2.1) Please provide all retail sales forecasts performed by SCE in the last five years.

Projections of retail sales forecast are only performed at a total SCE system level and are not available for discrete areas (e.g., cities, counties, or individual system levels) within SCE's service territory.

2.2) Please provide forecasts of SCE's annual retail sales created/done each year from 2004 to 2009 for the years 2004 through 2020.

Projections of retail sales forecast are only performed at a total SCE system level and are not available for discrete areas (e.g., cities, counties, or individual system levels) within SCE's service territory.

2.3) Please provide recorded actual retail sales, by month, for the period 2004 through November 2009.

Please see Microsoft Excel file titled "SCE_RiversideCounty_kWh_sales_by_month_2004-09.xls"

Based on the request for information for Riverside County in Questions 4 and 5, the data provided in answer to Question 3 is for all of Riverside County. For reference, the retail sales for the Valley System are about 45% of the total Riverside County retail sales.

2.4) Please provide load projections for Riverside county for each year since 2005, through 2020.

Please see Microsoft Excel file titled "SCE_ValleySystem_recorded_loads_&_projections_2005-20"

SCE's peak load forecast are performed by at circuit levels and, in aggregate, at substation and electrical system levels (e.g., Valley System) and not by boundaries such as cities or counties. The electrical needs area for the Alberhill System Project is within Riverside County and as such, the data provided are for the Valley System in total. The peak load projections based on 1-in-5 year heat storm criteria.

2.5) Please provide actual load data for Riverside county for each year since 2005, through November 2009.

SCE's actual load data is recorded at circuit levels and in aggregate at substation and electrical system levels (e.g., Valley System) and not by boundaries such as cities or counties. The electrical needs area for the Alberhill System Project is within Riverside County and as such, the data provided are for the Valley System in total. The actual load data provided is the recorded value and contains no adjustments (e.g., weather).

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 10/28/2009

Question 01: (1.1)

Project Description
Page 1-5

Explain the definitions of “installed” and “removed,” as used in the fifth bullet point on page 1-5 of the PEA, which states that 4,719 meters were installed and 1,061 removed. Are the “installed” meters new ones that were physically installed, or are they meters that were turned on after being switched off? Are the “removed” meter boxes physically removed or just turned off?

Response to Question 01:

"Installed" meters are meters that are physically installed into new or existing customer facilities, but where there was currently no meter in place. "Removed" meters are meters that were physically removed from customer facilities.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Jeff Miller
Title: Project Manager, TPD
Dated: 10/28/2009

Question 09: (1.9)

Project Description and Biological Resources
Page 3-22

Discuss the circumstances that would require construction at night. Include a description of the locations and durations where night construction work may be needed. Discuss if work at night using helicopters would be required. Discuss specific measures that would be used to avoid or reduce impacts on wildlife species if night construction work is required.

Response to Question 09:

We do not anticipate any construction activity to be conducted at night. Therefore, night time use of helicopters will not be required.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Jeff Miller
Title: Project Manager, TPD
Dated: 10/28/2009

Question 10: (1.10)

Project Description
Page 3-21

Page 3-21 states that environmental review would be deferred for evaluation of marshalling yards and material staging yards that would be used for the project. Adequate CEQA analysis of the significant environmental effects of the project requires the lead agency to consider the whole of an action, not simply its constituent parts. Provide a complete description of the marshalling yards and material staging yards that would be used for the project.

Response to Question 10:

As described in section 3.2.1.3 on page 3-21 of the Alberhill PEA, the primary marshalling yard and staging area will be the Alberhill Substation site. Additional marshalling and material staging yards will be located as needed at the existing substation sites: Valley , Skylark, Newcomb, Fogarty, Ivyglen. An additional staging area has been identified as approximately 0.75 miles north of Big Canyon Drive within the existing Valley-Serrano transmission line right of way. This site is located approximately one-quarter mile from the Proposed Project 500 kV segments and is approximately 0.17 acres unpaved on currently disturbed land (it is part of an existing access road). See the location in the attached map below.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 10/28/2009

Question 13: (1.13)

Agricultural and Biological Resources
Pages 3-37, 4-55, 4-63, 4-66, 4-67, 4-94

Discuss the potential for the project to affect trees (e.g., oak trees) and agricultural groves or orchards, both directly and indirectly. Specify if tree removal would be required as part of the project. If so, indicate the type, number, and location of trees that would need to be removed. Identify also the potential need for tree removal at alternative substation locations and along alternative transmission and subtransmission routes.

Response to Question 13:

Please see PEA Sections 4.4.1 and 4.4.4 for information regarding tree removal and local tree removal ordinances.

Please see PEA Section 4.2.4 for information regarding the potential for the Proposed Project to affect agricultural groves and orchards.

Because most of the 115 kV work would occur within existing ROW, tree removal is not expected. The 500 kV transmission line segments traverse scrubland and are unlikely to require tree removal.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Amanda Duchardt
Title: Project Biologist
Dated: 10/28/2009

Question 14: (1.14)

Biological Resources
Section 3.8 and Section 4.4

Clarify what is meant by the term "focused," as used in the PEA in reference to the various biological surveys that were performed. For each species for which the PEA states that "focused" surveys were performed, specify whether reconnaissance-level and/or protocol-level surveys were employed and for which species, and describe the survey methodology that was used.

Response to Question 14:

The term "focused" survey refers to species specific survey methods approved by the wildlife agencies to determine presence/absence of a particular species (i.e., U.S. Fish and Wildlife Service [USFWS] protocol surveys).

As described in the PEA, the following species surveys have been completed for the Alberhill System Project:

- Rare Plants – Surveys for rare plants identified as having the potential to occur within the proposed Alberhill substation parcels (i.e., suitable habitat, CNDDB records, MSHCP criteria area and narrow endemic species) were conducted in Spring 2009 following the methodology described in the USFWS Guidelines for Conducting and Reporting Biological Inventories for Federally Listed, Proposed and Candidate Species (January 2000) and the California Department of Fish and Game Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (May 8, 2000).
- Quino Checkerspot Butterfly – USFWS protocol level surveys were conducted on the proposed Alberhill substation parcels during the U.S. Fish and Wildlife Service official flight season in Spring 2009.
- Southwestern Willow Flycatcher – Protocol surveys were conducted on the proposed Alberhill substation parcels for southwestern willow flycatcher in the spring/summer 2009 following methodology described in A Southwestern Willow Flycatcher Natural History Summary and Survey Protocol (Sogge et al. 1997).
- Least Bell's Vireo – USFWS protocol surveys were conducted on the proposed Alberhill substation parcels for least Bell's vireo in the spring/summer 2009 following methodology described in Least Bell's Vireo Survey Guidelines (USFWS 2001).

- Coastal California Gnatcatcher - USFWS protocol surveys were conducted on the proposed Alberhill substation parcels for coastal California gnatcatcher the spring/summer 2009 following methodology described in Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Guidelines (USFWS 1997).
- Burrowing Owl – Protocol surveys for burrowing owl were conducted on the proposed Alberhill substation parcels per the County of Riverside's Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area (2006) and The Institute for Bird Populations' Instructions and Guidelines for Observers Participating in the 2006/2007 Statewide Survey of Breeding Burrowing Owls in California (2007).
- Stephen's Kangaroo Rat – A habitat assessment for Stephen's kangaroo rat was conducted in Summer 2009 by USFWS permit holder (TE745541-10) Stephen J. Montgomery and Dan Grout (a sub-permittee to Montgomery). The proposed Alberhill substation parcels and the proposed 500 kV transmission corridors were assessed.

Additional focused/protocol survey needs were discussed in Section 3.8, Environmental Surveys, in the PEA.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Amanda Duchardt
Title: Project Biologist
Dated: 10/28/2009

Question 15: (1.15)

Biological Resources
Pages 4-61, 4-62

Provide the reports referred to in Section 4.4.4.2 for the biological resources surveys that have been conducted at the proposed and alternative substation locations and along the proposed and alternative transmission and subtransmission line routes.

Provide copies of the reports listed under "Section 4.4.4.1 Literature Review." To the extent that they are different from those listed in Section 4.4.4.1, provide copies of the reports from AMEC Earth and Environmental and AECOM Technical Services that are listed as references to Section 4.4 Biological Resources section.

Provide copies of the following references to Section 4.4 Biological Resources section: Chung 2009, Dudek 2009, iCubed 2009, and Lichvar and Ericsson 2004.

Response to Question 15:

The following reports are provided in this submittal (refer to CD copy):

- Final Proposed Alberhill Project Biological Resources Technical Report for the 500 kV and 115 kV Study Areas (AECOM, 2009b). Included in Appendix C of this report is the Dudek 2009 reference (Species Covered by the Western Riverside County MSHCP. Dated February 18, 2009).
- Final Biological Resources Technical Report for the Proposed Alberhill Substation Site Lake Elsinore, CA (AECOM, 2009a). Included in Appendix G of this report is a separate habitat assessment for Stephens' kangaroo rat (SKR) (*Dipodomys stephensi*), conducted for the Alberhill Substation site and the 500 kV transmission line segments by SJM Biological Consultants
- Focused Burrowing Owl Burrow and Burrowing Owl Survey Proposed Alberhill Substation Site (AECOM, 2009c)
- Focused Rare Plant Survey April and May 2009 Proposed Alberhill Substation Site (AECOM, 2009d)
- Alberhill Substation 2009 Quino Checkerspot Surveys (Forensic Entomology Services, 2009)
- Alberhill Substation Project Focused Surveys for the Southwestern Willow Flycatcher,

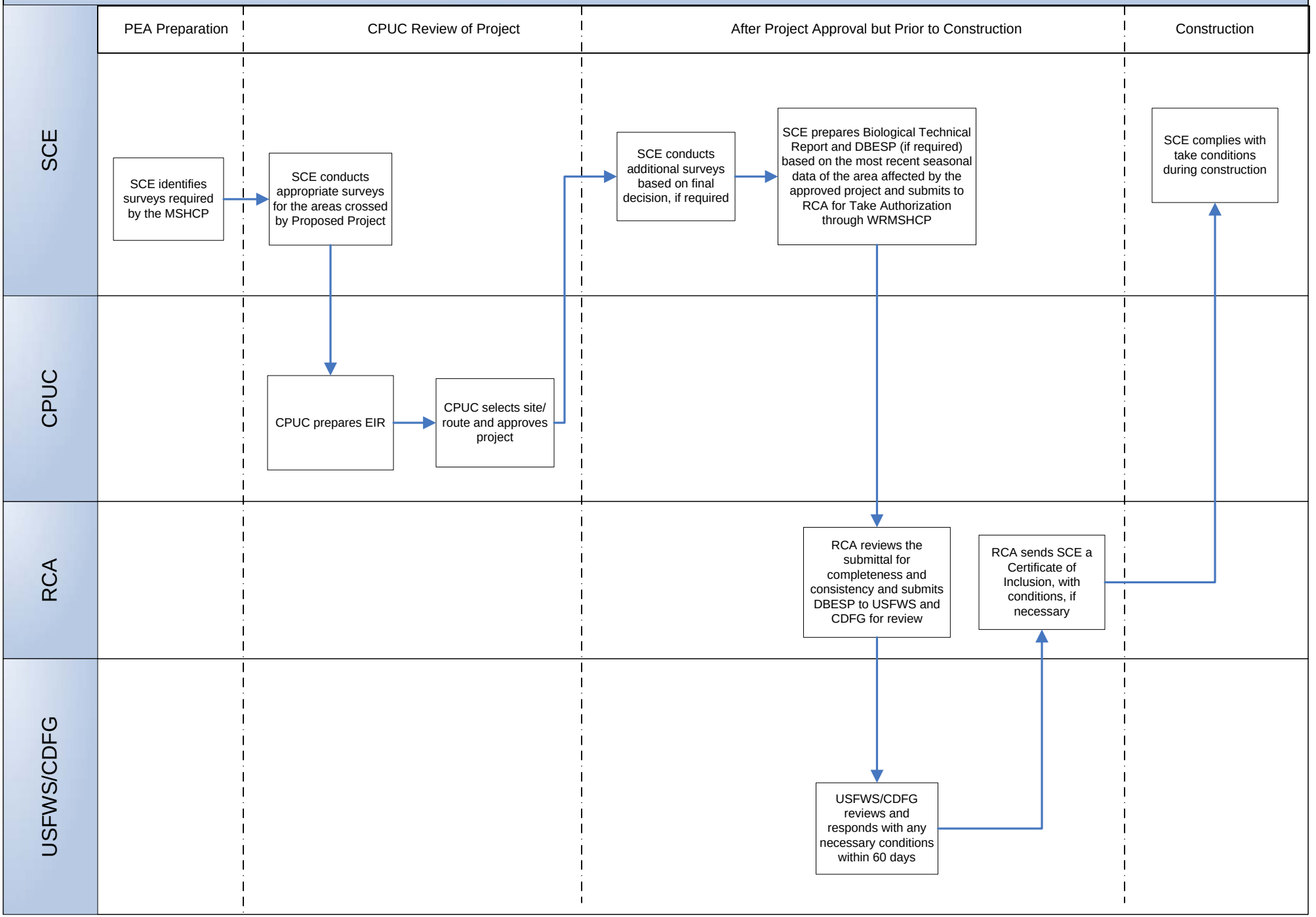
Least Bell's Vireo, and Coastal California Gnatcatcher (AMEC, 2009a)

- Fairy Shrimp Habitat Assessment for the Alberhill Substation Project (AMEC, 2009b)
- Final Biological Technical Report For The Fogarty Substation Project Riverside County, California (AMEC, 2006a)
- Final Biological Technical Report for the Valley-Ivyglen Transmission Line Project Riverside County, California (AMEC, 2006b).
- Chung, J. 2009. Personal Communication via e-mails, July 2 and 13. Affiliation: Regulatory Division, US Army Corps of Engineers, Los Angeles District, Los Angeles, CA.

Note: Where available, final documents have been submitted in lieu of draft documents referenced in Section 4.4.7 (References) in the PEA.

The iCubed. 2009, Aerial Imagery GIS Data, reference is a GIS data layer (meta data) and while we cannot provide a pdf of the information, we can and have provided the link to the data source. The aerial was taken by AEX Aerial Photography on April 15, 2008 and is copyright 2009 by ESRI, i-cubed and GeoEye, published June 2009 by ESRI, according to the following website: http://resources.esri.com/arcgisonlineservices/index.cfm?fa=content_detail&contentID=C3A82879-1422-2413-19519F6AA06A2868. The metadata embedded in the actual data layer in ArcGIS shows the source as i-cubed 2009 though whereas the website above shows the source as ESRI/i-cubed/GeoEYE.

Requesting Take Authorization Through Western Riverside County MSHCP for SCE Projects Licensed through the CPUC



Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Amanda Duchardt
Title: Project Biologist
Dated: 10/28/2009

Question 16: (1.16)

Biological Resources
Page 4-85

Discuss Southern California Edison Company's status relative to the Alberhill System project and the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). If Southern California Edison Company is a Participating Special Entity in the MSHCP for the Alberhill System project, as stated on page 4-185 of the PEA, provide a copy of the Take Authorization issued by the Western Riverside County Regional Conservation Authority.

Whether or not Southern California Edison Company has or intends to apply for Take Authorization pursuant to Section 11.8 of the MSHCP Implementing Agreement, describe the measures that would be taken to ensure the project would be consistent with the MSHCP.

Response to Question 16:

Southern California Edison Company is not currently a Special Participating Entity in the Western Riverside County MSHCP for the Alberhill System Project. The statement on page 4-185 that SCE currently has Special Participating Entity status is an error. SCE intends to apply for take coverage under the WRMSHCP through the RCA following identification of a preferred Alberhill System Project alignment by the PUC (refer to the enclosed flow chart). Measures required to comply with the MSHCP are described in Section 5.2, Compliance with the Western Riverside County MSHCP, in the Final Biological Constraints Report for the 500 kV and 115 kV Study Areas (AECOM 2009) and in Section 5.2, Compliance with the Western Riverside County MSHCP, in the Final Biological Resources Technical Report for the Proposed Alberhill Substation Site (AECOM 2009).

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Amanda Duchardt
Title: Project Biologist
Dated: 10/28/2009

Question 17: (1.17)

Biological Resources
Page 4-93

Provide descriptive and visual information (i.e., maps of suitable scale) on all drainages (named and unnamed), water bodies, ponded areas, and wetlands (including vernal pools) within the project area (including but not limited to the proposed and alternative substation locations and along the proposed and alternative transmission and subtransmission lines) as well as those outside the project area but within the potential influence of disturbance from construction and operation. Describe locations where aquatic features would be crossed or filled. Provide preliminary or formal wetland delineation reports. Provide acreage of.

Response to Question 17:

A planning level delineation was conducted as part of the Final Biological Constraints Report for the 500 kV and 115 kV Study Areas (AECOM 2009; provided herein). Figures 3-12 through 3-16 identify drainage features within the proposed 500 kV transmission and 115 kV subtransmission corridors as well as hydric soils and riparian vegetation that could also indicate the presence of jurisdictional wetlands. Appendix H of the Final Biological Constraints Report for the 500 kV and 115 kV Study Areas includes supplemental soils maps: Soil Series, Potential Vernal Pool Soils, and WRMSHCP Sensitive Soils. In addition, Tables 3-17 and 3-18 provide an estimated acreage of jurisdictional waters within the survey area based on the planning level delineation.

As described in Section 4.4.4.3, Construction Impacts, in the PEA, "It is anticipated that the 500 kV transmission line segments and the new and modified 115 kV subtransmission lines can be designed to span over riparian habitats and would avoid potential impacts." Temporary and/or permanent impacts to jurisdictional waters could occur as a result of substation construction and construction of access and spur roads associated with the 500 kV transmission towers. As discussed in Section 3.8, Environmental Surveys, a jurisdictional wetland delineation to describe and map the extent of resources under the jurisdiction of the USACE, CDFG, RWQCB/SWRCB, and WRMSHCP following the guidelines presented in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region and other applicable agency guidance will be conducted in 2010. If jurisdictional waters and/or wetlands are present, SCE would either modify the project design to avoid the resource, or would implement Applicant

Proposed Measures to minimize the impact, including consultation with the appropriate agencies.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Amanda Duchardt
Title: Project Biologist
Dated: 10/28/2009

Question 18: (1.18)

Biological Resources
Pages 4-62 through 4-67

Explain the apparent discrepancy in the number of individual plant communities were found during biological surveys for the project. Page 4-62 states that 17 individual plant communities were found, while pages 4-62 through 4-67 describe only 16. Provide a map that identifies the locations where these individual plant communities were found. Discuss the quality of the habitats identified.

Response to Question 18:

Seventeen individual plant communities were identified during biological surveys for the project. All 17 communities are described on pages 4-62 through 4-67. Please note that the coast live oak community description includes a description of coast live oak upland and coast live oak riparian communities.

Plant Community maps are provided as Figure 3-1 in the Final Biological Resources Technical Report for the Proposed Alberhill Substation Site (AECOM 2009) and in Volume II of the final Biological Constraints Report for the 500 kV and 115 kV Study Areas (AECOM 2009) (refer to the enclosed technical reports).

The quality of habitats identified range from high quality native habitat to highly disturbed/degraded habitat depending on historic and current land uses and adjacent land uses. The purpose of the PEA and Biological Technical Reports was to identify potentially suitable habitat for sensitive species. Additional evaluation of habitat quality would be included (as appropriate) within the context of focused/protocol surveys/reports.

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Michael Contreras
Morongo Band of Mission Indians
49750 Seminole Drive
Cabazon, CA 92230

February 17, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, including Sub-Transmission, and Transmission Feeder Lines, Riverside County, California

Dear Mr. Contreras:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. At the recommendation of the Native American Heritage Commission (NAHC), SCE requests your input regarding the identification of potential effects to cultural resources, sacred lands or other heritage sites within the project area.

The proposed substation is located north of Interstate 15 and Temescal Canyon Road near the community of Alberhill. The project is situated in Section 15, Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (Figure 1. Project area Overview and Figure 2.), and will consist of approximately 140 acres. The proposed substation site has been previously surveyed for cultural resources. This cultural resources study identified historic foundations and an historic-age house. These resources were subsequently evaluated and recommended as not eligible for listing on the California Register of Historic Resources (CRHR). A records search conducted with the Eastern Information Center, University of California Riverside did not yield any previously recorded prehistoric archaeological sites within the proposed substation property.

The proposed 500kV source line is located north of the proposed substation, and will connect to the existing Serrano-Valley 500kV circuit. A one-quarter mile buffer around the proposed 500kV source line is depicted as Conceptual Routes 500kV on the attached map. The proposed route is located in Sections 9, 10, 15, and 16 of Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (see Figures 1 and 2). No previously recorded prehistoric or historic sites have been identified within this buffer for the proposed transmission line corridor.

The proposed 115kV source line is proposed to the east of the substation site, and will be constructed within a one-quarter mile buffer around the proposed route in an area defined as the Northern Corridor shown on the attached map. The proposed corridor for the 115kV line is situated in various sections of Townships 5 & 6 South and Ranges 3, 4 & 5 West, on the USGS 7.5" Alberhill, Elsinore and Romoland quadrangles (see Figures 1-6). Much of the proposed route will be constructed along existing 115kV circuits, and will not require new construction.

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

However, new construction for the 115kV line may be necessary along Menifee Road between Newport Road and Scott Road (Figures 5 and 6). A cultural resources records search identified a number of previously recorded archaeological sites within the buffer area. SCE plans to avoid these resources to minimize any impacts that could result from the proposed construction of the 115kV source line.

Project location maps are enclosed as an attachment for your reference.

SCE would appreciate any information you may have regarding Native American cultural resources located in or near the proposed project location that could be affected by the proposed project. Any information concerning the identity, location, character, and traditional use of cultural places identified during consultation will be considered confidential.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist. If possible, for project planning purposes we would like to receive any questions or concerns regarding this project within the next two weeks. If we have not heard from you within 30 days of the receipt of this letter, we will assume that you do not wish to participate in further consultation.

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Shasta Gaughen, Assistant Director
Cupa Cultural Center (Pala Band)
35008 Pala-Temecula Road
PMB Box 445
Pala, CA 92059

February 17, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, including Sub-Transmission, and Transmission Feeder Lines, Riverside County, California

Dear Ms. Gaughen:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. At the recommendation of the Native American Heritage Commission (NAHC), SCE requests your input regarding the identification of potential effects to cultural resources, sacred lands or other heritage sites within the project area.

The proposed substation is located north of Interstate 15 and Temescal Canyon Road near the community of Alberhill. The project is situated in Section 15, Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (Figure 1. Project area Overview and Figure 2.), and will consist of approximately 140 acres. The proposed substation site has been previously surveyed for cultural resources. This cultural resources study identified historic foundations and an historic-age house. These resources were subsequently evaluated and recommended as not eligible for listing on the California Register of Historic Resources (CRHR). A records search conducted with the Eastern Information Center, University of California Riverside did not yield any previously recorded prehistoric archaeological sites within the proposed substation property.

The proposed 500kV source line is located north of the proposed substation, and will connect to the existing Serrano-Valley 500kV circuit. A one-quarter mile buffer around the proposed 500kV source line is depicted as Conceptual Routes 500kV on the attached map. The proposed route is located in Sections 9, 10, 15, and 16 of Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (see Figures 1 and 2). No previously recorded prehistoric or historic sites have been identified within this buffer for the proposed transmission line corridor.

The proposed 115kV source line is proposed to the east of the substation site, and will be constructed within a one-quarter mile buffer around the proposed route in an area defined as the Northern Corridor shown on the attached map. The proposed corridor for the 115kV line is situated in various sections of Townships 5 & 6 South and Ranges 3, 4 & 5 West, on the USGS 7.5" Alberhill, Elsinore and Romoland quadrangles (see Figures 1-6). Much of the proposed

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

route will be constructed along existing 115kV circuits, and will not require new construction. However, new construction for the 115kV line may be necessary along Menifee Road between Newport Road and Scott Road (Figures 5 and 6). A cultural resources records search identified a number of previously recorded archaeological sites within the buffer area. SCE plans to avoid these resources to minimize any impacts that could result from the proposed construction of the 115kV source line.

Project location maps are enclosed as an attachment for your reference.

SCE would appreciate any information you may have regarding Native American cultural resources located in or near the proposed project location that could be affected by the proposed project. Any information concerning the identity, location, character, and traditional use of cultural places identified during consultation will be considered confidential.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist. If possible, for project planning purposes we would like to receive any questions or concerns regarding this project within the next two weeks. If we have not heard from you within 30 days of the receipt of this letter, we will assume that you do not wish to participate in further consultation.

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Joseph Hamilton, Vice Chairman
Ramona Band of Cahuilla Mission Indians
P.O. Box 391670
Anza, CA 92539

February 17, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, including Sub-Transmission, and Transmission Feeder Lines, Riverside County, California

Dear Mr. Hamilton:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. At the recommendation of the Native American Heritage Commission (NAHC), SCE requests your input regarding the identification of potential effects to cultural resources, sacred lands or other heritage sites within the project area.

The proposed substation is located north of Interstate 15 and Temescal Canyon Road near the community of Alberhill. The project is situated in Section 15, Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (Figure 1. Project area Overview and Figure 2.), and will consist of approximately 140 acres. The proposed substation site has been previously surveyed for cultural resources. This cultural resources study identified historic foundations and an historic-age house. These resources were subsequently evaluated and recommended as not eligible for listing on the California Register of Historic Resources (CRHR). A records search conducted with the Eastern Information Center, University of California Riverside did not yield any previously recorded prehistoric archaeological sites within the proposed substation property.

The proposed 500kV source line is located north of the proposed substation, and will connect to the existing Serrano-Valley 500kV circuit. A one-quarter mile buffer around the proposed 500kV source line is depicted as Conceptual Routes 500kV on the attached map. The proposed route is located in Sections 9, 10, 15, and 16 of Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (see Figures 1 and 2). No previously recorded prehistoric or historic sites have been identified within this buffer for the proposed transmission line corridor.

The proposed 115kV source line is proposed to the east of the substation site, and will be constructed within a one-quarter mile buffer around the proposed route in an area defined as the Northern Corridor shown on the attached map. The proposed corridor for the 115kV line is situated in various sections of Townships 5 & 6 South and Ranges 3, 4 & 5 West, on the USGS 7.5" Alberhill, Elsinore and Romoland quadrangles (see Figures 1-6). Much of the proposed route will be constructed along existing 115kV circuits, and will not require new construction.

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

However, new construction for the 115kV line may be necessary along Menifee Road between Newport Road and Scott Road (Figures 5 and 6). A cultural resources records search identified a number of previously recorded archaeological sites within the buffer area. SCE plans to avoid these resources to minimize any impacts that could result from the proposed construction of the 115kV source line.

Project location maps are enclosed as an attachment for your reference.

SCE would appreciate any information you may have regarding Native American cultural resources located in or near the proposed project location that could be affected by the proposed project. Any information concerning the identity, location, character, and traditional use of cultural places identified during consultation will be considered confidential.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist. If possible, for project planning purposes we would like to receive any questions or concerns regarding this project within the next two weeks. If we have not heard from you within 30 days of the receipt of this letter, we will assume that you do not wish to participate in further consultation.

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Paul Macarro
Cultural Resource Center
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, CA 92593

February 17, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, including Sub-Transmission, and Transmission Feeder Lines, Riverside County, California

Dear Mr. Macarro:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. At the recommendation of the Native American Heritage Commission (NAHC), SCE requests your input regarding the identification of potential effects to cultural resources, sacred lands or other heritage sites within the project area.

The proposed substation is located north of Interstate 15 and Temescal Canyon Road near the community of Alberhill. The project is situated in Section 15, Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (Figure 1. Project area Overview and Figure 2.), and will consist of approximately 140 acres. The proposed substation site has been previously surveyed for cultural resources. This cultural resources study identified historic foundations and an historic-age house. These resources were subsequently evaluated and recommended as not eligible for listing on the California Register of Historic Resources (CRHR). A records search conducted with the Eastern Information Center, University of California Riverside did not yield any previously recorded prehistoric archaeological sites within the proposed substation property.

The proposed 500kV source line is located north of the proposed substation, and will connect to the existing Serrano-Valley 500kV circuit. A one-quarter mile buffer around the proposed 500kV source line is depicted as Conceptual Routes 500kV on the attached map. The proposed route is located in Sections 9, 10, 15, and 16 of Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (see Figures 1 and 2). No previously recorded prehistoric or historic sites have been identified within this buffer for the proposed transmission line corridor.

The proposed 115kV source line is proposed to the east of the substation site, and will be constructed within a one-quarter mile buffer around the proposed route in an area defined as the Northern Corridor shown on the attached map. The proposed corridor for the 115kV line is situated in various sections of Townships 5 & 6 South and Ranges 3, 4 & 5 West, on the USGS 7.5" Alberhill, Elsinore and Romoland quadrangles (see Figures 1-6). Much of the proposed

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

route will be constructed along existing 115kV circuits, and will not require new construction. However, new construction for the 115kV line may be necessary along Menifee Road between Newport Road and Scott Road (Figures 5 and 6). A cultural resources records search identified a number of previously recorded archaeological sites within the buffer area. SCE plans to avoid these resources to minimize any impacts that could result from the proposed construction of the 115kV source line.

Project location maps are enclosed as an attachment for your reference.

SCE would appreciate any information you may have regarding Native American cultural resources located in or near the proposed project location that could be affected by the proposed project. Any information concerning the identity, location, character, and traditional use of cultural places identified during consultation will be considered confidential.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist. If possible, for project planning purposes we would like to receive any questions or concerns regarding this project within the next two weeks. If we have not heard from you within 30 days of the receipt of this letter, we will assume that you do not wish to participate in further consultation.

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Anthony Madrigal, Jr., Chairperson
Cahuilla Band of Indians
P.O. Box 391760
Anza, CA 92539

February 17, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, including Sub-Transmission, and Transmission Feeder Lines, Riverside County, California

Dear Mr. Madrigal:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. At the recommendation of the Native American Heritage Commission (NAHC), SCE requests your input regarding the identification of potential effects to cultural resources, sacred lands or other heritage sites within the project area.

The proposed substation is located north of Interstate 15 and Temescal Canyon Road near the community of Alberhill. The project is situated in Section 15, Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (Figure 1. Project area Overview and Figure 2.), and will consist of approximately 140 acres. The proposed substation site has been previously surveyed for cultural resources. This cultural resources study identified historic foundations and an historic-age house. These resources were subsequently evaluated and recommended as not eligible for listing on the California Register of Historic Resources (CRHR). A records search conducted with the Eastern Information Center, University of California Riverside did not yield any previously recorded prehistoric archaeological sites within the proposed substation property.

The proposed 500kV source line is located north of the proposed substation, and will connect to the existing Serrano-Valley 500kV circuit. A one-quarter mile buffer around the proposed 500kV source line is depicted as Conceptual Routes 500kV on the attached map. The proposed route is located in Sections 9, 10, 15, and 16 of Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (see Figures 1 and 2). No previously recorded prehistoric or historic sites have been identified within this buffer for the proposed transmission line corridor.

The proposed 115kV source line is proposed to the east of the substation site, and will be constructed within a one-quarter mile buffer around the proposed route in an area defined as the Northern Corridor shown on the attached map. The proposed corridor for the 115kV line is situated in various sections of Townships 5 & 6 South and Ranges 3, 4 & 5 West, on the USGS 7.5" Alberhill, Elsinore and Romoland quadrangles (see Figures 1-6). Much of the proposed route will be constructed along existing 115kV circuits, and will not require new construction.

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

However, new construction for the 115kV line may be necessary along Menifee Road between Newport Road and Scott Road (Figures 5 and 6). A cultural resources records search identified a number of previously recorded archaeological sites within the buffer area. SCE plans to avoid these resources to minimize any impacts that could result from the proposed construction of the 115kV source line.

Project location maps are enclosed as an attachment for your reference.

SCE would appreciate any information you may have regarding Native American cultural resources located in or near the proposed project location that could be affected by the proposed project. Any information concerning the identity, location, character, and traditional use of cultural places identified during consultation will be considered confidential.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist. If possible, for project planning purposes we would like to receive any questions or concerns regarding this project within the next two weeks. If we have not heard from you within 30 days of the receipt of this letter, we will assume that you do not wish to participate in further consultation.

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

John Marcus, Chairman
Santa Rosa Band of Mission Indians
P.O. Box 609
Hemet, CA 92546

February 17, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, including Sub-Transmission, and Transmission Feeder Lines, Riverside County, California

Dear Mr. Marcus:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. At the recommendation of the Native American Heritage Commission (NAHC), SCE requests your input regarding the identification of potential effects to cultural resources, sacred lands or other heritage sites within the project area.

The proposed substation is located north of Interstate 15 and Temescal Canyon Road near the community of Alberhill. The project is situated in Section 15, Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (Figure 1. Project area Overview and Figure 2.), and will consist of approximately 140 acres. The proposed substation site has been previously surveyed for cultural resources. This cultural resources study identified historic foundations and an historic-age house. These resources were subsequently evaluated and recommended as not eligible for listing on the California Register of Historic Resources (CRHR). A records search conducted with the Eastern Information Center, University of California Riverside did not yield any previously recorded prehistoric archaeological sites within the proposed substation property.

The proposed 500kV source line is located north of the proposed substation, and will connect to the existing Serrano-Valley 500kV circuit. A one-quarter mile buffer around the proposed 500kV source line is depicted as Conceptual Routes 500kV on the attached map. The proposed route is located in Sections 9, 10, 15, and 16 of Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (see Figures 1 and 2). No previously recorded prehistoric or historic sites have been identified within this buffer for the proposed transmission line corridor.

The proposed 115kV source line is proposed to the east of the substation site, and will be constructed within a one-quarter mile buffer around the proposed route in an area defined as the Northern Corridor shown on the attached map. The proposed corridor for the 115kV line is situated in various sections of Townships 5 & 6 South and Ranges 3, 4 & 5 West, on the USGS 7.5" Alberhill, Elsinore and Romoland quadrangles (see Figures 1-6). Much of the proposed route will be constructed along existing 115kV circuits, and will not require new construction.

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

However, new construction for the 115kV line may be necessary along Menifee Road between Newport Road and Scott Road (Figures 5 and 6). A cultural resources records search identified a number of previously recorded archaeological sites within the buffer area. SCE plans to avoid these resources to minimize any impacts that could result from the proposed construction of the 115kV source line.

Project location maps are enclosed as an attachment for your reference.

SCE would appreciate any information you may have regarding Native American cultural resources located in or near the proposed project location that could be affected by the proposed project. Any information concerning the identity, location, character, and traditional use of cultural places identified during consultation will be considered confidential.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist. If possible, for project planning purposes we would like to receive any questions or concerns regarding this project within the next two weeks. If we have not heard from you within 30 days of the receipt of this letter, we will assume that you do not wish to participate in further consultation.

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
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Mark Macarro, Chairperson
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, CA 92593

February 17, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, including Sub-Transmission, and Transmission Feeder Lines, Riverside County, California

Dear Mr. Macarro:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. At the recommendation of the Native American Heritage Commission (NAHC), SCE requests your input regarding the identification of potential effects to cultural resources, sacred lands or other heritage sites within the project area.

The proposed substation is located north of Interstate 15 and Temescal Canyon Road near the community of Alberhill. The project is situated in Section 15, Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (Figure 1. Project area Overview and Figure 2.), and will consist of approximately 140 acres. The proposed substation site has been previously surveyed for cultural resources. This cultural resources study identified historic foundations and an historic-age house. These resources were subsequently evaluated and recommended as not eligible for listing on the California Register of Historic Resources (CRHR). A records search conducted with the Eastern Information Center, University of California Riverside did not yield any previously recorded prehistoric archaeological sites within the proposed substation property.

The proposed 500kV source line is located north of the proposed substation, and will connect to the existing Serrano-Valley 500kV circuit. A one-quarter mile buffer around the proposed 500kV source line is depicted as Conceptual Routes 500kV on the attached map. The proposed route is located in Sections 9, 10, 15, and 16 of Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (see Figures 1 and 2). No previously recorded prehistoric or historic sites have been identified within this buffer for the proposed transmission line corridor.

The proposed 115kV source line is proposed to the east of the substation site, and will be constructed within a one-quarter mile buffer around the proposed route in an area defined as the Northern Corridor shown on the attached map. The proposed corridor for the 115kV line is situated in various sections of Townships 5 & 6 South and Ranges 3, 4 & 5 West, on the USGS 7.5" Alberhill, Elsinore and Romoland quadrangles (see Figures 1-6). Much of the proposed route will be constructed along existing 115kV circuits, and will not require new construction.

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

However, new construction for the 115kV line may be necessary along Menifee Road between Newport Road and Scott Road (Figures 5 and 6). A cultural resources records search identified a number of previously recorded archaeological sites within the buffer area. SCE plans to avoid these resources to minimize any impacts that could result from the proposed construction of the 115kV source line.

Project location maps are enclosed as an attachment for your reference.

SCE would appreciate any information you may have regarding Native American cultural resources located in or near the proposed project location that could be affected by the proposed project. Any information concerning the identity, location, character, and traditional use of cultural places identified during consultation will be considered confidential.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist. If possible, for project planning purposes we would like to receive any questions or concerns regarding this project within the next two weeks. If we have not heard from you within 30 days of the receipt of this letter, we will assume that you do not wish to participate in further consultation.

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Willie Pink
48310 Pechanga Road
Temecula, CA 92592

February 17, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, including Sub-Transmission, and Transmission Feeder Lines, Riverside County, California

Dear Mr. Pink:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. At the recommendation of the Native American Heritage Commission (NAHC), SCE requests your input regarding the identification of potential effects to cultural resources, sacred lands or other heritage sites within the project area.

The proposed substation is located north of Interstate 15 and Temescal Canyon Road near the community of Alberhill. The project is situated in Section 15, Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (Figure 1. Project area Overview and Figure 2.), and will consist of approximately 140 acres. The proposed substation site has been previously surveyed for cultural resources. This cultural resources study identified historic foundations and an historic-age house. These resources were subsequently evaluated and recommended as not eligible for listing on the California Register of Historic Resources (CRHR). A records search conducted with the Eastern Information Center, University of California Riverside did not yield any previously recorded prehistoric archaeological sites within the proposed substation property.

The proposed 500kV source line is located north of the proposed substation, and will connect to the existing Serrano-Valley 500kV circuit. A one-quarter mile buffer around the proposed 500kV source line is depicted as Conceptual Routes 500kV on the attached map. The proposed route is located in Sections 9, 10, 15, and 16 of Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (see Figures 1 and 2). No previously recorded prehistoric or historic sites have been identified within this buffer for the proposed transmission line corridor.

The proposed 115kV source line is proposed to the east of the substation site, and will be constructed within a one-quarter mile buffer around the proposed route in an area defined as the Northern Corridor shown on the attached map. The proposed corridor for the 115kV line is situated in various sections of Townships 5 & 6 South and Ranges 3, 4 & 5 West, on the USGS 7.5" Alberhill, Elsinore and Romoland quadrangles (see Figures 1-6). Much of the proposed route will be constructed along existing 115kV circuits, and will not require new construction. However, new construction for the 115kV line may be necessary along Menifee Road between

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

Newport Road and Scott Road (Figures 5 and 6). A cultural resources records search identified a number of previously recorded archaeological sites within the buffer area. SCE plans to avoid these resources to minimize any impacts that could result from the proposed construction of the 115kV source line.

Project location maps are enclosed as an attachment for your reference.

SCE would appreciate any information you may have regarding Native American cultural resources located in or near the proposed project location that could be affected by the proposed project. Any information concerning the identity, location, character, and traditional use of cultural places identified during consultation will be considered confidential.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist. If possible, for project planning purposes we would like to receive any questions or concerns regarding this project within the next two weeks. If we have not heard from you within 30 days of the receipt of this letter, we will assume that you do not wish to participate in further consultation.

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Chairperson
Soboba Band of Mission Indians
P.O. Box 487
San Jacinto, CA 92581

February 17, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, including Sub-Transmission, and Transmission Feeder Lines, Riverside County, California

Dear Mr./Ms. Chairperson:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. At the recommendation of the Native American Heritage Commission (NAHC), SCE requests your input regarding the identification of potential effects to cultural resources, sacred lands or other heritage sites within the project area.

The proposed substation is located north of Interstate 15 and Temescal Canyon Road near the community of Alberhill. The project is situated in Section 15, Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (Figure 1. Project area Overview and Figure 2.), and will consist of approximately 140 acres. The proposed substation site has been previously surveyed for cultural resources. This cultural resources study identified historic foundations and an historic-age house. These resources were subsequently evaluated and recommended as not eligible for listing on the California Register of Historic Resources (CRHR). A records search conducted with the Eastern Information Center, University of California Riverside did not yield any previously recorded prehistoric archaeological sites within the proposed substation property.

The proposed 500kV source line is located north of the proposed substation, and will connect to the existing Serrano-Valley 500kV circuit. A one-quarter mile buffer around the proposed 500kV source line is depicted as Conceptual Routes 500kV on the attached map. The proposed route is located in Sections 9, 10, 15, and 16 of Township 5 South, Range 5 West, as depicted on the USGS 7.5" Alberhill quadrangle (see Figures 1 and 2). No previously recorded prehistoric or historic sites have been identified within this buffer for the proposed transmission line corridor.

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P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

However, new construction for the 115kV line may be necessary along Menifee Road between Newport Road and Scott Road (Figures 5 and 6). A cultural resources records search identified a number of previously recorded archaeological sites within the buffer area. SCE plans to avoid these resources to minimize any impacts that could result from the proposed construction of the 115kV source line.

Project location maps are enclosed as an attachment for your reference.

SCE would appreciate any information you may have regarding Native American cultural resources located in or near the proposed project location that could be affected by the proposed project. Any information concerning the identity, location, character, and traditional use of cultural places identified during consultation will be considered confidential.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist. If possible, for project planning purposes we would like to receive any questions or concerns regarding this project within the next two weeks. If we have not heard from you within 30 days of the receipt of this letter, we will assume that you do not wish to participate in further consultation.

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

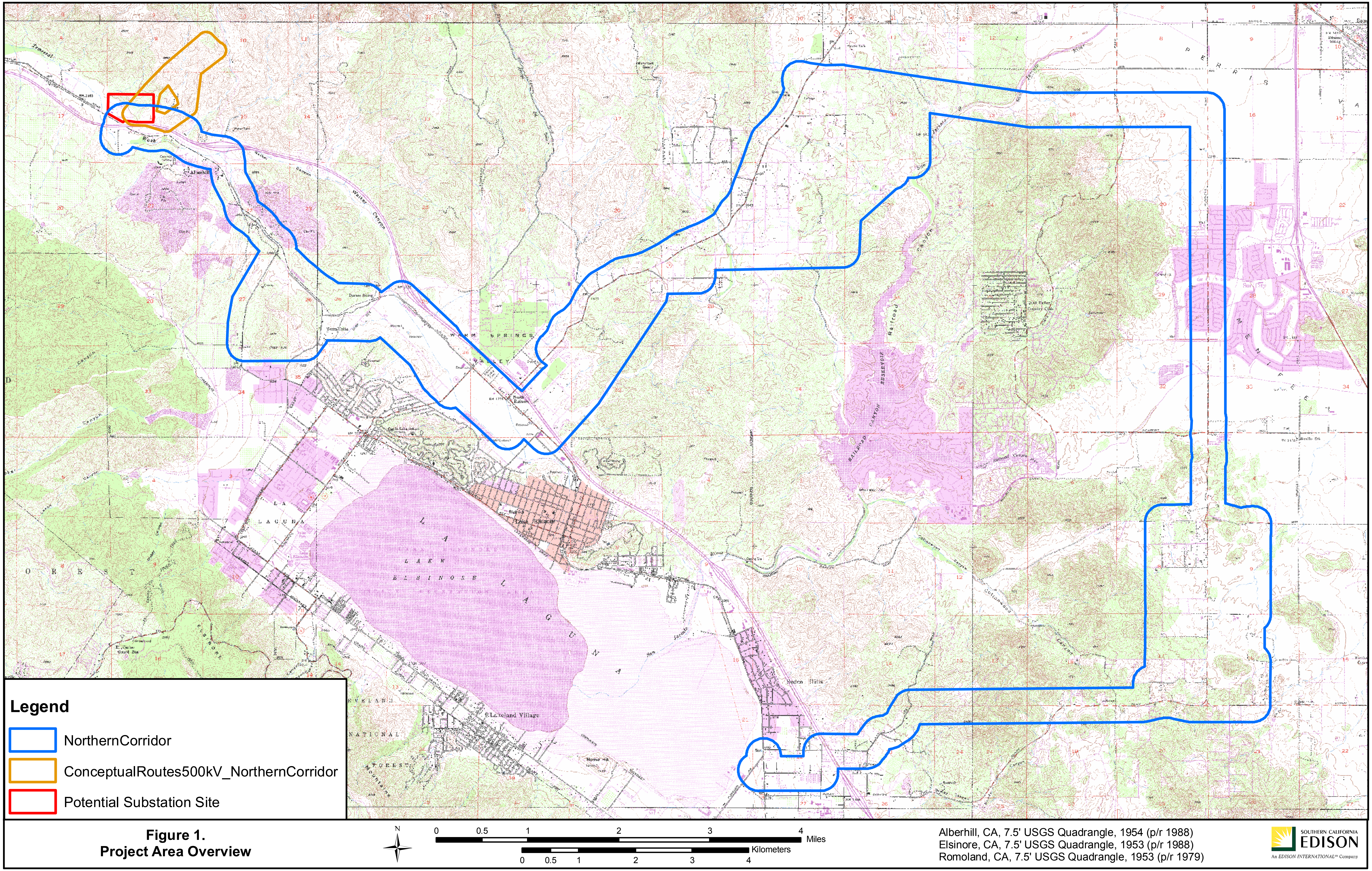

Figure 1.
Project Area Overview

Alberhill, CA, 7.5' USGS Quadrangle, 1954 (p/r 1988)
Elsinore, CA, 7.5' USGS Quadrangle, 1953 (p/r 1988)
Romoland, CA, 7.5' USGS Quadrangle, 1953 (p/r 1979)

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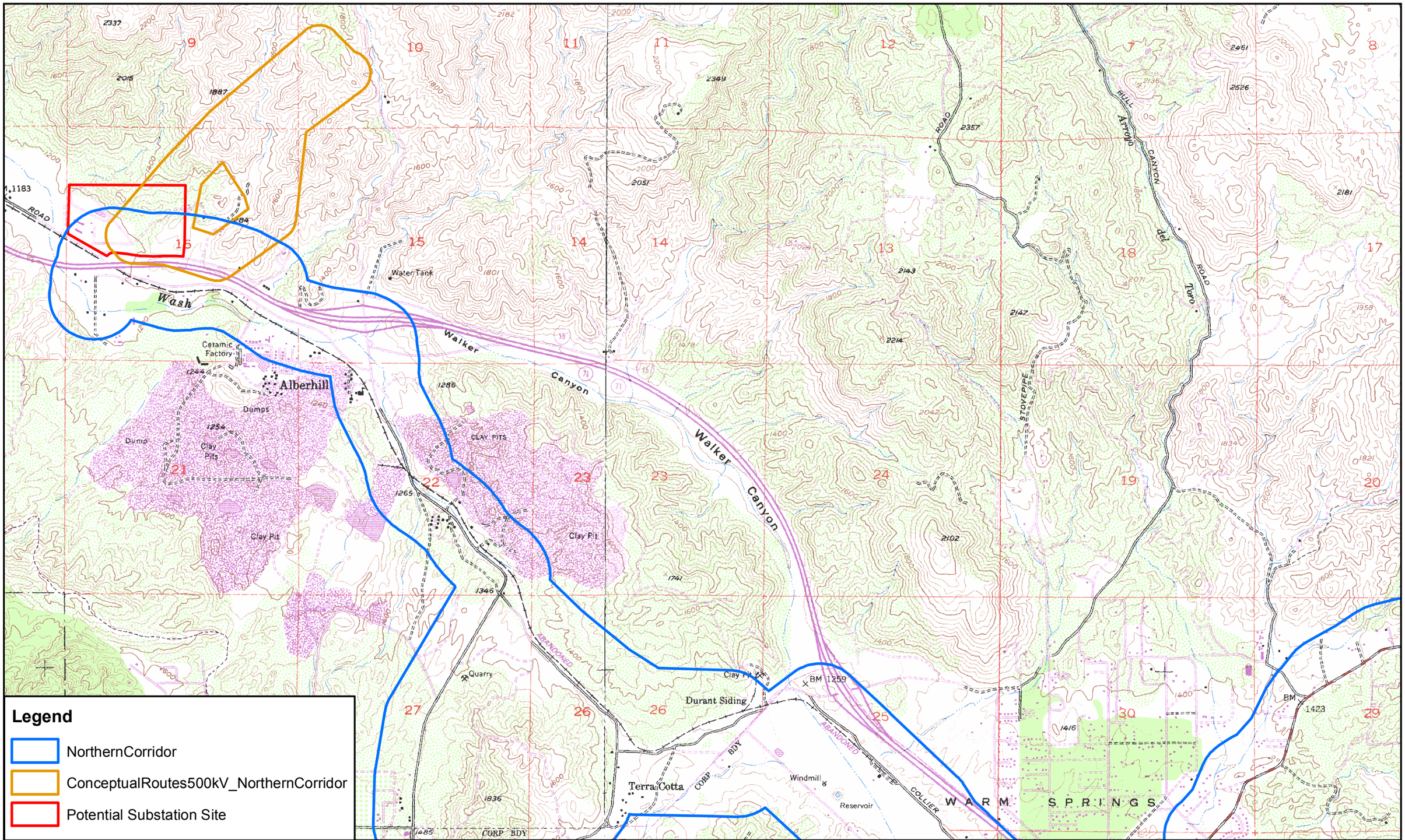

Figure 2.
Proposed Substation and Source Line Corridors

Alberhill, CA, 7.5' USGS Quadrangle, 1954 (p/r 1988)
Elsinore, CA, 7.5' USGS Quadrangle, 1953 (p/r 1988)

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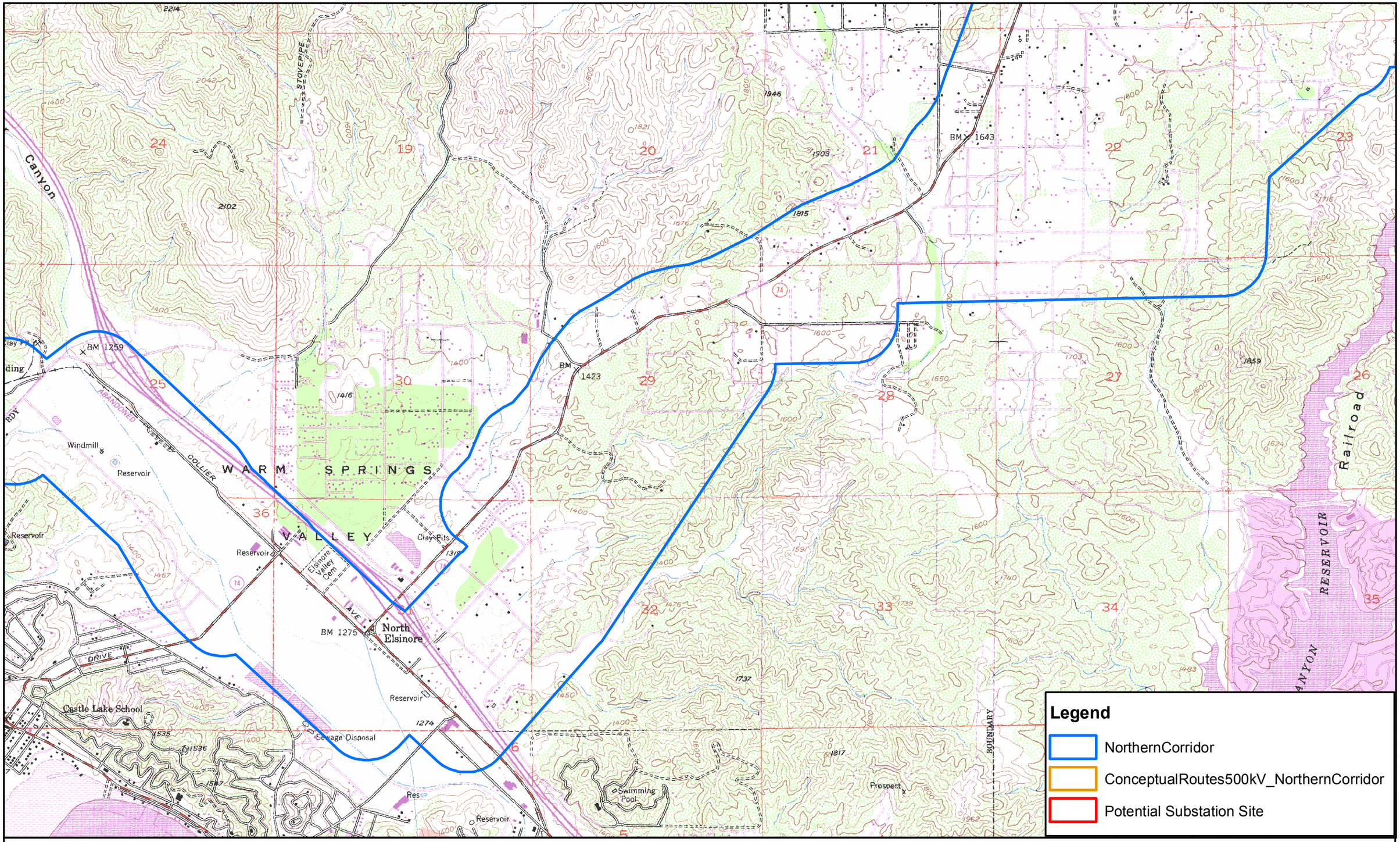

Figure 3.
Proposed Substation and Source Line Corridors

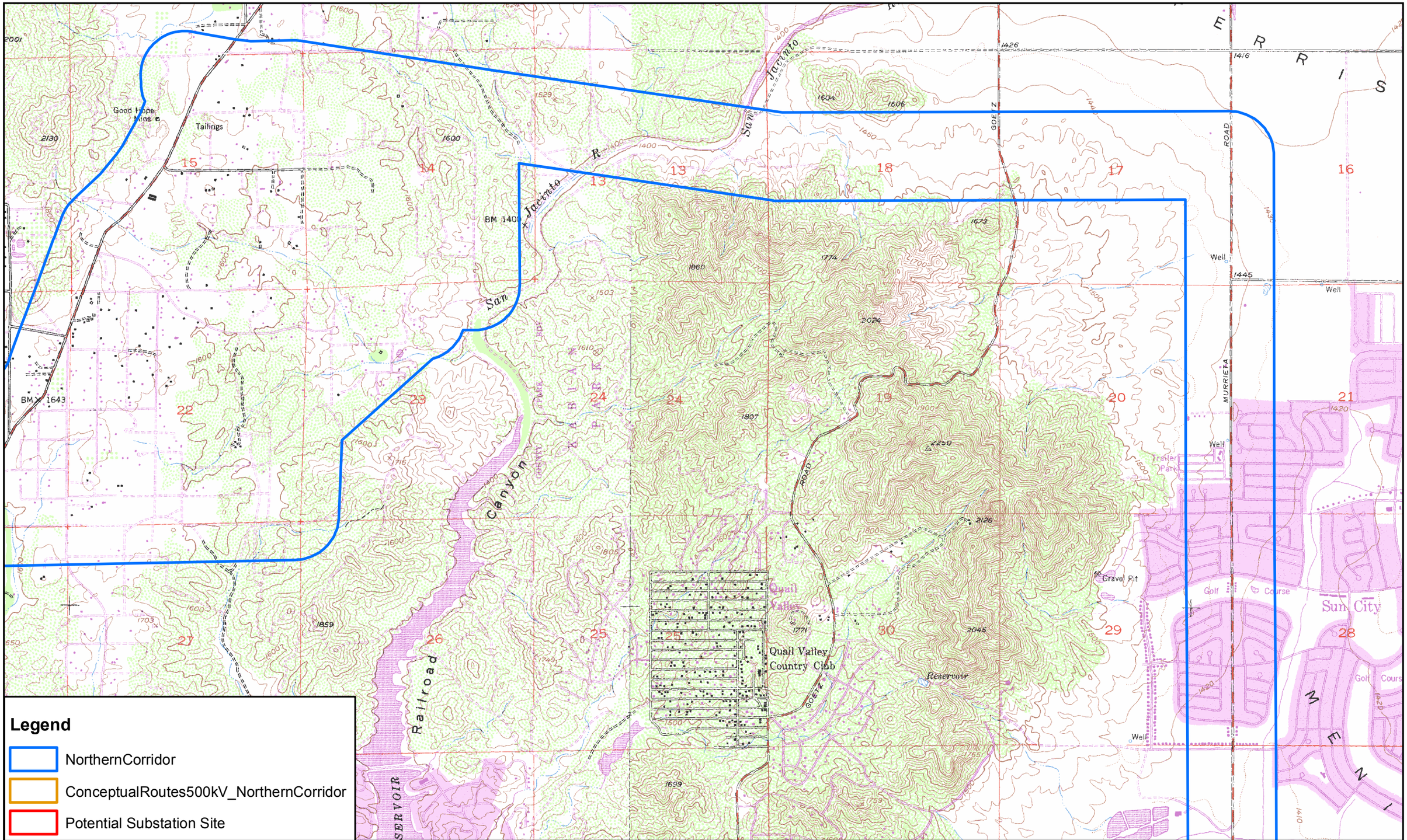

Figure 4.
Proposed Substation and Source Line Corridors

Elsinore, CA, 7.5' USGS Quadrangle, 1953 (p/r 1988)
Romoland, CA, 7.5' USGS Quadrangle, 1953 (p/r 1979)

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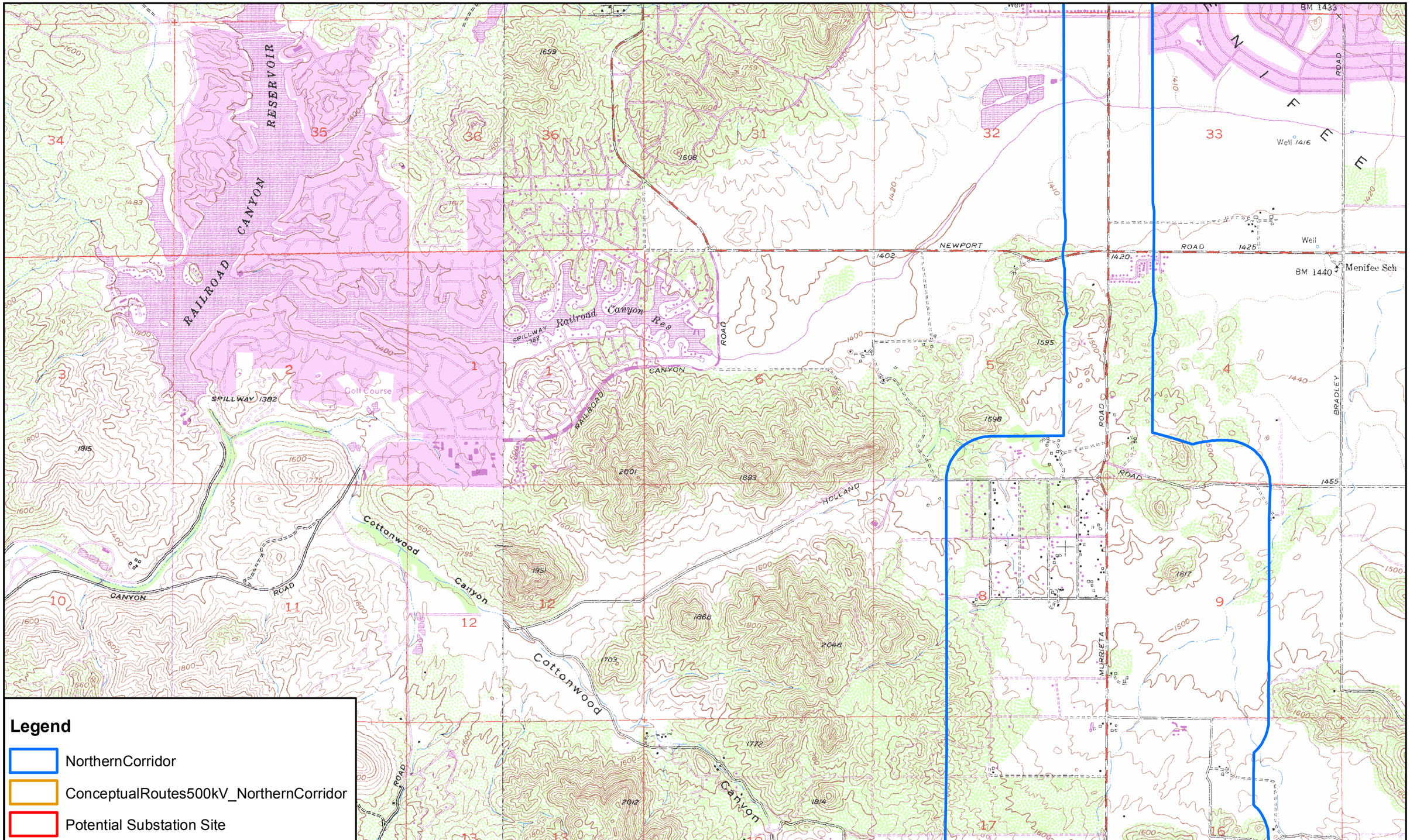

Legend

- NorthernCorridor
- ConceptualRoutes500kV_NorthernCorridor
- Potential Substation Site

Figure 5.
Proposed Substation and Source Line Corridors

N

0 0.5 1 2 Miles

0 0.5 1 2 Kilometers

Elsinore, CA, 7.5' USGS Quadrangle, 1953 (p/r 1988)
Romoland, CA, 7.5' USGS Quadrangle, 1953 (p/r 1979)

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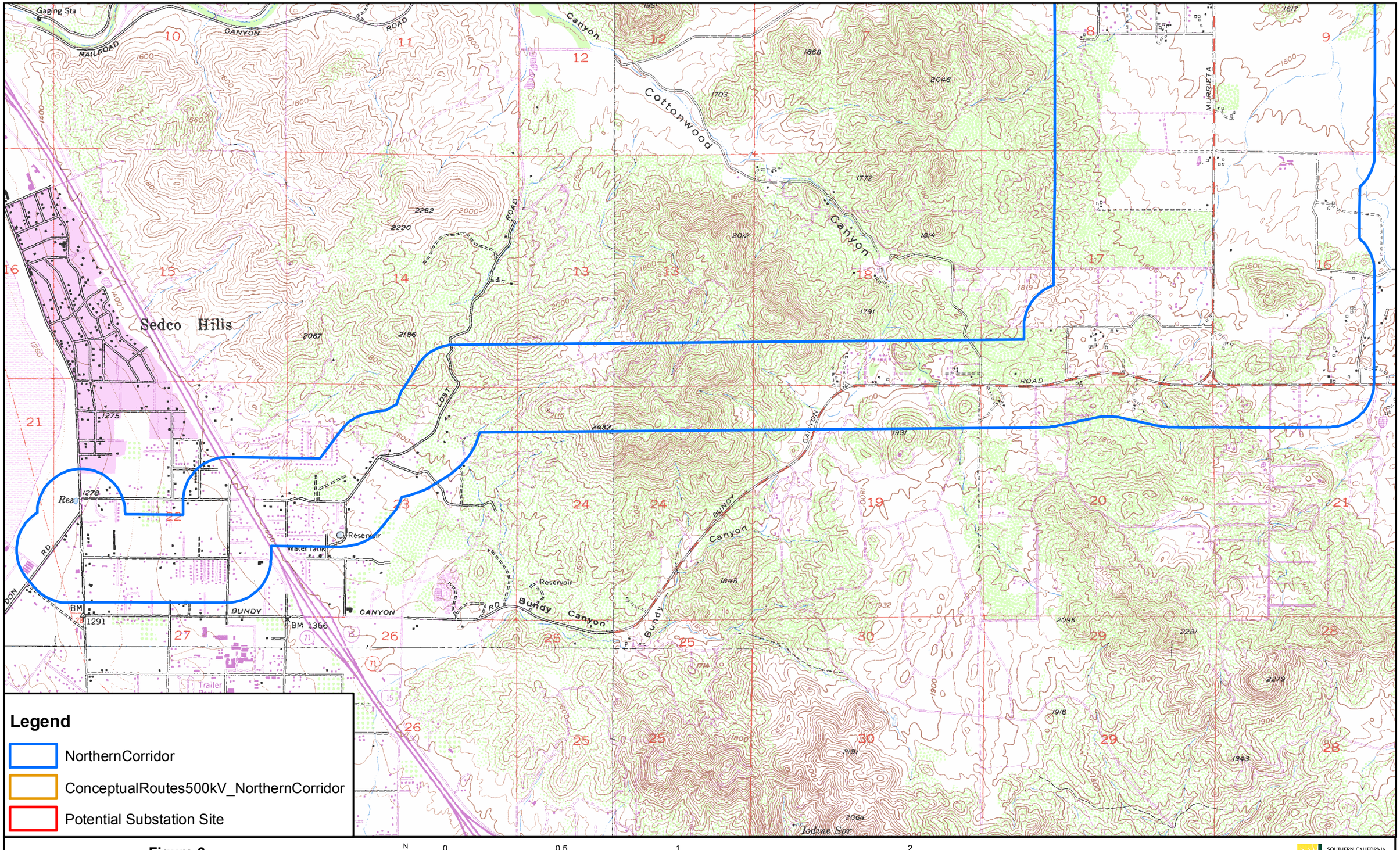

Figure 6.
Proposed Substation and Source Line Corridors

Elsinore, CA, 7.5' USGS Quadrangle, 1953 (p/r 1988)
Romoland, CA, 7.5' USGS Quadrangle, 1953 (p/r 1979)

SOUTHERN CALIFORNIA EDISON
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May 21, 2008
(6136)

Mr. Dave Singleton
Program Analyst
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

VIA FACSIMILE (916) 657-5390

Subject: **Lands File Search Request for the Proposed Alberhill Substation Project, Riverside County, California**

Dear Mr. Singleton:

Southern California Edison requests a review of the Sacred Lands File for the siting of the proposed Alberhill Substation in Riverside County, California.

The project area, as shown on the attached map, is located in:

Section 6 of Township 5 South and Range 6 West, and Sections 7, 8 and 16 of Township 5 South and Range 5 West of the San Bernardino Base Meridian on the U.S. Geological Survey 7.5' *Alberhill*, California topographic quadrangle sheet.

Please fax the results of this search to my attention at (626) 302-9130. For correspondence, please reference the project number of **6136**. If you have any questions regarding this request, please do not hesitate to contact me at (626) 302-7098. I can also be reached via email at koral.ahmet@sce.com. Thank you for your assistance with this project!

Sincerely,

Koral Ahmet, MA, RPA
Archaeologist
Southern California Edison
Corporate Environment Health & Safety

Attachment: As stated

2244 Walnut Grove Avenue
Rosemead, CA 91770
Phone: (626) 302-7098
Fax: (626) 302-9130
koral.ahmet@sce.com

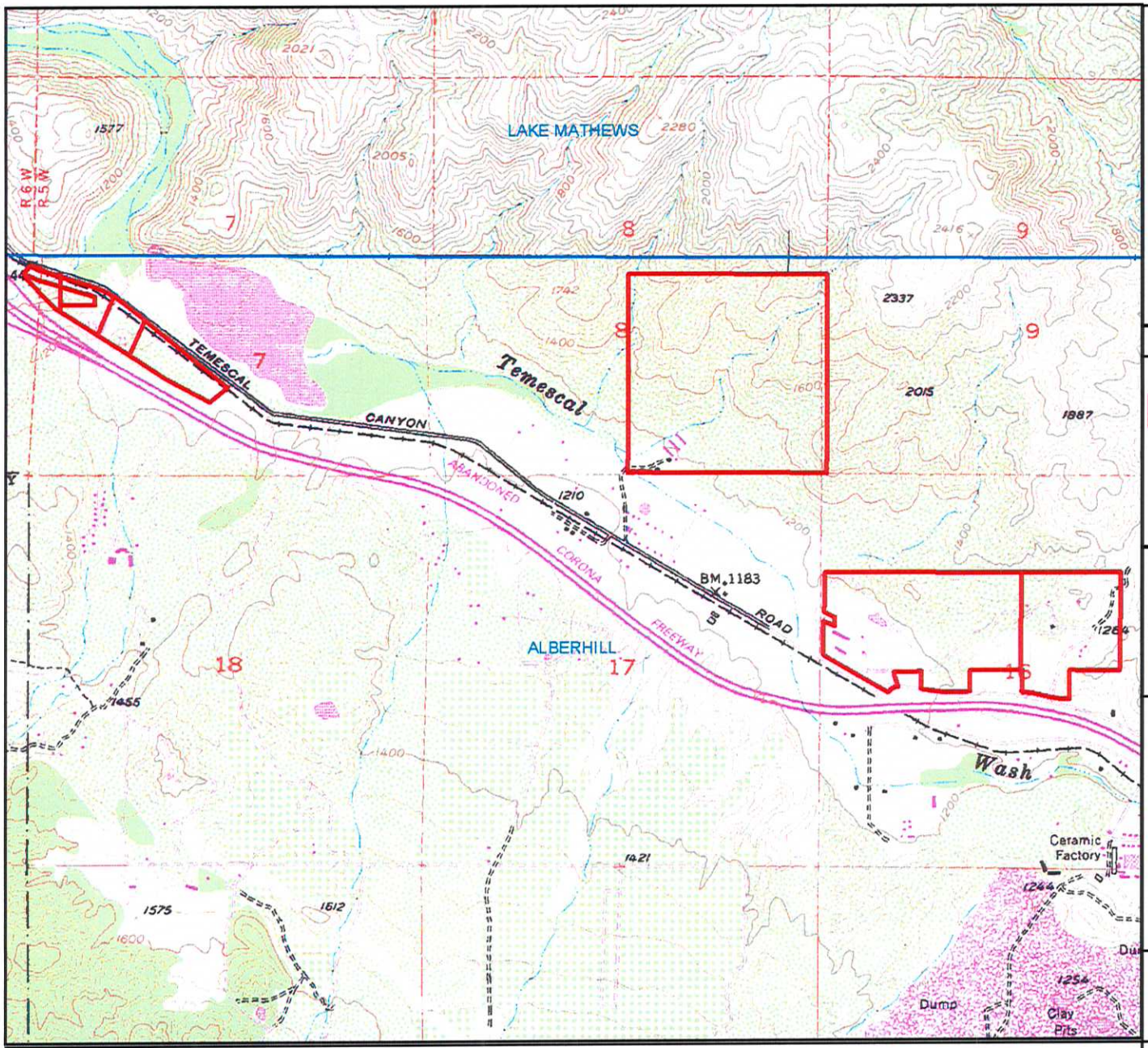

Figure 1 - Project Location Map

Cultural Resource Assessment for the Southern California Edison Proposed Alberhill Substation, Riverside County, California

Job# 6136

SE Quarter of Section 6 of Township 5 South and Range 6 West; SW Quarter of Section 7, SE Quarter of Section 8, and NW and NE Quarters of Section 16 of Township 5 South and Range 5 West (SB Base Meridian)

Alberhill USGS Topographic Quadrangle 1954 (p/r 1973)

Legend

Potential Substation Site

Issued For: TBDU

Prepared By: Koral Ahmet

Date: May 19, 2008

Project Number: 6136

Projection: NAD 83 UTM Zone 11

Index Map

Contains Transmission Information Distribution limited to FERC Standards of Conduct CONFIDENTIAL Contains Critical Electric Infrastructure Information If any questions contact Corporate Security (27875) for handling/storage requirements.

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

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
e-mail: ds_nahc@pacbell.net

May 22, 2008

Koral Ahmet
Southern California Edison
2244 Walnut Grove Ave.
Rosemead, CA 91700

Sent by FAX to: 626-302-9130
Number of pages: 3

Re: Proposed Alberhill Substation Project, Riverside County

Dear Mr. Ahmet:

The Native American Heritage Commission was able to perform a record search of its Sacred Lands File (SLF) for the affected project area. The SLF failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the Sacred Lands File does not guarantee the absence of cultural resources in any 'area of potential effect (APE).'

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 nearest tribes that may have knowledge of cultural resources in the project area. A List of Native American contacts are attached to assist you. The Commission makes no recommendation of a single individual or group over another. It is advisable to contact the person listed; if they cannot supply you with specific information about the impact on cultural resources, they may be able to refer you to another tribe or person knowledgeable of the cultural resources in or near the affected project area (APE).

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. 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 Contacts
Riverside County
May 22, 2008

Cahuilla Band of Indians
Anthony Madrigal, Jr., Chairperson
P.O. Box 391760 Cahuilla
Anza , CA 92539
tribalcouncil@cahuilla.net
(951) 763-2631

(951) 763-2632 Fax

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resource Center
P.O. Box 1477 Luiseno
Temecula , CA 92593
(951) 308-9295 Ext 8106
(951) 676-2768
(951) 506-9491 Fax

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, vice chairman
P.O. Box 391670 Cahuilla
Anza , CA 92539
admin@ramonatribe.com
(951) 763-4105
(951) 763-4325 Fax

Soboba Band of Mission Indians
Chairperson
P.O. Box 487 Luiseno
San Jacinto , CA 92581
dhill@soboba-nsn.gov
(951) 654-2765
(951) 654-4198 - Fax

Santa Rosa Band of Mission Indians
John Marcus, Chairman
P.O. Box 609 Cahuilla
Hemet , CA 92546
srtribaloffice@aol.com
(951) 658-5311
(951) 658-6733 Fax

Morongo Band of Mission Indians
Michael Contreras, Cultural Resources-Project
49750 Seminole Drive Cahuilla
Cabazon , CA 92230 Serrano
(951) 755-5206

(951) 922-8146 Fax

Cupa Cultural Center (Pala Band)
Shasta Gaughen, Assistant Director
35008 Pala-Temecula Rd.PMB Box 445 Luiseno
Pala , CA 92059
cupa@palatribe.com
(760) 742-1590
(760) 742-4543 - FAX

Pechanga Band of Mission Indians
Mark Macarro, Chairperson
P.O. Box 1477 Luiseno
Temecula , CA 92593
tbrown@pechanga-nsn.gov
(951) 676-2768
(951) 695-1778 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 propose Alberhill Substation Project located in Temescal Canyon, a Southern California Edison Project (#6136); Riverside County, Clalifornia for which a Sacred Lands File search and Native American Contacts! list were requested.

Native American Contacts
Riverside County
May 22, 2008

Willie Pink
48310 Pechanga Road Luiseno
Temecula , CA 92592
wjpink@hotmail.com
(909) 936-1216
Prefers e-mail contact

Soboba Band of Luiseno Indians
Erica Helms, Cultural Resources Manager
P.O. Box 487 Luiseno
San Jacinto , CA 92581
dhill@soboba-nsn.gov
(951) 654-2765
FAX: (951) 654-4198

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.

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SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Michael Contreras
Morongo Band of Mission Indians
49750 Seminole Drive
Cabazon, CA 92230

August 12, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, Revised 115kV Source Line Route, Riverside County, California

Dear Mr. Contreras:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. SCE initially sent consultation letters to the tribe in February 17, 2009. Since then the scope for the 115kV subtransmission lines of the project has changed, and a new route was added. The location of the substation and the proposed 500kV transmission source lines for the project remains as proposed. SCE feels obliged to inform you of the recent changes to the project.

At the recommendation of the Native American Heritage Commission (NAHC), SCE requests your input regarding the identification of potential effects to cultural resources, sacred lands or other heritage sites within the revised project area.

The additional 115kV subtransmission line is located south of Interstate 15 from the intersection of Third Street and Collier Avenue, and will terminate in Skylark Substation (an existing substation) at the intersection of Mission Trail and Waite Street (Figure 1.). This additional new line is an existing 115kV circuit which will be rebuilt with larger poles to support a double-circuit subtransmission line for the Alberhill system.

SCE would appreciate any information you may have regarding Native American cultural resources located in or near the new additional route that could be affected by the proposed project. Any information concerning the identity, location, character, and traditional use of cultural places identified during consultation will be considered confidential.

We encourage you to participate in this process. The potential impacts that this project may have on cultural resources important to the Native American community cannot be evaluated unless we are aware the resource(s) exist. If possible, for project planning purposes we would like to receive any questions or concerns regarding this project within the next two weeks. If we have not heard from you within 30 days of the receipt of this letter, we will assume that you do not wish to participate in further consultation.

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Shasta Gaughen, Assistant Director
Cupa Cultural Center (Pala Band)
35008 Pala-Temecula Road
PMB Box 445
Pala, CA 92059

August 12, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, Revised 115kV Source Line Route, Riverside County, California

Dear Ms. Gaughen:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. SCE initially sent consultation letters to the tribe in February 17, 2009. Since then the scope for the 115kV subtransmission lines of the project has changed, and a new route was added. The location of the substation and the proposed 500kV transmission source lines for the project remains as proposed. SCE feels obliged to inform you of the recent changes to the project.

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P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Joseph Hamilton, Vice Chairman
Ramona Band of Cahuilla Mission Indians
P.O. Box 391670
Anza, CA 92539

August 12, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, Revised 115kV Source Line Route, Riverside County, California

Dear Mr. Hamilton:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. SCE initially sent consultation letters to the tribe in February 17, 2009. Since then the scope for the 115kV subtransmission lines of the project has changed, and a new route was added. The location of the substation and the proposed 500kV transmission source lines for the project remains as proposed. SCE feels obliged to inform you of the recent changes to the project.

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P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Paul Macarro
Cultural Resource Center
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, CA 92593

August 12, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, Revised 115kV Source Line Route, Riverside County, California

Dear Mr. Macarro:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. SCE initially sent consultation letters to the tribe in February 17, 2009. Since then the scope for the 115kV subtransmission lines of the project has changed, and a new route was added. The location of the substation and the proposed 500kV transmission source lines for the project remains as proposed. SCE feels obliged to inform you of the recent changes to the project.

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P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Anthony Madrigal, Jr., Chairperson
Cahuilla Band of Indians
P.O. Box 391760
Anza, CA 92539

August 13, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, Revised 115kV Source Line Route, Riverside County, California

Dear Mr. Madrigal:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. SCE initially sent consultation letters to the tribe in February 17, 2009. Since then the scope for the 115kV subtransmission lines of the project has changed, and a new route was added. The location of the substation and the proposed 500kV transmission source lines for the project remains as proposed. SCE feels obliged to inform you of the recent changes to the project.

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P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

John Marcus, Chairman
Santa Rosa Band of Mission Indians
P.O. Box 609
Hemet, CA 92546

August 12, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, Revised 115kV Source Line Route, Riverside County, California

Dear Mr. Marcus:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. SCE initially sent consultation letters to the tribe in February 17, 2009. Since then the scope for the 115kV subtransmission lines of the project has changed, and a new route was added. The location of the substation and the proposed 500kV transmission source lines for the project remains as proposed. SCE feels obliged to inform you of the recent changes to the project.

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P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Mark Macarro, Chairperson
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, CA 92593

August 12, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, Revised 115kV Source Line Route, Riverside County, California

Dear Mr. Macarro:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. SCE initially sent consultation letters to the tribe in February 17, 2009. Since then the scope for the 115kV subtransmission lines of the project has changed, and a new route was added. The location of the substation and the proposed 500kV transmission source lines for the project remains as proposed. SCE feels obliged to inform you of the recent changes to the project.

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P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

Chairperson
Soboba Band of Mission Indians
P.O. Box 487
San Jacinto, CA 92581

August 12, 2009

SUBJECT: Native American Consultation Regarding the Proposed Alberhill Substation Project, Revised 115kV Source Line Route, Riverside County, California

Dear Chairperson:

Southern California Edison (SCE) proposes to construct a new 500/115kV Alberhill electric power substation and source lines near the Cities of Lake Elsinore, Sun City and the community of Alberhill in Riverside County, California. SCE initially sent consultation letters to the tribe in February 17, 2009. Since then the scope for the 115kV subtransmission lines of the project has changed, and a new route was added. The location of the substation and the proposed 500kV transmission source lines for the project remains as proposed. SCE feels obliged to inform you of the recent changes to the project.

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P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

If you have any questions, please feel free to call me at (626) 302-1154 or via e-mail at sara.bholat@sce.com. Thank you for your assistance and participation in this project.

Sincerely,

Sara Bholat, MPH
Archaeologist
Southern California Edison
Corporate Environment, Health and Safety

Enclosure: as stated

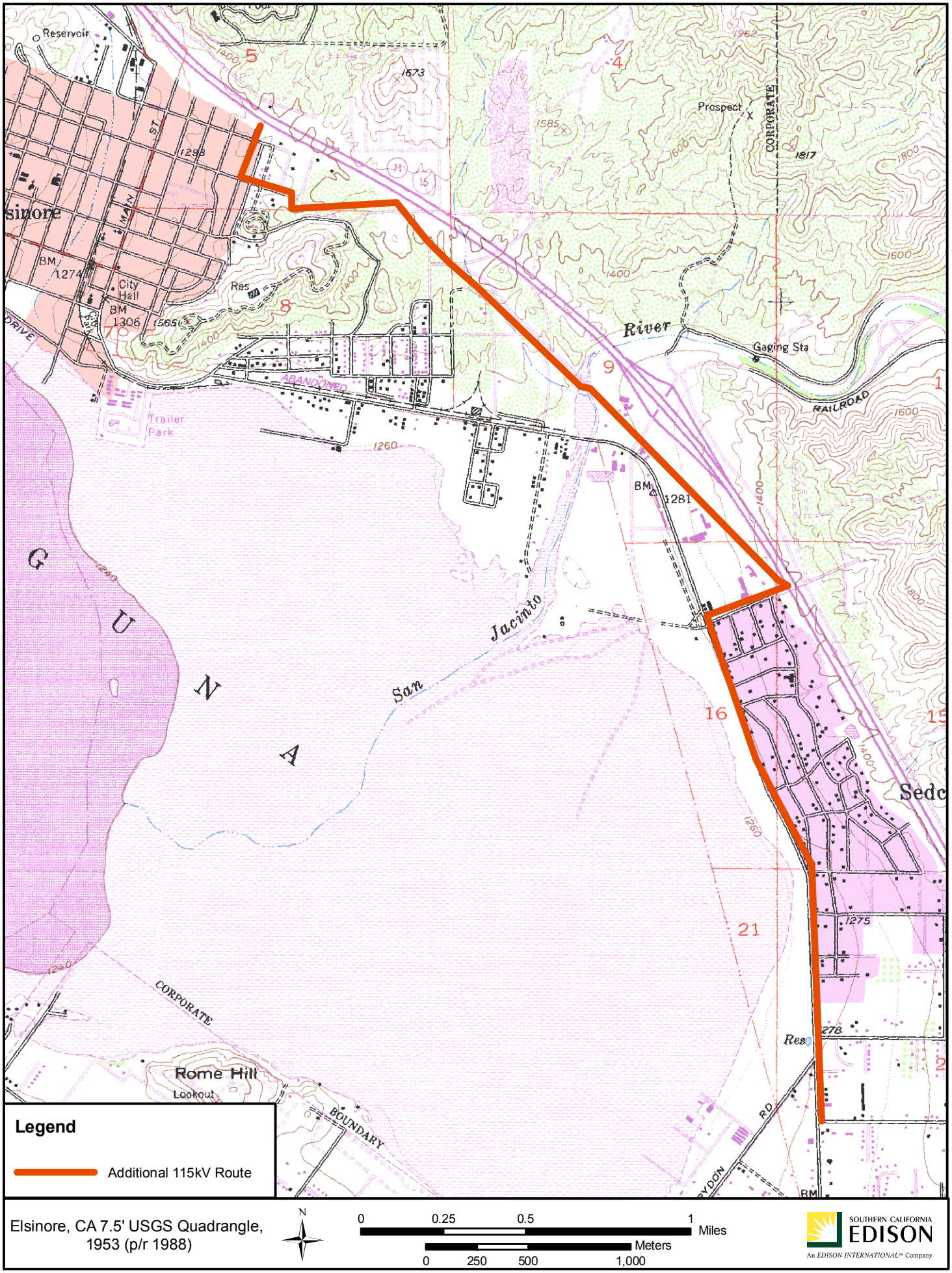

Figure 1. Additional 115kV Route for Alberhill Substation System

PECHANGA CULTURAL RESOURCES
Temecula Band of Luiseño Mission Indians

Post Office. Box 2183 • Temecula, CA 92593
Telephone (951) 308-9295 • Fax (951) 506-9491

April 29, 2009

VIA E-Mail and USPS

RE: Request for Information for the Alberhill Substation Project, including Sub-Transmission and Transmission Feeder Lines (SCE)

Dear Ms. Bholat:

The Pechanga Band of Luiseño Indians ("the Tribe") appreciates your request for information regarding the above referenced project. After reviewing the provided maps and internal documents, we have determined that the project area is not within reservation lands, although it is within our ancestral territory.

Currently, we are interested in commenting and participating in this project based upon traditional knowledge of the area and extensive recorded sites and sensitive cultural resources within the region and the provided buffer zone. The entire proposed Project area is located within a highly culturally sensitive area that contains two (2) known village sites with associated smaller domestic activity areas.

At this time, the Tribe requests the following:

1) Notification once the Project begins the entitlement process, if it has not already;

2) Copies of all applicable archaeological reports, site records, proposed grading plans and environmental documents (PEA/EIR, etc);

3) Participation in all survey and excavation activities including but not limited to archaeological surveys, excavations and geological testing studies.

4) Government to government consultation with the Lead Agency; and

5) The Tribe believes that monitoring by the Pechanga Tribe and a qualified archaeologist may be required during earthmoving activities. The Tribe reserves its right to make additional comments and recommendations once the environmental documents have been received and fully reviewed. In the event that subsurface cultural resources are identified, the Tribe requests consultation with the project proponent and Lead Agency regarding the treatment and disposition of all artifacts.

As a sovereign governmental entity, the Tribe is entitled to appropriate and adequate government-to-government consultation regarding the proposed project. The Tribe does not consider initial inquiry letters from project consultants or applicants to constitute appropriate

government-to-government consultation, but rather tools to obtain further information about the project area. Therefore, the Tribe reserves its rights to fully participate in the formal environmental review process, including government-to-government consultation with the Lead Agency, as well as providing further comment on the Project's impacts to cultural resources and potential mitigation for such impacts. We request to be included in all correspondence regarding this project. Further, the Tribe reserves the right to participate in the regulatory process and provide comment on issues pertaining to the regulatory process and Project approval.

If you have any additional questions or comments, please contact me at ahoover@pechanga-nsn.gov or 951-308-9252 X8104.

Sincerely,

Anna M. Hoover
Cultural Analyst

Cc: Pechanga Office of the General Counsel
Brenda Tomaras, Tomaras & Ogas, LLP

PALA BAND OF MISSION INDIANS
Tribal Historic Preservation Office
35008 Pala Temecula Rd. PMB 445
Pala, CA 92059

Ph: (760) 891-3591
Fax: (760) 742-4543

March 23, 2009

Sarah Bholat, MPH
Archaeologist
Southern California Edison
PO Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

Re: Proposed Alberhill Substation Project

Dear Ms. Bholat:

The Pala Band of Mission Indians Tribal Historic Preservation Office has received your notification of the project referenced above. This letter constitutes our response on behalf of Robert Smith, Tribal Chairman.

We have consulted our maps and determined that the project as described is not within the boundaries of the recognized Pala Indian Reservation. The project is also beyond the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Therefore, we have no objection to the continuation of project activities as currently planned and we defer to the wishes of Tribes in closer proximity to the project area.

We appreciate involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact me by telephone at 760-891-3591 or by e-mail at sgaughen@palatribe.com.

