prepare an Environmental Impact Statement; Energia Sierra Juarez U.S. Transmission, LLC

Dear Dr. Pell:

The U.S. Fish and Wildlife Service (Service) has reviewed the Department of Energy Notice of Intent (NOI) for the proposed action granting a Presidential Permit to Energia Sierra Juarez U.S. Transmission, LLC, to construct a new electric transmission line across the U.S.-Mexico border. The transmission line would involve the construction, operation, and maintenance of new transmission infrastructure in southeastern San Diego County, including land administered by the Bureau of Land Management (*e.g.*, Jacumba Wilderness Area and Roosevelt Reservation). The NOI presents two route alternatives, both within 1 mile of each other.

The proposed transmission line project was mentioned in the NEPA analysis for the Sunrise Powerlink as an interconnected project that would require a separate approval process. As such, the proposed project was not addressed under Endangered Species Act formal consultation for the Sunrise Powelink project.

The following comments are provided for your use and information in preparing the environmental impact statement (EIS):

1. Based on our review of the NEPA documents for the Sunrise Powerlink project, it appears the proposed project may impact wildlife movement, including Peninsular bighorn sheep (PBS). This potential impact should be assessed in the EIS including a discussion of appropriate avoidance and minimization measures. Mitigation to offset unavoidable impacts should also be addressed in the context of the NEPA analysis.

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2. PBS and Quino checkerspot butterfly (QCB) proposed and designated critical habitats are within or immediately adjacent to the proposed alternative alignments. Impacts to the species and critical habitat should be addressed, including increased non-native invasive plants, fire, etc. from the transmission line on the primary constituent elements of the critical habitats.

3. The EIS should include all the necessary information to accurately quantify the potential direct and indirect impacts of each project component on listed species (*e.g.*, PBS and QCB) and their habitats. A series of maps should be included that depict the locations of project features, such as towers, permanent and temporary access roads, and staging areas. These maps, at a minimum, should also include vegetation types, known occurrences of listed species, suitable habitat for listed species, and proximity of project alignments to designated and proposed critical habitats. The information requested above should be based on up to date habitat assessments and species surveys in the project area.

4. The federally-listed PBS and QCB are known to occur within or near the project area; therefore, consultation under section 7 of the Endangered Species Act may be required.

Thank you for the opportunity to comment on this project.

Sincerely,

Karen A. Goebel
Assistant Field Supervisor

cc:
USFWS, Pacific Southwest Region
Vijai N. Rai, OEPC
Regional Environmental Officer, OAK
BCPA (ERT)

Appendix C.7 February 23, 2010, Letter from DOE to USFWS: Initiation of Information Consultation under Section 7 of the Endangered Species Act

Department of Energy
Washington, DC 20585

23 February 2010

Ms. Karen Goebel
Assistant Field Supervisor
Carlsbad Fish & Wildlife Office
U.S. Fish & Wildlife Service
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

Subject: Energía Sierra Juarez (ESJ-US) Transmission Line Project; Initiation of Informal Consultation Under §7 of the Endangered Species Act pursuant to 50 CFR 402.08, and Designation of Non-Federal Representative

Dear Ms. Goebel:

Energía Sierra Juarez U.S. Transmission, LLC (ESJ-US), proposes to construct and operate the ESJ U.S. Transmission Line, an electric transmission line project that would cross the U.S./Mexico border in the southeast corner of San Diego County, approximately 4 miles (6.4 km) east of Jacumba, California.

ESJ-US would construct either a double-circuit 230-kilovolt (kV) or a single-circuit 500-kV electric transmission line which would ultimately connect up to 1,250 megawatts (MW) of energy from renewable energy generators to be located in the general vicinity of La Rumorosa, Northern Baja California, Mexico (Ejido Jacume), with the Imperial Valley-Miguel segment of the Southwest Powerlink (SWPL) 500-kV transmission line. The proposed transmission line would have a total length of approximately 1.65 miles (2.65 km), including both the U.S. and Mexican portions of the line. The U.S. portion of the proposed line would be constructed on up to either five lattice towers or five steel monopoles over a distance of approximately 0.65 miles (1 km). San Diego Gas and Electric Company (SDG&E) would provide the interconnection to the U.S. transmission grid system for the ESJ U.S. Transmission Line project at its proposed East County (ECO) Substation. Project location maps are attached, and a great deal of additional project information is available on the Web site for the preparation of the DOE environmental impact statement (EIS) for the project pursuant to the National Environmental Policy Act at http://esjprojecteis.org.

Executive Order (E.O.) 10485 (September 9, 1953), as amended by E.O. 12038 (February 7, 1978) and 10 CFR §205.320 *et seq* (2000), requires that a Presidential permit be issued by the U.S. Department of Energy (DOE) before electric transmission facilities may be constructed, operated, maintained, or connected at the U.S. international border. On December 18, 2007, Baja

Wind U.S. Transmission, LLC (now known as ESJ-US), a subsidiary of Sempra Generation (Sempra), applied to DOE for a Presidential permit in accordance with the above regulations. The Presidential permit (OE Docket Number PP-334), if issued, would authorize ESJ-US to construct, operate, maintain, and connect the ESJ U.S. Transmission Line to the electrical grid.

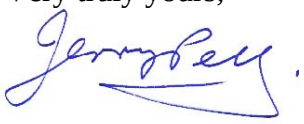
In this permitting capacity, DOE serves as the "Action Agency" with responsibility for consulting with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act. Accordingly, this letter is intended to advise the Service that we are designating ENTRIX, Inc., our EIS-preparation consultant, as the non-federal representative for purposes of engaging in informal consultation with the Service pursuant to 50 CFR 402.08, including preparation of a biological assessment as appropriate.

We have been given to understand that representatives of the U.S. Bureau of Land Management and the California Public Utilities Commission may have been in recent contact with Ms. Jessie Bennett of your office regarding the proposed ECO Substation project, the proposed ESJ-US Project as it pertains to the ECO Substation, and the proposed Iberdrola Renewable's Tule Wind Project. You may wish to consider designating Ms. Bennett as the Service's point-of-contact for our purposes as well.

Finally, we respectfully request from the Service an updated species list for the Action Area pursuant to 50 CFR 402.12(e). Please provide this material to Mr. Rick Williams of ENTRIX at rwilliams@entrix.com. He may also be reached at 916-386-3816.

Thank you very much for your kind consideration. If you have any questions, or would like to discuss this further, please feel free to contact me at 202-586-3362 or at Jerry.Pell@hq.doe.gov.

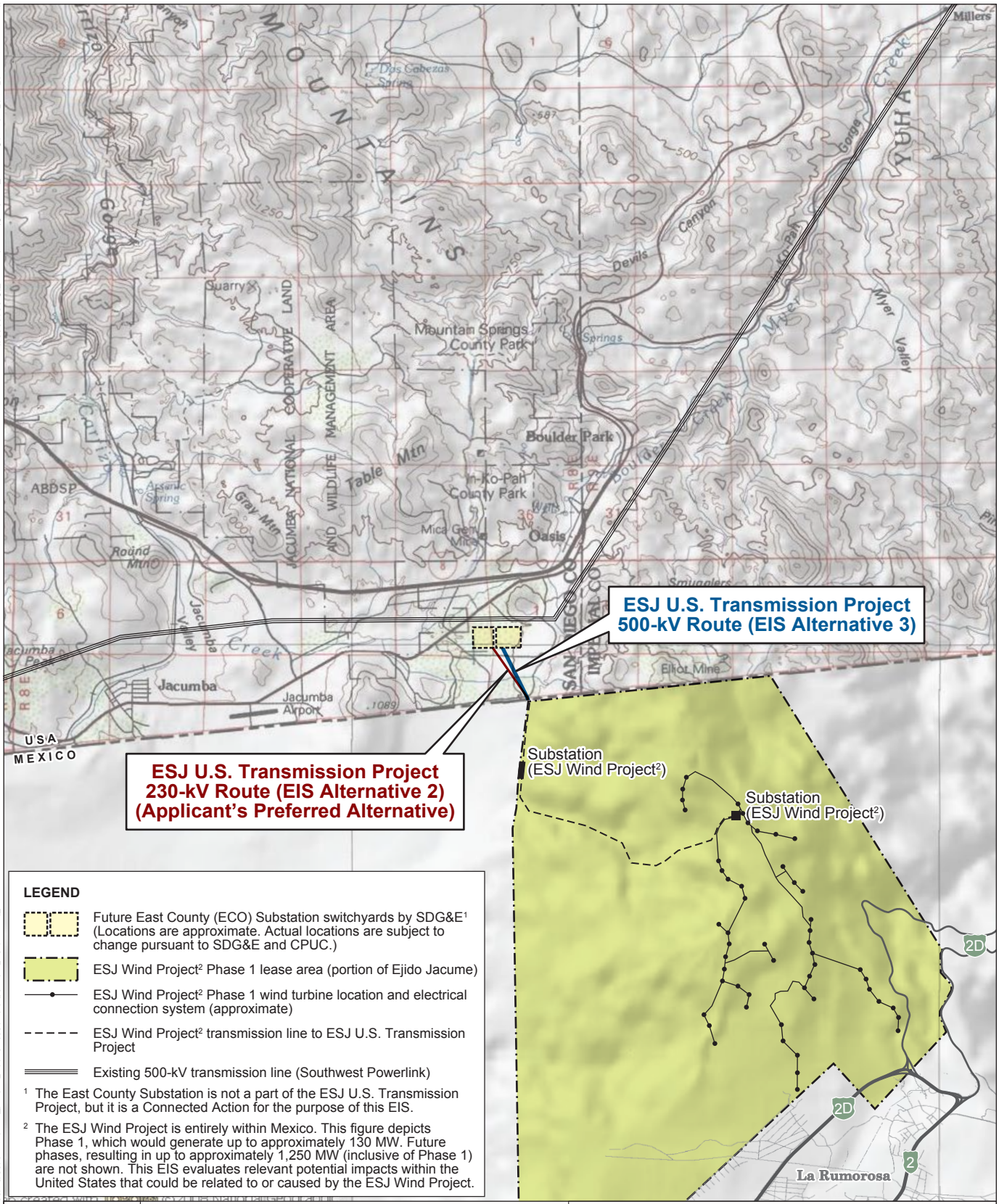
Very truly yours,



Jerry Pell, PhD, CCM
Principal NEPA Document Manager
Permitting, Siting, and Analysis (OE-20)
Office of Electricity Delivery and
Energy Restoration

attachments

cc:Entrix



Source(s): **EDAW/AECOM** ESJ U.S. project, 11/09; ESJ Wind gen-tie line and Jacume substation, 1/10. **BURNS & MCDONNELL** ESJ U.S. Preliminary Grading Plans, 6/09 rev 10/09. **ESJ LLC** wind turbine locations, 5/09; Phase 1 site layout, 7/09. **SDG&E** Proponent's Environmental Assessment for the East County Substation Project, 8/09. **SANGIS/USGS/GOOGLE** basemap data, 2009/2010.

ENTRIX
Down to Earth. Down to Business.™

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

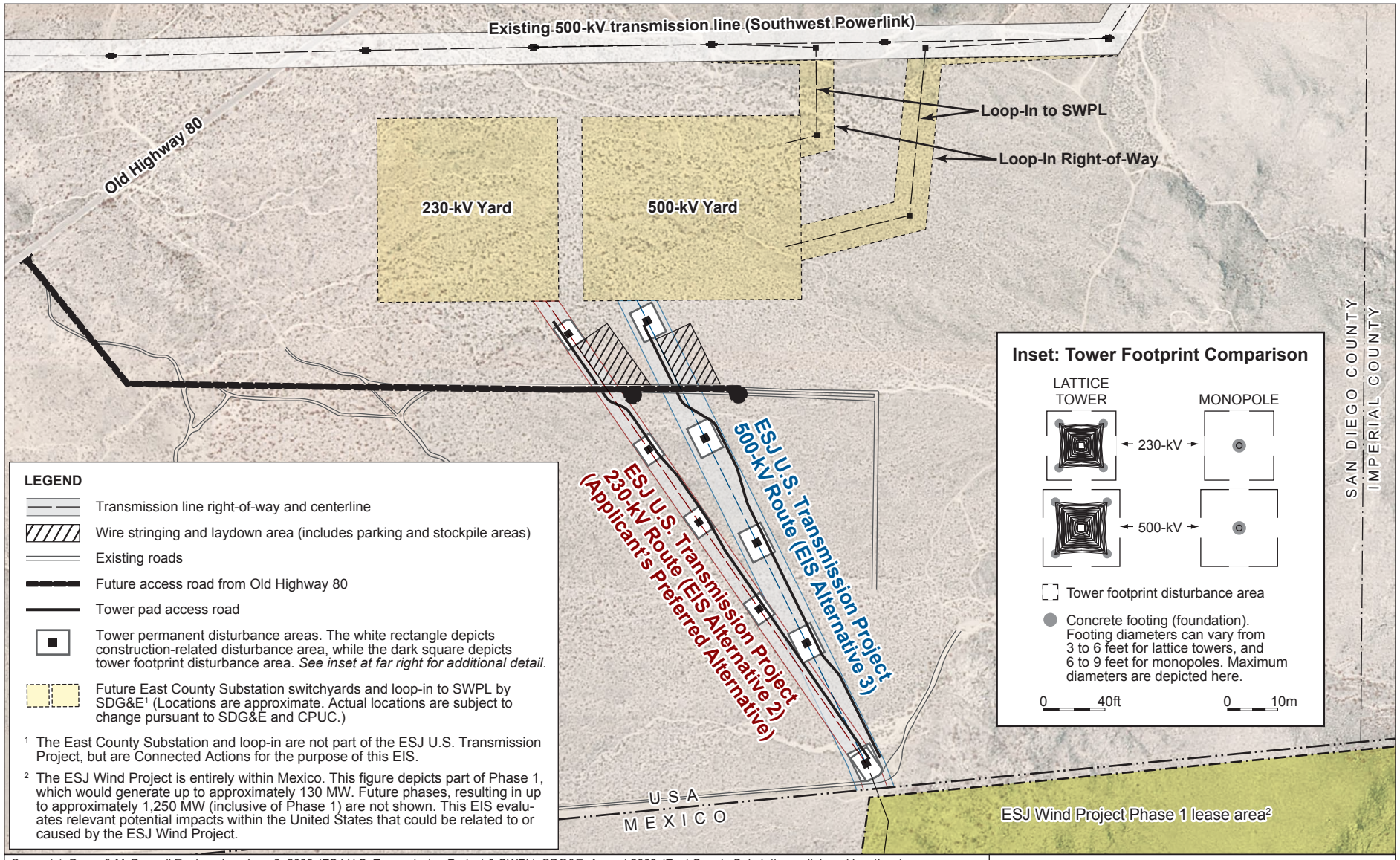
FIGURE 1-2

PROJECT VICINITY MAP

Prepared on behalf of the U.S. Dept. of Energy and Sempra Generation Feb. 2010

\\sacramento-nas\Data\Projects\Sempra-Energia_Sierra_Juarez_EIS-32183001\

Figure_1-2_ProjectVicinity100k_8x11_RevisedTemplate.ai (02/04/2010, 09:34 pm) R. Wurgler/T. Murphy



Source(s): Burns & McDonnell Engineering, June 9, 2009 *(ESJ U.S. Transmission Project & SWPL)*. SDG&E, August 2009 *(East County Substation switchyard locations)*. Sempra Generation, July 15, 2009 & January 2010 *(ESJ Wind Project)*. USDA-FSA-APFO, 2000 *(aerial photo)*.



PROJECT LOCATION

0 800 1,600 2,400 Feet
0 200 400 600 Meters

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE EIS

FIGURE 2-1

PROJECT ALTERNATIVES

ENTRIX Environmental and Natural Resource Management Consultants Jan. 2010

\\sacramento-nas\Data\Projects\Sempra-Energia_Sierra_Juarez_EIS-32183001\

Figure_2-1_ProjectAlternatives_11x8.ai (01/25/2010, 09:56 am) R. Wurgler/T. Murphy

Appendix C.8 March 24, 2010, Letter from USFWS: Request for Informal Section 7 Consultation of the Proposed Energia Sierra Juarez Transmission Line

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-SDG-10B0231-10SL0439

MAR 24 2010

Mr. Rick Williams
ENTRIX
Senior Consultant/Manager-Terrestrial Biology
701 University Avenue, Suite 200
Sacramento, California 95825

Subject: Request for Informal Section 7 Consultation on the Proposed Energia Sierra Juarez Transmission Line, San Diego County, California

Dear Mr. Williams:

This letter is in response to the inquiry dated and received February 23, 2010, concerning federally endangered, threatened, proposed and candidate species that occur or may occur near or within the project area for the proposed Energia Sierra Juarez Transmission Line, San Diego County, California. The Department of Energy has designated ENTRIX as the non-Federal representative for section 7 consultation under the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*).

The proposed project involves the construction of either a double-circuit 230-kilovolt (kV) or a single-circuit 500-kV electric transmission line that would ultimately connect up to 1,250 megawatts of energy from renewable energy generators. The renewable energy generators would be located in the general vicinity of La Rumorosa, Northern Baja California, Mexico and connect to the Imperial Valley-Miguel segment of the Southwest Powerlink (SWPL) 500-kV transmission line. The proposed transmission line would have a total length of about 1.65 miles (2.65 kilometers), including both the United States and Mexican portions of the line. The United States portion of the proposed line would be constructed on up to either five lattice towers or five steel monopoles over a distance of about 0.62 miles (one kilometer). San Diego Gas and Electric is expected to provide for interconnection at the proposed East County Substation. To assist you in evaluating the potential occurrence of these species within the area of interest, we are providing the enclosed list.

Based on information currently available to us, the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*) occurs within the general region and could occur within your project area. We recommend completing a habitat assessment and/or survey for this species, as

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appropriate, in accordance with our Quino Checkerspot Butterfly Survey Protocol[1]. In addition, we recommend that project proponents seek assistance from a biologist familiar with the habitat conditions and associated species in and around the project site to assess the potential for direct, indirect and cumulative impacts to other federally listed species on the enclosed list. We are available to help develop specific design criteria to avoid or minimize effects to federally listed species, as necessary.

Should you have any questions regarding the species list provided, or your responsibilities under the Act, please contact Jesse Bennett of my staff at (760) 431-9440 ext 305.

Sincerely,

Karen A. Goebel

Karen A. Goebel
Assistant Field Supervisor

Enclosure

cc:
Jerry Pell, Department of Energy

[1] USFWS (U.S. Fish and Wildlife Service). 2002. Quino checkerspot butterfly survey protocol. 6 pp.+Appendix

Federally Listed, Proposed and Candidate Species
That Occur or May Occur in the Vicinity of the Proposed Energia Sierra Juarez
Transmission Line
San Diego County, California

Common Name	Scientific Name	Status	Critical Habitat in Project Area?
INVERTEBRATES			
Quino checkerspot butterfly	*Euphydryas editha quino*	E (CH)	No
AMPHIBIANS			
arroyo toad	*Bufo (=Anaxyrus) californicus*	E (CH, PCH)	No
BIRDS			
southwestern willow flycatcher	*Empidonax traillii extimus*	E (CH)	No
California condor	*Gymnogyps califonianus*	E (CH)	No
least Bell's vireo	*Vireo bellii pusillus*	E (CH)	No

E: Endangered T: Threatened CH: Critical habitat designated
PCH: Critical habitat proposed

Appendix D Cultural Resources

CONTENTS

Appendix D.1 Native American Correspondence

2009, March 10 Request to Consult on Proposed Project (Quechan Indian Tribe)

2009, March 27 Sacred Lands File Search Results (NAHC)

2009, April 14 Invitation to Consult on Proposed Project (Quechan Tribal Council)

2009, May 28 Invitation to Consult on Proposed Project

- Ah-Mut-Pipa Foundation
- Baron Group of the Capitan Grande
- Campo Kumeyaay Nation
- Ewiiaapaayp Tribal Office
- Kumeyaay Cultural Historic Committee
- Kumeyaay Cultural Repatriation Committee
- Kwaaymii Laguna Band of Mission Indians
- La Posta Band of Mission Indians
- Manzanita Band of Kumeyaay Nation
- Mesa Grande Band of Mission Indians
- San Pasqual Band of Mission Indians
- Santa Ysabel Band of Diegueno Indians
- Sycuan Band of Kumeyaay Nation
- Viejas Band of Mission Indians
- Kumeyaay Cultural Heritage Preservation

2009, June 29 Request for a Consultation Meeting Between the Campo Band and DOE

2009, September 16 Consultation Meeting Summary Between the Campo Band and DOE

2009, November 4 Sacred Lands File Search Request (NAHC)

2009, November 30 Deferral to Consult on Proposed Project (Quechan Indian Tribe)

Appendix D.2 Final Archaeological and Historical Investigations for the Energia Sierra Juarez U.S. Gen-Tie Line Project Jacumba, California (March 2010)

Appendix D.1 Native American Correspondence

From: Bridget Nash [mailto:b.nash@quechantribe.com]
Sent: Tuesday, March 10, 2009 1:09 PM
To: Pell, Jerry
Subject: Baja Wind Transmission line

Good Morning -

The Cultural Committee has requested that all of the resources (cultural and
biological) within the project area and in the natural landscape be considered within the EIS. The project is within the Tribes' traditional land area and there are several resources affiliated with the Tribe in the area. There is concern over the cumulative impacts on the area as several projects, most large in scale, have been proposed or are currently being constructed within the area. The Tribe would like each of these evaluated as
we are seeing more and more of the traditional landscape being destroyed. Also, we ask that when evaluating the project area for cultural resources, that we be allowed to participate and that the firm look at the landscape from a holistic perspective.

Please feel free to call or email with any questions you may have.

Bridget R. Nash-Chrabascz

Quechan Tribe Historic Preservation Officer

Quechan Indian Tribe

PO Box 1899

Yuma, AZ 85366

760-572-2423

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

March 27, 2009

Ms. Cheryl Bowden-Renna, Archaeologist
EDAW, INC.
1420 Kettner Boulevard, Suite 500
San Diego, CA 92101

Sent by FAX to: 619-233-0952
No. of Pages: 4

Re: Request for a Sacred Lands File records search and Native American Contacts list for the **Energia Sierra Juarez (ESJ) U.S. Transmission, LLC (ESJ-US) Project.** Located in the In-Ko-Pah Area on the San Diego and imperial County Line, California

Dear Ms. Bowden-Renna:

The Native American Heritage Commission (NAHC) was able to perform a record search of its Sacred Lands File (SLF) for the affected project area (APE). The SLF search did_ indicate the presence of Native American cultural resources in the project area (APE or 'area of potential effect) and environs.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the names of the nearest tribes that may have knowledge of cultural resources in the project area. We recommend that you contact persons on the attached list of Native American contacts. A Native American tribe or individual may be the only source of information about a cultural resource. They may have specific knowledge as to whether or not the known cultural resources identified may be at-risk by the proposed project. We also suggest that you contact the nearest information center of the California Historic Resources Information System (CHRIS); a location nearest you can be obtained by calling the Office of Historic Preservation at (916) 653-7278.

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Attachment: Native American Contact List

Native American Contact
Imperial and San Diego Counties
March 27, 2009

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road Diegueno
Lakeside , CA 92040
sue@barona-nsn.gov
(619) 443-6612
619-443-0681

Sycuan Band of the Kumeyaay Nation
Danny Tucker, Chairperson
5459 Sycuan Road Diegueno/Kumeyaay
El Cajon , CA 92021
ssilva@sycuan-nsn.gov
619 445-2613
619 445-1927 Fax

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
PO Box 1120 Diegueno
Boulevard , CA 91905
(619) 478-2113
619-478-2125

Viejas Band of Mission Indians
Bobby L. Barrett, Chairperson
PO Box 908 Diegueno/Kumeyaay
Alpine , CA 91903
daguilar@viejas-nsn.gov
(619) 445-3810
(619) 445-5337 Fax

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
PO Box 365 Diegueno
Valley Center , CA 92082
(760) 749-3200
(760) 749-3876 Fax

Kumeyaay Cultural Historic Committee
Ron Christman
56 Viejas Grade Road Diegueno/Kumeyaay
Alpine , CA 92001
(619) 445-0385

Santa Ysabel Band of Diegueno Indians
Johnny Hernandez, Spokesman
PO Box 130 Diegueno
Santa Ysabel , CA 92070
brandietaylor@yahoo.com
(760) 765-0845
(760) 765-0320 Fax

Mesa Grande Band of Mission Indians
Mark Romero, Chairperson
P.O Box 270 Diegueno
Santa Ysabel , CA 92070
mesagrandeband@msn.com
(760) 782-3818
(760) 782-9092 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed IEnergia Energia Sierra Juarez (ESJ), U.S. Transmission, LLC (ESJ-US) Project; located in the In-Ko-Pah Community on the San Diego-Imperial County line, California for which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contact
Imperial and San Diego Counties
March 27, 2009

Manzanita Band of Kumeyaay Nation
Leroy J. Elliott, Chairperson
PO Box 1302 Kumeyaay
Boulevard , CA 91905
(619) 766-4930
(619) 766-4957 Fax

Manzanita Band of the Kumeyaay Nation
Nick Elliott, Cultural Resources Coordinator
P.O. Box 1302 Kumeyaay
Boulevard , CA 91905
(619) 766-4930
(619) 925-0952 - cell
(919) 766-4957

Campo Kumeyaay Nation
Monique LaChappa, Chairperson
36190 Church Road, Suite 1 Kumeyaay
Campo , CA 91906
chairman@campo-nsn.gov
(619) 478-9046
(619) 478-5818 Fax

Ah-Mut-Pipa Foundation
Preston J. Arrow-weed
P.O. Box 160 Quechan
Bard , CA 92222 Kumeyaay
(928) 388-9456

ahmut@earthlink.net

Ewiiaapaayp Tribal Office
Will Micklin, Executive Director
PO Box 2250 Kumeyaay
Alpine , CA 91903-2250
wmicklin@leaningrock.net
(619) 445-6315 - voice
(619) 445-9126 - fax

Ewiiaapaayp Tribal Office
Michael Garcia, Vice-Chairman/EPA Director
PO Box 2250 Kumeyaay
Alpine , CA 91903-2250
michaelg@leaningrock.net
(619) 445-6315 - voice
(619) 445-9126 - fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed IEnergia Energia Sierra Juarez (ESJ), U.S. Transmission, LLC (ESJ-US) Project; located in the In-Ko-Pah Community on the San Diego-Imperial County line, California for which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contact
Imperial and San Diego Counties
March 27, 2009

Kumeyaay Cultural Heritage Preservation
Paul Cuero
36190 Church Road, Suite 5 Diegueno/ Kumeyaay
Campo , CA 91906
chairman@campo-nsn.gov
(619) 478-9046
(619) 478-9505
(619) 478-5818 Fax

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas
P.O. Box 775 Diegueno -
Pine Valley , CA 91962
(619) 709-4207

Kumeyaay Cultural Repatriation Committee
Steve Banegas, Spokesperson
1095 Barona Road Diegueno/Kumeyaay
Lakeside , CA 92040
(619) 742-5587
(619) 443-0681 FAX

Clint Linton
P.O. Box 507 Diegueno/Kumeyaay
Santa Ysabel , CA 92070
(760) 803-5694
cjlinton73@aol.com

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed IEnergia Energia Sierra Juarez (ESJ), U.S. Transmission, LLC (ESJ-US) Project; located in the In-Ko-Pah Community on the San Diego-Imperial County line, California for which a Sacred Lands File search and Native American Contacts list were requested.

COPY

Department of Energy
Washington, DC 20585

April 14, 2009

Mike Jackson, Sr., President
Quechan Tribal Council
P.O. Box 1899
Yuma, AZ 85366-1899

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear President Jackson:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. In your March 10, 2009, e-mail to DOE, you stated that the Tribe is concerned about potential cumulative impacts from several projects within the Quechan Indian Tribe's traditional land area. Therefore, DOE invites the Tribe to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from the Tribe about historic properties, including those of traditional religious and cultural importance to the Quechan Tribe in or near the project area, and to provide you an opportunity to indentify your concerns about such properties, including potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference.

Our contractor that will be preparing the EIS is Entrix, Inc., and they will be in touch with your Tribe's Historic Preservation Office. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Quechan Tribe may have with regard to this proposed project.

Sincerely,

COPY

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA
Bridget R. Nash-Chrabascz,
Quechan Tribe Historic Preservation Office

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Preston J. Arrow-weed
Ah-Mut-Pipa Foundation
P.O. Box 160
Bard, CA 92222

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Mr. Arrow-weed:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Ah-Mut-Pipa Foundation on the Native American contacts list for the subject project. Therefore, DOE invites the Foundation to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Ah-Mut-Pipa Foundation in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Ah-Mut-Pipa Foundation may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Edwin Romero, Chairperson
Barona Group of the Capitan Grande
1095 Sarona Road
Lakeside, CA 92040

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Chairperson Romero:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Barona Group of the Capitan Grande on the Native American contacts list for the subject project. Therefore, DOE invites the Barona Group of the Capitan Grande to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Barona Group of the Capitan Grande in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Barona Group of the Capitan Grande may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Monique LaChappa, Chairperson
Campo Kumeyaay Nation
36190 Church Road, Suite 1
Campo, CA 91906

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Chairperson LaChappa:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Campo Kumeyaay Nation on the Native American contacts list for the subject project. Therefore, DOE invites the Campo Kumeyaay Nation to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Campo Kumeyaay Nation in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Campo Kumeyaay Nation may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Will Micklin, Executive Director
Ewiiaapaayp Tribal Office
PO Box 2250
Alpine, CA 91903·2250

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Executive Director Micklin:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Ewiiaapaayp Tribe on the Native American contacts list for the subject project. Therefore, DOE invites the Tribe to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Ewiiaapaayp Tribe in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Ewiiaapaayp Tribe may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Ron Christman
Kumeyaay Cultural Historic Committee
56 Viejas Grade Road
Alpine, CA 92001

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Mr. Christman:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Kumeyaay Cultural Historic Committee on the Native American contacts list for the subject project. Therefore, DOE invites the Committee to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Kumeyaay Cultural Historic Committee in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, Federal Register is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Kumeyaay Cultural Historic Committee may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Steve Banegas, Spokesperson
Kumeyaay Cultural Repatriation Committee
1095 Barona Road
Lakeside, CA 92040

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Spokesperson Banegas:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Kumeyaay Cultural Repatriation Committee on the Native American contacts list for the subject project. Therefore, DOE invites the Committee to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Kumeyaay Cultural Repatriation Committee in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, Federal Register is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Kumeyaay Cultural Repatriation Committee may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Ms. Carmen Lucas
Kwaaymii Laguna Band of Mission Indians
P.O. Box 775
Pine Valley, CA 91962

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Ms. Lucas:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Kwaaymii Laguna Band of Mission Indians on the Native American contacts list for the subject project. Therefore, DOE invites the Band to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Kwaaymii Laguna Band of Mission Indians in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

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Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Kwaaymii Laguna Band of Mission Indians may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Ms. Gwendolyn Parada, Chairperson
La Posta Band of Mission Indians
PO Box 1120
Boulevard, CA 91905

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Chairperson Parada:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the La Posta Band of Mission Indians on the Native American contacts list for the subject project. Therefore, DOE invites the Band to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the La Posta Band of Mission Indians in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the La Posta Band of Mission Indians may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Leroy J. Elliott, Chairperson
Manzanita Band of the Kumeyaay Nation
PO Box 1302
Boulevard, CA 91905

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Chairperson Elliott:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Manzanita Band of the Kumeyaay Nation on the Native American contacts list for the subject project. Therefore, DOE invites the Band to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Manzanita Band of the Kumeyaay Nation in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Manzanita Band of Kumeyaay Nation may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Mark Romero, Chairperson
Mesa Grande Band of Mission Indians
P.O. Box 270
Santa Ysabel, CA 92070

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Chairperson Romero:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Mesa Grande Band of Mission Indians on the Native American contacts list for the subject project. Therefore, DOE invites the Band to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Mesa Grande Band of Mission Indians in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Mesa Grande Band of Mission Indians may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Allen E. Lawson, Chairperson
San Pasqual Band of Mission Indians
PO Box 365
Valley Center, CA 92082

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Chairperson Lawson:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the San Pasqual Band of Mission Indians on the Native American contacts list for the subject project. Therefore, DOE invites the Band to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the San Pasqual Band of Mission Indians in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the San Pasqual Band of Mission Indians may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Johnny Hernandez, Spokesperson
Santa Ysabel Band of Diegueno Indians
PO Box 130
Santa Ysabel ,CA 92070

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Spokesperson Hernandez:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Santa Ysabel Band of Diegueno Indians on the Native American contacts list for the subject project. Therefore, DOE invites the Band to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Santa Ysabel Band of Diegueno Indians in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Santa Ysabel Band of Diegueno Indians may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Danny Tucker, Chairperson
Sycuan Band of the Kumeyaay Nation
5459 Sycuan Road
EI Cajon, CA 92021

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Chairperson Tucker:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Sycuan Band of the Kumeyaay Nation on the Native American contacts list for the subject project. Therefore, DOE invites the Band to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Sycuan Band of the Kumeyaay Nation in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Sycuan Band of the Kumeyaay Nation may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Bobby L. Barrett, Chairperson
Viejas Band of Mission Indians
PO Box 908
Alpine , CA 91903

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Chairperson Barrett:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include the Viejas Band of Mission Indians on the Native American contacts list for the subject project. Therefore, DOE invites the Band to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to the Viejas Band of Mission Indians in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

A copy of the "Notice of Intent to Prepare an Environmental Impact Statement (EIS)" that was published in the February 25, 2009, *Federal Register* is enclosed for your information and reference. In addition, please note that ESJ Project-related maps, documents, and schedule updates are available for your information on the ESJ Project Web site at http://ESJProjectEIS.org and on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334).

Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions the Viejas Band of Mission Indians may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA

Department of Energy
Washington, DC 20585

May 28, 2009

Mr. Paul Cuero
Kumeyaay Cultural Heritage Preservation
36190 Church Road, Suite 5
Campo, CA 91906

SUBJECT: **Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC**

Dear Mr. Cuero:

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line across the U.S.-Mexico border. ESJ's proposed transmission line would connect wind turbines (the La Rumorosa Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), and 36 CFR Part 800, DOE must determine if the proposed Federal action has the potential to cause effects on historic properties. A sacred lands search and a list of Native American contacts were requested from the Native American Heritage Commission (NAHC) for the ESJ Project. The NAHC's March 27, 2009, response to our request did indicate the presence of Native American cultural resources in the ESJ Project area and did include Kumeyaay Cultural Heritage Preservation on the Native American contacts list for the subject project. Therefore, DOE invites Kumeyaay Cultural Heritage Preservation to consult with us regarding the proposed ESJ Project.

DOE would like to obtain information from you about historic properties, including those of traditional religious and cultural importance to Kumeyaay Cultural Heritage Preservation in or near the project area, and also to provide you an opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures. Your assistance in the identification and evaluation of historic properties, including those of traditional religious and cultural importance, will provide us the opportunity to resolve any adverse effects this undertaking may have on these properties. If available, we would welcome any information on the location and importance of archaeological sites, historic structures, and any other localities of interest to you that are known to occur in the proposed project area.

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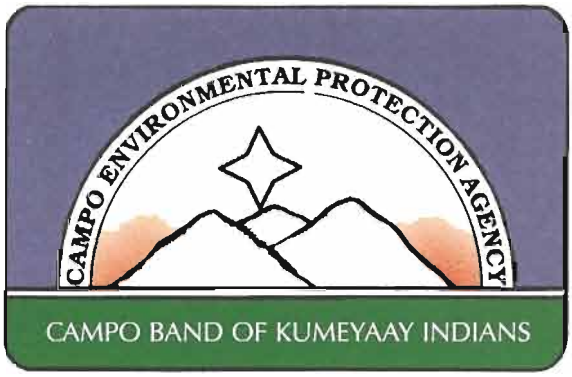
Our contractor that will be preparing the EIS is ENTRIX, Inc. Please feel free to contact them directly as follows: by mail at ENTRIX, Inc., Attention John A. Nadolski, 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by e-mail at jnadolski@entrix.com. Also, please feel free to contact Dr. Jerry Pell, our EIS Document Manager for this project, by e-mail at Jerry.Pell@hq.doe.gov, by phone at 202-586-3362, or by fax at 202-318-7761 with regard to any concerns or questions Kumeyaay Cultural Heritage Preservation may have with regard to this proposed project.

Sincerely,

Anthony J. Como
Acting Deputy Assistant Secretary
Permitting, Siting and Analysis Division
Office of Electricity Delivery and
Energy Reliability

Enclosure: *Federal Register* Notice

cc: Tim J. Murphy, Entrix
Allen Anspach, Regional Director, BIA



received
14 JULY 09

June 29, 2009

Fax: 202-318-7761
Dr. Jerry Pell
Office of Electricity Delivery and Energy Reliability (OE-20)
US Dept of Energy
1000 Independence Ave, SW
Washington DC 20585

Re: Invitation to Consult on the Project Proposed by Energia Sierra Juarez U.S. Transmission, LLC.

Dear Dr. Pell:

I am contacting you at the request Chairwoman Monique La Chappa of the Campo Band of Mission Indians regarding cultural resources surveys and monitoring that should take place in accordance with the National Environmental Protection Act (NEPA) process relating to the proposed project.

The Campo Band of Kumeyaay (Mission) Indians (Campo Band) requests a consultation meeting between the Campo Band and the Department of Energy on this project to discuss cultural resources and historic preservation activities. The Campo Band will wish to provide Campo cultural monitors to assist in any historic preservation and/or cultural resources activities regarding the proposed project.

Any transmission line in Baja California to the Southwest Power Link (SWPL) has potential consequences for cultural resources of the Kumeyaay people and the Tribe is entitled to meaningful participation and consultation on this project with regard to both environmental concerns and cultural resources. You may know that a right of way for the Southwest Power Link runs through the Campo Indian Reservation. The Campo Band therefore requests the initiation of formal consultation in a meeting at the Campo Indian Reservation at the earliest convenience.

Please contact myself, Lisa Gover, Director, Campo EPA, (619) 478-9369 or Erlinda Panigua, Assistant to the Chairwoman (619) 478-9046 to set up a meeting. We look forward to working with you on this important project.

With regards,

Lisa N. Gover, Director
Campo Environmental Protection Agency
cc: Chairwoman Monique La Chappa

ENERGIA SIERRA JUAREZ U.S. TRANSMISSION (ESJ) LINE
ENVIRONMENTAL IMPACT STATEMENT (EIS)
Consultation Meeting with the Campo Band of Kumeyaay (Mission) Indians
MEETING SUMMARY
September 16, 2009

In May 2009, the Department of Energy (DOE) invited the Campo Band of Kumeyaay Mission Indians (Campo Band) and Chairperson Monique LaChappa to consult with the DOE regarding the proposed construction of either a double-circuit 230,000-volt (230-kV), or a single-circuit 500-kV, transmission line across the U.S.-Mexico border by Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly known as Baja Wind U.S. Transmission, LLC). The proposed transmission line would connect wind turbines (ESJ Wind Project) to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line.

In June 2009, Lisa N. Gover, Director, Campo Environmental Protection Agency, responded to DOE's invitation to consult, requesting a consultation meeting "to discuss cultural resources and historic preservation activities." (The letter from the Campo Band is available on the project Web site at http://esjprojecteis.org.)

On behalf of DOE, John A. Nadolski of ENTRIX, DOE's environmental contractor for the project, responded to the Campo Band's request for consultation in August 2009, which led to a meeting with Chairperson Monique LaChappa on September 16, 2009, at the Campo Indian Reservation.

The scheduled attendees for the September 16, 2009, meeting included Chairperson LaChappa, Dr. Jerry Pell, the DOE EIS Document Manager for the project, Timothy Murphy, ENTRIX EIS project manager, and Mr. Nadolski, the ENTRIX California Cultural Resources Program Manager. Mr. Nadolski was scheduled to attend the meeting in person and Dr. Pell and Mr. Murphy were scheduled to attend the meeting by teleconference. Mr. Nadolski did meet with Chairperson LaChappa, but unanticipated technical issues prevented the participation of Dr. Pell and Mr. Murphy in the meeting.

The discussion during the meeting between Chairperson LaChappa and Mr. Nadolski included the following:

- Mr. Nadolski presented an overview of the proposed ESJ project and provided Chairperson LaChappa with a copy of the publically available cultural resources report and project maps. He also discussed the cultural resources identification issues, the results of investigations, and the potential of the project to impact any cultural resources.

- Chairperson LaChappa asked questions regarding the scope of the cultural resources survey, the types of cultural resources identified in the project area, and whether we were aware of the presence of cultural resources in vicinity of the ESJ Wind Project in Mexico. Chairperson LaChappa stated that she and the Campo Band have personal knowledge of cultural resources in Mexico in vicinity of the ESJ Wind Project.

  Mr. Nadolski responded to Chairperson LaChappa's questions by describing the survey, the cultural resources in the project area, and informing her that we are aware of the

cultural resources in Mexico and that some information regarding those resources appears in the cultural resources report.

- Chairperson LaChappa requested that project activity and any excavations at sites be monitored by members of the Campo Band that have knowledge of the area and have been trained as cultural resources monitors. She also stated that the Campo Band could provide contractors and laborers to work on the project, and requested to be contacted regarding any opportunities to provide construction services for the project.

  Mr. Nadolski responded that the request for monitoring would be addressed in the EIS, and that he would inform the appropriate ESJ personnel regarding the possibility of the Campo Band providing construction services for the project.

- Chairperson LaChappa discussed the Campo Band's proposed wind farm project and the use of the Southwest Powerlink to distribute power generated from the wind farm. She also stated that the Campo Band owned 105 acres of land near the current project and was willing to discuss the use and/or development of that land with ESJ.

  Mr. Nadolski thanked Chairperson LaChappa for the information about their wind project, and stated that he would inform appropriate ESJ personnel regarding the land owned by the Campo Band near the ESJ project.

- Chairperson LaChappa expressed appreciation for the opportunity to discuss the project and was supportive of the project. She stated, however, that the Campo Band was concerned about construction of the ECO Substation.

  Mr. Nadolski informed Chairperson LaChappa that the ECO Substation was not part of the ESJ project, but rather is an undertaking of San Diego Gas & Electric. She confirmed that she understood the situation.

- At the conclusion of the meeting, Chairperson LaChappa stated that she considered the consultation process to be completed with this meeting.

  Mr. Nadolski thanked Chairperson LaChappa for her time and input, and her determination that consultation was concluded; he informed the Chairperson that the Campo Band would be kept informed about the ESJ project.

In summary, a consultation meeting regarding the ESJ transmission line project and the Campo Band was held on September 16, 2009, at the Band's offices. The scope of the project and the cultural resources associated with the project were discussed at the meeting. Chairperson LaChappa was supportive of the project and considered the meeting sufficient for closure of consultation.

From: Pell, Jerry [mailto:Jerry.Pell@hq.doe.gov]
Sent: Monday, November 30, 2009 12:55 PM
To: Bridget Nash
Cc: Tim Murphy; Heredia, Joan
Subject: RE: Energia Sierra Juarez

Thank you very much for the courtesy of your reply!

Best regards,

Dr. Jerry Pell, CCM
Principal NEPA* Document Manager
Permitting, Siting and Analysis, OE-20
Office of Electricity Delivery and Energy Reliability

U.S. Department of Energy
Washington, DC 20585
202-586-3362
Fax 202-318-7761
Jerry.Pell@HQ.DOE.GOV
*National Environmental Policy Act
-----Original Message----From:
Bridget Nash [mailto:b.nash@quechantribe.com]
Sent: Monday, November 30, 2009 3:54 PM
To: Pell, Jerry
Subject: Energia Sierra Juarez

Good afternoon

It appears that the proposed project lies outside of the traditional land area of the Quechan, based on maps included in the draft archaeological report for the project. When originally informed of the project by BLM, it was my understanding that the project would cross from Mexico into Imperial County closer to El Centro; however, Figure 1 shows the project crossing from Mexico into San Diego County, just west of the Imperial County line. If this is the case the Tribe will defer all comments on this project to the Kumeyaay and will support the Tribe as needed.

Thank you again for your notification.

Bridget R. Nash-Chrabascz
Quechan Tribe Historic Preservation Officer
Quechan Indian Tribe
PO Box 1899
Yuma, AZ 85366
760-572-2423

From: Pell, Jerry [Jerry.Pell@hq.doe.gov]
Sent: Wednesday, November 25, 2009 12:10 PM
To: Bridget Nash
Cc: John Nadolski; Tim Murphy
Subject: RE: Energia Sierra Juarez

Attachments: Archaeological & Historical Investigations Report; Draft, May 2009.pdf

Ms. Nash-Chrabascz,

First of all, apologies for this delayed response!

In response to your message, we remain interested in obtaining information from the Quechan Indian Tribe about historic properties in or near the project area, including those of traditional religious and cultural importance to the Tribe, and also in providing you with the opportunity to indentify your concerns about such properties, including the identification of potential mitigation measures.