Sincerely,

Shasta C. Gaughen, MA
Tribal Historic Preservation Officer
Pala Band of Mission Indians

environmentalofficer@cahuilla.net
08/24/2009 02:59 PM

To sara.bholat@sce.com
cc
bcc
Subject Proposed Alberhill Substation Project

Sara Bholat, MPH
Archaeologist
Southern California Edison
2244 Walnut Grove Ave.
Rosemead, CA 9170

Re: Native American Consultation Regarding the Proposed Alberhill Substation Project, Revised 115k V Source Line Route, Riverside County, California

Dear Ms. Bholat:

Thank you for contacting the Cahuilla Band of Indians concerning the above referenced project. The Cahuilla Environmental Protection Office has assessed the information you provided concerning:

We have determined that even though this project is outside the Cahuilla Indian Reservation territory, it is not outside the Traditional Use Area for the Cahuilla Band of Indians. We request copies of cultural resource documents and reports. We appreciate you observance of Tribal resources as it relates to cultural heritage and preservation.

Respectfully,

Yvonne L. Markle
Environmental Office Manager
Cahuilla Tribal Environmental Protection Office
P.O. Box 391741
Anza, CA 92539
environmentalofficer@cahuilla.net

August 20, 2009

Attn: Sara Bholat, MPH
Archaeologist
Southern California Edison
P.O. Box 800
2244 Walnut Grove Ave.
Rosemeand, Ca 91770

Re: Native American Consultation Regarding the Proposed Alberhill Substation Project, Revised 115k Source Line Route, Riverside County, California

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Tribal Traditional Use Areas. This project location is in close proximity to known village sites and is a shared use area that was used in ongoing trade between the Luiseno and Cahuilla tribes. Therefore it is regarded as highly sensitive to the people of Soboba.

Soboba Band of Luiseño Indians is requesting the following:

1. **Government to Government** consultation in accordance to SB18. Including the transfer of information to the Soboba Band of Luiseno Indians regarding the progress of this project should be done as soon as new developments occur.

2. Soboba Band of Luiseño Indians continue to be a lead consulting tribal entity for this project.

3. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department to be present during any ground disturbing proceedings. Including surveys and archaeological testing.

4. Request that proper procedures be taken and requests of the tribe be honored (Please see the attachment)

Sincerely,

Joseph Ontiveros
Soboba Cultural Resource Department
P.O. Box 487

San Jacinto, CA 92581
Phone (951) 654-5544 ext. 4137
Cell (951) 663-5279
jontiveros@soboba-nsn.gov

Cultural Items (Artifacts). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer should agree to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

The Developer should waive any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. Upon completion of authorized and mandatory archeological analysis, the Developer should return said artifacts to the Soboba Band within a reasonable time period agreed to by the Parties and not to exceed (30) days from the initial recovery of the items.

Treatment and Disposition of Remains. Given that Native American human remains have been found during development of the Project and the Soboba Band has been designated the MLD, the following provisions shall apply to the Parties:

A. The Soboba Band shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

E. The term "human remains" encompasses more than human bones because the Soboba Band's traditions periodically necessitated the ceremonial burning of human remains. Grave goods are those artifacts associated with any human remains. These items, and other funerary remnants and their ashes are to be treated in the same manner as human bone fragments or bones that remain intact

Coordination with County Coroner's Office. The Lead Agencies and the Developer should immediately contact both the Coroner and the Soboba Band in the event that any human remains are discovered during implementation of the Project. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c).

Non-Disclosure of Location Reburials. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).

Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

Soboba Cultural Resource Department

SOBOBA BAND OF LUISEÑO INDIANS
EST. JUNE 19, 1883

February 11, 2009

Attn: Sara Bholat, MPH
Archaeologist
Southern California Edison
P.O. Box 800
2244 Walnut Grove Ave.
Rosemeand, Ca 91770

Re: PROPOSED ALBERHILL SUBSTATION PROJECT, INCLUDING SUB-TRANSMISSION, AND TRANSMISSION FEEDER LINES, RIVERSIDE COUNTY, CALIFORNIA

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Luiseño Tribal Traditional Use Areas. It is in close proximity to other known sites and is a shared use area that was used in ongoing trade between the Luiseno bands, not considered as a location occupied by one existing band, but rather the Luiseno Tribe. For these reasons the site is regarded as sensitive to the people of Soboba for the possibility of unanticipated finds.

Soboba Band of Luiseño Indians is requesting the following:

1. **Government to government** consultation. Meaning the transfer of information to the Soboba Band of Luiseno Indians regarding the progress of this project should be done as soon as new developments occur.

2. Soboba Band of Luiseño Indians be regarded as the lead consulting tribal entity for this project.

3. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department to be present during any ground disturbing proceedings. Including surveys and archaeological testing.

4. Request that proper procedures be taken and requests of the tribe be honored (Please see the attachment)

Sincerely,

Joseph Ontiveros
Soboba Cultural Resource Department
P.O. Box 487
San Jacinto, CA 92581
Phone (951) 654-5544 ext. 4137
Cell (951) 663-5279

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B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

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Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Sara Bholat
Title: Archaeologist
Dated: 10/28/2009

Question 20: (1.20)

Cultural Resources
Appendix J

The letter to the Native American Heritage Commission requesting a review of the Sacred Lands File identifies only the proposed and alternative substation locations but does not identify areas where ground would be disturbed for construction of the transmission and subtransmission lines. Verify that a brief position statement was requested from the Native American Heritage Commission regarding all areas of the project where ground disturbance may occur, including the transmission and subtransmission lines. Provide the written responses from the Native American Heritage Commission and any Native American tribes contacted, or provide a statement of Southern California Edison Company's understanding of their positions.

Response to Question 20:

SCE conducted a Sacred Lands File (SLF) search of the proposed substation location, however SCE did not conduct a second sacred lands file search with the Native American Heritage Commission (NAHC) regarding the transmission and subtransmission lines. During the initial SLF search NAHC identified a number of Native American Tribes within the San Bernardino and Riverside Counties. SCE consulted with the all the Native American Tribes/groups/individuals identified by NAHC. The consultation was done in two phases. The first consultation, sent in February 17, 2009, covered the proposed substation, the proposed and alternate transmission corridors, and the proposed and alternate subtransmission corridors. The second consultation, sent in August 12, 2009, included additional routes identified during siting process. Because of these direct consultation efforts with the tribes, SCE did not see the need to consult with NAHC regarding the transmission and subtransmission routes. In addition, the project area with all the proposed and alternatives are within the ethnographic regions/territories of the Native American Tribes/groups identified by NAHC, therefore, if any scared lands or traditional cultural properties significant to the tribes are present within or near the proposed project, then the tribes/groups have the opportunity to directly notify SCE. Attached are the two phases of the Native American Consultation efforts by SCE and the responses by the interested tribes/groups. Also attached is the NAHC SLF search letter.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 10/28/2009

Question 21: (1.21)

Hazards and Hazardous Materials
Page 4-153

Provide a Phase I site assessment (ASTM E1527 or other equivalent assessment method) for the proposed linear appurtenances to determine whether there are any environmental concerns. If the Phase I identifies conditions, concerns, or data gaps requiring additional site assessment to adequately characterize these areas, then additional site assessment work (i.e., Phase 2) may also be required.

Response to Question 21:

SCE typically conducts Phase I/Phase II Environmental Site Assessments when acquiring property in fee or in easement. Because the construction of new and modification of existing 115 kV subtransmission lines would occur within existing rights-of-way, SCE would not conduct a Phase I prior to construction. As described in Section 3.9, Worker Environmental Awareness Training, SCE would provide instructions to all site workers to notify the foreman and the SCE regional spill response coordinator in case of discovery of soil or groundwater contamination during construction.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-003

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 01: (3.1, 1.2)

When the Alberhill System project is viewed from the perspective of the final 115kV system configuration, one has to note both the open/unused 115kV line sections and what appear to be relatively lightly utilized 115kV line sections. These concerns have been identified in correspondence to the Commission, and therefore the Commission seeks clarification as to the need for some of the elements of the Valley-Ivyglen project in light of the 115kV system resulting from completion of the Alberhill System project.

In an effort to identify a system that would minimize the above issues, the 115kV system configurations noted in the attached diagrams were developed. These configurations are designed to take advantage of existing lines and rights-of-way, rebuilding lines where required and limiting the need for new construction or right-of-way. The configuration in Figure 1 is one of a number of possible alternatives that could address the above issue. For example the "tap" point between Fogarty and Elsinore could be moved to the Alberhill - Skylark line, as noted in Figure 2. Or a fifth line from Alberhill to the tap point could be constructed, as in Figure 3. The common thread between these three alternatives is the elimination of at least the portion of the new Valley to Ivyglen line between the tap point and Valley, relying on the existing 115kV line (rebuilt where necessary) for the connection back to one side of Newcomb.

The Commission requests that SCE perform necessary system studies (power flow, etc) to determine of any of the above system configurations meet applicable reliability standards and a) document the system assumptions, b) report study results, and c) provide the Commission with its findings as to the feasibility regarding each system configuration.

Response to Question 01:

Addressed through presentation given to CPUC staff and consultants on Dec. 14, 2009. See attachments: Powerpoint presentation and supporting narrative Word document.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 10/28/2009

Question 04: (1.4)

Project Description
Pages 2-2, 2-7, Figure 2.2

Provide a detailed description of the proposed and alternative transmission line routes. Maps provided are not sufficiently detailed to determine environmental effects. Provide maps of suitable scale of the proposed and alternative transmission line routes. Show details of the right-of-way in the vicinity of settled areas, parks, recreational areas, scenic areas, and existing electrical transmission lines within 1 mile of the proposed routes and substation. Indicate how and where the transmission lines would connect with the substation. Indicate how and where the transmission lines would connect with the existing Serrano-Valley transmission line. Discuss the changes to the existing Serrano-Valley transmission line that would be required.

Response to Question 04: (1.4)

PTCs require that maps showing populated areas, parks, recreational areas, scenic areas, and existing electrical transmission lines within 300 feet of the proposed route or substation location be shown.

As described in the PTC Application:

Regional (Figure 1.1) and Project area (Figures 2.1, 2.2, 2.4 and 3.3) maps are provided in the PEA.

Maps of current land use including designation of parks, recreational, and scenic areas are provided as Figures 4.9, 4.1-1, and 4.14.

Maps of the substation and the proposed power lines showing the proximity to existing electrical transmission and power lines are provided as Figures 2.1, 2.2 and 2.4.

In addition, detailed maps of the transmission line segments are presented as Appendix D of the PEA.

The 500 kV line segments connection to the Serrano-Valley 500 kV transmission line is described in PEA Section 3.1.2, 500 kV Transmission Line Connection.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-001

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 10/28/2009

Question 05: (1.5)

Project Description
Pages 2-7 through 2-11, Figure 2.4

Provide a detailed description of the proposed subtransmission line routes. Maps provided are not sufficiently detailed to determine environmental effects. Provide maps of suitable scale of the proposed and alternative subtransmission line routes. Show details of the right-of-way in the vicinity of settled areas, parks, recreational areas, scenic areas, and existing electrical transmission lines within 1 mile of the proposed routes and substation. Indicate how and where the 115 kV subtransmission lines would connect with each other and with the proposed substation.

Response to Question 05: (1.5)

PTCs require that m aps showing populated areas, parks, recreational areas, scenic areas, and existing electrical transmission lines within 300 feet of the proposed route or substation location be shown.

As described in the PTC Application:

Regional (Figure 1.1) and Project area (Figures 2.1, 2.2, 2.4 and 3.3) m aps are provided in the PEA.

Maps of current land use including designation of parks, recreational , and scenic areas are provided as Figures 4.9, 4.1-1, and 4.14.

Maps of the substation and the proposed power lines showing the proximity to existing electrical transmission and power lines are provided as Figures 2.1, 2.2 and 2.4.

As described in PEA Section 3.1.3, 115 kV Subtra nsmission Line Description, m ost of the 115 kV construction would occur on existing facilities or within existing alignm ents. The connection of the new segment is described Section 3.1.3.3, New Subtransmission Lines.

A schematic of all connections can be found on PEA Figure 2.3.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 06: (4.13, 4.14, 4.15, 4.16)

In SCE's response to CPUC DR2, Q4, SCE shows for 2008 a recorded MVA of 1384.
Please explain how SCE arrived at this number?
Please provide all the inputs that went into it.
Please provide any formulas used to arrive at the number.

Response to Question 06: (4.13, 4.14, 4.15, 4.16)

Question No.4 of CPUC DR2 asked what the load projections for Riverside County were for the year 2005 through 2020. SCE's loads are captured at specific electric system levels versus that of the county level, and as such, SCE provided the load projections for what was most representative of what was asked for (Valley System in total). The data provided were the recorded and 1-in-5 year heat storm projected values. The particular value of 1384 MVA is the sum of the recorded values of the Valley North and Valley South 115 kV Systems for the year 2008 (597 MVA and 787 MVA respectively).

The only inputs were the recorded peak load values for the Valley North 115 kV System (597 MVA) and the Valley South 115 kV System (787 MVA).

The only formula used was the addition of the recorded peak load values for each system (597 MVA + 787 MVA = 1384 MVA).

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 10: (4.21)

In light of your answer to CPUC DR2, Q4, please reconcile it with SCE's answer to CPUC Q&A submitted on 10-15-2009, in particular question 7. Question 7 shows projected overloads for the years 2011 through 2015. SCE response to CPUC DR # 2 shows a valley system with excess capacity under a one-in-five-year heat storm for those same years.

Response to Question 10: (4.21)

Question 7 of CPUC Q&A (response submitted to CPUC on 10-15-2009) asked what the percent overloads were based on Table 1.1 of the administrative draft Alberhill PEA.

The administrative draft and the final versions of the Alberhill PEA were both filed in advance of the planning activities for 2009.

The data in Table 1.1 was based on the projected values from SCE's 2009-2018 plans published in the first quarter of 2009. The data provided in response to CPUC DR #2 (dated 10-15-2009) was based on the preliminary forecasted values for the years 2010-2019 which were developed in early October, 2009.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 11: (4.22)

Is the Valley-Ivyglen line part of (or will it become part of) SCE's Bulk Electric System as defined by NERC or WECC criteria?

Response to Question 11: (4.22)

No. The Valley-Ivyglen line is not part of SCE's Bulk Electric System as defined by NERC or WECC criteria. The Valley South 115 kV System (of which the proposed Valley-Ivyglen line would initially be part of) is a radial distribution network. Stated another way, the Valley South 115 kV subtransmission lines are networked together within the Valley South 115 kV System, however the system as a whole is operated as a radial network. It does not electrically tie to other 115 kV systems or the bulk power system through any other point of connection other than that of the two Valley South 500/115 kV transformers.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 12: (4.23)

Is the Valley-Ivyglen line (or will it become) part of a radial system?

Response to Question 12: (4.23)

Yes. Please refer to response to Question No. 11 (4.22).

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title:
Dated: 01/12/2010

Question 5.2:

(Project Description/pages 3-17 to 3-19)
Provide a description of the construction and location of the 6.5-mile segment of the Alberhill System project between the Alberhill Substation and the intersection of Third Street and Collier Avenue if the Valley–Ivyglen subtransmission line is not constructed.

Response to Question 5.2:

The proposed Alberhill project is designed to take advantage of the synergies created by existing infrastructure and new infrastructure that would be in place by the time the project is constructed. If the Valley-Ivyglen 115 kV subtransmission line is not constructed a new system load flow analysis would be required to determine the configuration of the subtransmission lines in the Electrical Needs Area. The results of the new system load flow analysis would be evaluated in conjunction with engineering, constructability, and other issues resulting from the absence of the Valley-Ivyglen line.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 01/12/2010

Question 5.4:

(Project Description/page 3-25)
Describe best management practices that would be employed to avoid impacts caused by the use of helicopters (e.g., impacts on air quality and noise resources).

Response to Question 5.4:

SCE plans to use helicopters for stringing operations of the 500 kV line only. At this time, SCE does not intend to use helicopters for the erection of the 500 kV structures or 115 kV structures and conductor. However, should their use be mandated or determined to be necessary during final engineering, best management practices will be employed to minimize the impacts.

The management practices that SCE employs to minimize the impacts caused by the use of helicopters include:

- Helicopters with low emitting engines shall be used to the extent practical
- Efficiently maximize flight times
- Designate flight paths away from residential areas
- Identify "sensitive receptors" who might be disturbed by construction noise and notify them in advance of upcoming work
- Obtain variance to local noise ordinances as required

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.7:

(Project Description/chapter 3)
Specify the amount (in gallons) of diesel, gasoline, and aviation fuel that would be consumed during *construction* of the proposed project. Specify the amount (in gallons) of diesel, gasoline, and aviation fuel that would be consumed annually during *operation and maintenance* of the proposed project.

Response to Question 5.7:

SCE and the South Coast AQMD evaluate impacts to air quality by estimating the hourly emissions of construction equipment, not by gallons of fuel use. SCE does not have a mathematical model that converts hourly equipment use to gallons of fuel.

During the construction, and the operation and maintenance of the Proposed Project, SCE does not plan on storing bulk fuels on-site. Existing fuel supply facilities would be utilized by SCE and/or its Contractors. An off-site fuel supply truck may also be utilized to support the construction vehicles. As stated in sections 3.2.1.3 and 3.6, fuel would be stored on-site. These small quantities of fuel (10-40 gallons) would be for gasoline powered hand tools and small portable generator usage.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title:
Dated: 01/12/2010

Question 5.13:

(Project Description/pages 3-20 to 3-31)
Indicate on a map where all new or replaced telecommunications lines or facilities would be placed underground and where they would be place overhead. Page 3-31 of the PEA states, "The fiber optic system construction would include the installation of overhead facilities, underground facilities and new telecommunications equipment." If telecommunications facilities would be placed underground, explain installation method. Would new or existing conduit be used? Indicate the number of new poles would be installed to support new or replaced telecommunications equipment in addition to the poles and towers that would be installed for the Alberhill Substation and 500-kV loop-in lines or 115-kV lines between Elsinore, Skylark, and Newcomb Substations that are already described in the PEA. The PEA states, "In addition, the five 115/12 kV substations that would be transferred to the new Alberhill System would be connected by new and existing fiber optic cable" (p. 3-20). Indicate on a map where all new fiber optic cable would be installed. Also indicate if the fiber optic cable would be installed underground or overhead and describe any new structures or conduit that would be required.

Response to Question 5.13:

Although detailed engineering has not been completed, it is anticipated that the telecommunication cables would be overhead for the entire routes outside the substations. Also, at this time, it is not anticipated that new poles would be installed or replaced to support the fiber cable in addition to the poles and towers that would be installed for the transmission lines.

The new overhead construction would be from Newcomb to Skylark substations, as well as two taps from Alberhill substation to the existing fiber cable on the 115kV transmission line in the street adjacent to Alberhill substation. These taps would be built on the transmission line poles used to loop in the line into the substation. See Appendix E.

There would be a small section of the telecommunication lines installed underground within the substations. Conduits in the existing substations Newcomb and Skylark would be installed by laying a 5 inch PVC pipe in a trench approximately 3 foot deep and 18 inches wide. The pipe would be covered with 3 inches slurry, dirt and gravel. Use of new conduit at the existing substations would be determined during final engineering. At Alberhill the 5 inch pipe would be encased in concrete, then the trench would be filled with dirt and gravel.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 01/12/2010

Question 5.18:

(Project Description/page 3-18, figure 3-3)
- There is a discrepancy between the description of the switch pole installation on page 3-18 and Figure 3.3.
- Describe how the switch pole would be installed (i.e., how the switch pole would be integrated with the existing 115 kV system). Indicate the number of additional poles that would be required for the tie in. Indicate the number of poles that would be removed.
- How long would the span of wire be that is removed from the Valley-Newcomb 115 kV line?

Response to Question 5.18:

The new 115kv switch will be installed on a LWS pole. The LWS pole will be installed as standard construction (please see page 3-29, section 3.2.4.3).

As stated on page 3-19, Section 3.1.3.3, approximately three LWS poles and three TSP's will be utilized to integrate the new switch and tie in.

Approximately 200-250ft of the Valley-Newcomb 115 kV line would be removed. The exact length will be determined upon final engineering.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

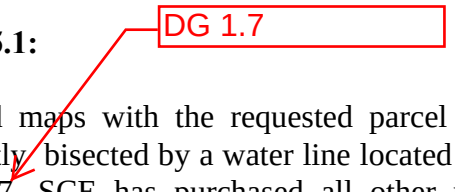
DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.1:

(Land Use / Biological Resources)
Provide a map that includes the following information for each parcel that the proposed project would cross: Assessor Parcel Numbers, property line dimensions, acreage, ownership (e.g., private, Western Riverside County MSHCP, Riverside County Habitat Conservation Area HCP). Specify existing and proposed easements/ROWs for utilities. Specify easement/ROW status for the 500-kV lines and all other project components including substation footprint and staging areas as well as staging areas, pull sites, and tower sites for both 115-kV and 500-kV lines

Response to Question 5.1:



Please see the attached maps with the requested parcel data shown. The Proposed Project substation site is presently bisected by a water line located within a fee-owned parcel, shown in the response to DR1Q7. SCE has purchased all other necessary fee-owned parcels which comprise the substation site, and is in the designing stage of relocating the water line with the cooperation of the owner. The 500 kV right of way would be acquired in easement upon approval of the project, however, SCE has previously met with the impacted property owners. These property owners did not express concern about the proposed route. If the staging areas, pull sites, and any other land temporarily utilized for construction of the Proposed Project is not currently controlled by SCE, SCE would acquire the right to temporarily utilize the property.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.9:

(Biological Resources/pages 3-35 to 3-37)
Provide a table that indicates when outstanding biological surveys will be conducted. Indicate in the table the survey date, species to be surveyed, survey methods that will be used (e.g., protocol or reconnaissance-level surveys), areas to be surveyed (specify and include substation footprint and staging areas as well as staging areas, pull sites, and tower sites for both 115-kV and 500-kV lines), and survey personnel qualifications. The PEA, for example, states that Stephen's Kangaroo Rat surveys will be conducted, but it does not say when or where (pg. 3-36).

Response to Question 5.9:

Please see attached table. Qualifications for biologists conducting the surveys will be confirmed prior to the start of surveys.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.10:

(Biological Resources/figure 4.4-2 and 4.4-3)
Provide further description about observed golden eagle occurrences. Identify perch and nest sites and provide complete habitat descriptions for these areas.

Response to Question 5.10:

On July 22, 2009 AECOM biologist Patrick Del Pizzo observed a golden eagle fly from a perch site shown on the Plant Community Map, Page B-01, in Volume Two of the Final Biological Resources Technical Report for the Proposed Alberhill System Project (and attached below). The golden eagle flew from the perch location in a northwestern direction. Mr. Del Pizzo informed two additional AECOM biologists, Doug Willick and Rachael Poston (both down near the bottom of the slope), of the sighting. Both Mr. Willick and Ms. Poston were able to locate the bird where it had landed at a new location.

Mr. Del Pizzo and another AECOM biologist, Matthew Malle, inspected the perch location where the bird was initially observed. The perch was located on a granite rock outcrop covered in white wash. Multiple dried cough pellets and sun bleached disarticulated skeletal remains of small mammals were observed down slope, at the base of the perch.

The vegetation community surrounding the perch location was Riversidean sage scrub. Dominant native vegetation observed there included: brittle bush (Encelia farinosa), common sandaster (Lessingia filaginifolia), long-stem buckwheat (Eriogonum elongatum), and California broom (Lotus scoparius). Dominant non-native vegetation observed within the sage scrub habitat surrounding the perch site included: oats (Avena sp.) and ripgut (Bromus diandrus).

While observing the first golden eagle flying over an area north of the substation study area, a second golden eagle was observed flying in the same general area. Both birds were later observed perched on rock outcrops that were in close proximity to each other (this location also shown on the Plant Community Map in Volume 2 of the Final Biological Resources Technical Report for the Proposed Alberhill System Project. These were located outside the 500 kV study area (each segment shown on the map as being 700 feet wide), and northwest of the substation study area. These latter perch locations were only observed from a distance, via binoculars, and site specific details (perch description, associated vegetation, etc.) were not recorded. In general, the site conditions and surrounding vegetation community appeared to be likely similar to the

original perch site.

It is assumed that both birds were adults, based on Mr. Del Pizzo's description of the birds in flight. The birds appeared to be a fairly solid dark-brown, with no noticeable areas of white being seen in the wings or tail of either bird. Juveniles/immatures in their first few years of life will show varying amounts of white in the base of the remiges (wing) and rectrices (tail) feathers. Based on the observed plumages of the birds, their close proximity and the lack of any agonistic behavior by either bird, it is assumed these were likely a mated pair of eagles.

The surrounding terrain, at least in the immediate vicinity of where the eagle were observed, did not appear to have any obvious nesting sites. Due to the rugged terrain and access limitations, the slopes above the proposed Alberhill System Project substation are subject to minimal human activity. As a result, this area may be suitable for nesting eagles. However, there were no barren cliff faces or large enough rock piles to serve as likely nest sites. In addition, no tall trees (such as mature Eucalyptus) were detected in the upper portions of this slope (i.e., away from the property at the bottom of the slope). The area would appear, however, to be choice foraging habitat for eagles, due to the openness of the habitat and the prevalence of perching sites that would offer optimal views of the surrounding terrain.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.11:

(Biological Resources/SCE-CPUC Meetings)
Provide contact reports from meetings and discussions with the Regional Conservation Authority, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game.

Response to Question 5.11:

At this time SCE does not have contact reports from meetings.

Conference Call: February 2, 2009: SCE talked with RCA, Joe Monaco and Wendy Worthey - Briefly discussed the Alberhill project with in RCA property restrictions and mitigation requirements.

Meeting: December 1, 2009: SCE met with Charles Landry and Stephanie Standerfer – Discussed the MSHCP process and the possibility of a meeting between RCA, CDFG, USFWS, the CPUC, and SCE.

Site Visit: December 8, 2009: SCE conducted a site visit for the Alberhill System Project with representatives from the CPUC, E&E, RCA, and the USFWS.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.12:

(Biological resources/page 4-64)
Provide a table of observed invasive and noxious species occurrences. Put species observed in one column, description of location and habitat type in a second location notes column. Examples of appropriate location notes: (1) In ROW east of Murrieta Rd. and in fire-disturbed chaparral vegetation; (2) Bordering wash in riparian scrub adjacent to east side of proposed substation.

Response to Question 5.12:

Location data for observed invasive and noxious plant species was not collected during field surveys conducted during the 2009 efforts. However, a plant compendium was produced as part of the Biological Technical Reports for the substation and the 500 kV and 115 kV study areas.

Focused surveys are scheduled within the substation, and 500 kV and 115 kV study areas during 2010. Information related to invasive and noxious plant species locations will be collected during these spring and summer surveys. A separate report identifying invasive and noxious species occurrences will be produced as part of this effort. The report will include a table that lists the types and locations of invasive and noxious plant populations observed during the survey and a brief description of the habitat associated with that location will also be provided, as requested.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.14:

(Air Quality and Greenhouse Gases/appendix H)
Provide, in Microsoft Excel format, all of the air emission and greenhouse gas tables from Appendix H. Include all of the calculations and input values used in the tables presented in Appendix H.

Response to Question 5.14:

Please see attached Excel file.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.19:

(Transportation/section 4.15)
Provide the total number and location of all road crossings that would be made by the 500 kV and 115 kV subtransmission lines. Describe road crossing locations in text and identify them on an adequately scaled map.

Response to Question 5.19:

Please see the attached file showing an anticipated 78 road crossings for the Proposed Project. Please note that this map is based on preliminary project information and publically available information, and is subject to change. SCE has provided GIS files for the project in DR1Q5.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 01 A-E: (4.1, 4.2, 4.3, 4.4, 4.5, 4.6)

In various DR responses and SCE filings, SCE refers to a number of different Systems and Electrical Needs Areas, for example: the Valley South System, the Valley System, the Alberhill Project Electrical Needs Area, the Valley-Ivyglen Electrical Needs Area.

A. Which Electrical Needs Area are the Alberhill, Fogarty and Valley-Ivyglen Projects wholly contained within?

B. Which System are the Alberhill, Fogarty and Valley-Ivyglen Projects wholly contained within?

C. Please provide the recorded and forecast load data (in MVA and MW) for the Electric Needs Area that contains the Valley-Ivyglen, Fogarty and Alberhill projects.

D. Please provide the recorded and forecast load data (in MVA and MW) for the System that contains the Valley-Ivyglen, Fogarty and Alberhill projects.

E. If no load growth data is available for the proposed project(s) specific area, how does SCE explain the need for the proposed project(s)?

For the load data mentioned above, please provide the information in the following manner:

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Valley Total Capacity	MVA																
	MW																
Valley Total Recorded	MVA																
	MW																
Valley Total 1-in-5 heat storm, Projected	MVA																
	MW																
Valley Total 1-in-5	MVA																
	MW																

Recorded																	
Valley South Total Capacity	MVA																
	MW																
Valley South Total Recorded	MVA																
	MW																
Valley South Total 1-in-5 heat storm, Projected	MVA																
	MW																
Valley South Total 1-in-5 Recorded	MVA																
	MW																
Ivyglen	MVA																
	MW																

Response to Question 01 A-E:

Note: On 12/14/2009 an additional request was made by the CPUC to include data (in the same format as asked for in the above questions) for SCE's existing Ivyglen Substation. This request has been included and is provided in the attached spreadsheet titled "DR4_Q1_ValleySystem_Load_Info.xls".

SCE refers to various "Systems" and "Electrical Needs Areas" within the context of the corresponding document. In general, a "System" refers to a well-defined, already established portion of SCE's service territory. An "Electrical Needs Area" refers to a subsection of a "System" or "Systems" that has been identified with electrical needs.

A.
The specific Electrical Needs Area (ENA) for each of the identified projects are wholly contained within the existing Valley South 115 kV System. Each of the projects have a specific ENA.

The Alberhill System Project (a project primarily to address the Valley South 500/115 kV transmission substation transformer overloads) ENA is wholly contained within the existing Valley South 115 kV System (i.e., the southern portion of the San Jacinto Region).

The Fogarty Substation Project (a project to address the need for additional distribution substation capacity) ENA is the area currently served by the existing Elsinore and Dryden Substations and is wholly contained within the existing Valley South 115 kV System.

The Valley-Ivyglen 115 kV Project (a project to address the need to meet criteria of two source lines into Ivyglen Substation and to address overload under N-1 conditions of the Valley-Elsinore-Ivyglen 115 kV line) ENA is the area currently served by the existing Ivyglen, Elsinore, Dryden, and Skylark Substations and is wholly contained within the

existing Valley South 115 kV System.

Since each project is being proposed to address separate and distinct electrical needs and the purpose of each project is independent of the others, the ENAs of each project are specific to each project.

B.
The Alberhill System Project would be a new system. Currently, the area that would be served by the proposed Alberhill System is wholly contained within the existing Valley South 115 kV System, but upon completion of the proposed Alberhill System Project, would become wholly contained within the Alberhill System.

The Fogarty Substation Project would initially be wholly contained within the existing Valley South 115 kV System and upon completion of the proposed Alberhill System Project, would become wholly contained within the Alberhill System.

The Valley-Ivyglen 115 kV Project would initially be wholly contained within the existing Valley South 115 kV System and upon completion of the proposed Alberhill System Project, would become contained within both the Alberhill and Valley South 115 kV Systems.

C.
Please see the attached spreadsheet titled "DR4_Q1_ValleySystem_Load_Info.xls".

D.
Please see the attached spreadsheet titled "DR4_Q1_ValleySystem_Load_Info.xls".

E.
Load growth data is available for each substation currently within the Valley South 115 kV System. The existing load data for each substation, in conjunction with the forecasted load growth data, ultimately is the primary basis of each of the projects. The planning process begins with a “bottom up” approach of developing forecasted peak load values for each distribution substation. This forecasted load data is first compared against the distribution substation capacities to serve that load. When the existing distribution substation capacities are insufficient to serve the forecasted loads, a distribution substation project is proposed (Fogarty Substation Project).

Next in the planning cycle comes the subtransmission line load flow analysis. Loads at the individual distribution substations drive the load flow analysis and is based on the topology of the subtransmission line network. When the capacity of an existing element within the subtransmission line network is insufficient to meet SCE's Transmission Planning Criteria and Guidelines (e.g., sufficient number of source lines, no overloads under base case or N-1 conditions), a subtransmission line project is proposed (Valley-Ivyglen Project).

Once the subtransmission load flow analysis is completed, the source transmission

substation transformer capacity versus load analysis is performed. If the capacity of the transmission substation transformers is exceeded by the forecasted load, a project is proposed (Alberhill System Project).

While each planning process is independently performed and any necessary projects proposed to solve specific issues, they are generally inter-related. If in the overall analysis of an area, a specific project can adequately address multiple system needs, that is considered in lieu of multiple separate projects. However, in the case of these three projects, each serves an independent utility and purpose, and as such, each is needed independent of the others.

****Information regarding the tables provided****

To help clarify the relationship between MVA and MW values, the following is offered. The load requirements of consumers drive the amount of power delivered by the utility to the consumer. Ultimately, this comes down to the amount of electrical current in Amperes required by the consumer's loads. If a consumer has a particular load requirement of 10 MW at 115 kV and has a unity power factor (1.0), the power delivered is 10 MW. With unity power factor MW=MVA and this results in the delivery of 10 MVA as well. Converting this power requirement to Amperes results in the need for the utility to deliver 50 Amperes. The same consumer with the same load, but with a power factor of 0.8, would still require delivery of 10 MW, but would require delivery of 12.5 MVA of power. The conversion of this power requirement to Amperes yields the need for the utility to deliver 62.5 Amperes. MW values only equal MVA values when the power factor is unity. Any time that the power factor is less than unity, the amount of power in MVA that is required to be served by the utility will exceed that of the value in MW. The use of Amperes rather MW or MVA inherently captures the power factor of the system. SCE records load data in Amperes and in its planning process, converts the Amperes into an MVA value. As this value is the true measure of the power requirements placed on the utility by the consumer, SCE does not use MW values and thus the "N/A" values in the table.

For the sections in the table where "1-in-5 Heat Storm Recorded" load values were requested in MVA and MW, these values are not included as there is no such data to provide. SCE records peak load values and then weather normalizes those values. These become the input values for the planning process. A 1-in-5 Heat Storm analysis is part of planning process which takes normal-weather peak load projections and adjusts them to represent what the expected peak load values would be were a 1-in-5 Heat Storm to occur. These adjusted values are then compared to the capacities of SCE's installed electrical facilities to determine if overloads would be present. The 1-in-5 Heat Storm analysis is not applied to historical data; rather it is a tool for use in forecasting future peak load values and the corresponding system response under extreme heat conditions.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 02: (4.6)

Please provide the same information in the above table format for: the Valley-Ivyglen Electrical Needs Area; the Alberhill Electrical Needs Area; and the Fogarty Electrical Needs Area. Moreover, please provide the table information in graph form for all of the separate/individual systems/electrical needs areas. Each graph should have a separate line for MVA and a separate line for MW.

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Valley Total Capacity	MVA																
	MW																
Valley Total Recorded	MVA																
	MW																
Valley Total 1-in-5 heat storm, Projected	MVA																
	MW																
Valley Total 1-in-5 Recorded	MVA																
	MW																
Valley South Total Capacity	MVA																
	MW																
Valley South Total Recorded	MVA																
	MW																
Valley South Total 1-in-5 heat storm, Projected	MVA																
	MW																
Valley South Total 1-in-5 Recorded	MVA																
	MW																
Ivyglen	MVA																
	MW																

Response to Question 02:

Please refer to the attachment provided for Question 1.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 04: (4.9, 4.10, 4.11)

SCE, in its Alberhill PEA states that the "2008 peak demand was adjusted from 817 MVA to 971 MVA. This 971 MVA value includes an adjustment to the 2007 benchmark plus 50 percent of the published 2008 forecasted load growth." Please state if this analysis utilized actual recorded numbers for 2008.

SCE further stated in its Alberhill PEA that the above adjustments would be "revisited again in late 2009". Please define "revisited". Have the adjustments been revisited? If so, please provide the updated results.

SCE also states in its Alberhill PEA that the reduction of MVAs from 2007 to 2008 was 13.5%. SCE then goes on to state the "magnitude and anomalous nature of this 13.5 percent reduction prompted SCE to further evaluate the validity of this number." Please describe what SCE means by "anomalous". Does SCE expect this "anomaly" to continue through 2009 and 2010? When does SCE expect this "anomaly" to end?

Response to Question 04:

Yes. The analysis utilized actual recorded values for 2008. The following steps explain how SCE derived the 971 MVA value.

a. The derivation of the Valley South 115 kV System 2008 adjusted peak load began with the actual recorded peak load value in the Valley South 115 kV System. This value was 787 MVA.
b. After performing the typical adjustments for weather, the weather-normalized peak load value was increased by 30 MVA to 817 MVA.
c. As the weather adjusted peak load value for 2007 was 944 MVA, just one year earlier and the research that SCE performed could not support any reason for the permanent load loss of 127 MVA (944-817=127) from 2007 to 2008, SCE applied an engineering adjustment to the 2008 peak load to match the peak load in 2007.
d. SCE had projected new load growth of 54 MVA in 2008 and based on economic conditions, this expected new load growth value was reduced by 50% to 27 MVA.
e. The overall adjusted peak load value for 2008 was the summation of the 787 MVA recorded peak load value, plus the 30 MVA due to weather normalization, plus the 127 MVA engineering adjustment to reach the 2007 value, plus 27 MVA which is 50% of the

expected load growth (787+30+127+27=971). This is the value of 971 MVA that was published in SCE 2009-2018 Transmission Substation Plan in the spring of 2009.

Please note- throughout this data request, the adjusted peak load value for 2008 has been shown without the engineering adjustment and is presented as 817 MVA.

“Revisited” refers to analysis performed each year following the summer peak load conditions as part of SCE’s annual planning process. Following the summer peak load in 2009, SCE began the annual planning process for the years 2010-2019. The results will be published in SCE’s Distribution Substation and Transmission Substation Plans during the first quarter of 2010. As of December 2009, SCE is midway through the planning cycle and the preliminary results for the Valley South 115 kV System can be seen in the attached file "DR4_Q4_Valley_South_Loads_2005-2020.xls".

“Anomalous” was meant to represent the deviation not only from the expected forecasted peak load value for 2008, but more so the magnitude of the drastic drop in peak load spanning only one year without any support from commonly used indicators such as population growth figures and net electrical meter installations.

Based on analysis performed following the peak loads in 2009, SCE believes the drop in peak load in 2008 was largely the result of the economic conditions which have temporarily affected the peak loads placed on the system. Given the fact that the San Jacinto Region has positive growth in both population and in net electrical meter installations, SCE holds the position that the recent drop in peak load is not a result in the removal of electrical facilities, rather it is a result of a temporary change in energy use behavior of the consumer as it relates to their response to the current economic conditions. This can be seen by the fact that in 2009, the peak load of the Valley South 115 kV System was 50 MVA greater than that of 2008 (which was 127 MVA less than in 2007).

The peak load values 2007, 2008, and 2009 were 944, 817, and 867 MVA respectively. These are weather adjusted values and thus considered normalized to the same standard. The 13.5% drop in 2008 was followed by a 6.1% increase in 2009. SCE believes that this 6.1% increase in peak load is due in part to moderate load growth, but is largely due to the use of existing electrical facilities in the region that were not used to the same extent in 2008.

SCE does not currently believe that the 6.1% increase in peak load that was observed in 2009 is sustainable. SCE characterizes the majority of this increase in peak load as “elastic” load, which represents the potential load from existing customer facilities installed in the region. This “elastic” load requires no new meters to be set or other utility infrastructure to be installed to come on-line. It is part of the peak load seen in 2007 and has not left the region, rather it is subject to energy use behavior of the consumer, which in turn is dependant on many factors such as the economy. As these customer facilities are already in place, the load may materialize at any time.

SCE recognizes the impacts of the current economic conditions on base load and new load growth values. The current forecasted peak loads incorporate a gradual return of the "elastic"

load over four years, covering the period 2010-2013. As part of each annual planning process, analysis will be performed using the most current data available and any adjustments to projects will be made as necessary.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 07: (4.17)

Do recorded sales play a factor in reaching the MVA number? If so, please explain? If not, why not?

Response to Question 07:

No. Recorded energy sales data (kWh) do not directly provide useful data input in determining peak load values (MVA). Total kWh consumption represents the amount of energy in total consumed over a period of time. Peak load values are measured at discrete moments in time that represent the total amount of energy required by consumer loads. Additional explanation and data is provided in answer to Question 8.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 08: (4.18, 4.19)

Is there a relationship between kilowatt/hour sales and MVAs?
The recorded sales for Riverside County in kWh increased by 0.85% between 2007 and 2008, however, in SCE's Alberhill PEA, SCE shows an MVA increase of 2.7% between 2007 and 2008. Why is the MVA increase over 300% greater than the increase in kWh for the same period?

Response to Question 08:

No. There is no direct relationship between energy sales (kWh) and peak loads (MVA) used for planning purposes.

The attachment "DR4_Q8_EnergySales_vs_PeakLoads.xls" presents peak load values and energy sales values for the years 2001 through 2009 for the CAISO System, the entire SCE System, and the Valley South 115 kV System. The spreadsheet has four worksheet tabs. The first is a summary of the graphical representations of the data. The second through fourth tabs are detailed worksheets for the CAISO System, SCE System, and Valley South System respectively.

In Tab 2, Tab 3, and Tab 4 the particular system's peak load versus energy sales are plotted together. Additionally, the year-to-year rates of change between peak load and energy sales are also plotted together.

Analyzing this data from the highest levels (CAISO System) down to a discrete local level (Valley South 115 kV System) illustrates that no consistent or useful correlation can be found between the trends of peak loads and energy sales. There is no discernible value in attempting to directly incorporate energy sales values into the planning for peak load conditions.

The analysis of each of the three systems illustrates the following:

- Energy sales values and peak load values do not necessarily track with each other (i.e., each trending in a positive or negative direction for a given year). Examples can be seen at each system level where annual changes occur that are both positive (see Graph 3, years 2001-2006), both negative (see Graph 1, years 2007-2008), or one of each (see Graph 1, years 2006-2007 or Graph 5, years 2008-2009). To be useful, a common direction of trending would be necessary as well as some consistency in the relative magnitudes of change.

- The year-to-year comparison of the annual percent rates-of-change of peak load values and energy sales demonstrates that peak load value changes significantly outpace that of energy sales value changes on a regular basis (see Graph 2, year 2006 or Graph 6, year 2005). For a given annual rate-of-change in energy sales, there is commonly a rate-of-change in the peak load values that is significantly greater in magnitude.

A reduction in energy sales with an increase in peak load values, or an increase in peak load values which outpaces an increase in energy sales, each result in a decline in load factor. Because SCE must install sufficient electrical infrastructure to meet peak load values, a decline in load factor results in a decreased percent utilization of those facilities. Attempting to determine electrical infrastructure needs based on utilization rates (load factors) or trends of energy sales would result in insufficient electrical facilities for SCE to serve the peak load values placed on the system by consumer's loads.

Localized peak load forecasts do not dismiss energy sales data trends and forecasts, however the fact remains that specific trends in energy sales data do not necessarily result in similar trends in peak load values.

The greater than 300% increase in peak load rate-of-change over that of energy sales rate-of-change mentioned in the second part of the question results from the 2.7% increase in peak load divided by the 0.85% increase in energy sales for the Valley South 115 kV System/Riverside County data previously provided for the year 2007-2008. The 2.7% increase identified was derived from using the previously published peak load values of 971 MVA for 2008 and 944 MVA for 2007. As provided throughout this data request, the value for 2008 has been shown without the engineering adjustment and is presented as 817 MVA.

Given this change, the calculation as represented in this question does not yield a greater than 300% increase. However it should be noted, based on the first part of the answer to this question, that this type of analysis of comparing the ratios of the rates-of-change of peak load values and energy sales values does not yield useful information for peak load planning purposes.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 09: (4.20)

In SCE's response to CPUC DR2, Q4, the MVA value for 2009 is 1431. Is this a forecast or a blend of actual and forecasted?

Response to Question 09:

The peak load value of 1431 MVA provided in SCE's response to CPUC DR2, Q4 for 2009 was the recorded peak load value of the Valley System in total (Valley North 115 kV System = 602 MVA and Valley South 115 kV System 829 MVA).

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 13: (4.24)

If the line is (or will be) subject to NERC and WECC for reliability purposes has SCE violated any WECC or NERC reliability standards?

Response to Question 13:

The proposed Valley-Ivyglen 115 kV line would not be subject to NERC or WECC reliability standards. The reliability performance of the Valley-Ivyglen 115 kV line is tested against SCE's Transmission Planning Criteria and Guidelines.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 15: (4.27)

With Regards to Table A.1-2 page A-13 of Valley-Ivyglen and Fogarty DEIR, please reconcile the table with the table and graph provided in SCE response dated 9/25/08 (re: CPUC Ivyglen DEIR Growth Inducement) where SCE shows the weather adjusted peak for 2008 as being 120 MVA. Please provide the non-weather adjusted MVA for 2008.

Response to Question 15:

Table A. 1-2 Electrical Needs Area –Line Capacity and Peak Demand, page A-13 of Valley-Ivyglen and Fogarty DEIR represents the projected line loading values and capacity of the Valley-Elsinore-Ivyglen 115 kV line. These load projections come from the load flow analysis of the Valley South 115 kV System. The peak load projections for each of the substations in the Valley South 115 kV System are what drives the load flow results.

The table and graph provided in SCE's response dated 9/25/08 represents the historical peak loads for the substations serving the distribution load located within the ENA of the Valley-Ivyglen/Fogarty Project. This data does not comprehensively represent all of the load data that drives the power flow on the Valley-Elsinore-Ivyglen 115 kV line.

The weather adjusted peak of 120 MVA for 2008 is not a comparable value to those values provided in Table A. 1-2 in the Valley-Ivyglen and Fogarty DEIR. The data provided in Table A. 1-2 represents the projected loading on the Valley-Elsinore-Ivyglen 115 kV line and represents the data inputs for the load flow analysis in support of the Valley-Ivyglen 115 kV line project. The data in the table and graph provided in SCE's response dated 9/25/08 is the historical loads for the distribution substations in support of the need for additional distribution substation capacity and the Fogarty Substation Project.

The weather adjustment for 2008 for the substations listed in the table was a adjustment upwards of 4.4%. The corresponding non-weather adjusted MVA value for 2008 was 115 MVA (120 / 1.044=115).

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-004

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 12/16/2009

Question 16: (4.28)

Please provide system wide forecasts of SCE's annual retail sales created/done each year from 2004 to 2009 for the years 2004 through 2020. If available on a monthly basis, please provide on such a basis.

Response to Question 16:

Please note per a telephone conversation on Dec. 29, 2009 between SCE and the CPUC, it was agreed that just SCE's latest forecast would be provided for the years 2010-2020.

See the attached spreadsheet titled "DR4_Q16_SCE_System_EnergySales.xls". The source for the forecasted data is the SCE Sales, Customer and Demand Forecast, Sept. 2009.

Data provided is on an annual basis. The historical data for the years 2004-2009 is provided in the spreadsheet titled "DR4_Q8_EnergySales_vs_PeakLoads.xls" in answer to Question 8. Please also note that the historical data is provided at the "sending" end of the system and includes the losses through the transmission and distribution systems while the data for forecasted values are at the "receiving" end and do not include the losses through the transmission and distribution systems as this is the level of the system at which the forecasted annual retail energy sales are performed.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Engineer
Dated: 01/12/2010

Question 5.3:

(Project Description/chapter 3)
Provide details of quantities and installation distances of conductors proposed for use in aboveground installation locations. Provide specific information of distances to the ground and between conductors at highways, rivers and/or special crossings. Confirm that there would not be any below-ground installation or if so, provide details of line type, casing and include an engineering drawing showing a typical underground installation.

Response to Question 5.3:

The project's 500 kV, 115 kV, and telecommunication lines will maintain no less than the minimum clearance requirements set forth and as prescribed by the Public Utilities Commission of the State of California General Order No. 95 Rules for Overhead Electric Line Construction. Final clearances to be determined upon final engineering. There are no below ground installations other than the foundations of the transmission structures.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Engineer
Dated: 01/12/2010

Question 5.5:

(Project Description/pages 3-31, 4-93 to 4-98)
Provide additional details about cleanup and post construction restoration, including personnel, equipment and methods to be used, for areas of vegetation, wetlands and wetland buffer areas, riparian habitat and sensitive natural communities.

Response to Question 5.5:

Any required replanting and/or reseeding will be conducted under the direction of a Company/Contractor biologist.

For the native vegetation that would be impacted during construction of the Alberhill Substation and the 500 kV transmission line segments, SCE would develop a habitat restoration and revegetation plan to restore these areas after construction is complete.

If construction of the Proposed Project cannot avoid impacts to sensitive resources such as wetlands, wetland buffer areas, riparian habitat and sensitive natural communities, a Habitat Restoration and Revegetation plan would be developed by SCE with the appropriate resource agencies and implemented after construction is complete.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Engineer
Dated: 01/12/2010

Question 5.6:

(Project Description/page 3-38)
Provide additional details about the construction workforce and equipment.

Response to Question 5.6:

The current estimates about the construction workforce and equipment is presented in Appendix F of the PEA document, attached below for your reference.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Pamela Blue-Fraijo
Title: Transmission Estimator
Dated: 02/22/2010

Question 7.13:

- Why are the two poles being replaced along Temescal Canyon Road, on both sides of I-15 just across from the proposed Alberhill Substation site, part of the Alberhill System Project?

- What is the name of the subtransmission line associated with these two poles?

Response to Question 7.13:

The subtransmission line that is currently on these two poles is the Valley-Elsinore-Ivyglen 115kV Subtransmission Line. This line will be relocated on the Valley-Ivyglen Project to the north side of Concordia Ranch Road, thus leaving the section of line between the two poles idle and no longer required for the Valley-Ivyglen Project. The Alberhill Project will utilize this crossing to bring in the future Alberhill-Ivyglen #2 115kV Subtransmission Line and the Alberhill-Skylark 115kV Subtransmission Line across the I15 freeway. The poles are currently engineered for 653 aluminum core steel reinforced conductor. The Alberhill-Ivyglen #2 and the Alberhill-Skylark lines will be 954 stranded aluminum conductor, thus resulting in the need for possible replacement.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 02/22/2010

Question 7.14:

Complete and confirm that accuracy of the following statements regarding the Alberhill Substation's switchracks:

- The 500-kV switchrack would use gas-insulated switchgear. The gas-insulated switchgear, which contains sulfur hexafluoride gas, would be used instead of oil, vacuum, compressed-air, or other switchgear options available, because less space would be required and _____.

- The 115-kV switchracks would not use gas-insulated switchgear, but _____switchgear.

Response to Question 7.14:

The 500-kV switchrack would use gas-insulated switchgear. The gas-insulated switchgear, which contains sulfur hexafluoride gas, would be used instead of gas-insulated circuit breakers and air-insulated disconnects and buses because less space would be required. Oil, vacuum, compressed-air, or other switchgear options are not available at 500kV.

The 115-kV switchrack would not use gas-insulated switchgear but an open air insulated switchgear.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Robert Benton
Title: Sr. Technical Specialist
Dated: 02/22/2010

Question 7.19:

Provide additional information about the Alberhill Substation setbacks. At minimum, indicate the minimum and maximum setbacks from the substation block wall to both Temescal Canyon Road and Concordia Ranch Road.

Response to Question 7.19:

The design setback from the southern face of the substation wall to the Temescal Canyon Road edge of existing pavement would be 103 feet. This places the wall 63 feet north of the substation property line/Temescal Canyon Road right-of-way line. Based on the County of Riverside's tentative potential improvements by the County to Temescal Canyon Road it is estimated to result in an approximate 84-foot setback from the substation wall to a future road curb face.

During the final detail engineering phase, it may prove necessary to provide additional interior substation space for equipment and/or vehicular circulation of perhaps as much as 15 feet. This could result in the reduction of the Temescal Canyon Road setback from 63 feet (wall to property line) to perhaps as little as 48 feet. This could have the effect of reducing the setback to the above mentioned road improvements to approximately 70 feet.

The design setback from the substation wall to the Concordia Ranch Road existing edge of pavement would be 53 feet. This places the wall 33 feet from the substation property line/Concordia Ranch Road right-of-way line. No estimates of potential road widening improvements have been assumed.

During the final detailed engineering phase, expansion of that portion of the substation fronting on Concordia Ranch Road beyond the current footprint is not anticipated and therefore no reduction in the foreseen 33-foot setback as mentioned above is foreseen.

Based on the above final engineering qualifiers the substation setbacks would be a minimum of 48 feet from wall face to right-of-way line along the Temescal Canyon Road frontage and a minimum of 33 feet from wall face to right-of-way line along the Concordia Ranch Road frontage.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Sara Bholat
Title: Archaeologist
Dated: 02/22/2010

Question 7.21:

Provide copies of the documentation used in preparing the paleontological resources sections of the cultural resources section of the PEA report prepared for the applicant.

Response to Question 7.21:

An attachment of all Paleontological records search requests and responses are provided to this data request as an attachment.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Sara Bholat
Title: Archaeologist
Dated: 02/22/2010

Question 7.22:

Provide a copy of the paleontological records search conducted at the San Bernardino County Museum.

Response to Question 7.22:

Please see the response to data request question 7.21. The Paleontological records search request and response is attached in included in the document attached to question 7.21.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Sara Bholat
Title: Archaeologist
Dated: 02/22/2010

Question 7.23:

Provide a copy of the paleontological assessment used in preparing the paleontological resource section of the cultural resources section of the PEA

Response to Question 7.23:

Please see the response to data request question 7.21.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Robert Benton
Title: Sr. Technical Specialist
Dated: 02/22/2010

Question 7.24:

Provide the information needed to complete the following statement: An unpaved private road that would be within the footprint of the proposed Alberhill Substation would be relocated approximately ____ feet west to the location shown in PEA Figure 3.1.

Response to Question 7.24:

An unpaved private road that would be within the footprint of the proposed Alberhill Substation would be relocated between 130 to 180 feet west to the location shown in PEA Figure 3.1.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.26:

(a) Confirm that the construction of 500-kV Segments C2 and C3 would require entry onto BLM land. Why would Segments C1 and C4 not require entry onto BLM land?

(b) Indicate which property is managed by the BLM in terms of the map provided in response to Data Gap Request 5.1 that shows property ownership.

(c) Explain why BLM land access would be required for these two segments. Discuss how construction of the Segments C2 and C3 would differ from construction of 500-kV segments that do not require BLM land access.

Response to Question 7.26:

The pull sites necessary to construct Segments C2 and C3 are anticipated to require entry onto BLM land. The 500 kV Alternative Segments and the parcel ownership are provided on the attached figure. APN 390-100-016 is the BLM parcel. Construction methods presented in PEA Section 3.2.3, 500 kV Segment Construction, would apply to construction of any of the 500 kV Segment Alternatives.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Sara Bholat
Title: Archaeologist
Dated: 02/22/2010

Question 7.28:

Provide copies of all additional correspondence or other consultation conducted with Native American groups that identified the unspecified type and location of a cultural resource in the vicinity of the proposed project, including information on measures that would be taken to avoid, reduce, or mitigate for impacts on this cultural resource.

Response to Question 7.28:

No cultural resources are expected to be impacted due to the proposed project, and therefore no further consultations were conducted by SCE after the initial consultation. Soboba Band of Luiseno Indians requested consultation with SCE on 2/4/2010, and the attached meeting notes/memo is attached

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Robert Benton
Title: Sr. Technical Specialist
Dated: 02/22/2010

Question 7.30:

(a) Indicate where the third manually operated gate would be located at the eastern end of the substation that would provide access to the 500-kV transmission lines on PEA Figure 3.1.

(b) Where would the walk-in gate be located?

Response to Question 7.30:

The third manually operated gate would be located at the eastern end of the substation where the 20-feet driveway meets the substation's perimeter wall. Inadvertently the word "GATE" was left out from the original Figure 3.1; please see attached revised figure.

The location of the walk-in gate has not been determined yet. It would be either on the west wall facing Love Ln., or on the south wall facing Temescal Canyon Rd.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 02/22/2010

Question 7.34:

Complete and confirm that accuracy of the following statements regarding the Alberhill Substation's transformers:

- Each of the 560 MVA 500/115-kV transformers, including the spare transformer, at the Alberhill Substation would be 37-feet high and contain approximately _____ gallons of transformer oil.

- The spare 560 MVA 500/115-kV transformer would be connected to the Alberhill Substation but idled. It would only be activated in emergency conditions, which may include periods of high electrical demand or failure of one or more of the other transformers.

Response to Question 7.34:

As described in PEA section 3.1.1.3, the proposed project includes the initial installation of two transformers with an ultimate capability for three transformers in service, plus a spare transformer. Since the total load that will be transferred from Valley to Alberhill is currently less than the capacity of one of the installed transformers (560 MVA), the second installed transformer is viewed as spare. When customers' load exceeds 560 MVA both installed transformers would be considered as load-serving transformers and a third transformer would be installed as spare.

-Each of the 560 MVA 500/115 kV transformers, ~~including the spare transformer,~~ at Alberhill Substation would be approximately 37 feet high, and contain approximately 33,550 gallons of transformer oil.

-The spare 560 MVA 500/115-kV transformer would be ~~connected to the Alberhill Substation~~ on site, but idled. It would only be activated in emergency conditions, which may include periods of high electrical demand or failure of one of the other transformers.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Robert Benton
Title: Sr. Technical Specialist
Dated: 02/22/2010

Question 7.35:

The parking area would be 7,600 square feet. How many square feet of the Alberhill Substation, in total, would be paved?

Response to Question 7.35:

The area of internal asphalt concrete paving would be approximately 140,000 square feet. External asphalt concrete paving would be approximately 16,000 square feet. (Ref. PEA Table 3.1)

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Jeff Miller
Title: Project Manager
Dated: 02/22/2010

Question 7.37:

Estimate the amount of solid waste, in tons, that would be generated during construction of the proposed project. Estimate the amount, in tons, that would be disposed of in landfills and the amount that would be recycled or salvaged.

Response to Question 7.37:

During construction of the Project, it is estimated that a total of 90 tons of waste will be created. Of the 90 tons, approximately 40 tons of materials will be salvaged or recycled and approximately 50 tons of solid waste will be disposed of in landfills.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Robert Benton
Title: Sr. Technical Specialist
Dated: 02/22/2010

Question 7.38:

(a) How many people (or number of farm animals and farms) and what communities does the water line to be relocated serve? How long would water use from this line be out of service during this upgrade?

(b) Provide references and discussion to support the statement that "relocation of the pipeline is not expected to have any impact on local water service."

(c) Will relocated water line (30-inch pipe) be located above ground?

(d) How long would the new 30-inch pipeline (1,700-feet long) be extended or shortened for the relocation?

Response to Question 7.38:

Parts (a) and (b) of this question require input from the Elsinore Valley Municipal Water District. SCE needs time to consult with the District and expects to have the District's responses by March 19, 2010.

In response to part (c), it is anticipated that the entire new water line would be buried, including the connections to the existing line segments, that would remain at either end. For part (d), the new relocated portion of the water line would be approximately 1,700 feet in length which would be approximately 50 feet longer than the existing water line.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Robert Benton
Title: Sr. Technical Specialist
Dated: 02/22/2010

Question 7.42:

(a) Indicate the dimensions of the area that would be enclosed by security fencing at Alberhill Substation. Indicate the security fence on Figure 3.1.

(b) How often would the substation be patrolled and security issues checked during operations?

Response to Question 7.42:

The perimeter security of the Alberhill Substation would be achieved by the 8-foot high perimeter wall as shown on Figure 3.1. SCE Corporate Security requires that a wall rather than a fence be used to enclose all new 500 kV substations.

The Alberhill Substation would be inspected once a week by SCE's operating personnel from the Valley Switching Center located at the Valley Substation in the Romoland community of Riverside County.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Milissa Marona
Title: Project Manager
Dated: 02/22/2010

Question 7.43:

How many days or hours would State identified essential facilities, such as hospitals, schools, fire stations, and cities, be without electricity due to de-energizing the existing transmission and subtransmission lines?

Response to Question 7.43:

SCE does not intent to have any state identified essential facilities be without electricity due to de-energizing the existing transmission and subtransmission lines.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Jeff Miller
Title: Project Manager
Dated: 02/22/2010

Question 7.45:

According to the PEA, tower installation may require the construction of temporary crane pads and, in some cases, the pads may be located outside of the laydown area used for structure assembly. If a pad is required, it would occupy an area of approximately 50 feet by 50 feet.

- In these cases, would the pads, 50 feet by 50 feet, be outside the laydown area but still within the ROW width of 200 by 200 feet?

Response to Question 7.45:

The 50 feet by 50 feet temporary crane pad would be located within the 200 feet by 200 feet structure laydown area. The 200 feet by 200 feet described in the question are dimensions of the laydown area, not the ROW width.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Jeff Miller
Title: Project Manager
Dated: 02/22/2010

Question 7.46:

The PEA states that after the existing 115-kV subtransmission, distribution, and telecommunication lines are transferred to the new subtransmission structures, the existing structures would be completely removed, including the below-ground portion, and the hole would be backfilled using imported fill in combination with fill that may be available as a result of excavation for installation of the new structures.

- Would this also be true for the towers removed from the Serrano-Valley 500-kV line? Describe the removal process for these towers and the associated span of conductor.

Response to Question 7.46:

No, this would not be true for the towers removed from the Sorrano-Valley 500 kV line. The removal process for the Sorrano-Valley 500 kV line consists of the following: (1) de-energize the existing Serrano-Valley 500-kV line; (2) remove span of conductors; (3) dismantle the tower down to the structure footing; (4) remove the structure footing to a point two feet below grade; and (5) backfill the hole using suitable material excavated from the Project.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Robert Benton
Title: Sr. Technical Specialist
Dated: 02/22/2010

Question 7.47:

The PEA states, "Approximately 4 acres of land immediately outside the substation perimeter wall to the west, east and south would be used for subtransmission and transmission line access, vehicular access, buffers, and landscaping." Define the term buffers in this context.

Response to Question 7.47:

The use of the term buffer in reference to SCE substations describes an open area encompassing the entire substation perimeter to afford security for the substation and to protect against unauthorized persons gaining access into the substation by means of site alterations/improvements. The buffer would be a ten feet wide belt around the entire exterior perimeter of the wall and would exclude any improvements that could be climbed and used as a bridge to the top of the substation perimeter wall. These would include large trees, poles, sheds or other structures capable of supporting a potential intruder of any age or size. The area would also exclude the use of trees, bushes and other plants large enough to hide a potential intruder attempting to scale the substation perimeter wall by means of a ladder or other climbing devices.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Robert Benton
Title: Sr. Technical Specialist
Dated: 02/22/2010

Question 7.48:

- With regard to access and spur roads, the PEA states that "The graded road would have a minimum drivable width of 14 feet (preferably with 2 feet of shoulder on each side), but may be wider depending on final field conditions." Indicate if the roads would be 14 feet or 18 feet. Would 2 feet extra on each side of the road be preferred in all cases or only under certain circumstances? If the latter, under what circumstance would the 2 foot shoulder on each side of the road be preferred.

- There does not appear to be any need for access roads for the proposed project, as defined in the PEA, please confirm. If access roads were determined to be needed during final design of the proposed project, how wide would they be, on average?

Response to Question 7.48:

The design would be based on a minimum road width of 14 feet for traffic passage. A two-foot compacted shoulder would be assumed for all locations unless there were extenuating conditions that would limit the available width to less than 18 feet. The shoulders are intended to help shore up the road edges beyond the drivable width. Depending on the topography, it may be necessary to increase the drivable road width to as much as 18 feet for safe traffic passage. Normally this would apply to sharp turns where long vehicles might need the extra width to navigate the turn. To the extent possible the two-foot shoulder would apply to these areas as well.

In Section 3.1.3 of the PEA the second paragraph on page 3-11 spells out the approximately 2 miles of access and spur roads needed for the 500 kV transmission lines.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Jeff Miller
Title: Project Manager
Dated: 02/22/2010

Question 7.50:

- Describe the construction process for the switch pole Valley–Newcomb 115-kV Subtransmission Line (near the Serrano–Valley line) and for all other switch poles. Data gap submittals and Figure 2.3 indicate that there would also be a switch pole / switch poles would be installed near Elsinore Substation on the existing Valley–Elsinore–Ivyglen line and just east of the Newcomb Substation.

- Indicate the dimensions and locations of staging area and pull and tension sites for the switch poles.

- Indicate land disturbance and update all columns of Table 3.3/3.4 with switch pole land disturbance information.

Response to Question 7.50:

The construction process for the switch pole Valley–Newcomb 115-kV Subtransmission Line (near the Serrano–Valley line) and for all other switch poles is as follows: (1) de-energize line dead; (2) install new taller pole to accommodate clearance spacing required for overhead switch equipment; (3) install new overhead switch on taller pole; (4) transfer existing conductors from old pole to new pole and dead end conductors on new switch; (5) remove old pole; (6) test pole switch for operation; (7) re-energize line.

There are no staging areas nor pull and tension sites specifically for switch poles. Instead, they are the same as the other poles but have additional equipment attached to them.

The land disturbance for these switch poles was previously accounted for in Table 3.3.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Jeff Miller
Title: Project Manager
Dated: 02/22/2010

Question 7.53:

- Clarify if a Blasting and Fracturing Plan would be prepared prior construction. If so, provide a draft blasting plan showing the proposed contents.

- Provide a complete copy of the latest version of SCE's Blasting Plan (or full program document).

- PEA section 3.2.1.8 indicates that blasting may occur? Provide the location and indicate the amount of waste material that would be generated and if said waste would be removed to an off-site facility

- Provide estimate of number of days blasting would occur, and time of blasting (morning, afternoon, evening, night).

- Provide the locations where blasting/fracturing is anticipated, and a list of sensitive receptors and buildings (residences, schools, hospitals, daycares, libraries, places of worship, and historical sites) that would be potentially affected within 0.25 miles from the proposed blasting/fracturing sites.

- Provide the timeframe of advance notice to potentially affected receptors that would be considered for the proposed pre-blast notifications.

- Provide the estimated levels of vibration that would result from the proposed blasting/fracturing activities and their expected attenuation over distance.

- Provide estimated vibration attenuation features that would result from the proposed special protective measures during blasting/fracturing activities.

Response to Question 7.53:

Blasting/Fracturing is no longer a construction option being considered for this Project and will not be utilized at any time in its construction.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 02/22/2010

Question 7.61:

Provide the maximum corona noise levels from the proposed substation capacitor banks (include reference).

Response to Question 7.61:

The proposed scope of work does not include any plans to build the 500-kV shunt capacitor banks. Therefore, corona noise levels are not applicable.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 02/22/2010

Question 7.62:

The proposed substation perimeter wall would also provide a noise barrier during project operations and maintenance. Clarify if the proposed substation site would include additional noise attenuation barriers (e.g., vegetation, walls, berms) as part of landscaping.

Response to Question 7.62:

The proposed substation is located close to a freeway and SCE anticipates that the noise generated by the freeway would overshadow any noise generated at the substation. Accordingly, SCE would not include additional attenuation barriers to the proposed substation design.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.8:

(Biological Resources/sec 4.4)
Provide a table that shows temporary and permanent impact disturbances (in acres) by vegetation community for all project sites including the substation footprint and staging areas as well as tension and pull sites, and tower and pole sites for both 115-kV and 500-kV lines that would be constructed, double-circuited, reconductored, or replaced. For example, rows in the table would be titled by vegetation community and columns would be titled Substation Footprint and Staging Areas; 500-KV Line Towers, Staging Areas, Tension and Pull Sites; 115-kV Line Towers, Staging Areas, Tension and Pull Sites.

Response to Question 5.8:

For the substation footprint, the estimated acreages of habitats disturbed are as follows:
Residential/Urban/Exotic: 22
Southern Willow Scrub: 0.7
Riversidean sage scrub: 3

For the 500 kV segments and the new and modified 115 kV subtransmission lines, SCE would like to propose conducting joint biological surveys with E&E during Spring 2010 to identify sensitive resources in these areas of the Proposed Project. SCE would use the results of these surveys to develop preliminary pull/tension sites for the 500 kV transmission construction and 115 kV modifications that would avoid sensitive resources to the extent feasible.

Locations of Ivyglen-Newcomb-Skylark and Elsinore-Skylark 115 kV Subtransmission Lines

IVYGLEN

SERRANO-VALLEY

I-15 Crossing
2 existing poles removed
2 new TSPs installed

500 kV Crossing
Approximately:
1 pole removed
3 new LWS poles
3 new TSPs
1 new switch pole
Remove one span of
Valley-Newcomb 115kV line

FOGARTY
(Constructed 2011)

Valley-Elsinore-Ivyglen line
Approximately:
12 strucures removed
11 new LWS poles
3 new TSPs

Valley-Newcomb
-Skylark line
Approximately:
5 poles removed
5 new LWS poles
2 new TSPs

NEWCOMB

New 115 kV
Segment
Approx:
79 new
LWS poles

CITY OF
LAKE
ELSINORE

CITY
OF CANYON LAKE

CITY OF
PERRIS

ELSINORE

Ivyglen-Newcomb-Skylark line
and Elsinore-Skylark line
Approximately:
106 structures removed
91 new LWS poles
15 new TSPs

Ivyglen-Newcomb-Skylark 115 kV subtransmission line

The two lines share a structure here

Elsinore-Skylark 115 kV subtransmission line

SKYLARK

Valley-Newcomb-Skylark line
Approximately:
127 structures removed
116 new LWS poles
4 new TSPs
10 new H-frames

CITY OF
WILDOMAR

CITY OF
MURRIETA

Campbell Ranch Rd
Temescal Canyon Rd
Bid Farm Rd
Horsethief Canyon Rd
Mountain Rd
Lake St
Gunnerson St
Lakeshore Dr
Lincoln St
Machado St
Grand Av
Post Rd
Ellis Av
Cowan Av
Theda St
Case Rd
Goetz Rd
Ethanac Rd
River Rd
Greenwald Av
Nacoma St
Canyon Lake Dr N
Summerhill Dr
Mccall Blvd
Cherry Hills Blvd
Murrieta Rd
Newport Rd
Scott Rd
Lemon St
Corydon St
Poppy Canyon Rd
Central St
Palomar St
Clinton Keith Rd
Prielipp Rd
Jackson Av
Washington Av
Hancock Av
De Portola Rd
De Oso Dr

115kV Subtransmission Lines

- Existing 115 kV subtransmission line (SCE, 2008)
- Double-circuit an existing single-circuit subtransmission line without structure replacement (Valley-Ivyglen line - Constructed 2011)
- Double-circuit an existing single-circuit subtransmission line with structure replacement
- New single-circuit 115kV subtransmission line
- New single-circuit 115kV subtransmission line alternative segment

Substations

- Proposed Alberhill Substation
- Substations (SCE, 2008)

500kV Transmission Lines (SCE, 2007)

- Existing 500 kV Transmission Lines (SCE, 2007)
- Proposed 500kV Transmission Line

Basemap Data

- Transportation Lines (TBM, 2008)
- SCE Service Territory Boundary (SCE, 2006)
- County Boundaries (TBM, 2008)
- Water Features (TBM, 2008)

N
W E
S

0 0.5 1 2 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.
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Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.15:

(Project Description/page 3-18)
Indicate on a map where the Ivyglen-Newcomb-Skylark 115 kV subtransmission line is located. Indicate on the same map where the Elsinore-Skylark 115 kV subtransmission line is located.

Response to Question 5.15:

Please see attached figure.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 01/12/2010

Question 5.17:

(Project Description/page 3-21)
Specify on a map and in writing the locations and estimated sizes of all pull and tension sites that would be used during construction for all aspects of the proposed project: 500-kV Substation, 500-kV transmission lines, 115-kV subtransmission lines, and telecommunications equipment.

Response to Question 5.17:

Prior to specifying the pull and tension sites, SCE would like to propose conducting joint biological surveys with E&E during Spring 2010 to identify sensitive resources in the area of the Proposed Project. SCE would use the results of these surveys to develop preliminary pull/tension sites for the 500 kV transmission construction and 115 kV modifications that would avoid sensitive resources to the extent feasible.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title:
Dated: 01/12/2010

Question 5.20:

(Project Description/pages 3-17 to 3-19)

- Indicate the total number and type of structures to be removed for all aspects of 115 kV subtransmission line installation and modification (e.g., number of wood poles, number of H-frames, number of LWS poles).
- Indicate the total number of structures to be installed by type for the proposed project (e.g., total number of wood poles, total umber of H-frames, total number of LWS poles, total number of TSPs, and total number of 500 kV towers). The PEA lists the number and type of structures to be installed by line segment but not in total.
- Indicate the total distance (in miles) of 115 kV subtransmission line to be installed or modified. The PEA lists distances by line segment but not in total.

Response to Question 5.20:

The following table summarizes the number and type of structures to be removed for all aspects of 115 kV subtransmission line installation and modification:

Structure type	Total number of structures to be removed
Wood poles	251
H-frame structures	10
LWS	2
TSP	4
Total	267

The above numbers are only approximate estimates based on preliminary engineering and field survey. Upon project approval SCE will conduct an extensive field survey followed by detailed engineering to determine which structures would actually be replaced.

The following table summarizes the number of structures to be installed by voltage and type for

the proposed project:

Voltage	Structure type	Total number of structures to be installed
500 kV	Total Lattice Steel Towers	10
115 kV	Wood poles	0
	H- frame	10
	LWS	304
	TSP	40
	Total	354

Similarly, the above information is approximate and subject to final engineering.

The total distance of 115 kV subtransmission line to be installed is approximately three miles and the total distance of 115 kV subtransmission line to be modified is approximately 16.75 miles. SCE will determine the exact distances when it completes the final engineering for the project.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 01/12/2010

Question 5.16:

(Project Description/pages 3-17 to 3-18)
List the total length of each of the following lines (in miles) that would be double-circuited. In addition, list the total length of each of the following lines that would require new or replaced structures.
-Valley-Elsinore-Ivyglen
-Ivyglen-Newcomb-Skylark
-Elsinore-Skylark
-Valley-Newcomb-Skylark

Response to Question 5.16:

The following table summarizes the requested information:

Line	Total Length to be Double-Circuited (miles)	Total Length requiring New Structures (miles)	Total Length requiring Replaced Structures (miles)
Valley-Elsinore-Ivyglen Collier between 3rd and 2nd Streets Conrodia Ranch Road	0.3 0.75*	0 0	0.3 0
Ivyglen-Newcomb-Skylark	0	0	0
Elsinore-Skylark	4.5	0	4.5
Valley-Newcomb-Skylark	5.7	0	5.7
Valley-Ivyglen (proposed in A.07-01-031)	5.25*	0	0

1. Distances are approximate pending final engineering.

2. Because replaced structures are new structures, SCE assumes the Commission is identifying those areas where existing structures will be placed versus areas in which where no structures exist today and new structures will be placed. Where structures are identified to be replaced, there may be instances where a nominally greater number of structures will be installed. SCE includes these structures as part of its replacement structures.

* These two values total the 6.5 miles of double-circuiting the Valley-Ivyglen line, as stated in the Alberhill PEA.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Jeff Miller
Title: Project Manager
Dated: 02/22/2010

Question 7.41:

Provide a complete copy of the latest applicable version of SCE specifications and documentation or manuals for helicopters used for the erection of structures. Provide site specific documentation if available or indicate when it will be available if planned.

Response to Question 7.41:

SCE has not yet performed final engineering and exact construction specifications for the Alberhill project. Accordingly, there is not site specific documentation, but below is a list of typical SCE helicopter specifications.

HELICOPTER SPECIFICATIONS

Make	Model	Engine Make	Engine Model	
Hughes	369D	Rolls Royce	250-C20R	passenger
Hughes	369E	Rolls Royce	250-C20B	passenger
MDHC	369FF	Rolls Royce	250-C30	passenger
Hughes	369D	Rolls Royce	250-C20B	passenger
Sikorsky	S-64E	Pratt & Whiney	JFTD12A-4A (2 ea)	
American Eurocopter Corporation	Astar AS350	Turbo Arrier	1D1	
Boeing	BV 107-II	General Electric	CT58-110-1 or 2 (2ea)	

This list is subject to change based on Project requirements, availability of helicopters, and the use of contract helicopter services.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-006

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 6.1:

Provide electronic GIS shape files for all the of the proposed project components, including but not limited to:

- The Alberhill Substation
- the existing agricultural water line that would need to be relocated, and the proposed alignment for its relocation
- 500-kV lines (N1, N2, N3, C1, C2, C3, C4)
- Serrano–Valley 500-kV corridor and transmission line
- All 115-kV lines (Valley–Ivyglen, Valley–Elsinore–Ivyglen, Elsinore–Skylark, Ivyglen–Newcomb–Skylark)
- Telecommunications lines
- Microwave towers and dish antennas
- Santiago Peak Communications site
- All staging areas, tension and pull sites, and marshalling yards. Illustrate the estimated size and shape of every tension and pull site, staging area, and marshalling yard required for implementation of the proposed project and label them with dimensions (length, width, and acreage).
- Alternative Sites B and C
- The LEAPS alternative site
- 115-kV segment alternative 2
- All switch pole locations in the proposed Alberhill 115-kV Subtransmission System
- All locations where spans of conductor would be removed
- Valley, Newcomb, Skylark, Elsinore, Fogarty (proposed), Ivyglen substations
- Mira Loam and Serrano substations
- Vista substation
- Tenaja (proposed), Barre and Walnut substations

Response to Question 6.1:

The GIS files are provided as follows:

The Alberhill Substation: This information was provided for Data Request 1, Question 5.

The existing agricultural water line that would need to be relocated, and the proposed alignment

for its relocation: This information is being provided on disk.

500-kV lines (N1, N2, N3, C1, C2, C3, C4): This information was provided for Data Request 1, Question 5.

Serrano–Valley 500-kV corridor and transmission line: This information was provided for Data Request 1, Question 5.

All 115-kV lines (Valley–Ivyglen, Valley–Elsinore–Ivyglen, Elsinore–Skylark, Ivyglen–Newcomb–Skylark): This information was provided for Data Request 1, Question 5.

Telecommunications lines: This information was provided for Data Request 1, Question 5.

Microwave towers and dish antennas: This information is provided above and below.

Santiago Peak Communications site: Santiago Peak is at approximately 33 42 37.26 N, 117 32 4.49 W (NAD 83 datum values)

All staging areas, tension and pull sites, and marshalling yards. Illustrate the estimated size and shape of every tension and pull site, staging area, and marshalling yard required for implementation of the proposed project and label them with dimensions (length, width, and acreage): This information is being developed.

Alternative Sites B and C: This information was provided for Data Request 1, Question 5.

The LEAPS alternative site: This information was provided for Data Request 1, Question 5.

115-kV segment alternative 2: This information was provided for Data Request 1, Question 5.

All switch pole locations in the proposed Alberhill 115-kV Subtransmission System: To be determined during final engineering

All locations where spans of conductor would be removed: To be determined during final engineering

Valley, Newcomb, Skylark, Elsinore, Fogarty (proposed), Ivyglen substations: This information was provided for Data Request 1, Question 5.

Mira Loma and Serrano substations: This information is being provided on disk.

Vista Substation: This information is being provided on disk.

Tenaja (proposed), Barre and Walnut substations: This information is being provided on disk.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-006

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 6.1.1:

(a) Explain the discrepancy between the GIS shape files provided for the proposed double-circuited lines under the Alberhill System Project and the existing 115-kV lines. In some locations, the proposed and existing lines deviate by 100 feet or more. Provide updated shape files without discrepancies between the proposed double-circuited lines and the existing single-circuit lines.

Example 1: See attachment showing Elsinore–Skylark 115-kV Line on both sides of the crossing of East Franklin Street. The blue and green lines should match up much more closely since the proposed double-circuiting would be placed on new structures along the existing line's route.

Example 2: See attachment showing Valley–Newcomb–Skylark between Lost Road and Story Road (between Lost Road and Beverly Street). The line here does not appear to match up with the existing power line structures after leaving Lost Road.

(b) Indicate which alternative and relocated sections from the Valley–Ivyglen Subtransmission Line and Fogarty Substation DEIR are proposed for the Alberhill System Project. Confirm, for example, if the Pacific Clay section of Alternative 5, the Environmentally Superior Alternative, is proposed with Route Segments W-13A, W-13B, W-13C, W-13D, W-14A, W-14B, and W-3.

(c) Provide electronic GIS shape files and data for all the of the following proposed project components that were previously requested but not provided in response to Data Gap Request 6.1:

- the existing agricultural water line that would need to be relocated, and the proposed alignment for its relocation
- 500-kV lines (N1, N2, N3, C1, C2, C3, C4)
- Microwave towers and dish antennas
- Crane pads (especially those that may be outside of the 500-kV 200-foot or 115-kV 100-foot ROW).
- Expected benching sites
- All switch pole locations in the proposed Alberhill 115-kV Subtransmission System
- All locations where spans of conductor would be removed

- All staging areas, tension and pull sites, and marshalling yards. Illustrate the estimated size and shape of every tension and pull site, staging area, and marshalling yard required for implementation of the proposed project and label them with dimensions (length, width, and acreage). If exact locations and dimensions are not yet determined, provide approximate locations and dimensions and discuss the criteria that will be used for final siting.

Response to Question 6.1.1:

(a) When producing maps, SCE uses a several data sources with varying resolution of data. The lines labeled as "Proposed 115 kV" were hand drawn on an aerial photo layer, and the lines labeled as "Existing 115 kV" are part of a set of GIS data that represents SCE's planning-level resolution. Because two different data sets with differing resolutions were used as the basis for producing the lines, the images appear offset from one another.

(b) SCE confirms that it will be using the Pacific Clay section of Alternative 5, the environmentally preferred alternative within the Valley-Ivyglen Subtransmission Line and the Fogarty Substation Project DEIR, as stated on page 10 of SCE's Direct Testimony on Valley-Ivyglen 115 kV Subtransmission Line Project and Fogarty Substation Project dated July 10, 2009. The Pacific Clay section of Alternative 5 is comprised of Route Segments W-13A, W-13B, W-13C, W-13D, W-14A, W-14B, and W-3 as identified on Figure C.2-7 of the Valley-Ivyglen and Fogarty DEIR.

(c) Please see response to Data Request 6.1.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 02/22/2010

Question 7.1:

Provide detailed information about the following project listed in Table 6.1 of the PEA. Describe how many circuits would be added and other aspects of the project. Describe how it relates to the Alberhill System Project. Provide the full name of the project and the full PEA if already submitted:

SCE, Reconductor Valley-Newcomb leg of Valley-
Newcomb-Skylark 115 kV subtransmission line, Planning stage, Construction in 2010

Response to Question 7.1:

SCE's 2010 project to reconductor the Valley leg of the existing Valley-Newcomb-Skylark 115 kV subtransmission line consists of the following scope:

- Reconductor approximately 4.9 miles of existing overhead 653 ACSR conductor with overhead 954 SAC conductor

The project will utilize existing poles with no new pole additions and the project adds no new circuits. The conductor upgrade increases the capacity to deliver power through the Valley-Newcomb-Skylark 115 kV line.

The purpose of the project is to address an N-1 overload condition that is projected to occur by 2010 on the Valley leg of the Valley-Newcomb-Skylark 115 kV line during an outage of the existing Valley-Newcomb 115 kV line.

The project has no relationship to the Alberhill System Project. It neither influences the need for the Alberhill System Project, nor is it needed because of it.

The project is exempt under G.O. 131-D and thus no PEA filing was required.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Ted Heath
Title: MPP2
Dated: 02/22/2010

Question 7.2:

A company that would be involved with the LEAPS site development has stated that a substation and switchyard would be constructed on that site.

a. Explain why the transmission lines could not circumvent Lee Lake and/or avoid an overhead crossing of Lee Lake.

b. Provide data and maps that confirm the site is "susceptible to liquefaction, and there is evidence of past faulting on and adjacent to the site."

c. 40 acres is more than enough space to build the proposed substation (see data response10/28/2009 Alberhill-ED-SCE-001 Q.03 Response.pdf). Provide sufficient reasoning to support the claim that a rectangular substation cannot be constructed at the LEAPS site.

d. How much additional double-circuiting would be required (in miles) if the LEAPS site were chosen for Alberhill Substation construction instead of the proposed site.

e. Describe how the 115-kV lines would exit the LEAPS site and be routed into the existing 115-kV system (e.g., number and placement of poles). Provide a map and reference it in the description.

Response to Question 7.2:

(a) Figure 3.1.1-1 (2 of 23) Talega-Escondido/Valley-Serrano 500 kV Interconnect Project, Page 3-13 of The Nevada Hydro Company's, July 2008 (Revised November 2008) Proponent's Environmental Assessment (attached) depicts a route for 500 kV transmission lines that crosses over Lee Lake and the lake's dam structure.

Looking at the constraints imposed by the location of Lee Lake, the lake's dam structure, Temescal Canyon Road, Indian Truck Trail, Interstate 15, the existing businesses located to the south of the Lee Lake site and the proposed Toscana Marketplace and Toscana Business Center to the north (page D.2-5, Land Use, Valley-Ivyglen Subtransmission Line and Fogarty Substation Project Draft Environmental Impact Report prepared by the CPUC and dated June 2009) the ingress and egress of 500 kV transmission lines, 115 kV

subtransmission lines and future distribution lines would be severely limited to proceeding north or south along Temescal Canyon Road or across the lake to some extent. SCE does not have a 500 kV tower design that will accommodate 90 degree turns which further limits the practicality of this location.

Lee Lake, Temescal Canyon Road and Interstate 15 are in close proximity to the southeast which further limits the number of structures that can be located thru this area while meeting line separation criteria and providing necessary clearances for operation and maintenance.

As noted on page D.2-5, Land Use, of the Valley-Ivyglen Subtransmission Line and Fogarty Substation Project Draft Environmental Impact Report, the proposed Toscana Marketplace and Toscana Business Center development to the northwest of the Lee Lake site would limit SCE's ability to locate 500 kV facilities northwest along Temescal Canyon Road. Likewise, the proposed Toscana development (http://www.ranpac.net/toscana_wp/?m=200807) limits the location of facilities to the north of Lee Lake.

An additional concern with this location is the proximity of the 500 kV facilities to the lake with respect to migratory birds.

Given the constraints imposed on this location as noted above, SCE has not performed engineering to evaluate whether the route proposed by TNHC in the TNHC PEA is feasible nor has SCE performed engineering on alternative transmission routing around Lee Lake to determine if alternative routing is feasible.

(b) See attached Alberhill Regional_Fault Lake and Alberhill Liquefaction Lake maps.

(c) SCE's preferred arrangement for a load serving substation is an all open-air configuration for both the 500 kV and 115 kV portions of the substation. An open-air configuration typically has minimum dimensions of 1350 feet x 1500 feet and assumes there are no restrictions on either the 500 kV or 115 kV get-away lines and does not include room for the get-away structures. This also does not account for site irregularities such as hills or drainage channels.

An alternative configuration is an all Gas Insulated Switchgear (GIS) configuration for both the 500 kV and 115 kV portions of the substation. An all GIS configuration typically has minimum dimensions of 895 feet x 1080 feet and assumes there are no restrictions on either the 500 kv or 115 kV get-away lines and does not include room for the get-away structures. This also does not account for site irregularities such as hills or drainage channels.

A second alternative configuration is what SCE terms a hybrid arrangement which utilizes GIS for the 500 kV portion of the substation and open-air for the 115 kV portion as SCE has proposed for the Alberhill Substation. This hybrid configuration typically has minimum dimensions of 895 feet x 1200 feet and assumes there are no restrictions on either the 500 kV or 115 kV get-away lines and does not include room for the get-away structures. This also does not account for site irregularities such as hills or drainage channels.

Please find attached Figure DR 7.02-1 Lee Lake Substation Site, SCE GIS Configuration 895'x1080' minimum, which shows the all GIS configuration over-layed on top of the Nevada Hydro Lee Lake site.

As can be seen from Figure DR 7.02-1, an all GIS configuration that meets SCE's design, operation and maintenance criteria will not fit within the property boundaries and would impact Lee Lake and the lake's dam structure in addition to Temescal Canyon Road, Indian Truck Trail and the drainage channel that bisects the property. Since the all GIS footprint is the smallest footprint of the three possible configurations that SCE has, either of the larger two footprints and respective configurations would have greater impacts to the existing facilities and features.

Further possible constraints to this location include planned improvements to Temescal Canyon Road as adopted by Riverside County Board of Supervisors on March 20, 2007 in its Temescal Valley Design Guidelines. These guidelines show the ultimate build-out of Temescal Canyon Road as being 128 feet including multi-use trails and paths. Given the fixed nature of Lee Lake and its associated dam structure, any increase in width of the roadway would arguably be taken on the proposed Lee Lake Substation side of Temescal Canyon Road reducing the width of that property and make the siting of a substation there more problematic.

As noted on page D.8-2 and mapped in Figure D.8-1, Hazards and Public Safety, in the CPUC's DEIR for the Valley-Ivyglen Subtransmission Line and Fogarty Substation Project, there are additional construction hazards associated with this site that include an existing natural gas pipeline. The location of this pipeline could potentially further reduce the ability to utilize this site for a substation.

In addition, in a design review of the Lee Lake site conducted by Siemens for The Nevada Hydro Company in the spring of 2008, Siemens concluded that "The substation, as it will be under the jurisdiction of SCE, has a number of maintenance and operational criteria which have to be implemented in the substation design. … As can be seen due to the requirements, the depth of the area required by SCE is larger than the plot we have available. And therefore the Lee Lake plot will not be sufficient for the complete 500/115kV substation".

(d) Without the benefit of engineering or design, the additional length of double-circuiting that would be required if the CPUC were to choose the Lee Lake site versus SCE's proposed Alberhill location would be utilizing that portion of the proposed Valley-Ivyglen 115 kV Subtransmission line between Alberhill and Lee Lake. This portion of the Valley-Ivyglen line would be noted as Segments W-4, W-8 and W-10 in the CPUC's DEIR for the Valley-Ivyglen Subtransmission Line and Fogarty Substation Project and would be approximately 2.5 miles in length.

(e) For all the reasons noted above, SCE considers the Lee Lake site to be inadequate and unacceptable as a substation location. Hence, SCE has not performed this level of engineering for a site dismissed and not carried forward for evaluation in its PEA.

If another company proposes the Lee Lake site as a substation site, it should be incumbent upon that company to show how that facility can accommodate SCE's ultimate requirements built to SCE's design, operation and maintenance criteria and then subsequently provide the engineering requested for the 115 kV subtransmission lines.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 02/22/2010

Question 7.6:

(a) Discuss the feasibility of removing sections of the Valley–Elsinore–Ivyglen 115-kV line once the Alberhill System Project is operational. In addition, indicate on a map of suitable scale which sections of the Valley–Elsinore–Ivyglen line could feasibly be removed. Removal would mean disposal, recycling, or salvaging of the conductor and all structures supporting it.
- Example 1: Removal of the Valley–Elsinore–Ivyglen 115-kV line section from Valley Substation southwest to a point northwest of the Elsinore Substation (where a switch is or would be installed).
- Example 2: Removal of Valley–Elsinore–Ivyglen 115-kV line sections between Elsinore, Fogarty, and Alberhill substations with use of the double-circuited Valley–Ivyglen Line.

(b) Discuss the feasibility of removing open-span sections that lead back to Valley Substation once the Alberhill System Project is operational. In addition, indicate on a map of suitable scale which open spans sections could feasibly be removed.

Response to Question 7.6:

Answer to Part a:
Once the Alberhill System Project is constructed, to retain the ability to transfer electrical demand between the Alberhill 115 kV System and the Valley South 115 kV System, no sections of the existing Valley-Elsinore-Ivyglen 115 kV line could be removed. Were sections of it removed, the system reliability under normal and abnormal conditions, would be sacrificed. The sections of existing 115 kV lines that would serve as tie-lines between the two system are integral to improving system reliability which is a key objective of the Alberhill System Project. The construction of the Alberhill System Project and the additional transformation that it provides for the area, serves two primary functions. One is to transfer electrical demand to provide relief of the demand placed on the Valley South 115 kV System under normal conditions and the other is to provide a means to transfer electrical demand under abnormal conditions, such as a 115 kV line outage, by creating ties to an adjacent 115 kV system. Currently the Valley South 115 kV System has no such ties.

The proposed removal of sections of the Valley-Elsinore-Ivyglen 115 kV line (between Elsinore,

Fogarty, and Alberhill Substations) and then installation of those removed sections on the new Valley-Ivyglen 115 kV line (by double-circuiting) would not be feasible. The proposed Alberhill-Skylark 115 kV line is already proposed to be placed on the Valley-Ivyglen 115 kV line structures (thus double-circuiting the Valley-Ivyglen 115 kV line from Alberhill Substation to the intersection of Third and Collier Streets in the City of Lake Elsinore).

Answer to Part b:
SCE's Transmission Planning Criteria and Guidelines under Section 4.4.3.1 states that "Subtransmission lines will have no more than three network terminals, including any normally open ties." Upon further engineering and with additional input from SCE's System Operations group, the statement on page 3-18 from the Alberhill PEA that "one span of wire on the Valley-Newcomb 115 kV subtransmission line would be removed" requires clarification.

To comply with SCE's Transmission Planning Criteria and Guidelines, a permanent physical and electrical separation would be required. For this project, this would not result in the removal of a span of wire between two poles, rather it would occur as follows. At a dead-end pole, the jumper wires would be disconnected, folded back, and then secured. This is a requirement which originates from the need to provide an adequate protective relaying scheme which is directly tied to both safety and reliability. Without removing the jumper wires on the Valley-Newcomb line, a four-terminal line would be created (Alberhill-Newcomb-Valley-Valley). The removal of the jumper wires on the existing Valley-Newcomb 115 kV line eliminates this concern. Creating a permanent physical and electrical separation effectively creates a break in the connectivity of the line such that no operator or field personnel could inadvertently cause a switching error or an unsafe situation. Were a switch installed, the possibility of connectivity would remain and it would then be considered a four-terminal line.

The section of line from Valley Substation to where the jumper wires would be removed, would initially be unused, but would be planned for reuse when an additional line from Valley Substation to Stadler Substation becomes necessary. The need for a new Valley-Stadler 115 kV line is not currently in SCE's ten year planning horizon; however, preliminary analysis of required system upgrades necessary to serve ultimate needs, as electrical demand grows, indicates that this line would be needed under N-1 conditions within 15 years. This need date is subject to growth in electrical demand and could be advanced or deferred upon analysis that occurs annually. For this reason, it would not be prudent to remove this section of line between Valley Substation to the open-span that would be created.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.7:

***** The text description of structures to be removed and replaced and the numbers listed in Tables 3.3 and 3.4 and Data Gap Response 5.20 do not match up. The following three data gap requests address this issue.

(a) Table 3.4 (outside public row) indicates the 115-kV wood H-frames and wood poles would be removed and replaced. It is our understanding that Table 3.4 refers to the Alberhill Substation site, 500-kV lines, and 115-kV line TPSs at the Alberhill site needed for connection to the 115-kV system. Indicate, in terms of the 115-kV Segments 1 through 8 identified in the attached map, where the 115-kV structures would be removed and installed that are listed in Table 3.4.

Response to Question 7.7:

The land disturbance associated with construction of the Alberhill System Project is summarized in Table 3.3, Land Disturbance Within Public ROW, and Table 3.4, Summary of Land Disturbance Outside Public ROW.

Construction of the new and modified 115 kV subtransmission lines would occur both within public ROW and outside public ROW, and as a result, the estimates of ground disturbance are quantified in both tables. Almost all 17 miles of the 115 kV construction would occur within public ROW, with an approximate 0.6 mile section outside public ROW (shown on page 7 of the attached figure) and an approximate 1.3 mile section (shown on page 12).

The summary of where structures would be removed and installed is shown in the PEA on Figure 3.3, Subtransmission Line Description. The callout for the 500 kV Crossing should read "1 new switch installed on existing pole" instead of "1 new switch pole".

1 attachment

Alberhill 115 kV Mapbook.pdf

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 02/22/2010

Question 7.16:

What are the heights of all existing wooden poles that would be replaced and what height and type of pole would they be replaced with? What height and type of replacement poles will be visible from I-15 west of Railroad Canyon Road? Provide the specification on (including capacity) of the existing line that is visible from I-15 west of Railroad Canyon Road?

- Figure 3.2 says 95 to 165 feet 500-kV towers but the text says "the towers would have a dull galvanized steel finish and would range in height from approximately 95 to 172 feet." Provide an accurate height range with a minimum and maximum height (do not approximate the maximum height).

- The dimensions listed in Figure 3.4 differ from what is stated in the PEA text. The PEA text states that for the 115-kV lines, TSPs would be from 70 to 100 feet tall. LWS poles would be from 65 to 91 feet tall. H-frame structures would be from 70 to 80 feet tall. The LWS switch pole would be 85 feet tall. Provide accurate height ranges with a minimum and maximum height (do not approximate the maximum height).

Response to Question 7.16:

SCE has broken question 7.16 into several parts:

Q.7.16.a: What are the heights of all existing wooden poles that would be replaced and what height and type of pole would they be replaced with?

A.7.16.a: This information is not available and will be determined during final engineering. Final engineering will include a wind load study that will aid in determining which poles will require replacement. An As-Built Survey will be performed that will provide the location of the existing poles, locations of existing underground fed street lights, underground utilities and other obstructions. This information will be used to help determine new pole height and location. Additionally, SCE is required to go through the Joint Pole Organization (JPO) process that utility members use to notify other members of the JPO that poles, anchors, crossarms, etc. will be newly installed, replaced, or relocated, etc. The JPO process generally requires a field meet with the other member utility desiring to attach to the new facility to discuss pole and anchor location. The JPO process gives the other members an opportunity to inform SCE

how much space they will require on the pole, if any. SCE will utilize the information provided by any JPO member(s) to aid in determining the pole height and location required.

The existing wood transmission poles range in height between 65 and 90 feet. The new poles are expected to be Light Weight Steel (LWS) poles which are expected to range in height between 65 ft -91ft above ground level except where a Tubular Steel Pole (TSP) will be required. TSPs are expected to range in height between 70 ft -100 ft above ground level.

Q.7.16.b: What height and type of replacement poles will be visible from I-15 west of Railroad Canyon Road? Provide the specification on (including capacity) of the existing line that is visible from I-15 west of Railroad Canyon Road.

A.7.16.b The Elsinore-Skylark 115 kV line runs on the east side of Auto Center Dr. and Casino Dr. at the intersection of these streets with Railroad Canyon Rd. The wood poles of the existing line are on average 70 ft. in height and the conductor size is 653ACSR. The proposed project would establish a new Alberhill-Skylark circuit, which at the vicinity of Railroad Canyon Rd. would form a double-circuit alignment with the existing Elsinore-Skylark line. The existing wood poles would be replaced by Light Weight Steel Poles approximately 75ft to 80 ft. height above ground. The new poles would be placed on the same side of the street as the poles that are being replaced. The existing 653ACSR (aluminum conductor steel reinforced) conductors of the Elsinore-Skylark line would be transferred to the new poles. The conductors of the new Alberhill-Skylark line will be 954 Stranded Aluminum Conductor (SAC).

Q.7.16.c Figure 3.2 says 95 to 165 feet 500-kV towers but the text says "the towers would have a dull galvanized steel finish and would range in height from approximately 95 to 172 feet." Provide an accurate height range with a minimum and maximum height (do not approximate the maximum height).

A.7.16.c Figure 3.2 shows a typical 500 kV tower. This figure should have been more specific to the towers planned for this project and the range shown on the figure should have matched the range mentioned in the text: "*approximately 95 to 172 feet*"

An accurate height range cannot be provided until engineering is completed. SCE will make every effort to maintain the maximum height as low as possible not only for aesthetic reasons, but also to minimize any aviation issues and constraints.

Q.7.16.d The dimensions listed in Figure 3.4 differ from what is stated in the PEA text. The PEA text states that for the 115-kV lines, TSPs would be from 70 to 100 feet tall. LWS poles would be from 65 to 91 feet tall. H-frame structures would be from 70 to 80 feet tall. The LWS switch pole would be 85 feet tall. Provide accurate height ranges with a minimum and maximum height (do not approximate the maximum height).

A.7.16.d Figure 3.4 of the PEA shows typical 115 kV Subtransmission structure heights. This figure should have been more specific to the structures planned for this project and the range shown on the figure should have matched the range mentioned in the text. Furthermore, Figure 3.4 shows only the above ground dimensions of the different subtransmission structures that SCE expects to use on this project. The PEA text states the overall length of the TSPs would be from 70 to 100 feet tall. The TSPs will attach at ground level to a footing in the ground. Therefore, the approximate heights for the TSP's is correct (70 ft -100 ft).

Light Weight Steel poles are direct buried. The portion of the pole that is buried generally equals ten percent of the pole height plus 2 feet. This is an estimate and the exact portion of the pole to be buried is based upon final engineering (please see answer above). Therefore, the above ground height of 65 to 91 feet for LWS poles equates to an overall pole height of 75 to 100 feet. Similarly, for H-frame poles above ground heights of 70 to 80 feet (shown on Figure 3.4) equate to total pole heights of 80 to 90 feet. Accurate height ranges with precise minimum and maximum height cannot be provided without the benefit of final engineering (please see answer above). The LWS switch pole max height at 85 feet above ground level is correct as described in the text and shown on Figure 3.4.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.39:

Provide a complete copy of the latest applicable version of SCE's Salvage Services Manual and Waste Management Manual. Provide site specific documentation if available or indicate when it will be available if planned.

Response to Question 7.39:

This data request has been retracted.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.51:

Provide GIS shape files for vegetation communities mapped for all project components (i.e., Alberhill Substation, 500-kV lines, 115-kV lines, telecommunication lines). Provide vegetation data set and description of the methodology used to get the data (e.g., reconnaissance level surveys conducted to date).

Response to Question 7.51:

The GIS shape files are attached. The methodology for obtaining the data is described in the Proposed Alberhill Project Biological Resources Technical Report for the 500 kV and 115 kV Study Areas Section 2.2, and the Proposed Alberhill Project Biological Resources Technical Report for the Alberhill Substation Study Area Section 2.2.

41 attachments


veg_substation.shx


15kv_vegetation.dbf


15kv_vegetation.prj


15kv_vegetation.sbn


15kv_vegetation.sbx


15kv_vegetation.shp


15kv_vegetation.shp.xml


15kv_vegetation.shx


115kv_alternative_vegetation.dbf


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115kv_alternative_vegetation.shp.xml


115kv_alternative_vegetation.shx


c1_vegetation.dbf


c1_vegetation.prj


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c1_vegetation.shx


n3_vegetation.dbf


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veg_substation.dbf


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veg_substation.sbx


veg_substation.shp.xml

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.67:

- Provide size and noise emission data for helicopters that may be used during the proposed 500-kV line construction. Provide the average hours that the helicopters would be used per day.

- Provide a list of potential sites that would require the use of helicopters for the installation of transmission and subtransmission structures.

- Provide the helicopter size and related noise emission data- that would be required during routine line inspections. Indicate the number of hours per day and total number of days of helicopter use for line inspections.

Response to Question 7.67:

Use of helicopters is presented in Appendix F, Construction Equipment and Personnel Requirements. Light-duty helicopters generate noise levels of approximately 80 dBA at 200 feet.

Until final engineering is completed, potentially, all the 500 kV structures may require the use of helicopters in their construction. Furthermore, until final engineering is completed, it is assumed that none of the subtransmission structures would require the use of helicopters during construction.

Presently SCE inspects the Serrano-Valley 500 kV transmission line by helicopter every other year. The time added to inspect the 500 kV segments associated with the Alberhill System Project would be minimal.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.69:

Clarify if noise studies would be included as part of the environmental surveys proposed to be conducted prior to construction.

Response to Question 7.69:

The Riverside County noise ordinance limits construction activities to occur between hours of 6:00 am and 6:00 pm during the months of June through September and from 7:00 am to 6:00 pm during the months of October through May. The City of Lake Elsinore limits construction work to occur between non-holiday weekday hours of 7:00 am to 7:00 pm. SCE would request a variance in the event construction occurs outside of stated hours. No construction-related noise studies are necessary at this time.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.71:

Provide the year when these noise measurements were taken (Table 4.11-1). Discuss how these values would have changed after the date when the measurements were taken.

Response to Question 7.71:

The reference for the table is provided on page 4-192 of the PEA. Information included in the table can be found at http://www.rctlma.org/genplan/content/appendix/appendixi.html#List_table_1

Population in Riverside County and the City of Lake Elsinore has increased since 1999, increasing the potential that actual noise levels are higher.

Southern California Edison
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DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.72:

- Based on the equipment list presented in Appendix F, provide a composite noise or sound pressure level (SPL) estimation for the loudest construction equipment per project component (substation, transmission lines, subtransmission lines, and telecommunication) indicating the number of equipment, load factor, days of operation, hours per day of operation, estimated composite sound pressure levels from operating equipment at 50 feet, and incremental distances up to 1,500 feet from the source. Provide the assumptions, model, and calculations used for this estimation.

- Provide the estimated composite construction noise level attenuation by distance from the proposed construction equipment to the closest sensitive receptors (per Riverside County General Plan: schools, hospitals, rest homes, long term care facilities, mental care facilities, residential uses, libraries, passive recreation uses, and places of worship).

Response to Question 7.72:

Estimating a composite noise level is not necessary because SCE plans to use construction equipment that is typically found on construction sites. The Riverside County ordinance limits construction activities to occur between hours of 6:00 am and 6:00 pm during the months of June through September and from 7:00 am to 6:00 pm during the months of October through May. The City of Lake Elsinore limits construction work to occur between non-holiday weekday hours of 7:00 am to 7:00 pm. SCE would request a variance in the event construction requires work outside of the stated hours.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Jeff Miller
Title: Project Manager
Dated: 02/22/2010

Question 7.9:

a) What is the construction easement width required for installation of the 115-kV subtransmission lines? Table 3.3 implies that at the widest, a 100-foot construction easement width would be required in terms of the *centerline* (e.g., 100 feet total or 100 feet on both sides of the centerline or a 100 foot diameter with the structure at the center). Indicate where and how distances vary.

b) What is the construction easement width required for installation of the 115-kV subtransmission lines at the Alberhill Substation to connect to the 115-kV subtransmission line system? Update Table 3.4 with this data. Indicate width in terms of the centerline (or diameter with the structure at the center).

c) Include land disturbance related to installation of the switch pole east of the Newcomb Substation (see PEA Figure 2.3) in Table 3.3 or 3.4 as applicable.

d) Include land disturbance related to installation of the two poles immediately south of the Alberhill Substation and on both side of I-15 in Table 3.3 or 3.4 as applicable.

e) Add rows to Table 3.3 and 3.4 for staging areas, tension and pull sites, and marshalling yards. Fill in the disturbance data and recalculate the totals.

f) Create a table like Table 3.3, with staging areas, tension and pull sites, for 115-kV Subtransmission Segment Alternative 2 (Sec. 2.3.1.2)

g) What is the total land disturbance for the proposed project (Alberhill Substation, 500-kV

Response to Question 7.9:

a) There isn't a typical construction easement width for the installation of the subtransmission line. The installation of the subtransmission line will be constructed in both franchise (public right-of-way) and private property. SCE, or SCEs contractor, will be required to obtain all necessary permits, easements, and/or approvals from the local agencies and private parties effected. These permits will also have detailed information stating where and when we can work, which will vary along the length of the project.

Table 3.3 describes the land disturbance in the public (or franchise) right-of-way of the various construction activities and the overall areas associated with them. If the activity is structure related, that structure will fall in the described area but not necessarily centered on the structure due to accessibility and field conditions around the site location. If the activity is wire stringing related, the described area in the tables will typically be centered on the subtransmission line.

b) The Alberhill Substation property will be owned by SCE, therefore, no easement will be required.

c) The land disturbance for this switch pole is already accounted for in Table 3.3.

d) The land disturbances for these TSPs are already accounted for in Table 3.3.

e) The land disturbances for the marshalling yard, tension, and pull sites are already accounted for, on separate rows, in Tables 3.3 and 3.4. Section 3.2.1.3 describes the Alberhill Substation as the primary marshalling yard and section 3.10 describes SCE crews being based, or staged, out of Valley Substation or Wildomar Service Center.

f) The table for the 115kV Subtransmission Segment Alternative 2 (Sec. 2.3.1.2) is attached below.

g) For the 500kV and 115kV lines only: Acres disturbed during construction- 174; Acres to be restored- 163; Acres required (permanently disturbed)- 11. Total disturbed acreage for all substation and telecomm work is included in Tables 3.3 and 3.4 of the PEA.

h) Yes, each LWS H-frame will also require an approximate laydown area of 150 feet by 75 feet. Table 3.4 had shown an incorrect H-frame type and disturbed area size.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 02/22/2010

Question 7.10:

Provide details for all hazardous materials that will be used for each component of the proposed project including the 500-KV lines and towers; 115-kV lines and structures; telecommunications lines (overhead and underground); switch poles; locations where spans of wire would be removed; microwave tower and dish antennas; and the proposed Alberhill Substation. Include:

1) a list of the name of each hazardous material as it appears on Material Safety Data Sheets;
2) the quantity of each hazardous material that would be used;
3) the purpose each of the materials will fulfill per project component;
4) a description of how each hazardous material would be transported to the respective project component;
5) a description of how each hazardous material would be administered for the purpose;
6) a description of how each hazardous material would be stored while in use for the project; and
7) a description of how each hazardous material would be disposed of (including where, when, and by whom).

Specifically address the following materials (if none say so): Transformer oil
- Dielectric fluid/capacitors ____ amount, for ____, etc.
- Fuels/ Diesel/Gas ____ amount, for ____, etc.
- Lube Oils/Grease ____ amount, for ____, etc.

Response to Question 7.10:

SCE has not yet determined the hazardous materials that are necessary for the construction of each of the proposed project's components. SCE will determine these materials once its application is accepted. Section 3.6 of the PEA and the response to question #5.7 provide the information that is currently known for the usage of hazardous materials during construction.

Pole removal identification requires a costly and extensive field survey to assess each pole's current condition. SCE will conduct this survey during final engineering after the application is accepted.

After the proposed project has been placed in service, SCE intends to have the following

chemicals at Alberhill substation:

Mineral oil: used as insulating media in two 500/115 kV transformers
Diesel oil: used as fuel by an emergency generator
SF6 gas: used as insulating media in the 500 and 115 kV breakers.
Battery fluid: contained in the batteries that would be located in the control room.

SCE has not yet determined the exact quantities of the above chemicals that will be used.
Attached are the Material Safety Data Sheets for the above chemicals currently used by SCE.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.11:

- The PEA indicates that approximately 12 acres needed for construction of the 500-kV transmission lines would use land acquired for the proposed substation site. The remaining 10 acres needed for construction of the 500-kV transmission lines would be acquired from four private property owners and the Riverside County Habitat Conservancy Agency.

- These estimates for land to be acquired are not consistent with the map provided in response to Data Gap 5.1 or with Tables 3.3 and 3.4. Clarify the discrepancy. How much land and from whom would the land be acquired for construction of the 500-kV transmission lines?

Response to Question 7.11:

Section 3.3, Land Acquisition, incorrectly states the land acquisition requirements for the 500 kV segments rights-of-way. Approximately 14 acres of 500 kV ROW would be on the substation parcel, and approximately 42 acres would be acquired from private landowners.

Tables 3.3 and 3.4 estimate the temporary and permanent uses of land to construct and operate the Alberhill System Project. These estimates will be refined during final engineering.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 02/22/2010

Question 7.12:

(a) Estimate the amount of water to be used in gallons for dust suppression, equipment cleaning, and powerline washing, creating cement, worker personal use, restroom, fire suppression, revegetation, restoration, and all other activities that would require water for all project components (the Alberhill Substation, transmission lines, subtransmission lines, etc.) during
- construction (__ gallons) and
- operations and maintenance, including landscaping irrigation, restroom, equipment cleaning, and powerline washing, (____ gallons)

(b) Indicate where water would come from and how much would come from each source (e.g., well, private contractor, municipal, etc.).

Response to Question 7.12:

a) The estimated volume of water required for dust suppression and restoration is unknown; there are numerous variables that can impact the daily volume of water that will be needed.

There will be no water used for dust suppression during the routine operation and maintenance of the proposed transmission lines. There will be no water used to perform line cleaning (insulator washing); SCE will use polymer insulators for the transmission lines of this project; polymer insulators do not require cleaning/washing.

It is assumed that concrete will be supplied from a local vender therefore no water will be needed to create cement.

During normal operations approximately 3,000 gallons of de-ionized water will be used for cleaning of the substation's electrical equipment. This quantity of water will be transported from Valley substation once per year. The substation will be unattended; a minimal amount of water will be used for restroom facilities. Landscaping water requirements will be determined after the landscaping plan is developed.

b) It is assumed that 100% of the water needed for construction and operations would be supplied by the local water agency.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.15:

Provide character photos and simulations in JPEG or equivalent format that are suitable for print. Provide GPS locations (including bearing/direction of photograph) for each photo.

Response to Question 7.15:

Files are on the disk provided for Question 6.1.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.17:

Provide additional details about revegetation and restoration plans for lands temporarily disturbed by construction. What areas will be revegetated? What areas will be restored? Will recontouring take place? Who will determine and what will be used to determine which species of plants are approved for revegetation? What metrics will SCE use to determine whether revegetation has been successful?

Response to Question 7.17:

If the temporary construction area is on the Alberhill Substation property, revegetation would occur consistent with a landscape plan developed to follow surrounding community standards and subject to the requirements of SCE. If the revegetation occurs within sensitive habitats, a habitat restoration and revegetation plan would be developed by SCE with the appropriate resource agencies and implemented after construction is complete. If revegetation occurs on private property, the revegetation conditions would be part of the agreement between SCE and the landowner.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Hans Bakker
Title: Engineer
Dated: 02/22/2010

Question 7.18:

Provide an engineering drawing of the 120-foot antenna tower and each microwave dish antennae. In addition, provide photos of similar fully-constructed antenna towers and microwave dish antennae.

Response to Question 7.18:

SCE proposes to build a square 120 foot tower with one microwave dish. Please find attached a picture of a similar 120 foot square tower, showing three microwave dishes, with 220 kV racks in the background.

Also, please find attached an engineering drawing for a square 120 foot tower.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Pat Shaffer
Title: Project Manager-Project Execution
Dated: 02/22/2010

Question 7.20:

- SCE previously indicated (in conversation with E&E on December 9, 2009) that there would be landscaping around the perimeter of the Alberhill Substation. Provide detailed information about all planned landscaping. At minimum, indicate who will approve the landscaping plans, who will approve the species list for the landscaping, how soon after construction landscaping will be installed, how and for what duration (e.g., for as long as SCE operates the substation) landscaping will be maintained, and who will ensure that landscaping is being maintained.

- Provide the landscaping plan.

- Indicate all areas that would be landscaped including and in addition to the Alberhill Substation site.

Response to Question 7.20:

A detailed landscaping plan would be developed during final engineering by a landscape architect contracted for this purpose. Landscaping would be designed to filter views from the surrounding community and other potential sensitive receptors near the substation and be consistent with the surrounding community. The landscape plan will include the plant species list, installation and construction requirements. We will consult with the County of Riverside and, as applicable, incorporate their recommendations to the extent possible in the plan. Irrigation and landscaping installation would occur after the substation wall is constructed and water service is established.

Following turnover of the substation for operations, SCE generally contracts for the maintenance of the landscaping and is responsible for upkeep as long as SCE owns the property.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 02/22/2010

Question 7.25:

(a) Provide the model and complete technical specifications for each type of switchrack (500-kV and 115-kV) to be installed in the initial build of the Alberhill Substation (including the gas-insulated switchrack).
- If the model(s) is not known, at minimum, provide a range for the amount of SF6 gas or other insulating medium that would be contained in the switchrack.

(b) Provide the model and complete technical specifications for the air conditioner to be installed in the Alberhill substation control building.
- If the model(s) is not known, at minimum, provide the type and a range for the amount of refrigerant that would be contained in the air conditioner.

(c) If a fire suppression system would be installed at the Alberhill Substation, provide its specifications and information about the fire suppression medium (type of medium and a range for the quantity of suppression medium).

Response to Question 7.25:

(a) A model of the 500-kV and 115-kV switchracks is not available.

The following is preliminary technical information on the substation design. The final design specifications may be different.

The 500-kV switchrack will be gas insulated and constructed in a breaker-and-a-half configuration. It will include three bays consisting of eight circuit breakers, eighteen disconnects, and twenty-four grounding disconnects, all gas insulated. The operating buses will be equipped with six 500kV gas insulated potential transformers. The transmission lines and transformer bank leads will have twelve 500-kV lightning arresters. The two 500-kV line positions and two bank positions will be equipped with line/bank dead ends. The rating of the 500-kV apparatus is identified below.

Technical specifications:

Parameter:	**500-kV**	**115-kV**
Maximum Rated Operating Voltage	550-kV RMS	123-kV RMS

Rated Factory Test Voltage	740-kV RMS	230-kV RMS
Rated Lightning Impulse Withstand Voltage	1550-kV Peak	550-kV Peak
Rated Switching Impulse Withstand Voltage	1175-kV Peak	None
Rated Short Circuit Current	63-kA Symmetrical	50-kA Symmetrical
Estimated Quantity of SF6 gas	25,000 to 35,000 lbs.	750 to 1,100 lbs.

The 115-kV Switchrack will be an open air insulated 50kA rated and constructed in breaker-and-a-half configuration. It shall include the following; nine bays 115-kV Switchrack consisting of eight breaker-and-half configuration and one future sectionalizing position with ten 115-kV operating bus dead ends and to be conductor with 2-2156 KCMIL conductors per phase. The operating buses will be equipped with six 115kV BUS PTs, eighteen 115-kV Lightning Arresters. Four 115-kV line positions and two banks positions will be equipped with line/bank dead ends, disconnect switches, potential transformers, lightning arresters and circuit breakers.

(b) The information that is currently known about the Alberhill substation control room is provided in section 3.1.1.5 of the PEA. Based on the volume of this building, the required air conditioning would be approximately 60 to 75 tons. Approximately 150 lbs of HFC-410ACE may be used as refrigerant. The actual type and the range for the amount of refrigerant that would be contained in the air conditioner would be determined after the building is designed.

(c) The installation of a fire suppression system within the control building is not possible as it conflicts with the operation of energized AC and DC equipment used within the building. SCE will install an active, very early smoke and fire detection system.

Fire fighting devices for use within the control buildings shall be limited to hand held fire extinguishers that are rated for electrical fire. No other fire suppression system would be installed at the Alberhill Substation.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Milissa Marona
Title: Project Manager
Dated: 02/22/2010

Question 7.27:

Provide complete specifications, including total lumens, for each type of light to be installed at the Alberhill Substation (e.g., access, maintenance, low-intensity with photo sensor, double-flash strobe beacon lights). See also the Riverside County Ordinance 655 for the Palomar Observatory and state whether the proposed project (all components including the transmission, subtransmission, and telecommunications lines) would be in compliance in terms of the Palomar Observatory ordinance zone and lighting classes.

Response to Question 7.27:

Given that SCE will not know the exact lighting until completion of final engineering, SCE will comply with the following statement for the Alberhill System Project about lighting, for the substation portion only**:**

SCE intends to utilize low pressure sodium lighting at the Alberhill substation which will conform to the Palomar Observatory Ordinance. Further, this design will not have either flashing or neon lights.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Sara Bholat
Title: Archaeologist
Dated: 02/22/2010

Question 7.29:

Provide copies of all additional correspondence or other consultation conducted with Native American groups that identified tribal use areas (TUAs), including information on measures that would be taken to avoid, reduce, or mitigate for impacts to the TUAs.

Response to Question 7.29:

No tribal use areas were identified by the tribe, and no mitigation measures are required. See response to data request question 7.28.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Sara Bholat
Title: Archaeologist
Dated: 02/22/2010

Question 7.31:

Confirm that prehistoric or historic formal cemeteries, family plots, burial mounds, cremation sites, or individual human burials were evaluated in the cultural studies complete for the proposed project areas. If none were identified, indicate this.

Response to Question 7.31:

No prehistoric or historic formal cemeteries, family plots, burial mounds, cremation sites, or individual human burials were identified during the cultural resources records search of the project area, and none were identified during the pedestrian survey. The cultural resources survey report documents methods used to identify sensitive cultural resources. All reports have been submitted to E&E archaeologist.

Reference:
Cotterman, Cary D., and Evelyn N. Chandler
2008 Cultural Resources Investigation of the Proposed Southern California Edison 200/115 kV Alberhill Substation Project, Riverside County, California. (I.O. 301909). Prepared for Southern California Edison Company. Prepared by ECORP Consulting, Inc.

Cotterman, Cary D., and Evelyn N. Chandler
2008 Cultural Resources Inventory of the Proposed Southern California Edison 200/115 kV Alberhill Circuits, Riverside County, California. Prepared for Southern California Edison Company. Prepared by ECORP Consulting, Inc.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Sara Bholat
Title: Archaeologist
Dated: 02/22/2010

Question 7.32:

Identify all additional recommended procedures by Native American groups with an interest in the proposed project. Indicate whether these Native American group-recommended procedures would be followed. If not, explain why not.

Response to Question 7.32:

The Soboba Band of Luiseno Indians requested a spot check monitoring of the project area by a qualified archaeologist where ground disturbance is anticipated. The tribe also requested that the tribe be given permission to visit the project area during construction/ground disturbing activities. Upon notification by representatives of the Soboba Band of Luiseno Indians that they wish to visit the construction site, SCE will provide the Native American representative(s) with an orientation regarding site safety and provide a safety escort while on site. SCE will discuss with the Soboba Band of Luiseno Indians the need to have sufficient notice of their visit to ensure that we have the proper personnel available for the safety orientation and escort. See attached Memo regarding Native American consultation provided in question 7.28.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.33:

Provide sufficient mineral resource data and references to support the following conclusion from the PEA: mineral resources may be present in the proposed project area but are either within existing ROW or lie within an area of unknown or poorly delineated resource potential.

Response to Question 7.33:

The mineral resource impact analysis begins on Page 4-188 of the Alberhill System Project PEA and ends on page 4-189. References used to prepare the section are listed on page 4-190. As stated in those sections of the PEA, both operational and construction impacts would be less than significant.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 02/22/2010

Question 7.40:

- Add a diagram to Figure 3.4 of the dead-end structures to be installed where open spans would be made as part of the proposed project (e.g., on the Valley-Newcomb 115-kV subtransmission line.

- Explain why open spans would be created instead of installing switches or a switch pole.

Response to Question 7.40:

See attached figure titled "Alberhill_CPUC_DR7_Q40_open_span.pdff" illustrating a schematic of a dead-end structure where "open-spans" would be created on the Valley leg of the existing Valley-Newcomb 115 kV line as part of the Alberhill System Project. This figure illustrates a dead-end tubular steel pole (TSP) with three overhead jumper loop wire connections bolted back onto the lines. This disconnection of the jumper loop wire electrically disconnects the 115 kV line. This is a general representation of the wire connections on the pole that would be selected, however, the actual pole where the work would occur is proposed to be a wooden pole. The three out-of-service wires would be bonded to each other and then grounded by a single wire connection to the ground-wire that runs the length of the wooden pole.

SCE's Transmission Planning Criteria and Guidelines under Section 4.4.3.1 states that "Subtransmission lines will have no more than three network terminals, including any normally open ties." Upon further engineering and with additional input from SCE's System Operations group, the statement on page 3-18 from the Alberhill PEA that "one span of wire on the Valley-Newcomb 115 kV subtransmission line would be removed" requires clarification.

To comply with SCE's Transmission Planning Criteria and Guidelines, a permanent physical and electrical separation of the Valley leg of the existing Valley-Newcomb 115 kV line is needed. For this project, this would not result in the actual removal of a span of wire between two poles. Instead, it would occur as follows: at a dead-end pole, the jumper loop wires would be disconnected, folded back and secured, and then out-of-service wire would be grounded. This requirement, which originates from the need to provide an adequate protective relaying scheme, is directly tied to both safety and reliability. Without disconnecting the jumper loop wires on the Valley-Newcomb line, a four-terminal line would be created (Alberhill-Newcomb-Valley-Valley). The disconnection of the jumper loop wires on the existing Valley-Newcomb 115 kV line eliminates this concern.

Creating a permanent physical and electrical separation effectively creates a break in the connectivity of the line such that no operator or field personnel could inadvertently cause a switching error or an unsafe situation. Were a switch installed, the possibility of connectivity would remain and it would then be considered a four-terminal line.

1 attachment

Alberhill_CPUC_DR7_Q40_open_span.pdf

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.44:

-The PEA states, “SCE would restore all areas that were temporarily disturbed by construction of the Proposed Project (including temporary material staging yards, and conductor pull/tension/splicing sites) to as close to preconstruction conditions as possible, or to the conditions agreed upon between the landowner and SCE following the completion of construction of the Proposed Project.” Would marshalling yards also be restored to preconstruction condition / can marshalling yards be added to the list of areas to be restored? - Further clarify the difference between staging areas (secondary material staging yards) and marshalling yards.

Response to Question 7.44:

The sentence should have read "SCE would restore all areas that were temporarily disturbed by construction of the Proposed Project (including temporary material staging yards/marshalling yards, and conductor/pull/tension/splicing sites) to as close to preconstruction conditions as possible, or to the conditions agreed upon between the landowner and SCE following the completion of construction of the Proposed Project."

A marshalling yard is used for transmission construction, and a material staging yard is used for substation construction. Both yards serve the same function.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.49:

- How many and what type of permanent vehicles would be stationed at the Alberhill Substation?

- In Appendix H, Table Series #48, tables are provided that indicate how often the transmission lines, subtransmission lines, and substation site would be visited for operational activities per year and the miles traveled. Visits to the substations that would receive telecommunications equipment are not listed in these tables. The PEA states, "the applicant's personnel would generally visit the substation three to four times per month" (pg. 3-39). This would account for the 48 times per year already listed in Table #48, Motor Vehicle Use.

- Update the data in all applicable Appendix H tables for routine maintenance of telecommunications equipment at the substations (e.g., Valley, Newcomb, Skylark, Elsinore, Fogarty (proposed), Ivyglen, Mira Loam, Serrano, Vista, Tenaja (proposed), Barre and Walnut substations). The PEA states on pg. 3-39, "Once per year, one individual would perform routine maintenance of the telecommunications components located at the substations."

Response to Question 7.49:

No permanent vehicles are planned to be stationed at the Alberhill Substation.

The new telecommunications facilities to be installed at Valley, Newcomb, Skylark, Elsinore, Fogarty, Ivyglen, Mira Loma, Serrano, Vista, Tenaja, Barre, and Walnut Substations will be maintained in conjunction with the telecommunications facilities already existing at those substations. No additional vehicle trips are expected due to operation of the Alberhill System Project.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.52:

- Provide a final survey map and GIS coordinates of the locations of special status plants and wildlife in relation to all project components once surveys are complete for all project areas.

- Provide raptor nesting potential data.

Response to Question 7.52:

Upon completion of surveys, SCE will provide locates of special status plants and wildlife when it becomes available.

Most habitats in the Proposed Project area have scattered mature trees that could be potentially used for raptor nesting. Information is available in the Biological Resources Technical Report for the Proposed Alberhill Substation Site pages 3-1 through 3-5, and the Proposed Alberhill Project Biological Resources Technical Report for the 500 kV and 115 kV Study Areas pages 3-1 through 3-6.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.54:

Provide an assessment of mature trees/shrubs (including dead trees) within project area for habitat suitability for nesting birds.

Response to Question 7.54:

Most habitats in the Proposed Project area have scattered mature trees/shrubs that could be potentially used for nesting birds. Information is available in the Biological Resources Technical Report for the Proposed Alberhill Substation Site pages 3-1 through 3-5, and the Proposed Alberhill Project Biological Resources Technical Report for the 500 kV and 115 kV Study Areas pages 3-1 through 3-6.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.55:

- Provide an analysis of habitat quality and figure of locations of riparian habitat.

- Indicate and assess the disturbance acreage on riparian habitat by project component (Alberhill Substation, 500-kV lines, 115-kV lines, telecommunications lines, etc.)

Response to Question 7.55:

Locations of riparian habitat and a discussion of habitat quality can be found in in the Biological Resources Technical Report for the Proposed Alberhill Substation Site pages 3-18 through 3-23, and the Proposed Alberhill Project Biological Resources Technical Report for the 500 kV and 115 kV Study Areas, pages 3-38 through 3-53.

SCE plans to use the results of the 2010 spring surveys to develop preliminary pull/tension sites for the 500 kV transmission construction and 115 kV modifications that would avoid sensitive resources to the extent feasible. The riparian habitat disturbance acreage, if any, will be forthcoming.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.56:

Provide an analysis of habitat quality and figure of locations of wetland habitat.

- Indicate and assess the disturbance acreage on wetland habitat by project component (Alberhill Substation, 500-kV lines, 115-kV lines, telecommunications lines, etc.)

Response to Question 7.56:

Information about wetland habitat and habitat quality is available in the Biological Resources Technical Report for the Proposed Alberhill Substation Site pages 3-18 through 3-23, and the Proposed Alberhill Project Biological Resources Technical Report for the 500 kV and 115 kV Study Areas pages 3-38 through 3-53.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.57:

Provide an analysis of vernal pool presence and potential for impact. Vernal pools require on-the-ground verification during wet season.

Response to Question 7.57:

Surveys for the presence of vernal pools are planned for Spring 2010 and will be sent to the CPUC upon completion. A fairy shrimp habitat assessment at the Alberhill Substation site was conducted in 2009, and the report was sent in response to Data Request 1.15.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.58:

Provide results of oak tree and mature tree stands survey conducted throughout project area.

Response to Question 7.58:

Most habitats in the Proposed Project area have scattered oak trees and mature trees. Information is available in the Biological Resources Technical Report for the Proposed Alberhill Substation Site pages 3-1 through 3-5, and the Proposed Alberhill Project Biological Resources Technical Report for the 500 kV and 115 kV Study Areas pages 3-1 through 3-6.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.59:

Has the Riverside County Habitat Conservation Agency been contacted concerning the proposed project, potential impacts, and possible mitigation options? If so, provide contact report.

Response to Question 7.59:

Meeting: March 30, 2009
Time: 10:00 a.m.
Where: Riverside County Habitat Conservation Agency
Purpose: Discuss Proposed SCE Alberhill System Project
Attendees: RCHCA - Brian Shomo, Gail Barton; SCE – Kristi Boken, Adelina Muñoz, Brett Paulson, Amanda Duchardt

Summary of meeting: SCE presented purpose and need of the substation and 500 kV Alberhill System components to the Riverside County Habitat Conservation Agency (RCHCA). RCHCA's general process was discussed and how SCE would fit into the plan as a Participating Special Entity. The Right of Entry process was also discussed for 2009 SKR focused surveys.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Jeff Miller
Title: Project Manager
Dated: 02/22/2010

Question 7.63:

Provide the estimated timeframes for construction of each proposed transmission and subtransmission line segment. Provide the estimated timeframe per segment, and/or the anticipated miles of line to be constructed per day.

Response to Question 7.63:

The estimated time frames based on a specific crew size per construction activity, not segment, are located in Appendix-F under the "Estimated Schedule (Days)" column of the PEA. The attached file describes the construction activity and its estimated daily production rate.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Jeff Miller
Title: Project Manager
Dated: 02/22/2010

Question 7.64:

- Clarify if the proposed concrete batch plant and concrete mixer trucks (as indicated in Appendix F), were considered in the construction noise impact analysis provided in Section 4.11.4.2.

- Specify potential locations where this portable batch plant would be used.

Response to Question 7.64:

As stated in Section 3.2.1.4 of the PEA, *"existing concrete facilities would be used where feasible"* and SCE's intention is to utilize area venders to supply concrete for use on this Project. Therefore, consideration for the portable batch plant and concrete mixer trucks would not be necessary in the construction noise impact analysis.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Corrdinator
Dated: 02/22/2010

Question 7.65:

a. Provide the proposed noise control best management practices that would be implemented during nighttime construction to minimize effects on nearby receptors.

b. Provide further information about the use of helicopters (e.g., hours/days and type of helicopters used during construction, operations, and maintenance) even if only the potential exists and final determinations for helicopter use have not been made.
   - The PEA states, "Segment N1: This segment crosses an area with the steepest topographic features, and some tower sites may not be accessible by road and would require helicopter construction."
   - The PEA states, "Where there would be a structure located in terrain inaccessible by a crane, it is anticipated that a helicopter may be used for the installation of the structure."

Response to Question 7.65:

(a) In the event that nighttime construction should occur, SCE would:
- Comply with manufacturers' muffler requirements
- Minimize idling of engines; turn off engines when not in use
- Shield small stationary equipment with portable barriers within 100 feet of residences

(b) Helicopter use during construction has been included in Appendix F, Construction Equipment and Personnel Requirements, and would be used during daylight hours and consistent with applicable laws and regulations.

Also see the response to Q7.41 for helicopter specifications.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.66:

- Provide locations and list of equipment that would be required for benching activities.

- Clarify if this equipment was included in the construction noise impact analysis presented in Section 4.11.4.2.

Response to Question 7.66:

The equipment that would be used for benching is included in Appendix F, Construction Equipment and Personnel Requirements, under roads and landing work. This equipment is consistent with what is typically used at construction sites and has been included in Section 4.11, Noise.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.68:

- Provide further information and data about the existing noise levels and air traffic at the Skylark Field airstrip.

- The PEA indicates that the airstrip may be used for construction of the proposed project (e.g., helicopters). Helicopters may also be used during operations and maintenance. Indicate the distance to sensitive receptors located within a 1-mile radius from the airstrip.

Response to Question 7.68:

The following documents provide information for Skylark Field:
City of Lake Elsinore General Plan
Riverside County General Plan
Elsinore Area Plan

Skylark Field does not have an Airport Land Use Compatibility Plan, and the other planning documents have not identified sensitive receptors within the vicinity of the airstrip.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.70:

- Provide a noise level (e.g., ___ L_{eq} DBA) that identifies noise levels in the proposed project area as "those typical of low-density partially rural communities"; include the reference for this noise level.

- Provide the relative distance of the identified major noise sources to all proposed project component locations (substation, transmission lines, subtransmission lines, and telecommunication).

Response to Question 7.70:

Typical noise levels for the area of the Alberhill System Project are presented in the PEA in Table 4.11-1, Noise Measurements Riverside County. Additional noise measurements can be found in Table 1 and Table 2 of Appendix I of the Riverside County General Plan.

At their closest point:
The Alberhill Substation is located approximately 150 feet from the I-15 freeway, approximately 5 miles from State Route 74, and approximately 10 miles from Skylark Field.
The 500 kV transmission segments are located approximately 500 feet from the I-15 freeway and approximately 5 miles from State Route 74, and approximately 10 miles from Skylark Field.
The new and modified 115 kV subtransmission lines would cross the I-15 freeway, would parallel State Route 74, and are approximately 1,000 feet from Skylark Field.
Telecommunication facilities are located approximately 500 feet from the I-15 freeway, approximately 3 miles from State Route 74, and approximately 1,000 feet from Skylark Field.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.73:

Provide noise study references that confirm the operational noise from the proposed Alberhill Substation would be negligible due to its location adjacent to the I-15 freeway.

Response to Question 7.73:

According to Riverside County's General Plan, noise levels 200 feet from the freeway are approximately 70 dBA, and noise levels at the Alberhill Substation property boundary are estimated to be approximately 45 to 50 dBA. The decibel scale is logarithmic; therefore when adding the noise generated from the substation to the existing freeway noise, the result would have no influence on existing noise levels generated by the freeway. As a result, operation noise from the substation would be negligible.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 02/22/2010

Question 7.74:

Provide the complete audible noise model study that was conducted for the 500-kV line segments based on the EPRI EMF Workstation 2008 program.

Response to Question 7.74:

Please see the attached report.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 01/12/2010

Question 5.21:

(Other CEQA/chapter 6)
Please provide a map of all system improvements, upgrades, and new construction planned by SCE within the Alberhill Electrical Needs area between January 1, 2010 and December 31, 2017.

Response to Question 5.21:

Please see the attachment titled "CPUC_DR5_Q5.21_Alberhill_ENA_System_Projects.pdf" for maps showing the proposed system projects that are subject to G.O. 131-D for the years 2010-2017 within the Alberhill System Project Electrical Needs Area (Valley South 115 kV System). These maps represent preliminary proposed projects and are subject to revision as needed during SCE's annual planning process.

1 attachment

CPUC_DR5_Q5.21_Alberhill_ENA_System_Projects.pdf

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 01/12/2010

Question 5.23:

(Purpose and Need/section 1.1)
The PEA states that the purpose of the Alberhill project is to satisfy/comply with FERC, NERC and WECC requirements. Please specify which portions of the Alberhill are subject to these requirements. Please cite to the specific FERC, NERC, WECC rules/sections/sub sections/standards, etc. that are applicable.

Response to Question 5.23:

FERC has jurisdictional oversight of mandatory reliability standards for the Bulk Power System. FERC delegated authority to set and enforce mandatory standards to NERC as the Electric Reliability Organization (ERO). NERC delegated enforcement authority to regional entities (e.g.,WECC) through a delegation agreement.

The portion of the Alberhill Project subject to NERC/WECC requirements are the 500 kV facilities and the 500 kV transmission line (T/L) loop-in of the Serrano-Valley 500 kV T/L (creating the Alberhill-Valley and Alberhill-Serrano 500 kV T/Ls).

NERC/WECC Planning Standards

A. Transmission System
   a. Standards S2: "*The interconnected transmission system shall be planned, designed, and constructed such that the network can be operated to supply projected customer demands and projected firm (non-recallable reserved) transmission services, at all demand levels, under the condition of the contingencies as defined in Category B* [e.g., loss of a single element such as the Alberhill-Valley 500 kV T/L] *of Table I* ."

      "*The transmission system also shall be capable of accommodating planned bulk electric equipment outages and continuing to operate within thermal, voltage, and stability limits under the contingency conditions as defined in Category B of Table I* ."

Per NERC/WECC Planning Standard S2, The design of Alberhill Substation shall allow for customer demand to be met under single contingency conditions. Two-line service is required to maintain service under 1) loss of either Alberhill-Valley or Alberhill-Serrano 500 kV T/L or 2)

maintenance on either Alberhill-Valley or Alberhill-Serrano 500 kV T/L.

b. Guide G5: "*The interconnected transmission system should be planned to avoid excessive dependency on any one transmission, circuit, structure, right-of-way, or substation. "*

Per NERC/WECC Guide G5, The Alberhill Substation method-of-service should not create an excessive dependency on any single right-of-way. The proposed construction of two separate 500 kV line routes for the Alberhill-Serrano and Alberhill-Valley 500 kV line segments, on two separate single-circuit towers, creates two distinct routes to serve the Alberhill Substation, thus improving reliability. Two separate routes allows for continuity of service during an outage of one of the two transmission lines.

NERC Planning Standards

TPL-001-0.1 System Performance Under Normal (No Contingency) Conditions (Category A)

R1.3.7. Demonstrate that system performance meets Table 1 for Category A (no contingencies).

Alberhill Substation is designed to meet NERC TPL-001-0.1 standards. There would be no violations under conditions in which all elements are in-service.

TPL-002-0 System Performance Following Loss of a Single Bulk Electric System Element (Category B)

R1.3.7. Demonstrate that system performance meets Category B contingencies (Single Element out).

Alberhill Substation is designed to meet NERC TPL-002-0 standards. There would be no violations under conditions in which a Single Bulk Electric System Element is out-of-service.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Robert Benton
Title: Sr. Technical Specialist
Dated: 02/22/2010

Question 7.38 Supplemental:

(a) How many people (or number of farm animals and farms) and what communities does the water line to be relocated serve? How long would water use from this line be out of service during this upgrade?

(b) Provide references and discussion to support the statement that "relocation of the pipeline is not expected to have any impact on local water service."

(c) Will relocated water line (30-inch pipe) be located above ground?

(d) How long would the new 30-inch pipeline (1,700-feet long) be extended or shortened for the relocation?

Response to Question 7.38 Supplemental:

(a) The Elsinore Valley Municipal Water District (EVMWD) informed SCE as follows: "Currently, the water line is being used as an excess route from regional plants upstream of this location. Downstream of this location are water wells and pumps that service the community (no numbers provided) of EVMWD. Therefore, it will not have an affect to the community that is being served by this line."

(b) The Elsinore Valley Municipal Water District informed SCE as follows: "Ideally the construction of the new line will take place prior to any disturbance of the existing 27" water line. This would allow the connections on the upstream and downstream end of the pipes to occur towards the end of the construction schedule. These connections are anticipated to take approximately 2 days. Therefore, the water line would be out of service about the same time."

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 02/22/2010

Question 7.5:

(a) Discuss the pros and cons of constructing a single-tower, double-circuit configuration for the 500-kV lines from Alberhill Substation to the Serrano–Valley 500-kV Transmission Line. Explain how construction would differ from the proposed construction of two separate 500-kV lines. Indicate, at minimum, the heights of the various poles, all types of and number of poles required, pole width, ROW width, construction footprint, staging areas, tension and pull sites, additional equipment needed, equipment that would not be needed, foundation (pad) dimensions, depth of hole, spur and access roads, etc.

(b) Regarding potential future expansion of the substation to four 500-kV transmission line, discuss the pros and cons of constructing two 500-kV lines as part of the initial build out that could be double-circuited in the future without structure replacement.

Response to Question 7.5:

(a) SCE considered placing the transmission line segments from Serrano to Alberhill and Valley to Alberhill on a single double-circuit tower; however, SCE dismissed this alternative due to the reliability of having both source lines feeding Alberhill Substation on a single tower. The Alberhill system should be served via two separate routes. Separating the Alberhill – Serrano and Alberhill –Valley segments onto two separate single circuit towers creates two distinct routes to serve the Alberhill system, hence improving the reliability. Having two separate routes allows for service to continue under the loss of one transmission line. Placing both the Alberhill – Serrano and Alberhill –Valley line segments on a single double circuit tower increases the possibility of losing the only two source lines serving the Alberhill System, which can results in the loss of the entire load being served by the Alberhill system.

Typically, double circuit towers are taller, narrower, and heavier than single circuit ones. From a construction point of view, they may require wider access roads and are more suitable for flat terrains compared to the mountainous and ragged terrain of the proposed project. Due to their weight, their erection using helicopters can be challenging, if not prohibitive. SCE does not have a double circuit tower design for helicopter construction in case conventional construction methods are not applicable for this project.

Since SCE dismissed the option of double circuit towers, it has not, to-date, performed a comparison of this option.

(b) The need for Serrano - Valley No. 2 500 kV T/L Project was previously identified during SCE's annual Transmission assessment. The need for the project has moved beyond the current 10-year planning horizon (2010-2019).

In order to maintain visibility of the project, and for budgeting purposes, SCE has elected to retain the project in the current 10-year plan. By deferring the project to the end of the 10-year planning horizon (2019), SCE maintains funds available within the 10-year plan. This approach allow SCE to sponsor new projects for rapid load growth or possible Generation Interconnection driven needs.

Accommodations for terminating the Serrano - Valley No. 2 500 kV Transmission Line at Valley, Serrano and Alberhill Substations have been made. Positions have been assigned and reserved at each substation.

The main advantage of two separate double circuit towers strung only on one side would be the smaller footprint of the ultimate transmission line corridors. This option may also reduce the construction environmental impacts since it would result in the construction of the towers during a single period versus having a second construction period sometime in the future. However, it would impose constraints in the design and construction of the future line. The future line would have to be routed and designed so that it meets the double circuit towers as opposed to the substation's 500 kV rack. It may also require outages of the Alberhill-Serrano and Alberhill-Valley lines.

SCE briefly considered this option, but dismissed it, since these assets won't be needed for an extended period of time.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Robert Benton
Title: Technical Specialist
Dated: 02/22/2010

Question 7.36:

Clarify where the 500-kV transmission towers would be located on Figure 3.1. The location appears to differ with regard to Figures 2.2, and the road story provided in Appendix D.

Response to Question 7.36:

Figure 2.2 and Figure 3.1 were developed on a conceptual basis and drawn on significantly different scale.

Figure 2.2 shows the preferred routes of the proposed transmission lines (N3 and C1) relative to the substation location, the existing Serrano-Valley transmission line, and the alternate transmission routes that have been considered for the project.

Figure 3.1 shows the approximate location of the first two towers of the loop lines that are within the area depicted by said figure. Figure 3.1 also shows the location of two additional towers that could be erected in the future, if two additional circuits terminate at the proposed substation.

Similarly, the road story provided in Appendix D was developed on a conceptual basis to demonstrate that conventional tower construction is feasible and helicopter construction is not necessary unless it is dictated for environmental reasons.

SCE will initiate detailed engineering for the substation, transmission lines and access roads to reconcile all conceptual inconsistencies.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 02/22/2010

Question 7.60:

(a) Provide the model and complete technical specifications for each 560-MVA 500/115-kV transformer. Provide the same information for the spare.
- Provide the 560 MVA 500/115-kV transformer model and technical specifications related to noise: number of cooling fans, noise frequency (Hz), expected noise level at the source with and without fans operating.
- If the model is not know, provide a range for expected noise levels with and without fans operating.

(b) Clarify if the proposed transformers would be enclosed. If so, describe the characteristics of the proposed enclosures.

Response to Question 7.60:

a) SCE has not developed technical specifications for the proposed substation's transformers.

The average sound level of the transformers shall not exceed the values specified in NEMA Pub. No. TR1.

b) The proposed transformers would not be enclosed.

SOUTHERN CALIFORNIA
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August 11, 2010

Karen Ladd
Ecology and Environment
130 Battery St
San Francisco CA 94111

Dear Ms Ladd,

Please find enclosed a copy of the results from the Stephens Kangaroo Rat Survey conducted for SCE's Alberhill System Project.

Stephens' Kangaroo Rat (a federally endangered, State threatened species) were only caught in very open habitat with minimal shrub and herb cover, in an area near an existing road maintained by an adjacent private property owner. The overall quality of habitats in the project area for SKR was found to be low. In general, most of the area exhibits terrain too steep and rocky and/or too disturbed for substantial populations of this species to occur. In addition, the apparent absence of SKR populations in the immediate vicinity greatly reduces or eliminates the potential for passive colonization of any small patches of suitable habitat that occur within the study area.

The report also provides recommendations for construction in the area, such as SKR habitat avoidance by vehicles and structures by a distance of approximately 50 feet, or that an appropriate exclusion fence be constructed around occupied habitat, and resident SKR be trapped and relocated to nearby habitat areas that are deemed suitable for this species.

A copy of this report has also been sent to Jensen Uchida at the CPUC, Doreen Stadtlander at USFWS, Leslie McNair at CDFG, Stephanie Standerfer at Dudek/RCA, and Brian Shomo at RCHCA.

If you have any questions, please call me at (626) 302-2524.

Thank you,

Erika Wilder

P.O. Box 800
Rosemead, CA 91770

SJM BIOLOGICAL CONSULTANTS

11 January 2010 SJMBC.797

Matthew Malle
AECOM
1461 East Cooley Drive
Suite 100
Colton, CA 92324
(909) 554-5000

SUBJECT: Results of a trapping study to confirm presence/absence of the federally endangered Stephens' kangaroo rat (*Dipodomys stephensi*) (SKR) at the 521-acre SCE Alberhill study site, (Riverside County, California) for the purpose of evaluating proposed alternatives for a Southern California Edison 500kV substation and associated transmission lines (Figure 1).

Dear Mr. Malle:

At the request of AECOM, a trapping survey of the federally endangered Stephens' Kangaroo rat (*Dipodomys stephensi*) (**SKR**) was conducted at the site described above from 12-17 November 2009. The objective of the assessment was to confirm the identity of kangaroo rats inhabiting previously identified sites with kangaroo rat sign. This trapping survey was a follow-up to an initial SKR habitat assessment conducted by Stephen J. Montgomery and Daniel Grout, which recommended that trapping be conducted in certain areas to confirm the distribution of occupied SKR habitat on the site.

INTRODUCTION AND SITE DESCRIPTION

The Alberhill project site lies immediately north of Interstate 15, to the north and northwest of Lake Street in Riverside County, California (Figure 1). NAD 83 UTM coordinates near the center of the proposed substation are 11 6461860E/3732899N, and near the center of the proposed potential transmission line alignments are 11 0463259E/3733529N. The property occurs in Sections 9, 10, 15 and 16, Range 5 West, Township 5 South, on the Alberhill USGS 7.5' Quadrangle, in Riverside County, California.

A majority of the remainder of the site encompasses the steeply sloping rugged hills to the north, which are covered in disturbed annual grassland and sparse sage scrub vegetation. Elevations range from approximately 350 meters in the southwestern part of the site to approximately 650 meters at high points in the northeastern portion of the property.

As mentioned, portions of the site have experienced a variety of substrate disturbances and developments, including discing, cultivation, farming, rural housing and development of stables and pastures, fencing, concrete foundations, small buildings, bulldozing, ORV use and dumping. Dirt access roads are common throughout much of the project area. In addition, the northerly portion of the study area falls within lands managed by the Riverside County Habitat Conservation Authority (RCHCA) (Figures 2 and 3).

Soils on the site vary widely in their suitability for SKR. Most are generally unsuitable, consisting of course rocks and clays in the higher elevations and on slopes. Some of the lower lying areas, saddles and gentle slopes exhibit better-drained friable soils with higher percentages of loam more suitable for SKR.

Much of the site is covered by sparse to moderately dense non-native grasses and both native and non-native forbs. Common forbs include mustard (*Hirschfeldia incana)*, fiddleneck (*Amsinckia menziesii*), filaree (*Erodium botrys*), tarweed (*Hemizonia sp*), distant phacelia (*Phacelia distans*), London rocket (*Sisymbrium irio),* slender sunflower (*Helianthus gracilentus*) and deer weed (*Lotus scoparius).* Common grasses present throughout the site include: wild oats (*Avena sp.*), cheatgrass (*Bromus tectorum*), ripgut (*Bromus diandrus*), and red brome (*Bromus madritensis rubens),* barley *(Hordeum murinum),* golden top *(Lamarkia auria),* and fescue *(Vulpia sp).* Stands of Riversidean sage scrub vegetation also are present at scattered locations across the site. Common constituents of this community include brittlebush (*Encelia farinosa*), white sage (*Salvia apiana*), California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and at scattered locations tree-shrubs such as Mexican elderberry (*Sambucus mexicana*) and laurel sumac (*Malosma laurina*). Stands of mule-fat (*Baccharis salicifolia*) occur in certain drainages, and invasive species such as Russian thistle (*Salsola sp.)* and tamarisk (*Tamarix ramosissima)* also occur in scattered localities across the site.

The previous Jun-July walking survey revealed one small area that was likely to have SKR, and 16 other areas that had some low to moderate potential for SKR occupation (Figure 2). The kangaroo rat signs in most of the potential areas were more consistent with those of the Dulzura kangaroo rat (**DKR**- *Dipodomys simulans*). While most of the sites were considered likely occupied primarily by DKR, the possible presence of SKR could not be definitively ruled out at that time without a trapping survey.

METHODS

On the afternoon of 12 November 2009, the mapped locations on the site from the previous July habitat survey were walked and inspected for specific locations exhibiting active kangaroo rat sign. Those areas with kangaroo rat sign or activity (scat, tracks, burrows, dust-bowls, etc.) were selected for trapping. A few small areas previously mapped as having some potential as habitat

project area for SKR is low. In general, most of the area exhibits terrain too steep and rocky and/or too disturbed for substantial populations of this species to occur. In addition, soils in much of this area are sub-optimal for this species. Also, the apparent absence of SKR populations in the immediate vicinity greatly reduces or eliminates the potential for passive colonization of any small patches of suitable habitat that do occur within the study area. Although the most southerly lands in the project area are generally level or gently sloping, and exhibit soils generally suitable for SKR, this area has been heavily disturbed and SKR are not present. The species would not be expected to occur in this area in the future due to historic and on-going disturbance, as well as the apparent absence of nearby sources of individuals to colonize the project site.

It is recommended that any project related activities proposed for locations confirmed as occupied by SKR be relocated so as to avoid incidental take of this species. However, since populations of this species are undoubtedly very limited in area and distribution, such project relocations would be expected to be limited and minor in scope.

Due to the potential for substrate disturbances in the area of project activities and construction features, it is recommended that any SKR habitat be avoided by vehicles (including driving and parking) and structures by a distance of approximately 50 feet. Such areas to be avoided should be clearly marked in the field by a qualified SKR biologist. Such marked areas should be maintained throughout the project construction period, and all project personnel should be educated in formal meetings to the requirements and methods of SKR habitat avoidance throughout the project period. Prior to the commencement of construction related activities each morning, a biologist should check for SKR around parked vehicles in the area around occupied habitat, and any observed SKR should be moved away from such vehicles. If any open trenches or other steep walled excavations are present overnight in the vicinity of occupied SKR habitat, such low areas should be checked for SKR and any SKR should be removed and released in nearby suitable habitat areas with extant burrows usable by this species.

If avoidance of mapped SKR habitat is not feasible during the project, an appropriate exclusion fence can be constructed around occupied habitat, after which resident SKR may be trapped and relocated to nearby habitat areas that are deemed suitable for this species and not proposed for any type of project related disturbances. If this approach is followed, the relocation area should be surrounded by appropriate fencing prior to the relocation effort, and artificial burrows should be installed inside the fenced relocation area by a biologist familiar with this method of habitat improvement, thereby providing an immediate source of shelter for relocated animals. A minimum of two burrows per individual, placed approximately 24 inches apart at each pre-determined burrow site, should be installed in the same relative locations at the relocation site as occupied burrows are located at the home site. Artificial burrows should be installed by an SKR biologist with experience with such work, and burrows should be placed at an angle of no greater than 30 degrees (from the horizontal) to a depth of no less than 42 inches.

Prior to any SKR habitat disturbance, full details of the fencing and methods of SKR removal/relocation would be provided by a permitted SKR biologist fully familiar with the proposed avoidance/minimization actions.

O'Farrell, M.J., S.M. Juarez, and C.E. Uptain. 1986. A new addition to the known range of Stephens' kangaroo rat (*Dipodomys stephensi*) in San Diego County. Calif. Fish and Game 72:187-189.

Ogden (Ogden Environmental and Energy Services). 1998. Stephens' kangaroo rat study for the Ramona Airport Expansion Project, Ramona, California. Prepared for KEA Environmental and County of San Diego Dept. Public Works. San Diego, Calif.

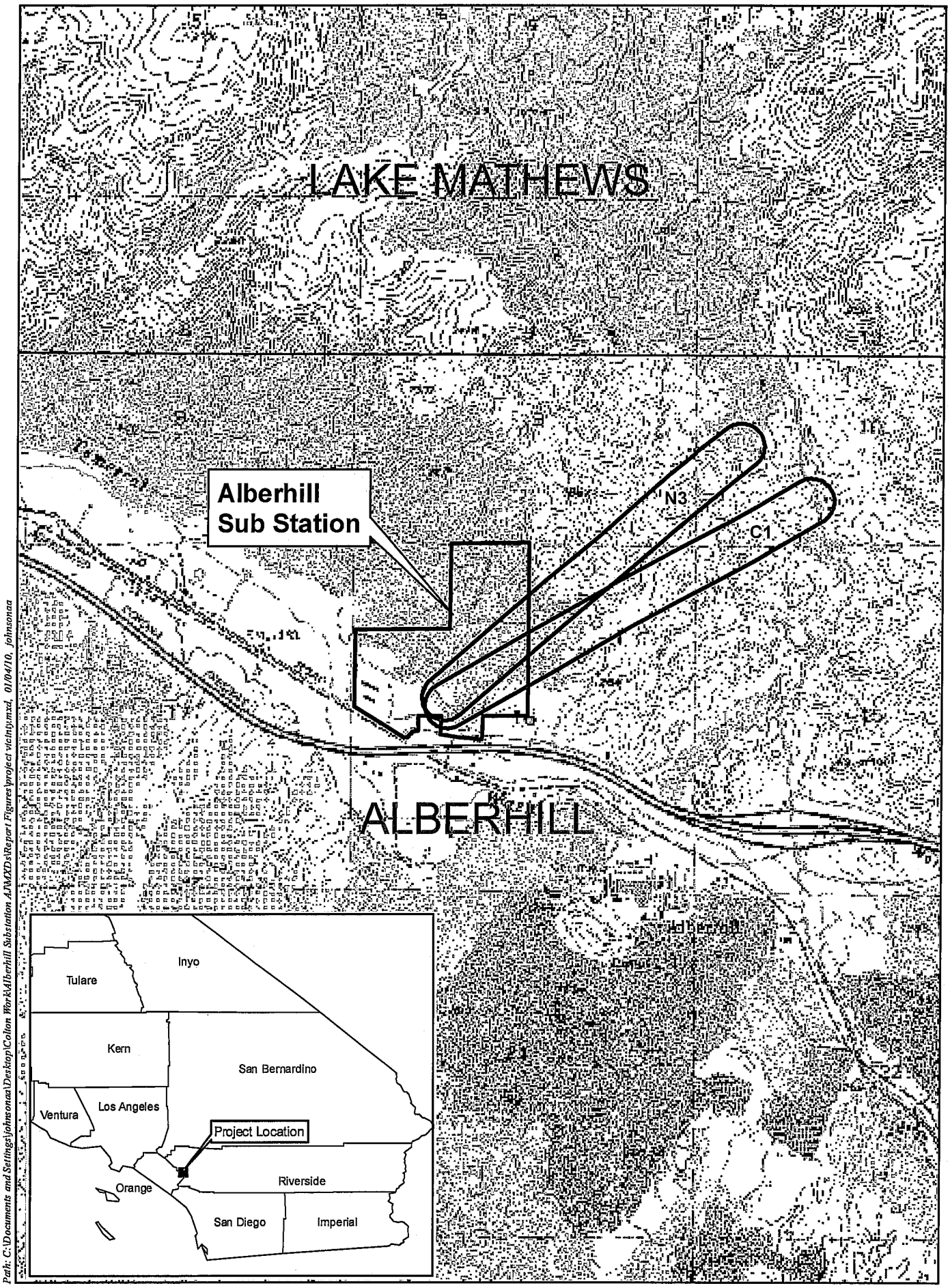
Price, M.V. and P.R. Endo. 1989. Estimating the distribution and abundance of a cryptic species, *Dipodomys stephensi* (Rodentia: Heteromyidae), and implications for management. Conserv. Biol. 3:293-301.

Price, M.V. and P. Kelly. 1992. Monthly and lifetime movement distances of Stephens' kangaroo rat (Dipodomys stephensi Merriami). Final Report, Submitted to Riverside County Habitat Conservation Agency (15 January 1992).

SJM Biological Consultants. 2003. Base-wide survey for Stephens' kangaroo rats (Dipodomys stephensi) on Fallbrook Naval Weapons Station, Fallbrook California. Prepared for Robert Knight, Conservation Program Manager, Naval Weapons Station Seal Beach, Detachment Fallbrook, Fallbrook, California.

Thomas, J.R. 1975. Distribution, population densities and home range requirements of the Stephens' kangaroo rat (*Dipodomys stephensi*). Unpubl. M.A. Thesis, Calif. State Polytechnic Univ. Pomona, Calif. 64pp.

Thomas, J.R. 1973. Stephens' kangaroo rat survey 1972-73. Calif. Dept. Fish and Game, Special Wildlife Investigations, Job II-54.6. (Final Report)



Project Location
Alberhill Substation Site
Riverside County, CA

Figure 1

Table 1. Trap Results for Alberhill, November 2009

Area	# Traps	Date (2009)	Captures*				
			SKR	DKR	CHFA	PEMA	NELE
1	10	13-Nov			1		
	10	14-Nov				1	
	10	15-Nov		1	1	1	
	10	16-Nov			1		
	10	17-Nov		1			
2	15	13-Nov		1	4	3	
	15	14-Nov		1	3	2	
	15	15-Nov		2	4	2	
	15	16-Nov		1	3	3	
	15	17-Nov		1	3	4	
3	25	13-Nov		5		7	
	25	14-Nov		4	6	6	
	25	15-Nov		5	5	4	
	25	16-Nov		4	3	5	
	25	17-Nov		3	4	4	
4	25	13-Nov		3			
	25	14-Nov				4	
	25	15-Nov		1		3	
	25	16-Nov		1	1	4	
	25	17-Nov		1		3	
5	25	13-Nov	1AM	4		4	
	25	14-Nov	1AM, 1AF	3		4	
	25	15-Nov	1AF	2	3	5	
	25	16-Nov	1AM	2		5	
	25	17-Nov	1AF		2	3	
6	15	13-Nov		1	1	5	1
	15	14-Nov		1	1	4	1
	15	15-Nov				6	
	15	16-Nov		1		5	1
	15	17-Nov			1	4	
7	10	13-Nov		2	2	1	
	10	14-Nov		1	2	2	
	10	15-Nov		2	2	1	
	10	16-Nov		1	1	1	
	10	17-Nov			1		
8	15	13-Nov				3	
	15	14-Nov			1	4	
	15	15-Nov		1	1	3	
	15	16-Nov			2	2	
	15	17-Nov		1	1	1	
9	25	13-Nov		1	4	3	
	25	14-Nov		1	3	4	
	25	15-Nov			2	5	
	25	16-Nov		1	3	4	
	25	17-Nov		1	3	3	
10	10	13-Nov		2			
	10	14-Nov		2		1	
	10	15-Nov		1	1		
	10	16-Nov		2			
	10	17-Nov		1		1	
11	50	13-Nov		8	12		
	50	14-Nov		6	9	1	
	50	15-Nov		8	10	1	
	50	16-Nov		7	7	2	
	50	17-Nov		9	8		
Totals	**1125**		**6 (3 individuals)**	**98**	**142**	**141**	**3**

*Captures - Only SKR were marked. Thus, totals for other species do not represent number of unique individuals

SKR	Stephens' kangaroo rat (*Dipodomys stephensi*)
DKR	Dulzura kangaroo rat (*Dipodomys simulans*)
SDPM	San Diego pocket mouse (*Chaetodipius fallax fallax*)
PEMA	Deer mouse (*Peromyscus maniculatus*)

Path: C:\Documents and Settings\johnsonaa\Desktop\Colton Work\Alberhill Substation AJ\MXDs\Working Maps\Fall 2009 SKR Survey SW.mxd, 01/04/10, johnsonaa

Legend

- Existing 500 kV Transmission Line
- C1 Study Area
- N3 Study Area
- Proposed 500kv Transmission Line
- Substation Location
- RCHCA Managed Land

Kangaroo Rat Surveys

- Active Kangaroo Rat Scat and Burrow Locations - Summer 2009
- Stephens' Kangaroo Rat Captures - Fall 2009
- SKR Traplines - Fall 2009
- Occupied SKR Habitat (SKR present, confirmed by trapping Fall 2009)
- Potential habitat for SKR (Scat and burrows present at most locations [as indicated by yellow stars]. Due to the density of herbaceous vegetation at some polygons in summer 2009, kangaroo rat sign may have been missed. Such polygons were re-checked for sign in fall 2009 when herb cover was reduced, to confirm kangaroo rat absence. Those confirmed as lacking kangaroo rat sign are shown here as unoccupied habitat [see below].)
- Unoccupied by kangaroo rats, confirmed by two (summer and fall) checks for sign.

MAP NOTES

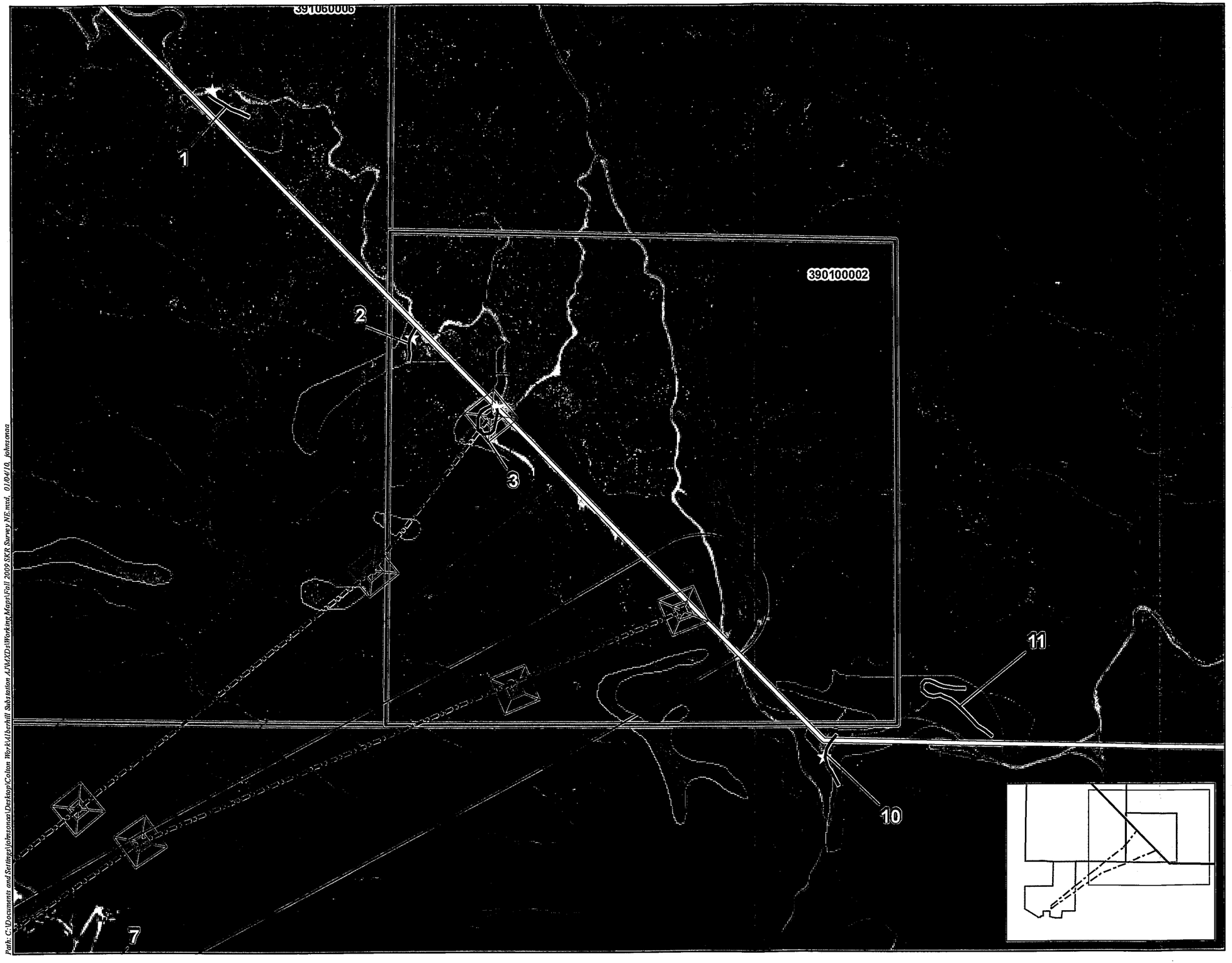
Data Source
AECOM - SKR Survey
SCE - Site Boundary and Transmission Data
Aerial- 2009, i-cubed©
Riverside County Assessor - RCHCA Managed Land

Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Documents and Settings\johnsonaa\Desktop\Colton Work\Alberhill Substation AJ\MXDs\Working Maps\Fall 2009 SKR Survey SW.mxd
Date: 1/4/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

500 250 0 500 Feet

Figure 2

Alberhill System Project
Stephens' Kangaroo Rat Survey
Fall 2009



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Legend

- Existing 500 kV Transmission Line
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- Proposed 500kv Transmission Line
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Kangaroo Rat Surveys

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MAP NOTES

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Aerial- 2009, i-cubed©
Riverside County Assessor - RCHCA Managed Land
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Documents and Settings\johnsonaa\Desktop\Colton Work\Alberhill Substation AJ\MXDs\Working Maps\Fall 2009 SKR Survey NE.mxd
Date: 1/4/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

500 250 0 500 Feet

Figure 3

Alberhill System Project
Stephens' Kangaroo Rat Survey
Fall 2009

SOUTHERN CALIFORNIA
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September 16, 2010

Karen Ladd
Ecology and Environment
130 Battery St
San Francisco CA 94111

Dear Ms Ladd,

Please find enclosed a copy of the results from focused surveys for the least Bell's vireo, southwestern willow flycatcher, and Los Angeles pocket mouse, and protocol-level surveys for the Arroyo toad.

These three reports are the last survey reports produced from SCE and its contractors for the surveys conducted during Spring 2010.

A copy of these reports have also been sent to Jensen Uchida at the CPUC.

If you have any questions, please call me at (626) 302-2524.

Thank you,

Erika Wilder

2244 Walnut Grove Ave.
Rosemead, CA 91770

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-011

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 08/31/2010

Question 01: 11.1

According to the Habitat Conservation Plan (HCP) for the Stephens' Kangaroo Rat (SKR) in Western Riverside County, the lands generally north of the proposed Alberhill Substation have been designated as a reserve for the SKR. As currently proposed, the Alberhill System Project (ASP) envisions the construction of: two 500 kV circuits; approximately thirteen 500-kV transmission towers; and access roads, as needed, through the lands belonging to the SKR reserve.

a. Please identify the specific provisions of the WRC-HCP under which SCE intends to seek the authority to construct the project.
b. Please explain the rationale that lead SCE staff to the conclusion that the WRC-HCP permits the construction of a project such as the ASP in the proposed location.

Response to Question 01: 11.1

SCE met with the Riverside County Habitat Conservation Agency on March 30, 2009 to discuss the Alberhill System Project, including the connection of the proposed Alberhill Substation to the existing Serrano-Valley 500 kV transmission line that exists on property now owned by the RCHCA. The RCHCA indicated during the conversation that the land may be utilized for the Proposed Project, as long as the construction of the project would not result in the "take" of Stephens' kangaroo rat on RCHCA property.

SKR habitat assessment and trapping surveys have been conducted on RCHCA property as well as surrounding properties, and the results indicated the SKR occurs in the area, but not in the areas proposed to be utilized by construction of the Proposed Project. Copies of these reports have been provided to the RCHCA, RCA, USFWS, CDFG, and the CPUC and E&E. Copies of the report maps are attached.

Also, only four structures are planned on RCHCA property.

ALBERHILL SYSTEM PROJECT
2010 FOCUSED SURVEYS FOR LBV AND SWF REPORT

Prepared for:

SOUTHERN CALIFORNIA EDISON

Biological and Archeological Resources Group
2244 Walnut Grove Avenue
Rosemead, CA 91770
Contact: Adelina O. Muñoz, Biologist
(626) 302-3088 (PAX 23088)

Prepared by:

AECOM

Contact: Matthew Mallé, Biologist (Colton Office)
(909) 554-5041

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List of Acronyms

CDFG	California Department of Fish and Game
kV	kiloVolt
LBV	least Bell's vireo
Project	Alberhill System Project
SCE	Southern California Edison Company
SJR	San Jacinto River
Sub	Subtransmission
SWF	southwestern willow flycatcher
T/L	transmission lines
USFWS	U.S. Fish and Wildlife Service
WIFL	willow flycatcher

Executive Summary

This report summarizes the results of a focused survey completed by AECOM for the Alberhill System Project (Project), in Riverside County, California. The survey was conducted for two federally and state listed riparian bird species known to breed in the southern California region, the least Bell's vireo (*Vireo bellii pusillus*) (LBV) and the southwestern willow flycatcher (*Empidonax traillii extimus*) (SWF). The surveys for both species were performed concurrently and were completed between April 26 and July 26, 2010. The surveys followed protocol established for these species by the U.S. Fish and Wildlife Service (USFWS).

1.0 Project Description

Southern California Edison Company (SCE) proposes to construct the Project to serve current and projected demand for electricity and maintain electric system reliability in southwestern Riverside County, including the cities of Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, and Wildomar, as well as the surrounding unincorporated areas.

The Project Area is defined as the area analyzed for the following Project components: the proposed Alberhill Substation, the proposed 500 kiloVolt (kV) transmission lines (T/L), the proposed 115-kV Subtransmission (Sub) T/L, and the alternative 115-kV Sub T/L (Figure 1).

- The horse ranch and adjacent undeveloped areas compose the Alberhill Substation survey area.
- The proposed 500 kV T/L would connect the proposed Alberhill Substation to SCE's existing Serrano-Valley 500 kV T/L.
- The proposed 115 kV Sub T/L would consist of a new 115 kV Sub T/L and modification of the existing 115 kV Sub T/L.
- An alternative to the proposed 115 kV Sub T/L has also been analyzed (alternative 115 kV Sub T/L). This alternative consists of an optional routing of the eastern portion of the proposed 115 kV Sub T/L.

The surveys investigated all areas within the Project Area having potentially suitable habitat for LBV and SWF that are anticipated to be directly or indirectly impacted by the proposed Project. The survey area included a buffer area of at least 200 feet around the Project's direct limits of disturbance. The elevation of the various survey sites investigated ranged from a low of 1,267 feet to a high of 1,772 feet above mean sea level. Figures 1-1 and 2-1 through 2-7 show, respectively, the Project's regional location and specific LBV and SWF survey locations.

This survey investigated all areas of potentially suitable LBV and SWF habitat in the proposed and alternative 115 kV sub T/L segment of the Project Area. Suitable habitat is also known to be present in a small portion of the 500 kV T/L segment. These areas of potential LBV/SWF habitat, however, overlap with another SCE project currently in progress. Consequently, SCE had already assigned potential habitat within the 500 kV T/L segment of the Alberhill System Project Area to be surveyed by another biological consulting firm.

1.1 Species Descriptions

The **least Bell's vireo** is one of four subspecies of Bell's vireo, a small, insectivorous, migratory songbird. The breeding range of LBV is currently restricted to southwestern California and northwestern Baja California, although it historically bred extensively into the Central Valley of California (USFWS 1998). It is thought to winter primarily in southern Baja California. Loss and degradation of breeding habitat and brood parasitism by the brown-headed cowbird (*Molothrus ater*) are considered major factors resulting in the decline of the LBV population in California. Habitat conversion for agriculture and development has removed much of the riparian woodlands required for nesting by LBV and other riparian-dependent birds. Flood control measures and channelization have also depleted important habitat for riparian species. Grazing by cattle has impacted habitat suitability by removing or thinning the understory vegetation that is

required by many riparian nesting birds, including LBV. Additionally, the presence of livestock generally leads to increased cowbird populations and, in turn, increased pressure from brood parasitism in local songbird populations.