The current cultural resource report for the proposed project is available for review on the Tribal Consultation page of the project website, at http://www.esjprojecteis.org/docs/consultation/Tribal_consultation_packet_2009Sept.pdf. I am also attaching this report to this message as a convenience for you. In addition, please note that ESJ Project-related maps, other documents, and schedule updates are available for your review on the DOE Web site at http://www.oe.energy.gov/permits_pending.htm (see PP-334), and in greater detail on the ESJ Project Web site at http://ESJProjectEIS.org; I encourage you to consider subscribing to future e-mail updates (on the Web site home page).

Our contractor for the preparation of the environmental impact statement (EIS) is ENTRIX, Inc. Please feel free to contact my tribal affairs contact, Mr. John A. Nadolski, directly by mail at ENTRIX, Inc., 701 University Avenue, Suite 200, Sacramento, CA 95825; by phone at 916-923-1097; by fax at 916-923-6251; or by email at jnadolski@entrix.com. Of course, please feel free to contact me any time as noted below with regard to any specific concerns or questions the Quechan Tribe may have with regard to this proposed project

Best regards,

Dr. Jerry Pell
Principal NEPA* Document Manager
Permitting, Siting and Analysis
Office of Electricity Delivery and Energy Reliability (OE-20)
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*National Environmental Policy Act

-----Original Message-----
From: Bridget Nash [mailto:b.nash@quechantribe.com]
Sent: Friday, November 20, 2009 11:21 AM
To: Pell, Jerry
Subject: Energia Sierra Juarez

Good morning –

I have not heard anything on this project in quite some time and am writing to follow-up. Where does the project stand and when will the Tribe receive more project specific information, including a biological and cultural report, so that we may begin discussing specific concerns?

Any information would be greatly appreciated.

Bridget R. Nash-Chrabascz
Quechan Tribe Historic Preservation Officer
Quechan Indian Tribe
PO Box 1899
Yuma, AZ 85366
760-572-2423

Appendix D.2 Final Archaeological and Historical Investigations for the Energia Sierra Juarez U.S. Gen-Tie Line Project Jacumba, California (March 2010)

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

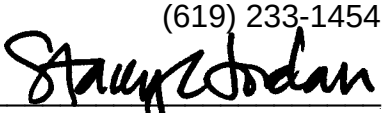
Energia Sierra Juarez U.S. Transmission, LLC
MUP 09-008, Log No. 09-22-001

Lead Agency:

County of San Diego
Department of Planning and Land Use
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Preparers:

Stacey C. Jordan, Ph.D., R.P.A.,
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Stacey C. Jordan, Ph.D.

With contributions by Ecology & Environment, Inc.

Project Proponent:

Energia Sierra Juarez U.S. Transmission, LLC
101 Ash Street, HQ 14
San Diego, California 92101

March 2010

National Archaeological Data Base Information

Authors:	Stacey C. Jordan with contributions by Ecology & Environment, Inc.
Firm:	EDAW, Inc.
Client/Project Proponent:	Energia Sierra Juarez U.S. Transmission, LLC
Report Date:	March 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 71.81 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
SIC	Southeast Information Center
SDSU	San Diego State University
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

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MANAGEMENT SUMMARY

Project Description

Energia Sierra Juarez U.S. Transmission, LLC (ESJ U.S.), proposes to construct and operate a generator interconnection line (Gen-Tie Line) to electrically interconnect up to 1250 megawatts (MW) of renewable energy from renewable energy sources (to be located in Baja California, Mexico) with the Imperial Valley-Miguel segment of the Southwest Powerlink (SWPL) 500-kiloVolt (kV) transmission line. The proposed action is the construction, operation, and maintenance of an approximately 1-mile Gen-Tie Line from the United States (U.S.)-Mexico border to the point of interconnection with the SWPL. The Gen-Tie Line would be either a 500-kV single circuit line or an alternative double circuit 230-kV constructed on either monopole or lattice towers. Permanent facilities would consist of approximately three to five towers and an access road. The overall maximum capacity of either line configuration will be up to 1250 MW. The preferred routes are Route A1 for a 500-kV Gen-Tie Line and Route A2 for a 230-kV Gen-Tie Line, both of which are entirely on private property in the southeastern portion of San Diego County, near the border with Imperial County. While the Department of Energy is the lead agency for the purposes of the National Environmental Protection Act, the County of San Diego Department of Land Use and Planning (County) is serving as lead agency pursuant to the California Environmental Quality Act (CEQA) as part of the discretionary permit process for the issuance of a Major Use Permit for the proposed project

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. The combined 71.81 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 effort. 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 through 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.

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 reconnaissance surveyed during the extended recordation and testing of site CA-SDI-6119 and no new resources were observed. However, this section of the Option B alignment will require intensive pedestrian survey of the entire 40-foot wide road easement should this option be selected for construction.

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1.0 INTRODUCTION

1.1 Project Description

Energia Sierra Juarez U.S. Transmission, LLC (ESJ U.S.) proposes to interconnect new renewable wind power in Northern Baja Mexico into the existing Southwest Powerlink (SWPL) Transmission Line in the United States. ESJ U.S. requests a Major Use Permit (MUP) for the construction, operation, and maintenance of a less than one mile segment of an "electric generator-tieline" in Eastern San Diego County. The proposed generator-tieline (Gen-Tie) would have the capacity to import up to 1250 MW of renewable energy generated in Northern Baja California, Mexico. The proposed Gen-Tie would transmit only renewable energy. The archaeological survey for the proposed project comprises approximately 71.81 acres located approximately 75 miles (120.70 km) from downtown San Diego and approximately one-half mile (0.8 km) south of Interstate Highway 8 (I-8) (Figure 1). The property is situated in sections 1 and 12 of Township 18 South, Range 8 East on the In-Ko-Pah Gorge 1975 7.5-minute U.S. Geological Survey (USGS) map (Figure 2).

The proposed project subject of the San Diego County Major Use Permit (MUP) application is 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 consists of a single circuit 500 kV line (Route A1) or double-circuit 230 kV line (Route A2) supported on three to five 150-foot steel lattice towers or up to 170-foot steel monopoles. 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.

Either route would connect with the proposed East County Substation (ECO Substation) which is to be proposed, permitted, constructed, and operated by San Diego Gas and Electric (SDG&E) which in turn would interconnect to SWPL. 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 and 2).

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.



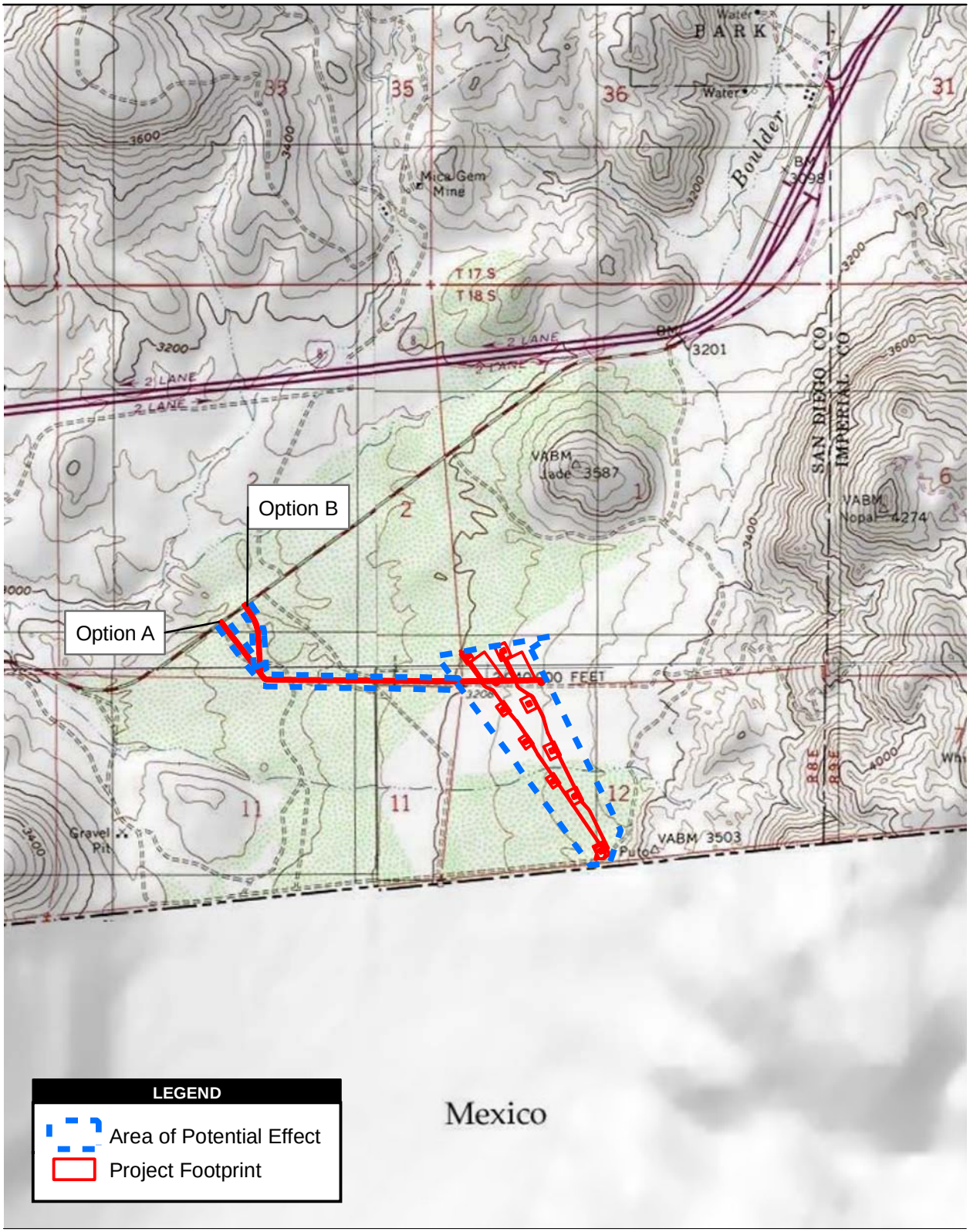
Source: ESRI 2009; SANGIS 2008

7 3.5 0 7 Miles

Scale: 1 = 693,000; 1 inch = 10.9 mile(s)

Figure 1
Regional Location Map

Path: P:\2009\09080001 ESJ Gen-Tie\6.0 GIS\6.3 Layout\Cultural\Figure1_Regional_Location.mxd, 03/15/10, SorensenJ



Source: ESRI 2009, USGS Topographic Quadrangle In-Ko-Pah Gorge 1975, Jacumba 1975

2,000 1,000 0 2,000 Feet

Scale: 1 = 24,000; 1 inch = 2,000 feet

Figure 2
Project Vicinity

Path: P:\2009\09080001 ESJ Gen-Tie\6.0 GIS\6.3 Layout\Cultural\Figure2_Project_Vicinity.mxd, 03/15/10, SorensenJ

Access to the ESJ Gen-Tie Project area is provided by Old Highway 80. The proposed project has two options, Option A and Option B, for the Property Legal Access Road. The locations and alignments for both options are shown in Figure 3. 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 Legal Access Road and Gen-Tie tower access road would be maintained periodically. This maintenance would include periodic grading and minor repairs.

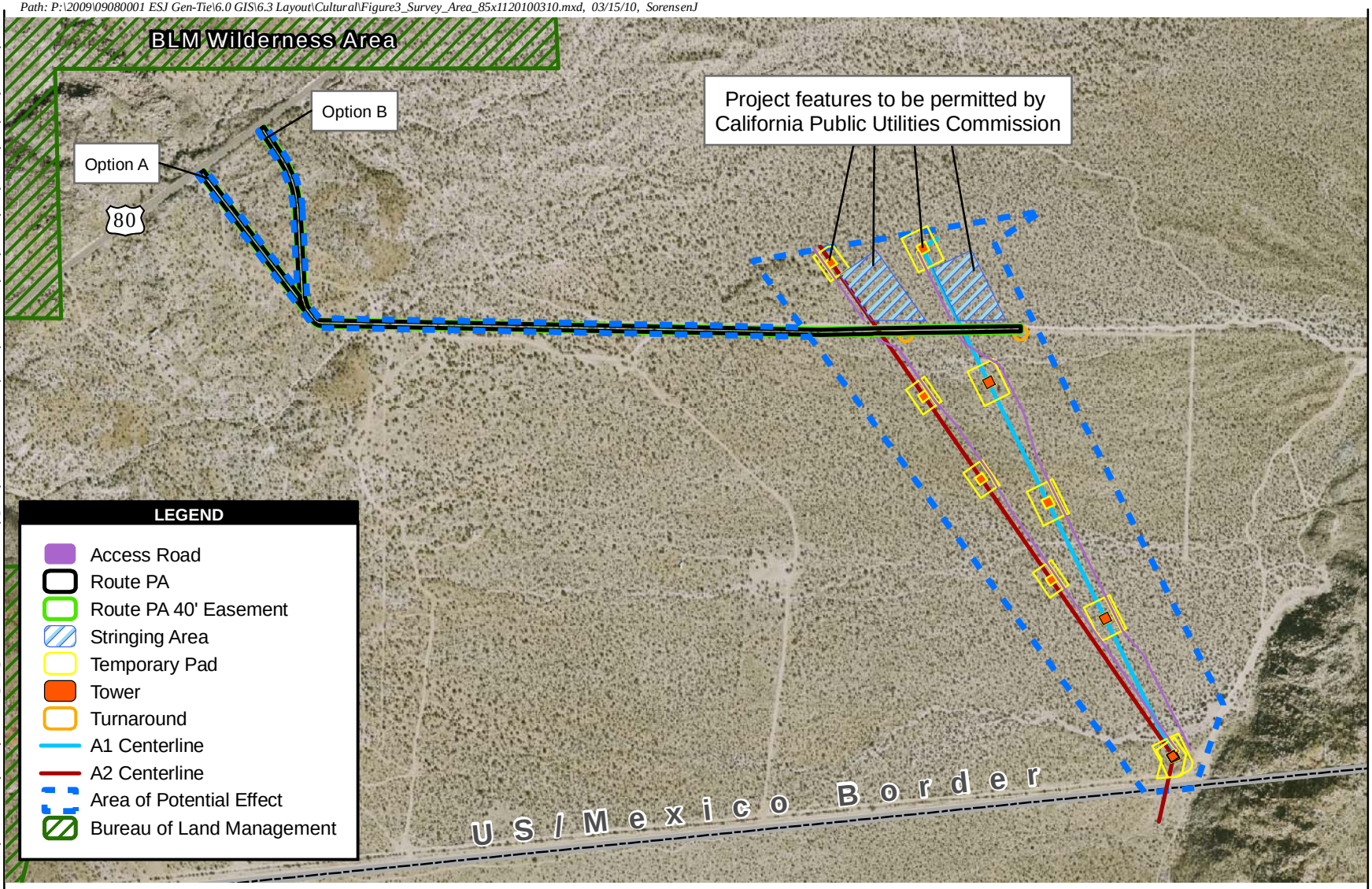
As noted above, the Gen-Tie would consist of either a single circuit 500 kV line or double circuit 230 kV line. The key features and impacts of towers in each of these alternatives are summarized in Table 1.

Table 1. 500 kV and 230 kV Tower Parameters

Parameter	500 kV (Route A1) Interconnection	230 kV (Route A2) 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[1]	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

Route A1 (the 500 kV Gen-tie) would be constructed within a 214-foot wide permanent right-of-way. Route A2 (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 and impacts to cultural resources.

Path: P:\2009\09080001 ESL Gen-Tie\6.0 GIS\6.3 Layout\Cultural\Figure3_Survey_Area_85x1120100310.mxd, 03/15/10, SorensenJ



Source: DigitalGlobe 2008, Sempra Energy 2009, SANGIS 2008

800 0 800 Feet

Scale: 1 = 9,600; 1 inch = 800 feet

Figure 3
Study Area and Site Plan

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 Legal 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 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.

The monopoles or lattice towers would be located no more than 1,500 feet apart. The precise locations may be adjusted based on final design and, if necessary, to avoid sensitive cultural resources. There would be no poles placed within 150 feet of the international border. This type of Gen-Tie rarely causes interference to radio and television signals and there are no adjacent or nearby land uses where this could possibly be an issue.

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. Vegetation debris would be removed offsite and disposed of consistent with applicable requirements. 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. Vegetation debris would be removed offsite and disposed of properly.

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; impacts associated with the 230 kV Route A2 would be less. Table 2 quantifies the amount of land disturbance for all project components associated with Routes A1 and A2.

Table 2. Land Disturbance

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' Property Legal 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' fire clearing)[3]	3.45 acres	2.1 acres
Totals	10.77 acres[4]	9.72 acres[4]

[1] The 28' Property Legal 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 Legal 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.

Fire protection guidelines require a defensible space of 30 feet on all sides of each tower, and recommend that no revegetation occur within, or 30 feet adjacent to, the right-of-way (ROW) (Hunt Research Corporation 2009). Therefore, along the right-of-way the ground disturbance is considered a permanent impact.

The proposed Project would include a Stormwater Pollution Prevention Plan (SWPPP) as required by the Clean Water Act (CWA) and the San Diego Regional Water Quality Control Board (RWQB). The SWPPP would include options for standard sediment control devices such as silt fences, straw wattles, straw bales, netting, soil stabilizers, and check dams to minimize soil erosion during and after construction.

All waste material generated during project construction would be deposited in dumpsters or covered bins that would be removed from the Project site by a licensed waste hauler for proper disposal. Portable toilets would also be provided for use by the construction workers. These facilities would be installed and removed from the site by a licensed portable sanitation company and the waste material would be disposed of at an approved facility. Onsite construction workers would remove litter at the end of each day. A final site cleanup and inspection would be conducted at the completion of construction.

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. 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. An estimate of the vehicles and usage for various construction activities as well as air emissions estimates including GHG emissions has been prepared and provided under separate cover.

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. Temporary on-site storage of water may be possible. 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. The Gen-Tie towers would be equipped with warning signs in English and Spanish that would alert the public to the electrical hazard. No lighting on the towers/poles is proposed, based on the Federal Aviation Administration (FAA) determination of no hazard to air navigation.

In support of the Environmental Impact Report/Environmental Impact Statement being prepared for the project described above, Ecology and Environment, Inc. (E&E) and EDAW, Inc. (EDAW) conducted archaeological and historical survey investigations of the proposed project's Area of Potential Effect (APE), totaling approximately 71.81 acres (see Figure 3). EDAW subsequently integrated the findings of the survey efforts and incorporated information provided in E&E (2009) to complete this study. This report follows the format and content guidelines issued by the County's Department of Planning and Land Use (County of San Diego 2007a) and guidance from the Archaeological Resource Management Reports of the California Office of Historic Preservation (OHP 1989). These guidelines provide a standard for preferred report contents and organization for cultural resources reports under the jurisdiction of the County.

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 to1,219.2 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	Hatley1976
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 .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	160m 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.

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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.

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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.

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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.

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 the 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 a previously identified site. 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; Figure 4, Appendix E - bound separately). One previously recorded site, CA-SDI-6119, was relocated and updated during survey efforts for the Legal Property Access Roadalignment. 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.

FIGURE 4

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

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 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).

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 (Figure 5 – 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 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

FIGURE 5

CULTURAL RESOURCES SUBJECTED TO TESTING
(Confidential – Bound Separately)
See Appendix E

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

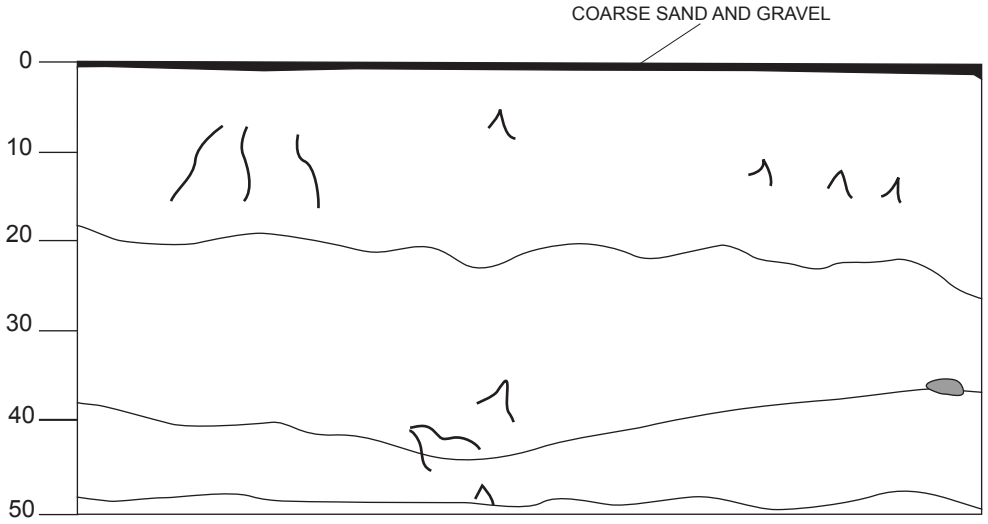
Material Type	STP	TEU	Total	Relative Frequency
Quartz	1	10	**11**	26.8%
Metavolcanic	13	15	**28**	70.7%
Cryptocrystalline	--	1	**1**	2.5%
Total	**14**	**26**	**40**	
Relative Frequency	36.6%	63.4%		100%

Stratigraphy of TEU 1 was uniformly siltly 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



I	LIGHT BROWN SILTY SAND, COARCE, LOW COMPACTION, HIGH MOISTURE
II	LIGHT BROWN, SILTY SAND, SANDY CLAY, COARSE, MODERATE COMPACTION, HIGH MOISTURE
III	LIGHT BROWN, TAN, SANDY SILT, COARSE, HIGH COMPACTION, MODERATE MOISTURE
	ROOTS
	ROCK

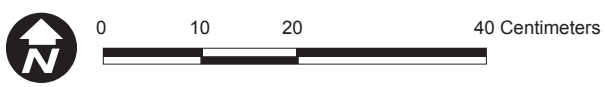


Figure 7
CA-SDI-6119, TEU 1 North Wall Profile

FIGURE 8

CA-SDI-19488, -19490, -19493, EXCAVATION
(Confidential – Bound Separately)
See Appendix E

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 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 (Figure 8). 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 (Figure 8). 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%**

CA-SDI-19493

Six STPs were placed along transects in relation to the site datum (see Figure 8). 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 (see Figure 8). 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 (Figure 9). 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.

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.