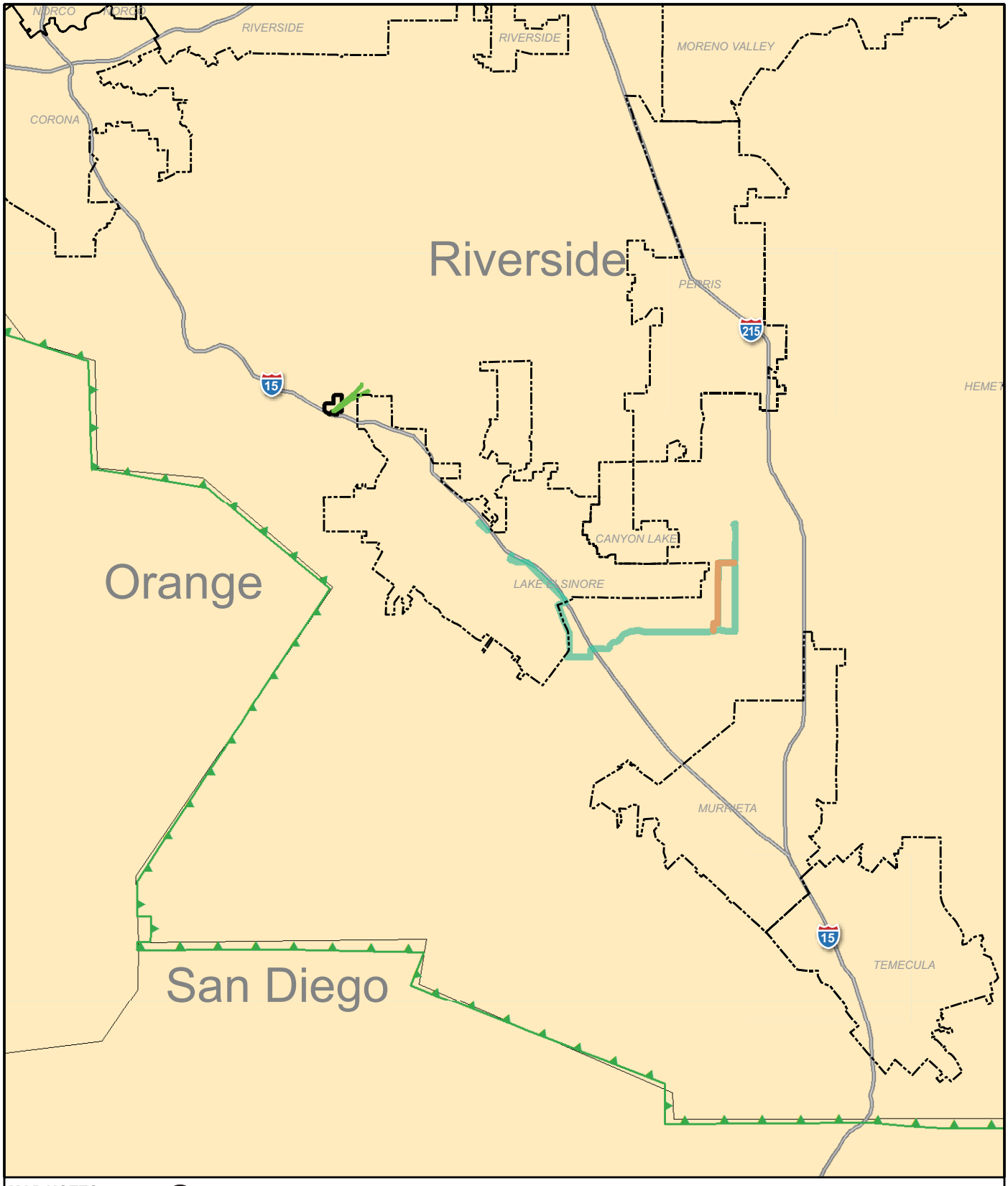
The significant reduction in the population size and range of LBV resulted in its listing by the California Department of Fish and Game (CDFG) as endangered in June 1980 and by the USFWS as endangered in May 1986. Since the early 1990s, however, many LBV populations have demonstrated fairly significant growth, especially those having received conservation and management efforts. Census data from 1986 indicated that an estimated 300 pairs existed in southern California, but by 2000 the estimate had risen to a total of 2,000 pairs (USFWS 2001). Extensive cowbird trapping and habitat restoration are presumed to be the primary factors contributing to this recent recovery trend. LBV has been reoccupying large portions of its former range in southern California, and in 2005 a pair of LBV successfully bred in the San Joaquin Valley, the first such occurrence in this area in many decades.

The LBV prefers riparian habitat with a dense understory of young willows (*Salix* spp.), mule fat (*Baccharis salicifolia*), Mexican elderberry (*Sambucus mexicana*), California rose (*Rosa californica*), desert wild grape (*Vitis girdiana*), and a variety of other shrubby species. The LBV is generally found in riparian areas that are dominated by one or more willow species, especially where a mixed age composition occurs. These areas frequently include other trees such as cottonwood (*Populus* spp.) or California sycamore (*Platanus racemosa*), particularly where the canopy is within or immediately adjacent to an understory layer of vegetation (Salata 1983). One analysis indicated that LBV prefers stratified vegetation with low amounts of aquatic and herbaceous cover (RECON 1990). Another ecological variable is the width of the willow riparian woodland. LBV exhibits a clear preference for relatively broad woodlands, which typically exhibit more stratification of vegetation. It was noted that an increase in occupied habitat occurs as the width of the willow riparian woodland exceeds 50 meters wide versus 10 meters or less (RECON 1990). As local populations continue to expand, however, and occupy the remaining areas of more typical habitat, a higher incidence appears of LBV using lower quality or "marginal" habitats.

The core of the LBV range in southern California has been in San Diego County, which continues to support several significant populations. Another substantial population has been in the Prado Basin, in southwestern Riverside County (approximately 25 miles northwest of Lake Elsinore), where a total of 538 LBV territories were recorded in 2009 (Jim Pike, personal communication with Doug Willick, August 5, 2010). The Santa Ana River upstream and downstream of Prado Basin has also been known to support increasing numbers of LBV in recent years. Although many local populations have apparently leveled off in recent years (such as in San Diego County and Prado Basin), this may be a result of areas with suitable LBV habitat reaching saturation levels.

The **southwestern willow flycatcher** is a small, olive-colored, migratory songbird. One of four commonly recognized subspecies of the willow flycatcher, the SWF was listed as a federally endangered species by the USFWS in March 1995. In addition, all willow flycatcher subspecies that nest in California (including SWF and two other subspecies in northern California) are considered state endangered by CDFG. The breeding range of SWF includes southern California, Arizona, New Mexico, southwestern Colorado, extreme southern portions of Nevada and Utah, and (possibly) western Texas (Sogge et al. 1997). As with other willow flycatcher subspecies, its winter range occurs south of the United States. Throughout its range, the SWF is one of the latest migratory species to arrive on its breeding grounds (Garrett and Dunn 1981). In southern California, it is present from early to mid May through August and possibly early September.

The identification of SWF in the field is quite difficult due to its close resemblance to other flycatcher species in the *Empidonax* genus. In addition, due to extreme similarity of appearance and vocalizations, it is not possible to positively identify the various willow flycatcher (WIFL) subspecies in the field. Populations of other subspecies of WIFL (e.g., *E.t. brewsteri* and *E.t. adastus*, which breed as far north as southwestern Canada) are apparently maintaining stable populations. They are widespread during



MAP NOTES

Data Source
ESRI - Roads, Hydrography
SCE - Site Boundary and Transmission Data
WRMSHCP Plan - Plan Boundaries

Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 1-1 Regional Project Location.mxd

Date: 6/14/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

0 1.5 3 6 Miles

Project Data

- Alberhill Substation Study Area
- 500 kV Survey Area
- Proposed 115 kV Survey Area
- Alternative 115 kV Survey Area

Basemap Data

- Freeways/Highways
- WRMSHCP Boundary
- County Boundary
- City Boundary

Figure 1-1

Regional Location
Alberhill System Project

migration and can be encountered at this time in SWF breeding habitat, as well as in a variety of other native and nonnative habitats (Garrett and Dunn 1981, Hamilton and Willick 1996). In fact, at the species level, WIFLs currently occur as fairly common migrants in southern California, although these birds are all assumed to belong to the more common, northerly-breeding subspecies. It is currently recognized, however, that the SWF subspecies is the only one known to breed in southern California. Consequently, SWF surveys extend through the breeding season to differentiate the SWF from other, purely migratory subspecies of willow flycatcher. The survey protocol's increased frequency of site visits between June 20 and July 17 is intended to increase the likelihood of detecting any SWF that may be present in a survey area at a time when no other WIFL subspecies is expected to be present in southern California.

Breeding habitat for SWF is restricted to dense, well-developed riparian woodland, from sea level in California to approximately 8,000 feet in Arizona. Typically this habitat occurs near surface water or saturated soil (Sogge et al. 1997). Sogge et al. (1997) suggest that nesting habitat for SWF typically includes patches at least two acres or greater in extent, with linear-shaped habitats at least 10 meters (33 feet) wide. Specific habitat characteristics, such as species composition and diversity, dominant vegetation, and vegetative structure, have been found to be quite varied. For many years, SWF breeding habitat in California was thought to be generally limited to willow dominated riparian communities (Garrett and Dunn 1981, Grinnell and Miller 1944). In southern California, however, more recent work (e.g., Robert McKernan, Bill Haas) has revealed this species occasionally occupying habitats dominated by alders (*Alnus rhombifolia*), coast live oak (*Quercus agrifolia*), and other species. Along the lower Colorado River, salt cedar (*Tamarix ramosissima*) dominated habitats are known to support substantial numbers of SWF breeding territories (McKernan and Braden 1999).

Historically, the SWF was considered a common summer resident in appropriate habitat throughout the state of California (Grinnell and Miller 1944). In recent decades, however, this taxon experienced significant population declines. In 1997, the known breeding population was estimated at between 300 and 500 pairs, with only a small percentage of this total occurring in California (Sogge et al. 1997). Since then, most of the California populations have shown no evidence of improvement. Similar to LBV, the SWF's decline throughout its range is widely attributed to habitat loss, habitat degradation, and brood parasitism by the brown-headed cowbird. Although the willow flycatcher as a species is a fairly common migrant through southern California, these birds are assumed to belong to the more common subspecies breeding as far north as southwestern Canada.

1.2 Methods

The survey protocol for SWF and LBV followed guidelines provided for these species by the USFWS. The SWF protocol, as revised in 2001, specifies a total of five site visits to areas with potential habitat for the flycatcher. These visits are to be conducted during three separate time periods, with successive surveys at any site at least five days apart. The three time periods identified for SWF surveys are as follows: May 15 through 31 (one site visit), June 1 through 21 (one site visit), and June 22 through July 17 (three site visits). Three of the site visits are conducted during the last survey period as this is the best period to verify the summer resident status of SWF and eliminate the possibility of other strictly transient (in southern California) subspecies of willow flycatcher. Guidelines adopted by the USFWS for LBV surveys specify eight visits between April 10 and July 31, with a minimum of 10-day intervals between site visits. Combining protocol survey recommendations for both SWF and LBV results in a total of nine site visits conducted between April 10 and July 31. The protocol for LBV requires a maximum survey area per biologist per day of three linear kilometers (1.86 miles) or 50 hectares (123 acres). The combined acreage of all LBV/SWF survey sites for the Project was considerably less than these limits.

For the SWF, survey protocol requires that SWF song recordings be broadcast at regular intervals in areas of suitable habitat to optimize the potential for the detection of this species. Due to the potential for these recordings to adversely impact nesting activity, and the difficulty in finding and identifying SWF, USFWS requires that the surveying biologist be in possession of a current endangered species [Section 10(a)(1)(A)] permit that authorizes survey activities for SWF. No endangered species permit is required to

conduct surveys for LBV, and the use of song recordings is not required for this species. All surveys were performed by AECOM avian biologist Doug Willick, who is permitted to conduct surveys for SWF (permit #TE-821404-5).

Concurrent with the LBV/SWF survey, the project site was assessed for other special status riparian birds. Based on habitat present in at least portions of the Project's survey area, other special status riparian birds with some potential to occur include yellow warbler (*Dendroica petechia*) and yellow-breasted chat (*Icteria virens*). These species are considered California Species of Special Concern by CDFG. A compendium of all bird species recorded during this focused riparian bird survey is included at the end of this report (Appendix A).

Surveys were performed by slowly walking through, or along, all areas of suitable habitat for LBV and SWF and stopping and listening periodically to detect song and/or other vocalizations. Surveys were conducted primarily during morning hours. The surveys avoided weather conditions (e.g., excessive wind, heat, rain, fog) that would not be conducive to the detection of LBV and SWF or small songbirds in general. Table 1-1, below, identifies the survey dates, time of day during which the survey was conducted, and the weather conditions during the survey.

1.3 Habitat Assessment

During the initial site visit for this survey, the AECOM avian biologist Doug Willick examined all areas within the 115-kV portion of the Project Area that had previously been mapped as riparian woodland or riparian scrub habitats. This initial habitat assessment was conducted in order to identify all sites of potentially suitable LBV/SWF breeding habitat within the study area. The primary criteria used to evaluate the suitability of riparian related habitats included the following:

Species composition and structure. Although both LBV and SWF are known to utilize a variety of riparian trees and shrubs in habitat occupied by breeding birds, certain species (e.g., willows and mule fat) are more commonly found when LBV and SWF are present. Conversely, some riparian habitats (native or nonnative) are not typically favored by nesting LBV and SWF, such as those dominated by white alder (*Alnus rhombifolia*) and giant reed (*Arundo donax*). Both birds typically occupy habitat with a diverse structure that includes a variety of young to moderate aged trees and a fairly dense, shrubby understory.

Habitat condition. Habitat condition, or quality, can be an important factor in whether or not a particular site would provide potential nesting habitat for LBV or SWF. Cattle grazing, flooding, or human disturbance, for example, can degrade or eliminate the understory component of a riparian area and substantially reduce its suitability for these species.

Minimum habitat size. The overall extent of potential LBV/SWF habitat that is available at a given site may limit its suitability as breeding habitat. Although the area occupied by a LBV or SWF breeding territory will vary, minimum territory sizes for each species are generally at least 0.5 acre, and usually much larger (Sogge et al. 2010; Kus et al. 2010). Therefore, patches of potentially suitable habitat smaller than 0.5 acre will likely be unsuitable as breeding habitat for these species.

Isolation of Habitat. The extent of potentially suitable habitat is especially important when an area is completely isolated by extensive areas of unsuitable habitat. Therefore, the more a patch of potentially suitable habitat might be isolated, the more important it is that the habitat patch be of sufficient size to support a breeding territory.

Table 1-1. Survey Details and Conditions

Date	Time of Day	Survey Conditions
4/26/2010	0930-1500	Clear (throughout survey). Temps from 70° to mid 80°s, with mild to moderate (2-8 mph) S.W. winds.
4/28/2010	0730-1315	Partly cloudy most of day, especially a.m. (front passing through overnight). Some rain in early a.m. hours. 50°s to high 60s. S.W. winds from 2-10 mph.
5/10/2010	0920-1350	Cloudy to partly cloudy throughout survey (30-75% c.c.). 67° at start of survey. Low to mid 70°s at end. Variable winds throughout day, at 2-6 mph.
5/24/2010	0840-1240	10-20% c.c., low 60°s, 0-3 mph winds at start. Still 20% c.c. and only low 70°s at end, with 3-6+ mph S.W. winds.
6/4/2010	0810-1240	Clear (throughout survey), 70°, and calm at start. Mid 80°s, with 3-8 mph (S.W.?) winds at end.
6/16/2010	0830-1230	Unusually mild weather: clear (throughout survey), 67° and 0-3 mph S.W. winds at start. Low to mid 70°s, and 2-5 mph winds, at end.
6/25/2010	0750-1149	Clear (throughout survey), 66° and calm at start. Mid 80°s, with 2-3 mph S.W. winds at end.
7/1/2010	0800-1200	Clear (throughout survey), 72°and generally calm at start. 86°, 2-3 mph S.W. winds at end.
7/16/2010	0745-1115	Appeared to have rained during previous evening. 20% c.c. (mainly over mountains to west), 79°, calm and humid at start. Clear, 93°, 2-4 mph winds (direction not noted) at end.
7/26/2010	0751-1158	Overcast (low clouds) early, becoming less than 20% c.c. by 0915. 67°, 1-4 mph S.W. winds at start. High, thin clouds moving in from south during late a.m., becoming 40% c.c. at end of survey (and 75°, 2-4 mph winds).

All temperatures are in degrees Fahrenheit

Abbreviations
c.c = cloud cover
mph = miles per hour

2.0 Survey Results

Based on the initial habitat assessment conducted in the 115-kV segment of the Project's study area, a total of eleven sites were determined to have limited to moderate potential to support LBV and/or SWF (Figures 2-1 through 2-7). In summary, approximately four of the sites appeared to have moderate potential to support LBV breeding habitat, while the remaining seven sites were considered to be only marginally suitable for this species. For SWF, due to their preference for more mesic riparian communities, only one site (i.e., CWR2-1, Figure 2-1) was considered to have at least marginal potential for SWF breeding habitat. The remainder of the sites were not considered suitable breeding habitat for SWF. Characteristics of the individual survey sites that were examined during this survey will be discussed in more detail below.

2.1 Least Bell's Vireo

Although no LBV were located within any of the survey sites, individual LBV territories were recorded in fairly close proximity to two of the sites. While conducting the first site visit at CWR2-1 (April 26, 2010), a singing male LBV was initially heard, and later observed, in relatively mature willow-cottonwood riparian habitat immediately upstream of CWR2-1. This individual was recorded on all subsequent visits with the exception of June 10, July 1, and July 16, 2010. Although this territorial bird occasionally roamed as close as 30 feet from the closest edge of the CWR2-1, it was never detected within this survey site and was usually about 150 feet to 300 feet upstream of CWR2-1. Prior to the last survey, it was suspected that this represented a bachelor male territory, as no other LBV were detected at this location. However, during the last visit, on July 26, 2010, two LBVs were found here, including a silent bird that showed evidence of heavy molt along with missing tail feathers, and a singing bird with a full tail. Based on the July 26 observations, it is not clear whether a pair or just a bachelor male had maintained the LBV territory immediately upstream of CWR2-1. It is not unusual for LBV to begin local dispersal in mid to late summer. This may be more typical of older juveniles, although adults (e.g., failed breeders or unpaired birds) may also begin dispersing at this time of year.

The second LBV territory to be recorded during this survey occurred during the first site visit to SWS1-1. A LBV was heard singing, and later seen, in riparian scrub roughly 550 to 600 feet north-northwest of this small survey site. On subsequent visits, the LBV was heard singing as close as approximately 400 feet northwest of SWS1-1 (Figure 2-2). This LBV was found on three of the first four site visits (i.e., April 26 and 28, and May 24, 2010) but was not detected on any subsequent visits. During all three visits when it was known to be present, the bird sang consistently and was therefore easy to locate. Due to the presumed brevity of this bird's presence in the vicinity of SWS1-1, and the fact that no other LBV could be detected at this location, it is suspected that this territory was occupied by a single bachelor male. No other LBVs were found during this survey.

2.2 Southwestern Willow Flycatcher

No SWF were detected during this survey, including on both the survey sites and the areas adjacent to the sites. As stated above, CWR2-1 was the only site that appeared to show several of the characteristics of SWF breeding habitat. Therefore, CWR2-1 was the only site where the full SWF survey protocol was employed. The remainder of the sites were considered unsuitable as SWF breeding habitat due to the lack of surface water and often very limited extent and fairly sparse structure of the riparian vegetation.

2.3 Description of Survey Sites

The **CWR2-1** survey site contains relatively mature willow and cottonwood riparian woodland, which occurs in somewhat narrow stands bordering the San Jacinto River (SJR), immediately upstream of Casino Road (Figure 2-1). This habitat also continues upstream from CWR2-1, extending to Interstate 15, approximately 450 feet northeast of CWR2-1. The SJR along this stretch carried running water through most of the survey period (i.e., approximately April to June). During July only one fairly deep pool remained which held some surface water until the end of the survey (July 26, 2010). CWR2-1, and the area immediately upstream, has the largest amount of well-developed riparian woodland habitat of the sites included in this survey.

The **TS1-1** survey site is immediately downstream of CWR2-1, separated only by the Casino Road bridge (Figure 2-1). The vegetation within TS1-1, which lines a broader and more open section of SJR, appears as a significantly more disturbed riparian community. Although it still supports a few mature willow trees, it is dominated by nonnative vegetation, including salt cedar and giant reed. The upper banks of this survey site are also dominated by ruderal vegetation [e.g., mustard (*Brassica* sp.), tocalote (*Centaurea melitensis*), and castor bean (*Ricinus communis*)].

SWS1-1 is a very small survey site consisting primarily of a few young willow trees growing in an otherwise open field (Figure 2-2). Approximately 150 feet west of the SWS1-1 survey site, however, begins a fairly extensive riparian scrub habitat, dominated by a mix of young to moderate aged willows and salt cedar. This riparian scrub habitat did not appear to be associated with any noticeable drainage, as the terrain throughout this area is relatively flat.

SWS4-1 supported a mix of trees, including a few mature coast live oaks and evergreen ash (*Fraxinus uhdei*) (Figure 2-3). This survey site was quite dry, had a minimal understory, and merged into a chaparral plant community to the west. SWS4-1 showed noticeable evidence of human disturbance, with Beverly Road and multiple residential units immediately to the north and a dirt road to the east.

Survey sites **SWS2-1**, **SWS3-1,** and **SWS5-1** are relatively small and close together (Figure 2-3). In general, they supported a broad mix of trees, including several mature willows (especially within the SWS5-1 site), coast live oak, and eucalyptus trees (*Eucalyptus* sp.). All sites lacked a significant understory component and were fairly heavily disturbed by significant human activity. Sites SWS3-1 and SWS5-1 lie immediately adjacent to a busy Bundy Canyon Road, and residences border the SWS5-1 site to the east and west. A fenced storage area and illegal dumping were noted adjacent to the SWS2-1 and SWS3-1 sites.

The **SWS7-1** survey site consists of a broken and very narrow string of young willows, which is bisected by Waldon Road (Figure 2-4). Immediately to the north are rural residential properties. The habitat quality of this site was considered poor due to the degree of human disturbance and the overall sparseness of vegetation.

SWS10-1 follows a small drainage through an agricultural field (Figure 2-5). The drainage is bordered narrowly with young willows and mule fat. Although nearly 600 feet in length, a very busy Murrieta Road parallels this survey site as close as 40 feet to the west. The willow scrub habitat is very narrow and is disturbed by active farming practices. The habitat quality of this survey site was considered poor.

The **SWS11-1** survey site is primarily in a front yard of a rural residential property and lies immediately east of Byers Road (Figure 2-6). It consists of a very narrow strip of young willows which have a minimal understory and are quite sparse. The habitat quality of this site was considered poor due to the sparseness and small extent of vegetation and degree of human disturbance at this location.

CWR4-1 is located on a small drainage that runs through several rural residential properties (Figure 2-7). The survey site consisted of several mature willows and cottonwoods as well as a mix of nonnative trees

and shrubs. Due to private property issues, the only access to the site was by way of Holland Road, which runs east-west through the middle of CWR4-1. As several horses were kept on the property to the north of Holland Road and had access to the riparian habitat, the understory habitat was noticeably disturbed. South of Holland Road, due to denseness of the tree canopy and possible thinning by the property owner, the understory vegetation was fairly minimal and disturbed in appearance.

2.4 Special Interest Avian Species

Three special interest species of birds were identified during the course of this focused LBV/SWF survey. These included yellow warbler (*Dendroica petechia*), Cooper's hawk (*Accipiter cooperii*), and California horned lark (*Eremophila alpestris actia*). CDFG recognizes nesting yellow warblers as a California Species of Special Concern (SSC). SSC species are those which have not been afforded protection under either the state or federal endangered species act but for which there is conservation concern due to declining populations, limited ranges, and/or continuing threats to their existence. Cooper's hawk and California horned lark were formerly considered SSC species; but during recent revisions to the SSC list, which were published in 2008 (Shuford and Gardali 2008), these two species were removed from the list and are now considered only "Taxa to Watch."

A yellow warbler territory was consistently present through most of the survey period just upstream of CWR2-1. This territory overlapped the LBV territory at this location (as described above) and was therefore on average about 15 feet to 300 feet upstream of CWR2-1. A singing male was detected here on all visits between April 26 and July 1, and breeding was confirmed on June 16 and 25 when a family group was detected. A Cooper's hawk was seen flying over on May 24, 2010, between 750 feet to 1,000 feet northwest of CWR4-1. Raptor nests were not detected in or immediately adjacent to the CWR4-1 survey site. A singing California horned lark was heard along Byers Road, roughly 1,200 feet northeast of SWS11-1. No suitable breeding habitat for this species was present in or adjacent to the SWS11-1 survey site.

Legend

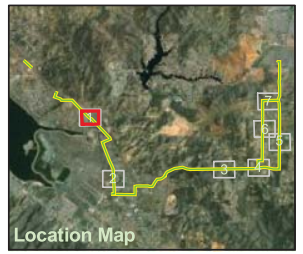
Project Data

- Existing 115 kV Sub-Transmission Line (SCE, 2008)
- 115 kV Buffer

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

- Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
- Least Bell's Vireo Territory



MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\03_Task_Sensitive_Plants\LBV_Survey.mxd

Date: 8/19/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

100 50 0 100 Feet

AECOM

Figure 2 - 1

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

Project Vicinity Proposed and Alternative 115 kV Study Area

Legend

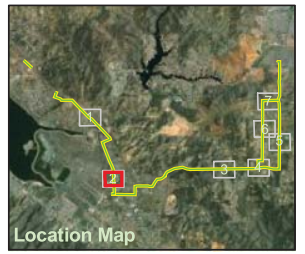
Project Data

- Existing 115 kV Sub-Transmission Line (SCE, 2008)
- 115 kV Buffer

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

- Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
- Least Bell's Vireo Territory



MAP NOTES

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Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
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Date: 8/19/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

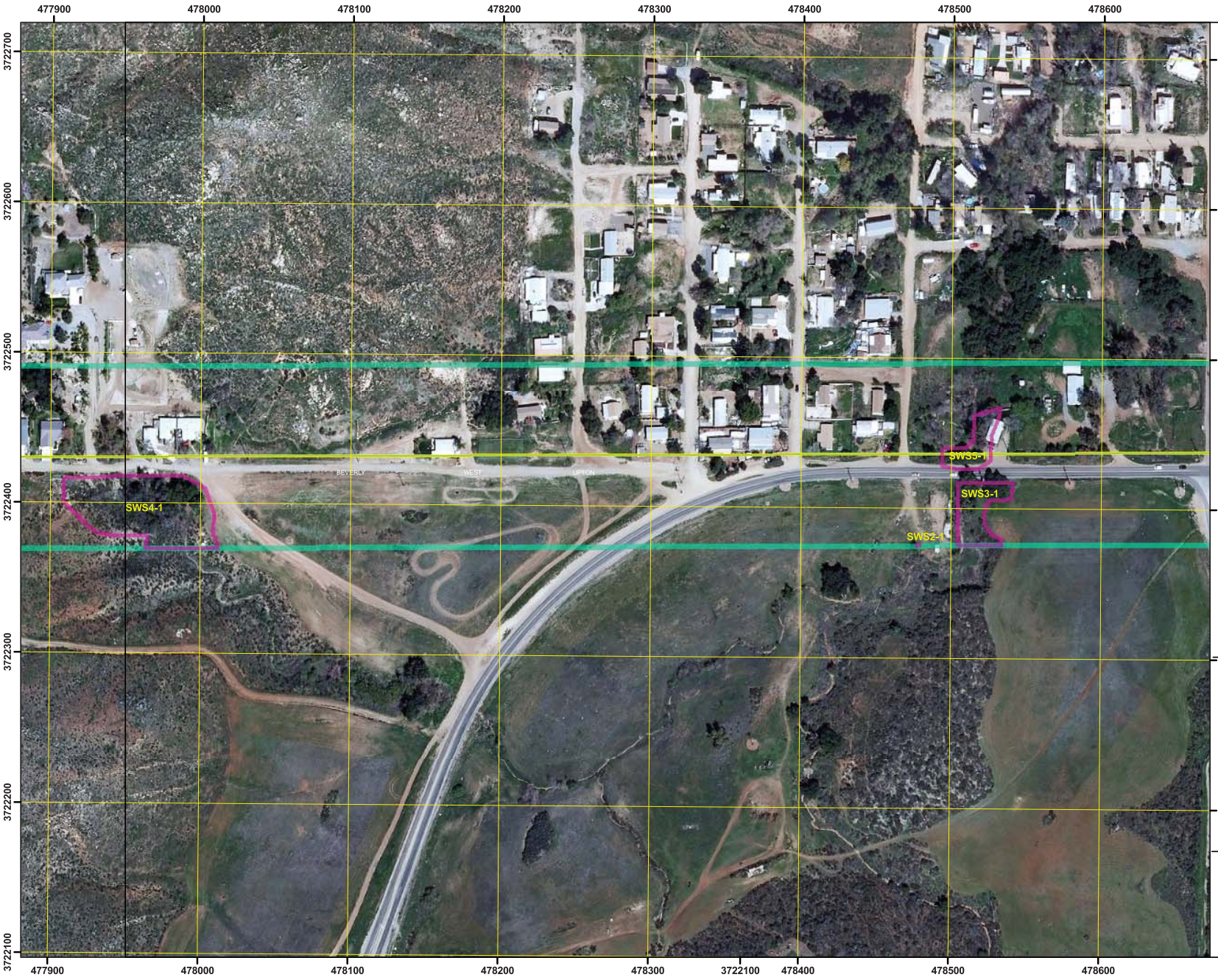
100 50 0 100 Feet

AECOM

Figure 2 - 2

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

Project Vicinity Proposed and Alternative 115 kV Study Area



Legend

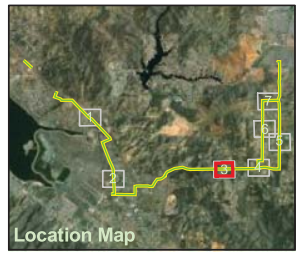
Project Data

- Existing 115 kV Sub-Transmission Line (SCE, 2008)
- 115 kV Buffer

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

- Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
- Least Bell's Vireo Territory



MAP NOTES

Data Source
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ESRI - Political Boundaries
Projection
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Date: 8/19/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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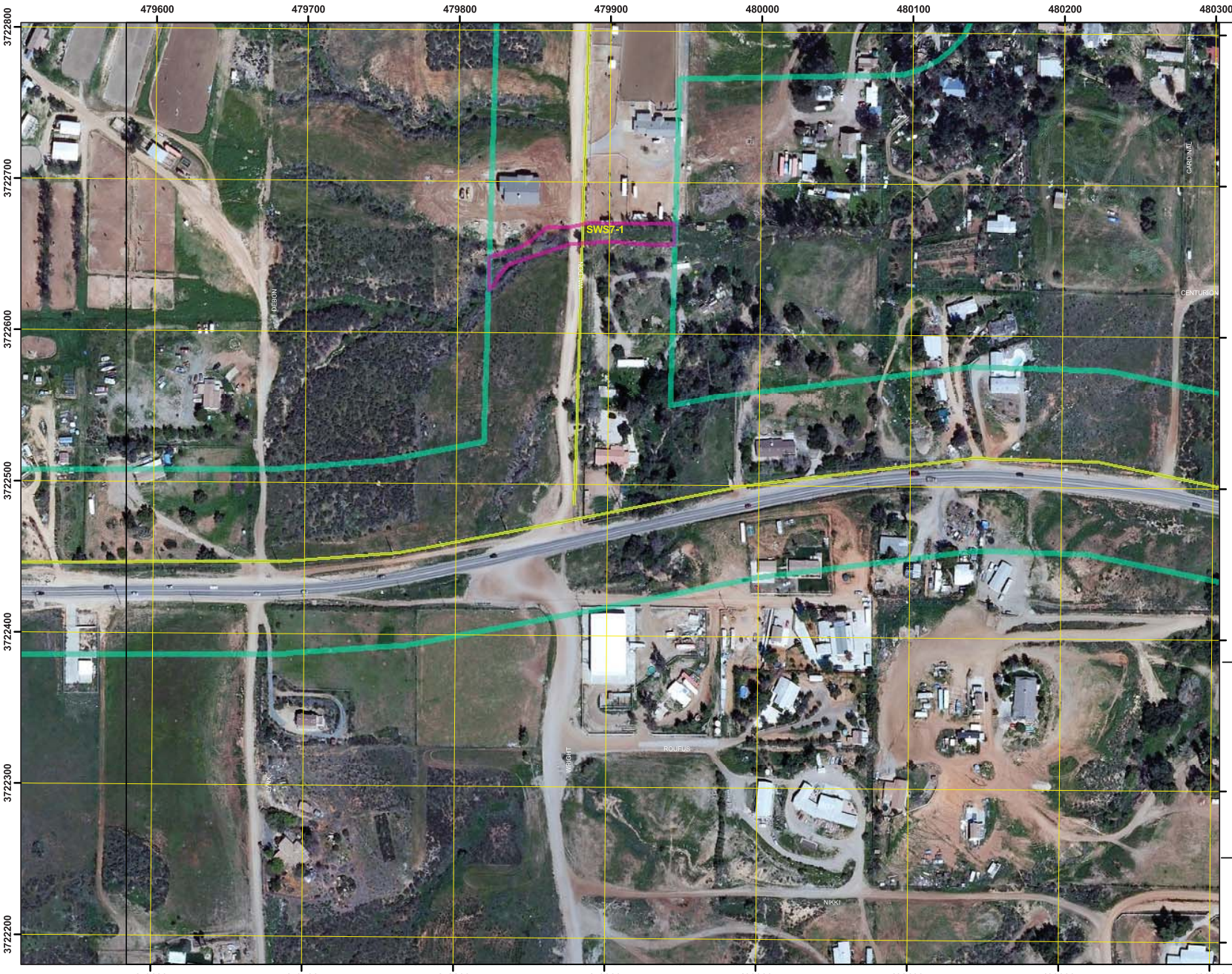
Figure 2 - 3

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

Project Vicinity Proposed and Alternative 115 kV Study Area



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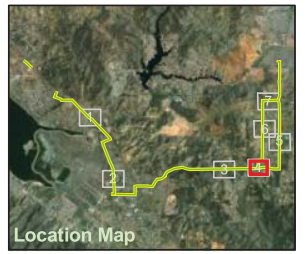
Project Data

- Existing 115 kV Sub-Transmission Line (SCE, 2008)
- 115 kV Buffer

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

- Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
- Least Bell's Vireo Territory



MAP NOTES

Data Source
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SCE - Site Boundary and Transmission Data
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Date: 8/19/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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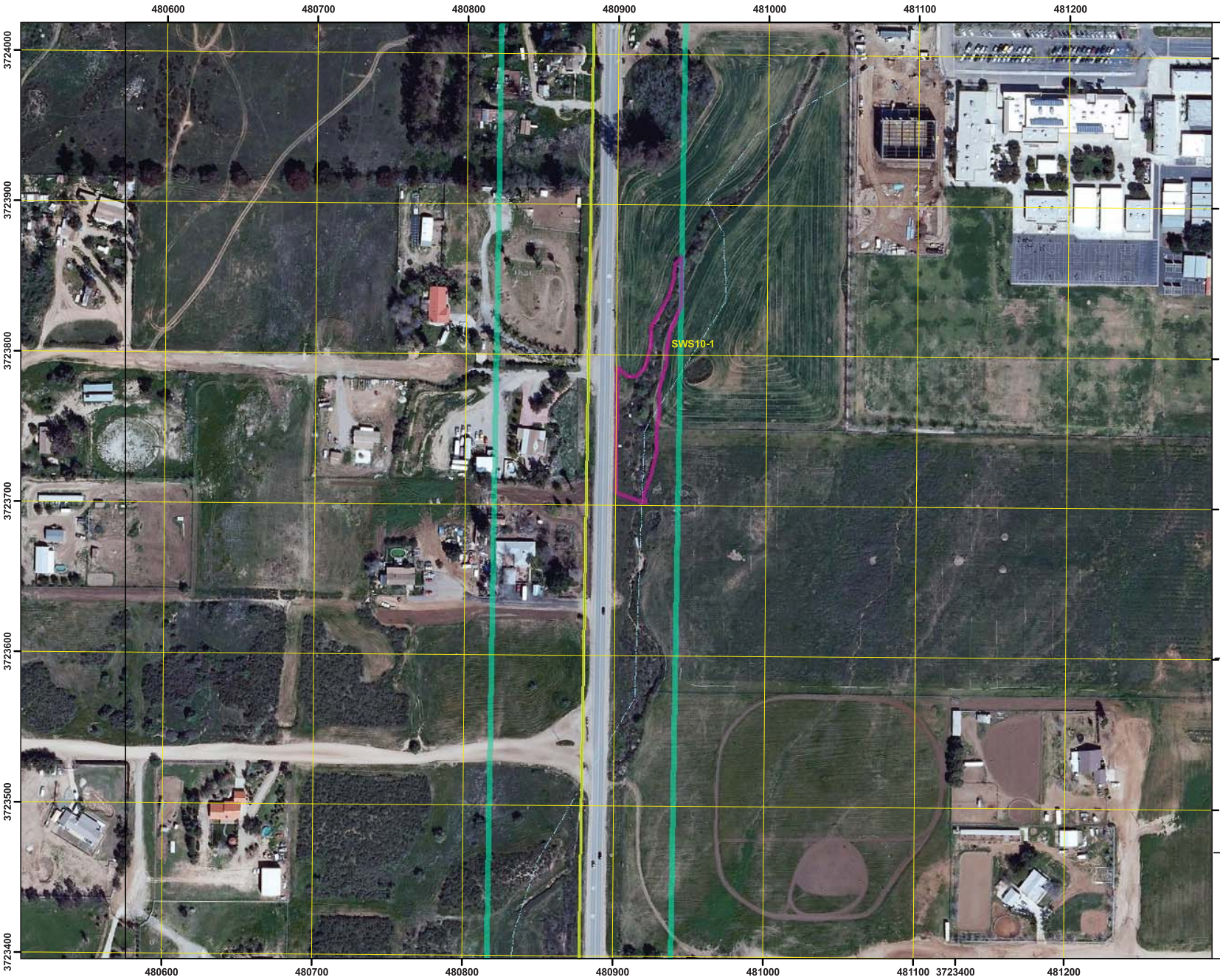
AECOM

Figure 2 - 4

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

Project Vicinity Proposed and Alternative 115 kV Study Area



Legend

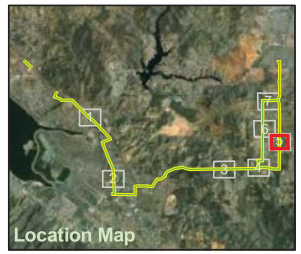
Project Data

- Existing 115 kV Sub-Transmission Line (SCE, 2008)
- 115 kV Buffer

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

- Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
- Least Bell's Vireo Territory



MAP NOTES

Data Source
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SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
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Date: 8/19/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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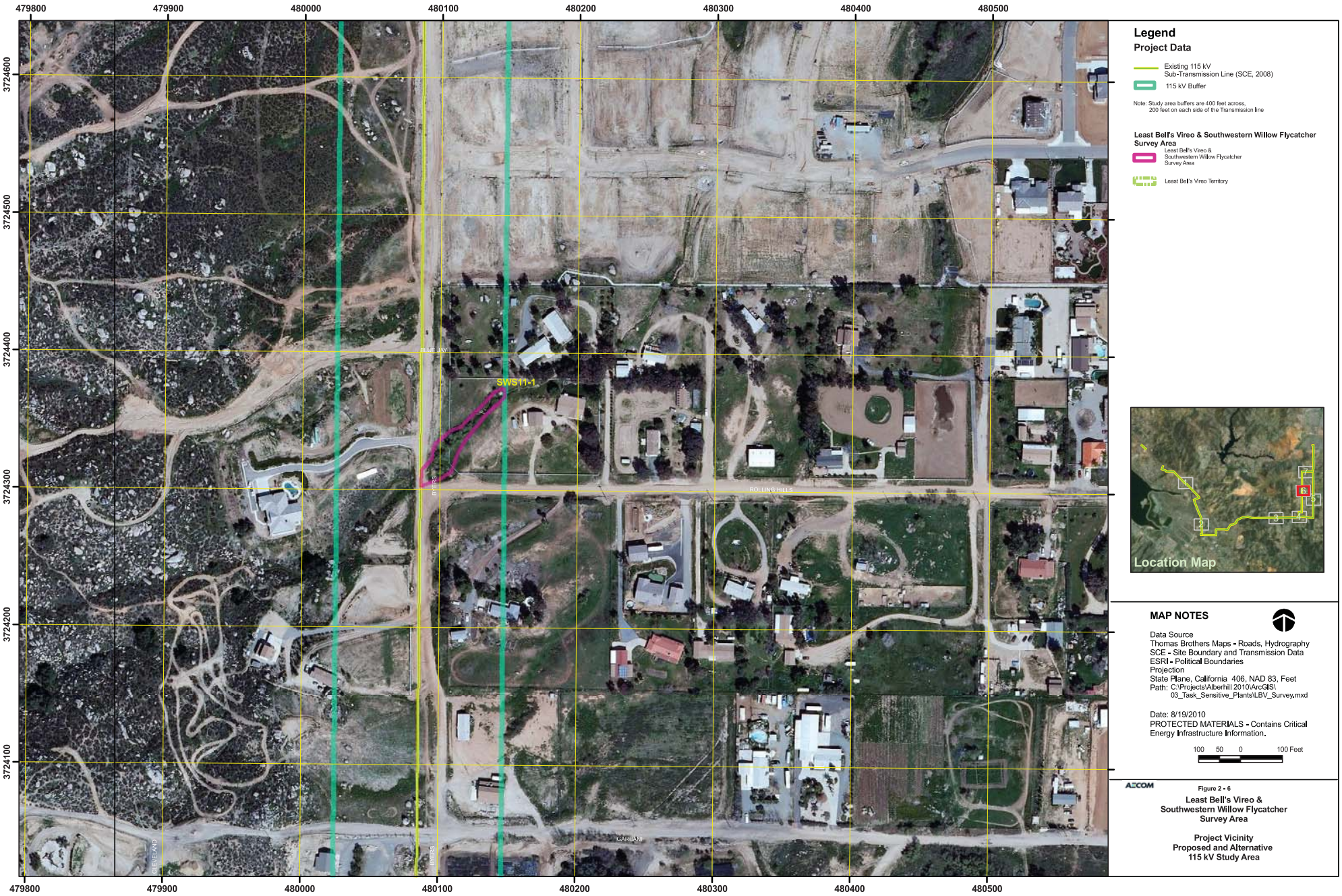
Figure 2 - 5

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

Project Vicinity Proposed and Alternative 115 kV Study Area



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Project Data

- Existing 115 kV Sub-Transmission Line (SCE, 2008)
- 115 kV Buffer

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

- Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
- Least Bell's Vireo Territory

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
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Date: 8/19/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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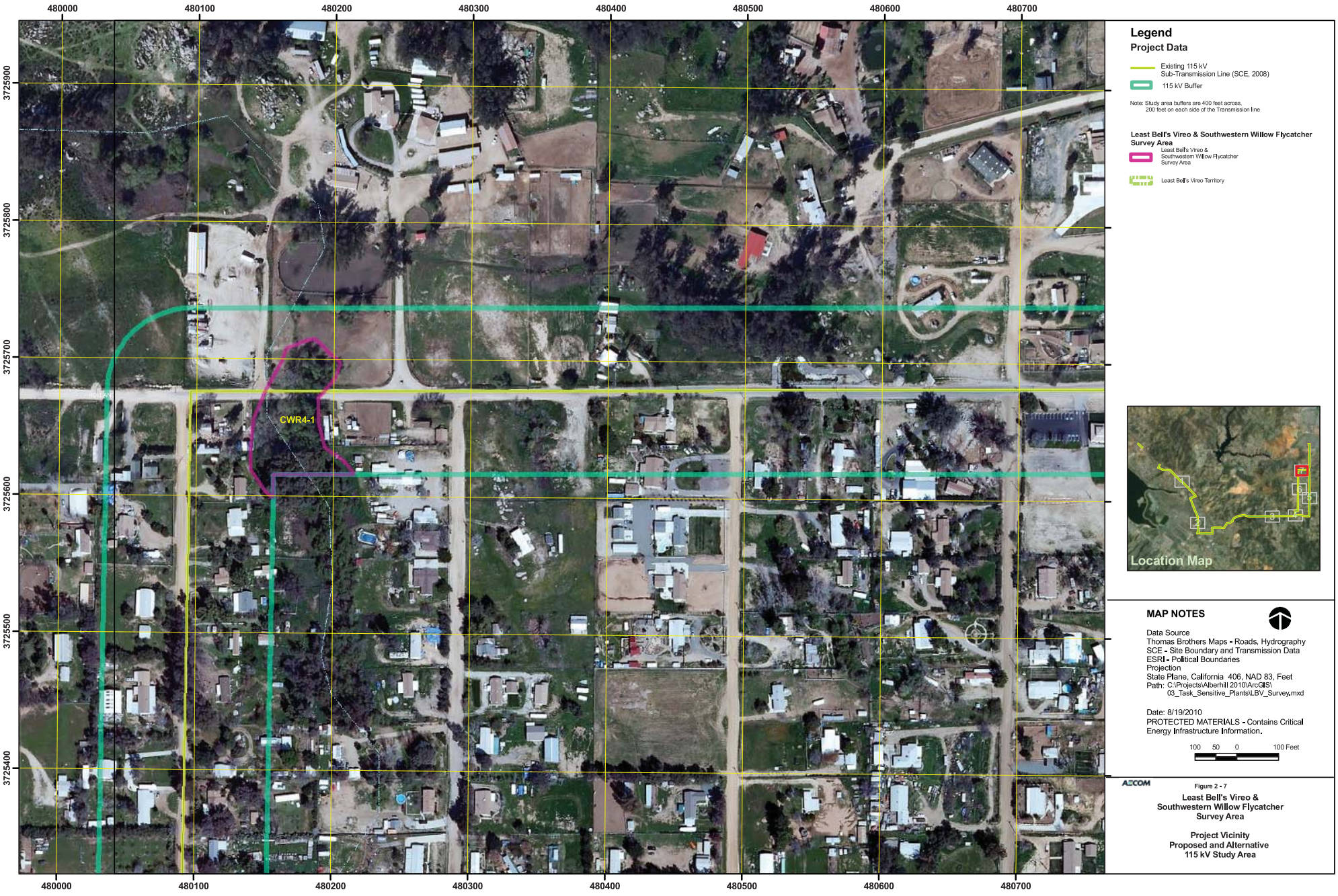
Figure 2 - 6

Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area

Project Vicinity Proposed and Alternative 115 kV Study Area


480000
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480200
480300
480400
480500
480600
480700
3725900
3725800
3725700
3725600
3725500
3725400
CWR4-1
Legend
Project Data
Existing 115 kV
Sub-Transmission Line (SCE, 2008)
115 kV Buffer
Note: Study area buffers are 400 feet across,
200 feet on each side of the Transmission line
Least Bell's Vireo & Southwestern Willow Flycatcher
Survey Area
Least Bell's Vireo &
Southwestern Willow Flycatcher
Survey Area
Least Bell's Vireo Territory
Location Map
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\
03_Task_Sensitive_Plants\LBV_Survey.mxd
Date: 8/19/2010
PROTECTED MATERIALS - Contains Critical
Energy Infrastructure Information.
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AECOM
Figure 2 - 7
Least Bell's Vireo &
Southwestern Willow Flycatcher
Survey Area
Project Vicinity
Proposed and Alternative
115 kV Study Area

3.0 Conclusion

No breeding territories of either LBV or SWF were detected in the Alberhill System Project's survey sites during this focused survey conducted by AECOM. Single LBV territories were found, however, within fairly close proximity to two of the survey sites (CWR2-1 and SWS1-1). One of these territories likely involved an unpaired male, while it was unclear if the other territory involved a lone male or a potential pair. Only four of the survey sites (i.e., CWR2-1, CWR4-1, SWS1-1, and TS1-1) appeared to have a moderate potential to be breeding habitat for LBV. The remainder of the survey sites were considered to have only marginally suitable habitat for LBV. Only one survey site (CWR2-1) was considered to have moderate potential as SWF breeding habitat, while the remainder were considered to be unsuitable for this species.

In addition to LBV, three other special interest birds were recorded during this focused survey: yellow warbler, Cooper's hawk, and California horned lark. All of these species were present in the vicinity of, but not within, the LBV/SWF survey area for this Project.

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Appendix A
Species List

The following is a list of all bird species recorded during the focused least Bell's vireo and southwestern willow flycatcher surveys conducted April 26 to July 26, 2010, for the Alberhill System Project.

Scientific Name	**Common Name**
Accipiter cooperii	Cooper's hawk
Aeronautes saxatalis	white-throated swift
Agelaius phoeniceus	red-winged blackbird
Anas platyrhynchos	mallard
Aphelocoma californica	western scrub-jay
Archilochus alexandri	black-chinned hummingbird
Ardea alba	great egret
Ardea herodias	great blue heron
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Callipepla californica	California quail
Calypte anna	Anna's hummingbird
Carpodacus mexicanus	house finch
Cathartes aura	turkey vulture
Catharus ustulatus	Swainson's thrush
Chondestes grammacus	lark sparrow
Colaptes auratus	northern flicker
Columba livia	rock pigeon
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Dendroica petechia	yellow warbler
Egretta thula	snowy egret
Eremophila alpestris	horned lark
Euphagus cyanocephalus	Brewer's blackbird
Falco sparverius	American kestrel
Geococcyx californianus	greater roadrunner
Geothlypis trichas	common yellowthroat
Guiraca caerulea	blue grosbeak
Icterus bullocki	Bullock's oriole
Icterus cuculattus	hooded oriole
Larus californicus	California gull
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Mimus polyglottos	northern mockingbird
Molothrus ater	brown-headed cowbird
Myiarchus cinerascens	ash-throated flycatcher
Nycticorax nycticorax	black-crowned night-heron
Passerina amoena	lazuli bunting
Petrochelidon pyrrhonota	cliff swallow
Phainopepla nitens	phainopepla
Pheucticus melanocephalus	black-headed grosbeak
Picoides nuttallii	Nuttall's woodpecker
Pipilo maculatus	spotted towhee
Piranga ludoviciana	western tanager
Psaltriparus minimus	bushtit
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe

Scientific Name	Common Name
Spinus lawrencei	Lawrence's goldfinch
Spinus psaltria	lesser goldfinch
Spinus tristis	American goldfinch
Stelgidopteryx serripennis	northern rough-winged swallow
Streptopelia decaocto	Eurasian collared dove
Sturnus vulgaris	European starling
Thryomanes bewickii	Bewick's wren
Toxostoma redivivum	California thrasher
Tyrannus verticalis	western kingbird
Tyrannus vociferans	Cassin's kingbird
Vireo pusillus	Bell's vireo
Wilsonia pusilla	Wilson's warbler
Zenaida macroura	mourning dove

Appendix B
Photographs

Photo 1. April 26, 2010. Looking upstream (northeast) along the San Jacinto River drainage, from CWR2-1; the taller riparian habitat towards the bridge was the site of a least Bell's vireo territory during the 2010 surveys.

Photo 2. April 26, 2010. CWR2-1, looking southeast.

Photo 3. April 26, 2010. Looking northwest from SWS1-1. The riparian scrub habitat in the distance was the site of a territorial least Bell's vireo during April and May of 2010.

Photo 4. July 26, 2010. Just upstream of CWR2-1. Looking northeast along the San Jacinto River (as in Photo 1).

Photo 5. April 26, 2010. TS1-1, looking southwest.

AECOM
Environment

Prepared for:
Adelina O. Muñoz, Biologist
Biological & Archeological Resources Group
Southern California Edison
G. O. 1, Quad 3A, 312B
2244 Walnut Grove Avenue
Rosemead, CA 91770

Prepared by:
AECOM
Camarillo, CA
60134894
September 2010

Alberhill System Project Arroyo Toad Habitat Assessment and Survey Report

Prepared By Rocky Brown

Project Biologist

Reviewed By Julie Niceswanger Hickman

Senior Biologist

Contents

List of Appendices

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List of Acronyms

AECOM	AECOM Environment
CNDDB	California Natural Diversity Database
kV	kilovolt
Project	Alberhill System Project
Project Area	study area
SCE	Southern California Edison Company
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction

Southern California Edison Company (SCE) proposes to construct the Alberhill System Project (Project) to serve current and projected demand for electricity and maintain electric system reliability in southwestern Riverside County. Cities to be served by the Project include Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, and Wildomar.

The Project Area (study area) is defined as the area analyzed for the following components: the proposed Alberhill Substation, the proposed 500-kiloVolt (kV) transmission line, the proposed 115-kV subtransmission line, and the alternative 115-kV subtransmission line.

In support of the Project, AECOM Environment (AECOM) conducted a habitat assessment in 2009 as part of the preparation of the Biological Resources Technical Report for the Proposed Project along the proposed and alternative 115-kV subtransmission lines (AECOM 2009). Based on the results of the 2009 habitat assessment, AECOM recommended a protocol survey for the arroyo toad (*Bufo californicus*) within pre-determined locations along the proposed and alternative 115-kV subtransmission lines. The protocol survey consisted of a focused arroyo toad habitat assessment followed by a protocol presence/absence survey in identified potentially suitable habitat. The standard survey distance for these surveys was 200 feet from the centerline on each side of the proposed subtransmission line. This report summarizes the results of the focused arroyo toad habitat assessment and arroyo toad protocol surveys conducted during spring 2010.

1.1 Arroyo Toad Ecology

The arroyo toad is listed as federally endangered and is a California Department of Fish and Game species of special concern. Arroyo toads inhabit washes, arroyos, sandy riverbanks and other riparian areas typically vegetated by willows (*Salix* spp.), sycamores (*Platanus racemosa*), oaks (*Quercus* spp.), and cottonwoods (*Populus* spp.). Upland habitat requirements include stable, sandy terraces for burrowing with scattered vegetative shelter. Arroyo toads require calm, shallow, seasonal pools absent of predatory fish for breeding (California Herps 2010). Adults are nocturnal, remaining buried in sandy substrates during the day, though newly-metamorphosed juveniles are diurnal. The arroyo toad aestivates in sandy terraces of alluvial plains for part of the year, digging out during the first substantial rains, which typically occur from January to March. The toads then remain active through August or September (Stebbins 2003).

Predatory, nonnative species can reduce or eliminate arroyo toad populations (USFWS 1993, USFWS 1994). While the arroyo toad has adapted to the presence of native species of birds and mammals, nonnative amphibians such as the bullfrog (*Lithobates catesbeianus*) can be particularly damaging to arroyo toad populations (USFWS 1993, USFWS 1994). Bullfrogs can consume all stages of a developing arroyo toad. Nonnative fish and crayfish are also known to predate on all arroyo toad aquatic stages.

2.0 Methodology

This section describes the techniques employed in performing the literature and database research, focused arroyo toad habitat assessment, and arroyo toad protocol surveys.

2.1 Literature and Database Search

A preliminary habitat assessment for the Project was conducted by AECOM in July 2009 to support the preparation of the Proponent's Environmental Assessment and to determine the need for additional focused biological surveys (AECOM 2009). The results of the habitat assessment were reviewed to identify specific areas along the proposed and alternative 115-kV subtransmission lines that had the potential to provide suitable habitat for the arroyo toad. Criteria used to identify potential suitable habitat included the comparison of arroyo toad preferred habitats with the vegetation communities mapped within the study area.

Prior to conducting the focused arroyo toad habitat assessment and subsequent protocol survey, AECOM conducted a search of the California Natural Diversity Data Base (CNDDB) for records of occurrences of arroyo toads within southern California. The CNDDB search included Riverside County and counties adjacent to the study area which included portions of Orange, Los Angeles, San Diego, and San Bernardino counties. The habitat types in which the CNDDB records occur and the proximity of the occurrences to the 115-kV transmission line were studied to determine areas which may contain suitable habitat for arroyo toads.

2.2 Focused Arroyo Toad Habitat Assessment

Based on the results of the preliminary habitat assessment and CNDDB search, AECOM biologists, Ms. Julie Niceswanger and Mr. Jonas Winbolt, conducted a focused arroyo toad habitat assessment along portions of the 115-kV subtransmission line on April 28, 2010. The focused arroyo toad habitat assessment determined locations with potential to support arroyo toads.

Criteria used to determine suitable habitat included evaluating the sites for the components of the primary constituent elements used to define critical habitat for the arroyo toad in the U.S. Fish and Wildlife Service (USFWS) final critical habitat listing for the arroyo toad (USFWS 2005). The primary constituent elements include:

- rivers or streams that are capable of providing sufficient flowing water of suitable quality to provide space, food, and cover needed to sustain eggs, tadpoles, metamorphosing juveniles, and adult breeding toads;
- gently sloping stream gradients that contain sandy or fine gravel substrates that support formation of shallow pools and sparsely vegetated sand or gravel bars for breeding and rearing of tadpoles and juvenile toads;
- upland habitat, particularly alluvial terraces and adjacent valley bottomlands, that include areas of loose soil with dependable substrate moisture where toads can burrow underground; and
- stream channels and upland areas where toads can migrate to overwintering sites, disperse between populations, or recolonize areas that contain suitable habitat.

Figures of maps showing all survey sites evaluated are included in the July 2009 preliminary habitat assessment. At each survey location (all located within drainage features), data regarding general habitat conditions and physical characteristics were recorded and included data on the stream's flow regime, width, gradient, and substrate type, as well as occurrences of pools, sand/gravel bars, and/or terracing. Dominant plant species within each drainage feature and in the upland transition zones were also noted. Surveys were conducted within 200 feet of the centerline of the proposed subtransmission line. The results of this assessment are discussed in Section 3.1 and summarized in Tables 1 and 2.

2.3 Protocol Arroyo Toad Surveys

The focused arroyo toad habitat assessment conducted along the 115-kV subtransmission line determined that one drainage feature in the City of Lake Elsinore, CWR 1-1, contained suitable arroyo toad habitat. Protocol arroyo toad surveys were conducted within 200 feet on each side of the centerline of the subtransmission line at CWR 1-1 and included additional potentially suitable areas in this drainage feature approximately 400 feet downstream which were adjacent to CWR 1-1 (Figure 1). The CWR 1-1 polygon depicted in Figure 1 is from the 2009 habitat assessment. Focused habitat surveys from 2010 looked at the entire area 200 feet on each side of the centerline of the subtransmission line in addition to adjacent suitable habitat.

Between April and June 2010, Ms. Niceswanger, Mr. Winbolt, and Mr. Matthew Malle conducted surveys for arroyo toad at CWR 1-1 and adjacent areas, following the methods described in the USFWS *Survey Protocol for the Arroyo Toad* (USFWS 1999). Ms. Niceswanger has experience in the identification, vocalization, and ecology of the arroyo toad and has worked under other project biological opinions issued by the USFWS. Surveys were passive and did not require any permits under the Endangered Species Act. Survey dates and results are discussed in Section 3.2 and summarized in Tables 3 and 4.

Following the USFWS survey protocol, six surveys were conducted during the arroyo toad breeding season, which generally occurs from March 15 through July 1. Each survey consisted of a daytime and a nighttime component within the same 24-hour period, with at least seven days between each survey. As per protocol, nighttime surveys were conducted at least one hour after dusk and no later than midnight. Although no timing specifications are identified in the protocol for daytime surveys, surveys for this Project typically occurred in the late afternoon.

Daytime surveys were conducted by carefully walking the drainage features containing suitable habitat, including sandy or gravelly alluvial deposits and potential breeding pools. During the daytime survey, a visual search for adult toads, juveniles, larvae, and eggs was conducted; and the locations of any observations were recorded via GPS. Other data recorded included weather conditions and any additional aquatic animal species observed.

The initial three nighttime surveys were limited to listening for characteristic arroyo toad calls at several locations at the outskirts of the survey area in order to avoid homeless encampments within the drainage features. Subsequently, a pedestrian survey was conducted along the banks of the drainage features, with periodic stops to listen for calls. During these surveys, a halogen headlamp with a directional beam, the Princeton Tec Vortec, with a maximum beam distance of 380 feet, was also used to detect the eye shine of amphibians.

Legend

Project Data

115 kV Proposed Project

115 kV Survey Area

Proposed Single-Circuit 115 kV Subtransmission Line

Arroyo Toad Habitat

Potentially Suitable Arroyo Toad Habitat

Arroyo Toad Survey

Original Arroyo Toad Habitat Survey Area

Expanded Arroyo Toad Survey Area

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

MAP NOTES

N

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\arroyo_toad.mxd

Date: 7/19/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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Potentially Suitable Arroyo Toad Habitat

Proposed and Alternative 115 kV Survey Area

3.0 Results

The following sections present the results of the literature search, focused arroyo toad habitat assessment, and protocol arroyo toad surveys.

3.1 Literature and Database Search

The nearest known occurrence of the arroyo toad to the study area was recorded in 1992, approximately 10 miles to the southwest of the 115-kV subtransmission line, in San Juan Creek in the Cleveland National Forest (CNDDB 2010).

3.2 Focused Arroyo Toad Habitat Assessment

The habitat assessment identified 20 drainage features within the study area that contain potentially suitable habitat for the arroyo toad (Tables 1 and 2). Appendix A provides photographs of each drainage feature, and survey data forms are included in Appendix B. The habitat assessment determined that survey site CWR 1-1 and the adjacent area contained sufficient suitable habitat to warrant protocol surveys. This feature (CWR 1-1), of the 20 assessed, was the only feature with sufficient elements of arroyo toad habitat to warrant protocol surveys. The remaining drainages assessed were deficient for a combination of reasons, namely, lack of water, lack of pool habitat, inappropriate substrate, and/or poor quality upland habitat.

CWR 1-1 is located in the City of Lake Elsinore, southwest of U.S. Interstate 15, near the Railroad Canyon Road exit, just north of Auto Center Drive. Suitable arroyo toad habitat also occurs adjacent to CWR 1-1, including the approximately 400-foot stretch of drainage between the Auto Center Drive Bridge to the north and the Lakeshore Drive Bridge to the south.

CWR 1-1 occurs on the San Jacinto River, which is the primary tributary feeding into Lake Elsinore. This portion of the drainage averages between 30 and 40 feet in width with an average ordinary high water mark of 6 feet between Lakeshore Drive and Auto Center Drive. Water was present in this section of river with adequate depths to sustain eggs and tadpoles. The dominant substrate of this section of the San Jacinto River includes large cobbles and sandy areas interspersed with silt and algae, features essential for arroyo toads. Also present are terraces of loose alluvial deposits with scattered vegetation and calm pools suitable for breeding; however, upland habitat is limited due to the adjacent urban setting. This section of river was determined to have a moderate potential to support arroyo toads.

Although the area is somewhat disturbed due to urbanization, vegetation in this portion of the San Jacinto River can be classified as Southern Cottonwood/Willow Riparian Forest using Robert F. Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). In general, Southern Cottonwood/Willow Riparian Forest habitat is dominated by cottonwood and willow. Understory species may include mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica dioica*), and wild cucumber (*Marah macrocarpus*). This habitat type is considered an early successional stage, as both species are known to germinate almost exclusively on recently deposited or exposed alluvial soils. Like willow species, cottonwoods can reproduce vegetatively from their roots. In the absence of disturbance, this habitat type will transition to include oaks and sycamores.

Dominant vegetation within CWR 1-1 and the adjacent area includes arroyo willow (*Salix lasiolepis*), broadleaf cattail (*Typha latifolia*), and tamarisk (*Tamarix ramosissima*), with sub-dominant species including Fremont cottonwood (*Populus fremontii*), mulefat (*Baccharis salicifolia*), clover (*Melilotus* spp.), curly dock (*Rumex crispus*), and giant reed (*Arundo donax*). As the drainage feature transitions to upland habitat,

Table 1: Habitat Evaluation Summary Table – Drainage Characteristics

Survey Site[1]	Stream Characteristics									Upland Transition		
	Creek Type[2]	Water Present ?	Avg. Width (feet)	Avg. HWM (feet)	Gradient	Benching/ Shelving Present?	Pools Present?	Sand or Gravel Bars?	Substrate Type	Alluvial Material/ Sand Terracing?	Loose Soils?	Over-wintering or Migratory Routes?
CLOWR 1-1	I	No	30	<1	2-3%	No	No	No	Silt/Sand	No	No	No
CLOWR 2-1	I	No	15-20	1-2	Low	Yes	No	Yes	Silt/Sand	No	Yes	No
CLOWR 3-1	I	No	30	1-2	Low	No	No	Yes	Clay, Silt/Sand	No	Yes	No
CLOWR 4-1	I	No	5	1-2	Low	Yes	No	No	Silt/Sand	No	No	Yes
CLOWR 5-1	I	No	20 x 30 Swale	NA	Low	No	No	No	Clay	No	No	No
CLOWR 7-1	E	Yes	8-10	2-3	3-5%	Yes	No	Yes	Clay, Cobble	No	No	No
CLOWR 8-1	I	No	15-20	1-2	Low	No	No	No	Clay, Silt/Sand	No	Yes	No
CWR 1-1	P	Yes	30-40	6	Low	Yes	Yes	Yes	Cobble	Yes	Yes	Yes
CWR 2-1	E	Yes	100	NA	Low	No	Yes	No	Clay, Silt/Sand	No	Yes	No
Holland Road – 1	E	Yes	20-30	2-3	Low	NA	NA	NA	Cement/ Rock/ Riprap	Yes	Yes	NA
SWS 1-1	I	No	Swale	NA	NA	No	No	No	Clay	No	No	Yes
SWS 2-1	I	No	15-20	1	3-5%	No	No	No	Silt/Sand	No	Yes	Yes

Table 1: Habitat Evaluation Summary Table – Drainage Characteristics

Survey Site[1]	Stream Characteristics									Upland Transition		
	Creek Type[2]	Water Present ?	Avg. Width (feet)	Avg. HWM (feet)	Gradient	Benching/ Shelving Present?	Pools Present?	Sand or Gravel Bars?	Substrate Type	Alluvial Material/ Sand Terracing?	Loose Soils?	Over-wintering or Migratory Routes?
SWS 3-1	I	No	20 x 20 Pool	<1	NA	No	No	No	Clay	No	No	No
SWS 4-1	I	No	5-10	NA	Low	No	No	No	Clay, Silt/Sand	No	No	Yes
SWS 5-1	I	No	2-5	~1	Low	Yes	No	No	Clay, Silt/Sand	Yes	Yes	Yes
SWS 6-1	I	No	20	1-2?	Low	No	No	Yes	Silt/Sand	No	Yes	No
SWS 7-1	I	No	10-15	2-3	Low	No	No	Yes	Silt/Sand	No	Yes	No
SWS 8-1	I	No	15-20	1-2	Low	No	No	No	Silt/Sand	No	Yes	No
SWS 9-1	I	No	10	<1	Low	No	No	No	Clay, Silt/Sand	No	No	Yes
SWS 10-1	I	No	5	1-2	Low	No	No	No	Clay	No	No	No

Notes:

[1] Reach ID:

CLOWR = Coast Live Oak Woodland and Riparian
CWR = Southern Cottonwood/Willow Riparian Forest
Holland Road = Cement Detention Basin
SWS = Southern Willow Scrub

[2] Creek Type:

P = Perennial
E = Ephemeral
HWM = high water mark
I = Intermittent

Table 2: Habitat Evaluation Summary Table – Dominant Vegetation

Survey Site	Dominant Plant Species Within Drainage	Dominant Plant Species in Transitional Upland
CLOWR 1-1	*Quercus agrifolia, Baccharis salicifolia, Salix lasiolepis*	*Artemisia californica, Encelia farinosa, Adenostoma fasciculatum*
CLOWR 2-1	*Quercus agrifolia, Adenostoma fasciculatum*	*Avena fatua, Bromus* sp.
CLOWR 3-1	Annual grasses, annual herbs, *Quercus agrifolia*	*Avena fatua, Bromus madritensis*
CLOWR 4-1	*Quercus agrifolia, Salix lasiolepis, Marah macrocarpa*	*Avena fatua, Bromus madritensis, Brassica geniculata*
CLOWR 5-1	NA – No channel	*Avena fatua, Bromus madritensis*
CLOWR 7-1	*Quercus agrifolia, Salix* sp.	NA
CLOWR 8-1	*Salix goodingii, Brassica geniculata*	*Amsinckia menziesii, Eriogonum fasciculatum, Avena fatua*
CWR 1-1	*Salix lasiolepis, Typha latifolia, Tamarix ramosissima*	*Encelia californica, Erigonum fasciculatum* var. *foliolosum, Bebbia juncea*
CWR 2-1	*Salix goodingii, Salix lasiolepis, Alnus rhombifolia*	*Brassica geniculata, Bromus madritensis*
Holland Road – 1	Not visible from survey location	*Eriogonum fasciculatum, Avena fatua, Bromus madritensis*
SWS 1-1	NA – No channel	*Bromus diandrus, Avena fatua*
SWS 2-1	*Quercus agrifolia, Salix lasiolepis, Nicotiana glauca*	Annual grasses, annual herbs
SWS 3-1	NA – No channel	*Avena fatua, Bromus madritensis*
SWS 4-1	*Quercus agrifolia, Baccharis salicifolia, Salix* sp.	*Eriogonum fasciculatum, Bromus madritensis, Bromus diandrus*
SWS 5-1	*Baccharis salicifolia, Populus fremontii, Salix* sp.	*Bromus madritensis, Avena fatua, Eriogonum fasciculatum*
SWS 6-1	*Baccharis salicifolia, Salix goodingii*	*Eriogonum fasciculatum, Bromus madritensis, Bromus diandrus*
SWS 7-1	*Baccharis salicifolia, Salix* sp.	*Eriogonum fasciculatum, Bromus madritensis*
SWS 8-1	*Salix lasiolepis*	*Bromus madritensis,* annual grasses
SWS 9-1	*Baccharis salicifolia, Salix lasiolepis*	*Bromus madritensis,* annual herbs, annual grasses
SWS 10-1	*Populus fremontii, Salix* sp., *Baccharis salicifolia*	*Mirabilis laevis, Avena fatua, Bromus madritensis*

dominant vegetation includes California sunflower (*Encelia californica*), California buckwheat (*Eriogonum fasciculatum*), and sweetbush (*Bebbia juncea*), with sub-dominants comprised of wishbone bush (*Mirabilis laevis*) and Emory's baccharis (*Baccharis emoryi*).

3.3 Protocol Arroyo Toad Surveys

AECOM conducted six protocol arroyo toad surveys within and adjacent to CWR 1-1 between April 28 and June 27, 2010. As discussed above, the arroyo toad survey area includes areas of habitat adjacent to CWR 1-1 due to the presence of suitable habitat and that, if present, arroyo toads may move from these areas into the 115-kV subtransmission line study area. The extent of the survey area is depicted in Figure 1. The results of the surveys, including dates, time, and conditions, are summarized in Tables 3 and 4.

During the seven-week survey period, the water in the shallower parts of the drainage feature gradually dried out, stranding some aquatic wildlife. Dead carp (*Cyprinus* spp.) and crayfish (*Procambarus clarkii*) were noted where pools had dried. Aquatic wildlife was primarily observed in the deeper sections of the drainage feature within the survey area immediately adjacent to the bridge at Auto Center Drive.

No adult or juvenile arroyo toads or other sign indicating the presence of arroyo toads, such as eggs or larvae, were detected within the survey area. The only amphibian species detected was the bullfrog. Other common wildlife observed either visually or through identification of sign included mammals such as raccoon (*Procyon lotor*), black-tailed jackrabbit (*Lepus californicus*), and feral domestic cat (*Felis catus*); birds such as great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and cattle egret (*Bubulcus ibis*); fish such as carp, dace (*Leuciscus leuciscus*), trout (*Oncorhynchus* spp.), bass (*Micropterus* sp.), and sunfish (*Centrarchus* spp.); and crayfish.

Extensive human use of the survey area was observed during the survey period. Homeless encampments were observed within the drainage feature under the bridges at Auto Center Drive and Lakeshore Drive, both within and adjacent to the 115-kV subtransmission line.

Table 3: Arroyo Toad Survey Summary – Conditions

		Start Time	Stop Time	Air Temperature (degrees Fahrenheit)	Cloud Cover (percent)	Wind Speed (miles per hour)	Water Temperature (degrees Fahrenheit)
Survey 1 4/28/10	Day	16:00	17:30	60	50	1-3	67
	Night	20:40	21:30	54	0	1-3	67
Survey 2 5/6/10	Day	19:15	20:05	76	0	0	74
	Night	20:40	21:38	76	0	0	74
Survey 3 5/13/10	Day	18:45	19:55	78	0	0-3	74
	Night	20:40	21:35	69	0	0	74
Survey 4 5/27/10	Day	18:45	19:45	68	90	5-7	72
	Night	20:55	22:00	68	90	1-3	72
Survey 5 6/10/10	Day	18:45	19:30	66	80	1-5	NA
	Night	20:40	21:00	66	80	0-3	NA
Survey 6 6/17/10	Day	19:30	20:20	83	0	1-5	72[1]
	Night	20:50	21:30	77	0	0-1	72[1]

Note: [1] Standing water within the stream course had dried out by this point in the surveys; these temperatures were taken from an area of ponded water at the Auto Center Drive Bridge, upstream of the location at which the previous temperature measurements had been taken.

Table 4: Arroyo Toad Survey Summary – Species Observed

		Amphibian Species Observed	Other Species Observed	Arroyo Toads Observed
Survey 1 4/28/10	Day	none	great blue heron, cattle egret, crayfish	none
	Night	bullfrog	unknown bat	none
Survey 2 5/6/10	Day	bullfrog	crayfish	none
	Night	bullfrog	feral cat (tracks)	none
Survey 3 5/13/10	Day	bullfrog	crayfish	none
	Night	bullfrog	none	none
Survey 4 5/27/10	Day	bullfrog	raccoon (tracks), great blue heron, cattle egret, great egret	none
	Night	bullfrog	none	none
Survey 5 6/10/10	Day	none	carp, crayfish	none
	Night	bullfrog	none	none
Survey 6 6/17/10	Day	none	carp, trout, dace, bass, unknown sunfish, crayfish (in pool)	none
	Night	none	jackrabbit, feral cat, heron, egret	none

4.0 Conclusions

No areas within the 115-kV study area are occupied by arroyo toad. Only one survey site, CWR 1-1, contained sufficient element of suitable habitat to warrant protocol level surveys. The remaining drainages were deficient in the appropriate habitat characteristics and were dry, did not contain pools, or were surrounded by poor quality upland habitat.

Based on the results of the protocol arroyo toad surveys, CWR 1-1 and the immediately surrounding areas are not currently occupied by arroyo toad. The physical characteristics of this portion of the San Jacinto River are suitable for the species; however, several factors reduce the potential for occurrence and permanent residence of arroyo toads. These factors include an abundance of predatory wildlife, particularly nonnative species, in and around potential breeding pools, the urbanized setting, limited suitable upland habitat, and human disturbance.

The predatory, nonnative species observed within the survey area greatly reduce the likelihood of survival of all life stages of the arroyo toad—adults, juveniles, tadpoles, and eggs. While the arroyo toad has adapted to the presence of native species of birds and mammals, nonnative species such as the bullfrog can be particularly damaging to arroyo toad populations. Bullfrogs can consume all stages of a developing arroyo toad. Nonnative fish and crayfish are also known to predate on all aquatic stages of the arroyo toad (USFWS 1993, USFWS 1994). Bullfrogs, nonnative fish, and crayfish were all found in abundance within the CWR 1-1 protocol survey site.

5.0 Recommendations

Arroyo toads do not appear to utilize this portion of the San Jacinto River; therefore, arroyo toad specific mitigation measures beyond those normally associated with working within a riparian corridor are not recommended. However, a number of avoidance and minimization measures are recommended if work is anticipated in potentially suitable arroyo toad habitat. These measures include the following:

- Limit disturbance where feasible to previously disturbed areas and minimize the size of work areas to the extent practicable.
- A qualified biologist should conduct a pre-construction survey of all work areas and access routes to confirm the absence of sensitive plant or animal species.
- Prior to commencement of equipment movement or ground disturbance within the drainage feature, a qualified biologist should administer a Worker Environmental Awareness Program to all construction personnel. Such training should be conducted on the initial day of work at the site during the morning tailgate meeting.
- Once a pre-construction clearance survey has determined that sensitive wildlife is absent, all work areas and access routes should be fenced with silt fencing, partially buried in the drainage substrate, to exclude ingress by wildlife.
- General good housekeeping measures should be employed by all construction personnel. These may include picking up and properly disposing of refuse in closed containers; fueling construction equipment away from riparian areas; maintaining construction equipment to prevent leaks; and ensuring that spill containment equipment is present and maintained on site at all times during construction.
- A qualified biologist should monitor construction and equipment movement within the drainage feature.
- Activities in standing water should be avoided where feasible. If work must be performed in standing water, measures such as silt fencing, hay bales, and/or straw wattles should be utilized to prevent excessive siltation in downstream portions of the drainage feature.
- Exposed trenches that must be left overnight should be covered to prevent entrapment of wildlife, or an escape ramp should be provided.

6.0 References

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Appendix A

Habitat Assessment Photographs

CLOWR 1-1: Photo 1, upstream view, facing east

CLOWR 1-1: Photo 2, downstream view, facing west.

CLOWR 2-1: Photo 1, downstream view with access road crossing channel, facing south.

CLOWR 2-1: Photo 2, upstream view and adjacent habitat, facing north.

CLOWR 3-1: Photo 1, upstream view, facing north.

CLOWR 3-1: Photo 2, drainage and adjacent habitat overview, facing north.

CLOWR 4-1: Photo 1, upstream view, facing north.

CLOWR 4-1: Photo 2, downstream view, facing south.

CLOWR 5-1: Photo 1, habitat overview, facing north.

CLOWR 5-1: Photo 2, habitat overview with low gradient swale feature, facing south.

CLOWR 6-1: Photo 1, drainage located at fenceline dip, upstream view, facing northwest.

CLOWR 6-1: Photo 2, upstream view, facing northwest.

CLOWR 7-1: Photo 1, downstream view, facing south.

CLOWR 7-1: Photo 2, drainage profile showing incised bank, downstream view, facing south.

CLOWR 8-1: Photo 1, downstream view and adjacent habitat, facing south.

CLOWR 8-1: Photo 2, upstream view and detention basin, facing west.

CWR 1-1: Photo 1, San Jacinto River and floodplain, downstream view, facing southwest.

CWR 1-1: Photo 2, San Jacinto river and floodplain, downstream view, facing west from E. Lakeshore Drive bridge.

CWR 2-1: Photo 1, drainage and floodplain profile, downstream view, facing southeast.

CWR 2-1: Photo 2, drainage and floodplain profile, downstream view, facing south.

Holland-1: Photo 1, drainage conveyance to detention basin, downstream view, facing west.

Holland-1: Photo 2, detention basin, facing north.

SWS 1-1: Photo 1, habitat overview, facing north.

SWS 1-1: Photo 2, habitat overview, facing northwest.

SWS 2-1: Photo 1, downstream view at road crossing, facing south.

SWS 2-1: Photo 2, upstream view at road crossing, facing north.

SWS 3-1: Photo 1, drainage detention basin/swale feature, facing northeast.

SWS 4-1: Photo 1, drainage detention basin, facing southwest.

SWS 4-1: Photo 2, drainage culvert, downstream view, facing north.

SWS 5-1: Photo 1, drainage and adjacent habitat, downstream view, facing south.

SWS 5-1: Photo 2, drainage and adjacent habitat, upstream view, facing north.

SWS 6-1: Photo 1, drainage terminus (detention basin), facing west.

SWS 6-1: Photo 2, downstream view and adjacent habitat, facing east.

SWS 7-1: Photo 1, downstream view and adjacent habitat, facing south.

SWS 7-1: Photo 2, upstream view, facing northeast.

SWS 9-1: Photo 1, upstream view and drainage profile, facing southeast.

SWS 9-1: Photo 2, upstream view, facing south.

SWS 10-1: Photo 1, drainage terminus (detention basin), facing northeast.

SWS 10-1: Photo 2, drainage terminus (detention basin), facing south.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-007

To: ENE
Prepared by: Ted Heath
Title: Project Manager - Transmission Project Licensing
Dated: 02/22/2010

Question 7.8:

(a) Confirm the accuracy of all of the information presented in the attached Table 2-1 Project Components.

(b) What would be the length of the 115-kV subtransmission lines at the Alberhill Substation that would connect the substation to the 115-kV subtransmission line system? Approximately 0.25 miles?

(c) Compare the numbers of structures removed and installed to data gap 5.20 and PEA Tables 3.3 and 3.4. Clarify the following discrepancies with the analysis of the numbers presented in the PEA:

(d) Pg. 3-8: Number of LSTs installed for 500-kV = 10 or 12 (with those along Valley–Serrano Line) Number of LSTs removed for 500-kV = 4

(e) Pg. 3-17 to 3-19: The following number of structures would be removed (in order listed in the PEA text): 12, 106 (3, 104 = 107?), 127, 5, 2, 66, 1 = 319 structures removed. DG 5.20 says 267removed, please clarify. List number and type of structures to be removed by segment (see attached summary table).

Response to Question 7.08:

(a) Please see the attached Table 2-1 Project Components provided by the CPUC. SCE has reviewed the information in the table and has made corrections as necessary to reflect the most current information at this time. This information is considered preliminary and is subject to change upon final engineering.

(b) Eleven TSPs would be installed for the 115 kV subtransmission lines to connect the Alberhill Substation site to existing lines on Temescal Canyon Road or Concordia Ranch Road. These connections would extend an average length of approximately 0.25 miles.

(c) & (e) Please see attached Table 7.08-1 which reconciles the information provided by SCE in either the PEA or previous Data Gap questions and reflects the most current

information at this time.

The differences between Figure 3.3 and Chapter 3.1.3 of the PEA is that Figure 3.3 did not reflect the number of 12 kV distribution poles that will be removed along the 3 mile-long new 115 kV line that will be constructed between Newport Road and Scott Road. Also in this portion of the project, Figure 3.3 states 79 new 115 kV pole structures will be installed and the text of the PEA states 78 115 kV poles will be installed. The correct number is 78 and is reflected in the attached table.

In addition, Figure 3.3 did not show the 11 TSPs that will be installed on the Alberhill Substation property to support the lines as they exit the substation and tie in with the proposed lines at Temescal Canyon Road and Concordia Ranch Road which was described in the text of the PEA.

SCE's response to DR 5.20 listed only the 115 kV structures to be removed and did not list out the 12 kV distribution poles to be removed as described above. Additionally, the response included a listing of 500 kV towers to be installed. Also, SCE inadvertently double-counted 4 TSPs and 10 H-frame structures that led to an incorrect total in our response to DR 5.20.

Additionally, the switch pole discussed on page 3-18 of the PEA will not be installed. The switch required to facilitate transfers between the Valley South 115 kV System and the Alberhill System would be installed on one of the three new LWS poles to be installed at that location.

As mentioned above, Table 7.08-1 reflects the most current information at this time. Please note, the number and types of structures removed/replaced/installed are approximate pending final engineering.

(d) Approximately ten 500 kV transmission towers would be installed between the Alberhill Substation and the existing Serrano-Valley 500 kV transmission line. In addition, two existing towers on the Valley-Serrano 500 kV transmission line would be permanently removed and two existing towers would be replaced with new towers for a total of 12 towers installed and 4 towers removed.

2 attachments

DR 7.08 Project ComponentsTable 2-1.doc

Table 7.08-1_Reconciled Structure Removal and Installation.pdf

Alberhill System Project, Riverside County

(Alberhill Substation, Existing 115kV, & Alternative 115kV)

Fairy Shrimp Habitat Assessment

Prepared for:
AECOM
1461 E. Cooley Dr., Suite 100
Colton CA, 92324

Prepared by:
Andrew McGinn Forde
Edith Read
E Read & Associates, Inc.
368 South Grand Avenue
Orange, CA 92866

Assessment Conducted by:
Andrew McGinn Forde
Scott Cameron
Edith Read

Assessment Conducted On:
April 1, 2010
April 28, 2010
April 29, 2010
May 5, 2010

Report Date:
June 30, 2010

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Figures

Appendices

INTRODUCTION

This report presents findings of an assessment conducted to determine the presence or absence of vernal pools,[1] stock ponds, ephemeral pools, and other depressions that may support the endangered Riverside fairy shrimp (*Streptocephalus woottoni*), the threatened vernal pool fairy shrimp (*Branchinecta lynchi*), and the Santa Rosa Plateau fairy shrimp (*Linderiella santarosa*) within the boundary of the proposed Alberhill Substation and within 200 feet of the proposed Alberhill 115kV transmission line and the proposed Alberhill 115kV Alternative transmission line.[2] The proposed Alberhill Substation, the proposed Alberhill 115kV, and the proposed Alberhill 115kV Alternative transmission lines are located in western Riverside County, California (Figures 1 and 2). The Riverside fairy shrimp, vernal pool fairy shrimp, and the Santa Rosa Plateau fairy shrimp are included in the Multiple Species Habitat Conservation Plan (MSHCP) as Group 3 species. The MSHCP requires evaluation of take coverage based upon site specific considerations for Group 3 species (MSHCP Vol. 2)[3]. The habitat requirements for each species are discussed below. Appendix 1 provides copies of fairy shrimp location records from the California Natural Diversity Database (CNDDB) for the project region.

Riverside Fairy Shrimp (*Streptocephalus woottoni*)

The federal endangered Riverside fairy shrimp occurs in deep vernal pools, vernal pool like ephemeral ponds, stock ponds and other human modified depressions from Los Angeles County (L.A. Airport) south, east through Orange and western Riverside counties to coastal San Diego County (primarily Camp Pendleton and Otay Mesa) and the vicinity of Baja Mar north of Ensenada in Baja California, Mexico.

Riverside fairy shrimp have narrow habitat requirements that are based on inundation variability, mean water temperatures, and water depth. This species is found in large, long lived pools with low

[1] Section 6.1.2 of the MSHCP defines vernal pools as seasonal wetlands that occur in depression areas, meeting the U.S. Army Corp of Engineers Three-Parameter Test (i.e. must have hydric soil, hydrophytic vegetation, and hydrology) during the wetter portion of the growing season, but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season.

[2] Due to the inherent limitations of habitat-based data, definitive conclusions regarding the actual presence or absence of fairy shrimp cannot necessarily be made in this assessment; therefore, this report is intended to provide the project proponent with general information relative to the potential occurrence of fairy shrimp primarily based on the nature of habitat present.

[3] MSHCP Group 3 Species are defined as "take coverage is warranted based upon site specific considerations and the identification of specific conservation and management conditions for species within a narrowly defined Habitat or limited geographic area within the MSHCP Plan Area."