FIGURE 9

CULTURAL RESOURCES TESTING RESULTS
(Confidential – Bound Separately)
See Appendix E

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 the project as currently designed (see Figure 4, 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 Route 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 Route 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 Route 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.

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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 the proposed project 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. While no resources were observed along the western terminus of Legal Property Access Road Option B during reconnaissance survey related to detailed recordation and testing of site CA-SDI-6119, the engineered 40-foot wide easement for this alignment should undergo intensive pedestrian archaeological survey if this option is selected for construction.

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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.

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

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

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

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

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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.

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

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

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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.

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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.

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

8.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

Stacey C. Jordan, Ph.D.
Senior Archaeologist
EDAW, Inc.

Cheryl Bowden-Renna
Associate/Staff Archaeologist
EDAW, Inc.

South Coastal Information Center
San Diego State University

Southeast Information Center
Imperial Valley College Desert Museum
Native American Heritage Commission

Sandra Pentney
Environment & Ecology, Inc.

Heather Kwiatkowski
Staff Archaeologist
County of San Diego DPLU

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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

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APPENDIX A

RECORDS SEARCH RESULTS
(Confidential – Bound Separately)

APPENDIX B

RESUMES OF KEY PERSONNEL

STACEY JORDAN, PhD
Senior Archaeologist

Dr. Stacey Jordan has been professionally involved in the fields of archaeology and history for over a decade. Her specialty in historical archaeology combines the use of material culture and the archival record in anthropologically driven analyses of cultural resources. Dr. Jordan was the recipient of the Excellence Fellowship at Rutgers University, as well as multiple research grants from the Wenner-Gren Foundation for Anthropological Research. She is the author of various publications as well as numerous papers that have been presented at national and international conferences. Dr. Jordan is particularly well versed in the analysis of historical ceramics and has taught courses in the method and theory of historical archaeology as well as in the identification and analysis of historical ceramics and glass. She has extensive experience in archival research and historical writing, and has worked on projects spanning from early colonial contact to the recent past. In addition, Dr. Jordan has served on a variety of prehistoric and historic excavations both in the United States and abroad. Supplementing her work in cultural resources management, she conducts research on ceramics, community development, and identity construction in colonial South Africa.

EDUCATION
Ph.D., Anthropology, Rutgers University, 2000

M.Phil., Anthropology, Rutgers University, New Brunswick, NJ, 1995

M.A., Anthropology, Rutgers University, 1994

B.A. with High Distinction, Anthropology
University of California, Berkeley, 1991

AFFILIATIONS
Society for American Archaeology

Register of Professional Archaeologists

CERTIFICATIONS AND APPROVALS
County of San Diego Approved Consultant List for Archaeological Resources

County of San Diego Approved Consultant List for Historic Resources

County of Riverside Approved Cultural Resources Consultant (No. 222)

AWARDS
2008 - San Diego AEP Outstanding Environmental Resource Document Finalist, *Boulder Oaks Open Space Preserve* (winner Honorable Mention at September 25 AEP Awards)

2008 - Riverside County Planning Department, *Certificate of Appreciation for the Cultural Resources Working Group*

2006 - City of San Diego Historical Resources Board Award of Excellence, *CCDC Downtown San Diego African-American Heritage Study*

2005 - California Preservation Foundation Preservation Design Award, *CCDC Downtown San Diego African-American Heritage Study*

2005 - AEP Outstanding Public Involvement/ Education Program, *CCDC Downtown San Diego African-American Heritage Study*

2005 - APA, San Diego Section Focused Issue Planning Award Honorable Mention, *CCDC Downtown San Diego African-American Heritage Study*

GRANTS AND FELLOWSHIPS
2003, Wenner-Gren Foundation for Anthropological Research Individual Research Grant Team Member: "Analysis and Interpretation of Archaeological Residues from Excavations at the Castle of Good Hope, Cape, South Africa'"

1996-1997, Wenner-Gren Foundation for Anthropological Research, Predoctoral Research Grant #6021

1994-1995, Wenner-Gren Foundation for Anthropological Research, Predoctoral Research Grant #5739

1992-1996, Rutgers University Excellence Fellowship

PROJECT EXPERIENCE

Bear Valley Parkway Cultural Resources Study
San Diego County, CA
Project Manager
CLIENT: County of San Diego Department of Public Works
Project Manager of ongoing cultural resources inventory and evaluation efforts for the proposed expansion of Bear Valley Parkway in unincorporated northern San Diego County. The project involves field survey for archaeological and architectural resources, Native American coordination and identified resource evaluation according to County RPO and California Register eligibility criteria.

San Nicolas Island Archaeological Evaluations, Ventura County, CA
Project Manager
CLIENT: NAVFAC Southwest
Project Manager for ongoing archaeological evaluation of prehistoric sites CA-SNI-316, 361 and 550 on San Nicolas Island in the Channel Islands of the California Bight. This project involves the significance testing and analysis of Middle and Late Holocene sites and synthesis of results with existing island-wide archaeological data.

Jefferson National Expansion Memorial Environmental Impact Study
Senior Archaeologist, St. Louis, MO
CLIENT: U.S. National Park Service
Co-author for prehistoric and historical archaeology background and impact analysis sections related to the proposed expansion of the Jefferson National Expansion Memorial (Gateway Arch) in St. Louis, Missouri and East St. Louis, Illinois.

Heber Dunes SVRA General Plan & Environmental Impact Report
Cultural Resources, Imperial County, CA
Cultural Resources Task Manager/Senior Archaeologist
CLIENT: California State Parks
Ongoing Cultural Resources Phase I Survey and Inventory of Heber Dunes State Vehicular Recreation Area. This project involves the analysis of existing cultural resources conditions, assessment of proposed facilities maintenance and development impacts, and recommendations for the treatment of cultural resources.

STACEY JORDAN, PhD

Emergency Storage Project Cultural Resources – Lake Hodges, San Diego County, CA
Senior Archaeologist
CLIENT: San Diego County Water Authority
Senior Archaeologist and report co-author for data recovery project at site CA-SDI-10,920 along Lake Hodges. The project involves integration of regional data to provide context for the analysis of CA-SDI-10,920 and examination of the Late Prehistoric occupation of the San Dieguito River Valley around present-day Lake Hodges.

Banning State Water Transmission Line, Riverside County, CA
Senior Archaeologist
CLIENT: City of Banning
Task Manager for cultural resources sensitivity analysis for the construction of an approximately 2.4-mile long pipeline within the rights-of-way of paved streets within the unincorporated area of the county. As part of this analysis a records search of the Eastern Information Center was conducted by EDAW archaeologists to identify cultural resources studies and identified resources within a one-mile radius of the Banning State Water Transmission Line's proposed alignment. EDAW also requested a sacred lands file search from the Native American Heritage Commission.

Old Town State Historic Park Jolly Boy Project, San Diego, CA
Senior Archaeologist
CLIENT: California State Parks
Contributor to the archaeological data recovery report for the Jolly Boy Saloon site in Old Town San Diego State Historic Park. Contributions to this project involve the synthesis of existing data on Old Town San Diego and development of an archaeological and historic context for the analysis and interpretation of recovered material.

Boulder Oaks, Sycamore/Goodan, El Capitan/Oakoasis/ El Monte/Steltzer Open Space Preserve and Regional Park Cultural Resources Inventories, San Diego County, CA
Project Director
CLIENT: County of San Diego Department of Parks and Recreation
Project director for Phase I pedestrian survey and cultural resource inventories of Open Space Preserves and Regional Parks in unincorporated central San Diego County. The projects involved the identification and documentation of prehistoric and historic resources, built environment features, and existing infrastructure to assist the Department of Parks and Recreation in resource management. Inventory reports included extensive archival research and historical narrative, an inventory of identified sites, and management guidelines for potentially significant cultural resources developed in consultation with Native Americans where appropriate. Work done before joining EDAW.

State Route 94 Operational Improvements Inventory and Evaluation, San Diego County, CA
Project Director
CLIENT: Parsons Brinkerhoff
Director of cultural resources efforts and Caltrans coordination for survey, documentation, and evaluation related to proposed operational improvements along an 18-mile stretch of State Route 94 in San Diego County. Development of Caltrans-format documentation for archaeological and built environment resources. Work done before joining EDAW.

Santa Rosa San Jacinto Mountains National Monument Trails Inventory, Riverside County, CA
Project Director
CLIENT: Bureau of Land Management

Directed cultural resources inventory of trail systems within the Santa Rosa San Jacinto Mountains National Monument, including documentation of prehistoric and historic routes and associated resources within trail corridors. Completed cultural resources inventory report for BLM, including BLM-format GIS database. Work done before joining EDAW.

Southern California Edison As-Needed Archaeological Services, Statewide
Project Director
CLIENT: Southern California Edison
Director of on-call survey, resource identification, documentation, testing, and evaluation efforts related to Southern California Edison infrastructure replacements and development throughout the state on both private and public lands, including BLM, USACE, and USFS. Product involves completion of State of California DPR forms, assessment of resource significance according to NRHP eligibility and CEQA significance criteria, and management recommendations. Work done before joining EDAW.

Hercules Gunpowder Point Historical Resources Evaluation, Chula Vista, CA
Project Director
CLIENT: U.S. Fish and Wildlife Service
Project director for the historical evaluation of the Hercules Powder Company Gunpowder Point facility in Chula Vista. Supervised archival and historical research, directed field survey and documentation efforts, and provided National Register eligibility evaluation for the site. Work done before joining EDAW.

Downtown San Diego African-American Heritage Study, San Diego, CA
Senior Historian
CLIENT: Centre City Development Corporation (CCDC)
Documented the development and growth of the African-American community in downtown San Diego through the 19th and 20th centuries. Archival information, oral histories, architectural evaluations, and recognition of potential archaeological sites were used to document the African-American community's economic, social, and political history in the downtown area, and to identify an African-American Thematic Historic District. Work done before joining EDAW.

Mannasse's Corral/Presidio Hills Golf Course, San Diego, CA
Project Manager
CLIENT: Presidio Hills Golf Course
Directed and managed archaeological excavation and interpretation of historic refuse and features related to Old Town San Diego located within the city-owned Presidio Hills Golf Course property. Conducted analysis of excavated material, researched and interpreted site history and use, and assessed resource significance, broadening the understanding of Old Town's archaeological signature and historic lifeways. Work done before joining EDAW.

Old Town San Diego State Historic Park Archaeological Excavations, San Diego, CA
Project Manager
CLIENT: Bazaar del Mundo LLC/California State Parks
Managed excavation and analysis of 19th-century deposits recovered from two locations within Old Town State Historic Park, representing roadbed flood wash and tavern refuse, respectively. Oversaw ceramic and glass cataloguing, and conducted historical research and interpretation on specific site uses and depositional processes. Prepared State of California DPR forms, and assessed resource significance according to NRHP eligibility criteria. Work done before joining EDAW.

Cole Road and Dogwood Road Widening Projects, Imperial County, CA

Project Director
CLIENT: City of El Centro
Project management of field survey and documentation efforts related to the widening of Dogwood Road and Cole Road in unincorporated Imperial County. Produced CEQA and Caltrans-format documentation related to identified resources and proposed project impacts. Work done before joining EDAW.

Blackwater West Cultural Resources Phase I and Phase II Studies, Potrero, CA
Project Director
CLIENT: Blackwater USA
Project director overseeing the survey of an approximately 850-acre area in eastern San Diego County and test excavation of identified prehistoric sites. Directed archaeological and built environment documentation, Extended Phase I testing, and Phase II testing efforts under the new County of San Diego Guidelines implemented September 2006. Work done before joining EDAW.

Vine/Carter Hotel Historical Assessment, San Diego, CA
Project Manager
CLIENT: Wakeland Housing
Conducted extensive archival research and historical assessment of the African-American-owned Vine/Carter Hotel building in San Diego's East Village. Conducted historical research on the building's ownership history and development; its historical uses, managers, and residents; and its place in San Diego's historical African-American community. Photographed and documented the building according to Office of Historic Preservation guidelines, prepared State of California DPR forms, and assessed the building's significance according to local, state, and federal significance criteria. As a result of the project, the Vine/Carter Hotel was nominated as a significant historical resource by the City of San Diego Historical Resources Board. Work done before joining EDAW.

Mission San Gabriel Gardens Excavation, Jump Start Project, San Gabriel, CA
Project Manager
CLIENT: Terry A. Hayes Associates
Conducted monitoring and excavation of Spanish colonial and American-era deposits associated with the construction of the original Mission San Gabriel and later 19th-century occupations. Documented the sites according to State Office of Historic Preservation guidelines, and assessed the resources according to NRHP and CEQA significance criteria. Work done before joining EDAW.

Lillian Grant Property Public Art Project, San Diego, CA
Project Manager
CLIENT: Wakeland Housing
Provided historical research services and written text incorporated into the public art commissioned for the redevelopment of the historical Lillian Grant Property in the East Village of San Diego. The public art, located at 14th and J streets at the Lillian Place affordable housing complex, commemorates the histories, experiences, and contributions of African-Americans to the development of San Diego and the East Village area in particular. Work done before joining EDAW.

Lillian Grant Property Historic American Building Survey (HABS), San Diego, CA
Project Manager
CLIENT: Wakeland Housing
Supervised HABS of the Lillian Grant properties in the East Village community of San Diego, submitted to the City of San Diego. Oversaw archival quality photographic documentation, and architectural line and plan drawings, as well

as completed required HABS historical narrative on the subject buildings. Work done before joining EDAW.

San Gabriel Mission Trench Excavation, San Gabriel, CA
Senior Archaeologist
CLIENT: Terry A. Hayes Associates
Conducted historical and archival research on the prehistory and history of the San Gabriel Mission and surrounding areas to assess potential impacts of proposed below-grade railway trench. Compiled historical narrative, identified potential subsurface features, and recommended appropriate mitigation strategies. Work done before joining EDAW.

Camp Seely National Register Evaluation, San Bernardino National Forest, San Bernardino County, CA
Senior Historian
CLIENT: City of Los Angeles Department of Recreation and Parks
Conducted NRHP evaluation of the early-20th-century Camp Seely recreational camp facility leased by the City of Los Angeles in the San Bernardino National Forest. Conducted historical and archival research on the Camp's history and development; its individual buildings; and its architects, including Sumner P. Hunt and Silas R. Burns. Photographed and documented the building according to Office of Historic Preservation guidelines, prepared State DPR forms, and assessed resource significance according to NRHP eligibility criteria. Work done before joining EDAW.

Camp Radford National Register Evaluation, San Bernardino National Forest, San Bernardino County, CA
Senior Historian
CLIENT: Michael Brandman Associates
Conducted NRHP evaluation of the early-20th-century Camp Radford recreational camp facility leased by the City of Los Angeles in the San Bernardino National Forest. Conducted historical and archival research on the Camp's history and development; its individual buildings; and its architects, Sumner P. Hunt and Silas R. Burns. Photographed and documented the building according to Office of Historic Preservation guidelines, prepared State DPR forms, and assessed resource significance according to NRHP eligibility criteria. Work done before joining EDAW.

High Winds Wind Farm Project, Solano County, CA
Senior Archaeologist
CLIENT: Environmental Services Associates (ESA)
Conducted archival and historical research on the settlement and development of southern Solano County. Evaluated nine historic resources and surrounding landscape significance according to CEQA criteria. Completed historical background and assessment report, photographically documented resources and landscape, and updated State DPR forms for previously identified resources. Work done before joining EDAW.

PUBLICATIONS

Books

Jordan, Stacey. In prep. Coarse Earthenware Collections at the Cape: "…diverse kinds of baked and glazed earthenware…" and European Stoneware at the Cape: Masks, medallions and merchandise. In: *The Material Culture of the Dutch East India Company at the Cape of Good Hope, 1652-1800*, Carmel Schrire (ed.). Left Coast Press, Walnut Creek, CA.

Jordan, Stacey. 2002. Classification and Typologies. In: *Encyclopedia of Historical Archaeology*, Charles E. Orser, Jr. (ed.). Routledge. London.

STACEY JORDAN, PhD

Jordan, Stacey and Carmel Schrire. 2002. Material Culture and the Roots of Colonial Society at the South African Cape of Good Hope. In: *The Archaeology of Colonialism*, Claire Lyons and John Papadopoulos (eds.). Getty Research Institute. Los Angeles.

Journal Articles

Jordan, Stacey C. 2000. Coarse Earthenware at the Dutch Colonial Cape of Good Hope, South Africa: A history of local production and typology of products. *International Journal of Historical Archaeology*, Vol. 4, No. 2.

Jordan, Stacey, Duncan Miller and Carmel Schrire. 1999. Petrographic Characterization of Locally Produced Pottery from the Dutch Colonial Cape of Good Hope, South Africa. *Journal of Archaeological Science*, Vol. 26.

Jordan, Stacey. 1994. Colonial Coarse Earthenware at the South African Cape of Good Hope, 1669-c.1900. *Crosscurrents*, Vol. VI.

PAPERS AND PRESENTATIONS

Dissertation: "The 'Utility' of Coarse Earthenware: Potters, Pottery Production and Identity at the Dutch Colonial Cape of Good Hope South Africa (1652-1795)"

The Development of Colonial Culture at the South African Cape of Good Hope: Examining the many "functions" of utilitarian ceramics. Paper presented at the Archaeology of Colonialism Symposium, Archaeological Institute of America Annual Meetings, January 2001.

Urban Archaeology and the Focus of Memory: a study in the history and narrative of South Central Los Angeles. Paper Presented at the Society for American Archaeology Annual Meeting, March 2002.

Historical Archaeology as Anthropology: Artifacts, Identities, and Interpretations in the Study of the Recent Past. Presented at the World Archaeological Congress, January 2003.

Old Town Made New Again: The Archaeology of San Diego's First Settlement. Paper presented at the Society for California Archaeology Annual Meeting, April 2005.

Past as Present: Tourism and Archaeology in Old Town San Diego. Presented at the Society for Applied Anthropology Annual Meeting, April 2005.

The Face of Mercantilism at the South African Cape of Good Hope: Ceramics and the Hesitant Empire. Presented at the Society for Historical Archaeology Annual Meeting, January 2006.

A Patchwork History: Interweaving Archaeology, Narrative and Tourism in Old Town San Diego. Paper presented at the Society for American Archaeology Annual Meeting, March 2007.

Mannasse's Corral: The Life History of a Piece of Old Town. Presented to the Presidio Council, January 2008.

Making the Past Present: Archaeology, Heritage and Tourism in Old Town San Diego. Paper presented at the Society for California Archaeology Annual Meeting, April 2008.

CEQA and Historical Resources. Guest Lecturer, California Environmental Quality Act, UCSD Extension Course, August 2008.

CHERYL BOWDEN-RENNA
Staff Archaeologist/Assistant Laboratory Director

SUMMARY
More than 12 years of experience in cultural resources management

Extensive survey, excavation, and monitoring experience

GPS mapping and post processing

Background in laboratory supervision and management

EDUCATION
BA, Anthropology, San Diego State University, 1987

Square supervisor and field school, Instructor, at Tel Dor, Israel, U.C. Berkeley

AFFILIATIONS
Society for California Archaeology

CERTIFICATIONS
40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER Course maintained since 1996)

PAPERS AND PRESENTATIONS
Sandstone Features Adjacent to Lake Cahuilla (with S. Rose). Proceedings of the Society of California Archaeology 1998 Annual Meeting, Volume 12, Fresno (1999).

The Cultural Resources of the Chocolate Mountains (with R. Apple). Presented to the 2004 Society of California Archaeological Annual Meeting.

Cheryl Bowden-Renna has served as archaeologist and assistant laboratory director for several cultural resource firms in San Diego. With 15 years of archaeological experience, Ms. Bowden-Renna has worked at sites throughout the southwestern United States. She also has a background in accounting, database management, and has developed solid management and supervisory skills.

Ms. Bowden-Renna has extensive archaeological monitoring experience of ordnance removal at the Salton Sea Test Base in Imperial County. She has also served as archaeological monitor of the test excavation for the Inmate Reception Center in downtown San Diego. In that role, she was responsible for monitoring excavations, including the use of backhoes, during the data recovery of features from an urban historic site.

PROJECT EXPERIENCE

CALTRANS District 11 New Headquarters
Monitor
CLIENT: DGS Federal Services
Monitoring for historic and prehistoric resources during preconstruction and construction for CALTRANS 11 New Headquarters.

Camp Lockett
Monitor
CLIENT: County of San Diego
Monitoring during construction of a sewage treatment facility in Campo, San Diego County.

East Miramar Housing Alternative
Project Archaeologist
CLIENT: U.S. Navy, Southwest Division and Marine Corps Air Station, Miramar
Conducted cultural resources survey, excavation, and evaluation of several sites located on MCB Miramar.

Miramar Jet Fuel
Crew Chief
CLIENT: U.S. Navy, Southwest Division and Marine Corps Air Station, Miramar
Conducted cultural resources survey for proposed fuel line for the Marine Corps, San Diego County.

Riverside OHV Project, Riverside County
Crew Chief
CLIENT: Riverside County Economic Development Authority
Conducted cultural resources survey of over 1,000 acres in Riverside County, California.

Coronado Monitoring Project
Crew Chief/Monitor
CLIENT: Sempra Energy and Utilities
Monitoring of powerline trenching on Coronado Island, California.

Cross Valley Survey, Los Angeles County
Crew Chief
CLIENT: City of Santa Clarita and Caltrans District 7
Conducted cultural resources survey in Los Angeles County, California.

CHERYL BOWDEN-RENNA

McAuliffe (Winterwood) Community Park, San Diego, CA
Crew Chief
CLIENT: City of San Diego
Crew chief for cultural resources survey of a proposed park.

Two Crash Sites on The Barry M. Goldwater Range, Marine Corps Air Station, Yuma
Crew Chief
CLIENT: U.S. Navy, Southwest Division and Marine Corps Air Station, Yuma
Crew chief for cultural resources survey of two helicopter crash sites.

Cultural Resources Inventory For the Infantry Squad Battle Course (P-633), Marine Corps Base Camp Pendleton, CA
Crew Chief
CLIENT: U.S. Navy, Southwest Division
Crew chief for cultural resources survey and site recordation.

Emergency Storage Project, San Diego County, CA
Project Archaeologist, Crew Chief, Field Technician and Laboratory Analysis
CLIENT: San Diego County Water Authority
Conducted cultural resources survey, testing and evaluation of several large project sites within San Diego County.

Valley Rainbow Transmission Line Project, Riverside and San Diego Counties
Crew Chief
CLIENT: San Diego Gas and Electric
Crew chief for cultural resources survey and site recordation for major portions of a large transmission line project.

LMXU Village Center
Crew Chief
CLIENT: Western Pacific Housing
Crew chief for cultural resources excavation and water screening.