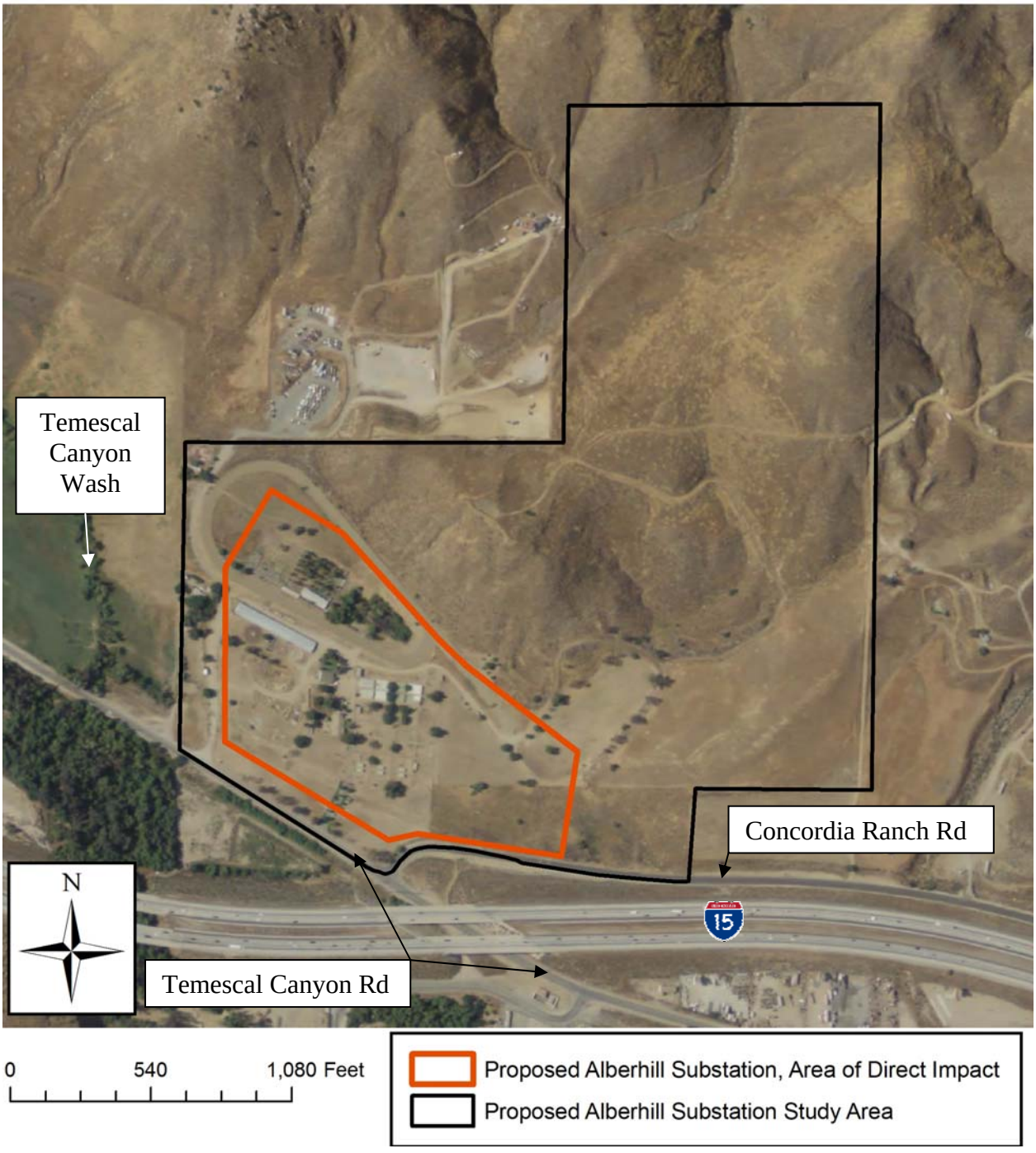

Figure 1. Alberhill Substation Site Location

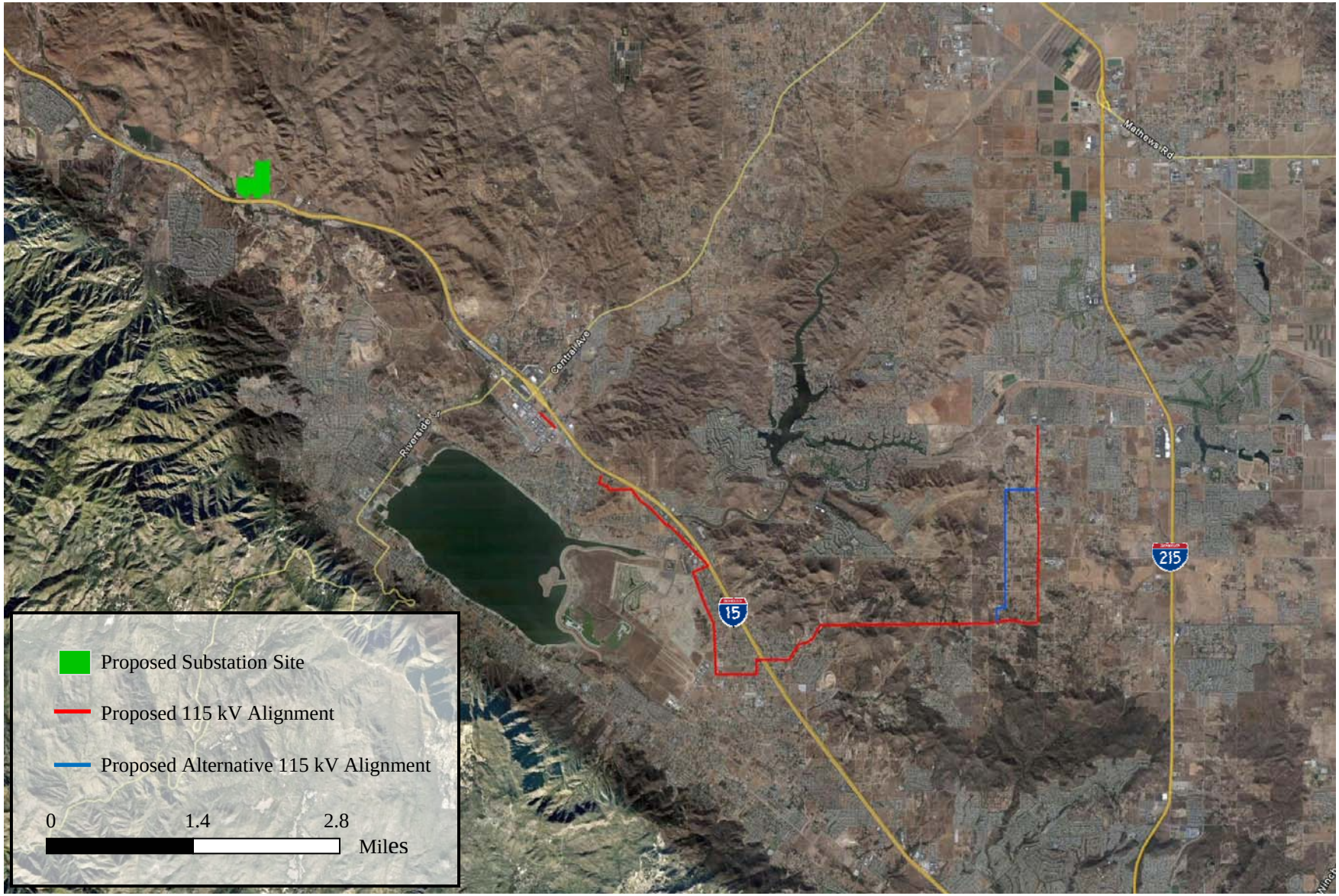

Figure 2. Proposed Transmission Alignments

alkalinity levels and high temperatures. Pools with recorded occurrences of this species have formed over Murrieta stony clay loams, Las Posas series, Wyman clay loam, and Willows soils. However, the species has been found in artificial pools in rock quarries, ditches, and other locations with sufficient inundation periods (48-56 days for maturation of one generation).

Within the MSHCP Plan Area, Riverside fairy shrimp is narrowly distributed in suitable habitat from four known localities: Santa Rosa Plateau, Skunk Hollow, Murrieta and Lake Elsinore back basin. Figure 3 shows location records for the species from the California Natural Diversity Database (CNDDB) that are closest to the survey area in the Lake Elsinore region.

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

The federal listed threatened vernal pool fairy shrimp occurs in scattered locations throughout the Central Valley from Shasta County to Tulare County, along the Coast Range from Solano County to San Luis Obispo and Santa Barbara counties, and in southern California in Riverside and San Diego counties. *Branchinecta lynchi* occupies shallow, short lived pools with either grass lined or earthen bottoms. This is a widely distributed but otherwise uncommon species whose population distribution and habitat requirements are not well documented. Numerous localities where the vernal pool fairy shrimp have been found are artificial depressions such as ditches and hardpan depressions that simulate their natural habitat requirements. Vernal pool fairy shrimp have a narrow distribution within the MSHCP, with four reported locations outside of the project area: Skunk Hollow, the Santa Rosa Plateau, Salt Creek, and the vicinity of the Pechanga Indian Reservation. No CNDDB records for vernal pool fairy shrimp are listed for the Lake Elsinore or Alberhill areas, but this may be due more to scarcity of surveys and reporting than actual occurrence.

Santa Rosa Plateau Fairy Shrimp (*Linderiella santarosa*)

The Santa Rosa Plateau fairy shrimp is not listed by state or federal agencies but is considered a Riverside County narrow endemic species. The only known occurrence for this species is the Nature Conservancy's Santa Rosa Plateau Ecological Preserve. Habitat requirements for Santa Rosa Plateau fairy shrimp are well defined. The species requires cool, long lived pools on southern basalt flows. It is unlikely that additional populations of this species will be found outside of the Santa Rosa West subregion of the MSHCP Plan Area (*e.g.*, Redonda Mesa, Avenaloca Mesa).

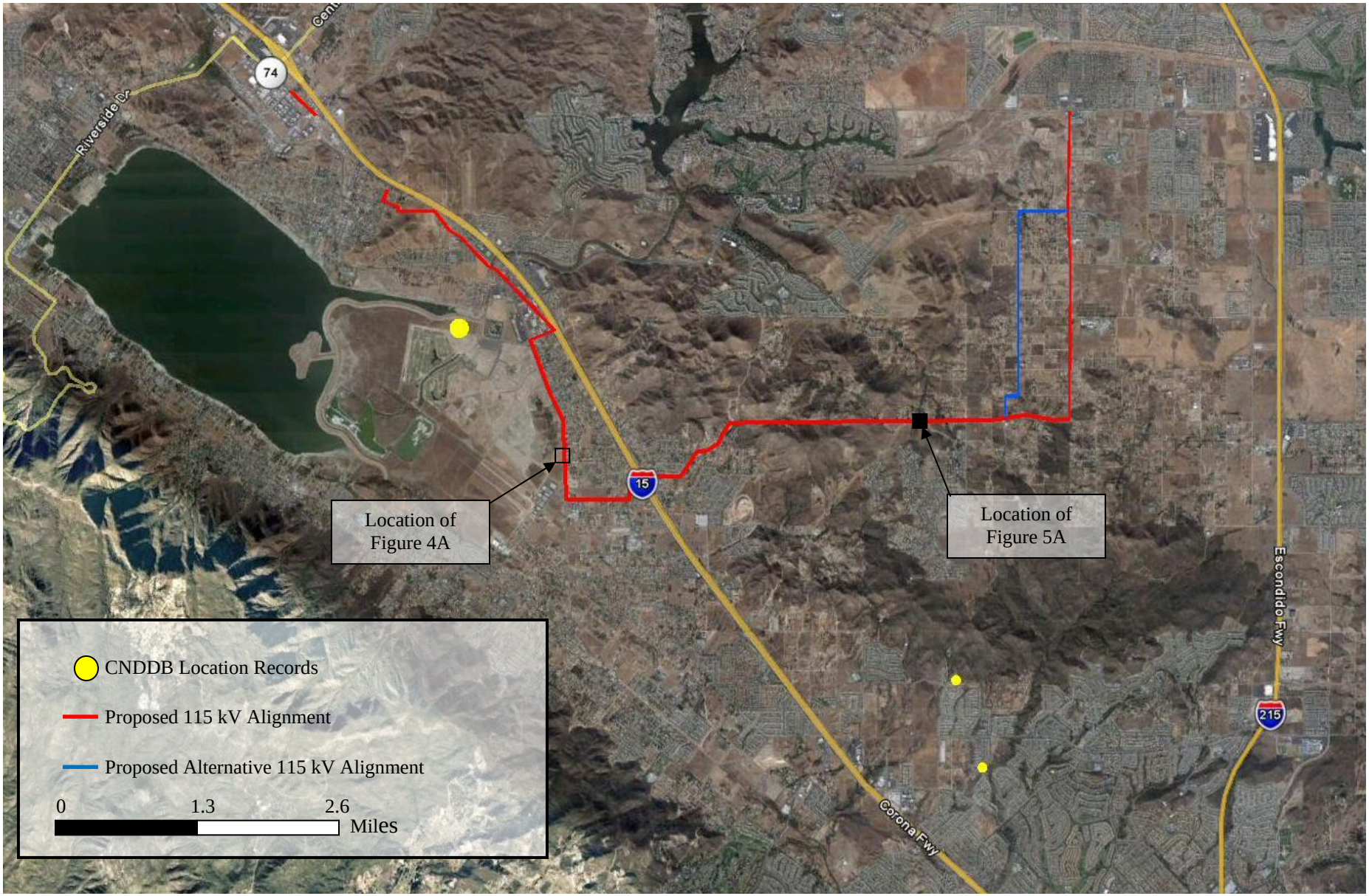

Figure 3. CNDDB Location Records of Riverside Fairy Shrimp (*Streptocephalus woottoni*) in the Project Region

METHODOLOGY

Map Preparation

AECOM provided maps depicting the location of the proposed Alberhill Substation, the proposed Alberhill 115kV transmission line, and the proposed Alberhill 115kV Alternative transmission line. For the proposed Alberhill 115kV and the Alberhill 115kV Alternative transmission lines, the maps depict a 400-foot buffer zone, 200 feet each side of the centerline. The maps also depict soil polygons (~35 acres) within the buffer zones. Soil types represented by the polygons include the Altamont, Auld, Bosanko, Domino, Porterville, Traver, and Willows series, which are designated by the MSHCP as sensitive soils, and the Chino, Fallbrook, Hanford, Honcut, Las Posas, Placentia, Ramona, Tujunga, Vista, Waukena, and Wyman series.

Literature Review

A. Forde reviewed documentation pertaining to the distribution and habitat requirements of fairy shrimp, particularly the Riverside fairy shrimp, the vernal pool fairy shrimp, and the Santa Rosa Plateau fairy shrimp. This included: (1) the CNDDB (2010), (2) the MSHCP, including Section 6.1.2 (Vernal Pools), and (3) literature pertaining to the distribution and habitat requirements of fairy shrimp as listed in the bibliography of this report.

Field Assessment

The proposed substation site was surveyed on April 1, 2010 by A. Forde and E. Read to determine the presence or absence of vernal pools, stock ponds, ephemeral pools, and other features that had potential to support Riverside fairy shrimp, vernal pool fairy shrimp, and/or the Santa Rosa Plateau fairy shrimp. No rain fell during the week prior to the Alberhill Substation assessment.

The proposed transmission alignments and buffer zones were surveyed on April 28 and 29, 2010 by A. Forde and S. Cameron. Rain fell prior to the surveys, over 4 days between April 21 and April 27, for a total of more than 0.96-inch. After the general assessment, the focus of the surveys shifted to areas falling within soil polygons mapped by AECOM.

All field surveys for determination of habitat suitability focused on consideration of constituent habitat elements (USFWS, 1996). These elements included actual pools, swales, adjacent upland features, flow patterns, and rim/basin geomorphology.

RESULTS

Proposed Alberhill Substation Site

No vernal pools, ephemeral pools, or other features that could potentially support the fairy shrimp species of concern were observed on site. Most of the south and southwest portions of the site are occupied by a horse ranch, while the remainder of the site has steep slopes dominated by upland scrub vegetation. A small constructed pond is present within a horse racetrack. The presence of bulrush (*Scirpus acutus*) and mulefat (*Baccharis salicifolia*) indicate permanently saturated or moist soils, effectively preventing any fairy shrimp species from completing their life cycle(s).

Proposed Alberhill 115kV Transmission Line

Most of the proposed alignment and 200-foot survey buffer is either developed, under development, or otherwise disturbed. The disturbed areas are either cleared, dominated by non-native grassland, or contain patches of Riversidian sage scrub or chaparral. Non-native grasslands within the alignment exhibit signs of recent disking. Cottonwood and willow (*Salix* sp.) dominate the San Jacinto River within the buffer area. A drainage dominated by coast live oak (*Quercus agrifolia*), occurs on Bundy Canyon Road between Edwards Road and Harvest Way East. Water is conveyed under Bundy Canyon Road via a culvert. No water was flowing within the drainage on April 29, 2010. Two minor drainages, one dominated by coast live oak, the other remnant Riversidian sage scrub, are located immediately adjacent to Beverly Street west of Upton Road. No water was flowing within either drainage on April 29, 2010. A minor drainage dominated by remnant Riversidian sage scrub is located on the west side of Murietta Road between Garbani Road and Melido Street. No water was flowing within this drainage on April 29, 2010.

Two potential ephemeral pools were observed within the buffer zone of the proposed Alberhill 115kV transmission line. These are identified as Depression #1 and Depression #2. Their locations are shown on Figure 3.

Depression #1 is about 16 square feet in size, located west of Mission Trail near its intersection with Victorian Lane, upslope from a culvert (Figures 4A and 4B) about 100 feet west of the transmission centerline. This depression is located within MSHCP Criteria Area Cell 3954. Although no water was present on April 29, 2010, the soil appeared damp and had mud cracks. On May 5, 2010, the depression was no longer damp. Plant species associated with the depression include cressa (*Cressa*

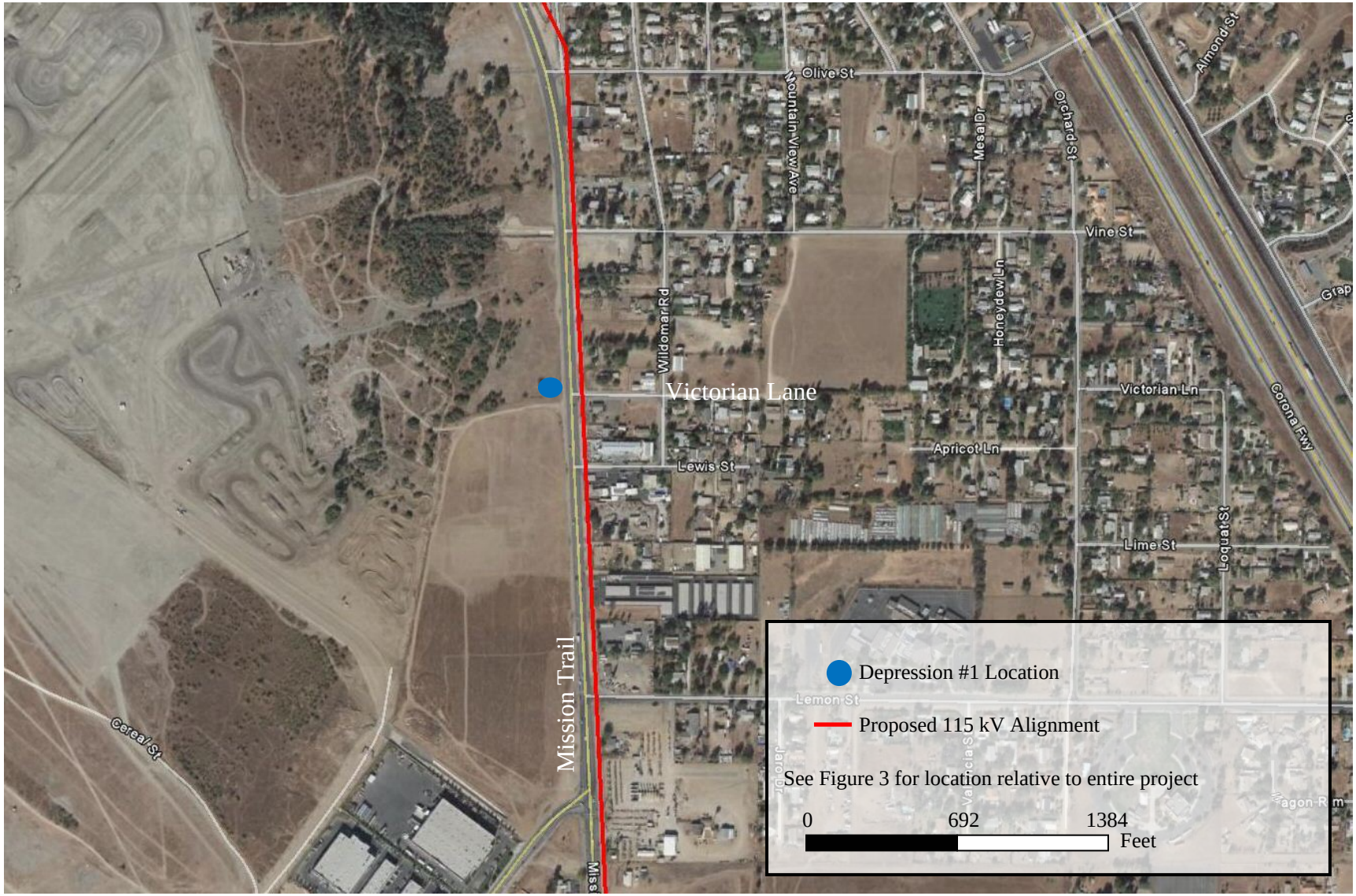

Figure 4A. Location of Depression #1 Northwest of Intersection of Mission Trail and Victorian Lane

Plants clockwise from top: *Cressa truxillensis*, *Polypogon monspeliensis*, *Spergularia rubra*, and unidentified herb, possibly a species of *Lythrum*.

Figure 4B. Photographs of Depression #1

truxillensis), purple sand spurry (*Spergularia rubra*), an unidentified herb (possibly *Lythrum* sp.), and non-native annual grasses (*Polypogon monspeliensis*, *Avena* sp., *Lolium* sp.). The two co-dominants, *Cressa truxilensis* (native forb) and *Polypogon monspeliensis* (non-native grass), are both considered facultative wetland species in California, with cressa often associated with low alkaline or saline soils and seasonally ponded conditions. The identity of the less frequently occurring herb could not be confirmed, but is suspected to be in the genus *Lythrum*. Many of the species in this genus are associated with ditches and seasonally wet areas.

Depression #2 is about 200 square feet in size and located south of Bundy Canyon Road at its intersection with Harvest Way East (Figures 5A and 5B), about 85 feet south of the transmission centerline. This depression is within MSHCP Criteria Area Cell 3970. On April 29 and May 5, 2010, water was present within two tire-ruts situated within a larger area of fine sediment that appeared to have settled out from water backed up above a culvert. The tire ruts and patterns on the ground suggested disking in the recent past. Observed flow patterns indicate that during rain events, there is sheet flow from Harvest Way East into the depression and then into a culvert at Bundy Canyon Road that is not well maintained. No vegetation was found within the tire ruts during the site visit, but these ruts were surrounded by dense non-native annual grassland dominated by ryegrass (*Lolium* sp.) and oat (*Avena* sp.).

No other vernal pools, swales, ephemeral pools, or stock ponds were observed within the buffer zone of the proposed Alberhill 115kV transmission line.

Proposed Alternative Alberhill 115kV Transmission Line

The majority of the alternative alignment and 200-foot buffer on each side of the centerline is either developed, under development, or otherwise disturbed. Riparian scrub dominated by cottonwood and willow lines a drainage located on Holland Road between Byers Road and Hawthorne Street. Surface water flow was noted on April 28, 2010. A small patch of willow also occurs in a minor drainage at the intersection of Byers Road and Rolling Hills Drive, which is otherwise dominated by non-native grassland and remnant Riversidian sage scrub. The patch of willow is limited to one or two individuals. No vernal pools, swales, ephemeral pools, or stock ponds are located within the alignment or buffer zone of the proposed Alberhill 115kV Alternative transmission line.

Figure 5A. Location of Depression #2 Southwest of Intersection of Bundy Canyon Road and Harvest Way East

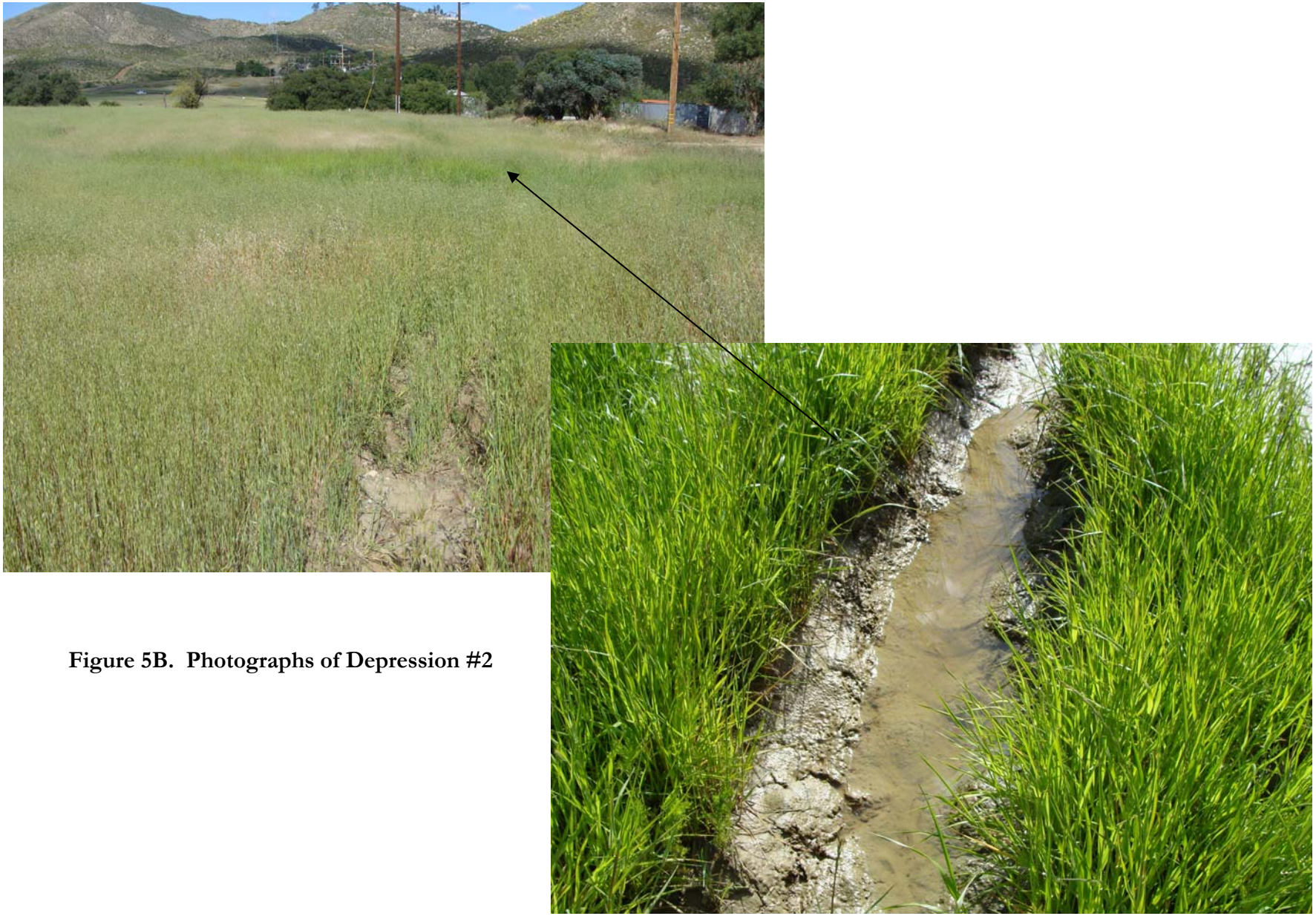

Figure 5B. Photographs of Depression #2

DISCUSSION AND RECOMMENDATIONS

The two depressions observed in the survey zone of the proposed Alberhill 115kV transmission line provide marginally suitable habitat for Riverside fairy shrimp and are unsuitable for Santa Rosa Plateau fairy shrimp. The potential for vernal pool fairy shrimp to occur in the two depressions within the buffer zone of the proposed transmission line is moderate depending on the inundation periods for each depression. It is recommended that all proposed project activities avoid both depressions to avoid potentially impacting vernal pool fairy shrimp. It is also recommended that all proposed project activities do not alter water flow into or out of the depressions.

If direct or indirect impacts to either depression cannot be avoided, the MSHCP requires the project applicant to:

1. Conduct a USFWS protocol vernal pool branchiopod (fairy shrimp) survey of the two depressions. If listed species are found during the survey, avoidance measures described in measure 2 shall be implemented in consultation with USFWS.
2. The project proponent shall implement avoidance and protection measures to protect any depression(s) found to contain populations of the Riverside fairy shrimp, vernal pool fairy shrimp, and/or the Santa Rosa Plateau fairy shrimp species during ground-disturbing activities. The project proponent shall install orange construction fencing ten feet from the perimeter of each depression, under the direct supervision of a qualified biologist familiar with vernal pool ecology. No ground-disturbing activities, equipment, materials, or personnel will be allowed within the fenced areas during construction, and no grading or dumping within the watershed of each depression will be allowed. Watersheds of the ponding features vary with topography and should be evaluated prior to implementation of avoidance measures.

If direct or indirect impacts cannot be avoided, the project applicant is also required to prepare a Determination of Biologically Equivalent or Superior Preservation Report (DBESP) under the MSHCP.

REFERENCES

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APPENDIX 1

CNDDB RECORDS FOR FAIRY SHRIMP OCCURRENCE IN PROJECT AREA

SJM BIOLOGICAL CONSULTANTS

5 July 2010

Matthew Mallé
AECOM
1461 E. Cooley Dr.
Suite 100
Colton CA, 92324
909.554.5041

Dear Matthew:

Following is a letter-report of the results of a habitat assessment for the Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*) (LAPM) in a 400-foot-wide corridor (study area) along the proposed alignment for the Southern California Edison 115 kV sub-transmission line (sub T/L) in Western Riverside County (Figure 1).

BACKGROUND AND SITE DESCRIPTION

The LAPM is a California Department of Fish and Game Species of Special Concern (CSC), but is not listed as endangered or threatened by the CDFG or U.S. Fish and Wildlife Service. Based on the information provided with their list of "Special Animals," the Department of Fish and Game has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction (CDFG 2009). The goal of this designation is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their continued existence.

The LAPM is a covered species by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), and is on the MSHCP *Additional Survey Needs and Procedures* list. Surveys for the LAPM are required to be conducted as part of the project review process for projects occurring within the MSHCP designated Mammal Species Survey Area where suitable habitat is present (Dudek and Associates 2003). Although the current project alignment and survey corridor occur outside the designated MSHCP Mammal Species Survey Area, the results of the Biological Resources Technical Report (BTR) produced for the Proposed Alberhill System Project concluded that LAPM had a moderate potential to occur within the project alignment (AECOM, 2009). LAPM potential for occurrence within the BTR is based on the species' preferred habitat and the vegetation communities mapped within the project alignment area. This

pocket mouse is a high priority species for the MSHCP, and developers of project sites found to harbor this animal must provide mitigation lands to offset disturbances to occupied habitats.

The range of this species extends from "the Los Angeles Basin, from approximately Burbank and San Fernando in the northwest, to San Bernardino on the northeast, and Cabazon, Hemet and Aguanga on the east and southeast. Its range in the southwest is not clear but probably lies somewhere near the Hollywood Hills" (Williams 1986). Examples of noteworthy LAPM populations that have been confirmed in recent years include the following: (a) Lake Perris State Recreation Area (e.g., Montgomery 2003); (b) the outflow point of Massacre Canyon, along the northern edge of the San Jacinto River floodplain (Montgomery 1994a); (c) farther east in the San Jacinto River floodplain at the Gilman Springs Bridge and beyond (Montgomery 2002; Montgomery 2010b); (d) to the south in the area of Skunk Hollow east of Murrieta Hot Springs (Montgomery 1994b); (e) Double Butte County Park to the east of Sun City (Montgomery and Davenport 2005); (f) Aguanga and Vail Lake areas (Dudek and Associates 2003); (g) San Gorgonio Wash area and San Timoteo Canyon (Dudek and Associates 2003; CNDDB records); (h) Santa Ana River Wash near Redlands (Montgomery 2009); and (i) in Fontana along an existing SCE power line (Montgomery 2010a). Populations are known from a number of other locations in the County but most of these appear to be limited in size. In general, although the LAPM exhibits a fairly widespread distribution, sizable populations appear to be rare.

Based on a review of the California Natural Diversity Data Base (CNDDB) (CDFG 2010), no previous records were reported for the current project alignment. LAPM occurrences closest to the current project area occur in the vicinity of Murrieta and Double Butte, 7.4 miles to the south and 5.5 miles to the east, respectively.

The preferred habitat of LAPM is not well defined. However, typical sites producing this species occur in or in close proximity to alluvial systems exhibiting fine sandy soils (Dudek and Associates 2003; Montgomery 1994a, b, and 2002). Nonetheless, LAPM also have been captured a considerable distance from distinctly sandy soil habitats, such as at the San Jacinto Wildlife Area and at March Air Force Base (Montgomery pers. observ.). The primary vegetation communities in which LAPM have been found include disturbed (non-native) annual grassland, Riversidean sage scrub, and Riversidean alluvial fan sage scrub; however, chamise and red shank chaparral associations also are used by this pocket mouse. Volume II-B of the Riverside County MSHCP contains a thorough treatment of habitat requirements and related information for the LAPM (Dudek and Associates 2003).

The project alignment primarily follows existing roads in Riverside County. Thus, habitat disturbance is extensive in most parts of the alignment. Development of different types (cultivation, housing, industrial, roadways, graded and disked fields, etc.) occurs along most all sections of the alignment. Heaviest development occurs in the western and eastern sections, with lower density development occurring in the middle sections. Topography along the alignment ranges from level to steeply sloping. Soils also vary considerably but are typically loams in most locations; and sandy soils were very rare in the project area. Vegetation cover ranges from ruderal disturbed grassland to sage scrub and on rare occasion chaparral. The San Jacinto River crosses the alignment just west of I-15 near Lake Elsinore. LAPM are known to occur in

association with this river to the east of the project area; thus, this drainage was considered as potentially occupied by this pocket mouse.

METHODS

The study area was surveyed by vehicle and on foot on June 3 and 4, 2010. Heavily disturbed areas, including those with existing development, lawns or otherwise cultivated yards and fields, and recently graded level fields were considered unsuitable for and unoccupied by LAPM. Particular attention was paid to the potential for LAPM in relatively undisturbed grassland and sage scrub habitats and at locations with, or immediately adjacent to, low areas with sandy soils. Locations considered as potentially occupied by LAPM, even if the potential was low, were noted on field aerial maps.

The criteria used to define habitats with a potential for LAPM include the following:

- Occurs in association with the San Jacinto River flood plain
- Exhibits relatively undisturbed sage scrub or grassland habitat on level to gently sloping topography
- Occurs immediately adjacent to relatively undisturbed sage scrub or grassland habitat on level to gently sloping topography
- Exhibits loamy to sandy soils

Sites with heavy disturbance across most of the alignment width were classified as having very low potential for LAPM. Those with less disturbance were classified as having low potential for LAPM. Furthermore, those locations exhibiting larger patches of habitats such as those listed above (including those that were contiguous with similar lands outside of the alignment) were considered to exhibit higher potential for LAPM than smaller patches that were typically surrounded by development or disturbed lands.

RESULTS AND DISCUSSION

No areas with high or medium potential for the LAPM were found in the study area. 19 locations with degraded grassland and/or sage scrub habitats were determined to have low to very low potential for LAPM occurrence. These locations are shown in Appendix A and the general habitat conditions and potential for LAPM are shown in Table 1.

Large sections of the study area have been developed and are no longer suitable for LAPM. Other less-developed sections of the alignment occur in steep terrain that is entirely atypical of that used by LAPM and undoubtedly not occupied by this pocket mouse.

A final determination of LAPM presence/absence in the study area would require a trapping survey. The 19 low or very low potential locations listed in Table 1 and shown in Appendix A are the only locations that would require trapping confirmation. Presence/absence of LAPM can only be confirmed by trapping during the period between approximately March-October (this period varies with annual conditions), the period when the LAPM is typically active above

ground and available for capture in live-traps. During the remaining months of the year, LAPM is likely to be below ground and not available for capture.

RECOMMENDATIONS

Strategies

Direct impacts to LAPM would occur from construction related activities in occupied LAPM habitat. Impacts could be avoided or mitigated through one of the following four strategies.

- Avoid impacts to the 19 locations, thus presence/absence protocol surveys would not be required.
- Avoid impacts in occupied locations as determined by presence/absence protocol surveys in the 19 locations. Allow construction in unoccupied locations and avoid construction in occupied locations at each of the 19 locations.
- Determine occupied locations by presence/absence protocol surveys in the 19 locations. Allow construction in both unoccupied and occupied locations. Mitigate for impacts by meeting MSHCP requirements. MSHCP requirements include replacement of impacted LAPM habitat through purchase or dedication of LAPM habitat at a location approved by the Riverside Conservation Agency.
- Assume the 19 locations are all occupied. Mitigate for impacts by meeting MSHCP requirements.

Recommended Measures

Additionally, the following measures are recommended, if confirmation presence/absence trapping is not conducted, or if trapping shows LAPM to be present at a particular location:

- A biological monitor familiar with LAPM habitat requirements and potential sign should be present during all construction and construction related activities. The monitor should coordinate with construction personnel.
- Flagging or silt fencing should be placed around areas where construction activities are not allowed.
- Construction activities should be restricted to the smallest footprint possible at occupied or untrapped locations.
- Nighttime construction should not occur at the 19 locations, as LAPM are active primarily at night.
- Night lighting should be directed away from identified potential LAPM habitat.
- If possible heavy equipment should not be used within 50 feet of occupied habitat to avoid impacts to underground burrows from ground vibration.

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_____. 1994b. Survey for Stephens' kangaroo rats on the 800-acre Roripaugh Specific Plan/EIR project. Prepared for Tierra Madre Consultants. Riverside, Ca.

_____ and A. Davenport. 2005. Trapping Survey for the California Sensitive Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*) at the Stonegate Property, Located 4 Miles East of Sun City, South of Grand Avenue and East of Leon Road, in the Winchester area of Unincorporated Riverside County, California. Prepared for BonTerra Consulting. Costa Mesa, Calif.

Williams, D.F. 1986. Mammalian species of special concern. Calif. Dept. Fish and Game, Wildlife Manag. Div. Administ. Report 86-1 (June 1986).

Table 1. Habitat Conditions and Potential for Los Angeles Pocket Mice at 19 Sites along the Proposed SCE Powerline Corridor in Riverside County California, June 2010

POLYGON	GENERAL HABITAT CONDITIONS	POTENTIAL FOR LAPM	APPROXIMATE DISTANCE (FEET) FROM R.O.W. CENTERLINE TO NEAREST EDGE OF POLYGON
A	HEAVILY DISTURBED BUT IN/ADJACENT TO RIVER BOTTOM WITH SOME SAND	LOW POTENTIAL	100
B	HEAVILY DISTURBED BUT IN/ADJACENT TO RIVER BOTTOM WITH SOME SAND	LOW POTENTIAL	0
C	HEAVILY DISTURBED BUT IN/ADJACENT TO RIVER BOTTOM WITH SOME SAND	LOW POTENTIAL	0
D	HEAVILY DISTURBED BUT IN/ADJACENT TO RIVER BOTTOM WITH SOME SAND	LOW POTENTIAL	0
E	CULTIVATED FIELD NEXT TO SCRUB PATCHES	VERY LOW POTENTIAL	75
F	CULTIVATED FIELD AND SCRUB PATCH	VERY LOW POTENTIAL	100
G	CULTIVATED FIELDS NEXT TO SCRUB PATCHES	VERY LOW POTENTIAL	100
H	CULTIVATED FIELDS NEXT TO SCRUB PATCHES	LOW POTENTIAL	50
I	CULTIVATED FIELDS NEXT TO SCRUB PATCHES	VERY LOW POTENTIAL	50
J	DISTURBED FIELD NEXT TO SCRUB PATCHES	LOW POTENTIAL	0
K	DISTURBED FIELD NEXT TO SCRUB PATCHES	LOW POTENTIAL	50
L	DISTURBED FIELDS NEXT TO SCRUB PATCHES	LOW POTENTIAL	0
M	SCRUB PATCH	LOW POTENTIAL	75
N	DISTURBED, OLD CULTIVATED? FIELD NEXT TO SCRUB PATCHES	VERY LOW POTENTIAL	0
O	DISTURBED FIELDS NEXT TO SCRUB PATCHES	LOW POTENTIAL	0
P	DISTURBED FIELDS NEXT TO SCRUB PATCHES	LOW POTENTIAL	0
Q	DISTURBED FIELDS NEXT TO SCRUB PATCHES	LOW POTENTIAL	0
R	DISTURBED FIELDS NEXT TO SCRUB PATCHES	VERY LOW POTENTIAL	75
S	DISTURBED FIELDS NEXT TO SCRUB PATCHES	VERY LOW POTENTIAL	75

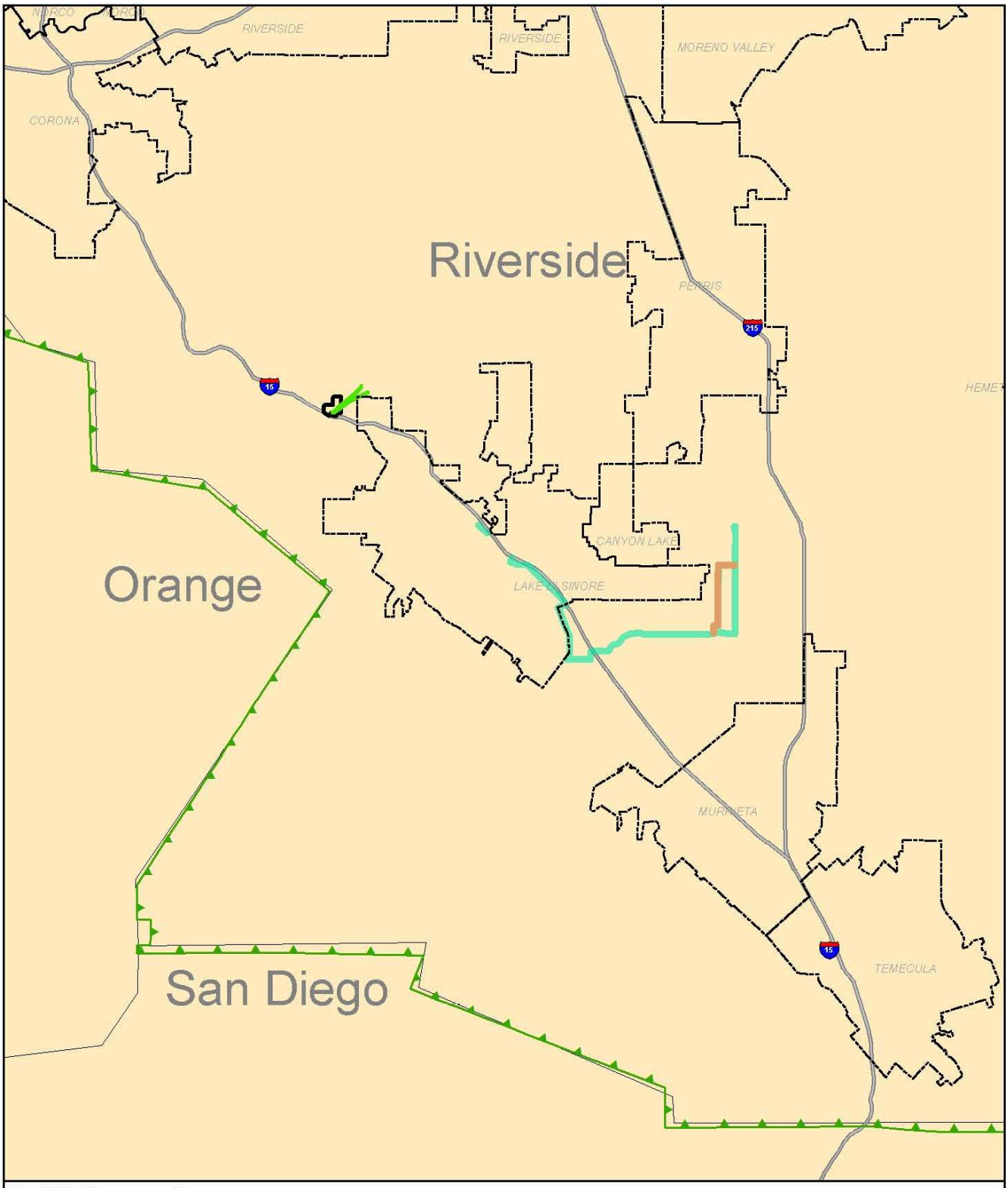
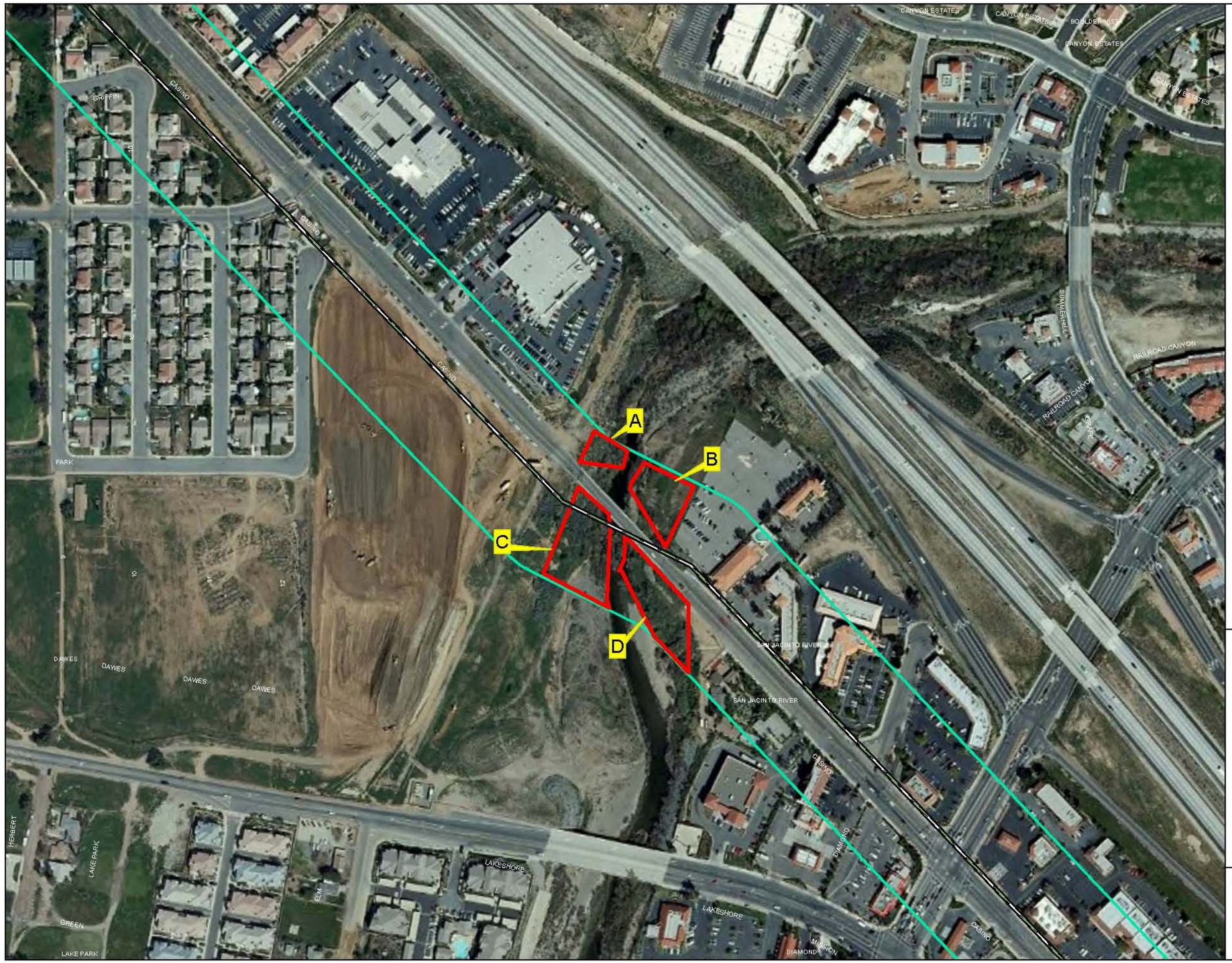


Figure 1

Regional Location
Alberhill System Project

APPENDIX A

AERIAL PHOTOGRAPHS SHOWING THE LOCATIONS OF 19 POLYGONS THAT EXHIBIT LOW TO VERY LOW POTENTIAL FOR LAPM



Legend

Project Data

115 kV Proposed Project

115 kV Survey Area

Proposed Single-Circuit
115 kV Subtransmission Line

115 kV Proposed Project Alternative

Alternative 115 kV Survey Area

LA Pocket Mouse Location

Areas requiring LAPM Trapping
to Establish Presence or Absence

Note: Study area buffers are 400 feet across,
200 feet on each side of the Transmission line

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\
Final\pocket mouse.mxd

Date: 3/22/2010
PROTECTED MATERIALS - Contains Critical
Energy Infrastructure Information.

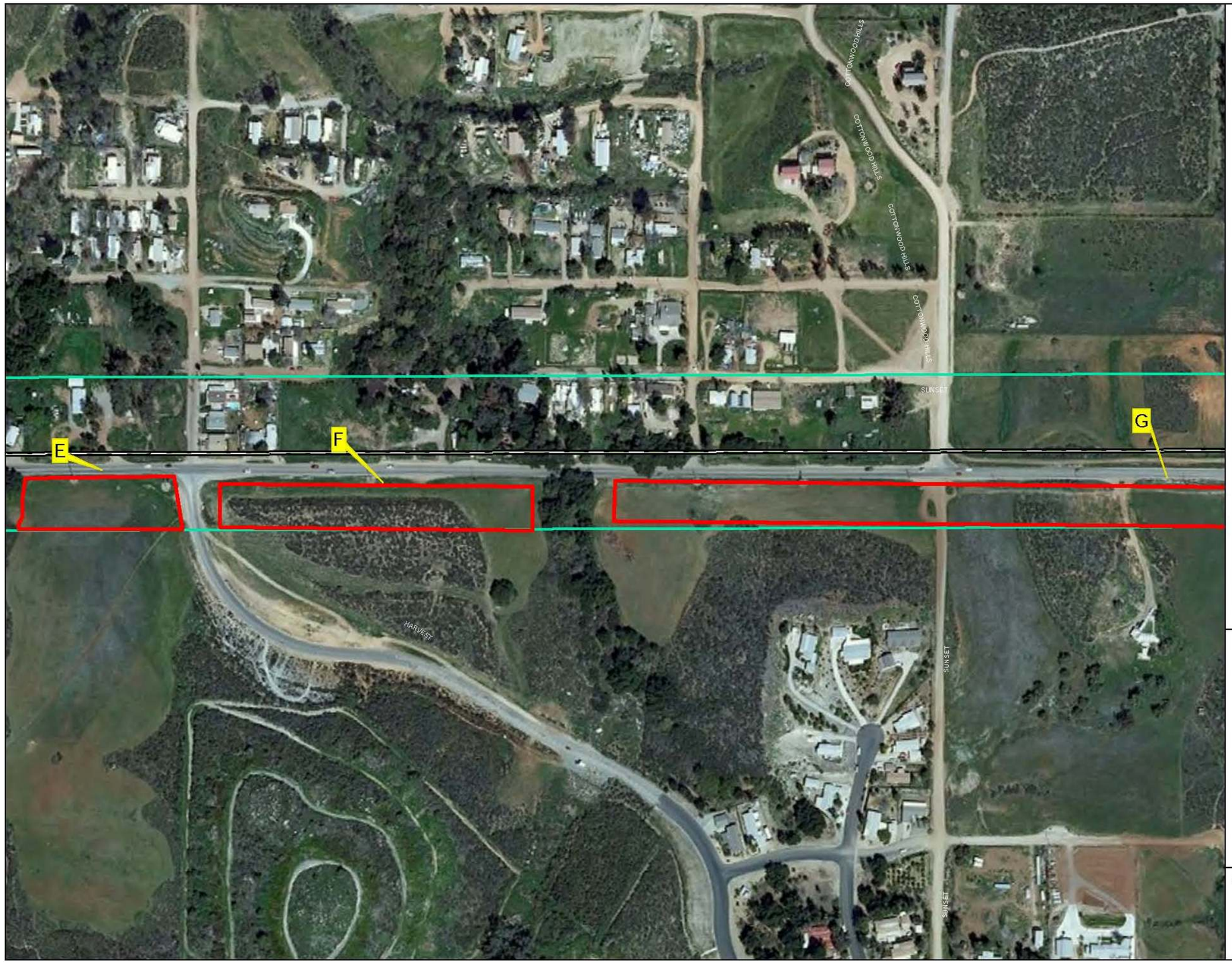
100 50 0 100 Feet

AECOM

Potential Suitable
Los Angeles Pocket Mouse Habitat

Sheet 1 of 9

Proposed and Alternative
115 kV Survey Area



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Project Data

115 kV Proposed Project
115 kV Survey Area
Proposed Single-Circuit
115 kV Subtransmission Line

115 kV Proposed Project Alternative
Alternative 115 kV Survey Area

LA Pocket Mouse Location
Areas requiring LAPM Trapping
to Establish Presence or Absence

Note: Study area buffers are 400 feet across,
200 feet on each side of the Transmission line

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
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Date: 3/22/2010
PROTECTED MATERIALS - Contains Critical
Energy Infrastructure Information.

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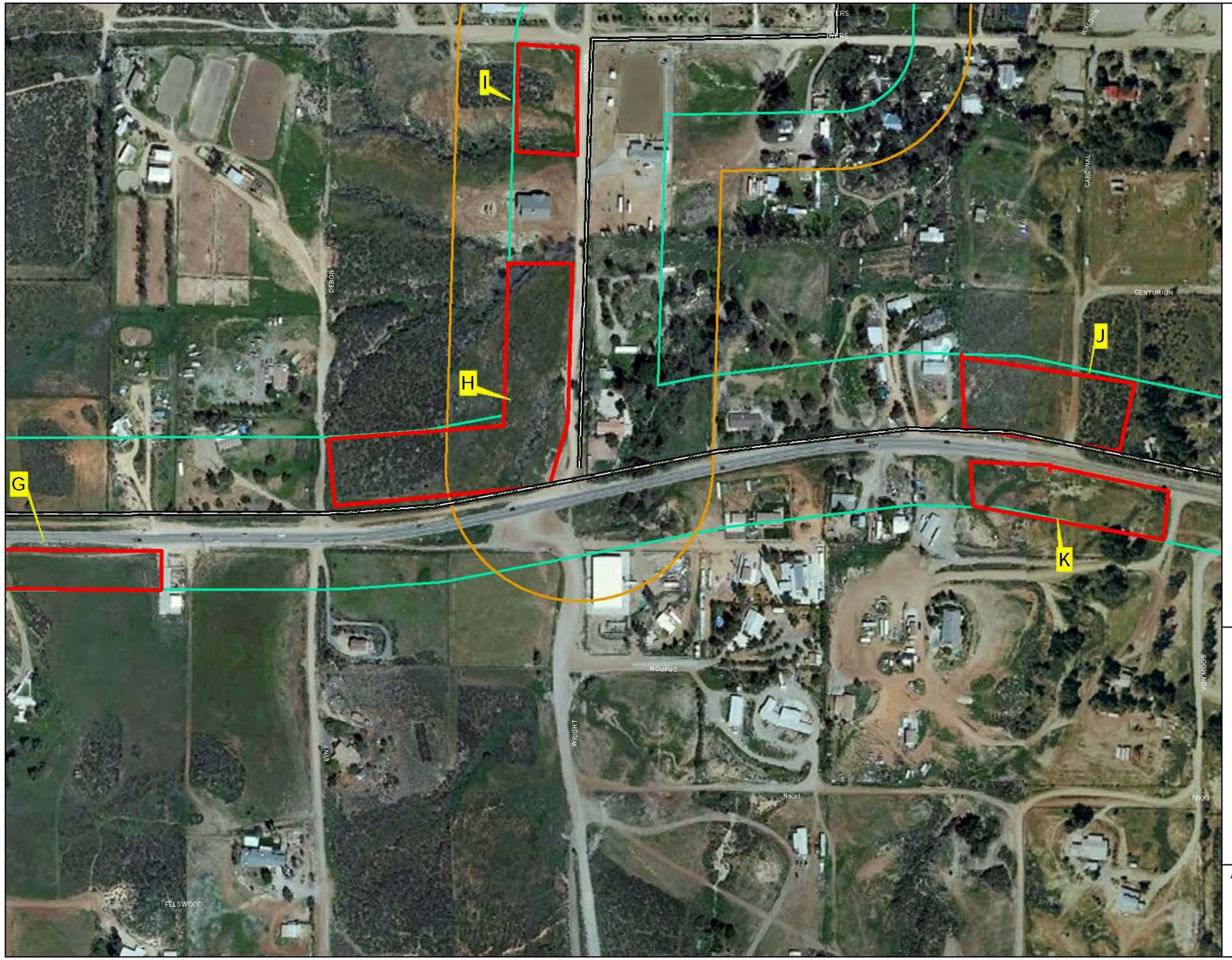
AECOM

Potential Suitable
Los Angeles Pocket Mouse Habitat

Sheet 2 of 9

Proposed and Alternative
115 kV Survey Area



Legend

Project Data

115 kV Proposed Project
- 115 kV Survey Area
- Proposed Single-Circuit 115 kV Subtransmission Line

115 kV Proposed Project Alternative
- Alternative 115 kV Survey Area

LA Pocket Mouse Location
- Areas requiring LAPM Trapping to Establish Presence or Absence

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
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Date: 3/22/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

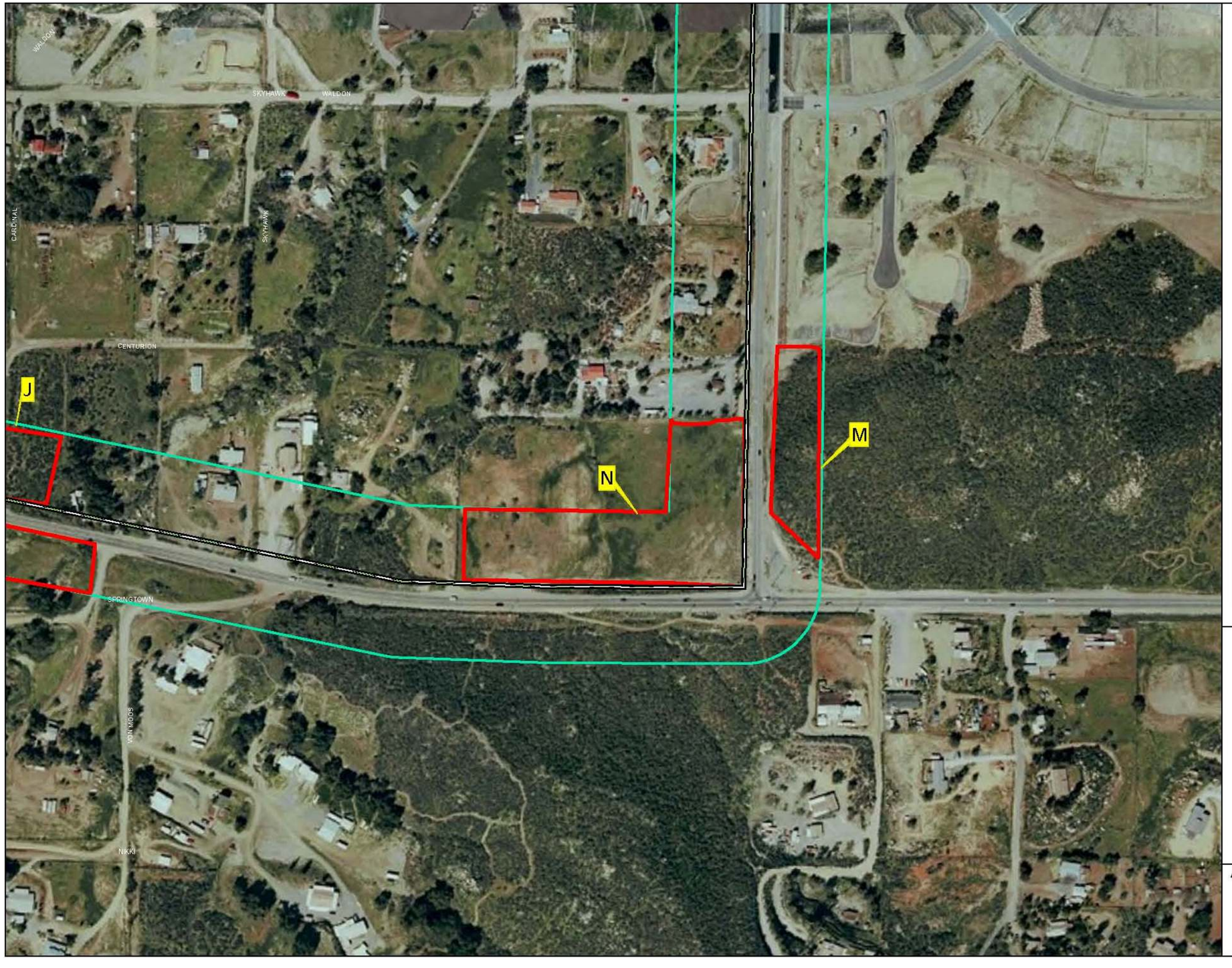
100 50 0 100 Feet

AECOM

Potential Suitable
Los Angeles Pocket Mouse Habitat

Sheet 3 of 9

Proposed and Alternative
115 kV Survey Area



Legend

Project Data

115 kV Proposed Project

115 kV Survey Area

Proposed Single-Circuit
115 kV Subtransmission Line

115 kV Proposed Project Alternative

Alternative 115 kV Survey Area

LA Pocket Mouse Location

Areas requiring LAPM Trapping
to Establish Presence or Absence

Note: Study area buffers are 400 feet across,
200 feet on each side of the Transmission line

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\
Final\pocket mouse.mxd

Date: 3/22/2010
PROTECTED MATERIALS - Contains Critical
Energy Infrastructure Information.

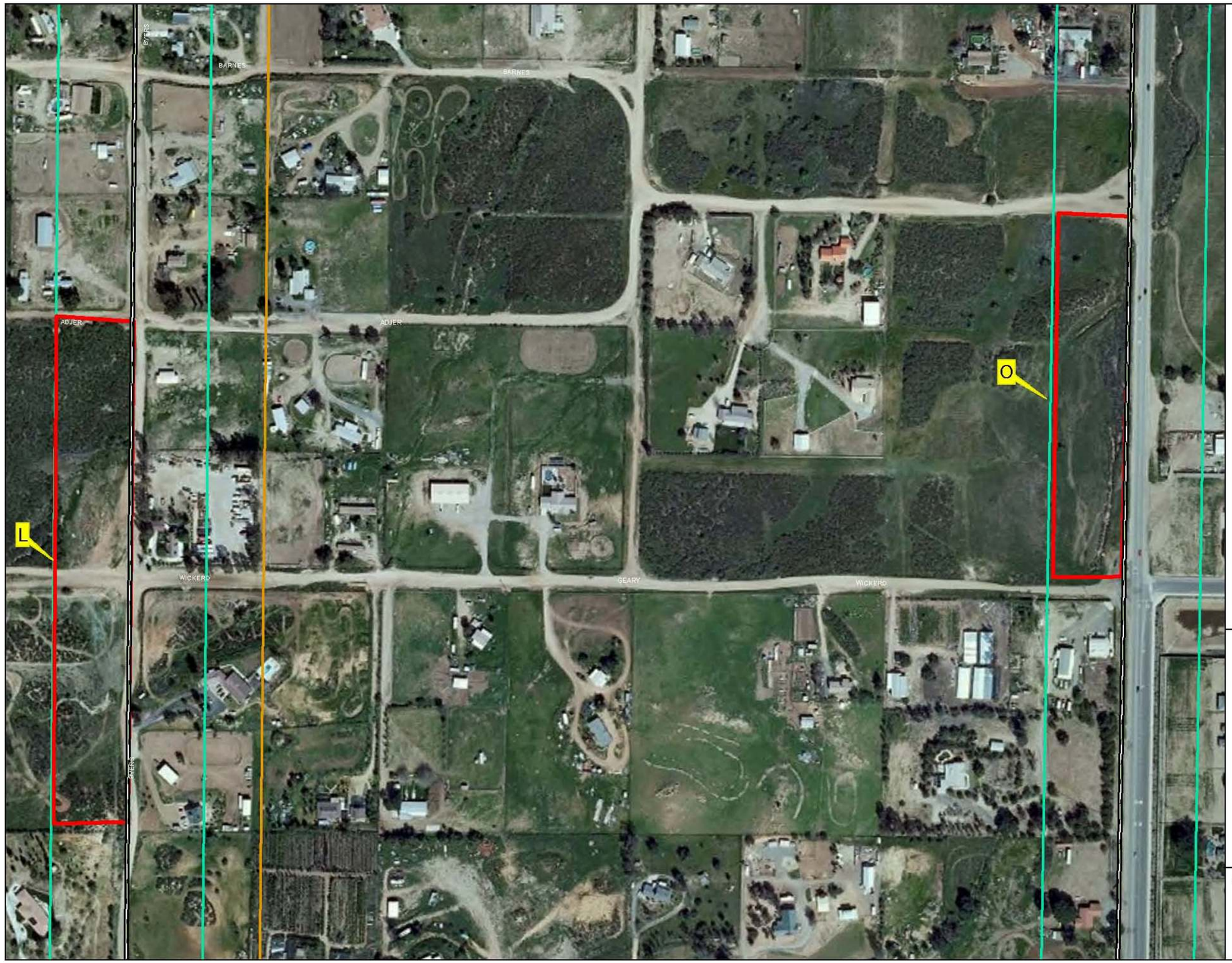
100 50 0 100 Feet

AECOM

Potential Suitable
Los Angeles Pocket Mouse Habitat

Sheet 4 of 9

Proposed and Alternative
115 kV Survey Area



Legend

Project Data

115 kV Proposed Project
- 115 kV Survey Area
- Proposed Single-Circuit 115 kV Subtransmission Line

115 kV Proposed Project Alternative
- Alternative 115 kV Survey Area

LA Pocket Mouse Location
- Areas requiring LAPM Trapping to Establish Presence or Absence

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

MAP NOTES

N

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\pocket mouse.mxd

Date: 3/22/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

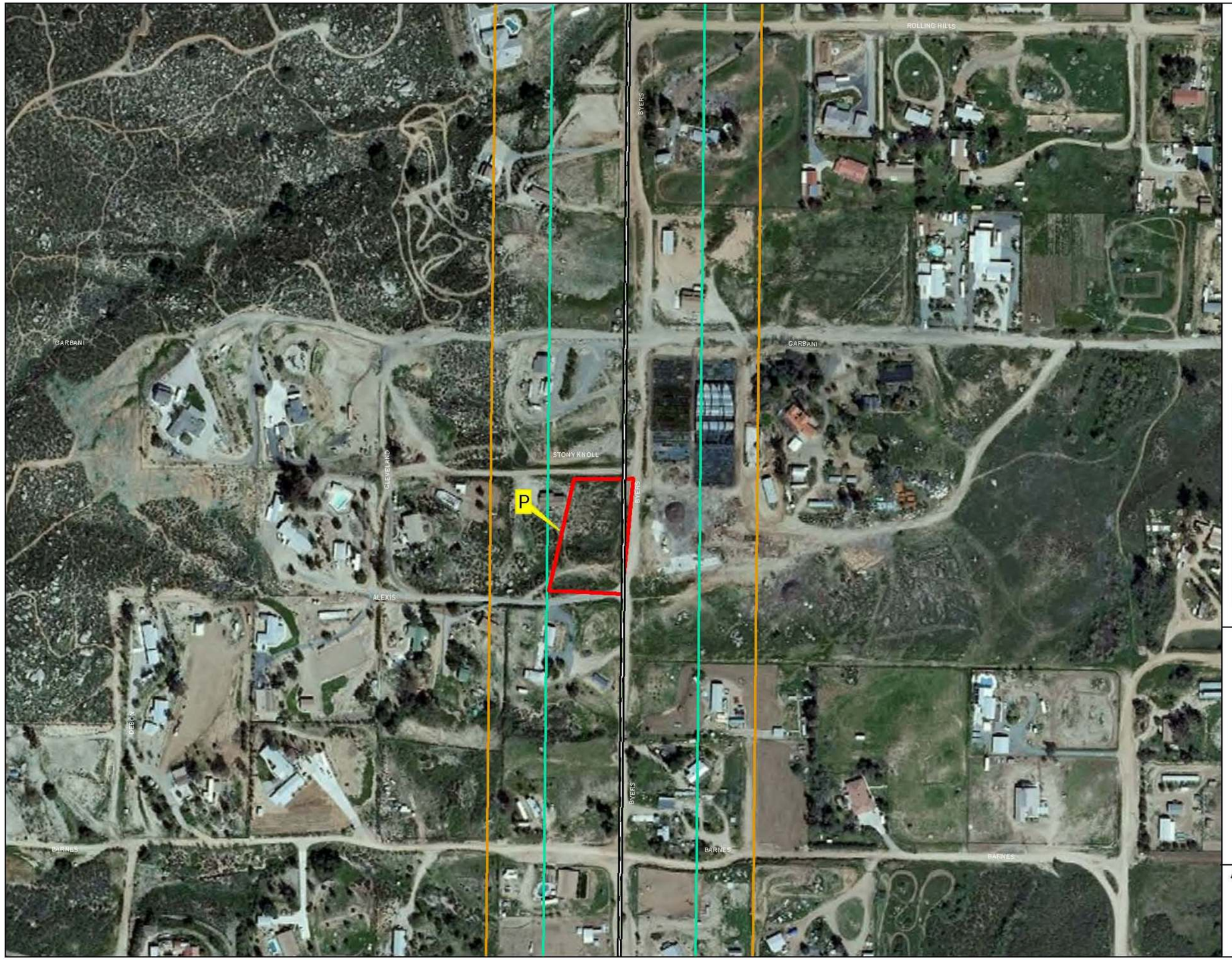
100 50 0 100 Feet

AECOM

Potential Suitable
Los Angeles Pocket Mouse Habitat

Sheet 5 of 9

Proposed and Alternative
115 kV Survey Area



Legend

Project Data

115 kV Proposed Project
- 115 kV Survey Area
- Proposed Single-Circuit 115 kV Subtransmission Line

115 kV Proposed Project Alternative
- Alternative 115 kV Survey Area

LA Pocket Mouse Location
- Areas requiring LAPM Trapping to Establish Presence or Absence

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\pocket mouse.mxd

Date: 3/22/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

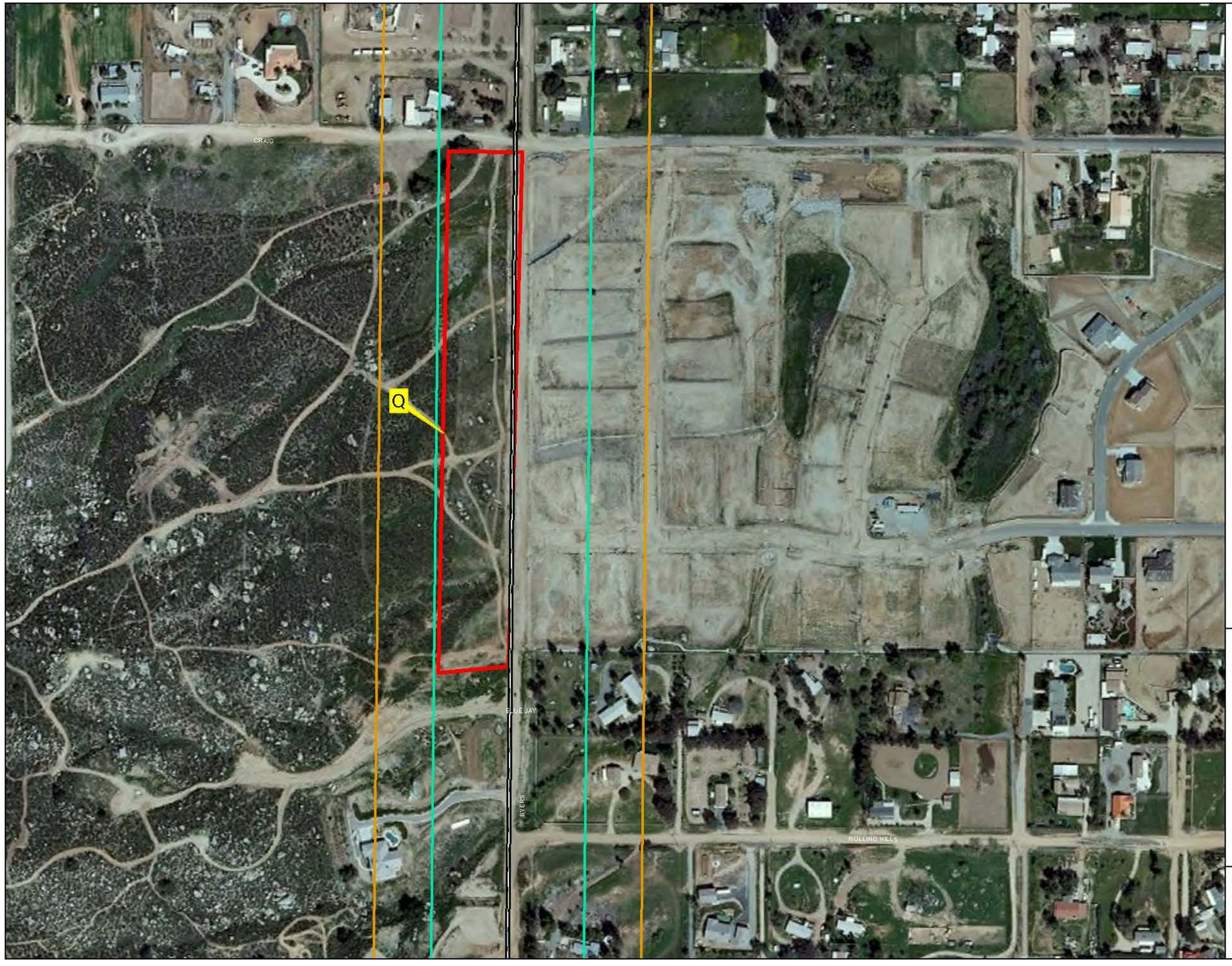
100 50 0 100 Feet

AECOM

Potential Suitable
Los Angeles Pocket Mouse Habitat

Sheet 6 of 9

Proposed and Alternative
115 kV Survey Area



Legend

Project Data

115 kV Proposed Project
- 115 kV Survey Area
- Proposed Single-Circuit 115 kV Subtransmission Line

115 kV Proposed Project Alternative
- Alternative 115 kV Survey Area

LA Pocket Mouse Location
- Areas requiring LAPM Trapping to Establish Presence or Absence

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

MAP NOTES

N

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\pocket mouse.mxd

Date: 3/22/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

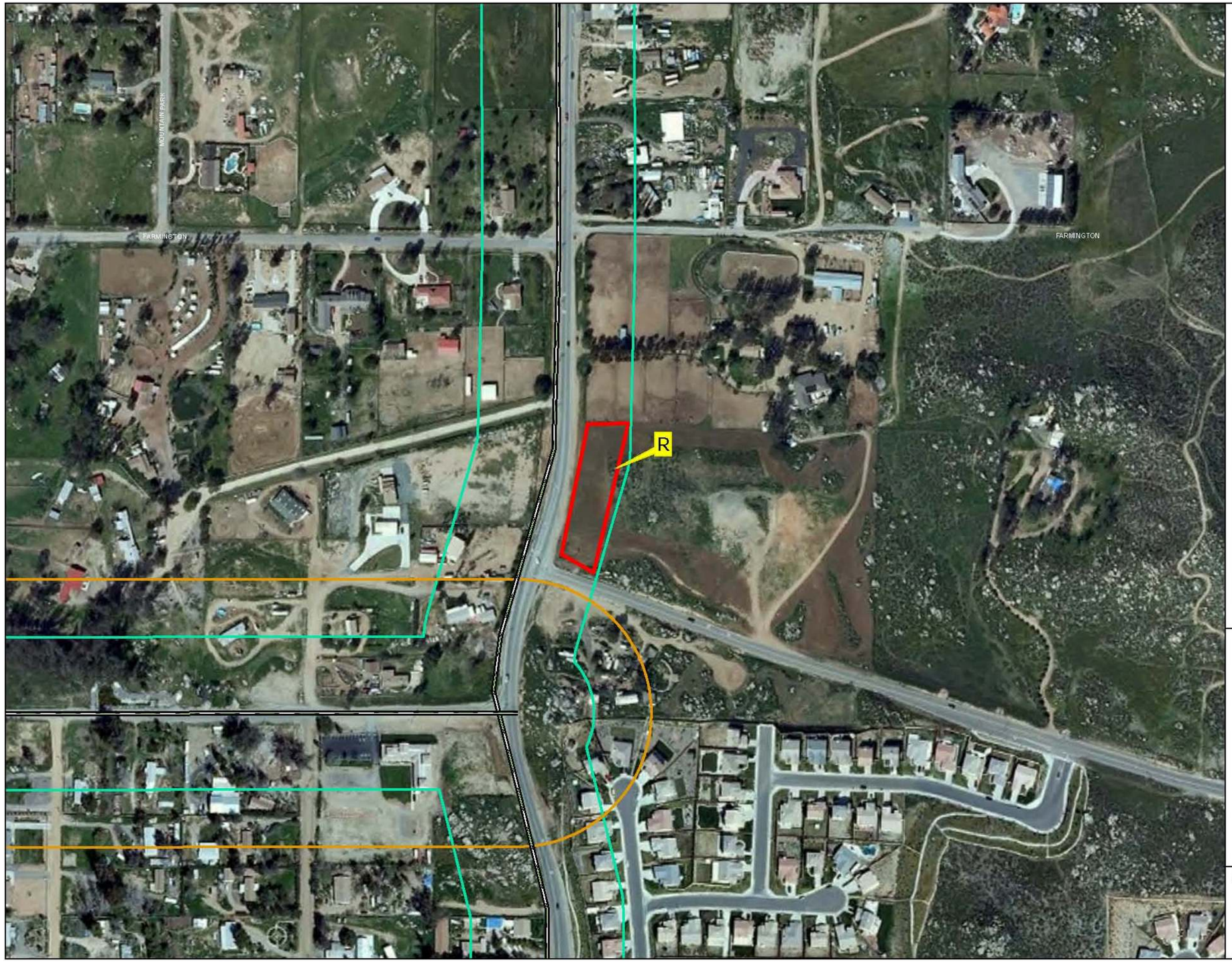
100 50 0 100 Feet

AECOM

Potential Suitable
Los Angeles Pocket Mouse Habitat

Sheet 7 of 9

Proposed and Alternative
115 kV Survey Area



Legend

Project Data

115 kV Proposed Project
115 kV Survey Area
Proposed Single-Circuit
115 kV Subtransmission Line

115 kV Proposed Project Alternative
Alternative 115 kV Survey Area

LA Pocket Mouse Location
Areas requiring LAPM Trapping
to Establish Presence or Absence

Note: Study area buffers are 400 feet across,
200 feet on each side of the Transmission line

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\
Final\pocket mouse.mxd

Date: 3/22/2010
PROTECTED MATERIALS - Contains Critical
Energy Infrastructure Information.

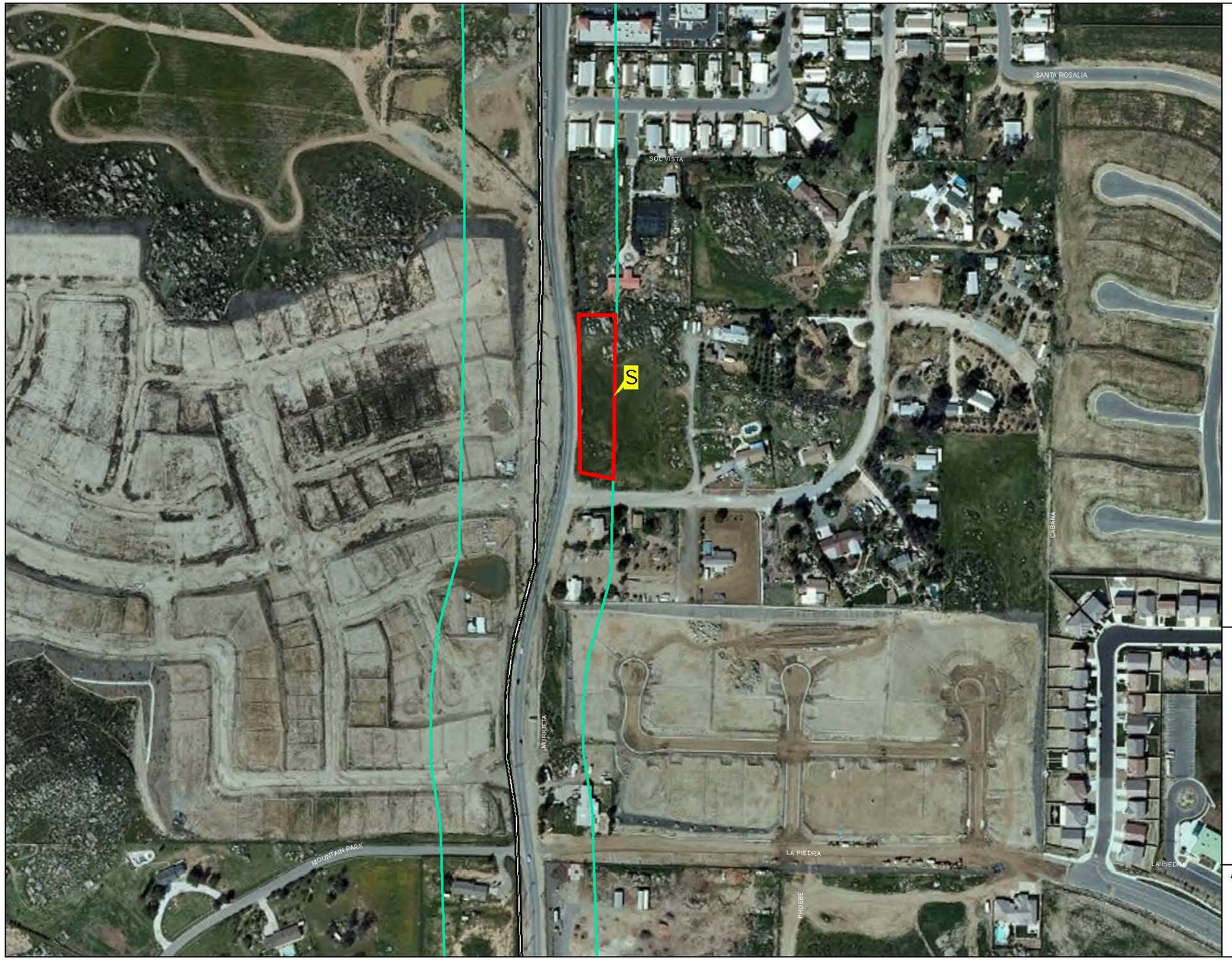
100 50 0 100 Feet

AECOM

Potential Suitable
Los Angeles Pocket Mouse Habitat

Sheet 8 of 9

Proposed and Alternative
115 kV Survey Area



Legend

Project Data

115 kV Proposed Project
- 115 kV Survey Area
- Proposed Single-Circuit 115 kV Subtransmission Line

115 kV Proposed Project Alternative
- Alternative 115 kV Survey Area

LA Pocket Mouse Location
- Areas requiring LAPM Trapping to Establish Presence or Absence

Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\pocket mouse.mxd

Date: 3/22/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

100 50 0 100 Feet

AECOM

Potential Suitable
Los Angeles Pocket Mouse Habitat

Sheet 9 of 9

Proposed and Alternative
115 kV Survey Area

APPENDIX B

PHOTOGRAPHS OF EXAMPLES OF UNSUITABLE HABITAT, AND POTENTIALLY OCCUPIED LAPM HABITAT, AT SELECTED LOCATIONS IN THE 115KV ALIGNMENT

UNSUITABLE HABITAT FOR LAPM IN WESTERN AND CENTRAL PORTION OF ALIGNMENT

POTENTIALLY OCCUPIED LAPM HABITAT

POLYGON J

POLYGON C

Appendix F
California Native Species Field Survey Forms

Appendix F-1
California Native Species Field Survey Form
File Name 01-LepVir-040110

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/01/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's peppergrass

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 5 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number UCR Museum / Herbarium

Reporter: Teresa Salvato

Address: 1009 Bascomb Drive, Riverside, CA 92507

E-mail Address: teresa.salvato@ucr.edu

Phone: (909) 720-8534

Plant Information

Phenology: _____% vegetative 5 % flowering 95 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: SCE

Quad Name: Alberhill 7.5' Elevation: _____

T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 76C

DATUM: **NAD27** ☐ **NAD83** ☐ **WGS84** ☑ Horizontal Accuracy 8 feet meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑

Coordinates: 33.73687°, -117.41145°; 33.73767°, -117.41241°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Plant communities/dominants/associates: Encelia farinosa, Eriogonum fasciculatum var. foliolosum, Bromus trinii, Lupinus bicolor, and weedy (nonnative) grasses, Lupinus sparsiflorus, and Chaenactis artemisiifolia.
Aspects/slope: steep south-facing slope, mid-slope (45%-50%), in dense coastal sage scrub.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: N/A

Threats: N/A

Comments:

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☑ By another person (name): Confirmed ID by Andy Sanders
- ☑ Other: Feature recognition under 10x magnification

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-2
California Native Species Field Survey Form
File Name 02-ChorPol-040510

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/05/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Chorizanthe polygonoides var. longispina*

Common Name: long-spined spineflower

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 70 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle
Address: 1461 East Cooley Drive, Suite 100
Colton, California 92324
E-mail Address: matthew.malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Riverside Landowner / Mgr.: SCE
Quad Name: Alberhill 7.5' Elevation: 2,242 feet above msl
T 5S R 5W Sec 16, SW ¼ of NE ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of ____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 76C
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 8 feet meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 33.737408°, -117.406336°; 33.737678°, -117.405683°; 33.737513°, -117.406160°; 33.737620°, -117.405536°; 33.737426°, -117.405939°; 33.737392°, -117.406180°; 33.737228°, -117.406148°; 33.737273°, -117.406419°

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

Plant communities/dominants/associates: Large graded pad. Dominants include native annuals and perennials and non-native grasses. Co-dominants include Lasthenia gracilis, Plagiobothrys collinus, Bromus rubens, Pectocarya linearis, Crassula connata, Erodium spp., and Lessingia filaginifolia.
Substrates/soils: clay to cobbles.
Aspects/slope: flat terrain, no slope present.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information

Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use: Large graded pad, private residences located to the south, and east.

Visible disturbances: Area appears to have been previously graded.

Threats: N/A

Comments:

Determination: (check one or more, and fill in blanks)
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Feature recognition under 10x magnification

Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-3
California Native Species Field Survey Form
File Name 03-ChorPol-040510

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/05/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Chorizanthe polygonoides var. longispina*

Common Name: long-spined spineflower

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 28 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Katie Kurtz
Address: 999 Town & Country Road, 4th Floor
Orange, California 92868
E-mail Address: katie.kurtz@aecom.com
Phone: (714) 689-7309

Plant Information

Phenology: 10 % vegetative 90 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill 7.5' Elevation: 1,362 feet above msl
T 5S R 5W Sec 16, SW ¼ of NE ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 76C
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 8 feet meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 33.738425°, -117.404775°; 33.738481°, -117.404486°; 33.738458°, -117.404161°; 33.738733°, -117.404086°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Plant communities/dominants/associates: weedy (non-native) grasses, Hirschfeldia incana, mostly bare ground along roadside edge.
Substrates/soils: most likely imported soils along road bed; cobbles, sandy.
Aspects/slope: flat terrain, no slope present.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use: Occurrences along edge of private dirt access road. Private houses adjacent to the east and west of the site.

Visible disturbances: Vehicular traffic and parking of vehicles along road edges.

Threats: Vehicular traffic and parking on road edges.

Comments:

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Feature recognition under 10x magnification

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-4
California Native Species Field Survey Form
File Name 04-ChorPol-040510

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/05/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Chorizanthe polygonoides var. longispina*

Common Name: long-spined spineflower

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 78 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Katie Kurtz
Address: 999 Town & Country Road, 4th Floor
Orange, California 92868
E-mail Address: katie.kurtz@aecom.com
Phone: (714) 689-7309

Plant Information

Phenology: 10 % vegetative 90 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Riverside Landowner / Mgr.: SCE
Quad Name: Alberhill 7.5' Elevation: 1,300 feet above msl
T 5S R 5W Sec 16, SW ¼ of NE ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of ____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 76C
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 8 feet meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 33.738103°, -117.406847°; 33.738075°, -117.406811°; 33.737939°, -117.406789°; 33.737911°, -117.406792°; 33.737842°, -117.406875°; 33.737867°, -117.406428°; 33.737913°, -117.406409°

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

Plant communities/dominants/associates: Dominants include non-native grasses, co-dominants include Plagiobothrys collinus, Bromus rubens, and Lessingia filaginifolia.
Substrates/soils: cobbles, sandy.
Aspects/slope: small basin downslope of a dirt access road, east facing slope.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information

Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use: Occurrences along edge of private dirt access road. Private houses adjacent to the south and east of the site.

Visible disturbances: N/A

Threats: N/A

Comments:

Determination: (check one or more, and fill in blanks)

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Feature recognition under 10x magnification

Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-5
California Native Species Field Survey Form
File Name 05-ChorPol-040510

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/05/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Chorizanthe polygonoides var. longispina*

Common Name: long-spined spineflower

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 650 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle
Address: 1461 East Cooley Drive, Suite 100
Colton, California 92324
E-mail Address: matthew.malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: 10 % vegetative 90 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

33.738592°, -117.410569°; 33.738608°, -117.410483°; 33.738594°, -117.410422°; 33.738631°, -117.410367°; 33.738625°, -117.410333°; 33.738622°, -117.410289°; 33.738619°, -117.410239°; 33.738628°, -117.410086°; 33.738779°, -117.409964°; 33.738783°, -117.409891°

County: Riverside Landowner / Mgr.: SCE

Quad Name: Alberhill 7.5' Elevation: 1,371 feet above msl

T 5S R 5W Sec 16, NE ¼ of NW ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 76C

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 8 feet meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑

Coordinates: 33.738659°, -117.409944°; 33.738633°, -117.409808°; 33.738652°, -117.409636°; 33.738662°, -117.409447°; 33.738499°, -117.409539°; 33.738517°, -117.409692°; 33.738491°, -117.409958°; 33.738597°, -117.410011°

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

Plant communities/dominants/associates: Disturbed area east of a dirt access road. Co-dominants include Eriogonum fasciculatum var. foliolosum, Encelia farinosa, Bromus rubens, Lotus scoparius, Festuca myuros, and Lasthenia gracilis.
Substrates/soils: clay to cobbles.
Aspects/slope: gentle south-facing slope present.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information

Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use: Occurrences along un-used, overgrown dirt access road. Private houses adjacent to the east of the site.