Plum Canyon Park Project, Los Angeles County
Crew Chief
CLIENT: Los Angeles Department of Parks and Recreation
Conducted cultural resources survey for a community park in Saugus, Los Angeles County, California.

Escondido Tract 207A
Project Archaeologist
CLIENT: Elderly Development Company
Conducted cultural resources survey of 1.13 acres in the City of Escondido.

North Baja Gas Pipeline Project, Riverside and Imperial Counties
Crew Chief and Monitor
CLIENT: Foster Wheeler Environmental Corporation
Conducted cultural resources survey and monitoring for large pipeline project in Riverside and Imperial counties, California.

Archaeological Testing and National Register Evaluation of Site CA-SDI-16,002 Near Range 210 Marine Corps Base Camp Pendleton, CA
Field Director
CLIENT: U.S. Navy, Southwest Division
Field Director for test excavation of CA-SDI-16,002.

CHERYL BOWDEN-RENNA

Ballpark Infrastructure, San Diego, CA
Field Monitor
CLIENT: Sverdrup, Inc.
Historic monitoring and testing of downtown east village area for the proposed Ballpark.

Ballpark Remediation, San Diego, CA
Field Monitor
CLIENT: Sverdrup, Inc.
Historic monitoring and testing of downtown east village area for the proposed Ballpark. Required hazardous materials certification.

Nobel Drive, San Diego County, CA
Field Monitor
CLIENT: Boyle Engineering
Prehistoric monitoring of road extension to I-805 interchange.

SEMPRA On-call Cultural Services, San Diego, CA
Field Monitor
CLIENT: SEMPRA
Historic monitoring and testing of downtown east village area for the proposed Ballpark. Required hazardous materials certification.

Inmate Reception Center Project, San Diego County, CA
Laboratory Supervisor
CLIENT: County of San Diego
Conducted field monitoring of large machinery, including backhoes, during the data recovery of features from an urban historic site in downtown San Diego. Catalog and database management for project.

Levee Bridge, San Diego County, CA
Crew Chief/Laboratory Supervisor
CLIENT: U.S. Navy, Southwestern Division
Catalog, database management, table creation for CA-SDI-10,156 and discovery sites.

Salton Sea Test Base Project, Imperial County, CA
Crew Chief
CLIENT: U.S. Navy and OHM Remediation, Inc.
Site recordation, test excavation, and monitoring of 130 prehistoric sites in the County.

SR-56 EIR, Cultural Investigations, San Diego County, CA
Laboratory Technician
CLIENT: City of San Diego and Caltrans
Cataloged 12 prehistoric sites during preparation of EIR.

SR-56 Cultural Resources Testing, San Diego County, CA
Crew Chief
CLIENT: City of San Diego and Caltrans
Testing at 12 prehistoric sites.

P-527 Santa Margarita/San Onofre Cultural Resources Testing and Monitoring, MCB Camp Pendleton, San Diego County, CA
Field Technician
CLIENT: U.S. Navy, Southwest Division
Monitoring water treatment pond and pipeline construction in the County.

CHERYL BOWDEN-RENNA

San Clemente Island Existing Conditions Study for Pumped Hydrostorage/Wind Farm Project, Los Angeles County, CA
Field Technician
CLIENT: U.S. Navy, Southwest Division
Recording 80 sites on San Clemente Island.

Tactical Aircrew Combat Training System Range Upgrade, MCAS Yuma, Yuma County, AZ
Field Technician
CLIENT: U.S. Navy, Southwest Division
Phase I cultural resource survey of proposed transmission line and 17 threat emitter stations.

Boulder Valley Project, San Diego County, CA
Crew Chief
CLIENT: Private Developer
Cultural resource survey of proposed reservoir and pipeline tunnels in the County.

Pacific Rim Laboratory Analysis, San Diego County, CA
Field Technician
CLIENT: Private Developer
Analyzed CA-SDI-691, a prehistoric site on Batiquitos Lagoon.

Cal Terraces Laboratory Analysis, San Diego County, CA
Laboratory Technician
CLIENT: County of San Diego
Analyzed one prehistoric site, and reanalyzed two prehistoric sites, in Otay Mesa.

Elsmere Cultural Resource Survey, Los Angeles County, CA
Field Technician
CLIENT: Elsmere Corporation
Conducted cultural resource survey of 2,200 acres in the San Gabriel Mountains.

Kern River Project, San Bernardino County, CA, Beaver, Miller, and Utah Counties, UT, and Clark County, NV
Field Technician
CLIENT: Federal Energy Regulatory Commission
Excavated, surveyed, and monitored along pipeline right-of-way. Analyzed artifacts from all phases of project in Las Vegas, Nevada.

Coursegold Excavation, Madera County, CA
Field Technician
CLIENT: Caltrans
Excavated site for Caltrans road widening.

Vandenberg Laboratory Analysis, Santa Barbara County, CA
Laboratory Technician
CLIENT: U.S. Navy
Sorted artifacts and wet-screened column samples.

Camelot Cultural Resource Survey, Kern County, CA
Crew Chief
CLIENT: Private Developer
Conducted a cultural resource survey of a 200-acre lot split in the Mojave Desert.

CHERYL BOWDEN-RENNA

SR-86 Cultural Resource Survey, Imperial County, CA
Crew Chief
CLIENT: Caltrans
Conducted a cultural resource survey of SR-86 road widening in the County.

Black Mountain Ranch Excavation, San Diego County, CA
Laboratory Supervisor
CLIENT: Private Developer
Excavated and analyzed 15 prehistoric sites in the La Jolla Valley.

Cannon Ranch Reaches 3 and 4, San Diego County, CA
Crew Chief
CLIENT: City of Carlsbad
Excavated and analyzed two prehistoric sites in Carlsbad.

Rancho San Miguel Project, San Diego County, CA
Field Technician/laboratory Supervisor
CLIENT: San Diego Gas & Electric
Excavated and analyzed nine sites and conducted extensive surface collections in the County.

Cottonwood Canyon Laboratory Analysis, Riverside County, CA
Laboratory Supervisor
CLIENT: Private Developer
Analyzed two prehistoric sites in the County.

Rancho del Rey (Spa III) Excavation, San Diego County, CA
Field Technician/laboratory Supervisor
CLIENT: Private Developer
Excavated and analyzed a prehistoric site in Chula Vista.

Stallions Crossing Laboratory Analysis, San Diego County, CA
Laboratory Supervisor
CLIENT: Private Developer
Analyzed five prehistoric sites in Del Mar.

Valley Ranch Cultural Resource Survey, Los Angeles County, CA
Crew Chief
CLIENT: Private Developer
Conducted cultural resource survey of 350 acres in Palmdale.

Fairbanks Highland Cultural Resource Survey, San Diego County, CA
Field Technician/Laboratory Supervisor
CLIENT: Private Developer
Conducted cultural resource survey, excavation, and analysis.

Eagle Mountain Cultural Resource Survey, Riverside County, CA
Crew Chief
CLIENT: Kaiser Mine Co.
Conducted cultural resource survey of the Eagle Mountain mine and railroad to Salton Sea.

Santa Margarita River Cultural Resource Survey, San Diego and Riverside Counties, CA
Crew Chief
CLIENT: Private Developer
Conducted cultural resource survey of Santa Margarita River from Temecula to the Pacific Ocean.

CHERYL BOWDEN-RENNA

Scripps Ranch North Excavation, San Diego County, CA
Field Technician/Laboratory Supervisor
CLIENT: Pardee
Excavated and analyzed two prehistoric sites and one historic site in Poway.

Sycamore Canyon Excavation, San Diego County, CA
Field Technician/Laboratory Supervisor
CLIENT: County of San Diego
Excavated and analyzed two prehistoric sites east of Poway.

Los Campanos Excavation, San Diego County, CA
Field Technician/Laboratory Technician
CLIENT: Private Developer
Excavated and analyzed four prehistoric sites and one historic site in Valley Center.

American Girl Mine Cultural Resource Survey, Imperial County, CA
Field Technician/Laboratory Technician
CLIENT: American Girl Mine Co.
Conducted cultural resource survey, excavation, and analysis of historic artifacts from a historic gold mining town in the Cargo Muchacho Mountains.

Railroad Canyon Cultural Resource Survey, Riverside County, CA
Field Technician/Laboratory Technician
CLIENT: Caltrans
Conducted cultural resource survey, excavation, and analysis of a road realignment in Temecula.

Edwards Air Force Base Cultural Resource Survey, Excavation, and Analysis, Kern County, CA
Field Technician/Laboratory Technician
CLIENT: U.S. Air Force
Conducted cultural resource survey, excavation, and analysis of 1,000-acre area on Edwards Air Force Base.

Johnson-Taylor Adobe Excavation, San Diego County, CA
Field Technician/Laboratory Technician
CLIENT: County of San Diego Parks and Recreation Department
Excavated and analyzed the area around the Johnson-Taylor Adobe and C wing.

Pacific Rim Laboratory Analysis, San Diego County, CA
Field Technician/Laboratory Technician
CLIENT: Private Developer
Conducted extensive shell and lithic analysis of prehistoric sites on Batiquitos Lagoon.

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Cultural Resources Survey for the Lockheed/Laborde Canyon Off-Highway Vehicle (OHV) Park, Riverside County, California. Prepared for the Riverside County Economic Development Authority (2004).

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CHERYL BOWDEN-RENNA

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Phases I, II and III Literature Review and Cultural Resources Survey for the North City Water Reclamation System Project. Prepared for the City of San Diego. EDAW, Inc. (2002).

Archaeological Survey For Two Crash Sites On the Barry M. Goldwater Range Marine Corps Air Station, Yuma (with Rebecca Apple). Prepared for U.S. Department of the Navy Southwest Division and Marine Corps Air Station, Yuma. EDAW, Inc., San Diego (2002).

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CHERYL BOWDEN-RENNA

Cultural Resource Survey for the San Diego Water Authority Moreno Lakeside Alternative Project, San Diego County, California (with R. McCorkle Apple and L. Lilburn). Prepared for the San Diego County Water Authority. KEA Environmental, San Diego (2000).

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APPENDIX C

DPR FORMS
(Confidential – Bound Separately)

APPENDIX D

NATIVE AMERICAN CONSULTATION
(Confidential – Bound Separately)

APPENDIX E

CONFIDENTIAL FIGURES
(Confidential – Bound Separately)

Appendix E Noise Analysis

CONTENTS

Audible Noise Performance for the Construction Activities Associated with the Energia Sierra Juarez U.S. Gen-Tie Project in San Diego County, California (October 2009)

Audible Noise Performance

for the Construction Activities
Associated with the

Energia Sierra Juarez U.S. Gen-Tie Project

in

San Diego County, California
Application No. MUP 09-008
KIVA 09-0107420

Prepared for:
Energia Sierra Juarez U.S. Transmission LLC

Prepared by:
Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

Project Number: 52573

October 2009



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Energia Sierra Juarez U.S. (ESJ U.S.) Transmission Gen-Tie Project
October 29, 2009
Project No. 52573

Audible Noise Performance

Corona is a phenomenon associated with all energized transmission lines. Under certain conditions, the localized electric field near an energized conductor can be sufficiently concentrated to produce a tiny electric discharge that can ionize air close to the conductors. This partial discharge of electrical energy is called corona discharge, or corona. Several factors, including conductor voltage, diameter, and surface irregularities such as scratches, nicks, dust, or water drops can affect a conductor's electrical surface gradient and its corona performance. Corona is the physical manifestation of energy loss, and can transform discharge energy into very small amounts of sound, radio noise, heat, and chemical reactions.

Transmission lines can generate a small amount of sound energy during corona activity. This audible noise from the line can barely be heard in fair weather conditions on higher voltage lines, and is typically immediately near the structure. During wet weather conditions, water drops collect on the conductor and increase corona activity so that a crackling or humming sound may be heard near the line. This noise is caused by small electrical discharges from the water drops.

The corona performance of the proposed project was predicted using the Corona and Field Effects Program (CORONA) developed by the Bonneville Power Administration (BPA, 1977). Corona performance is calculated using empirical equations that have been developed over several years from the results of measurements on numerous high-voltage lines. Of the methods available for predicting radio interference levels, the BPA empirical equivalent method agrees most closely with long-term data. Important input parameters to the computer program are voltage, current, conductor size, and geometric configuration on the line.

Because corona is a statistical phenomenon, corona computations are made under conditions of average operating voltage and for average line height. Corona is basically a foul-weather phenomenon, and is characterized by exceedence levels, typically L_5 and L_{50} foul weather levels. The L_{50} value is the level exceeded for 50% of the time. It is statistically the mid-point of the noise readings, and is most commonly used for audible noise evaluation.

Using the BPA CORONA program, audible noise values were calculated for the ESJ U.S. Gen-Tie lines under foul weather conditions. This project is zoned S92, so the levels were compared to the San Diego County Noise Ordinance, Section 36.404. The audible noise limit is a one-hour average daytime sound level limit of 50 dBA in daytime and a nighttime sound level limit of 45 dBA at the property line.

Table 1 shows a summary of the results for both the 500kV single-circuit configuration and the 230kV double-circuit configuration at various receptor locations. This modeling indicates that, during wet weather conditions for the 500kV configuration, conductor selection is a factor concerning the audible noise level limit. A 2-conductor 2156 kcmil Bluebird configuration, Line Configuration A, and a 3-conductor 795 kcmil Drake configuration, Line Configuration D, both meet the criteria, but a single Bluebird or a 2-conductor 954 kcmil Cardinal configuration do not.

TABLE 1
Foul Weather Noise Analysis Results

			Audible Noise Level (dBA)					
Receptor No.	Location	Line Configuration -->	A	B	C	D	E	F
1	On 230kV Centerline		--	--	--	--	17.9	23.6
2	On 500kV Centerline		52.8	69.1	60.1	49.4	--	--
3	On Access Road 700ft from 230kV 1300ft from 500kV		38.0	54.3	45.2	34.6	6.9	12.5
4	On Access Road 1400ft from 230kV 2000ft from 500kV		35.8	52.1	43.1	32.4	3.5	9.1
5	On East Property Line 1500ft from 230kV 1100ft from 500kV		38.8	55.1	46.0	35.4	3.2	8.8
6	On West Property Line 2200ft from 230kV 3000ft from 500kV		33.8	50.1	41.1	30.4	1.3	6.9
7	Edge of 230kV ROW 65ft from Centerline		--	--	--	--	16.7	22.3
8	Edge of 500kV ROW 107ft from Centerline		49.7	66.0	57.0	46.3	--	--

Line Configuration	Line Description	Conductor Configuration
A	500kV Single-Circuit	(2) Bluebird
B	500kV Single-Circuit	(1) Bluebird
C	500kV Single-Circuit	(2) Cardinal
D	500kV Single-Circuit	(3) Drake
E	230kV Double-Circuit	(2) Bluebird
F	230kV Double-Circuit	(2) Finch / ACSS

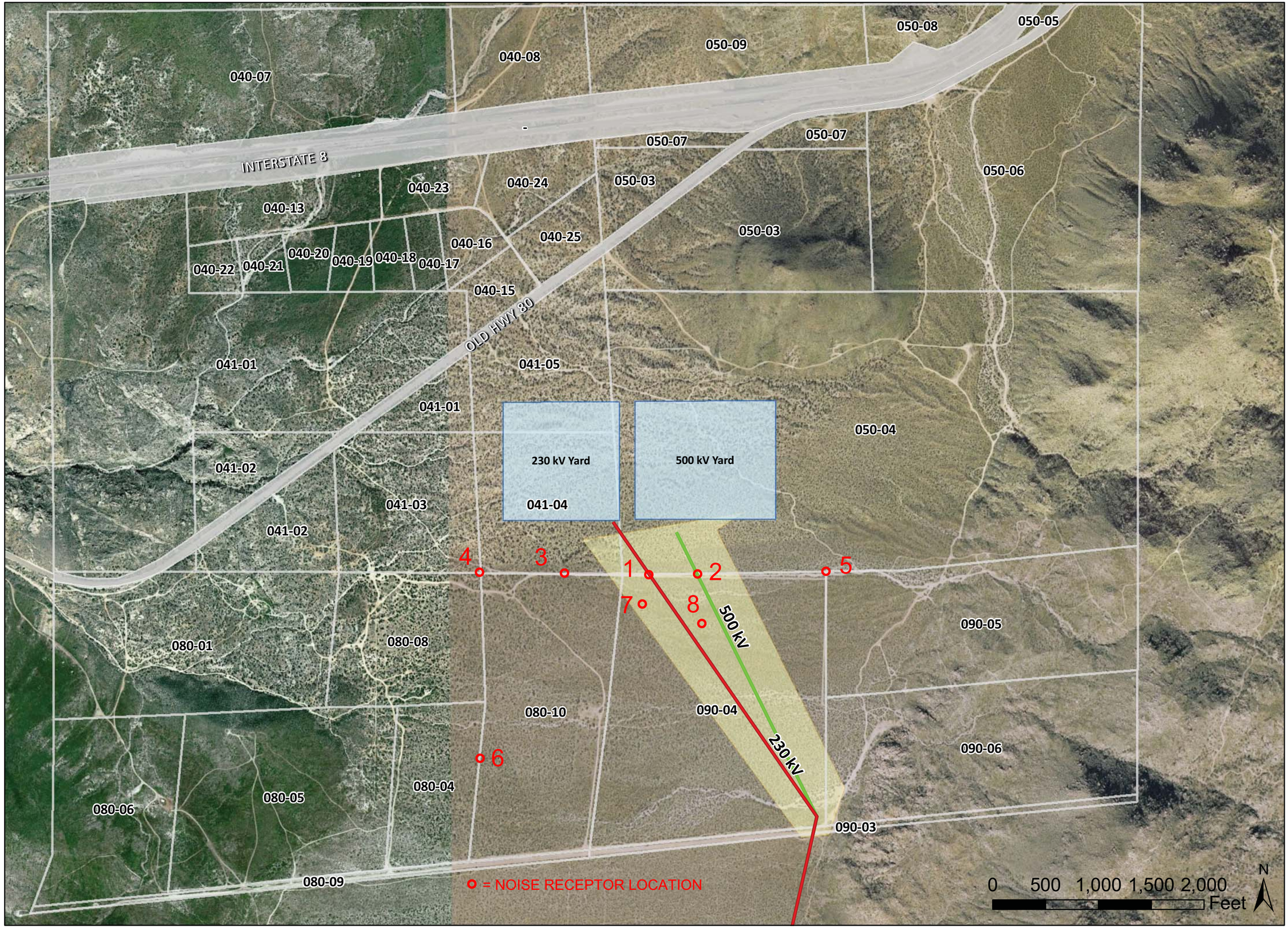
Corona and audible noise are usually not a design issue for transmission lines at 230kV or below. Either 230kV conductor configuration will meet the audible noise criteria.

Conclusions

Audible noise decreases with distance from the proposed transmission line. The proposed transmission line is located in open country, away from residences, businesses, and other receptors. During most of the year, in fair weather, the audible noise level at the edge of the right-of-way will not exceed 28 dBA. Due to all of these factors, impacts from corona noise should not be significant with the correct conductor selection.

A 3-conductor bundle 795 kcmil ACSR Drake is an acceptable configuration for the 500kV ESJ U.S. Gen-Tie line. Either conductor configuration will meet the audible noise criteria for the 230kV ESJ U.S. Gen-Tie line.

* * * * *



Sempra®

Energía Sierra Juárez®

Energía Sierra Juárez U.S. Transmission, LLC.

San Diego County United States

Gen Tie Line

- 230 kV
- 500 kV
- ECO Substation

US Landowners

- Parcels
- Road



Map Ref: US_ECO_Sub_Bs_20091102

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Appendix F Air Quality Calculations and Summary Tables

Table F-1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards[1]	
		ppmv	µg/m^3	ppmv	µg/m^3
Ozone (O_3)	1-hour	0.09	177	--	--
	8-hour	0.07	137	0.075	147
Nitrogen Dioxide (NO_2)	1-hour	0.18	338	--	--
	Annual	0.03	56	0.053	100
Sulfur Dioxide (SO_2)	1-hour	0.25	655	--	--
	3-hour (secondary)	--	--	0.50	1,309
	24-hour	0.04	105	0.14	367
	Annual	--	--	0.03	79
Carbon Monoxide (CO)	1-hour	20	22,898	35	40,071
	8-hour	9	10,304	9	10,304
Particulates (PM_{10})	24-hour	--	50	--	150
	Annual	--	20	--	--
Particulates ($PM_{2.5}$)	24-hour	--	--	--	35
	Annual	--	12	--	15
Lead (Pb)	30-day	--	1.5	--	--
	Rolling 90-day	--	--	--	0.15
	Quarterly	--	--	--	1.5
Sulfates (SO_4)	24-hour	--	25	--	--
Hydrogen Sulfide (H_2S)	1-hour	0.03	42	--	--
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	26	--	--
Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per km; visibility of 10 miles or more due to particles when relative humidity is less than 70%.		--	--

Notes:

[1] Commonly known as the National Ambient Air Quality Standards (NAAQS)

ppmv = parts per million by volume; µg/m^3 = micrograms per cubic meter; -- = not applicable

For gases, µg/m^3 is calculated from ppmv based on pollutant molecular weight and standard conditions (Standard Temperature = 25 °C [77 °F]; Standard Molar Volume = 24.465 liter/g-mole)

Sources: CARB 2010, USEPA 2010

Table F-2

Attainment Status Summary - San Diego County

Criteria Pollutant	Federal Designation	State Designation
Ozone (O_3) (1-hour)	Attainment[1]	Nonattainment
Ozone (O_3) (8-hour)	Nonattainment[2]	Nonattainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Carbon Monoxide (CO)	Attainment	Attainment
Particulates (PM_{10})	Unclassified[3]	Nonattainment
Particulates ($PM_{2.5}$)	Attainment	Nonattainment
Lead (Pb)	Attainment	Attainment
Sulfates (as SO_4)	(no federal standard)	Attainment
Hydrogen Sulfide (H2S)	(no federal standard)	Unclassified
Vinyl Chloride (C_2H_3Cl)	(no federal standard)	Unclassified
Visibility	(no federal standard)	Unclassified

Notes:

[1] The federal 1-hour standard of 0.12 ppmv was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in the SIP (per SDAPCD).

[2] The 0.08 ppmv federal 8-hour ozone standard applied until May 27, 2008; after that the standard was changed to 0.075 ppmv.

[3] At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassified.

Source: SDAPCD 2008

Table F-3

Ambient Air Quality in Project Vicinity - Regional Maxima and Averages[1]

Pollutant	Period	Units	2008	2007	2006	2005	2004
Ozone (O_3)[2]	1-hour max	ppmv	0.140	0.130	0.120	0.110	0.110
	8-hour max	ppmv	0.110	0.090	0.100	0.090	0.090
Nitrogen Dioxide (NO_2)	1-hour max	ppmv	0.047	0.057	0.057	0.061	0.063
	Annual avg	ppmv	0.008	0.010	0.010	0.011	0.011
Sulfur Dioxide (SO_2)	24-hour max	ppmv	0.004	0.004	0.006	0.005	0.015
	Annual avg	ppmv	0.002	0.003	0.003	0.003	0.003
Carbon Monoxide (CO)	1-hour max	ppmv	5.6	5.2	5.7	5.9	5.3
	8-hour max	ppmv	2.8	3.2	3.6	3.1	3.6
Particulates (PM_{10})	24-hour max	$\mu g/m^3$	40	48	47	48	55
	Annual avg	$\mu g/m^3$	27	26	27	28	30
Particulates ($PM_{2.5}$)	24-hour max	$\mu g/m^3$	31	43	38	41	44
	Annual avg	$\mu g/m^3$	13	12	11	11	13

Notes:

[1] Data are reported for the nearest air quality monitoring station that measures each pollutant, as follows:
O_3 and NO_2 – Alpine Monitoring Station (40 miles (64 km) northwest of the corridors)
SO_2 – Chula Vista Monitoring Station (55 miles (88 km) west-northwest of the corridors)
CO – Escondido Monitoring Station (65 miles (105 km) northwest of the corridors)
PM_{10} and $PM_{2.5}$ – El Cajon Monitoring Station (49 miles (79 km) west-northwest of the corridors)

[2] The 0.08 ppmv federal 8-hour ozone standard applied until May 27, 2008; 0.075 ppmv thereafter.

Source: SDAPCD 2010

Table F-4

Ambient Air Quality in Project Vicinity - Compliance History[1]

Pollutant	Period	Criteria	2008	2007	2006	2005	2004
Ozone (O_3)[2]	1-hour	State	Exceed	Exceed	Exceed	Exceed	Exceed
		days	13	17	21	13	5
	8-hour	Federal	Exceed	Exceed	Exceed	Exceed	Exceed
		days	10	6	14	5	2
Nitrogen Dioxide (NO_2)	1-hour	State	Meet	Meet	Meet	Meet	Meet
	Annual	State	Meet	Meet	Meet	Meet	Meet
Sulfur Dioxide (SO_2)	24-hour	State	Meet	Meet	Meet	Meet	Meet
	Annual	Federal	Meet	Meet	Meet	Meet	Meet
Carbon Monoxide (CO)	1-hour	State	Meet	Meet	Meet	Meet	Meet
	8-hour	State	Meet	Meet	Meet	Meet	Meet
Particulates (PM_{10})	24-hour	State	Meet	Meet	Meet	Meet	Exceed
	Annual	State	Exceed	Exceed	Exceed	Exceed	Exceed
Particulates ($PM_{2.5}$)	24-hour	Federal	Meet	Exceed	Exceed	Exceed	Exceed
	Annual	State	Exceed	Meet	Meet	Meet	Exceed

Notes:

[1] Data are reported for the nearest air quality monitoring station that measures each pollutant, as follows:

O_3 and NO_2 – Alpine Monitoring Station (40 miles (64 km) northwest of the corridors)
SO_2 – Chula Vista Monitoring Station (55 miles (88 km) west-northwest of the corridors)
CO – Escondido Monitoring Station (65 miles (105 km) northwest of the corridors)
PM_{10} and $PM_{2.5}$ – El Cajon Monitoring Station (49 miles (79 km) west-northwest of the corridors)

[2] The 0.08 ppmv federal 8-hour ozone standard applied until May 27, 2008; 0.075 ppmv thereafter.

[3] days = number of days standards were exceeded in the year

Source: SDAPCD 2010

Table F-5

Emissions Significance Thresholds

Criteria Pollutant and GHG Emissions	Construction		Operation	
	lb/day	tons/yr	lb/day	tons/yr
Reactive Organic Gases (ROG as CH_4)	75	14	55	n/a
Carbon Monoxide (CO)	550	100	550	n/a
Nitrogen Dioxide (NO_X as NO_2)	250	40	55	n/a
Sulfur Dioxide (SO_X as SO_2)	250	40	150	n/a
Particulates (PM_{10})	100	15	150	n/a
Particulates ($PM_{2.5}$)	55	10	55	n/a
Carbon Dioxide Equivalents (CO_2 eqv)	n/a	7,716	n/a	7,716

Note:

lb/day = pounds per day; tons/yr = tons per year

Sources: SDAPCD 1998; ICAPCD 2007; County of San Diego 2007a; CARB 2008.

Table F-6

Estimated Equipment and Vehicle Use During Construction

Activity	Equipment and Vehicles				Working days	hours per day	Daily		Total
	Type	Category	BHP	quantity			VMT	VKT	VMT
Survey Sites	pickup truck	onroad LD		1	6		50	80	300
Worker Commuting	pickup truck	onroad LD		20	54[1]		1,000	1,609	
Hauling, fill dirt	dump truck, 18 cubic yards	onroad HHD		25	24		1,250	2,012	54,000
Aerial Support	helicopter	aircraft	420	1	3	8			
Marshalling Yards	pickup truck	onroad LD		3	54		150	241	8,100
	water truck	onroad HHD		1	54		50	80	2,700
	tractor truck w/trailer	onroad HHD		1	48		50	80	2,400
	hydraulic crane, 25 ton	offroad	300	1	36	3.33			
	loader, model 980	offroad	300	1	48	3.75			
	forklift, 5 ton	offroad	155	1	48	3.75			
	portable generator	offroad	5	1	48	3.75			
Grading & Road Work	pickup truck	onroad LD		2	12		100	161	1,200
	water truck	onroad HHD		1	12		50	80	600
	bulldozer	offroad	285	1	12	8			
	steamroller	offroad	80	1	12	8			
Foundations	pickup truck	onroad LD		2	12		100	161	1,200
	water truck	onroad HHD		1	12		50	80	600
	concrete truck	onroad HHD		2	12		200	322	2,400
	drill rig	offroad	600	1	12	10			
Steel Assembly & Erection	pickup truck	onroad LD		3	12		150	241	1,800
	water truck	onroad HHD		1	12		50	80	600
	tractor truck w/trailer	onroad HHD		1	12		50	80	600
	crane, 40 ton	offroad	350	1	12	10			
	air compressor	offroad	75	1	12	10			
	portable generator	offroad	5	1	12	10			
Conductor Installation	pickup truck	onroad LD		2	12		100	161	1,200
	water truck	onroad HHD		1	12		50	80	600
	flatbed truck w/reels	onroad MD		1	12		50	80	600
	rigging truck	onroad MD		5	12		250	402	3,000
	dump truck	onroad HHD		1	6		50	80	300
	puller tensioner	offroad	165	1	12	10			
	splice rig	offroad	300	1	6	10			
	portable generator	offroad	5	1	12	10			
Cleanup	pickup truck	onroad LD		2	12		100	161	1,200
Peak Daily and Total Construction Mileage by Vehicle Type									
	Vehicle Type	**Category**							
	Light Duty	onroad LD					1,150		69,000
	Medium Duty	onroad MD					300		3,600
	Heavy Heavy Duty	onroad HHD					1,500		40,800
	Total						2,950		112,400

Notes:

[1] Section 2 (Project Description) indicates that work would be completed over a six-month period; however, the work is expected to occur over a number of sporadic intervals. In no case would a continuous period of work exceed 54 days.

LD = light duty; MD = medium duty; HHD = heavy heavy duty; VMT = vehicle miles traveled; VKT = vehicle kilometers traveled

For on-road vehicles, weight class applies in lieu of BHP rating

BHP = brake horsepower (measure of an engine's output without the loss in power caused by the gearbox, generator, differential, water pump, and other auxiliary components such as alternator, power steering pump, exhaust system, etc.)

Construction activities occur six days per week maximum; Daily operating hours, VMT and VKT are maximum estimates

Source: Sempra 2009, as cited in EDAW 2009b

Table F-7

Estimated Maximum Construction Emissions[1]

Criteria Pollutant Emissions	Peak lb/day	Threshold lb/day	Significant Yes/No	Total tons[2]	Threshold tons[2]	Significant Yes/No
Reactive Organic Gases (ROG as CH_4)	8	75	No	0.18	14	No
Carbon Monoxide (CO)	39	550	No	0.83	100	No
Nitrogen Dioxide (NO_X as NO_2)	80	250	No	1.55	40	No
Sulfur Dioxide (SO_X as SO_2)	0	250	No	0.00	40	No
Combustion Particulates (C-PM_{10})	4	100	No	0.07	15	No
Combustion Particulates (C-$PM_{2.5}$)	3	55	No	0.06	10	No
Fugitive Dust (F-PM_{10})	282	100	Yes	3.82	15	No
Fugitive Dust (F-$PM_{2.5}$)	38	55	No	0.49	10	No

Notes:

[1] Includes dust suppression measures required by the SDAPCD

[2] Entire project

Fugitive dust and combustion particulates are determined exclusively; C = combustion particle, F = fugitive dust

Sources: SCAQMD 2008; USEPA 2006; SDAPCD 1998; ICAPCD 2007; County of San Diego 2007a

Table F-8

Estimated Maximum Construction Greenhouse Gas Emissions

Greenhouse Gas Emissions	Peak lb/day	Total tons[1]	Threshold tons[1]	Significant Yes/No
Carbon Dioxide (GHG - CO_2)	11,890	217	n/a	n/a
Methane (GHG - CH_4)	0.6	0.01	n/a	n/a
Nitrous Oxide (GHG - N_2O)	0.4	0.01	n/a	n/a
Carbon Dioxide Equivalents (CO_2 eqv)[2]	11,993	220	7,716	No

Notes:

[1] Entire project

[2] Carbon dioxide equivalents (CO_2 eqv) are calculated by summing the products of mass GHG emissions by species times their respective GWP coefficients.

Sources: SCAQMD 2008; USEPA 2009; CARB 2008

Table F-9

Estimated Vehicle Use for Wind Turbine Trucking

Point of Origin	Category	Truckloads per System	Days per Shipment	Number of Shipments	Daily VMT	Daily VKT	Total VMT	Total VKT
San Diego	onroad HHD	15	1	52	600	966	31,200	50,212
Houston	onroad HHD	15	6	52	7,500	12,070	2,340,000	3,765,865
Midwest[1]	onroad HHD	15	8	52	7,500	12,070	3,120,000	5,021,153

Notes:

[1] As estimated from major cities in the Midwest (e.g., Chicago, Minneapolis) to the Otay Mesa border crossing

HHD = heavy heavy duty; VMT = vehicle miles traveled; VKT = vehicle kilometers traveled

Daily VMT and VKT are maximum estimates

Source: Sempra 2009, as cited in EDAW 2009b

Table F-10

Estimated Wind Turbine Trucking Greenhouse Gas Emissions

Greenhouse Gas Emissions	via San Diego		via Houston		via Midwest	
	Peak	Total	Peak	Total	Peak	Total
	lb/day	tons[1]	lb/day	tons[1]	lb/day	tons[1]
Carbon Dioxide (GHG - CO_2)	2,532	66	31,653	4,938	31,653	6,584
Methane (GHG - CH_4)	0.1	0.00	1.0	0.15	1.0	0.20
Nitrous Oxide (GHG - N_2O)	0.1	0.00	0.9	0.14	0.9	0.19
Carbon Dioxide Equivalents (CO_2 eqv)[2]	2,557	66	31,956	4,985	31,956	6,647

Notes:

[1] Entire project

[2] Carbon dioxide equivalents (CO_2 eqv) are calculated by summing the products of mass GHG emissions by species times their respective GWP coefficients.

Sources: SCAQMD 2008; USEPA 2009

Table F-11

South Coast Air Quality Management District Emission Factors[1]

Activity	Equipment and Vehicles			ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
	Type	Category	BHP	lb/unit[2]	lb/unit[2]	lb/unit[2]	lb/unit[2]	lb/unit[2,3]	lb/unit[2,3]	lb/unit[2]	lb/unit[2]	lb/unit[2,4]
Survey Sites	pickup truck	onroad LD		0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10	0.00008	0.00003
Worker Commuting	pickup truck	onroad LD		0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10	0.00008	0.00003
Hauling, fill dirt	dump truck, 18 cy	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
Aerial Support	helicopter	aircraft	420	0.20155	0.60611	2.09084	0.00226	0.07121	0.06551	223.87	0.01819	0.00808
Marshalling Yards	pickup truck	onroad LD		0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10	0.00008	0.00003
	water truck	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
	tractor truck w/trailer	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
	hydraulic crane, 25 ton	offroad	300	0.12818	0.38484	1.25163	0.00136	0.04679	0.04305	125.75	0.01157	0.00514
	loader, model 980	offroad	300	0.15390	0.46433	1.53790	0.00181	0.05581	0.05135	166.58	0.01389	0.00617
	forklift, 5 ton	offroad	155	0.06313	0.29091	0.44339	0.00053	0.03125	0.02875	47.03	0.00570	0.00253
	portable generator	offroad	5	0.00548	0.02375	0.03700	0.00005	0.00217	0.00199	3.40	0.00049	0.00022
Grading & Road Work	pickup truck	onroad LD		0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10	0.00008	0.00003
	water truck	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
	bulldozer	offroad	285	0.20665	0.62495	1.92350	0.00196	0.07658	0.07046	179.17	0.01865	0.00829
	steamroller	offroad	80	0.12371	0.38394	0.47914	0.00055	0.03628	0.03337	45.70	0.01116	0.00496
Foundations	pickup truck	onroad LD		0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10	0.00008	0.00003
	water truck	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
	concrete truck	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
	drill rig	offroad	600	0.21104	0.78140	2.67080	0.00431	0.07919	0.07286	434.70	0.01904	0.00846
Steel Assembly & Erection	pickup truck	onroad LD		0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10	0.00008	0.00003
	water truck	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
	tractor truck w/trailer	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
	crane, 40 ton	offroad	350	0.14638	0.45651	1.42892	0.00155	0.05345	0.04918	145.45	0.01321	0.00587
	air compressor	offroad	75	0.10444	0.29475	0.35383	0.00038	0.03496	0.03217	31.09	0.00942	0.00419
	portable generator	offroad	5	0.00548	0.02375	0.03700	0.00005	0.00217	0.00199	3.40	0.00049	0.00022

Table F-11

South Coast Air Quality Management District Emission Factors[1]

Activity	Equipment and Vehicles			ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
	Type	Category	BHP	lb/unit[2]	lb/unit[2]	lb/unit[2]	lb/unit[2]	lb/unit[2,3]	lb/unit[2,3]	lb/unit[2]	lb/unit[2]	lb/unit[2,4]
Conductor Installation	pickup truck	onroad LD		0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10	0.00008	0.00003
	water truck	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
	flatbed truck w/reels	onroad MD		0.00242	0.01693	0.01893	0.00003	0.00070	0.00060	2.75	0.00012	0.00018
	rigging truck	onroad MD		0.00242	0.01693	0.01893	0.00003	0.00070	0.00060	2.75	0.00012	0.00018
	dump truck	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
	puller tensioner	offroad	165	0.14251	0.55713	1.01760	0.00102	0.06659	0.06127	89.77	0.01286	0.00572
	splice rig	offroad	300	0.15156	0.42067	1.60242	0.00174	0.05329	0.04903	161.55	0.01367	0.00608
	portable generator	offroad	5	0.00548	0.02375	0.03700	0.00005	0.00217	0.00199	3.40	0.00049	0.00022
Cleanup	pickup truck	onroad LD		0.00085	0.00826	0.00084	0.00001	0.00009	0.00006	1.10	0.00008	0.00003
Turbine Trucking, San Diego	tractor truck w/trailer	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
Turbine Trucking, Houston	tractor truck w/trailer	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012
Turbine Trucking, Midwest	tractor truck w/trailer	onroad HHD		0.00280	0.01112	0.03456	0.00004	0.00166	0.00144	4.22	0.00013	0.00012

Notes:

[1] Emission factors weighted for calendar year 2011 (SCAQMD 2008)

[2] Units are operating hours for offroad engines, vehicle miles traveled (VMT) for onroad vehicles

[3] Offroad diesel exhaust $PM_{2.5}$ = 92% of PM_{10} ; Onroad HHD particulate emission factors include allowances for tire and brake wear (SCAQMD 2008)

[4] Onroad N_2O emissions are based on Annex 3, Table A-99; Offroad N_2O emissions are based on Annex 3, Table A-101 (EPA 2009)

Table F-12

Estimated Daily Project Emissions[1]

Activity	Equipment and Vehicles[2]				ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2 eqv
	Type	Category	hrs	VMT	lbs	lbs	lbs	lbs	lbs[3]	lbs[3]	lbs	lbs	lbs[4]	lbs[5]
Survey Sites	pickup truck	onroad LD		50	0.0	0.4	0.0	0.0	0.0	0.0	55.1	0.0	0.0	56
Worker Commuting	pickup truck	onroad LD		1,000	0.9	8.3	0.8	0.0	0.1	0.1	1,102.4	0.1	0.0	1,114
Hauling, fill dirt	dump truck, 18 cy	onroad HHD		1,250	3.5	13.9	43.2	0.0	2.1	1.8	5,275.6	0.2	0.2	5,326
Aerial Support	helicopter	aircraft	8		1.6	4.8	16.7	0.0	0.6	0.5	1,790.9	0.1	0.1	1,814
Marshalling Yards	pickup truck	onroad LD		150	0.1	1.2	0.1	0.0	0.0	0.0	165.4	0.0	0.0	167
	water truck	onroad HHD		50	0.1	0.6	1.7	0.0	0.1	0.1	211.0	0.0	0.0	213
	tractor truck w/trailer	onroad HHD		50	0.1	0.6	1.7	0.0	0.1	0.1	211.0	0.0	0.0	213
	hydraulic crane, 25 ton	offroad	3.33		0.4	1.3	4.2	0.0	0.2	0.1	419.2	0.0	0.0	425
	loader, model 980	offroad	3.75		0.6	1.7	5.8	0.0	0.2	0.2	624.7	0.1	0.0	633
	forklift, 5 ton	offroad	3.75		0.2	1.1	1.7	0.0	0.1	0.1	176.3	0.0	0.0	180
	portable generator	offroad	3.75		0.0	0.1	0.1	0.0	0.0	0.0	12.8	0.0	0.0	13
Grading & Road Work	pickup truck	onroad LD		100	0.1	0.8	0.1	0.0	0.0	0.0	110.2	0.0	0.0	111
	water truck	onroad HHD		50	0.1	0.6	1.7	0.0	0.1	0.1	211.0	0.0	0.0	213
	bulldozer	offroad	8		1.7	5.0	15.4	0.0	0.6	0.6	1,433.3	0.1	0.1	1,457
	steamroller	offroad	8		1.0	3.1	3.8	0.0	0.3	0.3	365.6	0.1	0.0	380
Foundations	pickup truck	onroad LD		100	0.1	0.8	0.1	0.0	0.0	0.0	110.2	0.0	0.0	111
	water truck	onroad HHD		50	0.1	0.6	1.7	0.0	0.1	0.1	211.0	0.0	0.0	213
	concrete truck	onroad HHD		200	0.6	2.2	6.9	0.0	0.3	0.3	844.1	0.0	0.0	852
	drill rig	offroad	10		2.1	7.8	26.7	0.0	0.8	0.7	4,347.0	0.2	0.1	4,377
Steel Assembly & Erection	pickup truck	onroad LD		150	0.1	1.2	0.1	0.0	0.0	0.0	165.4	0.0	0.0	167
	water truck	onroad HHD		50	0.1	0.6	1.7	0.0	0.1	0.1	211.0	0.0	0.0	213
	tractor truck w/trailer	onroad HHD		50	0.1	0.6	1.7	0.0	0.1	0.1	211.0	0.0	0.0	213
	crane, 40 ton	offroad	10		1.5	4.6	14.3	0.0	0.5	0.5	1,454.5	0.1	0.1	1,475
	air compressor	offroad	10		1.0	2.9	3.5	0.0	0.3	0.3	310.9	0.1	0.0	326
	portable generator	offroad	10		0.1	0.2	0.4	0.0	0.0	0.0	34.0	0.0	0.0	35
Conductor Installation	pickup truck	onroad LD		100	0.1	0.8	0.1	0.0	0.0	0.0	110.2	0.0	0.0	111
	water truck	onroad HHD		50	0.1	0.6	1.7	0.0	0.1	0.1	211.0	0.0	0.0	213

Table F-12

Estimated Daily Project Emissions[1]

Activity	Equipment and Vehicles[2]				ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2 eqv
	Type	Category	hrs	VMT	lbs	lbs	lbs	lbs	lbs[3]	lbs[3]	lbs	lbs	lbs[4]	lbs[5]
	flatbed truck w/reels	onroad MD		50	0.1	0.8	0.9	0.0	0.0	0.0	137.6	0.0	0.0	141
	rigging truck	onroad MD		250	0.6	4.2	4.7	0.0	0.2	0.1	688.0	0.0	0.0	703
	dump truck	onroad HHD		50	0.1	0.6	1.7	0.0	0.1	0.1	211.0	0.0	0.0	213
	puller tensioner	offroad	10		1.4	5.6	10.2	0.0	0.7	0.6	897.7	0.1	0.1	918
	splice rig	offroad	10		1.5	4.2	16.0	0.0	0.5	0.5	1,615.5	0.1	0.1	1,637
	portable generator	offroad	10		0.1	0.2	0.4	0.0	0.0	0.0	34.0	0.0	0.0	35
	pickup truck	onroad LD		100	0.1	0.8	0.1	0.0	0.0	0.0	110.2	0.0	0.0	111
Total Daily Emissions by Activity														
Survey Sites					0.04	0.41	0.04	0.00	0.00	0.00	55	0.00	0.00	56
Worker Commuting					0.85	8.26	0.84	0.01	0.09	0.06	1,102	0.08	0.03	1,114
Hauling, fill dirt					3.49	13.91	43.20	0.05	2.08	1.81	5,276	0.16	0.15	5,326
Aerial Support					1.61	4.85	16.73	0.02	0.57	0.52	1,791	0.15	0.06	1,814
Marshalling Yards					1.67	6.56	15.32	0.02	0.67	0.60	1,820	0.14	0.07	1,844
Grading & Road Work					2.87	9.45	21.03	0.02	0.99	0.91	2,120	0.25	0.12	2,161
Foundations					2.89	11.42	35.43	0.05	1.22	1.10	5,512	0.23	0.12	5,554
Steel Assembly & Erection					2.97	10.10	21.78	0.03	1.09	0.99	2,387	0.26	0.12	2,429
Conductor Installation					4.09	17.03	35.79	0.04	1.61	1.45	3,905	0.33	0.19	3,971
Cleanup					0.09	0.83	0.08	0.00	0.01	0.01	110	0.01	0.00	111
Maximum Single Activity Emissions, lb/day					**4.09**	**17.03**	**35.79**	**0.05**	**1.61**	**1.45**	**5,512**	**0.33**	**0.19**	**5,554**
Peak Daily Construction Emissions, lb/day[6]					**8.43**	**39.20**	**79.83**	**0.11**	**3.77**	**3.31**	**11,890**	**0.56**	**0.37**	**11,993**