Visible disturbances: N/A

Threats: Pedestrian traffic.

Comments:

Determination: (check one or more, and fill in blanks)

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Feature recognition under 10x magnification

Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-6
California Native Species Field Survey Form
File Name 06-LepVir-040610

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/06/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's peppergrass

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 55 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle
Address: 1461 East Cooley Drive, Suite 100
Colton, California 92324
E-mail Address: matthew.malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: _____% vegetative 5 % flowering 95 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill 7.5' Elevation: 1,729 feet above msl
T 5S R 5W Sec 9, SE ¼ of SE ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 76C
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 8 feet meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 33.743964°, -117.399600°; 33.743956°, -117.399481°

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

Co-dominants include Bebbia juncea, Bromus rubens, Microseris lindleyi, Mirabilis laevis, Lotus scoparius, Encelia farinosa, Daucus pusillus, Filago californica, and Euphorbia polycarpa.
Substrates/soils: sandy loam on granitic outcrop.
Aspects/slope: steep south facing slope.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information

Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Open space.

Visible disturbances: N/A

Threats: N/A

Comments:

Determination: (check one or more, and fill in blanks)

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato/Andrew Sanders, UCR Herbarium botanists.
☑ Other: Feature recognition under 10x magnification

Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-7
California Native Species Field Survey Form
File Name 07-LepVir-040610

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/06/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's peppergrass

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 500 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle
Address: 1461 East Cooley Drive, Suite 100
Colton, California 92324
E-mail Address: matthew.malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: _____% vegetative _____% flowering 100 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill 7.5' Elevation: 1,733 feet above msl
T 5S R 5W Sec 10, SW ¼ of SW ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of ____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 76C
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy < 3 meters meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 33.742711°, -117.395683°

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

Co-dominants include Avena barbata, Bromus rubens, Lamarkia aurea, Cylindropuntia californica, Eschscholzia californica, Lasthenia gracilis, and Mirabilis laevis.
Substrates/soils: cobbles.
Aspects/slope: steep east facing slope of ridgeline.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information

Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Open space.

Visible disturbances: N/A

Threats: N/A

Comments:

Determination: (check one or more, and fill in blanks)

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato/Andrew Sanders, UCR Herbarium botanists.
☑ Other: Feature recognition under 10x magnification

Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-8
California Native Species Field Survey Form
File Name 08-LepVir-040710

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/07/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's peppergrass

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 75 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle
Address: 1461 East Cooley Drive, Suite 100
Colton, California 92324
E-mail Address: matthew.malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: _____% vegetative _____% flowering 100 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill 7.5' Elevation: 1,525 feet above msl
T 5S R 5W Sec 15, NE ¼ of NW ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of ____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 76C
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 8 feet meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 33.741939°, -117.391762°; 33.741861°, -117.391731°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Co-dominants include Saliva columbariae, Artemisia californica, Encelia farinosa, Bromus rubens, Bebbia juncea, and Mirabilis laevis.
Substrates/soils: cobble to sandy loam and associated with granite boulders (outcrop).
Aspects/slope: steep south facing slopes, along bank of drainage feature.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Open space, dirt access road located approximately 65 feet to the northeast of lat/long.

Visible disturbances: N/A

Threats: N/A

Comments: Approximately 150 feet west of Tower M13-T-4 (SCE Serrano-Valley Transmission Line).

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato/Andrew Sanders, UCR Herbarium botanists.
☑ Other: Feature recognition under 10x magnification

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-9
California Native Species Field Survey Form
File Name 09-LepVir-040710

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/07/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's peppergrass

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 300 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle
Address: 1461 East Cooley Drive, Suite 100
Colton, California 92324
E-mail Address: matthew.malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: _____% vegetative _____% flowering 100 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill 7.5' Elevation: 1,597 feet above msl
T 5S R 5W Sec 10, SE ¼ of SW ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of ____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 76C
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 8 feet meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 33.743035°, -117.393696°; 33.743027°, -117.393049°

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

Co-dominants includes Saliva columbariae, Bebbia juncea, Bromus rubens, Cylindropuntia californica, and Encelia farinosa.
Substrates/soils: cobble to sandy loam.
Aspects/slope: steep south and north facing slopes

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information

Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Open space, dirt access road located approximately 200 feet to east of lat/long.

Visible disturbances: N/A

Threats: N/A

Comments: Population extends north from lat/long and covers an area approximately 20 feet by 40 feet.

Determination: (check one or more, and fill in blanks)

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato/Andrew Sanders, UCR Herbarium botanists.
☑ Other: Feature recognition under 10x magnification

Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-10
California Native Species Field Survey Form
File Name 10-RoCo-051810

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/18/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Romneya coulteri*

Common Name: Coulter's romneya

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 500 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 East Cooley Drive, Suite 100
Colton, California 92324
E-mail Address: matthew.malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: 10 % vegetative 90 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill Elevation: 1,370
T 5S R 5W Sec 16, NE ¼ of NE ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy < 3 meters meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 33.739315°, -117.402377°; 33.739519°, -117.402338°

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

Steep east to southeast-facing slope above drainage; local dense colony of several hundred stems, 0.2 mi. above the end of Black Powder Rd. Coastal sage scrub on dry eroding slope above drainage with willows; coastal sage scrub with Encelia farinosa dominant on slope just above on more stable slopes – which were generally more South-facing.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information

Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: N/A

Threats: N/A

Comments: Two waypoints were collected near opposite ends of the population, but on gentler slopes above . The occupied slope was too steep to gain access

Determination: (check one or more, and fill in blanks)

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Andy Sanders, UCR Herbarium/Survey Botanist
☐ Other: _____

Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-11
California Native Species Field Survey Form
File Name 11-ChorPol-052110

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): _____

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Choriznathe polygonoides var. longispina*

Common Name: long-spined spineflower

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 50 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 0 % vegetative 60 % flowering 40 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill Elevation: _____
T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx
DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy < 3 meters meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 33.737528°, -117.409683°; 33.737547°, -117.409730°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Population occurs on a southeast facing slope (mid-slope) in clay lens within RSS. Slope is 0-5% (relatively flat area on slope). Soils rocky clay loam; cryptogamic crust present (well developed). Dominant associates include: Hemizonia fasciculata, Encelia farinosa, Salvia apiana, Eriogonum fasciculatum var. foliolosum.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: N/A

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-12
California Native Species Field Survey Form
File Name 12-HemPan-051910

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/01/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Deinandra (Hemizonia) paniculata*

Common Name: Paniculate Tarplant

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1,700 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 90 % vegetative 10 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private

Quad Name: Alberhill Elevation: 1240

T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy < 3 meters meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑

Coordinates: 33.735830°, -117.409522°; 33.735877°, -117.409271°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Large population of Hemizonia paniculata observed in and around an upland swale on a southwest facing dry slope. The population of sensitive Hemizonia is growing in conjunction with Hemizonia kelloggii. Dominant associates include: Brassica geniculata, Lessingia filaginifolia, Plantago erecta, Bromus rubens. Other species observed in the vicinity are Eriogonum fasciculatum, Opuntia parryi, Croton sp., and Erodium sp. Soils, cobbly-clay.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Area has historically been used as a large pasture/holding pen for cattle. Native sage scrub habitat recovering.

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-13
California Native Species Field Survey Form
File Name 13-HemPan-060110

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/01/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Deinandra (Hemizonia) paniculata*

Common Name: Paniculate Tarplant

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1,200 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 90 % vegetative 10 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private

Quad Name: Alberhill Elevation: 1240

T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy < 3 meters meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑

Coordinates: 33.736049°, -117.409013°; 33.736005°, -117.409228°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Large population of Hemizonia paniculata observed on a southwest facing slope. The population of sensitive Hemizonia is growing in conjunction with Hemizonia kelloggii. Dominant associates include: Brassica geniculata, Lessingia filaginifolia, Plantago erecta, Bromus rubens. Other species observed in the vicinity are Eriogonum fasciculatum, Opuntia parryi, Croton sp., and Erodium sp. Soils, cobbly-clay.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Area has historically been used as a large pasture/holding pen for cattle. Native sage scrub habitat recovering.

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-14
California Native Species Field Survey Form
File Name 14-HemPan-060110

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/01/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Deinandra (Hemizonia) paniculata*

Common Name: Paniculate Tarplant

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 320 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 90 % vegetative 10 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private

Quad Name: Alberhill Elevation: 1240

T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy < 3 meters meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑

Coordinates: 33.735557°, -117.409509°; 33.735584°, -117.409415°; 33.735625°, -117.409340°; 33.735555°, -117.409145°; 33.735447°, -117.409291°; 33.735524°, -117.409362°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Large population of Hemizonia paniculata observed on a southwest facing slope. The population of sensitive Hemizonia is growing in conjunction with Hemizonia kelloggii. Dominant associates include: Brassica geniculata, Lessingia filaginifolia, Plantago erecta, Bromus rubens. Other species observed in the vicinity are Eriogonum fasciculatum, Opuntia parryi, Croton sp., and Erodium sp. Soils, cobbly-clay.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Area has historically been used as a large pasture/holding pen for cattle. Native sage scrub habitat recovering.

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-15
California Native Species Field Survey Form
File Name 15-HemPan-060110

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/01/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Deinandra (Hemizonia) paniculata*

Common Name: Paniculate Tarplant

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 17 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 90 % vegetative 10 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill Elevation: 1202
T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy < 3 meters meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 33.735682°, -117.409798°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Small population of Hemizonia paniculata observed on a southwest facing slope. Dominant associates include: Brassica geniculata, Lessingia filaginifolia, Plantago erecta, Bromus rubens. Other species observed in the vicinity are Eriogonum fasciculatum, Opuntia parryi, Croton sp., and Erodium sp. Soils, cobbly-clay.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Area has historically been used as a large pasture/holding pen for cattle. Native sage scrub habitat recovering.

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-16
California Native Species Field Survey Form
File Name 16-HemPan-060110

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/01/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Deinandra (Hemizonia) paniculata*

Common Name: Paniculate Tarplant

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 420 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 90 % vegetative 10 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private

Quad Name: Alberhill Elevation: 1270

T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy < 3 meters meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑

Coordinates: 33.735451°, -117.409708°; 33.735383°, -117.409863°; 33.735314°, -117.409721°; 33.735194°, -117.409640°; 33.735135°, -117.409563°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Small population of Hemizonia paniculata observed on a southwest facing slope. Dominant associates include: Brassica geniculata, Lessingia filaginifolia, Plantago erecta, Bromus rubens. Other species observed in the vicinity are Eriogonum fasciculatum, Opuntia parryi, Croton sp., and Erodium sp. Soils, cobbly-clay.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Area has historically been used as a large pasture/holding pen for cattle. Native sage scrub habitat recovering.

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-17
California Native Species Field Survey Form
File Name 17-HemPan-060110

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/01/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Deinandra (Hemizonia) paniculata*

Common Name: Paniculate Tarplant

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 75 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 90 % vegetative 10 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private

Quad Name: Alberhill Elevation: 1307

T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy < 3 meters meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑

Coordinates: 33.736033°, -117.408114°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Population of Hemizonia paniculata observed on west facing slope in RSS habitat. Dominant associates include: Lotus hamatus, Croton sp, Eriogonum fasciculatum, Erodium sp., Bromus rubens, Trichostema lanceolatum, and Lotus scoparius. Soil cobbly-clay. Area of population is approximately 60' in diameter.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Area has historically been used as a large pasture/holding pen for cattle. Native sage scrub habitat recovering.

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-18
California Native Species Field Survey Form
File Name 18-HemPan-060110

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/01/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Deinandra (Hemizonia) paniculata*

Common Name: Paniculate Tarplant

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 14 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 95 % vegetative 5 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill Elevation: 1307
T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy < 3 meters meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 33.735100°, -117.408226°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Population of Hemizonia paniculata observed on a gentle southeast facing slope. Associates include: Hemizonia kelloggii, Stephanomeria exigua, Eriogonum fasciculatum, Bromus rubens, Encelia farinosa, Lotus scoparius. Soil, Rocky-clay.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Area has historically been used as a large pasture/holding pen for cattle. Native sage scrub habitat recovering.

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-19
California Native Species Field Survey Form
File Name 19-ChorPar-060210

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): _____

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Chorizanthe parryi var. parryi*

Common Name: Parry's spineflower

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 10 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 10 % vegetative _____ % flowering 90 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private
Quad Name: Romoland Elevation: 1694
T 6S R 3W Sec 20, NE ¼ of NE ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy < 3 meters meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 33.641135°, -117.206431°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Population of Chorizanthe parryi var. parryi observed in clay opening within Chamise chaparral (dense). Dominant associates include Adenostoma fasciculatum, Brassica geniculata, Pterostegia drymarioides, and Chorizanthe fimbriata.

Other rare taxa seen at THIS site on THIS date: Deinandra (Hemizonia) paniculata
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Area is adjacent to residential/commercial development.

Threats: Potential for encroachment

Comments: N/A

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-20
California Native Species Field Survey Form
File Name 20-HemPan-060210

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/01/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Deinandra (Hemizonia) paniculata*

Common Name: Paniculate Tarplant

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 660 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 90 % vegetative 10 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private

Quad Name: Alberhill Elevation: 1270

T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy < 3 meters meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑

Coordinates: 33.736064°, -117.408757°; 33.735912°, -117.408727°; 33.735880°, -117.408662°; 33.735842°, -117.408650°; 33.735788°, -117.408674°; 33.735776°, -117.408752°; 33.735640°, -117.408863°; 33.735481°, -117.408824°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Large population of Hemizonia paniculata observed on a southwest facing slope. The population of sensitive Hemizonia is growing in conjunction with Hemizonia kelloggii. Dominant associates include: Brassica geniculata, Lessingia filaginifolia, Plantago erecta, Bromus rubens. Other species observed in the vicinity are Eriogonum fasciculatum, Opuntia parryi, Croton sp., and Erodium sp. Soils, cobbly-clay.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Area has historically been used as a large pasture/holding pen for cattle. Native sage scrub habitat recovering.

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-21
California Native Species Field Survey Form
File Name 21-HemPan-060110

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/01/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Deinandra (Hemizonia) paniculata*

Common Name: Paniculate Tarplant

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 16 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 10 % vegetative 90 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private

Quad Name: Alberhill Elevation: 1283

T 5S R 5W Sec 16, SE ¼ of NW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 530 HCx

DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy < 3 meters meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑

Coordinates: 33.735637°, -117.408560°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Population of Hemizonia paniculata observed on west facing slope in RSS habitat. Dominant associates include: Lotus hamatus, Croton sp, Eriogonum fasciculate, Erodium sp., Bromus rubens, Trichostema lanceolatum, and Lotus scoparius. Soils cobbly clay. Area of population is approximately 10' in diameter.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Area has historically been used as a large pasture/holding pen for cattle.

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato, UCR Herbarium/Survey botanist
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-22
California Native Species Field Survey Form
File Name 22-LepVir-040610

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/17/2010

For Office Use Only

Source Code _____ Quad Code _____

Elm Code _____ Occ. No. _____

EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's pepper-grass

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 10 Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle

Address: 1461 E. Cooley Dr., Suite 100
Colton, Ca 92324

E-mail Address: Matthew.Malle@aecom.com

Phone: (909) 554-5041

Plant Information

Phenology: _____% vegetative _____% flowering 100% fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Riverside Landowner / Mgr.: Private

Quad Name: Alberhill Elevation: 1621

T 5S R 5W Sec 10, SE ¼ of SW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Rhino 530 HCx

DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy < 3 Meters meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑

Coordinates: 33°44'37.33"N, 117°23'35.07"W; 33°44'38.44"N, 117°23'35.22"W

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

Lepidium virginicum L. var. robinsonii found on gentle north facing slope. Soils are gravel loam. Co-dominate plant species include: Encelia farinosa, Bromus rubens, Cylindropuntia californica, and Eschscholzia californica.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information

Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: N/A

Threats: N/A

Comments: N/A

Determination: (check one or more, and fill in blanks)

- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☑ By another person (name): Teresa Salvato, UCR Herbarium/Project Botanist
- ☐ Other: _____

Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☑	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-23
California Native Species Field Survey Form
File Name 23-LepVir-051710

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/17/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's pepper-grass

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 200 Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle
Address: 1461 E. Cooley Dr., Suite 100
Colton, Ca 92324
E-mail Address: Matthew.Malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: _____% vegetative _____% flowering 100 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill Elevation: 1615
T 5S R 5W Sec 10, SE ¼ of SW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Rhino 530 HCx
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy < 3 Meters meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 33.744094°, -117.390967°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Population of Lepidium virginicum var. robinsonii observed on an east facing slope. Vegetation density on slope was noted to be generally sparse. Population was noted to be widespread and covers and area approximately 20 feet by 50 feet. Associated dominant vegetation includes: Eriogonum elongatum, Festuca micostachys var. pauciflora, Chaenactis artemisiifolia, And Thysanocarpus curvipes.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: N/A

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Teresa Salvato, UCR Herbarium/Project Botanist
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Appendix F-24
California Native Species Field Survey Form
File Name 24-ChorPar-051710

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/17/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Chorizanthe parryi var. parryi*

Common Name: Parry's spineflower

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 260 Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle
Address: 1461 E. Cooley Dr., Suite 100
Colton, Ca 92324
E-mail Address: Matthew.Malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: 10 % vegetative 90 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill Elevation: 1590
T 5S R 5W Sec 10, SE ¼ of SW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Rhino 530 HCx
DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy < 3 Meters meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 33.744328°, -117.391738°; 33.744273°, -117.391415°; 33.744307°, -117.391415°; 33.744321°, -117.391332°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Population observed on a Southeast facing gentle slope with open coastal sage scrub and annuals. Total of 260 individuals made up of 4 separate populations observed with the same general area. Observed associated dominants include Eriogonum fasciculatum var. polifolium, Salvia apiana, and Encelia farinosa. Chorizanthe parryi var. parryi was mostly in openings between shrubs. Soils, decomposed granite soils.

Other rare taxa seen at THIS site on THIS date: Lepidium virginicum var robisonii
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: N/A

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Andy Sanders, UCR Herbarium/Project Botanist
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-26
California Native Species Field Survey Form
File Name 26-ChorPar-042310

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/23/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Chorizanthe parryi var. parryi*

Common Name: Parry's spineflower

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 500 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number UCR Herbarium Museum / Herbarium

Reporter: Matthew Malle, AECOM Biologist
Address: 1461 E. Cooley Dr., Suite 100

E-mail Address: Matthew.Malle@AECOM.com
Phone: (909) 554-5041

Plant Information

Phenology: 10 % vegetative 90 % flowering 0 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private

Quad Name: Romoland Elevation: 1,700 feet

T 6S R 3W Sec 20, NE ¼ of NE ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS

T____ R____ Sec____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin 76 CSx

DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy 9 feet meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐

Coordinates: N33 38.472, W117 12.399

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Population of Chorizanthe parryi var parryi located on gentle southwest facing slope in clearing between Adenostoma fasciculatum, Ceanothus crassifolius, and Eriogonum fasciculatum. Other annuals observed include Salvia columbariae, Festuca myuros, Plagiobothrys collinus, Cryptantha intermedia, Pterostegia drymarioides, and Amsinckia intermedia. ~90% of the plants were flowering and 10% vegetative (Rough Order of Magnitude). Soils were made up of coarse sand-silt and decomposed granite.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances:

Threats:

Comments: Area is generally comprised of dense native perennial shrubs (e.g. chamise, California buckwheat, ceanothus, black sage) on a south to southwest facing slope. Species richness of native vegetation is high. Very little non-native vegetation cover. Observed soils were predominately decomposed granite in the form of silt, sand (fine-coarse).

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Andy Sanders, UCR Herbarium
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-27
California Native Species Field Survey Form
File Name 27-LepVir-051710

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/17/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's pepper-grass

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 300 Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle
Address: 1461 E. Cooley Dr., Suite 100
Colton, Ca 92324
E-mail Address: Matthew.Malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: _____% vegetative _____% flowering 100 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill Elevation: 1621
T 5S R 5W Sec 10, SE ¼ of SW ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Rhino 530 HCx
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy < 3 Meters meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 33.744011°, -117.393117°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Lepidium virginicum L. var. robinsonii found on gentle north facing slope. Soils are gravel loam. Co-dominate plant species include: Encelia farinosa, Bromus rubens, Cylindropuntia californica, and Eschscholzia californica.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: N/A

Threats: N/A

Comments: N/A

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☑ By another person (name): Teresa Salvato, UCR Herbarium/Project Botanist
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☑	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Appendix F-28
California Native Species Field Survey Form
File Name 28-051810

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/17/2010

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lepidium virginicum var. robinsonii*

Common Name: Robinson's pepper-grass

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Matthew Malle
Address: 1461 E. Cooley Dr., Suite 100
Colton, Ca 92324
E-mail Address: Matthew.Malle@aecom.com
Phone: (909) 554-5041

Plant Information

Phenology: _____% vegetative _____% flowering 100% fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Riverside Landowner / Mgr.: Private
Quad Name: Alberhill Elevation: 1726
T 5S R 5W Sec 9, SW ¼ of SE ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Rhino 530 HCx
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐ Horizontal Accuracy < 3 Meters meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 33.743111°, -117.405220°

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*
Steep south-facing RSS slope dominated with Encelia farinosa. Lepidium growing near small granite boulder outcrop.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor
Immediate AND surrounding land use:
Visible disturbances: N/A
Threats: N/A
Comments: N/A

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Andy Sanders, UCR Herbarium/Project Botanist
☐ Other: _____

Photographs: *(check one or more)* Slide Print Digital
Plant / animal ☐ ☐ ☐
Habitat ☐ ☑ ☐
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☑ no ☐

ALBERHILL SYSTEM PROJECT
2010 SENSITIVE PLANT SURVEY REPORT

Biological and Archeological Resources Group
2244 Walnut Grove Avenue
Rosemead, CA 91770
Contact: Adelina O. Muñoz, Biologist
(626) 302-3088 (PAX 23088)

Prepared by

Contact: Matthew Mallé, Biologist (Colton Office)
(909) 554-5041

July 2010

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List of Acronyms

asl	above sea level
BTR	Biological Technical Report
CDFG	California Department of Fish and Game
cm	centimeter
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
dm	decimeter
ESA	Environmentally Sensitive Area
HRRP	Habitat Restoration and Revegetation Plan
kV	kiloVolt
mm	millimeter
MVA	Mega Volt Ampere
NEPSA	Narrow Endemic Plant Survey Area
RCA	Western Riverside Regional Conservation Authority
Sub	Subtransmission
T/L	transmission line
UCR	University of California, Riverside
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WEAP	Worker Environmental Awareness Program
WMP	Weed Management Plan
WRCMSHCP	Western Riverside County Multiple Species Habitat Conservation Plan

1.0 Introduction

1.1 Purpose and Project Description

The purpose of this report is to document the results of the 2010 sensitive plant surveys conducted for the Alberhill System Project during the spring of 2010.

The purpose of the sensitive plant surveys was to determine presence/absence of federal, state, California Native Plant Society (CNPS), and Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP) sensitive plant species identified as having the potential to occur within or adjacent to the Project Area (target sensitive plant species). The Alberhill System Project is within the WRMSHCP. The WRCMSHCP, administered by the Regional Conservation Authority (RCA), provides protection for covered species and requires surveys for Criteria and Narrow Endemic Plants in certain areas.

Southern California Edison Company (SCE) proposes to construct the Alberhill System Project (Project) to serve current and projected demand for electricity and maintain electric system reliability in southwestern Riverside County, including the cities of Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, and Wildomar as well as the surrounding unincorporated areas.

The Project Area is defined as the area analyzed for the following Project components: the proposed Alberhill Substation, the proposed 500 kiloVolt (kV) transmission lines (T/L), the proposed 115 kV Subtransmission (Sub) T/L, and the alternative 115 kV Sub T/L (Figure 11).

- The proposed Alberhill Substation would be an unstaffed, automated 1,120 Mega Volt Ampere (MVA) 500/115 kV substation with an ultimate build-out of 1,680 MVA. Based on the preliminary design, approximately 8,000 cubic yards of soil, vegetation, and rock would be removed from the site (area of anticipated direct impact). In addition, approximately 10,320 cubic yards of soil would be removed as a result of excavation for foundation and building footings. Demolition of the existing horse ranch and relocation of a 30-inch gravity agricultural water line (owned and operated by Elsinore Valley Municipal Water District) would be required prior to mass grading. The horse ranch and adjacent undeveloped areas compose the Alberhill Substation survey area.

- The proposed 500 kV transmission lines (T/L) would connect the proposed Alberhill Substation to SCE's existing Serrano-Valley 500 kV T/L. The components of the 500 kV T/L include the following: the proposed N3 500 kV transmission line (N3 survey area [to the Alberhill Substation]), the proposed C1 500 kV transmission line (C1 survey area [from the Alberhill Substation]), and the existing Serrano-Valley 500 kV T/L (Existing 500 kV T/L alignment). Collectively all three of these areas, as well as the proposed pull and tensioning locations, are referred to as the 500 kV T/L survey area. The 500 kV T/L survey area encompasses a 700-foot-wide corridor (350 feet on either side of the proposed and existing 500 kV T/L) around each of the 500 kV T/L project components.

- The proposed 115 kV Sub T/L would consist of a new 115 kV Sub T/L and modification of the existing 115 kV Sub T/L. The 115 kV Sub T/L would transfer electrical service of five existing 115/12 kV substations (Ivyglen, Fogarty, Elsinore, Skylark, and Newcomb

substations) to the new 500/115 kV Alberhill Substation. A Western Riverside County Narrow Endemic Plant Survey Area (NEPSA) identified along the 115 kV Sub T/L composes the kV Sub T/L survey area. The area analyzed for the 115 kV Sub T/L survey area encompasses a 400-foot-wide corridor (200 feet on either side of the 115 kV Sub T/L) around the 115 kV Sub T/L project components.

- An alternative to the proposed 115 kV Sub T/L has also been analyzed (alternative 115 kV Sub T/L). This alternative consists of an optional routing of the eastern portion of the proposed 115 kV Sub T/L. Sensitive plant surveys were not conducted within the alternative 115 kV Sub T/L lines during the 2010 sensitive plant surveys

AECOM was tasked with conducting sensitive plant surveys within the Alberhill Substation survey area, within the 500 kV T/L survey area, and within one NEPSA in the 115 kV Sub T/L study area.

Target sensitive plant species were identified as having a potential of occurring within the Project Area based on a literature search. Two sensitive plant surveys were conducted during the spring of 2010. This report describes the 2010 survey methodology, discusses survey results and conclusions, and offers recommendations for impact avoidance and mitigation to sensitive plant species that were encountered during the 2010 sensitive plant species surveys.

1.2 Background

In November 2008, AECOM conducted a habitat assessment of the proposed Alberhill Substation site. Twenty sensitive plant species were determined to have a moderate potential for occurrence within and adjacent to the Alberhill Substation study area. As a result, the biological technical report (BTR, AECOM, 2009) recommended multiple sensitive plant surveys be conducted during the blooming periods of these species.

During spring of 2009, a sensitive plant survey was conducted by AECOM at the Alberhill Substation survey area. Two sensitive plant species, long spined spineflower (*Chorizanthe polygonoides* var. *longispina*) and paniculate tarplant (*Dienandra (Hemizonia) paniculata*), were observed during the sensitive plant survey of the substation site.

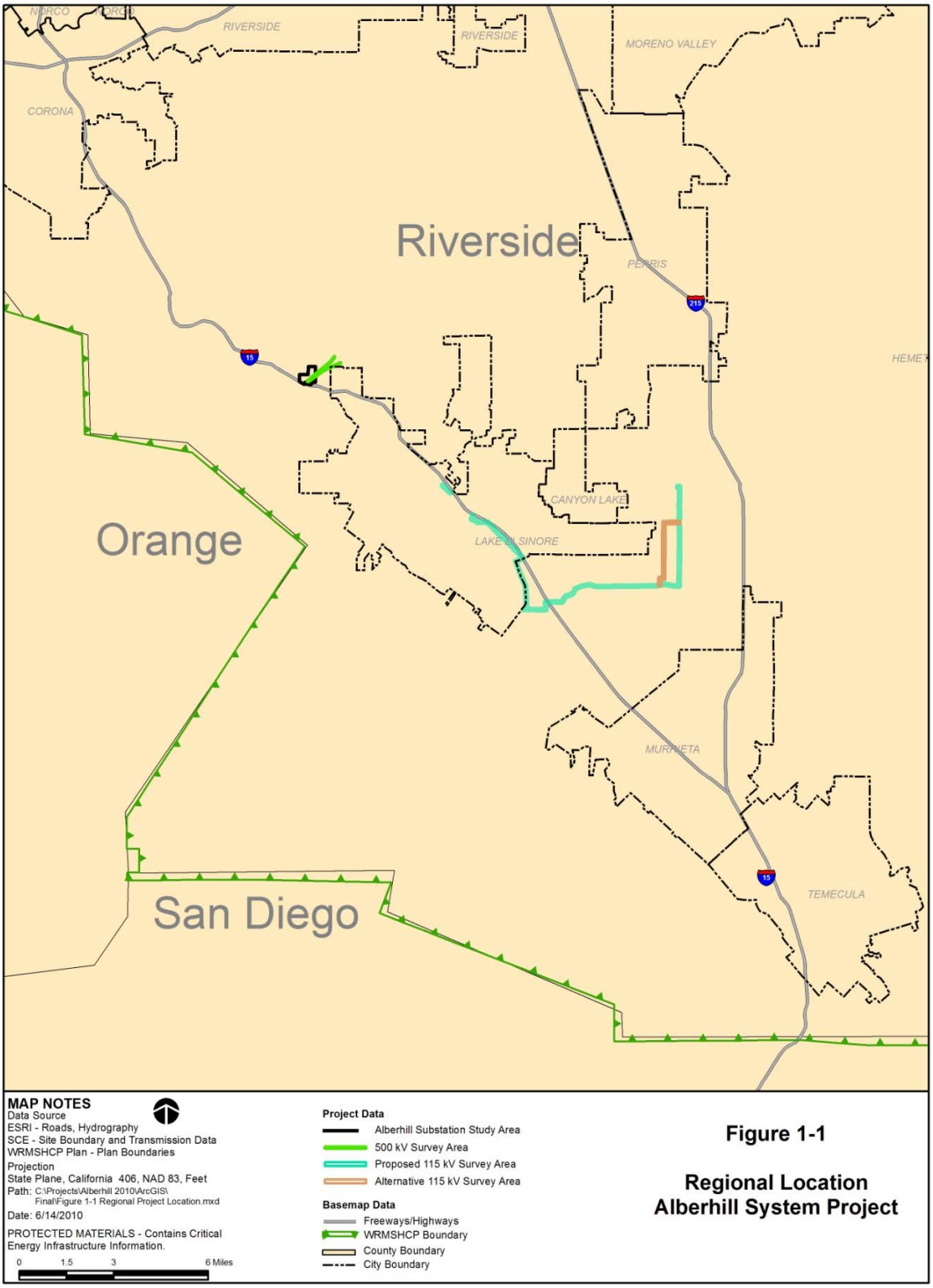
In July 2009, AECOM conducted a habitat assessment within the proposed 500 kV and 115 kV Sub T/L survey areas. Cumulatively, 61 sensitive plant species were determined to have a moderate to high potential for occurrence within and adjacent to the 500 kV T/L and 115 kV Sub T/L survey areas. The BTR recommended multiple sensitive species surveys within the next available blooming period (AECOM 2009b).

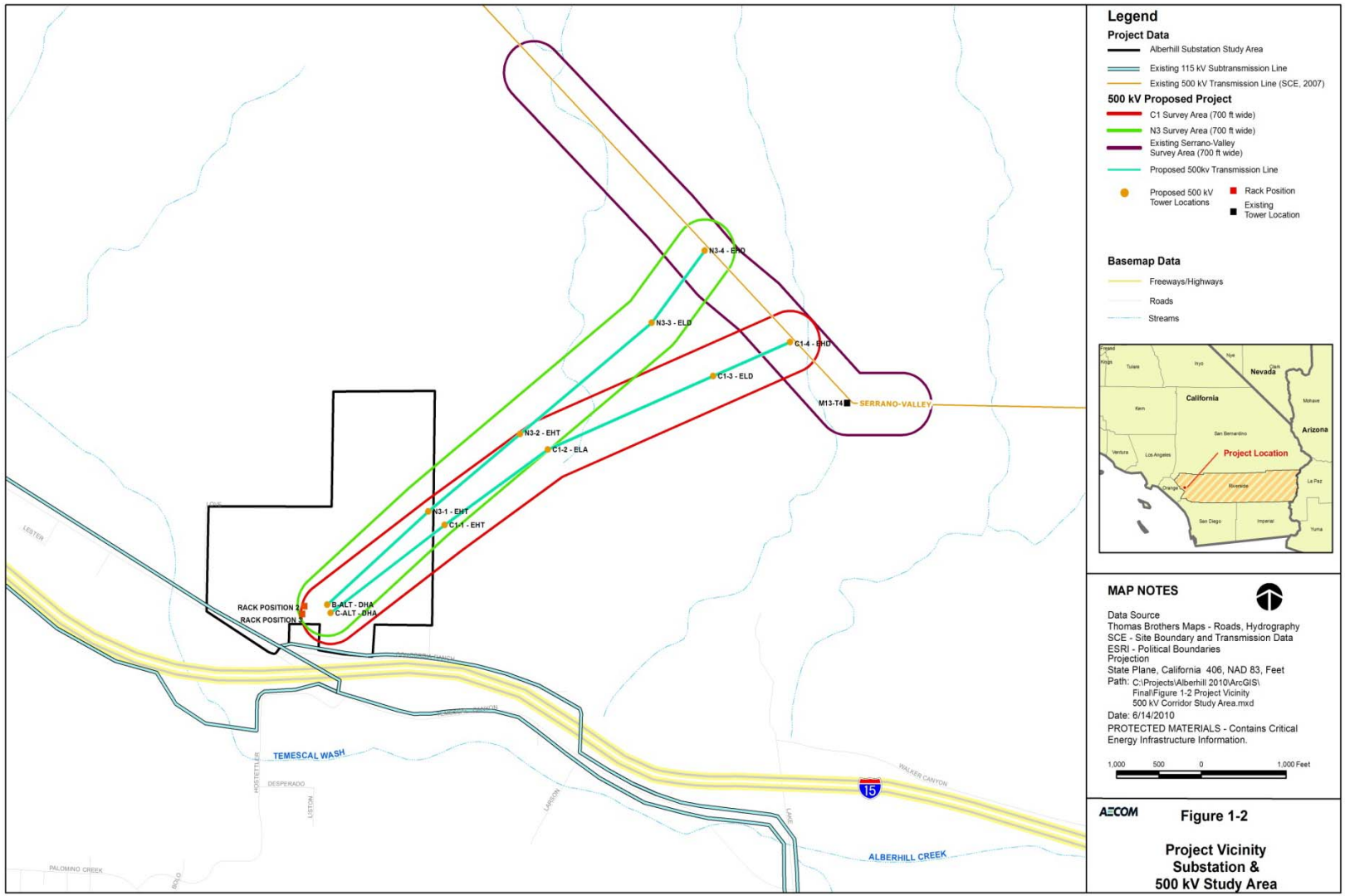
Due to below average rainfall in 2009 and predicted average to above-average rainfall throughout the rainy season for 2010, SCE decided to re-survey the Alberhill Substation survey area and conduct sensitive plant surveys for the 500 kV T/L and 115 kV Sub T/L survey areas during the Spring 2010 survey time period.

1.3 Survey Locations

1.3.1 Alberhill Substation Survey Area

The Alberhill Substation survey area is approximately 125 acres and is located within the Temescal Valley, south of Corona, California(see Figure 1-2). The Project Area can be found on the Alberhill, CA 7.5 minute United States Geological Survey (USGS) topographic quadrangle (1980). The Alberhill Substation survey area is located within the northwest ¼ of Section 16, Township 5 South, Range 5


NORCO
RIVERSIDE
RIVERSIDE
MORENO VALLEY
CORONA
Riverside
PERRIS
CANYON LAKE
LAKE ELSINORE
Orange
MURRIETA
TEMECULA
San Diego
MAP NOTES
Data Source
ESRI - Roads, Hydrography
SCE - Site Boundary and Transmission Data
WRMSHCP Plan - Plan Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 1-1 Regional Project Location.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
0 1.5 3 6 Miles
Project Data
Alberhill Substation Study Area
500 kV Survey Area
Proposed 115 kV Survey Area
Alternative 115 kV Survey Area
Basemap Data
Freeways/Highways
WRMSHCP Boundary
County Boundary
City Boundary
Figure 1-1
Regional Location
Alberhill System Project


Legend
Project Data
Alberhill Substation Study Area
Existing 115 kV Subtransmission Line
Existing 500 kV Transmission Line (SCE, 2007)
500 kV Proposed Project
C1 Survey Area (700 ft wide)
N3 Survey Area (700 ft wide)
Existing Serrano-Valley Survey Area (700 ft wide)
Proposed 500kv Transmission Line
Proposed 500 kV Tower Locations
Rack Position
Existing Tower Location
Basemap Data
Freeways/Highways
Roads
Streams
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 1-2 Project Vicinity 500 kV Corridor Study Area.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
1,000 500 0 1,000 Feet
AECOM
Figure 1-2
Project Vicinity Substation & 500 kV Study Area
N3-4 - EHD
N3-3 - ELD
C1-4 - EHD
C1-3 - ELD
M13-T4
SERRANO-VALLEY
N3-2 - EHT
C1-2 - ELA
N3-1 - EHT
C1-1 - EHT
RACK POSITION 2
RACK POSITION 1
B-ALT - DHA
C-ALT - DHA
TEMESCAL WASH
ALBERHILL CREEK
WALKER CANYON
DESPERADO
PALOMINO CREEK
LESTER
HOSTETTLER
LISTON
LARSON
BOLO
15

West, in the city of Lake Elsinore, California. The Alberhill Substation survey area elevation ranges from 1,200 to 1,620 feet above sea level (asl).

1.3.2 500 kV T/L Survey Area

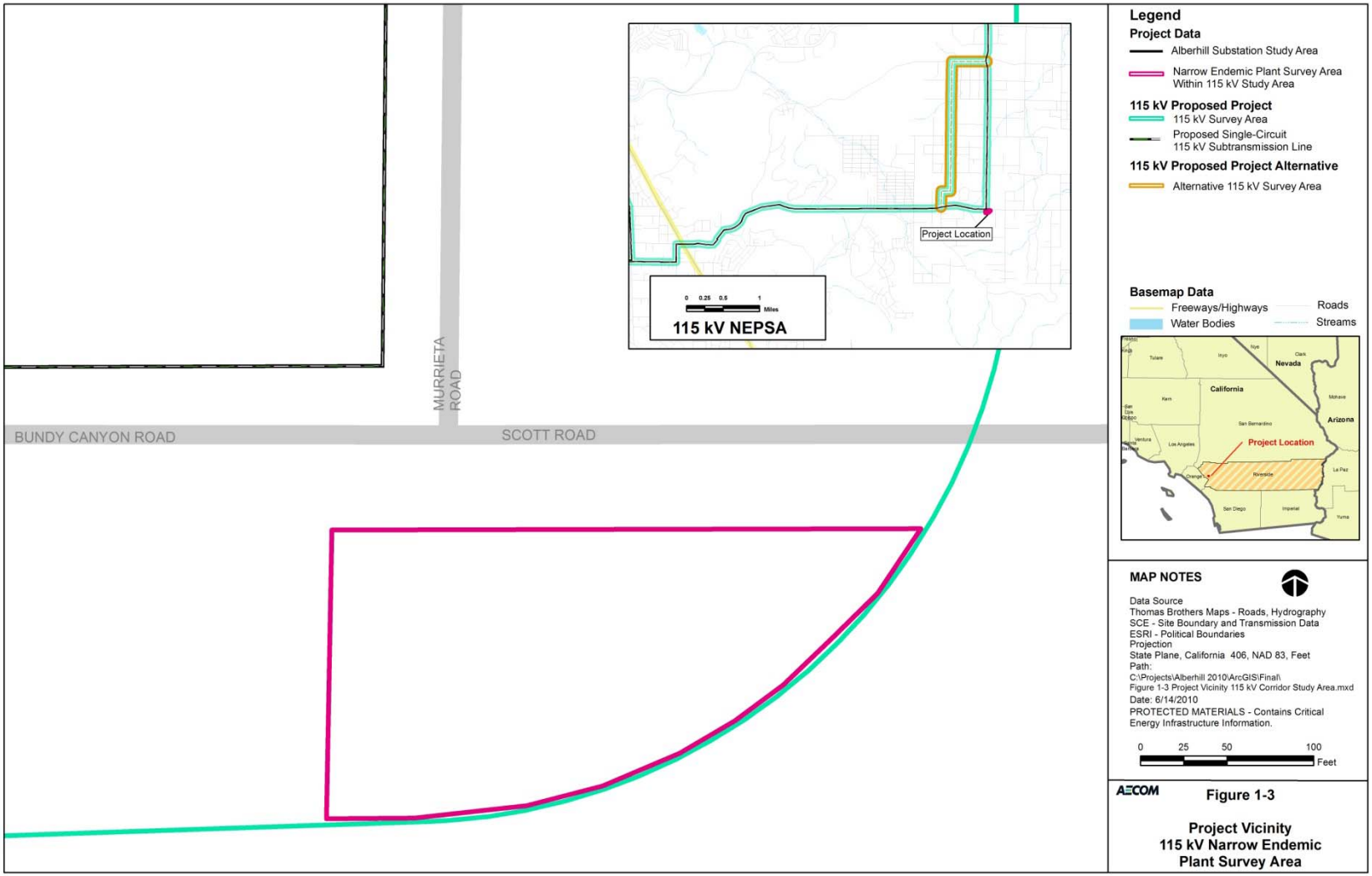
The 500 kV T/L survey area is approximately 319 acres and is located northeast of the proposed Alberhill Substation site. The 500 kV T/L survey area traverses unincorporated portions adjacent to the City of Lake Elsinore, California, within Riverside County and is located within the Lake Mathews and Alberhill CA 7.5 minute USGS topographic quadrangles. On the Alberhill USGS quadrangle, the corridor alternatives are located within the southeast quarter of Section 9, the southwestern quarter of Section 10, the northwestern quarter of Section 15, and the northern half of Section 16, all within Township 5 South, Range 5 West.

The northeast portion of the 500 kV study area is located within the Gavilan Hills, which can be characterized as steep terrain. The southwest portion of the 500 kV study area overlaps with the eastern portion of the Alberhill Substation survey area (Figure 1-2). The 500 kV T/L survey area elevation ranges from 1,200 to 1,861 feet asl.

1.3.3 115 kV Sub T/L Survey Area

The portion of the 115 kV alignment that has been designated as a NEPSA by the WRCMSHCP consists of approximately one acre (Note: The 115 kV Sub T/L survey area does not contain any WRCMSHCP Criteria Plant Species Survey Areas). The NEPSA within the 115 kV study area is located south of the intersection of Bundy Canyon Road and Murrieta Road. The 115 kV study is located on the Romoland CA 7.5 minute USGS topographic quadrangle. The 115 kV study area is located within the northwest ¼ of Section 21, Township 6 South, Range 3 West, in the City of Menifee, California.

The NEPSA within the 115 kV study area can be characterized as a gently inclined, south-facing slope, dominated by dense chamise chaparral. The elevation of the 115 kV Sub T/L survey area is approximately 1,700 feet asl. The 115 kV NEPSA is approximately 14 miles southeast of the proposed Alberhill Substation and 500 kV T/L survey areas (Figure 1-3).


MURRIETA ROAD
BUNDY CANYON ROAD
SCOTT ROAD
Project Location
0 0.25 0.5 1 Miles
115 kV NEPSA
Legend
Project Data
Alberhill Substation Study Area
Narrow Endemic Plant Survey Area Within 115 kV Study Area
115 kV Proposed Project
115 kV Survey Area
Proposed Single-Circuit 115 kV Subtransmission Line
115 kV Proposed Project Alternative
Alternative 115 kV Survey Area
Basemap Data
Freeways/Highways
Roads
Water Bodies
Streams
Nevada
California
Arizona
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path:
C:\Projects\Alberhill 2010\ArcGIS\Final\
Figure 1-3 Project Vicinity 115 kV Corridor Study Area.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
0 25 50 100 Feet
AECOM
Figure 1-3
Project Vicinity
115 kV Narrow Endemic
Plant Survey Area

2.0 Methodology

Survey design and implementation were based on the following survey protocol guidance: *U.S. Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Species (*USFWS 2000*)*; *Protocols for Surveying and Evaluation Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009); and *California Native Plant Society Botanical Survey Guidelines* (CNPS 2001).

2.1 Literature and Database Research

A literature and database search of the California Natural Diversity Database (CNDDB) and CNPS *Inventory for Rare and Endangered Vascular Plants of California* was conducted in March 2010.

Narrow Endemic and Criteria Area Plant Species GIS data developed to support the WRCMSHCP was used to create figures depicting survey areas that occurred within the MSHCP sensitive plant survey areas (Figures 2-1 and 2-2).

The *Focused Rare Plant Surveys, April and May 2009, Proposed Alberhill Substation Site, Lake Elsinore, CA* (AECOM 2009) was also reviewed.

Results of the 2010 literature and database search identified 91 plant species based in the nine USGS 7.5 Series Topographic quadrangles for the Project Area locations (center quadrangles: Alberhill, Lake Matthews, and Romoland; surrounding quadrangles: Santiago Peak, Corona South, Lake Elsinore, Steele Peak, Perris, Lakeview, Winchester, Bachelor Mtn., Wildomar, Sutton Peak, and Cañada Gobernadora). Additionally, all survey areas fall within the fee area for the WRCMSHCP; and a number of species, including those federal, state, CNPS, and WRCMSHCP (Narrow Endemic and Criteria Area plant species) listed, have the potential to occur on or adjacent to each of the survey areas.

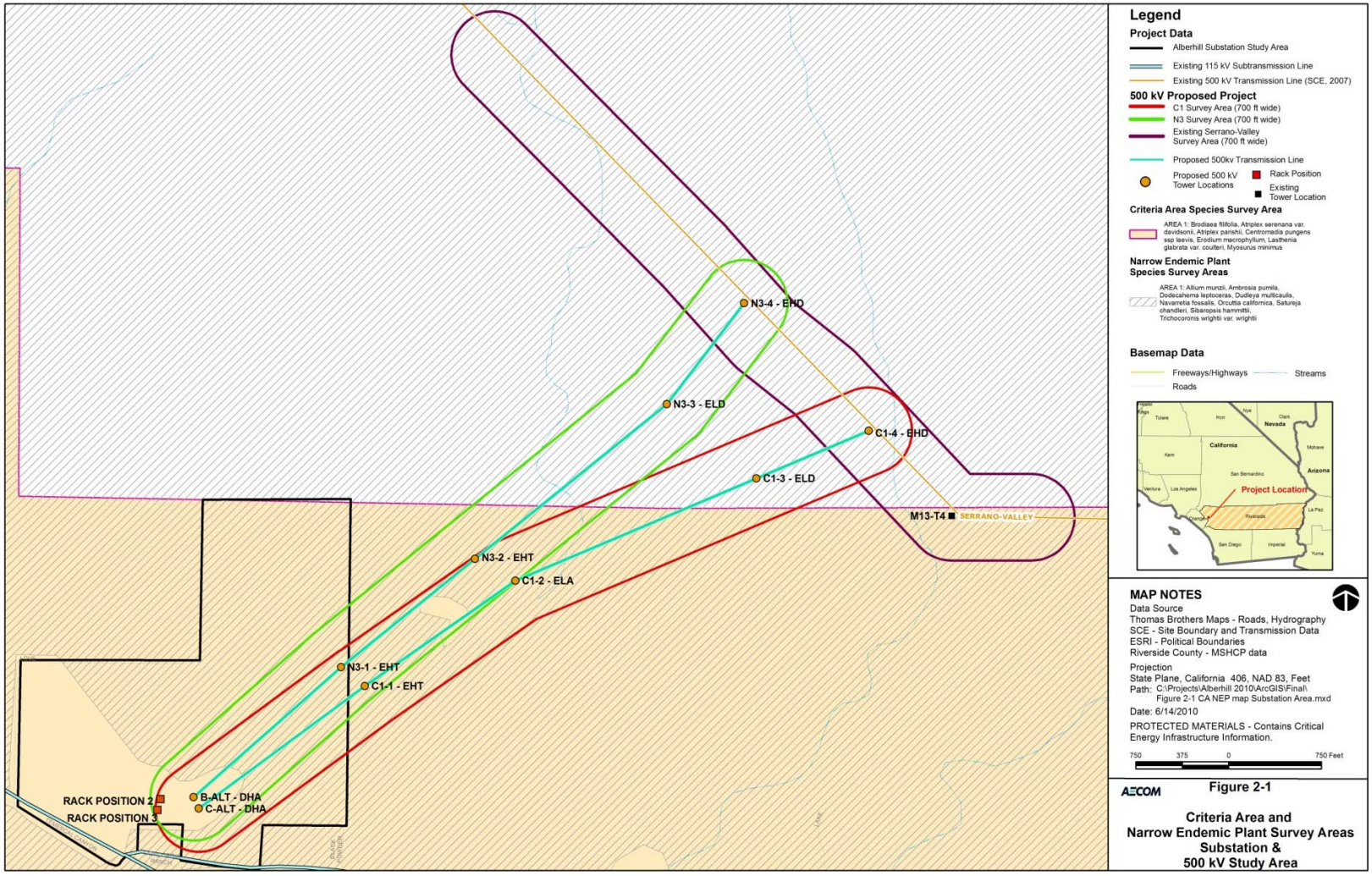
The target sensitive plant species were divided into two groups (early spring and late spring) based on blooming periods for survey scheduling.

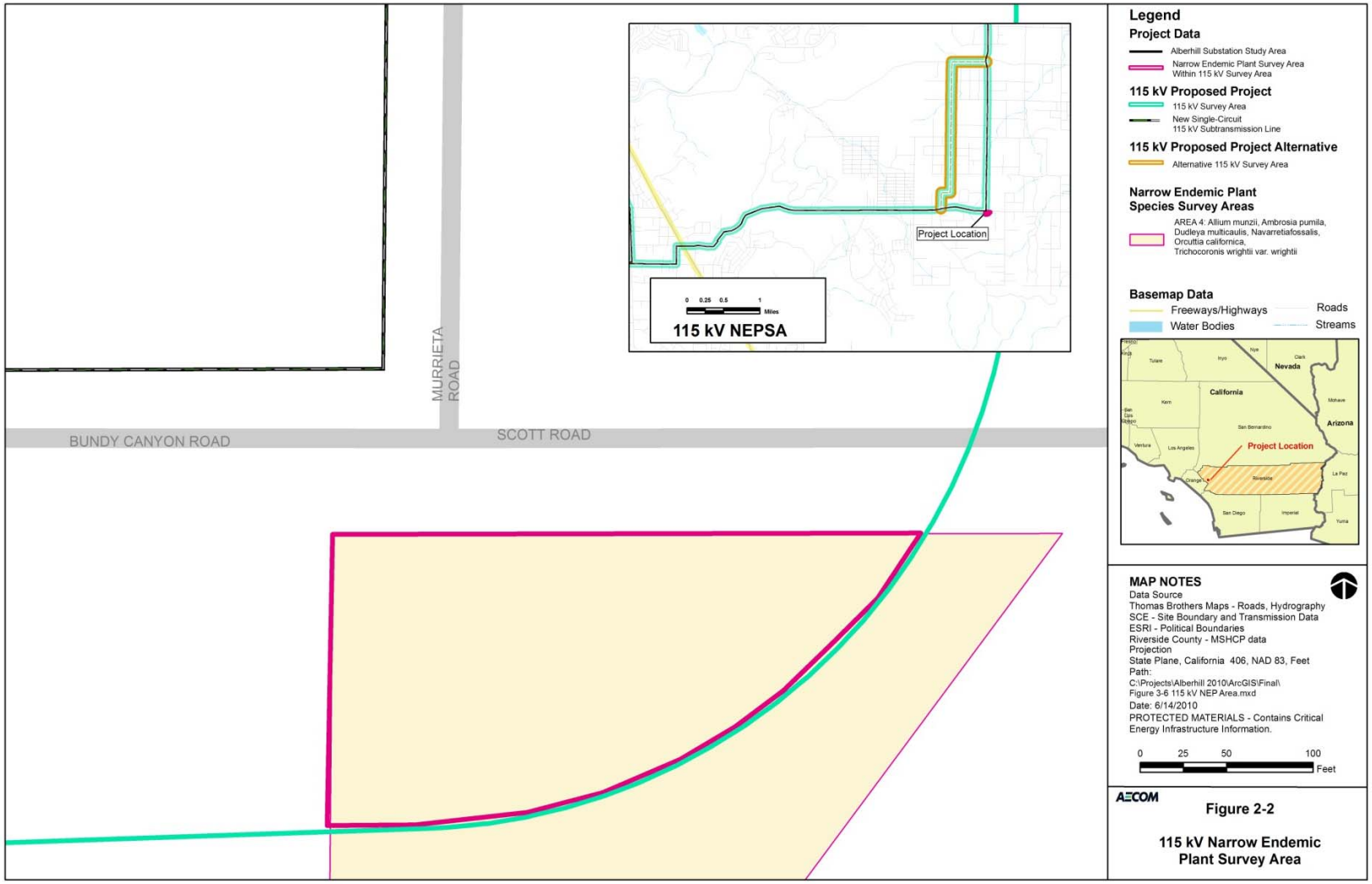
2.2 Voucher Specimen Review

Prior to the field surveys, the AECOM biologists met University of California Riverside (UCR), Herbarium staff to study and become familiar with available target sensitive plant specimens.

As mentioned earlier, the BTRs prepared in 2009 for the Alberhill Substation site and 500- and 115kV Study areas identified a number of sensitive plant species that had potential to occur on or adjacent to each of the three survey areas. Potential occurrence in each of the BTRs was based on mapped vegetation communities and habitat preferences for each of the sensitive plant species. Both plant lists from each of the BTRs were combined to produce one list prior to the herbarium visit. This list was then supplemented with any sensitive plant species that were queried from the CNDDB and CNPS databases, but not already on the list from the two BTRs. The final version of this list became the preliminary list of target sensitive plant species for the 2010 survey period.

The preliminary sensitive plant species list was then refined during the herbarium visit by discussing known range and/or habitat preferences for each of the target sensitive plant species with Andy


N3-4 - EHD
N3-3 - ELD
C1-4 - EHD
C1-3 - ELD
M13-T4
SERRANO-VALLEY
N3-2 - EHT
C1-2 - ELA
N3-1 - EHT
C1-1 - EHT
RACK POSITION 2
RACK POSITION 3
B-ALT - DHA
C-ALT - DHA
Legend
Project Data
Alberhill Substation Study Area
Existing 115 kV Subtransmission Line
Existing 500 kV Transmission Line (SCE, 2007)
500 kV Proposed Project
C1 Survey Area (700 ft wide)
N3 Survey Area (700 ft wide)
Existing Serrano-Valley Survey Area (700 ft wide)
Proposed 500kv Transmission Line
Proposed 500 kV Tower Locations
Rack Position
Existing Tower Location
Criteria Area Species Survey Area
AREA 1: Brodiaea filifolia, Atriplex serenana var. davidsonii, Atriplex parishii, Centromadia pungens ssp laevis, Erodium macrophyllum, Lasthenia glabrata var. coulteri, Myosurus minimus
Narrow Endemic Plant Species Survey Areas
AREA 1: Allium munzii, Ambrosia pumila, Dodecahema leptoceras, Dudleya multicaulis, Navarretia fossalis, Orcuttia californica, Satureja chandleri, Sibaropsis hammittii, Trichocoronis wrightii var. wrightii
Basemap Data
Freeways/Highways
Streams
Roads
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Riverside County - MSHCP data
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\ Figure 2-1 CA NEP map Substation Area.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
750 375 0 750 Feet
AECOM
Figure 2-1
Criteria Area and Narrow Endemic Plant Survey Areas Substation & 500 kV Study Area


MURRIETA ROAD
BUNDY CANYON ROAD
SCOTT ROAD
Project Location
0 0.25 0.5 1 Miles
115 kV NEPSA
Legend
Project Data
Alberhill Substation Study Area
Narrow Endemic Plant Survey Area Within 115 kV Survey Area
115 kV Proposed Project
115 kV Survey Area
New Single-Circuit 115 kV Subtransmission Line
115 kV Proposed Project Alternative
Alternative 115 kV Survey Area
Narrow Endemic Plant Species Survey Areas
AREA 4: Allium munzii, Ambrosia pumila, Dudleya multicaulis, Navarretiafossalis, Orcuttia californica, Trichocoronis wrightii var. wrightii
Basemap Data
Freeways/Highways
Roads
Water Bodies
Streams
Nevada
California
Arizona
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Riverside County - MSHCP data
Projection
State Plane, California 406, NAD 83, Feet
Path:
C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 3-6 115 kV NEP Area.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
0 25 50 100 Feet
AECOM
Figure 2-2
115 kV Narrow Endemic Plant Survey Area

Sanders, curator of the UCR Herbarium and local endemic plant expert for Western Riverside County. The final list of sensitive plant species became the guide for which voucher specimens were reviewed.

2.3 Reference Population Visit

The Consortium of California Herbaria (online database) was used to locate and map several reference sites prior to field surveys. Due to the number of target sensitive plant species that had the potential to occur, the reference site visits were limited to federal and state listed taxa. The reference sites were determined based on proximity to the survey area, number of species recorded at each location, and the date a voucher specimen was collected. The reference sites were visited one day prior to initiating the first phase of field surveys. Data collected at each of the reference sites included target plant phenology, general habitat descriptions, and associated plant species observed growing in conjunction with the sensitive target plant species. Representative photographs of each target sensitive plant species observed were collected (Appendix A).

2.4 Survey Implementation

2.4.1 General Survey Methodology

Surveys consisted of comprehensive and systematic techniques following CDFG, USFWS and CNPS protocols. Transects were spaced so that taxa could be identified between survey transects in each habitat.

Survey timing was defined by the target species blooming periods. Two survey periods were chosen for the 2010 sensitive plant surveys: early to mid spring (March-April) and mid to late spring (May-June).

Biologists conducting the survey carried the following equipment:

- Aerial maps and reference markers of the survey area
- Garmin Rino 530 HcX and Garmin 76c GPS units with preloaded Project Area data layers
- Field notebook for documenting species encountered and plant habitat characteristics
- Digital camera to document findings by photographing habitat conditions and flora of interest
- 10x hand lenses
- Plant press to collect unknown species and voucher specimens.

A CDFG California Native Species Field Survey Form was completed for each sensitive plant or plant population encountered during the survey.

General data recorded during sensitive plant surveys, included:

- Date, time, and weather conditions of each survey
- GPS waypoints for observed sensitive plants or areas of ecological interest
- Habitat conditions

- All vascular plants observed onsite (native or naturalized)
- Any special status species observed and associated species
- A representative photograph of each sensitive plant species found and of vegetation community types encountered

Sensitive plant population size was estimated using one of two methods. The first method was used for small, inconspicuous species (e.g., *Chorizanthe polygonoides* var*. longispina*). The first method consisted of establishing a representative sample in a small area within the sensitive plant population, counting the number of sensitive plants within the sample area, and using the number within the sample area to extrapolate the size of the entire observed population. The second method was used for larger, more conspicuous colonial species (e.g., *Romneya coulteri*). The second method consisted of making a crude stem count. Both methods were designed to estimate sensitive plant population size at a particular location to an order of magnitude.

In instances where safety concerns or inaccessibility prevented an area from being surveyed, 8x35-42 or greater power binoculars were used to scan the inaccessible areas for occurrence of target species.

Voucher specimens of common and sensitive plant species collected during the surveys were deposited at the UCR Herbarium.

2.4.2 Site Specific Survey Methodology

2.4.2.1 Alberhill Substation Survey Area

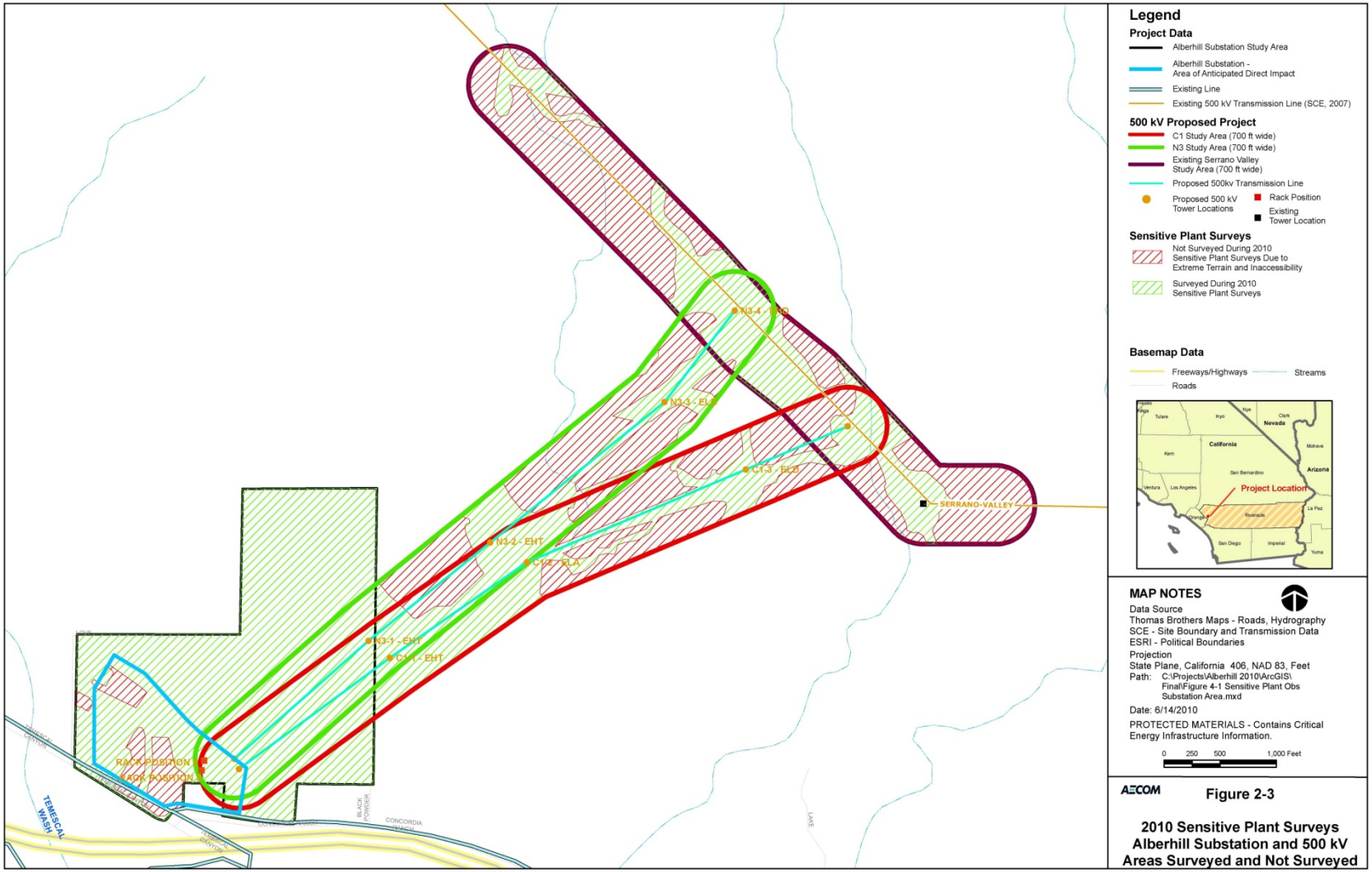
An attempt was made to survey 100 percent of the Alberhill Substation survey area. Some areas of rugged terrain within the northern portions of the Alberhill Substation survey area were inaccessible. Approximately 116 acres were surveyed and 8 acres were not surveyed (due to rugged terrain and inaccessible areas). Figure 2-3 depicts the areas surveyed and not surveyed within the Alberhill Substation survey area.

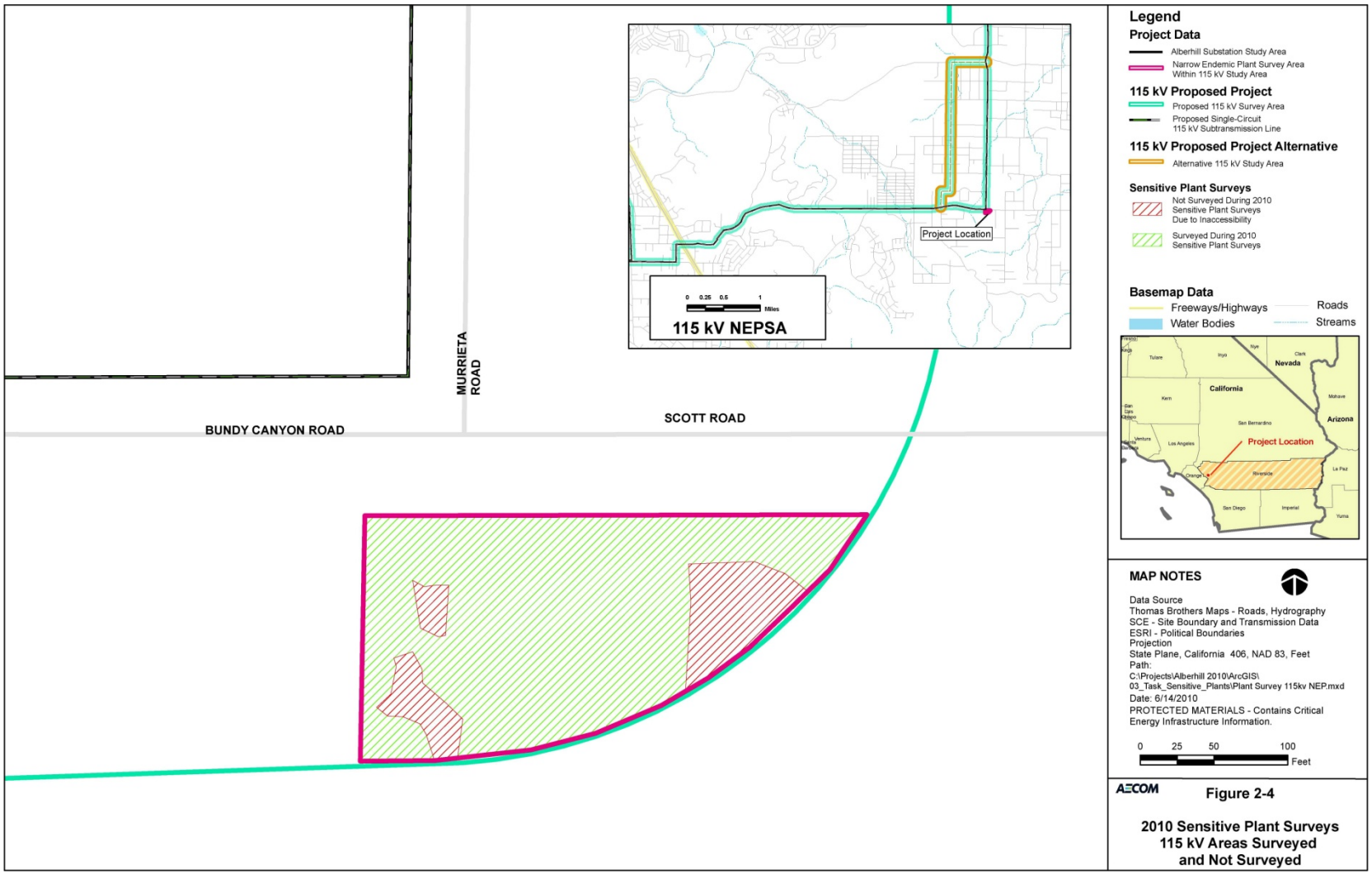
2.4.2.2 500 kV T/L Survey Area

Due to the extensive size and rugged terrain of the 500 kV alignments, sensitive plant surveys within the 500 kV T/L survey area were limited to areas of anticipated direct impact. Direct impact areas included known locations of proposed Project components, including: tower, pull, and tensioning locations. Each Project component location survey included a 200-foot survey buffer so that sensitive plant locations anticipated to be within direct impact areas were surveyed. Each of the 500 kV T/L Project component locations and an associated survey buffer were surveyed. Approximately 190 acres were surveyed and 129 acres were not surveyed (due to rugged terrain). Figure 2-3 depicts the areas surveyed and not surveyed within the 500 kV T/L survey area.

2.4.2.3 115 kV Sub T/L Survey Area

An attempt was made to survey 100 percent of the 115 kV NEPSA. Due to vegetation densities, some areas were inaccessible. Approximately 0.8 acres were surveyed and 0.1 acres were not surveyed. Figure 2-4 depicts the areas surveyed and not surveyed within the 115 kV Sub T/L survey area.


Legend
Project Data
Alberhill Substation Study Area
Alberhill Substation - Area of Anticipated Direct Impact
Existing Line
Existing 500 kV Transmission Line (SCE, 2007)
500 kV Proposed Project
C1 Study Area (700 ft wide)
N3 Study Area (700 ft wide)
Existing Serrano Valley Study Area (700 ft wide)
Proposed 500kv Transmission Line
Proposed 500 kV Tower Locations
Rack Position
Existing Tower Location
Sensitive Plant Surveys
Not Surveyed During 2010 Sensitive Plant Surveys Due to Extreme Terrain and Inaccessibility
Surveyed During 2010 Sensitive Plant Surveys
Basemap Data
Freeways/Highways
Streams
Roads
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 4-1 Sensitive Plant Obs Substation Area.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
0 250 500 1,000 Feet
AECOM
Figure 2-3
2010 Sensitive Plant Surveys
Alberhill Substation and 500 kV
Areas Surveyed and Not Surveyed
N3-4 - EHT
N3-3 - ELA
C1-3 - ELA
N3-2 - EHT
C1-2 - ELA
N3-1 - EHT
C1-1 - EHT
SERRANO-VALLEY
RACK POSITION
RACK POSITION
TEMESCAL WASH
BLACK CONDER
CONCORDIA
LAKE


MURRIETA ROAD
BUNDY CANYON ROAD
SCOTT ROAD
Project Location
0 0.25 0.5 1 Miles
115 kV NEPSA
Legend
Project Data
Alberhill Substation Study Area
Narrow Endemic Plant Survey Area Within 115 kV Study Area
115 kV Proposed Project
Proposed 115 kV Survey Area
Proposed Single-Circuit 115 kV Subtransmission Line
115 kV Proposed Project Alternative
Alternative 115 kV Study Area
Sensitive Plant Surveys
Not Surveyed During 2010 Sensitive Plant Surveys Due to Inaccessibility
Surveyed During 2010 Sensitive Plant Surveys
Basemap Data
Freeways/Highways
Roads
Water Bodies
Streams
Nevada
California
Arizona
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path:
C:\Projects\Alberhill 2010\ArcGIS\03_Task_Sensitive_Plants\Plant Survey 115kv NEP.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
0 25 50 100 Feet
AECOM
Figure 2-4
2010 Sensitive Plant Surveys
115 kV Areas Surveyed
and Not Surveyed

3.0 Existing Conditions

3.1 Soils

The WRCMSHCP has identified that sensitive plant species are associated with particular soil types. These soil types have been associated with Narrow Endemic and Criteria Area plant species' growth and survival and are considered a "sensitive" soil by the WRCMSHCP. These sensitive soil types include: Altamont clay, Altamont cobbly clay, Auld clay, Auld cobbly clay, Bosanko clay, Clay Pits, Domino silt loam, Porterville clay, Traver fine sandy loam, Traver loamy fine sand, and Willows silty clay (Riverside County 2004).

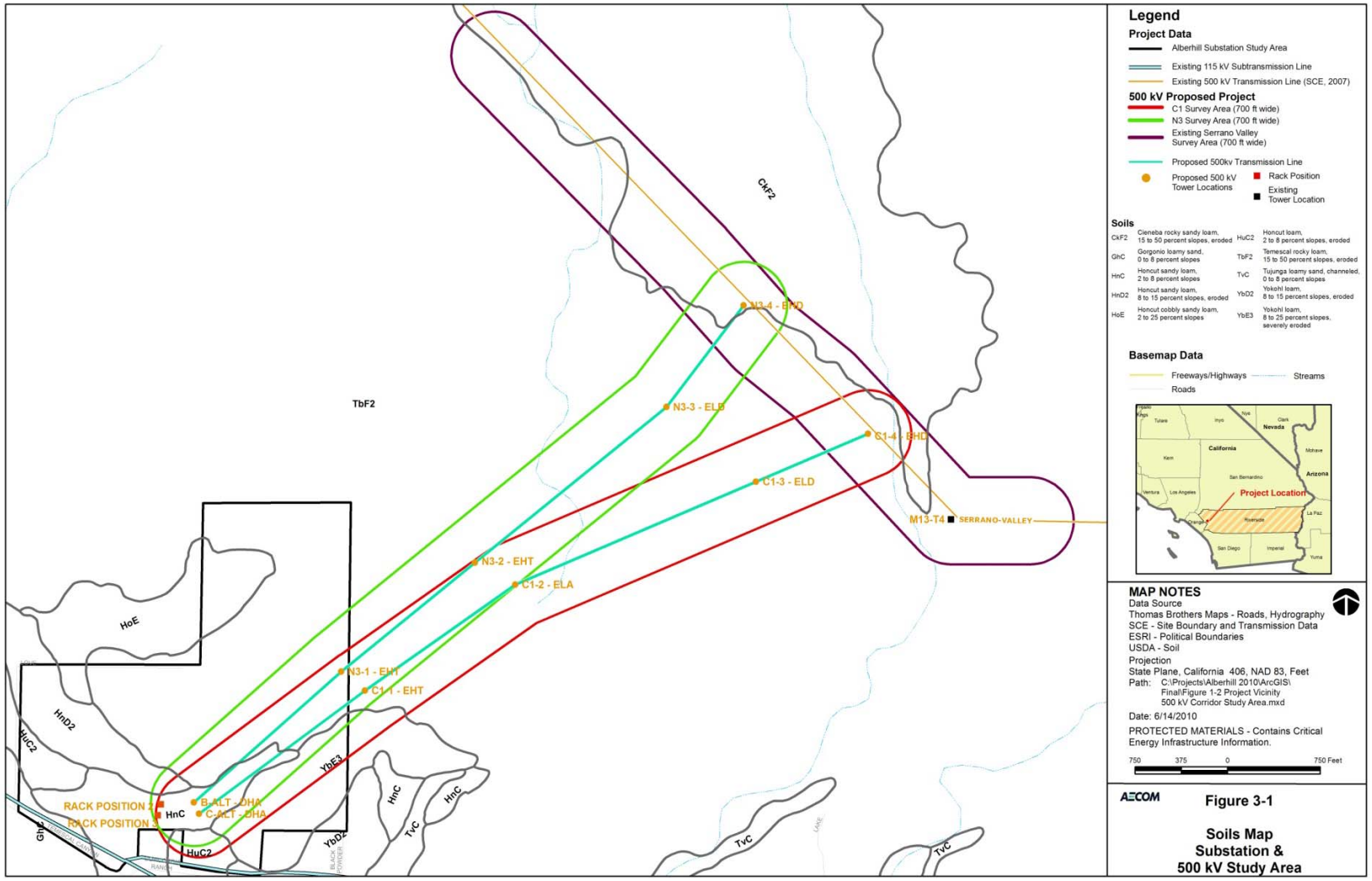
The U.S. Department of Agriculture (USDA) Websoil Survey was reviewed to identify the soil associations that occur within the Project site (USDA-NRCS, 2010). There were no sensitive soil types mapped within any of the survey areas. Soil associations within each of the survey areas are shown on Figures 3-1 and 3-2 and listed below.

3.1.1 Alberhill Substation Survey Area

- Gorgonio loamy sand, 0 to 8 percent slopes
- Honcut sandy loam, 2 to 8 percent slopes
- Honcut sandy loam, 8 to 15 percent slopes, eroded
- Honcut cobbly sandy loam, 2 to 25 percent slopes
- Honcut loam, 2 to 8 percent slopes, eroded
- Temescal rocky loam, 15 to 50 percent slopes, eroded
- Yokohl loam, 8 to 15 percent slopes, eroded
- Yokohl loam, 8 to 25 percent slopes, severely eroded

3.1.2 500 kV T/L Survey Area

- Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
- Temescal rocky loam, 15 to 50 percent slopes, eroded
- Yokohl loam, 8 to 25 percent slopes, severely eroded
- Honcut loam, 2 to 8 percent slopes, eroded
- Honcut sandy loam, 2 to 8 percent slopes
- Honcut sandy loam, 8 to 15 percent slopes, eroded


Legend
Project Data
Alberhill Substation Study Area
Existing 115 kV Subtransmission Line
Existing 500 kV Transmission Line (SCE, 2007)
500 kV Proposed Project
C1 Survey Area (700 ft wide)
N3 Survey Area (700 ft wide)
Existing Serrano Valley Survey Area (700 ft wide)
Proposed 500kv Transmission Line
Proposed 500 kV Tower Locations
Rack Position
Existing Tower Location
Soils
CkF2 Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded
GhC Gorgonio loamy sand, 0 to 8 percent slopes
HnC Honcut sandy loam, 2 to 8 percent slopes
HnD2 Honcut sandy loam, 8 to 15 percent slopes, eroded
HoE Honcut cobbly sandy loam, 2 to 25 percent slopes
HuC2 Honcut loam, 2 to 8 percent slopes, eroded
TbF2 Temescal rocky loam, 15 to 50 percent slopes, eroded
TvC Tujunga loamy sand, channeled, 0 to 8 percent slopes
YbD2 Yokohl loam, 8 to 15 percent slopes, eroded
YbE3 Yokohl loam, 8 to 25 percent slopes, severely eroded
Basemap Data
Freeways/Highways
Streets
Roads
Nevada
California
Arizona
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
USDA - Soil
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 1-2 Project Vicinity 500 kV Corridor Study Area.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
750 375 0 750 Feet
AECOM
Figure 3-1
Soils Map
Substation &
500 kV Study Area
N3-4 - EHD
N3-3 - ELD
C1-4 - EHD
C1-3 - ELD
M13-T4
SERRANO-VALLEY
N3-2 - EHT
C1-2 - ELA
N3-1 - EHT
C1-1 - EHT
B-ALT - DHA
C-ALT - DHA
RACK POSITION 2
RACK POSITION 3
CkF2
TbF2
HoE
HnD2
HuC2
YbE3
HnC
GhC
YbD2
TvC

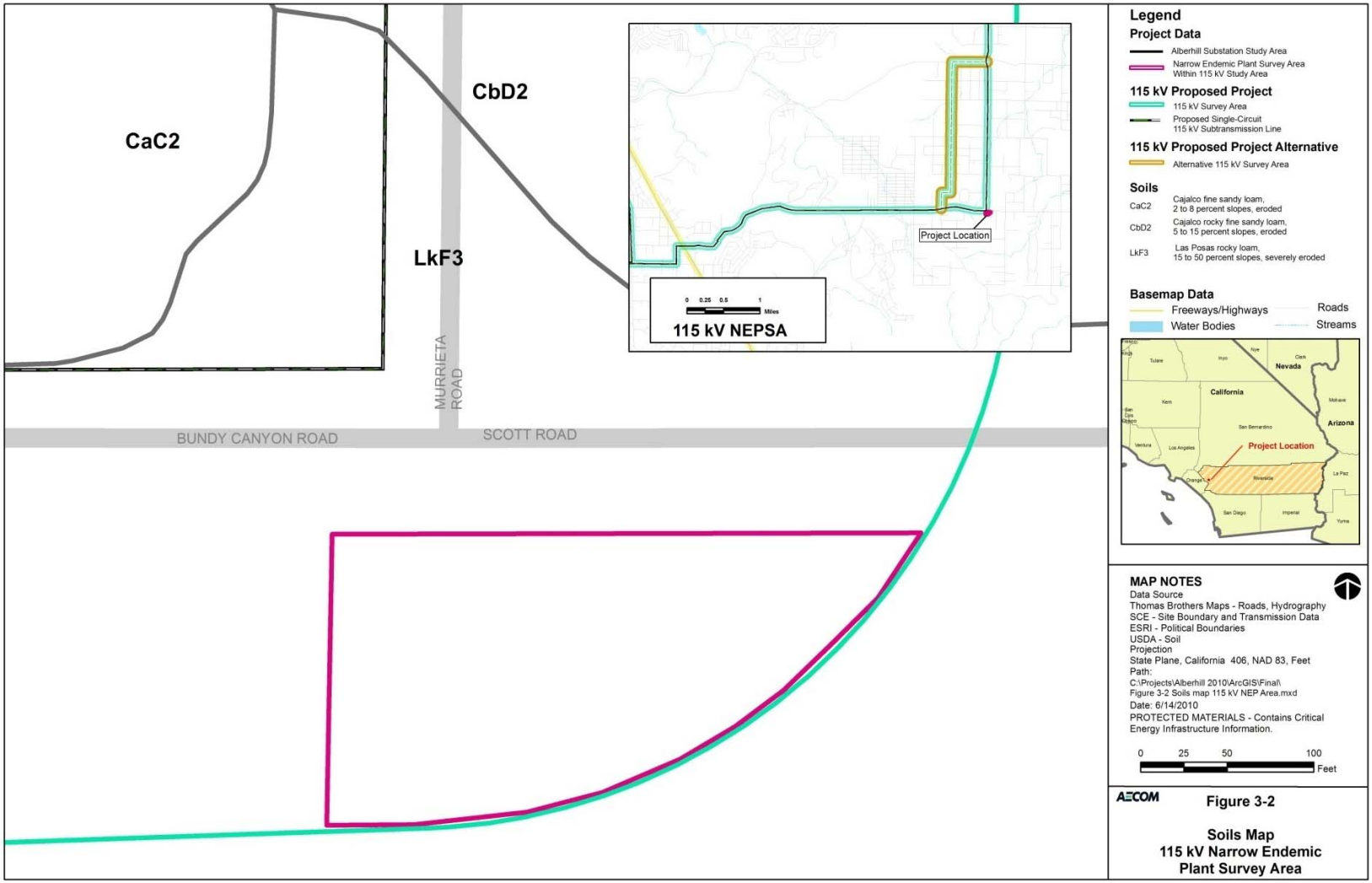

CaC2
CbD2
LkF3
MURRIETA ROAD
BUNDY CANYON ROAD
SCOTT ROAD
Project Location
115 kV NEPSA
Legend
Project Data
Alberhill Substation Study Area
Narrow Endemic Plant Survey Area Within 115 kV Study Area
115 kV Proposed Project
115 kV Survey Area
Proposed Single-Circuit 115 kV Subtransmission Line
115 kV Proposed Project Alternative
Alternative 115 kV Survey Area
Soils
CaC2 Cajalco fine sandy loam, 2 to 8 percent slopes, eroded
CbD2 Cajalco rocky fine sandy loam, 5 to 15 percent slopes, eroded
LkF3 Las Posas rocky loam, 15 to 50 percent slopes, severely eroded
Basemap Data
Freeways/Highways
Roads
Water Bodies
Streams
Nevada
California
Arizona
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
USDA - Soil
Projection
State Plane, California 406, NAD 83, Feet
Path:
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Figure 3-2 Soils map 115 kV NEP Area.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
0 25 50 100
Feet
AECOM
Figure 3-2
Soils Map
115 kV Narrow Endemic
Plant Survey Area

3.1.3 115 kV Sub T/L Survey Area

- Las Posas rocky loam, 15 to 50 percent slopes, severely eroded

3.2 Vegetation Communities

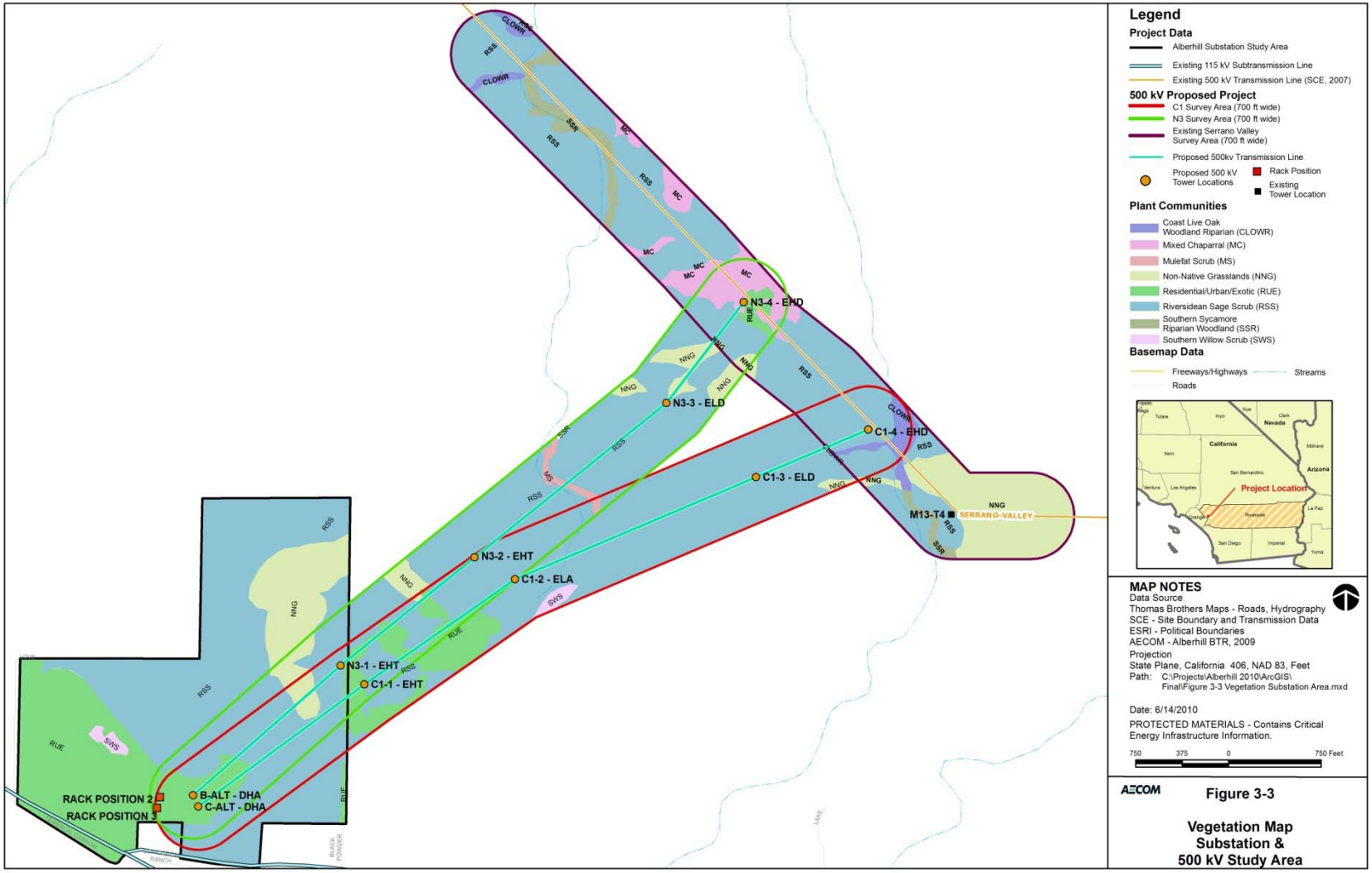
Nine vegetation communities were identified and classified by dominance of perennial species throughout the Project Area during the 2009 Biological Technical Surveys (AECOM 2009b). The vegetation community descriptions provided in this report are general and based upon *WRCMSHCP Volume II-Section C; Habitat Accounts* (Riverside County, 2003). Listed below are the WRCMSHCP descriptions for the recorded vegetation communities observed within each of the survey areas, as well as a brief description of vegetation observed within each of the vegetation communities during the 2010 surveys. See Figures 3-3 and 3-4 for vegetation community maps of each of the survey areas. A plant compendium of vascular plants observed within the Project Area components can be found in Appendix B for the substation and 500 kV and 115 kV areas.

3.2.1 Chamise Chaparral

Chamise chaparral is open to dense and between 1 to 4 meters in height, with little litter and few understory species in mature stands. Recent studies describe this association as having greater than 60 percent cover chamise (*Adenostoma fasciculatum*). Where other species occur at greater than 30 percent cover but chamise remains the dominant cover, the stands are described as a mixed series (e.g., chamise-bigberry, chamise-black sage, chamise-cupleaf ceanothus, chamise-Eastwood's manzanita, etc.). Evergreen species that commonly occur at less than 30 percent cover within chamise chaparral in the WRMSHCP area include bigberry manzanita (*Arctostaphylos glauca*), Eastwood's manzanita (*Arctostaphylos glandulosa*), mission manzanita (*Xylococcus bicolor*), scrub oak (*Quercus berberidifolia*), interior live oak (*Quercus wislizeni*), hoaryleaf ceanothus (*Ceanothus crassifolius*), our Lord's candle (*Yucca whipplei*), laurel sumac (*Malosma laurina*), sugar bush (*Rhus ovata*), toyon (*Heteromeles arbutifolia*), yerba santa (*Eriodictyon crassifolium* and *E. trichocalyx*), redberry (*Rhamnus ilicifolia*), and chaparral beard-tongue (*Keckiella antirrhinoides*).

Chamise chaparral often supports a low cover of shrubs characteristic of coastal sage scrub (e.g., black sage [*Salvia mellifera*], California buckwheat [*Eriogonum fasciculatum*], California sagebrush [*Artemisia californica*], and saw-toothed goldenbush *[Hazardia squarrosa*]). Perennial herbaceous species are few in mature stands of chamise chaparral; but cudweed (*Gnaphalium* spp.), *Sanicula* spp., southern taushia (*Tauschia arguta*), California melic (*Melica imperfecta*), lilac mariposa (*Calochortus splendens*), Bigelow's spike-moss (*Selaginella bigelovii*), and other post burn or gap specialist annuals (e.g., *Phacelia* spp., whispering bells [*Emmenanthe pendulaflora*], *Cryptantha* spp., *Plagiobothrys* spp., spineflower, evening-primrose [*Camissonia* spp.], and *Pterostegia drymarioides*) may be present.

Chamise chaparral surveyed during the 2010 sensitive plant surveys was generally found to include the following dominant woody shrub species, chamise, hoaryleaf ceanothus, and California buckwheat (*Eriogonum fasciculatum* ssp. *foliolosum*)*..* Dominant annual understory species observed within this plant community included woolly sunflower (*Eriophyllum multicaule*)*, everlasting nest straw* (*Stylocline gnaphaloides*)*,* common cryptantha (*Cryptantha intermedia*)*,* sagebrush combseed (*Pectocarya linearis*)*,* redstem filaree (*Erodium cicutarium*)*,* sapphire woollystar (*Eriastrum sapphirinum*)*,* chaparral gilia (*Gilia angelensis*)*,* and miner's lettuce (*Claytonia parviflora*)*. Common grasses observed included red brome* (*Bromus madritensis* ssp. *rubens*)*,* rat tail fescue (*Festuca myuros*)*,* and slender fescue (*Festuca octoflora*)*.*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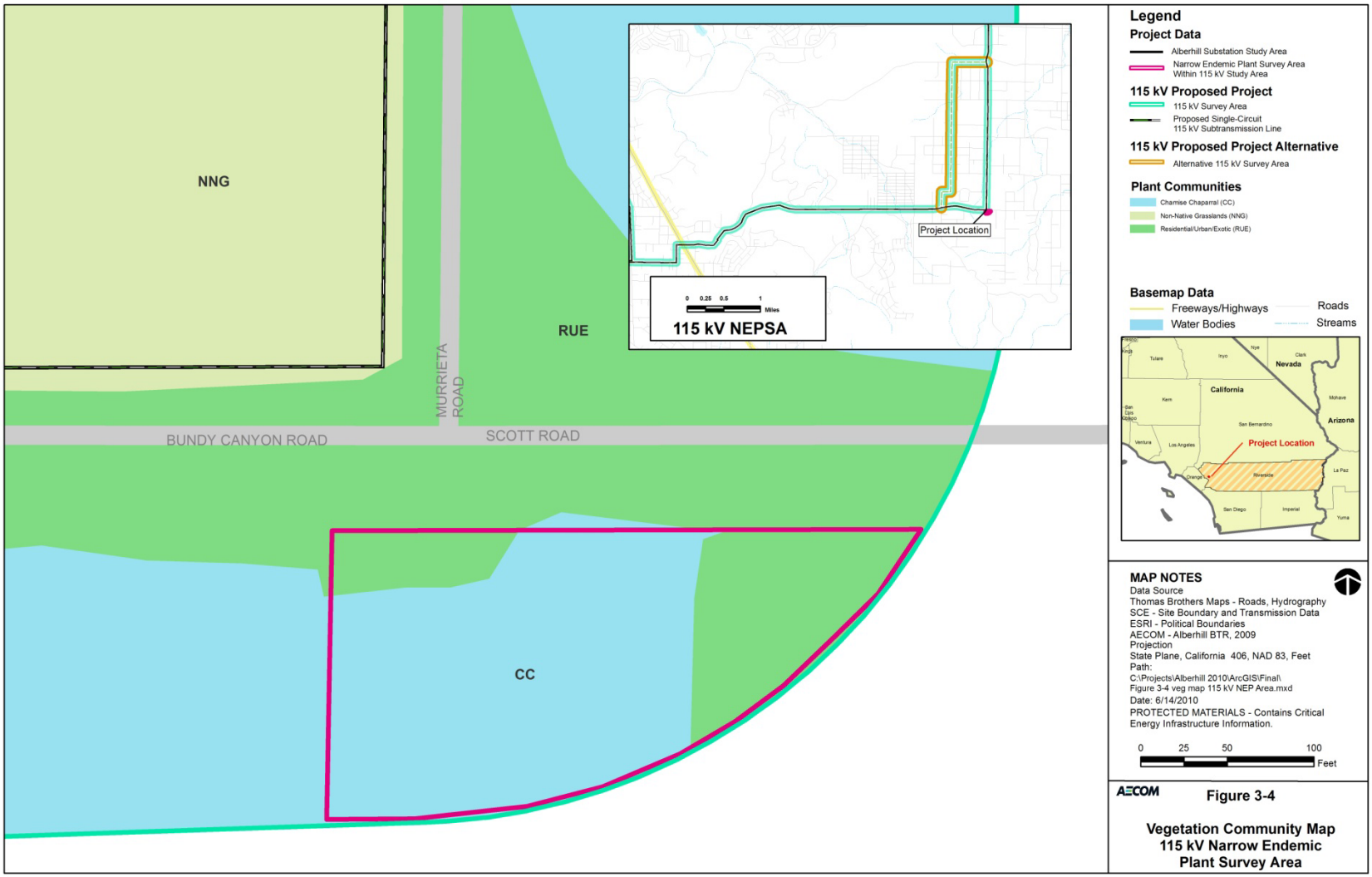
N3-3 - ELD
C1-4 - EHD
C1-3 - ELD
M13-T4
SERRANO-VALLEY
N3-2 - EHT
C1-2 - ELA
N3-1 - EHT
C1-1 - EHT
RACK POSITION 2
RACK POSITION 3
B-ALT - DHA
C-ALT - DHA
Legend
Project Data
Alberhill Substation Study Area
Existing 115 kV Subtransmission Line
Existing 500 kV Transmission Line (SCE, 2007)
500 kV Proposed Project
C1 Survey Area (700 ft wide)
N3 Survey Area (700 ft wide)
Existing Serrano Valley Survey Area (700 ft wide)
Proposed 500kv Transmission Line
Proposed 500 kV Tower Locations
Rack Position
Existing Tower Location
Plant Communities
Coast Live Oak Woodland Riparian (CLOWR)
Mixed Chaparral (MC)
Mulefat Scrub (MS)
Non-Native Grasslands (NNG)
Residential/Urban/Exotic (RUE)
Riversidean Sage Scrub (RSS)
Southern Sycamore Riparian Woodland (SSR)
Southern Willow Scrub (SWS)
Basemap Data
Freeways/Highways
Streams
Roads
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
AECOM - Alberhill BTR, 2009
Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 3-3 Vegetation Substation Area.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
750 375 0 750 Feet
AECOM
Figure 3-3
Vegetation Map
Substation &
500 kV Study Area


NNG
RUE
CC
MURRIETA ROAD
BUNDY CANYON ROAD
SCOTT ROAD
Project Location
0 0.25 0.5 1 Miles
115 kV NEPSA
Legend
Project Data
Alberhill Substation Study Area
Narrow Endemic Plant Survey Area Within 115 kV Study Area
115 kV Proposed Project
115 kV Survey Area
Proposed Single-Circuit 115 kV Subtransmission Line
115 kV Proposed Project Alternative
Alternative 115 kV Survey Area
Plant Communities
Chamise Chaparral (CC)
Non-Native Grasslands (NNG)
Residential/Urban/Exotic (RUE)
Basemap Data
Freeways/Highways
Roads
Water Bodies
Streams
Nevada
California
Arizona
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
AECOM - Alberhill BTR, 2009
Projection
State Plane, California 406, NAD 83, Feet
Path:
C:\Projects\Alberhill 2010\ArcGIS\Final\
Figure 3-4 veg map 115 kV NEP Area.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
0 25 50 100 Feet
AECOM
Figure 3-4
Vegetation Community Map
115 kV Narrow Endemic
Plant Survey Area

3.2.2 Coast Live Oak Woodland Riparian

Coast live oak woodland occurs on cooler, steeper slopes and will occur on terraces adjacent to the stream channels forming the interior of the woodland canopy. Coast live oak woodlands vary from savanna-like, with few to no woody associates, to dense woodlands. Coast live oak trees (*Quercus agrifolia*) can reach a canopy height of 30 meters but usually vary from 9 to 22 meters. Canopy coverage varies from continuous to open.

Understory plants in coast live oak woodland are shade tolerant. Understory composition includes wild blackberry (*Rubus ursinus*), gooseberry (*Ribes* spp.), toyon, manzanita (*Arctostaphylos* spp.), laurel sumac, and poison oak (*Toxicodendron diversilobum*). Characteristic herbaceous plants are polypody fern (*Polypodium californicum*), fiesta flower (*Pholistorma auritum*), and miner's lettuce.

Coast live oak woodland surveyed during the 2010 sensitive plant surveys was generally found to include the following dominant woody tree and shrub species, coast live oak, Mexican elderberry (*Sambucus mexicana*), laurel sumac*,* and poison oak*.* Dominant annual and perennial understory species observed within this plant community included hedge nettle (*Stachys ajugoides),* (*Pholistoma auritum*)*,* mugwort (*Artemisia douglasiana*)*,* cocklebur (*Xanthium strumarium*), watercress (*Rorippa nasturtium-aquaticum*), chickweed (*Stellaria media*), wild cucumber (*Marah macrocarpus*), annual stinging nettle (*Urtica urens*), and common monkeyflower (*Mimulus guttatus*). Common grasses observed included ripgut (*Bromus diandrus*)*.*

3.2.3 Mixed Chaparral

In the western portion of the WRMSHCP area (e.g., the Santa Ana Mountains, Agua Tibia Mountains) undifferentiated chaparral is dominated by chamise in drier habitats and by a more diverse mixture of species in more mesic areas (analogous to southern mixed chaparral, Holland 1986). Species composition ranges from that described for chamise chaparral (see above) to more diverse shrub associations supporting hoaryleaf ceanothus, toyon, sugar bush, holly-leaf redberry (*Rhamnus ilicifolia*), heart-leaved penstemon (*Keckiella cordifolia*), southern honeysuckle (*Lonicera subspicata*), scrub oak, black sage, and other species.

The central portion of the WRMSHCP area (*e.g.*, the Gavilan Hills, Sedco Hills, and Black Hills) where the 500 kV and 115 kV study areas occur, is lower in elevation and supports a drier expression of chaparral with abundant stands of chamise along with more arid climate chaparral species (e.g., jojoba [*Simmondsia chinensis*], chaparral beard-tongue, and desert thorn [*Lycium andersonii*]) and Riversidean Sage Scrub (e.g., brittlebush [*Encelia farinosa*], California buckwheat and white sage [*Salvia apiana*]). Mesic areas (e.g., north-facing slopes, narrow ravines) in this region support southern mixed chaparral or red shank chaparral.

Mixed chaparral surveyed during the 2010 sensitive plant surveys was generally found to include the following dominant woody shrub species, chamise, hoaryleaf ceanothus, black sage, deerweed (*Lotus scoparius*), California buckwheat, mountain mahogany (*Cercocarpus betuloides*), hollyleaf cherry (*Prunus ilicifoloia*), showy penstemon (*Penstemon spectabilis*), and chaparral mallow (*Malacothamnus fasciculatus*)*.* Dominant annual and perennial understory species observed within this plant community included royal goldfields (*Lasthenia coronaria*), white pincushion (*Chaenactis artemisiifolia*), California chicory (*Rafinesquia californica*), everlasting nest straw, popcornflower (*Plagiobothrys canescens*), stinging lupine (*Lupinus hirsutissimus*), annual lupine (*Lupinus bicolor*), filaree (*Erodium* sp.), chia (*Salvia columbariae*), and California sun cup (*Camissonia bistorta*).

3.2.4 Mulefat Scrub

Mulefat scrub is dominated by mulefat (*Baccharis salicifolia*), but may also include willows, sedges, and stinging nettle (*Urtica dioica*).

Mulefat scrub surveyed during the 2010 sensitive plant surveys was generally found to include the following dominant woody shrub species and annual and perennial understory species mulefat, annual burrweed (*Ambrosia acanthicarpa*), and telegraphweed (*Heterotheca grandiflora*).

3.2.5 Nonnative Grasslands

Nonnative grasslands primarily consist of annual grass species introduced from the Mediterranean basin and other Mediterranean-climate regions with variable presence of nonnative and native herbaceous species. Species composition of nonnative grasslands may vary over time and place based on grazing or fire regimes, soil disturbance, and annual precipitation patterns. Nonnative grasslands typically produce deep layers of organic matter which is inversely related to the abundance of nonnative and native forbs. Nonnative grasslands are likely to be dominated by several species of grasses, including slender oat (*Avena barbata*), wild oat (*Avena fatua*), fox tail chess (*Bromus madritensis*), soft chess (*Bromus hordeaceus*), ripgut grass, barley (*Hordeum* spp.), rye grass (*Lolium multiflorum*), English ryegrass (*Lolium perenne*), rat tail fescue, and Mediterranean schismus (*Schismus barbatus*), that have evolved to persist in concert with human agricultural practices. Nonnative grasslands also typically support an array of annual forbs from the Mediterranean climate regions (e.g., red-stemmed filaree, broad-lobed filaree [*Erodium botrys*], mustard [*Brassica* spp.], shortpod mustard [*Hirschfeldia incana*], wild radish [*Raphanus sativus*], *Centaurea* spp., Italian thistle [*Carduus pycnocephalus*], common catchfly [*Silene gallica*], *Medicago* spp., and *Hypochaeris* spp.). Low abundances of native species is sometimes observed within nonnative grasslands. Native species occurring in nonnative grasslands usually include disturbance specialists with several different growth forms: subshrubs (e.g., *Lotus* spp., *Eriogonum* spp., *Lessingia* spp., *Isocoma* spp., *Ericameria* spp.); cholla (*Opuntia* spp.); perennial geophytes (e.g., blue dicks); and herbaceous annuals (e.g., dove weed [*Eremocarpus setigerus*], vinegar weed [*Trichostemma lanceolatum*], and tarplant).

Nonnative grasslands surveyed were generally found to include the following dominant grass and annual herbaceous species, slender oat, wild oat, ripgut, red brome, rat tail fescue, foxtail barley (Hordeum murinum), redstem filaree, tocalote (Centaurea melitensis), prickly lettuce (Lactuca serriola), shortpod mustard, fiddleneck (Amsinckia intermedia), dove weed, burclover (Medicago polymorpha), horehound (Marrubium vulgare), and cheeseweed (Malva parviflora).Residential/Urban/Exotic.

Developed areas are lands that are permanently altered by human activities. These areas include roads, buildings, and associated areas where native plant communities cannot become or are prevented from becoming re-established. Developed areas include all existing facilities, access roads (paved and dirt), and actively managed areas (i.e., fire breaks and staging areas). Although these areas may at times contain vegetation, they are routinely mowed or cleared to preclude further vegetation establishment or for brush clearance, per local fire ordinance requirements. The ruderal plant community occurs in areas exhibiting a high level of disturbance, where natural colonization has favored nonnative weedy forbs (herbaceous nongrass species) and nonnative grasslands that are adapted to a regime of frequent disturbances.

The following four categories are also included as a component of this plant community: tree grove, street strip, shade tree/lawn, and shrub cover. Tree groves are in parks, green-belts, and cemeteries where a continuous or intermittent canopy is formed, and ground coverage varies (McBride and Reid 1988). Street strips and shade trees and lawns generally do not have a continuous cover and vary

widely in species and structure. These two categories are distinguished by their location. Shrub cover is the most limited vegetation type, also occurring as a variety of species and structures. A result of these largely ornamental plantings is the establishment of escaped exotics, defined as species originally planted for ornamental or agricultural purposes, which have invaded historically natural plant communities. Some commonly escaped exotic species include: acacias (*Acacia* spp.), pepper-trees (*Schinus* spp.), pampas grass (*Cortaderia* spp.), and English ivy (*Hedera helix*).

In addition to the vegetation community types listed above, many areas do not support any vegetation.

Weed communities are also common in urban areas, often occurring on roadsides and abandoned areas. In larger areas, these weed populations may represent the early stages of natural succession. Some of these areas are known as ruderal communities. A ruderal community occupies waste areas and roadsides, often on heavily compacted soils having little available oxygen. Typical species include wild oat, bromes, tocalote, mustard, pineapple-weed (*Chamomilla suaveloens*), common knotweed (*Polygonum aviculare*), sowthistle (*Sonchus oleraceus*), horseweed (*Conyza canadensis*), and goosefoot (*Chenopodium* spp.).

Residential urban and exotic areas surveyed during the 2010 sensitive plant surveys were generally found to include the following dominant woody tree and shrub species, red gum (Eucalyptus camaldulensis), sugargum (Eucalyptus cladocalyx), poplar box (Eucalyptus populnea), Canary Island pine (Pinus canariensis), Aleppo pine (Pinus halepensis), Italian stone pine (Pinus pinea), Peruvian peppertree (Schinus molle), catalpa (Catalpa sp), walnut (Juglans sp.) (cultivated), mulberry (Morus alba), and olive (Olea europaea). Dominant annual grasses annual herbaceous species observed within this plant community included ripgut, London rocket (Sisymbrium irio), horehound, pigweed amaranth (Amaranthus albus), and prickly lettuce.

3.2.6 Riversidean Sage Scrub

A majority of coastal sage scrub in Riverside County is contained in the Riversidean sub-association (Riverside County, 2003). Riversidean Sage Scrub typically is found on xeric sites, in most cases steep, south facing slopes with thin and or rocky soils (Riverside County, 2003). Sage scrub is often distributed in patches throughout its range (Riverside County, 2003). As expressed within the survey area, coastal sage scrub can be found in diverse habitat mosaics with other plant communities, particularly grassland and chaparral (Riverside County, 2003). Coastal sage scrub may convert to chaparral or grassland, depending on slope, aspect, climate, fire history, and other physical factors; conversely, chaparral or grassland areas may convert to coastal sage scrub (Riverside County, 2003).

A recent classification of sage scrub in western Riverside County has identified up to seven sub-associations based upon dominant shrub cover (Riverside County, 2003). These sub-associations include California sagebrush, California buckwheat, California sagebrush-California buckwheat, California sagebrush-white sage, brittlebush, black sage, and California broom (Riverside County, 2003).

Riversidean sage scrub surveyed during the 2010 sensitive plant surveys was generally found to include the following dominant woody shrub species, brittlebush, California sagebrush, deerweed, California buckwheat, sweetbush (*Bebbia juncea*), Palmer's goldenbush (*Ericameria palmeri*), morning glory (*Calystegia macrostegia*), laurel sumac (scattered), black sage , wishbone bush (*Mirabilis laevis*). Dominant annual and perennial understory species observed within this plant community included common tarweed (*Hemizonia fasciculata*), Kellogg's tarweed (*Hemizonia kelloggii*), fiddleneck, common cryptantha, sagebrush combseed, Cooper's popcornflower (*Plagiobothrys collinus*), filaree, spurge (*Euphorbia polycarpa*), Coulter's lupine (*Lupinus sparsiflorus*), annual lupine, common phacelia (*Phacelia distans*), and California bluebell (*Phacelia minor*). *Common*

grasses observed included ripgut. Ripgut, red brome, slender wild oat, one sided blue grass (*Poa secunda*), and California melic.

3.2.7 Southern Sycamore Riparian Forest

Below 2,000 meters in elevation, sycamores normally occur along seasonally-flooded banks with cottonwoods and willows. Poison oak, mugwort, Mexican elderberry, and wild raspberry may be present in the understory. Sycamores are able to withstand long periods of flooding.

Southern sycamore riparian forest surveyed during the 2010 sensitive plant surveys was generally found to include the following dominant woody shrub species and annual and perennial understory species sycamore (*Platanus racemosa*), poison oak, giant reed (*Arundo donax*), and mugwort.

3.2.8 Southern Willow Scrub (SWS)

Southern Willow Scrub is dominated by willow (*Salix* spp.) with gooseberry and Mexican elderberry. When disturbance is high within this habitat type, the dominant species typically is sandbar willow (*Salix exigua*). When disturbance is less, the dominance shifts to Goodding's black willow (*Salix gooddingii*). Willows are fast-growing and can reproduce vegetatively from root sprouts. Red willow (*Salix laevigata*) occupies fast-flowing perennial streams at elevations up to 1,200 meters and may occur with yellow willow (*Salix lasiandra*).

Yellow willow grows along stream channels and in perennially wet places at elevations below 2,500 meters. Sandbar willow occurs along sandbars and riverbeds at elevations below 900 meters. Arroyo willow (*Salix lasiolepis*) occupies habitat within perennial and intermittent stream channels at elevations up to 1500 meters. Goodding's black willow occurs along stream banks and in wet places within drier habitats at elevations below 450 meters.

Southern willow scrub surveyed during the 2010 sensitive plant surveys was generally found to include the following dominant woody shrub species and annual and perennial understory species Goodding's black willow, red willow, arroyo willow, mulefat, giant reed, ragweed (*Ambrosia psilostachya*), rush (*Juncus* sp.), poison oak, and willow dock (*Rumex salicifolius*).

3.3 Climate

Climate conditions within the Project Area are characterized as a semi-arid, Mediterranean-type, with hot, dry summers and a relatively wet rainy season during winter and spring. Temperatures during the summer may exceed 95°F, with August being the hottest month. Summer temperatures are usually combined with a relatively low humidity. Winter temperatures are maintained around 55°F with variable humidity, depending on the precipitation events. Precipitation is sporadic throughout the rainy season (November to May), with January usually being the wettest month.

According to the nearest weather station to the Project Area (Riverside, CA), the following are monthly temperature averages for the Lake Elsinore Area:

Table 3-1. Monthly averages for the region (Riverside, CA)

March	April	May	June
55°F	59°F	64°F	70°F

Source: www.weatherbase.com

*averages based on 59 years of data records.

The following table lists the monthly rainfall measurements during the 2009-2010 rainy season, according to the Riverside County Flood Control, Lake Elsinore Station (#67).

Table 3-2. 2009-2010 Monthly Rainfall Totals for the Project Area Based on the Lake Elsinore, CA Sampling Station #67 (Rainfall in inches)

July 2009	August 2009	September 2009	October 2009	November 2009	December 2009	January 2010	February 2010	March 2010	April 2010	May 2010	June 2010
0.02	0.05	0.05	0.14	0.03	1.33	5.15	1.43	0.08	0.76	0.02	*0.0

Source: Riverside County Flood Control, 2010
*Data collection error recorded from station 67 for 26 missing days in June 2010 (June 5-31). June 1-4, 2010 has not data associated with those days.

Riverside County Flood Control rainfall data collected from 2008-2009 in the Lake Elsinore area, the annual total rainfall for the 2008-2009 rainy season was approximately 8.00 inches (AECOM 2009). The annual total rainfall for the Lake Elsinore area for 2009-2010 was approximately 9.06 inches (Riverside County Flood Control 2010). The majority of rainfall occurred between December 2009 and February 2010 with additional light rainfall occurring in March and April of 2010.

Significant rains occurred immediately prior to the first survey period in March 2010. The majority of the rainfall during the 2009-2010 rainy season occurred between December and February, immediately prior to the germination and blooming period of most plant species. Last year's surveys resulted in fewer observations of sensitive plant species when compared with this year's results (AECOM 2009). It is highly probable that the precipitation and its distribution over the 2009-2010 rainy season was more conducive for germination of seedlings over what occurred in the 2008-2009 rainy season. In particular, a higher rainfall average in the months immediately prior to the first survey period conducted in March 2010 resulted in a higher germination rate when compared with last year's results.

4.0 Results

4.1 Survey Schedule and Environmental Conditions

Based on the target species' peak blooming periods, two survey periods were scheduled: one during early to mid spring, and the other during mid to late spring. The field survey days were:

- Survey period 1-March 29 and 31, April 1, 2, 5 through 7, 23, 26, and 27 for a total of eight survey days, and
- Survey period 2-May 17 through 21, and June 1 through 3 for a total of eight survey days.

Surveyors during the 2010 Alberhill sensitive plant surveys included: Andy Sanders, UCR Herbarium; Teresa Salvato, UCR Herbarium; Katie Kurtz, AECOM biologist; Jonas Winbolt, AECOM biologist; and Matthew Mallé, AECOM biologist. Appendix C contains a table that summarizes the number of surveyors and the hours each of the surveyors worked for each survey day. Table 4-1 below summarizes the environmental conditions recorded for each of the survey days.

Table 4-1. Environmental Conditions

Date	Time	Weather (°F)
3/29/2010	1000-1600	66/80, clear, calm winds
3/31/2010	0700-1530	60/65, overcast-foggy, calm winds. Broke to sunny, high clouds.
4/1/2010	0700-1530	50/65, overcast, calm winds
4/2/2010	0700-1530	60/70, clear, calm winds. Broke to sunny, high clouds.
4/5/2010	0700-1200	52/60, overcast, drizzle - rain, 1-3 mph wind from southeast.
4/6/2010	0700-1530	65/72, clear, calm winds
4/7/2010	0700-1530	65/77, clear, calm winds
4/23/2010	0800-1030	55/60, sunny, clear, calm winds
4/26/2010	0700-1530	70/87, sunny, clear, calm winds
4/27/2010	0800-1530	65/75, sunny, clear, calm winds
5/17/2010	0700-1530	59/67, overcast, slight breeze from northeast, 1-3 mph.
5/18/2010	0700-1530	57/65, cloud coverage 100%, Intermittent drizzle with calm winds to 3-5 mph winds from the northwest.
5/19/2010	0700-1530	65/80, slightly cloudy, calm winds
5/20/2010	0700-1530	65/84, slightly cloudy, calm winds.
5/21/2010	0600-1430	59/75, 40% cloud coverage, overcast to clear. 3-5 mph winds from east.
6/1/2010	0600-1430	60/79, sunny and clear, calm winds
6/2/2010	0600-1430	60/80, overcast to clear, calm winds.
6/3/2010	0900-1200	75, Sunny, clear, < 5% cloud coverage, 1-3 mph breeze from east.

4.2 Voucher Specimen Review

Voucher specimen review occurred on March 26, April 21, and May 11, 2010. All 22 specimens of sensitive plant species determined to have a moderate to high potential to occur within the Project Area were reviewed at the UCR herbarium.

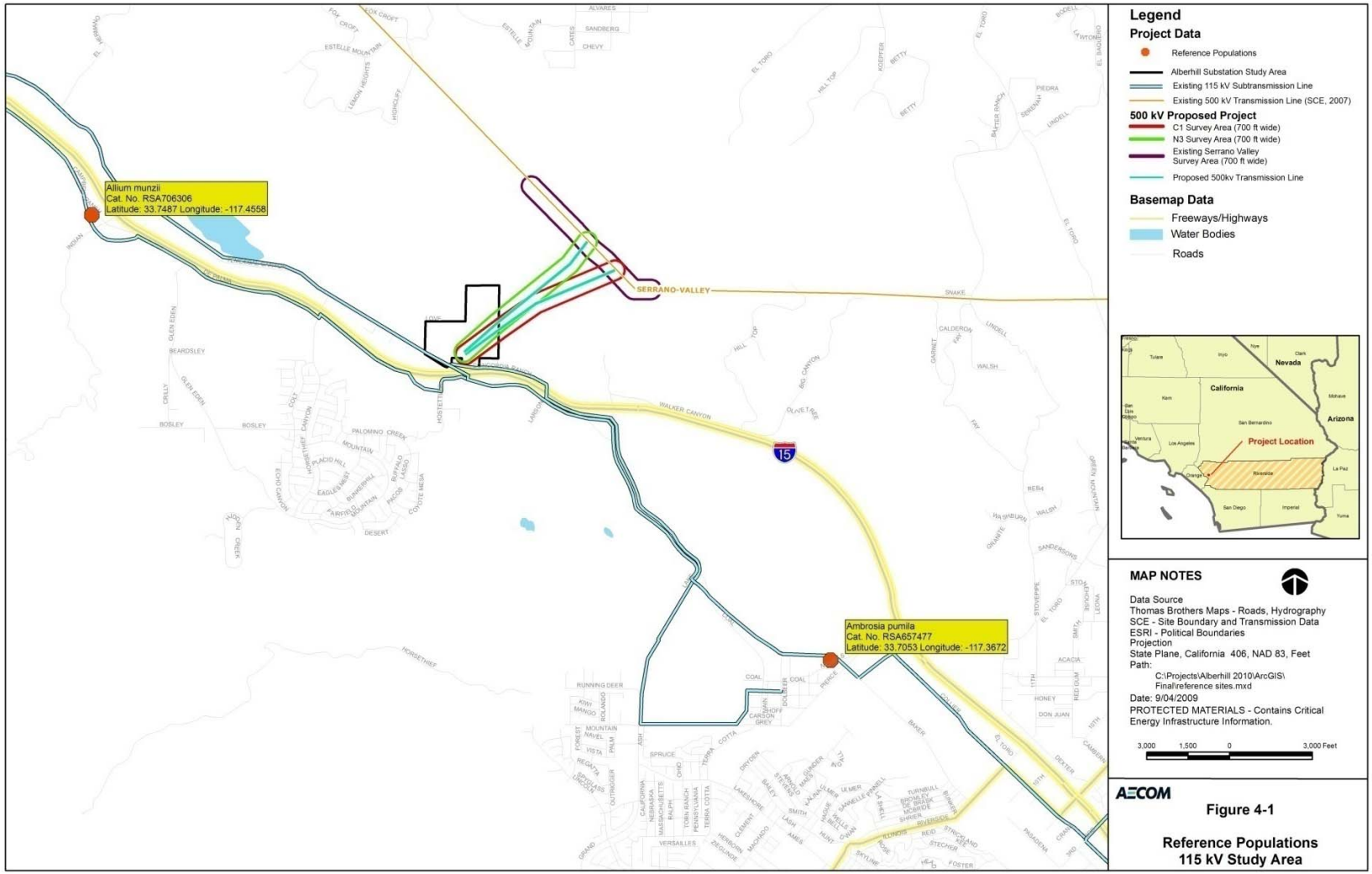
Voucher specimens reviewed include:

- Munz's onion (*Allium munzii*)
- San Diego ambrosia (*Ambrosia pumila*)
- round-leaved filaree (*California* [=*Erodium*] *macrophylum*)
- Plummer's Mariposa lily (*Calochortus plummerae*)
- intermediate Mariposa lily (*Calochortus weedii* var. *intermedius*)
- smooth tarplant (*Hemizonia [Centromadia] pungens ssp. laevis*)
- Payson's jewel flower (*Caulanthus simulans*)
- peninsular spineflower (*Chorizanthe leptotheca*)
- Parry's spineflower (*Chorizanthe parryi* var. *parryi*)
- long-spined spineflower (*Chorizanthe polygonoides var. longispina*)
- small-flowered morning glory (*Convolvulus simulans*)
- slender-horned spineflower (*Dodecahema leptoceras*)
- many-stemmed dudleya (*Dudleya multicaulis*)
- Palmer's grappling hook (*Harpagonella palmeri)*
- paniculate tarweed (*Dienandra (Hemizonia) paniculata*)
- Robinson's peppergrass (*Lepidium virginicum* var. *robinsoni*)
- small-flowered microseris (*Microseris douglasii* var. *platycarpha*)
- white rabbit-tobacco (*Gnaphalium* [*Pseudognaphalium] leucocephalum*)
- Coulter's matilijia poppy (*Romneya coulteri*)
- southern mountain skullcap (*Scutellaria bolanderi*)
- bottle liverwort (*Sphaerocarpos drewei*)
- San Bernardino aster (*Aster bernardinus*).

See Appendix D for a table summarizing each of the target sensitive plant species' regulatory status, blooming period, and habitat preferences.

4.3 Reference Population Survey

As mentioned previously, only reference populations for federal and state listed taxa were visited. Reference populations of Munz's onion and San Diego ambrosia were located on March 29, 2010, by UCR Herbarium botanist Teresa Salvato and AECOM biologists Matthew Mallé and Katie Kurtz (See Figure 4-1). A slender-horned spineflower reference population was not located prior to conducting the 2010 Alberhill sensitive plant surveys.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Ambrosia pumila
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SERRANO-VALLEY
WALKER CANYON
15
Legend
Project Data
Reference Populations
Alberhill Substation Study Area
Existing 115 kV Subtransmission Line
Existing 500 kV Transmission Line (SCE, 2007)
500 kV Proposed Project
C1 Survey Area (700 ft wide)
N3 Survey Area (700 ft wide)
Existing Serrano Valley Survey Area (700 ft wide)
Proposed 500kv Transmission Line
Basemap Data
Freeways/Highways
Water Bodies
Roads
Nevada
California
Arizona
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
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PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
3,000 1,500 0 3,000 Feet
AECOM
Figure 4-1
Reference Populations
115 kV Study Area

4.3.1 Munz's Onion Reference Population

The Munz's onion reference population that was visited is located within the Sycamore Canyon Nature Reserve (Catalog Number RSA706306). The specific location of the Sycamore Canyon Nature Reserve can be found on the Alberhill, CA 7.5 minute USGS topographic quadrangle (1980). The Sycamore Canyon Nature Reserve site is located within the northeast ¼ of Section 12, Township 5 South, Range 6 West. The elevation of the Munz's onion reference population is approximately 1,200 feet asl.

The Munz's onion reference population was located on the northwest corner of the intersection of Campbell Ranch Road and Indian Truck Trail; approximately 2.5 miles northwest of the proposed Alberhill Substation. Two distinct populations were delineated by exclusion fencing, with individual bulbs marked with pin flags. It is suspected that the reference population was part of a monitoring program associated with a revegetation effort. Munz's onion was generally in full bloom during the reference site visit. Approximately 25 individuals were observed between the two monitoring plots. Both populations were located on a gentle, south facing slope. Soils in the area were noted to be well developed clay containing rock-cobble. Associated native species noted during the visit include: California goldfields (*Lasthenia* sp.), tidy tips (*Layia platyglossa*), blue dicks (*Dichelostemma capitatum*), California plantain (*Plantago erecta*), and amsinckia *(Amsinckia* ssp.). Associated nonnative grass and herbaceous annuals observed include red brome, soft chess, and red-stemmed filaree.

Photos of the Munz's onion reference population and surrounding habitat can be found in Appendix A.

4.3.2 San Diego Ambrosia Reference Population

The San Diego ambrosia reference population that was visited is located along Nichols Road in the Lake Elsinore Area (Catalog Number RSA657477). The specific location of the San Diego ambrosia can be found on the Lake Elsinore, CA 7.5 minute USGS topographic quadrangle (1997). The San Diego ambrosia reference population is located within the southeast ¼ of Section 26, Township 5 South, Range 5 West. The elevation of the San Diego ambrosia reference population is approximately 1,340 feet asl.

The San Diego ambrosia reference population was observed within nonnative grassland habitat in a flat area north of Nichols Road, approximately 0.5 miles west of the intersection of Nichols Road and Collier Road. The San Diego ambrosia reference population is located approximately 3.2 miles southeast of the proposed Alberhill substation. Approximately 25 individual San Diego ambrosia plants were counted during the reference site visit. All individuals encountered were vegetative (non-blooming) but were identified in spite of the lack of flowering structures by UCR Botanist Teresa Salvato. Soils were noted to be well developed clay with rock. Associated nonnative grass and herbaceous annuals observed include foxtail (*Hordeum murinum*) and red-stemmed filaree.

Photos of the San Diego ambrosia reference population and surrounding habitat can be found in Appendix A.

4.4 Sensitive Plant Species Observed On Site

Five of the nineteen species with potential to occur within the Project Area were observed during the sensitive plant surveys conducted during Spring 2010. Below is a brief description of each of the observed sensitive plant species. Appendix E contains figures of the sensitive plant species locations observed within each of the survey areas.

Photos of survey areas and select photos of key species can be found in Appendix A.

4.4.1 Parry's spineflower (*Chorizanthe parryi* var. *parryi*)

Parry's spineflower is generally spreading to erect, from 0.5 to 4 cm in height. The stem is hairy, and leaf blades are 1 to 3 cm long and 0.4 to 0.8 cm wide. Inflorescence is characterized by generally 2 bracts and a whorl of 3 to 5 at the middle. The awns are straight and 1 to 3 mm long. The involucres awns are hooked. The 6 teeth are 1 to 2 mm long, the axial is long with awns from 0.5 to 1 mm. One flower is present and is 2.5 to 3mm wide and hairy, and the perianth is 2-colored with the floral tube green-white. The lobes are white, with the outer petal generally fringed, and the inner petal narrower and entire or toothed. Stamens are 9. The species is found in sand, from 90 to 800 m asl within the eastern Transverse Ranges and northwest edge of the Sonoran Desert. Blooming period is from May to June (Hickman, J.C. Ed. 1993, [online interchange 2010]).

4.4.2 Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*)

Long-spined spineflower (CNPS listed 1B.2) is generally a small, inconspicuous annual herb. The stem is prostrate, 1 to 15 cm, generally greenish or reddish in color, and soft to hairy. The leaf blade is usually 3 to 10 mm and thinly hairy. The inflorescence is bell-shaped, 3-angled, often reddish, and thinly hairy with prominent bracts. This particular variety's involucre (including awns) length is generally 3 to 4 mm, the tube is 1.5 to 2 mm, and its bracts sometimes only 3 mm, usually at a length of 2 to 3 mm including awns. This species is generally associated with chaparral habitat within the Peninsular Ranges (Hickman, J.C. Ed. 1993).

4.4.3 Paniculate tarweed (Deinandra [=Hemizonia] paniculata)

Paniculate tarweed (CNPS listed 4.2) is a small annual, 10 to 80 cm tall. It is generally bristly below and glandular above. The basal leaves are linear to oblanceolate (1 to 10 cm,), deeply toothed or lobed; upper leaves are linear and entire. Inflorescence heads are solitary, long-peduncled; involucres are generally 5 to 7 mm; and phyllaries are densely glandular. There are usually 8 to 13 ray flowers; each ligule 3.5 to 6 mm, and the color a deep yellow. There are usually 8 to 13 disk flowers, fertile or staminate, with yellow corollas and black anthers. The fruits of this species are usually 2.5 to 3 mm long and are beaked. This species is generally associated with dry foothills and mesas, within the South Coast and Southwest Peninsular Ranges (Hickman, J.C. Ed. 1993).

4.4.4 Robinson's peppergrass (*Lepidium virginicum* var. *robinsonii*)

Robinson's peppergrass (CNPS listed 1B.2) is an herbaceous annual defined by erect, pointed stems; usually 4-20 cm tall. Dense hairs are persistent on the stem, and leaves are cauline, divided, or lobed, with narrow segments, 1 to 2 mm wide. The inflorescence is described as a more or less flat pedicel, generally winged with hairs. The species is observed within dry soils, in scrub communities (characterized by *Encelia* sp.). Its elevation range is less than 500 m asl, and it is found throughout southwest California.

4.4.5 Coulter's Matilija poppy (Romneya coulteri)

Coulter's Matilija poppy (CNPS listed 4.2) is a subshrub-shrub in size, approximately 100 to 250 cm in height. The root system is composed of creeping rhizomes with a colorless sap. Leaves are cauline, gray-green-glaucus, with 3 to 5 deep lobes. Leaf shape is lanceolate to ovate. The flower size is the largest of any California plant. Buds are erect, with 3 sepals, 6 petals that are free, ovate, crinkled, white, and shed after fruiting. Many stamens are present and are free, and ovary chambers number 1 to 12. No style is present, and stigma lobes are 7 to 12. The fruits are oblong to ovate, dehiscent from the top, and bristly. The fruit size is 3 to 4 cm. Seeds are papillate and dark brown. The species

is found within dry canyon washes, below 1200 m asl. Blooming period is from March through July (Hickman, J.C. Ed. 1993, [online interchange 2010]).

4.5 Summary of Sensitive Plant Observations within Each of the Survey Areas

Five CNPS listed plant species were observed during Spring 2010 surveys within the proposed Project Areas. Discussed below are the observed sensitive plant species and a brief synopsis for the type of habitat where the species were found.

Tables 4-2 thru 4-4 are summary tables of the sensitive plant species observed within each of the survey areas. Each table provides the type and number of individual sensitive plant species recorded, the sensitive plant population identifier (directly linked to the figures of sensitive plant species locations and Native Sensitive Species Survey Forms found in Appendix E and F respectively), the coordinates used to define each sensitive plant population encountered, and a general description of the sensitive plant or plant population location in relation to each of the survey area project components and associated buffers.

Appendix F contains the completed California Native Species Survey Forms for each of the observed sensitive plant populations.

4.5.1 Substation

Three sensitive plant species (Robinson's peppergrass, long-spined spineflower, and paniculate tarplant) were observed on the proposed Alberhill Substation site.

One small population of Robinson's peppergrass was recorded on a steep, south facing slope above the existing developed portion of the site. Robinson's peppergrass was associated with rocky soils in areas between bushes in open stages of Riversidean Sage Scrub habitat.

Long-spined spineflower populations in the Alberhill Substation survey area are generally associated with previously disturbed habitat within Riversidean Sage Scrub. The long-spined spineflower was generally observed within clay-based soils and minimal vegetation.

Likewise, paniculate tarweed was noted to be located within disturbed habitat in a livestock grazing pen at the southeast corner of the Alberhill Substation survey area. The paniculate tarweed occupies a localized region along the hills within scattered drainage patterns.

Table 4-2 summarizes the observation of sensitive plant species within the Alberhill Substation survey area.

Table 4-2. Summary of Sensitive Plant Observations on the Alberhill Substation Site

Number of Individual Plants Observed/Population Identifier	Coordinates	General Location
Chorizanthe polygonoides* var. *longispina		
650/ 05-ChorPol_040510	33.738592°, -117.410569°; 33.738608°, -117.410483°; 33.738594°, -117.410422°; 33.738631°, -117.410367°; 33.738625°, -117.410333°; 33.738622°, -117.410289°; 33.738619°, -117.410239°; 33.738628°, -117.410086°; 33.738779°, -117.409964°; 33.738783°, -117.409891°; 33.738659°, -117.409944°; 33.738633°, -117.409808°; 33.738652°, -117.409636°; 33.738662°, -117.409447°; 33.738499°, -117.409539°; 33.738517°, -117.409692°; 33.738491°, -117.409958°; 33.738597°, -117.410011°	Along existing dirt road and within shallow clay lenses within sage scrub habitat at southern terminal end of the proposed access road to Tower N3-2.
Deinandra (=Hemizonia) paniculata		
1,700/ 12-HemPan-051910	33.735830°, -117.409522°; 33.735877°, -117.409271°	Population occurs within the southeast portion of the Alberhill Substation site. Also within the overlap of the southern end of the C1 and N3 alignment buffer.
1,200/ 13-HemPan-060110	33.736049°, -117.409013°; 33.736005°, -117.409228°	Population occurs within the southeast portion of the Alberhill Substation site. Also within the overlap of the southern end of the C1 and N3 alignment buffer.
320/ 14-HemPan-060110	33.735557°, -117.409509°; 33.735584°, -117.409415°; 33.735625°, -117.409340°; 33.735555°, -117.409145°; 33.735447°, -117.409291°; 33.735524°, -117.409362°	Population occurs within the southeast portion of the Alberhill Substation site. Also within the overlap of the southern end of the C1 and N3 alignment buffer.
17/ 15-HemPan-060110	33.735682°, -117.409798°	Population occurs within the southeast portion of the Alberhill Substation site. Also within the overlap of the southern end of the C1 and N3 alignment buffer

Table 4-2. Summary of Sensitive Plant Observations on the Alberhill Substation Site

Number of Individual Plants Observed/Population Identifier	Coordinates	General Location
420/ 16-HemPan-060110	33.735451°, -117.409708°; 33.735383°, -117.409863°; 33.735314°, -117.409721°; 33.735194°, -117.409640°; 33.735135°, -117.409563°	Population occurs within the southeast portion of the Alberhill Substation site. Also within the overlap of the southern end of the C1 and N3 alignment buffer
75/ 17-HemPan-060110	33.736033°, -117.408114°	Population occurs within the southeast portion of the Alberhill Substation site. Also within the overlap of the southern end of the C1 alignment buffer
14/ 18-HemPan-060110	33.735100°, -117.408226°	Population occurs within the southeast portion of the Alberhill Substation site.
660/ 20-HemPan-060110	33.736064°, -117.408757°; 33.735912°, -117.408727°; 33.735880°, -117.408662°; 33.735842°, -117.408650°; 33.735788°, -117.408674°; 33.735776°, -117.408752°; 33.735640°, -117.408863°; 33.735481°, -117.408824°	Population occurs within the southeast portion of the Alberhill Substation site. Also within the overlap of the southern end of the C1 and N3 alignment buffer
16/ 21-HemPan-060110	33.735637°, -117.408560°	Population occurs within the southeast portion of the Alberhill Substation site. Also within the overlap of the southern end of the C1 alignment buffer
Lepidium virginicum* var. *robisonii		
5/ 01-LepVir_040110	33.736873°, -117.411443°	Approximately 500 feet northeast and upslope of the already developed portions of the proposed substation site.

4.5.2 500 kV T/L Survey Area

Four sensitive plant species (Robinson's peppergrass, long-spined spineflower, Parry's spineflower, and Coulter's Matilija poppy) were observed within the 500 kV T/L survey area.

As in the case with the substation site, Robinson's peppergrass was generally observed along 30 to 40 percent, undisturbed slopes within open spaces between shrubs. Soils at most locations supporting Robinson's peppergrass were rocky, and some of the observed populations were associated with rock outcrops.

The long-spined spineflower and Parry's spineflower were generally observed within previously disturbed areas having compacted clay-based soils and minimal vegetation.

One population of Coulter's Matilija poppy was observed along the extreme southeast edge of the southern C1 survey area. This population is confined to the incised banks of a riparian area.

Table 4-3 summarizes the observations of sensitive plant species within the 500 kV T/L Survey Area.

Table 4-3. Summary of Sensitive Plant Observations within the 500 kV T/L Survey Area.

Number of Individual Plants Observed/Population Identification	Coordinates	General Location
Chorizanthe polygonoides* var. *longispina		
28/ 03-ChorPol_040510	33.738425°, -117.404775°; 33.738481°, -117.404486°; 33.738458°, -117.404161°; 33.738733°, -117.404086°	Along existing dirt road, within southern 1/3 portion of the C1 alignment buffer, approximately 750 feet northeast of Tower C1-1
70 02-ChorPol_040510	33.737408°, -117.406336°; 33.737678°, -117.405683°; 33.737513°, -117.406160°; 33.737620°, -117.405536°; 33.737426°, -117.405939°; 33.737392°, -117.406180°; 33.737228°, -117.406148°; 33.737273°, -117.406419°	On a previously graded pad and adjacent southwest facing slope; approximately 220 feet southeast of Tower C1-1.
78/ 04-ChorPol_040510	33.738103°, -117.406847°; 33.738075°, -117.406811°; 33.737939°, -117.406789°; 33.737911°, -117.406792°; 33.737842°, -117.406875°; 33.737867°, -117.406428°; 33.737913°, -117.406409°	Along remnant dirt road and within upland swale area adjacent to (northwest to southeast) Tower C1-1.
50/ 11-ChorPol-052110	33.737528°, -117.409683°; 33.737547°, -117.409730°	Population occurs within thin the southern end of the N3 alignment buffer.
Chorizanthe parryi* var. *parryi		
260/ 24-ChorPar-051710	33.744328°, -117.391738°; 33.744273°, -117.391415°; 33.744307°, -117.391415°; 33.744321°, -117.391332°	Population occurs within and adjacent to the northern portion of the pull location associated with the C1 alignment
Lepidium virginicum* var. *robinsonii		
55/ 06-LepVir_040610	33.743964°, -117.399600°; 33.743956°, -117.399481°	Population occurs within the N3 alignment, approximately 270 feet southwest of Tower N3-3.

Table 4-3. Summary of Sensitive Plant Observations within the 500 kV T/L Survey Area.

Number of Individual Plants Observed/Population Identification	Coordinates	General Location
500/ 07-LepVir_040610	33.742711°, -117.395683°	Population occurs on a ridgeline, approximately 200 feet east of Tower C1-3
75/ 08-LepVir_040710	33.741939°, -117.391762°; 33.741861°, -117.391731°	Population occurs approximately 150 west of existing tower (M13-T4) location along the Serrano-Valley alignment.
300/ 09-LepVir-040710	33.743035°, -117.393696°; 33.743027°, -117.393049°	Population occurs within the C1 alignment buffer, in the northeast end, approximately 180 feet south of Tower C1-4
10/ 22-LepVir-040610	33.743703°, -117.393075°	Population occurs approximately 100 feet southeast of tower C1-4.
200/ 23-LepVir-051710	33.744094°, -117.390967°	Population occurs approximately 190 feet southeast of the pull location associated with the C1 alignment.
300/ 27-LipVir-051710	33.744011°, -117.393117°	Population occurs approximately 120 feet northeast of tower C1-4.
1/ 28-LepVir-051810	33.743111°, -117.405220°	Plant occurs approximately 2/10 of a mile northwest of Tower N3-2. Plant was observed outside the survey area.
Romneya coulteri		
500/ 10-RoCo-051810	33.739315°, -117.402377°; 33.739519°, -117.402338°	Along the northern bank of an upland swale within and adjacent to the C1 alignment buffer southern boundary. Approximately 350 feet southeast of Tower C1-2.

4.5.3 115 kV Sub T/L Survey Area

One sensitive plant species, Parry's spineflower was observed within the 115 kV NEPSA. Observations of Parry's spineflower in the 115 kV Sub T/L survey area were within open spaces between chamise in dense chaparral habitat. Soils within the 115 kV Sub T/L survey area are comprised of decomposed granite and compacted clay soils.

Table 4-4 summarizes the observations of this species within the 115 kV NEPSA.

Table 4-4. Summary of Sensitive Plant Observations within the 115 kV Sub T/L Survey Area.

Number of Individual Plants Observed/Population Identification	Coordinates	General Location
Chorizanthe parryi var. parryi		
10/ 19-ChorPar-060210	33.641135°, -117.206431°	Population occurs along the western boundary of the 115 kV NEPSA, approximately 130 feet south of Bundy Canyon Road (southern shoulder).
500/ 26-ChorPar-042310	N33 38.472, W117 12.399	Population occurs west of (~50 feet) the 115 kV NEPSA western boundary; approximately 100 feet south of Bundy Canyon Road (southern shoulder).

4.6 Voucher Sensitive Plant Species

Four voucher specimens of sensitive plant species were collected during the 2010 sensitive plant surveys. Species collected include Parry's spineflower, Robinson's peppergrass, and Coulter's Matilija poppy.

Table 4-5 summarizes the voucher specimens collected during the 2010 Sensitive Plant Species Surveys and provides the UCR Herbarium Collection Number for reference.

Table 4-5. Summary of Voucher Sensitive Plant Species Collected

Species	Collector	UCR Herbarium Collection Number
Parry's spineflower	Andy Sanders	38379 (500 kV T/L Survey Area) 38012 (115 kV NEPSA)
Robinson's peppergrass	Andy Sanders	38383 (500 kV T/L Survey Area)
Coulter's Matilja poppy	Andy Sanders	38409 (500 kV T/L Survey Area)

5.0 Discussion

The geographic distributions of plant species are determined by many factors. While history, geographic barriers, and isolations all influence the distribution of species, the ultimate determinant of where a taxon can be found is its inherited tolerance to environmental factors (Kruckeburg and Rabinowitz 1985). Robinson's peppergrass, long-spined spineflower, Parry's spineflower, and paniculate tarweed are considered edaphic sensitive plant species, often associated with open clay soils. Edaphic endemics may tolerate the unfavorable conditions where they typically occur, while they are excluded from more hospitable habitat due to competitive interactions with other species (McGraw and Levin, 1998). Soil requirements, shade intolerance, susceptibility to soil pathogens and low genetic diversity has been suggested as the root cause of the poor competitive abilities hypothesized for edaphic endemics (McGraw and Levin, 1998).

Robinson's peppergrass was not detected during the 2009 sensitive plant surveys but was identified in the 2009 sensitive plant species report as a species that had a moderate potential to occur. Morphological similarities between Robinson's peppergrass and the common peppergrass (*Lepidium nitidum*) both observed during the 2010 sensitive plant surveys, make it difficult to distinguish between the two and could explain why Robinson's peppergrass was not detected during the 2009 surveys. Additionally, even with ideal environmental conditions for the 2009/2010 blooming season, this species was detected in only a small portion of the substation survey area and scattered in isolated populations in the 500 kV survey area.

Long-spined spineflower, Parry's spineflower, and paniculate tarweed were often associated with generally barren areas caused by temporary impacts due to previous mechanical (e.g., graded area, abandoned road) or grazing-related disturbances. The occurrences of these three sensitive plant species within the disturbed open habitats could suggest that these species are unable to compete for light, which could explain their restriction to monospecific stands or open areas within the Project Area (McGraw and Levin, 1998).

Both long-spined spineflower and paniculate tarweed populations (2010) on the Alberhill Substation study area were previously recorded within the same regional area during the 2009 sensitive plant surveys. Each of the previously recorded populations was determined to be more extensive during the 2010 sensitive plant survey when qualitatively compared to the 2009 survey results (AECOM 2009).

Both Robinson's peppergrass and Coulter's Matilija poppy were generally observed within undisturbed habitats, with Robinson's peppergrass preferring the open spaces between Riversidean Sage Scrub, and Coulter's Matilija poppy associated with the banks of upland drainages. Undetermined environmental factors are responsible for these species growing within the observed areas as opposed to unoccupied similar habitat within the Project Area.

6.0 Potential Impacts

This section provides a general discussion of potential for indirect and direct impacts to sensitive plant populations observed during the 2010 sensitive plant survey. The potential for impact is based on a comparison of the relative location of sensitive plant populations recorded during the 2010 sensitive plant surveys and the proposed location of the Alberhill System Project components.

6.1 Alberhill Substation Survey Area

The single detection of Robinson's peppergrass during the 2010 sensitive plant survey within the Alberhill Substation survey area was found outside the area of anticipated direct impact. The area of potential direct impact from the proposed Alberhill Substation is generally developed and disturbed;, Robinson's peppergrass is not expected to occur in generally developed and disturbed areas, therefore impacts to this species are not anticipated.

All populations of long-spined spineflower and paniculate tarweed within the Alberhill Substation survey area are outside the area of anticipated direct impact. In addition, the area of anticipated direct impact associated with the proposed Alberhill Substation is generally developed and continually disturbed; therefore, neither sensitive plant species is expected to occur within the area of anticipated direct impact.

6.2 500 kV T/L Survey Area

Populations of Robinson's peppergrass are likely to be threatened due to Project activities associated with the 500 kV Project components. Population of this sensitive plant species that are subject to direct and indirect impacts are those observed adjacent to the proposed locations for towers N3-3 and C1-1, as well as those seen in areas adjacent to the anticipated pull location associated with the C1 T/L.

Populations of long-spined spineflower and Parry's spineflower are likely to be threatened due to Project activities associated with the proposed 500 kV Project components. Population of these sensitive plant species that are subject to direct and indirect impacts are those observed adjacent to and within the proposed footprint of Tower C1-1, as well as those in areas adjacent to the anticipated pull location associated with the C1 T/L.

Impacts to the one Coulter's Matilija poppy population are not anticipated because it occurs outside the area of anticipated impact associated with the adjacent Tower C1-2.

6.3 115 kV Sub T/L Survey Area

Both populations of Parry's spineflower occur south of Bundy Canyon Road, across the street from the area of anticipated direct impact. Because Project activities are not anticipated within the NEPSA identified in the 115 kV Sub T/L survey area, impacts to Parry's spineflower are not anticipated.

7.0 Recommendations

AECOM recommends that a management strategy aimed at the maintenance of open areas in the Riversidean Sage Scrub habitats and within upland drainage areas in the Project Area be developed to reduce impacts to the sensitive plant species populations that have highest potential for impacts due to Project implementation.

The following discussion provides recommended avoidance and minimization measures based on potential impacts from construction-related activities on sensitive plant populations and native plant communities. The following measures are intended to avoid and minimize impacts to sensitive plant populations and native plant communities as much as feasible. These measures shall be reviewed by the regulatory agencies (i.e., USFWS, CDFG) prior to the start of construction.

7.1 Avoidance and Minimization Measures

The following avoidance and minimization measures are recommended to reduce impacts to sensitive plant species occurring within or adjacent to the proposed Project site during construction-related activities:

- A pre-construction survey should be conducted of all previously identified populations of sensitive plants located adjacent to construction-related activities (within a 100-foot buffer area) to identify areas for avoidance. The pre-construction survey shall be conducted in accordance with the guidelines issued by the regulatory agencies (USFWS and CDFG) and CNPS.

- Construction-related activities (grading, construction, ingress/egress, etc.) should be avoided within areas known to contain sensitive plant populations. Once identified, an Environmentally Sensitive Area (ESA) should be established around identified sensitive plant populations through installation of high visibility exclusion fencing. The locations of all ESAs should be shown on construction drawings and should contain clear language which prohibits construction-related activities in these areas.

- Construction-related dust control measures should be enforced in order to reduce impacts to sensitive plant species from dust accumulation. Dust control measures should include, at a minimum, enforcement of a 20-mile-per-hour (mph) speed limit within the Project Area and applying water to keep fugitive dust to a minimum.

- Construction-related activities (e.g., parking of construction vehicles, laydown areas, etc.) should be restricted as much as possible to already developed, disturbed, or low quality habitat areas (e.g., use of Nonnative Grassland areas).

7.2 Recommended Mitigation Measures

The avoidance and minimization measures described above are intended to reduce adverse impacts to sensitive plant populations and native plant communities. However, if adverse impacts are deemed unavoidable during construction-related activities, the following recommended measures are intended to mitigate for these direct and indirect impacts.

- A Habitat Restoration and Revegetation Plan (HRRP) should be prepared and implemented that includes restoration plans, enhancement/re-vegetation and/or mitigation banking options and details for a 1- to 5-year monitoring and maintenance effort. Prior to the start of construction, all sensitive plant communities and sensitive plant populations should be documented, and areas subject to disturbance should be calculated in acres.

    - Loss of on-site native plant communities could be mitigated by allocating remaining onsite native plant communities as a conservation easement. In addition, these onsite conservation easements could be improved by removing debris and controlling public access and could include the implementation of a habitat management plan.

- A Weed Management Plan (WMP) for potential spread of nonnative invasive species (weeds) due to construction-related activities should be prepared and implemented. The WMP should include, at a minimum, weed control treatments and pre-construction and construction-related measures to control the introduction and spread of nonnative species in the Project Area.

    - An invasive exotic plant management policy should be adopted and implemented as part of the WMP. The goals of the policy should include stopping further introductions of nonnative plant species into natural plant communities found on site, implementing exotic plant control measures in such a manner that native species and natural systems are not adversely impacted, and setting aside funding to adequately control the spread of invasive exotic species within less disturbed areas of the overall Project Area.

- A Worker Environmental Awareness Program (WEAP) should be implemented for all construction personnel by the Project biologist and biological monitor(s) prior to the start of construction-related activities. Training materials should include discussion of federal and state ESAs, the consequences of non-compliance with these regulations, and how to identify the sensitive plant species of concern. Participation in the WEAP would be a requirement prior to construction personnel being allowed to work in the field.

- A Project biologist and biological monitor(s) approved by SCE prior to the start of construction would oversee compliance with the HRRP, WMP, and WEAP training. The Project biologist and biological monitor(s) would have the authority to stop work that may result in the loss of sensitive plant species and/or non-compliance with measures contained in the HRRP and/or WMP.

- The biological monitor(s) would be onsite during construction-related activities that have the potential to impact known populations of sensitive plant species. The biological monitor(s) are required to be familiar with the sensitive plant species discussed in the HRRP, WMP, and WEAP training and would be able to perform pre-construction surveys to identify additional sensitive plant populations, if required.

    - Biological monitor(s) would be responsible for collecting data that would be submitted to SCE on a weekly basis for the duration of construction-related activities. Data collected would include, at a minimum, information on sensitive plant species observed and impacted, detection of nonnative species populations, and aspects of construction-related activities that may have impacts on sensitive plant populations.

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Appendix A
Photos

Appendix A-1
Reference Site Photographs
for Sensitive Plant Species

Photo 1. Munz's onion (*Allium munzii*) reference site located near the southeast corner of Campbell Ranch Road and Indian Truck Trail to the west of Interstate-15. Aspect northeast. March 29, 2010.

Photo 2. Munz's onion (*Allium munzii*) reference site located near the southeast corner of Campbell Ranch Road and Indian Truck Trail to the west of Interstate-15. Aspect northeast. March 29, 2010.

Photo 3. View of Munz's onion (*Allium munzii*), reference site located near the corner of Campbell Ranch Road and Indian Truck Trail to the west of Interstate-15. March 29, 2010

Photo 4. San Diego ambrosia (*Ambrosia pumila*) reference site located north of Nichols Road, approximately 0.5 miles west of the Nichols Road and Collier Road intersection. Aspect northeast. March 29, 2010.

Photo 5. View of San Diego ambrosia (*Ambrosia pumila*), reference site located north of Nichols Road, approximately 0.5 miles west of the Nichols Road and Collier Road intersection. March 29, 2010.

Appendix A-2
Photographs of Proposed Alberhill Substation Survey Area

Photo 1. Paniculate tarplant (*Dienandra* [*Hemizonia*] *paniculata*) observed in the southeast corner of the proposed Alberhill Substation survey area, north of Concordia Ranch Road. June 4, 2010.

Photo 2. Paniculate tarplant (*Dienandra* [*Hemizonia*] *paniculata*) population in background observed in Nonnative Grassland within the southeast corner of the proposed Alberhill Substation survey area, north of Concordia Ranch Road. Aspect west. June 4, 2010.

Photo 3. Paniculate tarplant (*Dienandra* [*Hemizonia*] *paniculata*) population observed in upland swale within Nonnative Grassland, north of Concordia Ranch Road. Aspect southwest. May 29, 2010.

Photo 4. Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*) observed in the northern portion of the proposed Alberhill Substation survey area. May 29, 2010.

Photo 5. Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*) habitat observed in Nonnative Grassland within the southeast corner of the proposed Alberhill Substation survey area. Aspect northeast. May 29, 2010.

Photo 6. Nonnative Grassland. Central portion of the proposed Alberhill Substation survey area. Aspect south. May 29, 2010.

Photo 7. Nonnative Grassland. Southeast corner of the proposed Alberhill Substation survey area. Aspect west. May 29, 2010.

Photo 8. Nonnative Grassland. View of the livestock pen in the right hand corner, within the proposed Alberhill Substation survey area. Aspect southeast. April 8, 2010.

Photo 9. Nonnative Grassland. View of the southeast portion of the proposed Alberhill Substation survey area. Aspect north. April 4, 2010.

Photo 10. Riversidean Sage Scrub. Drainage feature visible in left-hand foreground. View of the northeast portion of the proposed Alberhill Substation survey area. Aspect east. April 8, 2010.

Appendix A-3
Photographs of Proposed 500kV Transmission Line Survey Area

Photo 1. Coulter's matilija poppy (*Romneya coulteri*). Observed within the southeastern portion of the proposed C1Transmission Line survey area. June 4, 2010.

Photo 2. Coulter's matilija poppy (*Romneya coulteri*) was observed adjacent to Southern Willow Scrub in the western portion of the proposed 500kV Transmission Line survey area. Aspect east. June 4, 2010.

Photo 3. Robinson's peppergrass (*Lepidium virginicum* var. *robinsonii*) was observed within the northern portion of the proposed N3 Transmission Line survey area. April 6, 2010.

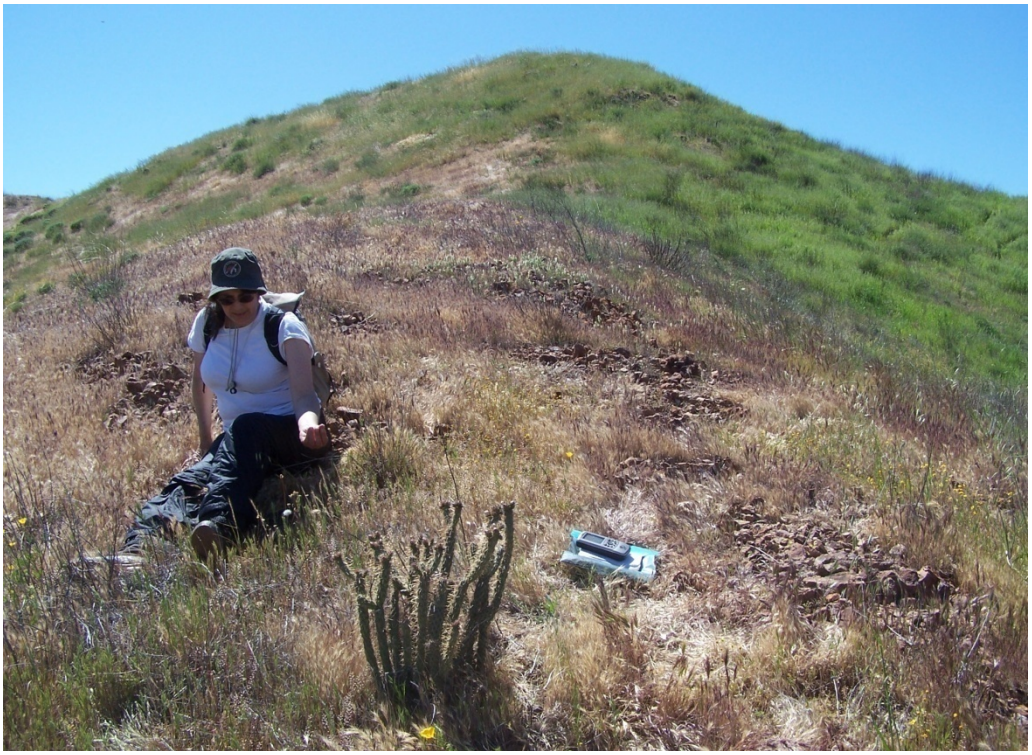


Photo 4. Robinson's peppergrass (*Lepidium virginicum* var. *robinsonii*) habitat observed in Riversidean Sage Scrub (Nonnative Grassland in background) within the northern portion of the proposed N3Transmission Line survey area. Aspect south. April 6, 2010.

Photo 5. Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*) was observed in the southern portion of the proposed C1 survey area. May 18, 2010.

Photo 6. Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*) habitat that was observed in northern portion of the Alberhill Substation survey area. May 18, 2010.

Photo 7. Parry's spineflower (*Chorizanthe parryi* var. *parryi*) was observed within a proposed pulling site associated with the northern portion of the C1 survey area. May 29, 2010.

Photo 8. Parry's spineflower (*Chorizanthe parryi* var. *parryi*) habitat adjacent to proposed pulling site associated with the northern portion of the C1 survey area. May 29, 2010.

Photo 9. Coast Live Oak Woodland Riparian/Mulefat Scrub observed within the northern portion of the proposed C1 survey area. April 8, 2010.

Photo 10. Coast Live Oak Woodland Riparian visible in background, Riversidean Sage Scrub visible in foreground. Observed within the existing Serrano-Valley Transmission Line survey area. Aspect northwest. April 6, 2010.

Photo 11. Mixed Chaparral observed within the northern portion of the proposed N3 survey area. Aspect northeast. April 8, 2010.

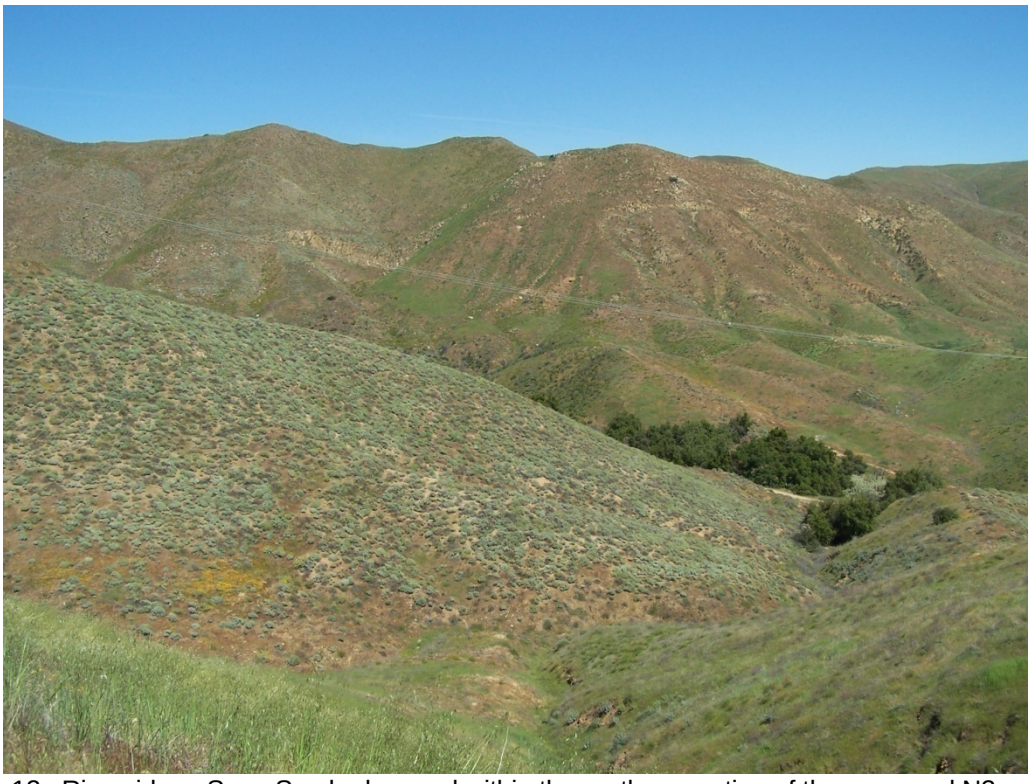


Photo 12. Riversidean Sage Scrub observed within the northern portion of the proposed N3 survey area. Aspect southwest. April 6, 2010.

Photo 13. Proposed tower location C1-1, aspect east. April 7, 2010.

Photo 14. Proposed tower location C1-2, aspect southeast. April 7, 2010.

Photo 15. Proposed tower location C1-3, aspect east. April 6, 2010.

Photo 16. Proposed tower location C1-4, aspect north. April 6, 2010.

Photo 17. Proposed tower location N3-1, aspect south. April 7, 2010.

Photo 18. Proposed tower location N3-2, aspect south. April 5, 2010.

Photo 19. Proposed tower location N3-3 in background on ridgeline, aspect south. April 6, 2010

Photo 20. Proposed tower location N3-4, aspect southwest. April 6, 2010

Photo 21. Proposed location of B and C Alt DHA within a livestock pen on the Alberhill Substation survey area, aspect south. April 7, 2010

Photo 22. Proposed Tensioning Rack 2 and 3 locations within a livestock pen on the Alberhill Substation survey area, aspect east. April 7, 2010

Appendix A-4
Proposed 115kV Transmission Line Survey Area

Photo 1. Parry's spineflower (*Chorizanthe parryi* var. *parryi*) observed within the proposed 115kV Transmission Line survey area. April 23, 2010.

Photo 2. Chamise Chaparral within the proposed 115kV Transmission Line survey area. Aspect northwest. April 23, 2010.

Photo 3. Chamise Chaparral observed within the proposed 115kV Transmission Line survey area. Aspect northwest. April 23, 2010.

Photo 4. Chamise Chaparral observed within the proposed 115kV Transmission Line survey area. Aspect east. April 23, 2010.

Photo 5. Chamise Chaparral in background, Nonnative Grassland in foreground, observed within the proposed 115kV Transmission Line survey area. Aspect east. April 23, 2010.

Appendix B
Plant Compendiums

Appendix B-1
Proposed Substation Survey Area and
Proposed 500kV Transmission Line Survey Area
Plant Compendium

Family Name	Full Scientific Name with Authors	Local Habit
Pteridaceae		
	Cheilanthes newberryi (D.C. Eat.) Domin.	perennial
	Pellaea andromedifolia (Kaulf.) Fée	perennial
	Pellaea mucronata (D.C. Eat.) D.C. Eat.	perennial
	Pityrogramma triangularis (Kaulfuss) Maxon	perennial
Selaginellaceae		
	Selaginella bigelovii Underw.	perennial
Cupressaceae		
	Juniperus californica Carr.	shrub
Pinaceae		
	Pinus canariensis C. Sm.*	tree (cultivated)
	Pinus halepensis Mill.*	tree (cultivated)
	Pinus pinea L.*	tree (cultivated)
Adoxaceae		
	Sambucus mexicana Presl.	shrub/tree
Amaranthaceae		
	Amaranthus albus L.*	annual
	Amaranthus blitoides S. Wats.	annual
Anacardiaceae		
	Rhus laurina Nutt. (=*Malosma laurina*)	shrub
	Schinus molle L.*	tree (cultivated)
	Toxicodendron diversilobum (Torr. & Gray) Greene	shrub/liana
Apiaceae		
	Apiastrum angustifolium Nutt.	annual
	Bowlesia incana Ruiz & Pavon	annual
	Daucus pusillus Michx.	annual
	Lomatium dasycarpum (Torr. & Gray) Coult. & Rose	perennial
	Sanicula arguta Greene ex C. & R.	perennial
	Sanicula bipinnatifida Dougl. ex Hook.	perennial
Asclepiadaceae		
	Sarcostemma cynanchoides Dcne.	perennial vine
Asteraceae		
	Acourtia microcephala DC.	perennial
	Ambrosia acanthicarpa Hook.	annual
	Ambrosia psilostachya DC.	perennial
	Artemisia californica Less.	shrub
	Artemisia douglasiana Bess.	perennial
	Artemisia dracunculus L.	perennial
	Baccharis salicifolia (Ruiz & Pavón) Pers.	shrub
	Bebbia juncea (Benth.) Greene var. *aspera* Greene	shrub
	Brickellia desertorum Coville	shrub
	Centaurea melitensis L.*	annual
	Chaenactis artemisiifolia (Harv. & Gray ex Gray) Gray	annual
	Chaenactis glabriuscula DC.	annual
	Cirsium vulgare (Savi) Ten.	annual
	Conyza canadensis (L.) Cronq.	annual
	Cotula australis (Sieber) Hook. f.*	annual
	Encelia farinosa Gray ex Torr. var. *farinosa*	shrub
	Ericameria palmeri (Gray) Hall var. *pachylepis* (Hall) Nesom	shrub
	Erigeron foliosus Nutt.	perennial

Family Name	Full Scientific Name with Authors	Local Habit
	Eriophyllum confertiflorum (DC.) Gray	subshrub
	Filago californica Nutt.	annual
	Filago gallica L.*	annual
	Gnaphalium bicolor Biol.	perennial
	Gnaphalium californicum DC.	biennial
	Gutierrezia californica (DC.) T. & G.	subshrub
	Hedypnois cretica (L.) Dum.-Cours.*	annual
	Helianthus annuus L.*	annual
	Helianthus gracilentus Gray	perennial
	Hemizonia fasciculata (DC.) Torr. & Gray	annual
	Hemizonia kelloggii Greene	annual
	Hemizonia paniculata Gray	annual
	Heterotheca grandiflora Nutt.	biennial
	Hypochaeris glabra L.*	annual
	Lactuca serriola L.*	annual
	Lasthenia coronaria (Nutt.) Ornd.	annual
	Lasthenia gracilis (DC.) Greene	annual
	Layia platyglossa (Fisch. & Mey.) Gray	annual
	Lessingia filaginifolia (H. & A.) M.A. Lane	perennial
	Malacothrix saxatilis (Nutt.) T. & G.	perennial
	Matricaria matricarioides (Less.) Porter (=*Chamomilla suaveolens*)*	annual
	Microseris heterocarpa (Nutt.) Chamb.	annual
	Microseris lindleyi (DC.) Gray (=*Uropappus lindleyi*)	annual
	Rafinesquia californica Nutt.	annual
	Senecio vulgaris L.*	annual
	Silybum marianum (L.) Gaertn.*	biennial
	Solidago californica Nutt.	perennial
	Sonchus asper (L.) Hill*	annual
	Sonchus oleraceus L.*	annual
	Stephanomeria exigua Nutt. ssp. *deanei* (J.F. Macbr.) Gottlieb	annual
	Stephanomeria virgata Benth. ?	annual
	Stylocline gnaphaloides Nutt.	annual
	Tetradymia comosa Gray	shrub
	Xanthium strumarium L.	annual
Bignoniaceae		
	Catalpa spp.*	tree (cultivated)
Boraginaceae		
	Amsinckia intermedia Fisch. & Mey. (=*Amsinckia menziesii intermedia*)	annual
	Amsinckia retrorsa Suksd. (=*Amsinkia menziesii menziesii*, in Jeps. Man.)	annual
	Amsinckia tessellata Gray	annual
	Cryptantha corollata (I.M. Johnston) I.M. Johnston	annual
	Cryptantha intermedia (Gray) Greene	annual
	Cryptantha microstachys (Greene ex Gray) Greene	annual
	Pectocarya linearis (R. & P.) DC.	annual
	Pectocarya penicillata (H. & A.) A. DC.	annual
	Pectocarya recurvata Jtn.	annual
	Plagiobothrys canescens Benth.	annual
	Plagiobothrys collinus (Phil.) Jtn.	annual

Family Name	Full Scientific Name with Authors	Local Habit
Brassicaceae		
	Brassica geniculata (Desf.) Ball (=*Hirschfeldia incana*)*	annual/perennial
	Brassica rapa L.*	annual
	Brassica tournefortii Gouan.*	annual
	Capsella bursa-pastoris (L.) Medik.*	annual
	Coronopus didymus (L.) Sm.*	annual
	Lepidium nitidum Nutt.	annual
	Lepidium virginicum L. var. *robinsonii* (Thell.) C. Hitchc.	annual
	Rorippa nasturtium-aquaticum (L.) Hayek*	perennial
	Sisymbrium irio L.*	annual
	Sisymbrium orientale L.*	annual
	Thysanocarpus curvipes Hook.	annual
	Thysanocarpus laciniatus Nutt.	annual
Cactaceae		
	Cylindropuntia californica (Torr. & A. Gray) F. M. Knuth (=*Opuntia parryi*)	succulent shrub
	Opuntia littoralis (Engelm.) Cockerell	succulent shrub
Caryophyllaceae		
	Cerastium glomeratum Thuill.*	annual
	Loeflingia squarrosa Nutt.	annual
	Silene antirrhina L.	annual
	Spergularia rubra (L.) J. Presl. & C. Presl.*	annual
	Stellaria media (L.) Villars*	annual
Chenopodiaceae		
	Atriplex suberecta I. Verd.*	annual
	Chenopodium berlandieri Moq.	annual
	Chenopodium murale L.*	perennial
	Salsola tragus L.*	annual
Convolvulaceae		
	Calystegia macrostegia (Greene) Brummitt ssp. *arida* (Greene) Brummitt	perennial vine
	Cuscuta californica Hook. & Arn.	annual vine
Crassulaceae		
	Crassula connata (R. & P.) Berger	annual
	Dudleya lanceolata (Nutt.) Britt. & Rose	perennial
	Dudleya pulverulenta (Nutt.) Britt. & Rose	succulent perennial
Cuscutaceae		
	Cucurbita foetidissima Kunth	perennial vine
	Cucurbita palmata S. Wats.	perennial vine
	Marah macrocarpus (Greene) Greene	perennial vine
Euphorbiaceae		
	Croton californicus Muell.-Arg.	perennial
	Croton setiger Hook. (=*Eremocarpus s.*)	annual
	Euphorbia albomarginata T. & G. (=*Chamaesyce a.*)	perennial
	Euphorbia polycarpa Benth. (=*Chamaesyce p.*)	perennial
	Ricinus communis L.*	shrub (weak)
Fabaceae		
	Astragalus gambelianus Sheldon	annual
	Lotus hamatus Greene	annual
	Lotus heermannii (Dur. & Hilg.) Greene	perennial
	Lotus humistratus Greene	annual

Family Name	Full Scientific Name with Authors	Local Habit
	Lotus salsuginosus Greene	annual
	Lotus scoparius (Nutt.) Ottley var. *brevialatus* Ottley	subshrub
	Lotus strigosus (Nutt.) Greene	annual
	Lupinus bicolor Lindl.	annual
	Lupinus concinnus Agardh.	annual
	Lupinus excubitus M.E. Jones	perennial
	Lupinus hirsutissimus Benth.	annual
	Lupinus sparsiflorus Benth.	annual
	Lupinus truncatus H. & A.	annual
	Medicago polymorpha L.*	annual
	Melilotus albus Medikus *	annual
	Melilotus indicus (L.) All.*	annual
	Parkinsonia aculeata L.*	tree (cultivated)
	Trifolium obtusiflorum Hook. f.	annual
	Trifolium willdenovii Spreng.	annual
Fagaceae		
	Quercus agrifolia Née	tree
	Quercus berberidifolia Liebm.	shrub
	Quercus virginiana P. Mill.*	tree (cultivated)
Geraniaceae		
	Erodium botrys (Cav.) Bertol.*	annual
	Erodium cicutarium (L.) L'Her. ex Ait.*	annual
	Erodium moschatum (L.) L'Her. ex Ait.*	annual
Hydrophyllaceae	*Emmenanthe penduliflora* Benth.	annual
	Eucrypta chrysanthemifolia (Benth.) Greene	annual
	Nemophila menziesii H. & A.	annual
	Phacelia campanularia Gray	annual
	Phacelia cicutaria Greene var. *hispida* (Gray) J.T. Howell	annual
	Phacelia distans Benth.	annual
	Phacelia minor (Harv.) Thell.	annual
	Pholistoma auritum (Lindl.) Lilja	annual
Juglandaceae	*Juglans hindsii* X regia*	tree (cultivated)
	Juglans regia L.*	tree (cultivated)
Lamiaceae	*Marrubium vulgare* L.*	perennial
	Salvia apiana Jeps.	shrub
	Salvia columbariae Benth.	annual
	Salvia mellifera Greene	shrub
	Stachys ajugoides Benth. ?	perennial
	Trichostema lanceolatum Benth.	annual
Malvaceae	*Malacothamnus fasciculatus* (Nutt.) Greene	shrub
	Malva parviflora L.*	annual
Moraceae	*Ficus carica* L.*	shrub/tree
	Morus alba L.*	tree (cultivated)
Myrtaceae	*Eucalyptus camaldulensis* Dehnh.*	tree (cultivated)
	Eucalyptus cladocalyx F. Muell.*	tree (cultivated)
	Eucalyptus populnea F. Muell.*	tree (cultivated)
Nyctaginaceae		
	Mirabilis laevis (Benth.) Curran	perennial
Oleaceae		
	Olea europaea L.*	tree (cultivated)

Family Name	Full Scientific Name with Authors	Local Habit
Onagraceae		
	Camissonia bistorta (Nutt. ex T. & G.) Raven	annual
	Camissonia californica (Nutt. ex T. & G.) Raven	annual
	Camissonia ignota (Jepson) Raven	annual
	Clarkia epilobioides (Nutt. ex T. & G.) Nels. & Macbr.	annual
	Clarkia purpurea (Curt.) A. Nels. & Macbr.	annual
	Epilobium ciliatum Raf.	annual/perennial
Papaveraceae		
	Eschscholzia californica Cham.	perennial/annual
	Platystemon californicus Benth.	annual
	Romneya coulteri Harv.	perennial
Plantaginaceae		
	Plantago erecta Morris	annual
Platanaceae		
	Platanus racemosa Nutt.	tree
Polemoniaceae		
	Allophyllum spp.	annual
	*Eriastrum sapphirinum (*Eastw.) Mason	annual
	Gilia angelensis V. Grant	annual
	Linanthus parviflorus (Benth.) Greene	annual
Polygonaceae		
	Chorizanthe coriacea Goodm.	annual
	Chorizanthe parryi S. Wats. var. *parryi*	annual
	Chorizanthe polygonoides var. *longispina* (Goodman) Munz	annual
	Eriogonum elongatum Benth.	perennial
	Eriogonum fasciculatum Benth. var. *foliolosum* (Nutt.) S. Stokes ex Abrams	shrub
	Eriogonum fasciculatum Benth. var. *polifolium* (A. DC.) T. & G.	shrub
	Eriogonum gracile Benth.	annual
	Polygonum aviculare L.*	annual
	Pterostegia drymarioides F. & M.	annual
	Rumex crispus L.*	perennial
	Rumex hymenosepalus Torr.	perennial
	Rumex salicifolius Weinm.	perennial
Portulacaceae		
	Calandrinia ciliata (R. & P.) DC.	annual
	Claytonia parviflora Dougl. ex Hook.	annual
	Claytonia perfoliata Donn ex Willd.	annual
Proteaceae		
	Grevillea robusta A. Cunningham ex R. Br.*	tree (cultivated)
Punicaceae		
	Punica granatum L.*	shrub
Ranunculaceae		
	Clematis pauciflora Nutt.	liana
	Delphinium parryi Gray	perennial
Rhamnaceae		
	Ceanothus crassifolius Torr.	shrub
	Rhamnus crocea Nutt.	shrub
	Ziziphus jujuba (L.) Lam.*	tree (persisting from cultivation)

Family Name	Full Scientific Name with Authors	Local Habit
Rosaceae		
	Adenostoma fasciculatum H. & A.	shrub
	Cercocarpus betuloides Torr. & A. Gray	shrub
	Prunus ilicifolia (Nutt.) Walp.	shrub
Rubiaceae		
	Galium angustifolium Nutt. ex Gray	perennial
	Galium aparine L.*	annual
Salicaceae		
	Populus fremontii S. Wats.	tree
	Salix gooddingii Ball.	tree
	Salix laevigata Bebb	tree
	Salix lasiolepis Benth.	shrub
Scrophulariaceae		
	Antirrhinum coulterianum Benth.	annual
	Antirrhinum nuttallianum Benth.	perennial
	Castilleja affinis H. & A.	perennial
	Castilleja exserta (Heller) Chuang & Heckard	annual
	Collinsia concolor Greene	annual
	Keckiella antirrhinoides (Benth.) Straw	shrub
	Mimulus aurantiacus Curtis var. *puniceus* (Nutt.) D. Thompson	shrub
	Mimulus brevipes Benth.	annual
	Mimulus cardinalis Benth.	perennial
	Mimulus guttatus DC.	perennial
	Penstemon spectabilis Thurb. ex Gray	perennial
Solanaceae		
	Datura wrightii Regel	perennial
	Lycium andersonii Gray	shrub
	Nicotiana glauca Grah.*	shrub
	Nicotiana quadrivalvis Pursh	annual
	Solanum douglasii Dunal	perennial
	Solanum esculentum L.*	annual/perennial
	Solanum umbelliferum Eschsch.	perennial
Tamaricaceae		
	Tamarix ramosissima Ledeb.*	shrub
Urticaceae		
	Parietaria hespera B. D. Hinton	annual
	Urtica dioica L.	perennial
	Urtica urens L.*	annual
Agavaceae		
	Yucca whipplei Torr.	perennial
Arecaceae		
	Washingtonia robusta H. A. Wendl.*	tree (cultivated)
Cyperaceae		
	Cyperus eragrostis Lam.	perennial
	Scirpus acutus Bigel. ?	perennial
Juncaceae		
	Juncus bufonius L.	annual
	Juncus macrophyllus Cov. ?	perennial
	Juncus textilis Buch.	perennial
	Juncus xiphioides E. Meyer	perennial