Notes:

[1] Emission weighted for calendar year 2011 (SCAQMD 2008)

[2] Units are operating hours for offroad engines, vehicle miles traveled (VMT) for onroad vehicles

[3] Offroad diesel exhaust $PM_{2.5}$ = 92% of PM_{10} ; Onroad HHD particulate emission factors include allowances for tire and brake wear (SCAQMD 2008)

[4] Onroad N_2O emissions are based on Annex 3, Table A-99; Offroad N_2O emissions are based on Annex 3, Table A-101 (USEPA 2009)

[5] Carbon dioxide equivalents (CO_2 eqv) are calculated by summing the products of mass GHG emissions by species times their respective GWP coefficients (USEPA 2009)

[6] Peak daily construction emissions include worker commuting, fill dirt hauling, plus maximum single activity; excludes wind turbine trucking emissions

Table F-13

Estimated Total Project Emissions[1]

Activity	Equipment and Vehicles[2]				ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2 eqv
	Type	Category	hrs	VMT	lbs	lbs	lbs	lbs	lbs[3]	lbs[3]	lbs	lbs	lbs[4]	lbs[5]
Survey Sites	pickup truck	onroad LD		300	0.3	2.5	0.3	0.0	0.0	0.0	330.7	0.0	0.0	334
Worker Commuting	pickup truck	onroad LD		54,000	46.0	446.2	45.6	0.6	4.8	3.1	59,527.0	4.1	1.7	60,134
Hauling, fill dirt	dump truck, 18 cy	onroad HHD		30,000	83.9	333.7	1,036.7	1.2	49.8	43.3	126,613.7	3.9	3.6	127,825
	tractor truck w/trailer	onroad HHD		31,200	87.2	347.1	1,078.2	1.2	51.8	45.1	131,678.3	4.0	3.8	132,938
	tractor truck w/trailer	onroad HHD		2,340,000	6,541.3	26,031.6	80,865.9	92.9	3,886.4	3,381.0	9,875,868.9	302.1	284.3	9,970,351
	tractor truck w/trailer	onroad HHD		3,120,000	8,721.7	34,708.8	107,821.3	123.9	5,181.9	4,508.0	13,167,825.2	402.8	379.1	13,293,801
Aerial Support	helicopter	aircraft	24		4.8	14.5	50.2	0.1	1.7	1.6	5,372.8	0.4	0.2	5,442
Marshalling Yards	pickup truck	onroad LD		8,100	6.9	66.9	6.8	0.1	0.7	0.5	8,929.0	0.6	0.3	9,020
	water truck	onroad HHD		2,700	7.5	30.0	93.3	0.1	4.5	3.9	11,395.2	0.3	0.3	11,504
	tractor truck w/trailer	onroad HHD		2,400	6.7	26.7	82.9	0.1	4.0	3.5	10,129.1	0.3	0.3	10,226
	hydraulic crane, 25 ton	offroad	120		15.4	46.2	150.2	0.2	5.6	5.2	15,089.7	1.4	0.6	15,310
	loader, model 980	offroad	180		27.7	83.6	276.8	0.3	10.0	9.2	29,984.9	2.5	1.1	30,382
	forklift, 5 ton	offroad	180		11.4	52.4	79.8	0.1	5.6	5.2	8,464.6	1.0	0.5	8,627
	portable generator	offroad	180		1.0	4.3	6.7	0.0	0.4	0.4	612.5	0.1	0.0	627
Grading & Road Work	pickup truck	onroad LD		1,200	1.0	9.9	1.0	0.0	0.1	0.1	1,322.8	0.1	0.0	1,336
	water truck	onroad HHD		600	1.7	6.7	20.7	0.0	1.0	0.9	2,532.3	0.1	0.1	2,557
	bulldozer	offroad	96		19.8	60.0	184.7	0.2	7.4	6.8	17,199.9	1.8	0.8	17,484

Table F-13

Estimated Total Project Emissions[1]

Activity	Equipment and Vehicles[2]				ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2 eqv
	Type	Category	hrs	VMT	lbs	lbs	lbs	lbs	lbs[3]	lbs[3]	lbs	lbs	lbs[4]	lbs[5]
	steamroller	offroad	96		11.9	36.9	46.0	0.1	3.5	3.2	4,387.4	1.1	0.5	4,558
Foundations	pickup truck	onroad LD		1,200	1.0	9.9	1.0	0.0	0.1	0.1	1,322.8	0.1	0.0	1,336
	water truck	onroad HHD		600	1.7	6.7	20.7	0.0	1.0	0.9	2,532.3	0.1	0.1	2,557
	concrete truck	onroad HHD		2,400	6.7	26.7	82.9	0.1	4.0	3.5	10,129.1	0.3	0.3	10,226
	drill rig	offroad	120		25.3	93.8	320.5	0.5	9.5	8.7	52,164.4	2.3	1.0	52,527
Steel Assembly & Erection	pickup truck	onroad LD		1,800	1.5	14.9	1.5	0.0	0.2	0.1	1,984.2	0.1	0.1	2,004
	water truck	onroad HHD		600	1.7	6.7	20.7	0.0	1.0	0.9	2,532.3	0.1	0.1	2,557
	tractor truck w/trailer	onroad HHD		600	1.7	6.7	20.7	0.0	1.0	0.9	2,532.3	0.1	0.1	2,557
	crane, 40 ton	offroad	120		17.6	54.8	171.5	0.2	6.4	5.9	17,453.6	1.6	0.7	17,705
	air compressor	offroad	120		12.5	35.4	42.5	0.0	4.2	3.9	3,730.2	1.1	0.5	3,910
	portable generator	offroad	120		0.7	2.8	4.4	0.0	0.3	0.2	408.3	0.1	0.0	418
Conductor Installation	pickup truck	onroad LD		1,200	1.0	9.9	1.0	0.0	0.1	0.1	1,322.8	0.1	0.0	1,336
	water truck	onroad HHD		600	1.7	6.7	20.7	0.0	1.0	0.9	2,532.3	0.1	0.1	2,557
	flatbed truck w/reels	onroad MD		600	1.5	10.2	11.4	0.0	0.4	0.4	1,651.1	0.1	0.1	1,686
	rigging truck	onroad MD		3,000	7.3	50.8	56.8	0.1	2.1	1.8	8,255.4	0.3	0.5	8,431
	dump truck	onroad HHD		300	0.8	3.3	10.4	0.0	0.5	0.4	1,266.1	0.0	0.0	1,278
	puller tensioner	offroad	120		17.1	66.9	122.1	0.1	8.0	7.4	10,772.3	1.5	0.7	11,017
	splice rig	offroad	60		9.1	25.2	96.1	0.1	3.2	2.9	9,693.0	0.8	0.4	9,823
	portable	offroad	120		0.7	2.8	4.4	0.0	0.3	0.2	408.3	0.1	0.0	418

Table F-13

Estimated Total Project Emissions[1]

Activity	Equipment and Vehicles[2]				ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2 eqv
	Type	Category	hrs	VMT	lbs	lbs	lbs	lbs	lbs[3]	lbs[3]	lbs	lbs	lbs[4]	lbs[5]
	generator													
	pickup truck	onroad LD		1,200	1.0	9.9	1.0	0.0	0.1	0.1	1,322.8	0.1	0.0	1,336
Total Construction Emissions, lbs[6]					**356**	**1,664**	**3,092**	**4**	**142**	**126**	**433,905**	**27**	**15**	**439,046**
Total Construction Emissions, tons[6]					**0.18**	**0.83**	**1.55**	**0.002**	**0.07**	**0.06**	**217**	**0.01**	**0.01**	**220**

Notes:

[1] Emission weighted for calendar year 2011 (SCAQMD 2008)

[2] Units are operating hours for offroad engines, vehicle miles traveled (VMT) for onroad vehicles

[3] Offroad diesel exhaust $PM_{2.5}$ = 92% of PM_{10} ; Onroad HHD particulate emission factors include allowances for tire and brake wear (SCAQMD 2008)

[4] Onroad N_2O emissions are based on Annex 3, Table A-99; Offroad N_2O emissions are based on Annex 3, Table A-101 (EPA 2009)

[5] Carbon dioxide equivalents (CO_2 eqv) are calculated by summing the products of mass GHG emissions by species times their respective GWP coefficients (EPA 2009)[6]

[6] Total construction emissions include worker commuting, fill dirt hauling, plus all activities; excludes wind turbine trucking emissions

Table F-14
Fugitive Dust Estimation Calculations - Earthmoving

Construction Earthmoving	Pk. Daily hours	Project hours	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	PM_{10} lb/day	$PM_{2.5}$ lb/day	PM_{10} lbs	$PM_{2.5}$ lbs
Grading & Road Work								
bulldozer	8	96	1.01126	0.52282	8.09	4.18	97.08	50.19
steamroller	8	96	0.10328	0.00513	0.83	0.04	9.91	0.49
Subtotals					**8.92**	**4.22**	**107.00**	**50.68**
Foundations								
drill rig	10	120	0.00487	0.00074	0.05	0.01	0.58	0.09
Subtotals					**0.05**	**0.01**	**0.58**	**0.09**
Peak Daily Earthmoving Emissions, lbs/day					**8.9**	**4.2**		
Total Earthmoving Emissions, tons							**0.05**	**0.03**

Notes:

Based on USEPA 2006.

AP-42 Section 11.9 for dozing (Table 11.9-1):

$E = 0.75 * (s)^{1.5} / (M)^{1.4}$ for PM_{10}

$E = 0.105 * 5.7 \times (s)^{1.2} / (M)^{1.3}$ for $PM_{2.5}$

E = lb/hr fugitive

s = Silt Content assumed to be 8.5% for construction sites

M = moisture content = 8% (assumes unwatered subsoil)

AP-42 Section 11.9 for grading, rolling, and excavating (Table 11.9-1) :

$E = S * 0.60 * 0.051 \times (S)^{2.0}$ for PM_{10}

$E = S * 0.031 * 0.040 \times (S)^{2.5}$ for $PM_{2.5}$

Simplifies to $E = 0.60 * 0.051 \times (S)^{3.0}$ for PM_{10}

Simplifies to $E = 0.031 * 0.040 \times (S)^{3.5}$ for $PM_{2.5}$

E = lb/VMT * VMT/hr = lb/hr fugitive

S = Mean Vehicle Speed assumed to be 3 mph for graders, 1.5 mph for excavators & rollers

Assumes VMT = S * hours of use

AP-42 Section 13.2.4 Loading/Handling (digger, driller, backhoe, loader):

$E = W * 0.35 * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$ for PM_{10}

$E = W * 0.053 * 0.0032 * (U/5)^{1.3} / (M/2)^{1.4}$ for $PM_{2.5}$

E = lb/ton * tons/hr = lb/hr fugitive

U = average wind speed is 7.8 mph for Yuma, AZ (NOAA 2002)

M = moisture content = 8% (assumes unwatered subsoil)

Amount of material moved is assumed to be 120 cy/tower and materials will be dropped twice (2 x 120 = 240 cy/site)

Daily earth movement = 100 cy/day total (12 days/5 towers = 2.4 days/site)

Material is assumed to be 1.7 tons/cy (sp gr = 2) for 170 tons/day total for tower foundations

W = (tons/day) / daily hours = tons/hr

W for tower foundations:		
	120	cy/tower
	2	drop twice
	240	cy/site
	2.4	days/site
	100	cy/day
	1.7	tons/cy
	170	tons/day

Table F-15
Fugitive Dust Estimation Calculations - Road Dust

Construction Road Dust	Pk. Daily VMT	Project VMT	PM_{10} lb/VMT	$PM_{2.5}$ lb/VMT	PM_{10} lb/day	$PM_{2.5}$ lb/day	PM_{10} lbs	$PM_{2.5}$ lbs
All Roads (onsite only totals)								
Light Duty (pickup trucks)	1,150	69,000						
Medium Duty (work trucks)	300	3,600						
Heavy Heavy Duty (tractor/trailers)	1,500	40,800						
Subtotals	**2,950**	**113,400**						
Unpaved Roads								
Light Duty (pickup trucks)	115	6,900	0.11578	0.01158	13	1	760	76
Medium Duty (work trucks)	60	720	0.18002	0.01800	11	1	123	12
Heavy Heavy Duty (tractor/trailers)	300	8,160	0.32632	0.03263	98	10	2,531	253
Subtotals	**475**	**15,780**			**122.0**	**12.2**	**3,414**	**341**
Paved Roads								
Light Duty (pickup trucks)	1,035	62,100	0.00334	0.00021	3	0	205	13
Medium Duty (work trucks)	240	2,880	0.01613	0.00213	4	1	46	6
Heavy Heavy Duty (tractor/trailers)	1,200	32,640	0.12004	0.01772	144	21	3,870	571
Subtotals	**2,475**	**97,620**			**151.4**	**22.0**	**4,121**	**590**
Peak Daily Road Dust Emissions, lbs/day					**273.4**	**34.2**		
Total Road Dust Emissions, tons							**3.77**	**0.47**
Composite Peak Daily Fugitive Dust Emissions, lbs/day					**282.3**	**38.4**		
Composite Total Fugitive Dust Emissions, tons							**3.82**	**0.49**

Notes:

Based on USEPA 2006

Construction emissions include worker commuting, fill dirt hauling, plus activities; excludes wind turbine trucking emissions

Unpaved Road Dust (AP-42 Section 13.2.2):
E = 1.5 *(s/12)0.9 * (W/3)0.45 * PC * (1-CE) for PM10
E = 0.15 *(s/12)0.9 * (W/3)0.45 * PC * (1-CE) for PM2.5
E = lb/VMT fugitive
s = surface silt content = 9% (average for unpaved roads and construction sites, AP-42 Table 13.2.2-1)
W = average vehicle weight (see below)
PC = (365-P)/365
P = Number of wet days over 0.01 in precipitation for averaging period (18 days/year average for Desert)

Note: precipitation correction not used (PC = 1) for worst case day calculations
CE = Control Efficiency for watering = 90% for M between 4 and 5 (AP-42 Figure 13.2.2-2)
Light Duty = 3 tons average
Medium Duty = 8 tons average
Heavy Heavy Duty = 30 tons average (loaded 40 tons, unloaded 20 tons)
Assumes 90% paved mileage, 10% unpaved mileage for LD
Assumes 80% paved mileage, 20% unpaved mileage for MD & HHD
Heavy Heavy Duty includes water trucks

Paved Road Dust (AP-42 Section 13.2.1)
E = [0.016*(sL/2)0.65 *(W/3)1.5 - 0.00047] * PC for PM10
E = [0.0024*(sL/2)0.65 *(W/3)1.5 - 0.00036] * PC for PM2.5
E = lb/VMT fugitive
sL = Silt Loading assumed to be 0.22 g/m2 for average ADT categories from Table 13.2.1-3
W = Average weight of vehicles in tons (below)
C = Correction for exhaust, break wear, tire wear: 0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5
PC = (1-P/4N)
P = Number of wet days over 0.01 in precipitation for averaging period (18 days/year average for Desert)
N = days of period = 365 days (4N = 1460)

Note: precipitation correction not used (PC = 1) for worst case day calculations
Light Duty = 3 tons average
Medium Duty = 8 tons average
Heavy Heavy Duty = 30 tons average (loaded 40 tons, unloaded 20 tons)
Assumes 90% paved mileage, 10% unpaved mileage for LD
Assumes 80% paved mileage, 20% unpaved mileage for MD & HHD
HHD includes water trucks

Table F-16

Supplemental Activity Calculations - Hauling, Aircraft, and Trucking

Parameter / Description	Value	Units	Reasons & Remarks
Hauling/Dump Trucks (HHD)			
Number of Hauls	600	trips	per ESJ-U.S.
Round Trip (RT) Distance	50	miles	assumption as "typical"
Total Distance	30,000	miles	
Helicopter (aircraft)			
Engine Rating	420	BHP	assume same as similar project elsewhere
Number of Days	3	days	assume same as similar project elsewhere
Daily Hours	8	hours/day	assume same as similar project elsewhere
Total Hours	24	hours	assume same as similar project elsewhere
Wind Turbine Transport (highway trucking)			
Port of San Diego RT	40	miles	to Otay Mesa border crossing RT
	1	day	to Otay Mesa border crossing RT
Port of Houston RT	3,000	miles	to Otay Mesa border crossing RT
	6	days	to Otay Mesa border crossing RT
Midwest City RT	4,000	miles	to Otay Mesa border crossing RT
	8	days	to Otay Mesa border crossing RT
Total System Weight	306	tons	each system
Truckload (HHD)	20	tons	assume 40,000 lbs/load
Truckloads (HHD)	15	trips	each system (rounded)
Installed Capacity	130	MW	from Project Description for Phase 1
Turbine Rating	2.5	MW	from Project Description for Phase 1
Number of Turbines (2.5 MW)	52	systems	from Project Description for Phase 1
Number of Truckloads	780	trips	for all components
via Port of San Diego	**31,200**	miles	Total RT for all systems
	40	miles/day	each day per truckload
	600	miles/day	each day per system
via Port of Houston	**2,340,000**	miles	Total RT for all systems
	500	miles/day	each day per truckload
	7,500	miles/day	each day per system
via Midwest City	**3,120,000**	miles	Total RT for all systems
	500	miles/day	each day per truckload
	7,500	miles/day	each day per system

Notes:

Wind turbine trucking emissions determined separately from (exclusive of) construction activities

"Midwest City" assumed to be either Des Moines, IA; Minneapolis, MN; or Chicago, IL as "typical" (c. 3,000 miles)

Otay Mesa border crossing is approximately 5.4 miles east of the San Ysidro (Tijuana) border crossing

RT = round trip; HHD = heavy heavy duty; BHP = brake horsepower; MW = megawatt

Source: EDAW 2009b

Air Quality Appendix References

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Appendix G Agency Consultation

CONTENTS

2009, November 17	Invitation to Consult on Proposed Project
	Department of Homeland Security, USM/OCAO/Occupational Safety and Environmental Programs
	Department of State, Office of Environmental Policy: OES/ENV, Bureau of Oceans and International Environmental and Scientific Affairs
	FAA
	FERC, Office of Energy Projects
	International Boundary and Water Commission, U.S. Section
	USACE
	U.S. Border Patrol
	BLM, El Centro Field Office
	U.S. Department of the Interior, Oakland Regional Office
	U.S. Department of the Interior, Office of Environmental Policy and Compliance
	USEPA, Environmental Review Office
	USEPA, Office of Federal Activities
	CDFG, San Diego Office
	California Department of Parks and Recreation, Office of Historic Preservation
	California State Parks, Colorado Desert District
	California State Parks, Ocotillo Wells District
	California State Parks, San Diego Coast District
	Western Interstate Energy Board
2009, November 30	Acceptance to Consult on Proposed Project (FAA)
2009, December 3	Acceptance to Consult on Proposed Project (California State Parks, Colorado Desert District)
2009, December 15	Acceptance to Consult on Proposed Project (International Boundary and Water Commission, U.S. Section)
2009, December 17	Acceptance to Consult on Proposed Project (U.S. Border Patrol)
2009, December 21	Request to Participate as a Cooperating Agency (BLM, El Centro Field Office)
2009, December 30	Acceptance to Consult on Proposed Project (CDFG, San Diego Office)
2010, January 6	Acceptance to Consult on Proposed Project (U.S. Border Patrol, Customs and Border Protection, Air and Marine, San Diego Branch, Brown Field Air Unit)

* Correspondence with the USFWS regarding the NOI to prepare an EIS can be found in Appendix C.6

* All Native American correspondence can be found in Appendix D.1

Department of Energy
Washington, DC 20585

17 November 2009

Mr. David Reese
USM/OCAO/Occupational Safety and Environmental Programs
Department of Homeland Security
Washington, DC 20528

Dear Mr. Reese:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line on either lattice towers or steel monopoles. ESJ's proposed transmission line would connect wind turbines (the ESJ Wind Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line at an interconnection location in southeastern San Diego County, near the community of Jacumba, California. About ⅔ of a mile (1 km) of transmission line would be constructed in the U.S.

DOE originally considered an environmental assessment (EA) to be the appropriate level of review under the National Environmental Policy Act (NEPA), and published a "Notice of Intent to Prepare an Environmental Assessment and to Conduct Public Scoping Meetings" in the *Federal Register* on August 4, 2008 (73 FR 45218).

Since that time, the project name was changed by the applicant to Energia Sierra Juarez U.S. Transmission, LLC (ESJ), and DOE determined that an Environmental Impact Statement (EIS) was the appropriate level of NEPA review. Accordingly, a *Federal Register* "Notice of Intent to Prepare an EIS" for the ESJ project was issued on February 25, 2009 (74 FR 8517). All of these documents, along with background information, schedule, opportunity to subscribe, and more, are available on our project-specific Web site at http://ESJProjectEIS.org .

If you believe that you have relevant information or specific environmental issues that we should consider, or feel that you have a material interest in this matter, we would be very glad to hear from you. Please contact me at Jerry.Pell@hq.DOE.gov (preferred), 202-586-3362, or fax 202-318-7761. My address is: Dr. Jerry Pell, U.S. Department of Energy, Office of Electricity (OE-20), Washington, DC 20585. Please note, however, that regularly mailed materials are delayed by security screening, and media such as CDs or DVDs are usually destroyed as a result.

Very truly yours,



Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Ms. Elizabeth Orlando
Department of State
Office of Environmental Policy: OES/ENV
Bureau of Oceans and International Environmental and Scientific Affairs
2201 C Street, NW
Washington, DC 20520-7818

Dear Ms. Orlando:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

Energia Sierra Juarez U.S. Transmission, LLC (ESJ, formerly Baja Wind U.S. Transmission, LLC), has applied to the Department of Energy's (DOE) Office of Electricity Delivery and Energy Reliability for a Presidential permit to construct either a double-circuit 230,000-volt (230-kV) or a single-circuit 500-kV transmission line on either lattice towers or steel monopoles. ESJ's proposed transmission line would connect wind turbines (the ESJ Wind Project), to be located in the vicinity of La Rumorosa, Baja California, Mexico, to the existing Southwest Powerlink 500-kV transmission line at an interconnection location in southeastern San Diego County, near the community of Jacumba, California. About ⅔ of a mile (1 km) of transmission line would be constructed in the U.S.

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Since that time, the project name was changed by the applicant to Energia Sierra Juarez U.S. Transmission, LLC (ESJ), and DOE determined that an Environmental Impact Statement (EIS) was the appropriate level of NEPA review. Accordingly, a *Federal Register* "Notice of Intent to Prepare an EIS" for the ESJ project was issued on February 25, 2009 (74 FR 8517). All of these documents, along with background information, schedule, opportunity to subscribe, and more, are available on our project-specific Web site at http://ESJProjectEIS.org .

If you believe that you have relevant information or specific environmental issues that we should consider, or feel that you have a material interest in this matter, we would be very glad to hear from you. Please contact me at Jerry.Pell@hq.DOE.gov (preferred), 202-586-3362, or fax 202-318-7761. My address is: Dr. Jerry Pell, U.S. Department of Energy, Office of Electricity (OE-20), Washington, DC 20585. Please note, however, that regularly mailed materials are delayed by security screening, and media such as CDs or DVDs are usually destroyed as a result.

Very truly yours,



Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Mr. Thomas Cuddy
Office of Environment and Energy
Federal Aviation Administration (AEE-400)
U.S. Department of Transportation
800 Independence Avenue, S.W., Room 900
Washington, DC 20591

Dear Mr. Cuddy:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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Very truly yours,

Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Mr. Jeff C. Wright
Director, Office of Energy Projects
Federal Energy Regulatory Commission
888 First Street, NE
Room 6A-01, PJ-1
Washington, DC 20426

Dear Mr. Wright:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Mr. Alfredo J. Riera
U.S. Section
International Boundary and Water Commission
Building C, Suite 100
4171 North Mesa Street
El Paso, TX 79902-1441

Dear Mr. Riera:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Mr. Harold Hartman
U.S. Army Corps of Engineers
Southern California Area Office
40015 Sierra Highway
Palmdale, CA 93550

Dear Mr. Hartman:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Mr. Henry Soule
U.S. Border Patrol
39701 Avenida de Robles Verdes
Boulevard, CA 91905

Dear Mr. Soule:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Ms. Vicki Wood
El Centro Field Office
Bureau of Land Management
1661 South 4th Street
El Centro, CA 92243

Dear Ms. Wood:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

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Department of Energy
Washington, DC 20585

17 November 2009

Ms. Patricia S. Port
Regional Environmental Officer
U.S. Department of the Interior
Oakland Regional Office
Jackson Center One, Suite 520
Oakland, CA 94607

Dear Ms. Port:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

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Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Mr. Willie R. Taylor, Director
Office of Environmental Policy and Compliance
U.S. Department of the Interior
Mail Stop 2462
1849 C Street, NW
Washington, DC 20240

Dear Mr. Taylor:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

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Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
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U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Ms. Ann McPherson
Department of Energy Reviewer
Environmental Review Office
U.S. Environmental Protection Agency
75 Hawthorne Street (CED-2)
San Francisco, CA 94105

Dear Ms. McPherson:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

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Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Ms. Susan Bromm
Director, Office of Federal Activities
U.S. Environmental Protection Agency
Mail Code 2251-A
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Ms. Bromm:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

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Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Mr. Ed Pert
California Department of Fish and Game
4949 Viewridge Avenue
San Diego, CA 92123

Dear Mr. Pert:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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Office of Electricity Delivery and
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Department of Energy
Washington, DC 20585

17 November 2009

Mr. Milford Wayne Donaldson
State Historic Preservation Officer
Office of Historic Preservation
California Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

Dear Mr. Donaldson:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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Since that time, the project name was changed by the applicant to Energia Sierra Juarez U.S. Transmission, LLC (ESJ), and DOE determined that an Environmental Impact Statement (EIS) was the appropriate level of NEPA review. Accordingly, a *Federal Register* "Notice of Intent to Prepare an EIS" for the ESJ project was issued on February 25, 2009 (74 FR 8517). All of these documents, along with background information, schedule, opportunity to subscribe, and more, are available on our project-specific Web site at http://ESJProjectEIS.org .

If you believe that you have relevant information or specific environmental issues that we should consider, or feel that you have a material interest in this matter, we would be very glad to hear from you. Please contact me at Jerry.Pell@hq.DOE.gov (preferred), 202-586-3362, or fax 202-318-7761. My address is: Dr. Jerry Pell, U.S. Department of Energy, Office of Electricity (OE-20), Washington, DC 20585. Please note, however, that regularly mailed materials are delayed by security screening, and media such as CDs or DVDs are usually destroyed as a result.

Very truly yours,

Jerry Pell

Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

California State Parks
200 Palm Canyon Drive
Borrego Springs, CA 92004-5055

Dear Sir or Madam:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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Very truly yours,



Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

California State Parks
Ocotillo Wells District
P.O. Box 360
Borrego Springs, CA 92004-0360

Dear Sir or Madam:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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Very truly yours,



Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

California State Parks
4477 Pacific Highway
San Diego, CA 92110-3136

Dear Sir or Madam:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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Very truly yours,



Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

Department of Energy
Washington, DC 20585

17 November 2009

Mr. Douglas Larson
Executive Director
Western Interstate Energy Board
1600 Broadway Street
Suite 1700
Denver, CO 80202

Dear Mr. Larson:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

I am writing to you today to ensure that you are aware of the subject project, and to inquire as to whether you wish to be considered, or participate, in the conduct of our ongoing analysis of potential environmental impacts.

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Very truly yours,



Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis, OE-20
Office of Electricity Delivery and
Energy Reliability
U.S. Department of Energy

From: Pell, Jerry [mailto:Jerry.Pell@hq.doe.gov]
Sent: Monday, November 30, 2009 12:21 PM
To: Thomas.Cuddy@faa.gov
Cc: Tim Murphy; Heredia, Joan
Subject: RE: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

Tom,

Much thanks for your message. I am copying this to our contractor to ensure that your concerns are properly addressed.

Best regards,

Dr. Jerry Pell, CCM
Principal NEPA* Document Manager
Permitting, Siting and Analysis, OE-20
Office of Electricity Delivery and Energy Reliability
U.S. Department of Energy
Washington, DC 20585
202-586-3362
Fax 202-318-7761
Jerry.Pell@HQ.DOE.GOV

*National Environmental Policy Act

-----Original Message-----
From: Thomas.Cuddy@faa.gov [mailto:Thomas.Cuddy@faa.gov]
Sent: Monday, November 30, 2009 3:04 PM
To: Pell, Jerry
Subject: RE: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

Dear Dr. Pell,

Thank you for your recent letter regarding the Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project.

The FAA would like to point out two thing that your EIS project team should consider during environmental review and planning to see if they are

applicable to the project.

Advisory Circular 70/7460-1K, Obstruction Marking and Lighting, describes the standards for marking and lighting structures such as buildings, chimneys, antenna towers, cooling towers, storage tanks, supporting structures of overhead wires, etc.

If your organization is planning to sponsor any construction or alterations which may affect navigable airspace (200 feet or more in height), you must file a Notice of Proposed Construction or Alteration (Form 7460-1) with the FAA.

Descriptions of these programs and the forms can be found on the website for the office of Obstruction Evaluation:

http://www.faa.gov/airports/engineering/airspace_analysis/

Best of luck with the project.

Tom C.

_____
Thomas W. Cuddy

Office of Environment and Energy (AEE-400) Federal Aviation Administration 800 Independence Avenue Washington, DC 20591 T 202-493-4018 F

202-267-5594 E thomas.cuddy@faa.gov

From: Pell, Jerry [mailto:Jerry.Pell@hq.doe.gov]
Sent: Friday, December 04, 2009 7:48 AM
To: Sevrens, Gail
Cc: Tim Murphy
Subject: RE: proposed energia sierra juarez u.s. electric transmission line project

Gail,

Thank you very much for your message.

We do not have a specific mailing list for the project. Once the draft environmental impact statement is ready for release, we will use the Web site subscriber list to advise of its availability, and then develop a mailing list from the responses received, as well as from other sources. The Web subscriber list remains our mainstay means of communication with interested parties.

Hope this helps.

Best regards,

Jerry Pell

-----Original Message-----
From: Sevrens, Gail [mailto:gsevr@parks.ca.gov]
Sent: Thursday, December 03, 2009 11:47 AM
To: Pell, Jerry
Subject: proposed energia sierra juarez u.s. electric transmission line project

Dr. Pell-

I am the environmental coordinator for the Colorado Desert District of California State Parks and received your letter of 11/17/09.

Because of the proximity of Anza-Borrego Desert State Park to the project, we are interested in the project.

I have subscribed to the project website email list, but would also like to be placed on the mailing list for the project at the address below.

Thank you,

Gail Sevrens

District Services Manager

Colorado Desert District, California State Parks

200 Palm Canyon Drive

Borrego Springs, CA 92004

gsevr@parks.ca.gov

(760) 767-4315

Fax (760) 767-3427

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

December 15, 2009

Dr. Jerry Pell
Principal NEPA Document Manager
Permitting, Siting, and Analysis (OE-20)
Office of Electricity Delivery and Energy Reliability
U.S. Department of Energy
Washington, DC 2058

Re: Participation in review of Environmental Impact Statement (EIS) Process for Energia Sierra Juarez U.S. Transmission, LLC to construct transmission line and towers.

Dear Mr. Pell:

The United States International Boundary and Water Commission (USIBWC) would like to be included in all steps within the process of reviewing environmental impacts, application for a presidential permit, and review of the EIS.

We look forward to working with you on issues related to the international boundary, specifically international treaties and agreements, border environmental concerns, USIBWC jurisdiction, and USIBWC real property. Please forward all review material to the USIBWC Environmental Management Division.

Should you or your staff have any questions, please contact me at (915) 832-4749 or Mr. Carlos Peña at (915) 832-4740.

Sincerely,

John Merino
Principal Engineer
Engineering and Planning Department

From: Pell, Jerry [mailto:Jerry.Pell@hq.doe.gov]
Sent: Friday, December 18, 2009 10:22 AM
To: SOULE, HENRY S
Cc: HANCE, MICHAEL D; HASELTON, SCOTT E; MORRISON, JEFFREY G; Tim Murphy; Heredia, Joan
Subject: RE: Proposed Energia Sierra Juarez / U.S. Electric Transmission Line Project

Deputy Commander Soule,

Thank you very much for your important message. I am forwarding your e-mail to our contractor, ENTRIX, for the preparation of the environmental

impact statement (EIS), and to the applicant, Sempra Global (ESJ), for their information, addition to the administrative record, and incorporation

into our work. Please continue to keep us informed of your concerns; in particular, when the draft EIS is available, we will look forward to your

review and comments. Please consider availing yourself of a subscription to our e-mail news list that will keep you informed of developments; the

Project EIS Web site is at http://ESJProjectEIS.org.

Best regards,

Jerry Pell

From: SOULE, HENRY S [mailto:henry.soule@dhs.gov]
Sent: Thursday, December 17, 2009 12:26 PM
To: Pell, Jerry
Cc: HANCE, MICHAEL D; HASELTON, SCOTT E; MORRISON, JEFFREY G
Subject: Proposed Energia Sierra Juarez / U.S. Electric Transmission Line Project

Dr. Jerry Pell

U.S. Department of Energy

Office of Electricity (OE-20)

Washington, DC 20585

Dr. Pell:

Subject: Proposed Energia Sierra Juarez (ESJ) U.S. Electric Transmission Line Project

The Border Patrol maintains a 60’ government easement at the international boundary border fence in the project area. The entire easement is, for the most part, a 50’ wide dirt road. This project should not impact our operations environmentally as long as the road surface is sufficiently maintained and correctly graded. However, below are a few concerns that we would request are addressed in this project:

a.. Border fence integrity – cross-border working: this fence is 20’ steel and concrete bollard design and extremely expensive. It will not be breached for a commercial enterprise without Office of Border Patrol, Washington, D.C. approval.

b.. Helicopter based construction in the area potentially poses a threat to our 24/7 aircraft patrols.

c.. Ability to positively identify all vehicles and personnel involved with the construction project in the immediate border area. “Cloned” vehicles have been an issue at several border construction sites.

d.. Construction work schedule (working hours)

e.. Equipment storage area: security of unused equipment. Cross-border thieves target this type of construction equipment. The Border Patrol will not alter its border security mission to secure commercial property in such an endeavor.

f.. Name of private security for construction equipment and materials

We (Border Patrol) have been involved in many border construction projects over the years and have developed techniques that counter attempts to defeat security at the border without delaying or negatively impacting construction progress.

Respectfully,

Henry S. Soule

(A) Deputy Commander

U.S. Border Patrol

Boulevard Station

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Field Office
1661 South 4th Street
El Centro, California 92243-4561

December 21, 2009

In Reply Refer To:
3031 (P)
CACA 51204
CACA 49698

CERTIFIED MAIL – RETURN RECIEPT REQUESTED

Dr. Jerry Pell
Principal NEPA Document Manager
Office of Electricity Delivery and Energy Reliability (OE-20)
U.S. Department of Energy
1000 Independence Avenue, SW.
Washington, DC 20585

Dear Dr. Pall:

The Bureau of Land Management (BLM) has received applications for rights-of-way for two separate, but related, proposed projects in eastern San Diego County. The first of these is for San Diego Gas and Electric Company's proposed East County (ECO) Substation near Jacumba, California. The proposed ECO substation would involve construction of a new 500/230/138 kV substation on about 58 acres of private land, a rebuild of the existing Boulevard substation, and construction of a new 13.3-mile-long 138 kV transmission between the two substations. The new 138 kV transmission line would traverse approximately 1.5 miles of public land managed by the BLM. The existing White Star communications facility located about 14 miles northwest of the proposed ECO substation would also be rebuilt as part of this project.

The second project is Iberdrola's proposed Tule Wind project in McCain Valley, California. The proposed project site is located on approximately 15,492 acres of land under multiple jurisdictions. The proposed project includes turbines, access roads, electrical collector and transmission lines, a substation, MET towers and storage yards/operations and maintenance facilities. The total number of wind turbines involved in the project could vary depending on the size of the turbines ultimately selected for the project. Iberdrola proposes to produce a total of 200 megawatts and to deliver them via a new transmission line that would connect to the proposed ECO substation at the rebuilt Boulevard substation.

The BLM and the California Public Utilities Commission (PUC) are planning to jointly prepare an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) that evaluates both the proposed ECO Substation and, as a connected action, the proposed Tule Wind project. Upon completion of the joint EIR/EIS, the BLM will render two decisions, one for each of the proposed projects, and will document these in two distinct Records of Decision.

The EIR/EIS for the proposed proposed ECO Substation and Tule Wind project will also address the proposed Energia Sierra Juarez Transmission Line as a connected action. As you know, the

Department of Energy is currently evaluating the Presidential permit application for this proposed gen-tie between the La Rumorosa Wind Project in Mexico and the proposed ECO substation. For this reason, and in accordance with the regulations at 40 CFR 1501.6, we are writing to request you to participate in environmental review process for these projects as a Cooperating Agency because your agency either has jurisdiction by law, special expertise, or both.

Thank you for your careful and prompt consideration of our request. We look forward to hearing from you at your earliest convenience. If you have any questions regarding this request, please contact Thomas Zale at (760) 337-4420.

Sincerely,

Daniel Steward
Acting Field Manager

Enclosures – Maps of proposed ECO substation and Tule Wind project

From: Pell, Jerry [mailto:Jerry.Pell@hq.doe.gov]
Sent: Wednesday, December 30, 2009 12:16 PM
To: Erinn Wilson
Cc: Helen Birss; Paul Schlitt; Stephen Juarez; Tim Murphy; Megan Schwartz; William Staeger; Heredia, Joan; Como, Anthony
Subject: RE: Proposed Energia Sierra Juarez (ESJ) U.S. ElectricalTransmission Line Project EIS
Importance: High

Mr. or Ms. Wilson,

Thank you very much for your message; I am somewhat dismayed to learn that my letter regarding the project reached you only on 24 December, however. By copy of this message, I am asking ENTRIX, our contractor for preparation of the environmental impact statement (EIS), to coordinate and consult with you directly regarding your interest in providing input on State ranked sensitive resources that occur within the project vicinity.

Also, if you have not already done so, may I suggest that you avail yourself of the resources available on the project web site, esjprojecteis.org, including the opportunity to register for electronic updates of new developments, postings of significant new documents, etc.; this is our major means of communicating with interested parties.

If we can work with you at this time on anything more specific, please feel free to contact me or contact directly my principal at ENTRIX, Mr. Tim Murphy, as follows:

Tim J. Murphy, AICP
ENTRIX
Senior Consultant / Environmental Management
201 North Calle Cesar Chavez, Suite 203, Santa Barbara, CA 93103
DIRECT: 805.963.0480 * MAIN: 805.962.7679 * CELL: 805.895.5420 * FAX: 805.963.0412
EMAIL: tmurphy@entrix.com<mailto:tmurphy@entrix.com> * WEBSITE: www.entrix.com<http://www.entrix.com>

I hope the above is responsive to your needs.

Best regards and Best wishes for the new year,

Jerry Pell

-----Original Message-----
From: Erinn Wilson [mailto:ewilson@dfg.ca.gov]
Sent: Wednesday, December 30, 2009 2:55 PM
To: Pell, Jerry
Cc: Helen Birss; Paul Schlitt; Stephen Juarez
Subject: Proposed Energia Sierra Juarez (ESJ) U.S. ElectricalTransmission Line Project EIS

Dr. Pell,

The Ca. Department of Fish and Game, San Diego Office, received your letter regarding the preparation of the Energia Sierra Juarez (ESJ) U.S. Electrical Transmission Line Project EIS on December 24th.
We would much appreciate being added to any distribution list, receive any materials pertinent to this project, and participate in any collaboration or meeting. We would like to provide input to the DOE on State ranked sensitive resources that occur within the project vicinity. We are currently working with the CPUC, BLM, and FWS on the East County Substation and Tule Wind project which are all interconnected.

Thank you for the consideration,

My contact information is as follows:

Erinn Wilson
Staff Environmental Scientist
South Coast Region
18627 Brookhurst Street # 559
Fountain Valley, Ca 92708-6748
Office: 714-968-0953
On the first, second, and third Friday of each month I will be out of the office on furlough leave pursuant to Governor's Executive Order S-16-08.

From: Pell, Jerry [mailto:Jerry.Pell@hq.doe.gov]
Sent: Thursday, January 07, 2010 6:07 AM
To: VILLA, RICHARD R
Cc: Tim Murphy; Heredia, Joan; Como, Anthony
Subject: RE: Energia Sierra Juarez U.S. Transmission
Importance: High

Mr. Villa,

Much thanks for your message.

By cc, I am asking our contractor for the environmental impact statement (EIS), Mr. Tim Murphy of Entrix, to work with you in this regard as the point of contact. For anything non-routine or policy-related, please do continue to feel free to contact me directly.

I am also cc'ng Ms. Joan Heredia, my contact at Sempra, the project proponent,

to make her aware of your concerns and to encourage her to cooperate with you and Entrix to resolve these issues.

Also, please note the project EIS Web site, http://esjprojecteis.org, for information on the project; you may wish to subscribe to the e-mail list-serve, which is our primary means of public communication of news and site changes.

I hope this is responsive to your needs.

Best regards,

Dr. Jerry Pell, CCM
Principal NEPA* Document Manager
Permitting, Siting, and Analysis (OE-20)
Office of Electricity Delivery and Energy Reliability

U.S. Department of Energy
Washington, DC 20585
Tel. 202-586-3362
Fax 202-318-7761
Cell 240-529-3553
*National Environmental Policy Act

From: VILLA, RICHARD R [mailto:richard.villa@dhs.gov]
Sent: Wednesday, January 06, 2010 6:09 PM
To: Pell, Jerry
Subject: Energia Sierra Juarez U.S. Transmission

Sir,

Can you please provide me with some information and/or a POC regarding the proposed ESJ lines?

1.. Who do I need to ask to notify us when they start the actual construction on the towers? Specifically due to flight safety (hazards to terrain flight).

2.. Who do I need to coordinate with to request marker balls in certain canyons throughout our sector?

I have been and still am working with SDG&E regarding several of their 500kV lines through our sector and although most towers don’t meet the FAA designated lighting/marker requirement they have agreed to our request to install them anyways. I am hoping to negotiate the same with this project.

I don’t know if Ms. Carol M. Borgstrom would be able to assist me on this specific request but if you think so can you let me know and provide me with her email?

Thank you very much for your time and assistance and I hope to hear from you soon.

Richard Villa
Air Interdiction Agent
Customs and Border Protection
Air and Marine, San Diego Branch
Brown Field Air Unit
7685 Pogo Row
San Diego, CA 92154

(619) 540-0927 cell
(619) 710-4400 office
(619) 661-3181 fax
richard.villa@dhs.gov

Appendix H Conflict of Interest

CONTENTS

NEPA Disclosure Statement for Preparation of the Energia Sierra Juarez U.S. Transmission Line Environmental Impact Statement (August 11, 2009)

NEPA DISCLOSURE STATEMENT FOR PREPARATION OF THE ENERGIA SIERRA JUAREZ U.S. TRANSMISSION LINE ENVIRONMENTAL IMPACT STATEMENT

The Council on Environmental Quality (CEQ) Regulations at Title 40 of the *Code of Federal Regulations* (CFR) Section 1506.5(c), which have been adopted by the U.S. Department of Energy (10 CFR 1021), require contractors and subcontractors who will prepare an environmental impact statement to execute a disclosure specifying that they have no financial or other interest in the outcome of the project.

"Financial or other interest in the outcome of the project" is defined as any direct financial benefit such as a promise of future construction or design work in the project, as well as indirect financial benefits the contractor is aware of.

In accordance with these requirements, the offeror and any proposed subcontractors hereby certify as follows, to the best of their actual knowledge as of the date set forth below:

(a) _X_ Offeror and any proposed subcontractors have no financial or other interest in the outcome of the project.

(b) _____ Offeror and any proposed subcontractor have the following financial or other interest in the outcome of the project and hereby agree to divest themselves of such interest prior to award of this contract, or agree to the attached plan to mitigate, neutralize or avoid any such conflict of interest.

Financial or Other Interests

1.
2.
3.

Certified by:

Brenda Peters

Brenda Peters, Vice President
ENTRIX, Inc.
August 11, 2009