Family Name	Full Scientific Name with Authors	Local Habit
Liliaceae		
	Allium haematochiton S. Wats.	perennial
	Bloomeria crocea (Torr.) Coville	perennial
	Calochortus splendens Dougl. ex Benth.	perennial
	Calochortus weedii Wood var. *weedii*	perennial
	Dichelostemma capitatum (Benth.) Alph. Wood	perennial
	Muilla maritima (Torr.) S. Wats.	perennial
Poaceae		
	Arundo donax L.*	perennial
	Avena barbata Brot.*	annual
	Avena fatua L.*	annual
	Avena sativa L.*	annual
	Bromus diandrus Roth*	annual
	Bromus hordeaceus L.*	annual
	Bromus rubens L. (=*Bromus madritensis rubens*)*	annual
	Bromus tectorum L.*	annual
	Bromus trinii Desv.	annual
	Cynodon dactylon (L.) Pers.*	perennial
	Distichlis spicata (L.) Greene	perennial
	Elymus condensatus Presl (=*Leymus condensatus*)	perennial
	Elymus glaucus Buckl.	perennial
	Festuca microstachys Nutt. var. *pauciflora* Scribn. ex Beal	annual
	Festuca myuros L.*	annual
	Festuca octoflora Walt.	annual
	Hordeum murinum L.*	annual
	Lamarckia aurea (L.) Moench*	annual
	Melica frutescens Scribn.	perennial
	Melica frutescens X *imperfecta*	perennial
	Melica imperfecta Trin.	perennial
	Muhlenbergia microsperma (DC.) Kunth.	annual
	Phalaris minor Retz.*	annual
	Poa annua L.*	annual
	Poa secunda Presl.	perennial
	Polypogon monspeliensis (L.) Desf.*	annual
	Schismus barbatus (L.) Thell.*	annual
	Stipa lepida Hitchc. (=*Nassella lepida*)	perennial
	Stipa pulchra Hitchc. (=*Nassella pulchra*)	perennial
Typhaceae		
	Typha spp.	perennial
*=nonnative species		

Appendix B-2
Proposed 115kV Transmission Line Survey Area
Plant Compendium

Family Name	Full Scientific Name with Authors	Local habit
Asteraceae		
	Centaurea melitensis L.*	annual
	Erigeron foliosus Nutt.	perennial
	Eriophyllum confertiflorum (DC.) Gray	subshrub
	Eriophyllum multicaule (DC.) Gray	annual
	Filago californica Nutt.	annual
	Filago gallica L.*	annual
	Gnaphalium bicolor Biol.	perennial
	Gnaphalium californicum DC.	biennial
	Gnaphalium stramineum Kunth.	annual
	Helianthus gracilentus Gray	perennial
	Hemizonia paniculata Gray	annual
	Hypochaeris glabra L.*	annual
	Lasthenia coronaria (Nutt.) Ornd.	annual
	Lasthenia gracilis (DC.) Greene (=*L. californica*)	annual
	Lessingia filaginifolia (H. & A.) M.A. Lane	perennial
	Microseris lindleyi (DC.) Gray (=*Uropappus l.)*	annual
	Rafinesquia californica Nutt.	annual
	Senecio vulgaris L.*	annual
	Stephanomeria exigua Nutt.	annual (all either seedlings or old skeletons)
	Stylocline gnaphaloides Nutt.	annual
Boraginaceae		
	Amsinckia intermedia Fisch. & Mey.	annual
	Amsinckia retrorsa Suksd. ?	annual
	Cryptantha corollata (I.M. Johnston) I.M. Johnston ?	annual
	Cryptantha intermedia (Gray) Greene	annual
	Cryptantha microstachys (Greene ex Gray) Greene	annual
	Pectocarya linearis (R. & P.) DC.	annual
	Pectocarya penicillata (H. & A.) A. DC.	annual
	Plagiobothrys canescens Benth.	annual
	Plagiobothrys collinus (Phil.) Jtn.	annual
Brassicaceae		
	Brassica geniculata (Desf.) Ball (=*Hirschfeldia incana*)*	annual/perennial
	Sisymbrium altissimum L.*	annual
	Thysanocarpus curvipes Hook.	annual
	Tropidocarpum gracile Hook.	annual
Campanulaceae		
	Nemacladus ramosissimus Nutt.	annual
Caryophyllaceae		
	Loeflingia squarrosa Nutt.	annual
Crassulaceae		
	Crassula connata (R. & P.) Berger	annual
Cuscutaceae		
	Marah macrocarpus (Greene) Greene	perennial vine

Fabaceae		
	Lotus scoparius (Nutt.) Ottley ssp. *brevialatus* (Ottley) Munz	subshrub
Geraniaceae		
	Erodium botrys (Cav.) Bertol. ?*	annual
	Erodium cicutarium (L.) L'Her. ex Ait.*	annual
Hydrophyllaceae	*Eucrypta chrysanthemifolia* (Benth.) Greene	annual
	Phacelia cicutaria Greene var. *hispida* (Gray) J.T. Howell	annual
Lamiaceae		
	Salvia columbariae Benth.	annual
	Salvia mellifera Greene	shrub
Onagraceae		
	Camissonia hirtella (Greene) Raven	annual
Polemoniaceae		
	Eriastrum sapphirinum (Eastw.) Mason	annual
	Gilia angelensis V. Grant	annual
	Navarretia atractyloides (Benth.) H. & A.	annual
Polygonaceae	*Chorizanthe fimbriata* Nutt.	annual
	Chorizanthe parryi S. Wats. var. *parryi*	annual (one colony of c. 500)
	Eriogonum fasciculatum Benth. ssp. *foliolosum* (Nutt.) Abrams	shrub
	Eriogonum gracile Benth.	annual
	Pterostegia drymarioides F. & M.	annual
Portulaceae		
	Claytonia parviflora Dougl. ex Hook.	annual
Rhamnaceae		
	Ceanothus crassifolius Torr.	shrub
Rosaceae		
	Adenostoma fasciculatum H. & A.	shrub
Liliaceae		
	Dichelostemma capitatum (Benth.) Alph. Wood	perennial
Poaceae	*Avena barbata* Brot.*	annual
	Avena fatua L.*	annual
	Bromus diandrus Roth*	annual
	Bromus hordeaceus L.*	annual
	Bromus madritensis L. ssp. *rubens* (L.) Husnot*	annual
	Festuca microstachys Nutt. var. *pauciflora* Scribn. ex Beal (=*Vulpia m*.)	annual
	Festuca myuros L.* (=*Vulpia m*.)	annual
	Festuca octoflora Walt. (=*Vulpia o*.)	annual
	Schismus barbatus (L.) Thell.*	annual
*=nonnative species		

Appendix C
Summary of Survey Hours

Table C-1. March-April 2010 Sensitive Plant Survey, Summary of Survey Hours (Proposed Alberhill Substation Survey Area and Proposed 500kV Transmission Line Survey Area)

Date	Surveyors	Time
3/29/2010	Teresa Salvato Matt Mallé Katie Kurtz	1000-1600 hrs
3/31/2010	Andy Sanders Teresa Salvato Matt Mallé Katie Kurtz Jonas Winbolt	0700-1530 hrs
4/1/2010	Teresa Salvato Matt Mallé Katie Kurtz Jonas Winbolt	0700-1530 hrs
4/2/2010	Andy Sanders Teresa Salvato Matt Mallé Katie Kurtz Jonas Winbolt	0700-1530 hrs
4/5/2010	Teresa Salvato Matt Mallé Katie Kurtz Jonas Winbolt	0700-1200 hrs
4/6/2010	Teresa Salvato Matt Mallé Katie Kurtz Jonas Winbolt	0700-1530 hrs
4/7/2010	Andy Sanders Teresa Salvato Matt Mallé Katie Kurtz Jonas Winbolt	0700-1530 hrs
4/26/2010	Matt Mallé Katie Kurtz Jonas Winbolt	0700-1530 hrs
4/27/2010	Matt Mallé Katie Kurtz Jonas Winbolt	0800-1530 hrs

Table C-2. March-April 2010 Sensitive Plant Survey, Summary of Survey Hours (Proposed 115kV Transmission Line Survey Area)

Date	Surveyors	Time
4/23/2010	Andy Sanders Matt Mallé	0800-1030 hrs

Table C-3. May-June 2010 Sensitive Plant Survey, Summary of Survey Hours (Proposed Alberhill Substation Survey Area and Proposed 500kV Transmission Line Survey Area)

Date	Surveyors	Time
5/17/2010	Andy Sanders Teresa Salvato Matt Mallé Jonas Winbolt	0700-1530 hrs
5/18/2010	Andy Sanders Teresa Salvato Matt Mallé Jonas Winbolt	0700-1530 hrs
5/19/2010	Teresa Salvato Matt Mallé Jonas Winbolt	0700-1530 hrs
5/20/2010	Teresa Salvato Matt Mallé Jonas Winbolt	0700-1530 hrs
5/21/2010	Teresa Salvato Matt Mallé Jonas Winbolt	0600-1430 hrs
6/1/2010	Teresa Salvato Matt Mallé Jonas Winbolt	0600-1430 hrs
6/2/2010	Teresa Salvato Matt Mallé Jonas Winbolt	0600-1430 hrs

Table C-4. May-June 2010 Sensitive Plant Survey, Summary of Survey Hours (Proposed 115kV Transmission Line Survey Area)

Date	Surveyors	Time
6/3/2010	Teresa Salvato Matt Mallé	0900-1200 hrs

Appendix D
Sensitive Plant Species Tables

Appendix D-1
Target Sensitive Plant Species
Blooming Between March and April

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Allium munzii Munz's onion	FE/ST CNPS 1B.1	X	X	X	March-May	RSS/NNG/MC/ CC	X		Occurs in clay soils (within Western Riverside County unit Bosanko clay soils and Las Posas gravelly loam) within mesic sites in grassy openings within scrublands or woodlands. 297-1070 meters.
Ambrosia pumila San Diego ambrosia	FE CNPS 1B.1		X		April-Oct	RSS/MC/NNC/ CC/AS	X		Occurs in upland areas on clay slopes or dry margins of vernal pools. Often associated with open, gently-sloped grasslands, and generally found in alkaline soils. 20-415 meters.
Caulanthus simulans Payson's jewel flower	CNPS 4.2	X	X	X	Feb-June	RSS/MC/CC			Occurs in frequently burned areas or in other disturbed sites such as streambeds within chaparral and coastal scrub habitats.
Chorizanthe parryi var. *parryi* Parry's spineflower	CNPS 1B.1	X	X	X	April-June	RSS/NNG/CC/ MC			Occurs in coastal sage scrub and chaparral. Found on dry slopes and flats within dry sandy soils. 275-1220 meters.
Chorizanthe polygonoides var. *longspina* long-spined spineflower	CNPS 1B.2	X	X	X	April-July	RSS/NNG/MC/ CC			Occurs in clay soils within openings in chaparral, coastal scrub, meadows, valley/foothill grasslands. 30-1530 meters.
Convolvulus simulans small-flowered morning glory	CNPS 4.2		X	X	March-July	CC/MC/RSS/ NNG			Occurs within chaparral, sage scrub, and valley/foothill grassland habitat. Has an affinity to serpentine soil and associated seeps. 30-700 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Deinandra paniculata paniculate tarplant	CNPS 4.2		X	X	April-Nov	RSS/NNG			Occurs within dry foothills and mesas in sage scrub valley/foothill grasslands and non-native grasslands. Often associated with disturbed sites within these habitat types.
Dodecahema leptoceras slender-horned spineflower	FE/SE CNPS 1B.1		X	X	April-June	RSS/MC/CC/AS	X		Occurs within chaparral, sage scrub habitats. Flood deposited terraces and washes. Associations include *Encelia*, *Dalea*, *Lepidospartum*. 200-760 meters.
Dudleya multicaulis many-stemmed dudleya	CNPS 1B.2	X	X	X	April-July	RSS/NNG/MC/ CC	X		Occurs in heavy clay soils or grassy slopes in barrens, rocky places, and ridgelines chaparral, sage scrub and, valley/foothill grasslands. 15-790 meters.
Erodium (California) macrophyllum round-leaved filaree	CNPS 1B.1	X	X	X	March-May	NNG		X	Occurs in grasslands with relatively low cover of annual grasses on friable/clay soils. 15-1200 meters.
Harpagonella palmeri Palmer's grapplinghook	CNPS 4.2	X	X	X	March-May	RSS/NNG/MC/ CC			Occurs within openings in chaparral, sage scrub, and valley/foothill grassland habitats. Often associated with clay soils. 20-955 meters.
Lepidium virginicum var. *robinsonii* Robinson's pepper grass	CNPS 1B.2	X	X	X	Jan-July	RSS/MC/CC			Occurs within chaparral, coastal scrub. Often associated with dry soils. 1-885 meters.
Microseris douglasii var. *platycarpha*	CNPS 4.2		X	X	March-May	RSS/NNG			Occurs within cismontane woodland, sage scrub, valley and foothill grassland

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
small-flowered microseris									and vernal pool habitats. Often associated with clay soils. 15-1070 meters.
Romneya coulteri Coulter's Matilija poppy	CNPS 4.2		X	X	March-July	CC/MC/RSS			Occurs within chaparral and sage scrub habitats. Often found within these plant communities after burns.
Sphaerocarpos drewei bottle liverwort	CNPS 1B.1	X	X	X	-	CC/MC/RSS			Occurs within openings on soil in chaparral and sage scrub habitats. 90-600 meters.

Definitions:

Plant Communities:

AS	Alluvial Scrub
CC	Chamise Chaparral
MC	Mixed Chaparral
NNG	Nonnative Grassland
RSS	Riversidean Sage Scrub

Status Codes:

FE	Federally Endangered
FT	Federally Threatened
SE	State Endangered
ST	State Threatened

CNPS Status Codes:

List 1A	Presumed extinct in California
List 2	Presumed extinct in California, but more common elsewhere
List 3	We need more information about this plant
List 4	Limited distribution (watch list)
.1	Seriously endangered in CA (over 80% of occurrences threatened/high degree and immediacy of threat)
.2	Fairly endangered in CA (20-80% occurrences threatened)
.3	Not very endangered in CA (<20% of occurrences threatened or no current threats known)

Appendix D-2
Target Sensitive Plant Species
Blooming Between March and June

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Calochortus plummerae Plummer's Mariposa Lily	FSS CNPS 1B.2	X	X	X	May-July	RSS/NNG/CC/ MC			Occurs on rocky or sandy sites, usually of granitic or alluvial material within sage scrub, Chaparral, valley foothill grassland, cismontane woodland and lower montane coniferous forest. Can be very common after a fire. 100-1700 meters.
Calochortus weedii var. *intermedius* intermediate Mariposa lily	CNPS 1B.2	X	X	X	May-July	RSS/NNG/MC/ CC			Occurs on rocky or sandy sites within sage scrub, chaparral, and valley/foothill grassland habitats. 105-855 meters.
Centromadia pungens ssp. *laevis* smooth tarplant	CNPS 1B.1		X		April-Sept	CAM/NNG/RUE/ SWS/MS/RS/TS/ CWR/SSR		X	Occurs in alkali meadow or alkali scrub within valley and foothill grasslands, meadows, playas or riparian woodland. 0-480 meters.
Chorizanthe leptotheca peninsular spineflower	CNPS 4.2		X	X	May-Aug	CC/MC/RSS			Occurs within chaparral, coastal scrub, and lower montane coniferous forest. 300-1900 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Pseudognaphalium leucocephalum white rabbit-tobacco	CNPS 2.2		X	X	July-Dec	CC/MC/RSS/ SWS/MS/RS/TS/CWR/SSR			Occurs within chaparral, cismontane woodland, sage scrub, and riparian woodlands. Usually associated with sandy or gravelly substrates. 0-2100 meters.
Scutellaria bolanderi ssp. *austromontana* Southern Mountain skullcap	CNPS 1B.2			X	June-Aug	CC/MC/CLOWR/CLOWU			Occurs within chaparral, cismontane woodland, lower montane coniferous forests. Found in gravelly soils on streambeds or in mesic sites in oak or pine woodland. 425-2000 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Symphyotrichum defoliatum San Bernardino aster	CNPS 1B.2	X			July-Nov	RSS/VFM/CAM/ NNG/SWS/MS/ RS/TS/CWR/SSR			Occurs within meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, grassland habitat. Found in vernally mesic grasslands or near ditches, streams, springs, and disturbed areas within 2-2040 meters.

Definitions:

Plant Communities:

CAM	Cismontane Alkali Marsh
CC	Chamise Chaparral
CLOWR	Coast Live-Oak Woodland-Riparian
CLOWU	Coast Live-Oak Woodland-Upland
CWR	Southern Cottonwood/Willow Riparian Forest
MC	Mixed Chaparral
MS	Mulefat Scrub
NNG	Nonnative Grassland
RS	Riparian Scrub
RSS	Riversidean Sage Scrub
RUE	Rural/Urban/Exotic
SSR	Southern Sycamore Riparian Woodland
SWS	Southern Willow Scrub
TS	Tamarisk Scrub
VFM	Valley Freshwater Marsh

CNPS Status Codes:

List 1A	Presumed extinct in California
List 2	Presumed extinct in California, but more common elsewhere
List 3	We need more information about this plant
List 4	Limited distribution (watch list)
.1	Seriously endangered in CA (over 80% of occurrences threatened/high degree and immediacy of threat)
.2	Fairly endangered in CA (20-80% occurrences threatened)
.3	Not very endangered in CA (<20% of occurrences threatened or no current threats known)

Status Codes:

FE	Federally Endangered
FT	Federally Threatened
SE	State Endangered
ST	State Threatened

Appendix D-3
Plant Species with Low to No Potential for Occurrence

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Abronia villosa var. *aurita* chaparral sand-verbena	CNPS 1B.1		X	X	Jan-Sept	AS/CC/RSS			Occurs within sandy soils and is associated with washes within chaparral and sage scrub plant communities. 80-1600 meters.
Allium marvinii Yucaipa onion	FSS CNPS 1B.1		X	X	April-May	CC/MC	X		Occurs in openings within chaparral plant communities. Often associated with clay soils. Local endemic to the Beaumont and Yucaipa area. 760-1065 meters.
Arabis johnstonii Johnston's rock cress	FSS CNPS 1B.2				Feb-June	MC/CC	X		Occurs within chaparral and lower montane coniferous forest. Often associated within eroded clay soils. 1350-2150 meters.
Arctostaphylos rainbowensis rainbow manzanita	CNPS 1B.1				Dec-March	MC/CC			Most often occurs in Gabbro soils within chaparral in Riverside and San Diego counties. 225-670 meters.
Astragalus pachypus var. jaegeri Jaeger's milkvetch	CNPS 1B.1		X	X	Dec-June	AS/CC/MC/RSS/ NNG			Occurs in a variety of habitats including chaparral, cismontane woodland, coastal scrub and valley/foothill grassland habitats. Occurs locally within the "badlands" south of Beaumont and Potrero Canyon area. 365-915 meters.
Atriplex coronata var. notatior San Jacinto valley crownscale	FE CNPS 1B.1		X		April-Aug	CAM/NNG		X	Occurs primarily in floodplains dominated by alkali scrub, alkali playas, vernal pools, and to a lesser extent alkali grasslands. Restricted to highly alkaline, silty-clay soils in association with Travers-Domino-Willows soil association. 139-500 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Atriplex coulteri Coulter's saltbush	FE CNPS 1B.2	X	X		March-Oct	RSS/NNG			In Western Riverside County, this species has the potential to occur within sage scrub and valley/foothill grassland habitats. Often associated with alkaline or clay soils. 3-460 meters.
Atriplex pacifica south coast saltscale	CNPS 1B.2		X	X	March-Oct	RSS/DSS			In western Riverside county, this species has the potential to occur within sage scrub habitats. A majority of known occurrences for this species are associated with coastal scrub and dune areas. 0-140 meters.
Atriplex parishii Parish's brittlescale	FE CNPS 1B.1		X		June-Oct	CAM/NNG		X	Occurs within alkaline soils and is most often associated with vernal pool and playa habitat types. 25-1900 meters.
Atriplex serenana var. *davidsonii* Davidson's saltscale	CNPS 1B.2		X		April-Oct	CAM/NNG		X	Occurs in gentle hillsides, valleys, and floodplains in semi alkaline mudflats, vernal pools, mesic southern needlegrass grassland, mixed native/non-native grassland and alkaline grassland plant communities in association with clay, loamy sand, or alkaline silty-clay soils. 10-200 meters.
Berberis nevinii Nevin's barberry	FE/SE CNPS 1B.1		X	X	March-June	AS/CC/MC/RSS/ SWS/MS/RS/TS		X	Occurs in a variety of habitats including cismontane woodland, chaparral, sage scrub and riparian scrub habitat. Often associated with sandy or gravelly soils. Closest natural known locations are "badlands" near Redlands and Vail Lake Area. 274-825 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Brodiaea filifolia thread-leaved brodiaea	FT/SE CNPS 1B.1	X	X		March-June	CAM/NNG		X	Occurs on gentle hillsides and floodplain in semi-alkaline mudflats, vernal pools, mesic needle grass, grassland, non-native grassland and alkali grassland Requires mesic, clay habitats; sometimes serpentine. Most known local locations associated with seasonally wet flats in the Perris Area. 25-1219 meters.
Brodiaea orcuttii Orcutt's brodiaea	CNPS 1B.1		X		May-July	CC/MC/CAM			Vernal pools, valley and foothill grasslands, closed-cone coniferous forest, cismontane woodland, chaparral, and meadows. Require mesic, well developed clay habitats; sometimes serpentine. Usually found in vernal pools and small drainages. 30-1692 meters.
Brodiaea santarosae Santa Rosa basalt brodiaea	CNPS 3				May-June	None			Occurs within Valley and foothill grasslands, associated with basaltic flows.
Callitropsis forbesii Tecate cypress	CNPS 1B.1				-	None			Occurs within closed cone coniferous forest and chaparral habitat. Usually associated with clay, gabbroic or metavolcanic soils. 250-1490 meters.
Calochortus palmeri var. *munzii* Munz's Mariposa lily	FSS CNPS 1B.2				June-July	MC/CC	X		Occurs in seasonally moist, fine granitic loam on exposed knolls in the shade of lower montane coniferous forest and on moist, sandy clay in moist chaparral and meadows. 900-1640 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Ceanothus ophiochilus Vail Lake ceanothus	FT/ST CNPS 1B.1				Feb-March	None		X	Occurs within chamise chaparral habitats. Usually found on ridgelines and north facing slopes. Usually associated with gabbroic or pyroxenite-rich rock outcrops. 580-1065 meters.
Centromadia parryi ssp. *australis* southern tarplant	CNPS 1B.1		X	X	May-Nov	VFM/CAM/NNG			Occurs within marshes, swamps, vernally mesic valley/foothill grasslands, and vernal pools. Coastal species. 0-427 meters.
Chorizanthe xanti var. *leucotheca* white-bracted spineflower	CNPS 1B.2				April-June	None			Occurs within Mojavean desert scrub, or pinyon and juniper woodland. Usually associated with sandy or gravelly soils. 300-1200 meters.
Comarostaphylis diversifolia ssp. *diversifolia* summer holly	CNPS 1B.2		X	X	April-June	CC/MC			Occurs within chaparral and Cismontane woodland habitat. Maritime habitats with relatively cool and wet weather. 30-550 meters.
Deinandra mohavensis Mojave tarplant	FSS/SE CNPA 1B.3				June-Oct	CC/MC/RSS/ SWS/MS/CWR/ SSR			Occurs within mesic areas chaparral and sage scrub habitats. Also associated with riparian scrub. 640-1600 meters.
Dudleya cymosa ssp. *ovatifolia* Santa Monica dudleya	FT CNPS 1B.2				May-June	RSS/CC/MC			Known only from the western Santa Monica Mountains.
Dudleya viscida sticky dudleya	CNPS 1B.2	X	X	X	May-June	RSS/MC/CC			Occurs within **c**haparral, cismontane woodland, and sage scrub habitat. Usually associated with rock outcrops. Locally a Santa Ana endemic. 10-550 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woolystar	FE/SE CNPS 1B.1				May-Sept	AS/RSS/MC/CC			Occurs within alluvial-fans or sandy river terraces. Known from one extended but fragmented population (associated with Santa Ana River). 91-610 meters.
Eryngium aristulatum var. *parishii* San Diego button celery	FE/SE CNPS 1B.1		X		April-June	RSS/NNG			Occurs within vernal pool, sage scrub and valley/foothill grasslands. Almost always under natural conditions in wetlands. 20-620 meters.
Galium angustifolium ssp. *jacinticum* San Jacinto mountains bedstraw	FSS CNPS 1B.3				June-Aug	None	X		Occurs within lower montane coniferous forest habitat. 1350-2100 meters.
Galium californicum ssp. *primum* California bedstraw	FSS CNPS 1B.2				May-July	CC/MC			Occurs within chaparral and lower montane coniferous forest. 1350-1700 meters.
Geothallus tuberosus Campbell's liverwort	CNPS 1B.1	X	X	X	-	RSS/NNG			Occurs within mesic areas of sage scrub habitat and vernal pools often associated with clay soils. 10-600 meters.
Heuchera hirsutissima shaggy-haired alumroot	FSS CNPS 1B.3				May-July	None			Occurs within subalpine coniferous forest and upper montane coniferous forest. 1520-3500 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Holocarpha virgata ssp. *elongata* graceful tarplant	CNPS 4.2		X	X	May-Nov	CC/MC/RSS/NNG			Occurs within cismontane woodland, chaparral, sage scrub and valley/foothill grassland habitat. Locally known within grasslands and oakwoodlands on the Santa Rosa Plateau. Associated well developed clay soils. 60-1100 meters.
Hordeum intercedens vernal barley	CNPS 3.2		X		March-June	RSS/NNG			Occurs in vernal pools or mesic areas within sage scrub and valley/foothill grassland habitats. Often associated with saline flats and depressions. 5-100 meters.
Horkelia cuneata ssp. *puberula* mesa horkelia	CNPS 1B.1	X	X	X	Feb-July	RSS/MC/CC			Occurs in chaparral, cismontane woodland, and coastal scrub. Requires sandy or gravelly sites. Known locally on the Pacific slope of the Santa Ana Mountains. 70-810 meters.
Hulsea vestita ssp. *callicarpha* beautiful hulsea	CNPS 4.2				May-Oct	MC/CC			Occurs within chaparral and lower montane coniferous forest. Often associated with rocky or gravelly, granitic soils. 915-3050 meters.
Imperata brevifolia California satintail	CNPS 2.1	X	X	X	Sept-May	CC/MC/RSS/ SWS/MS/RS/TS			Occurs in a variety of habitat types, including chaparral, sage scrub, Mojavean desert, Riparian scrub, meadows and seeps. Often associated alkaline soils and springs. 0-500 meters.
Juglans californica southern California black walnut	CNPS 4.2		X	X	March-Aug	CC/MC/RSS			Occurs on slopes and in canyons and valleys within chaparral, cismontane woodland, and sage scrub habitats. 50-900 meters.
Juncus luciensis Santa Lucia dwarf rush	CNPS 1B.2				April-July	None			Occurs in chaparral, meadows and seeps, and vernal pools.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	CNPS 1B.1		X		Feb-June	VFM/CAM/NNG		X	Occurs primarily in highly alkaline, silty-clay soils. Travers-Domino-Willows soil association within alkali vernal plains community. 1-1220 meters.
Lilium humboldtii ssp. *ocellatum* ocellated Humboldt lily	CNPS 4.2		X	X	March-Aug	CC/MC/RSS/ SWS/CWR/SSR			Occurs within openings in a variety of habitat types including: chaparral, cismontane woodland, sage scrub, lower montane coniferous forest and riparian woodland. Generally associated with relatively wet and cool regions. 30-1800 meters.
Lepechinia cardiophylla heart-leaved pitcher sage	CNPS 1B.2				April-July	MC/CC		X	Occurs in closed-cone coniferous forest, chaparral, and cismontane woodland. 520-1370 meters.
Lilium parryi lemon lily	CNPS 1B.2				July-Aug	SWS/CWR/SSR			Occurs within lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest. Prefers wet, mountainous terrain; generally in forested areas, on shady edges of streams, in open boggy meadows and seeps. 1220-2745 meters.
Limnanthes gracilis ssp. *parishii* Parish's meadowfoam	CNPS 1B.2				April-June	CAM/VFM/NNG			Occurs within lower montane coniferous forest, meadows, seeps, and vernal pool habitats**.** Almost always under natural conditions in wetlands. 600-2000 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Mimulus clevelandii Cleveland's bush monkeyflower	CNPS 4.2				April-July	CC/MC			Occurs within chaparral, cismontane woodland, and lower montane coniferous forest. Often associated with gabbroic soils in disturbed areas/openings with above described habitat types. 815-2000 meters.
Mimulus diffusus Palomar monkeyflower	CNPS 4.3				April-June	CC/MC			Occurs within chaparral and lower montane coniferous forest. Often associated with sandy or gravelly soils. 1220-1830 meters.
Monardella hypoleuca ssp. *lanata* felt-leaved monardella	CNPS 1B.2		X	X	June-Aug	CC/MC			Occurs within chaparral and cismontane woodland habitat. 300-1575 meters. Ssp. lanata is excluded from Riverside Co. Northern extent of range is San Luis Rey River in San Diego Co.
Monardella macrantha ssp. *hallii* Hall's monardella	CNPS 1B.3				June-Oct	CC/MC			Occurs within broadleaved upland forest, chaparral, lower montane coniferous forest, cismontane woodland, and valley and foothill grassland habitats. Often associated with dry slopes and ridges in openings within the above communities. 730-2195 meters.
Muhlenbergia californica California muhly	CNPS 4.3		X	X	June-Sept	CC/MC/RSS/ SWS/MS/RS/TS/ CWR/SSR/NNG			Occurs within wetlands or mesic sites in chaparral, sage scrub, lower montane forest habitats. Also found in meadows and seeps. Locally known in the San Jacinto Mountains. 100-2000 meters.
Myosurus minimus ssp. *apus* little mousetail	CNPS 3.1		X		March-June	NNG/CAM		X	Occurs in valley/foothill grasslands with alkaline soils and vernal pools. 20-640 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Nama stenocarpum mud nama	CNPS 2.2		X		Jan-July	VFM/CAM/SWS/ MS/RS/TS/CWR/ SSR/NNG		X	Occurs within marshes and along the margins of lakes. 5-500 meters.
Navarretia fossalis spreading (Moran's) navarretia	FT CNPS 1B.1		X		April-June	VFM/CAM/SWS/ MS/RS/TS/CWR/ SSR/NNG	X		Primarily associated with vernal pools, depressions, and ditches in areas that once supported vernal pools. Often associated with a larger vernal floodplain(s) dominated by annual alkali grasslands and alkali playa. 30-1300 meters.
Navarretia prostrata prostrate vernal pool navarretia	CNPS 1B.1		X		April-July	RSS/NNG		X	Occurs within wetlands and mesic sites found within habitat types including: sage scrub, meadows and seeps alkali valley/foothill grassland. Also associated with Vernal pools. 15-700 meters.
Nolina cismontana peninsular nolina	CNPS 1B.2				May-July	None			Occurs within chaparral and sage scrub habitats. Often associated with sandstone or gabbro soils. 140-1275 meters.
Orcuttia californica California Orcutt grass	FE/SE CNPS 1B.1		X		April-Aug	NNG/CAM	X		All known localities are associated with vernal pools. Specifically, southern basaltic clay pan and alkaline vernal pools.
Oxytheca caryophylloides (Sidotheca caryophylloides) chickweed oxytheca	CNPS 4.3				July-Sept	None			Occurs within lower montane coniferous forest habitat. Often associated with sandy soils. 1114-2600 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Penstemon californicus California beardtongue	FSS CNPS 1B.2				May-Aug	MC/CC			Occurs within chaparral, lower montane coniferous forest, and pinyon juniper woodland. Often associated with sandy soils. 1170-2300 meters.
Pentachaeta aurea ssp. *allenii* Allen's daisy	CNPS 1B.1	X	X	X	March-June	RSS/NNG			Occurs within openings in sage scrub and valley/foothill grassland habitats. Locally known on the west slope of the Santa Ana Mountains in Orange County75-520 meters.
Phacelia stellaris Brand's phacelia	SC CNPS 1B.1		X	X	March-June	AS/MS/RS	X		Occurs within sandy washes and alluvial benches in alluvial floodplains. The species is generally dependant on periodic flooding and sediment transport. Generally a coastal species, but few inland locations have been recorded. 1-400 meters.
Phacelia suaveolens ssp. *keckii* Santiago Peak phacelia	CNPS 1B.3				May-June	MC/CC			Occurs within closed-cone coniferous forest and chaparral. 545-1600 meters. Known from only four occurrences.
Polygala cornuta var. *fishiae* fish's milkwort	CNPS 4.3		X	X	May-Aug	CC/MC/SWS/ CWR/SSR			Occurs within chaparral, cismontane woodland, and riparian woodland. Locally known in the Santa Ana Mountains within relatively wetter environments. 100-1000 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Potentilla rimicola cliff cinquefoil	CNPS 2.3				July-Sept	None			Occurs within subalpine coniferous forest and upper montane coniferous forest. Associated with granitic, rocky areas and soils. Known in CA approximately five occurrences in the San Jacinto mountains. 2400-2800 meters.
Quercus dumosa Nuttall's scrub oak	CNPS 1B.1		X	X	Feb-April	RSS/CC/MC			Occurs in coastal areas within closed-cone coniferous forest chaparral, sage scrub. Usually associated with sandy, clay loam soils. 15-400 meters.
Quercus engelmannii Engelmann oak	CNPS 4.2		X	X	July-Dec	CC/MC/SWS/ CWR/SSR/NNG/ CLOWR/CLOWU			Occurs within chaparral, cismontane woodland, riparian woodland, valley/foothill grassland habitat. Locally known in the Santa Rosa Plateau and the Crown Valley area near lake Skinner. 50-1300 meters.
Satureja chandleri San Miguel savory	CNPS 1B.2		X	X	March-July	RSS/NNG/MC/ CC	X		Occurs in chaparral, cismontane woodland, coastal scrub, riparian woodland, valley/foothill grasslands. Requires rocky, gabbroic or metavolcanic substrate. Often found within these plant communities after burns. Locally known on the eastern slope of the Santa Ana Mountains. 20-1200 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat
Sibaropsis hammittii Hammitt's clay-cress	CNPS 1B.2	X	X	X	March-April	CC/MC/NNG	X		Occurs within openings in chaparral and valley/foothill grasslands. Often associated higher elevation (1000 meters) and within well developed clay soils. 720-1065 meters.
Sidalcea neomexicana Salt Spring checkerbloom	CNPS 2.2		X		March-June	CC/MC/RSS			Usually occurs in wetlands, but occasionally found in non wetland environs. Occurs within chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and alkaline playas. 15-1530 meters.
Tetracoccus dioicus Parry's tetracoccus	CNPS 1B.2				April-May	CC/MC/RSS			Occurs in stony and gabbroic soil within chaparral and coastal scrub. 165-1000 meters.
Tortula californica California screw moss	CNPS 1B.2		X	X	-	NNG/CAM			Occurs within chenopod scrub and valley/foothill grassland. Usually associated with sandy, soil. 10-1460 meters.
Trichocoronis wrightii var. wrightii Wright's trichocoronis	CNPS 2.1				May-Sept	VFM/CAM/NNG/ SWS/CWR/SSR	X		Occurs within meadows and seeps, marshes and swamps, riparian forest and vernal pool habitat. Usually associated with alkaline soils. 5-435 meters.
Viguiera viguiera (purisimae) La Purisima viguiera	CNPS 2.3				April-Sept	MC/CC			Occurs within coastal bluff scrub and chaparral. CNPS maps this species range within Orange and San Diego Counties only. 365-425 meters.

Species Name	Status Listing	Proposed Alberhill Substation Survey Area	Proposed 115kV T/L Survey Area	Proposed 500kV T/L Survey Area	Blooming Period	Plant Community	Narrow Endemic Species	Criteria Area Species	Life Form and Habitat

Definitions:

Plant Communities:

AS	Alluvial Scrub
CAM	Cismontane Alkali Marsh
CC	Chamise Chaparral
CLOWR	Coast Live-Oak Woodland-Riparian
CLOWU	Coast Live-Oak Woodland-Upland
CWR	Southern Cottonwood/Willow Riparian Forest
DSS	Diegan Sage Scrub
MC	Mixed Chaparral
MS	Mulefat Scrub
NNG	Nonnative Grassland
RS	Riparian Scrub
RSS	Riversidean Sage Scrub
SSR	Southern Sycamore Riparian Woodland
SWS	Southern Willow Scrub
TS	Tamarisk Scrub
VFM	Valley Freshwater Marsh

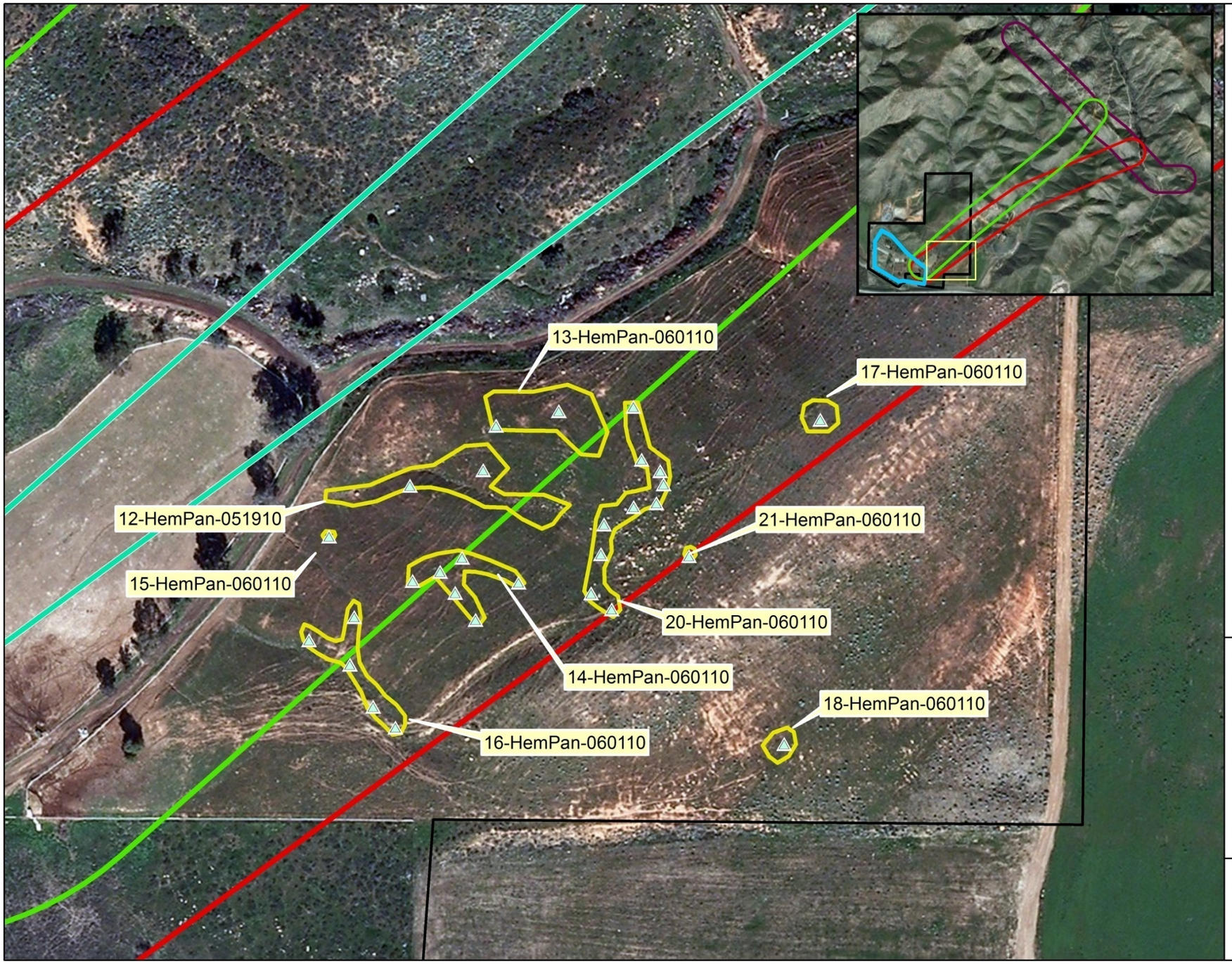
CNPS Status Codes:

List 1A	Presumed extinct in California
List 2	Presumed extinct in California, but more common elsewhere
List 3	We need more information about this plant
List 4	Limited distribution (watch list)
.1	Seriously endangered in CA (over 80% of occurrences threatened/high degree and immediacy of threat)
.2	Fairly endangered in CA (20-80% occurrences threatened)
.3	Not very endangered in CA (<20% of occurrences threatened or no current threats known)

Status Codes:

FE	Federally Endangered
FT	Federally Threatened
SE	State Endangered
ST	State Threatened

Appendix E
Sensitive Plant Observation Figures



Legend

Project Data

- Alberhill Substation Study Area
- Alberhill Substation - Area of Anticipated Direct Impact
- Existing 115 kV Subtransmission Line
- Existing 500 kV Transmission Line (SCE, 2007)

500 kV Proposed Project

- C1 Survey Area (700 ft wide)
- N3 Survey Area (700 ft wide)
- Existing Serrano-Valley Survey Area (700 ft wide)
- Proposed 500kv Transmission Line
- Proposed 500 kV Tower Locations
- Rack Position
- Existing Tower Location

Sensitive Plant Populations

- Sensitive Plant Population Areas
- Hemizonia paniculata

Basemap Data

- Freeways/Highways
- Streams
- Roads

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries

Projection
State Plane, California 406, NAD 83, Feet

Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 4-1 Sensitive Plant Obs Substation Area.mxd

Date: 6/14/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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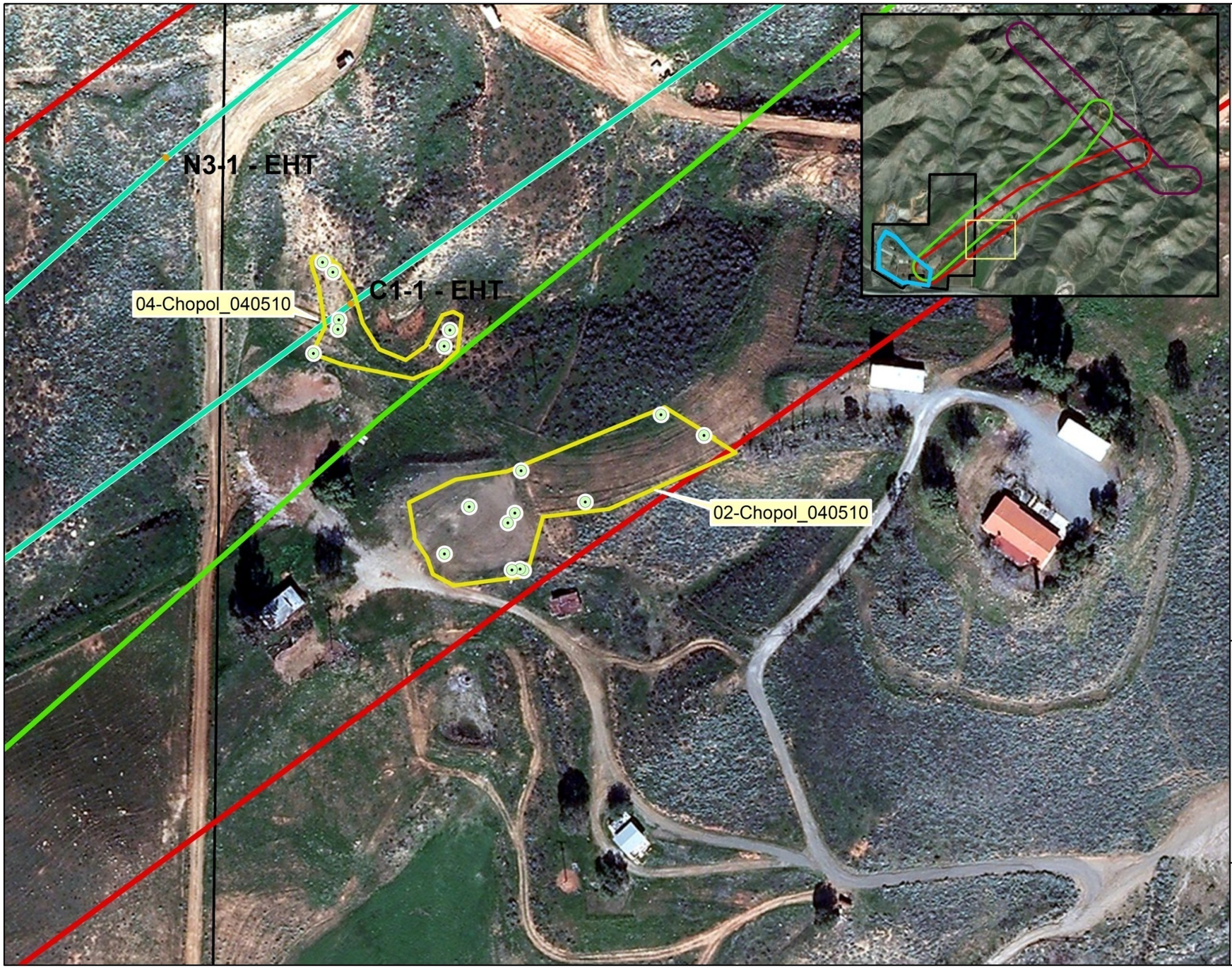
Figure E-1

Sensitive Plant Observations Substation & 500 kV Study Area



Legend

Project Data

- Alberhill Substation Study Area
- Alberhill Substation - Area of Anticipated Direct Impact
- Existing 115 kV Subtransmission Line
- Existing 500 kV Transmission Line (SCE, 2007)

500 kV Proposed Project

- C1 Survey Area (700 ft wide)
- N3 Survey Area (700 ft wide)
- Existing Serrano-Valley Survey Area (700 ft wide)
- Proposed 500kv Transmission Line
- Proposed 500 kV Tower Locations
- Rack Position
- Existing Tower Location

Sensitive Plant Populations

- Sensitive Plant Population Areas
- Chorizanthe polygonoides var. longispina

Basemap Data

- Freeways/Highways
- Roads
- Streams

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries

Projection
State Plane, California 406, NAD 83, Feet

Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 4-2 Sensitive Plant Obs Substation Area.mxd

Date: 6/14/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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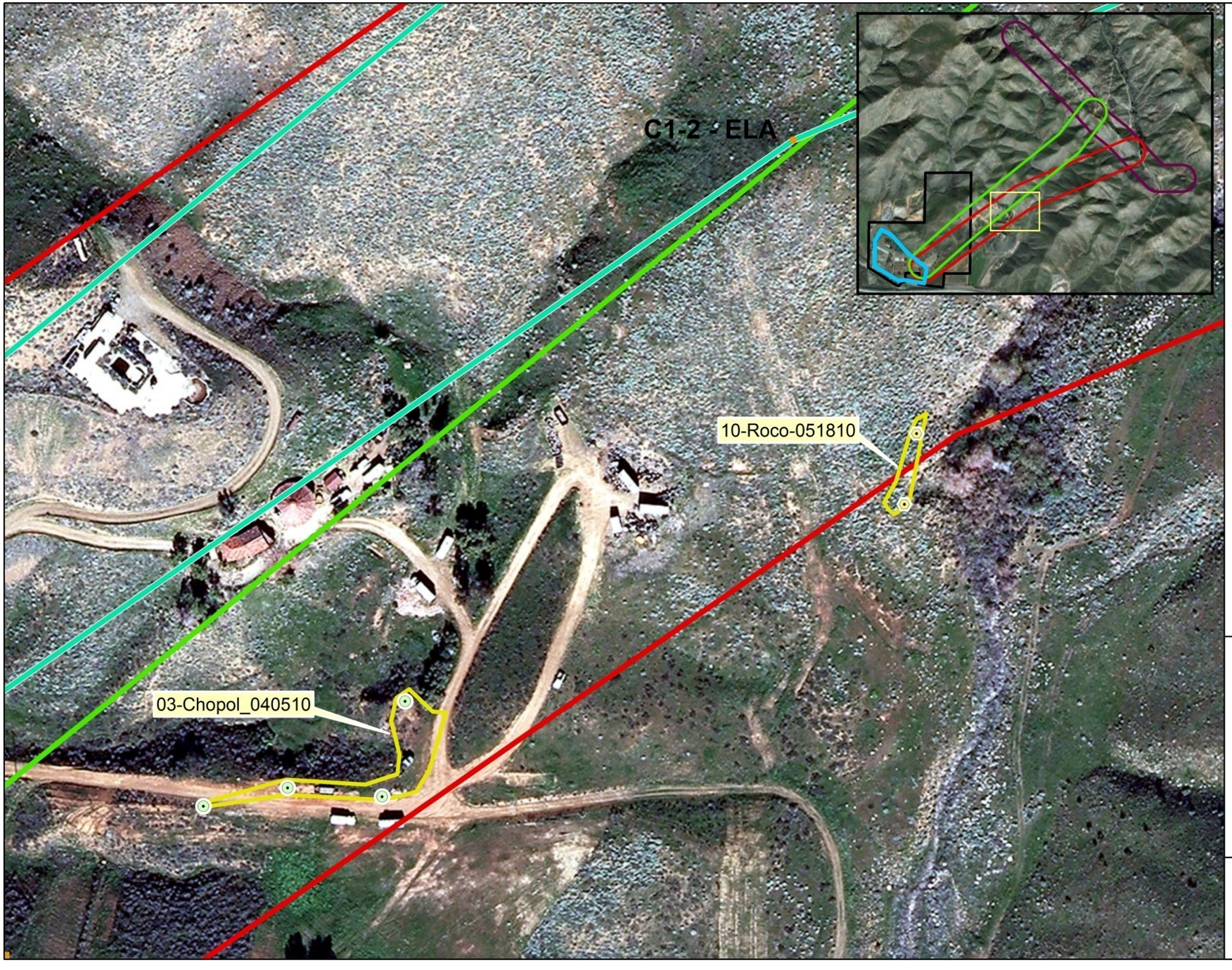
Figure E-2

Sensitive Plant Observations Substation & 500 kV Study Area



Legend

Project Data

- Alberhill Substation Study Area
- Alberhill Substation - Area of Anticipated Direct Impact
- Existing 115 kV Subtransmission Line
- Existing 500 kV Transmission Line (SCE, 2007)

500 kV Proposed Project

- C1 Survey Area (700 ft wide)
- N3 Survey Area (700 ft wide)
- Existing Serrano-Valley Survey Area (700 ft wide)
- Proposed 500kv Transmission Line
- Proposed 500 kV Tower Locations
- Rack Position
- Existing Tower Location

Sensitive Plant Populations

- Sensitive Plant Population Areas
- Chorizanthe polygonoides var. longispina
- Romneya coulteri

Basemap Data

- Freeways/Highways
- Streams
- Roads

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries

Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 4-3 Sensitive Plant Obs Substation Area.mxd

Date: 6/14/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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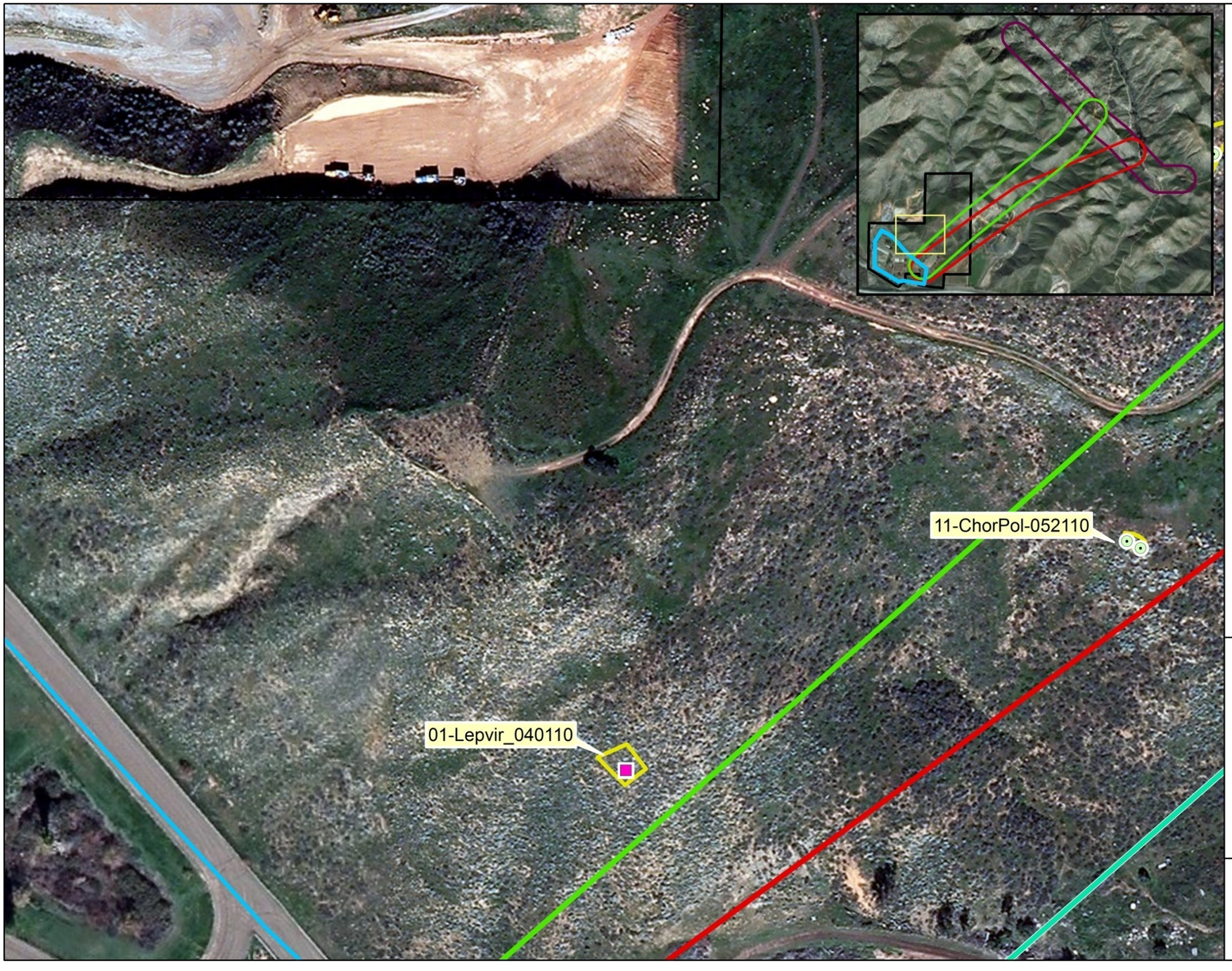
Figure E-3

Sensitive Plant Observations Substation & 500 kV Study Area



Legend

Project Data

- Alberhill Substation Study Area
- Alberhill Substation - Area of Anticipated Direct Impact
- Existing 115 kV Subtransmission Line
- Existing 500 kV Transmission Line (SCE, 2007)

500 kV Proposed Project

- C1 Survey Area (700 ft wide)
- N3 Survey Area (700 ft wide)
- Existing Serrano-Valley Survey Area (700 ft wide)
- Proposed 500kv Transmission Line
- Proposed 500 kV Tower Locations
- Rack Position
- Existing Tower Location

Sensitive Plant Populations

- Sensitive Plant Population Areas
- Chorizanthe polygonoides var. longispina
- Lepidium virginicum robinsonii

Basemap Data

- Freeways/Highways
- Streams
- Roads

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries

Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 4-4 Sensitive Plant Obs Substation Area.mxd

Date: 6/14/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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Figure E-4

Sensitive Plant Observations Substation & 500 kV Study Area

Legend

Project Data

- Alberhill Substation Study Area
- Alberhill Substation - Area of Anticipated Direct Impact
- Existing 115 kV Subtransmission Line
- Existing 500 kV Transmission Line (SCE, 2007)

500 kV Proposed Project

- C1 Survey Area (700 ft wide)
- N3 Survey Area (700 ft wide)
- Existing Serrano-Valley Survey Area (700 ft wide)
- Proposed 500kv Transmission Line
- Proposed 500 kV Tower Locations
- Rack Position
- Existing Tower Location

Sensitive Plant Populations

- Sensitive Plant Population Areas
- Chorizanthe polygonoides var. longispina

Basemap Data

- Freeways/Highways
- Roads
- Streams

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries

Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 4-5 Sensitive Plant Obs Substation Area.mxd

Date: 6/14/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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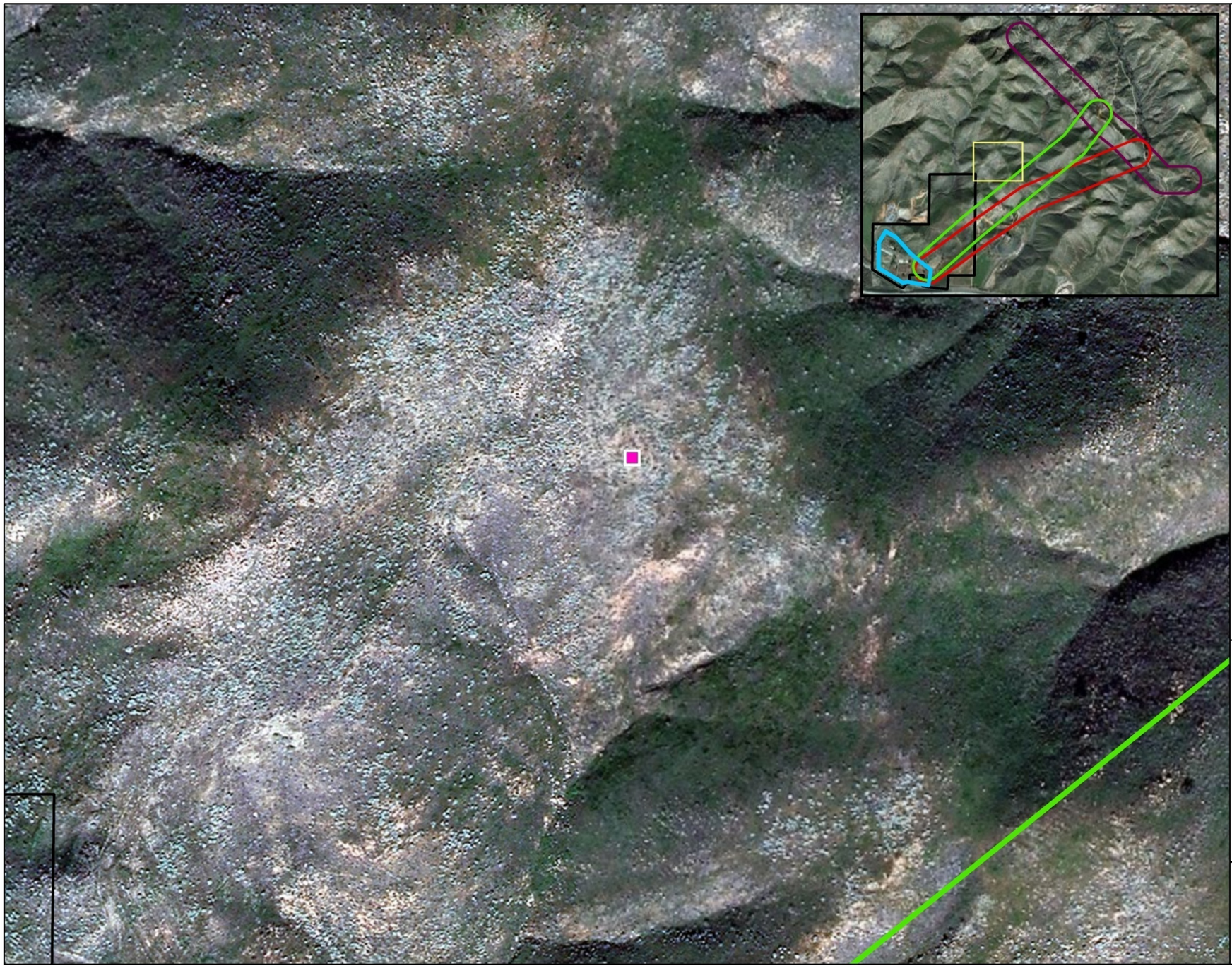
Figure E-5

Sensitive Plant Observations Substation & 500 kV Study Area



Legend

Project Data

- Alberhill Substation Study Area
- Alberhill Substation - Area of Anticipated Direct Impact
- Existing 115 kV Subtransmission Line
- Existing 500 kV Transmission Line (SCE, 2007)

500 kV Proposed Project

- C1 Survey Area (700 ft wide)
- N3 Survey Area (700 ft wide)
- Existing Serrano-Valley Survey Area (700 ft wide)
- Proposed 500kv Transmission Line
- Proposed 500 kV Tower Locations
- Rack Position
- Existing Tower Location

Sensitive Plant Populations

- Sensitive Plant Population Areas
- Lepidium virginicum robinsonii

Basemap Data

- Freeways/Highways
- Streams
- Roads

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries

Projection
State Plane, California 406, NAD 83, Feet

Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 4-6 Sensitive Plant Obs Substation Area.mxd

Date: 6/14/2010

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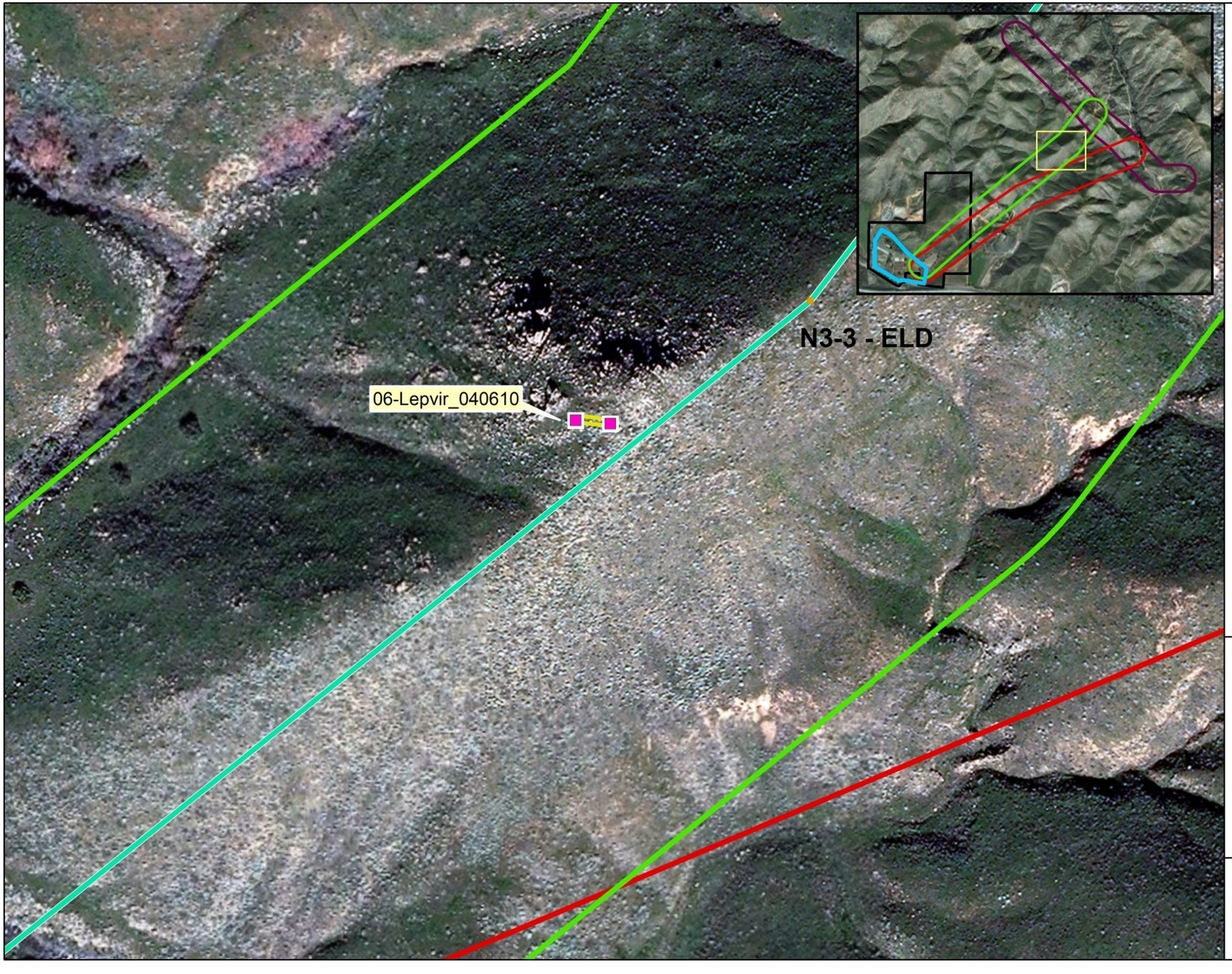
Figure E-6

Sensitive Plant Observations Substation & 500 kV Study Area



Legend

Project Data

- Alberhill Substation Study Area
- Alberhill Substation - Area of Anticipated Direct Impact
- Existing 115 kV Subtransmission Line
- Existing 500 kV Transmission Line (SCE, 2007)

500 kV Proposed Project

- C1 Survey Area (700 ft wide)
- N3 Survey Area (700 ft wide)
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- Proposed 500kv Transmission Line
- Proposed 500 kV Tower Locations
- Rack Position
- Existing Tower Location

Sensitive Plant Populations

- Sensitive Plant Population Areas
- Lepidium virginicum robinsonii

Basemap Data

- Freeways/Highways
- Streams
- Roads

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries

Projection
State Plane, California 406, NAD 83, Feet
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Date: 6/14/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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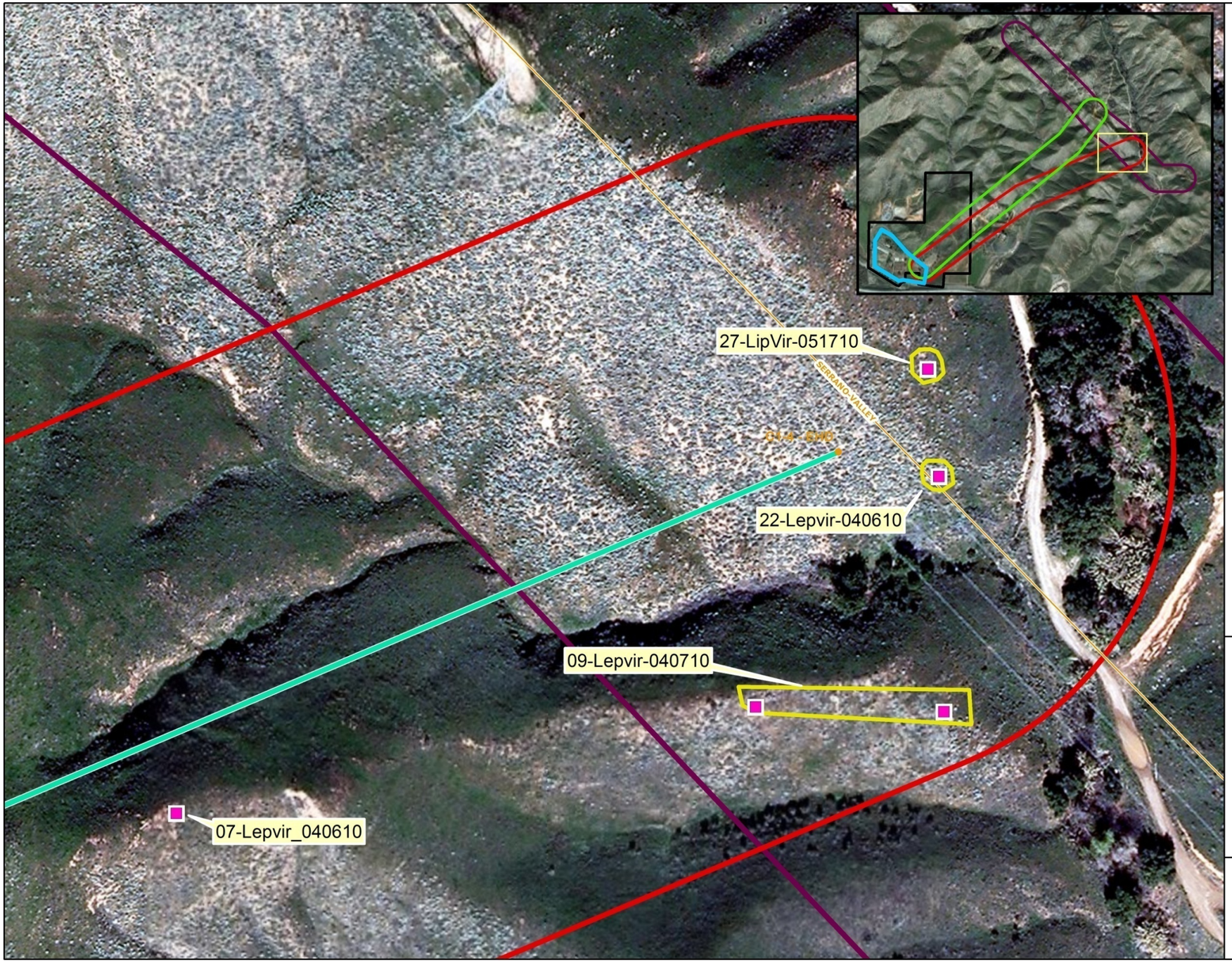
Figure E-7

Sensitive Plant Observations Substation & 500 kV Study Area



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Project Data

- Alberhill Substation Study Area
- Alberhill Substation - Area of Anticipated Direct Impact
- Existing 115 kV Subtransmission Line
- Existing 500 kV Transmission Line (SCE, 2007)

500 kV Proposed Project

- C1 Survey Area (700 ft wide)
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- Proposed 500kv Transmission Line
- Proposed 500 kV Tower Locations
- Rack Position
- Existing Tower Location

Sensitive Plant Populations

- Sensitive Plant Population Areas
- Lepidium virginicum robinsonii

Basemap Data

- Freeways/Highways
- Streams
- Roads

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries

Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 4-8 Sensitive Plant Obs Substation Area.mxd

Date: 6/14/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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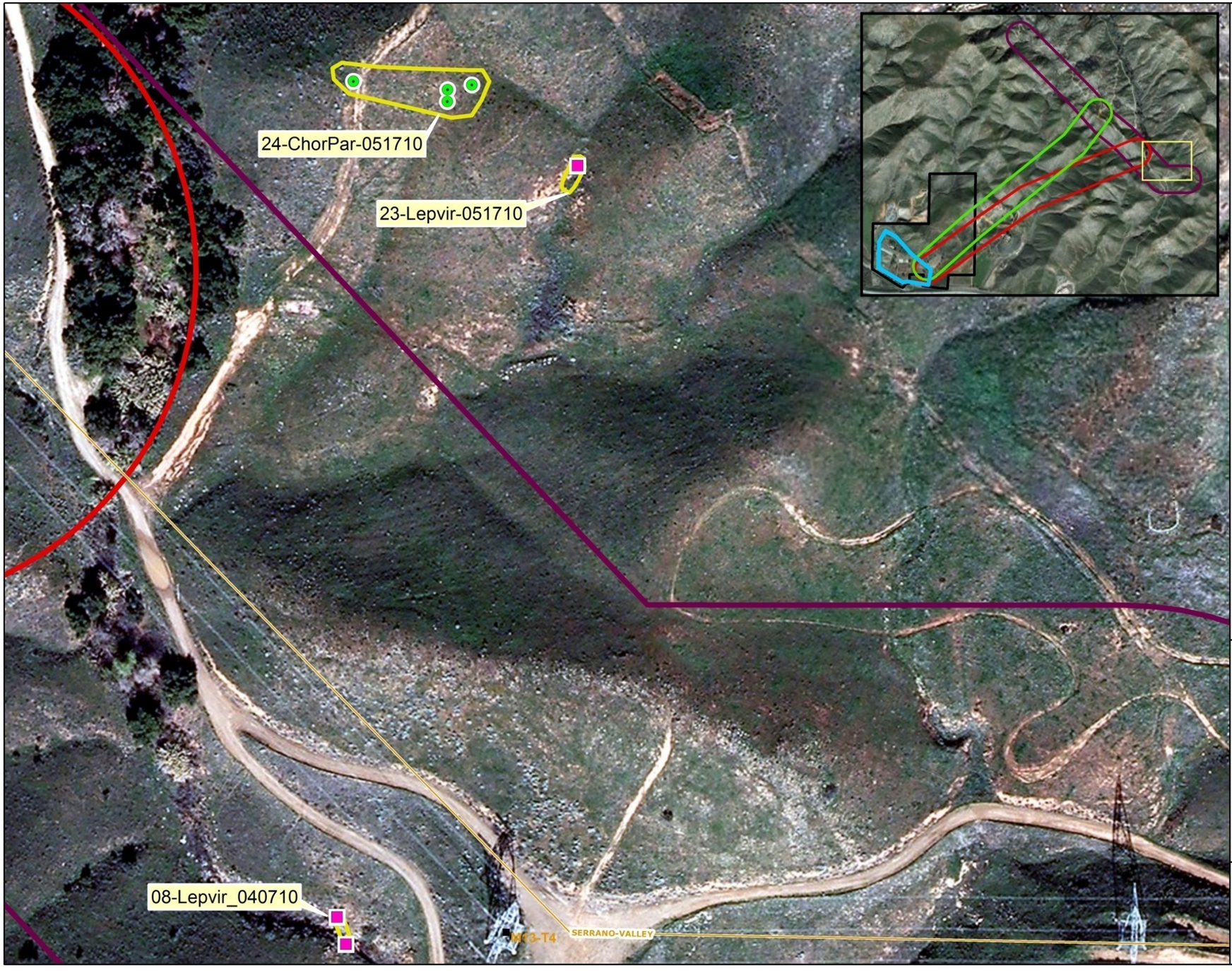
Figure E-8

Sensitive Plant Observations Substation & 500 kV Study Area



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Project Data

- Alberhill Substation Study Area
- Alberhill Substation - Area of Anticipated Direct Impact
- Existing 115 kV Subtransmission Line
- Existing 500 kV Transmission Line (SCE, 2007)

500 kV Proposed Project

- C1 Survey Area (700 ft wide)
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- Existing Serrano-Valley Survey Area (700 ft wide)
- Proposed 500kv Transmission Line
- Proposed 500 kV Tower Locations
- Rack Position
- Existing Tower Location

Sensitive Plant Populations

- Sensitive Plant Population Areas
- Chorizanthe parryi var. parryi
- Lepidium virginicum robinsonii

Basemap Data

- Freeways/Highways
- Streams
- Roads

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries

Projection
State Plane, California 406, NAD 83, Feet

Path: C:\Projects\Alberhill 2010\ArcGIS\Final\Figure 4-9 Sensitive Plant Obs Substation Area.mxd

Date: 6/14/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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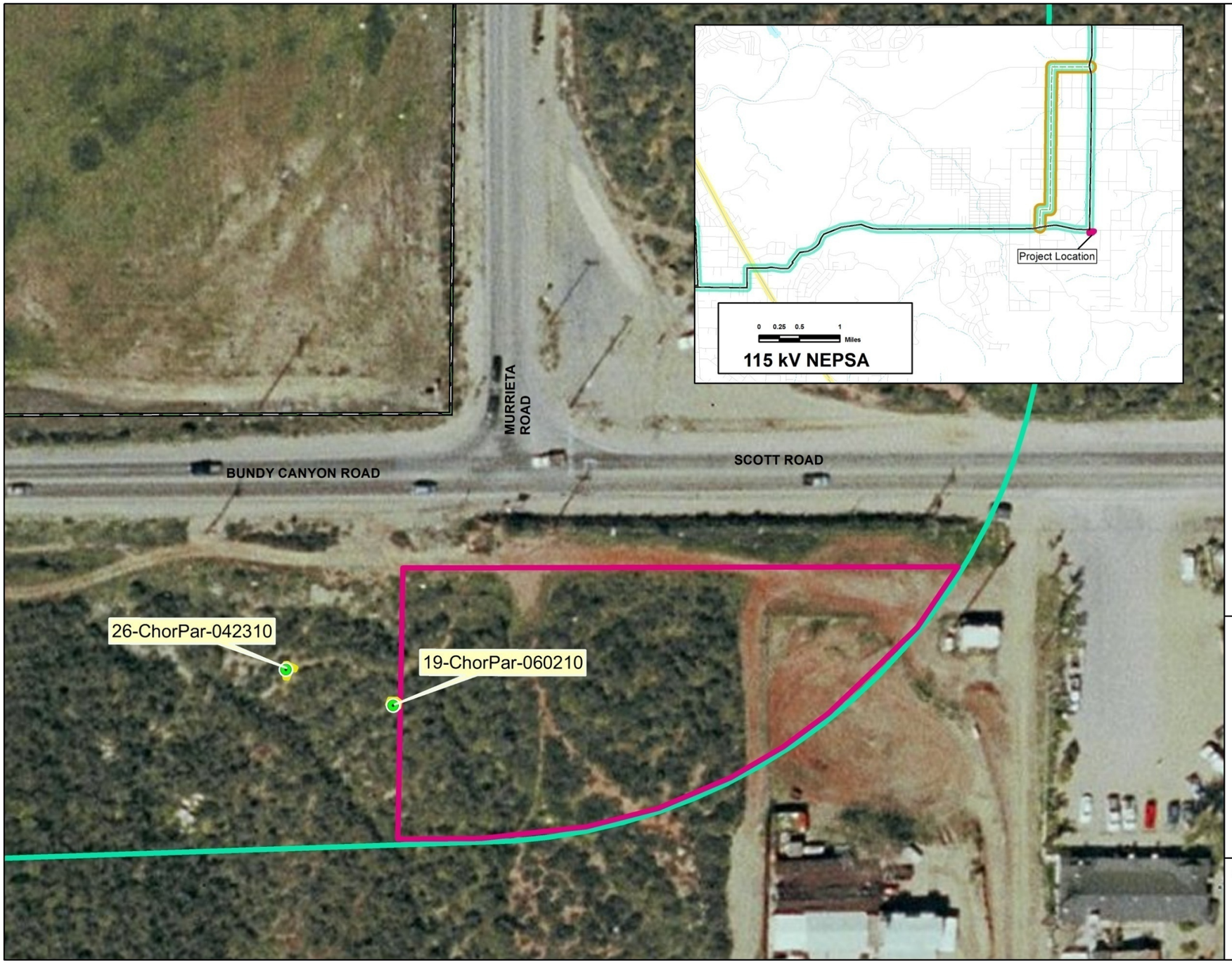
Figure E-9

Sensitive Plant Observations Substation & 500 kV Study Area



Legend

Project Data

- Alberhill Substation Study Area
- Narrow Endemic Plant Survey Area Within 115 kV Study Area

115 kV Proposed Project

- Proposed 115 kV Survey Area
- Proposed Single-Circuit 115 kV Subtransmission Line

115 kV Proposed Project Alternative

- Alternative 115 kV Study Area

Sensitive Plant Populations

- Sensitive Plant Population Areas
- Chorizanthe parryi var. parryi

Basemap Data

- Freeways/Highways
- Water Bodies
- Roads
- Streams

MAP NOTES

Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
Path:
C:\Projects\Alberhill 2010\ArcGIS\Final\
Figure 4-10 Sensitive Plant Obs 115kv NEP.mxd
Date: 6/14/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

0 25 50 100
Feet

AECOM

Figure E-10

Sensitive Plant Observations
115 kV Narrow Endemic
Plant Survey Area

Appendix F
California Native Species Field Survey Forms

SJM BIOLOGICAL CONSULTANTS

11 January 2010 SJMBC.797

Matthew Malle
AECOM
1461 East Cooley Drive
Suite 100
Colton, CA 92324
(909) 554-5000

SUBJECT: Results of a trapping study to confirm presence/absence of the federally endangered Stephens' kangaroo rat (*Dipodomys stephensi*) (SKR) at the 521-acre SCE Alberhill study site, (Riverside County, California) for the purpose of evaluating proposed alternatives for a Southern California Edison 500kV substation and associated transmission lines (Figure 1).

Dear Mr. Malle:

At the request of AECOM, a trapping survey of the federally endangered Stephens' Kangaroo rat (*Dipodomys stephensi*) (**SKR**) was conducted at the site described above from 12-17 November 2009. The objective of the assessment was to confirm the identity of kangaroo rats inhabiting previously identified sites with kangaroo rat sign. This trapping survey was a follow-up to an initial SKR habitat assessment conducted by Stephen J. Montgomery and Daniel Grout, which recommended that trapping be conducted in certain areas to confirm the distribution of occupied SKR habitat on the site.

INTRODUCTION AND SITE DESCRIPTION

The Alberhill project site lies immediately north of Interstate 15, to the north and northwest of Lake Street in Riverside County, California (Figure 1). NAD 83 UTM coordinates near the center of the proposed substation are 11 6461860E/3732899N, and near the center of the proposed potential transmission line alignments are 11 0463259E/3733529N. The property occurs in Sections 9, 10, 15 and 16, Range 5 West, Township 5 South, on the Alberhill USGS 7.5' Quadrangle, in Riverside County, California.

The proposed project involves the construction of a substation in the lower (southwesterly) portion of the site, and the erection of a transmission line to and from the substation, connecting with the existing transmission line in the hills to the east/northeast.

The Stephens' kangaroo rat is known to occur widely in Riverside County, in a few localities in southwestern San Bernardino County, and at several localities in San Diego County (Lackey 1967; Montgomery 1991; Montgomery et al. 1996/1997; O'Farrell and Uptain 1989; O'Farrell 1987, O'Farrell et al. 1986; Ogden 1998; SJM Biological Consultants 2003; Thomas 1975, 1973; USFWS 1997). Stephens' kangaroo rats are known from the vicinity of the project site (see below), which necessitated a determination of SKR presence/absence on the property.

General natural history features and habitat requirements of SKR are fairly well known (O'Farrell 1987, 1990). Habitats occupied by SKR characteristically occur on level to gently sloping terrain, although the species has occasionally been found on relatively steep slopes (e.g. Montgomery 1990; M.J. O'Farrell, pers. comm.). Soils in habitats harboring SKR are typically loamy in nature, while soils dominated by clay or sand very rarely contain this species (Price and Endo 1989; S.J. Montgomery, pers. observ.; O'Farrell 1987; O'Farrell and Uptain 1989).

Stephens' kangaroo rats typically occupy lands described as disturbed annual grassland and characterized by a relatively sparse cover of both shrubs and herbaceous vegetation. Although resident SKR have occasionally been found in relatively dense stands of sage scrub in Riverside County (S.J. Montgomery, pers. observ.), such occurrences are by far the exception to the rule. Occupied habitats commonly exhibit an abundance of bare soil during much of the year. Nonetheless, spring/early-summer flushes of forb (e.g. *Erodium sp.*) growth often temporarily reduce the amount of visible exposed ground. This phase of the yearly cycle of vegetation growth is subsequently transformed by the desiccating forces of the summer season, which cause non-grass herbaceous vegetation (i.e. forbs) to dry up and disarticulate, again revealing the bare ground that is so characteristic of occupied SKR habitat. Reflecting this preference for open ground, a high ratio of forbs to grasses increases the suitability of a grassland for SKR.

Stephens' kangaroo rats are capable of occupying small patches of favorable habitat amidst otherwise unsuitable (e.g. dense grassy) habitats. They also readily use narrow strips of open habitat to move between larger blocks of suitable habitat (S. Montgomery, pers. observ; O'Farrell 1990; Price and Kelly 1992).

The project area encompasses two primary topographic areas: (a) the southerly level to gently sloping lands just northward of I-15, and (b) the steeper lands eastward of area (a). The southwestern portion of the project site is primarily level to gently sloping terrain along the Temescal Creek floodplain. This area is heavily developed and contains a horse ranch, corrals, pastures, stables and a training track. Although topography and general soil conditions in this area are superficially suitable for SKR, development has eliminated the possibility for SKR populations over most of the area. Some other lands in the southern portion of the site exhibit steeper topography or exhibit a variety of human disturbances and structures; however, they still contain patches of level to gently sloping terrain generally suitable for SKR, primarily in some canyon bottoms, on saddles and ridgelines, and in less disturbed shallow slopes.

A majority of the remainder of the site encompasses the steeply sloping rugged hills to the north, which are covered in disturbed annual grassland and sparse sage scrub vegetation. Elevations range from approximately 350 meters in the southwestern part of the site to approximately 650 meters at high points in the northeastern portion of the property.

As mentioned, portions of the site have experienced a variety of substrate disturbances and developments, including discing, cultivation, farming, rural housing and development of stables and pastures, fencing, concrete foundations, small buildings, bulldozing, ORV use and dumping. Dirt access roads are common throughout much of the project area. In addition, the northerly portion of the study area falls within lands managed by the Riverside County Habitat Conservation Authority (RCHCA) (Figures 2 and 3).

Soils on the site vary widely in their suitability for SKR. Most are generally unsuitable, consisting of course rocks and clays in the higher elevations and on slopes. Some of the lower lying areas, saddles and gentle slopes exhibit better-drained friable soils with higher percentages of loam more suitable for SKR.

Much of the site is covered by sparse to moderately dense non-native grasses and both native and non-native forbs. Common forbs include mustard (*Hirschfeldia incana),* fiddleneck (*Amsinckia menziesii*), filaree (*Erodium botrys*), tarweed (*Hemizonia sp*), distant phacelia (*Phacelia distans*), London rocket (*Sisymbrium irio),* slender sunflower (*Helianthus gracilentus*) and deer weed (*Lotus scoparius).* Common grasses present throughout the site include: wild oats (*Avena sp*.), cheatgrass (*Bromus tectorum*), ripgut (*Bromus diandrus*), and red brome (*Bromus madritensis rubens),* barley *(Hordeum murinum),* golden top *(Lamarkia auria),* and fescue *(Vulpia sp).* Stands of Riversidean sage scrub vegetation also are present at scattered locations across the site. Common constituents of this community include brittlebush (*Encelia farinosa*), white sage (*Salvia apiana*), California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and at scattered locations tree-shrubs such as Mexican elderberry (*Sambucus mexicana*) and laurel sumac (*Malosma laurina*). Stands of mule-fat (*Baccharis salicifolia*) occur in certain drainages, and invasive species such as Russian thistle (*Salsola sp.)* and tamarisk (*Tamarix ramosissima)* also occur in scattered localities across the site.

The previous Jun-July walking survey revealed one small area that was likely to have SKR, and 16 other areas that had some low to moderate potential for SKR occupation (Figure 2). The kangaroo rat signs in most of the potential areas were more consistent with those of the Dulzura kangaroo rat (**DKR**- *Dipodomys simulans*). While most of the sites were considered likely occupied primarily by DKR, the possible presence of SKR could not be definitively ruled out at that time without a trapping survey.

METHODS

On the afternoon of 12 November 2009, the mapped locations on the site from the previous July habitat survey were walked and inspected for specific locations exhibiting active kangaroo rat sign. Those areas with kangaroo rat sign or activity (scat, tracks, burrows, dust-bowls, etc.) were selected for trapping. A few small areas previously mapped as having some potential as habitat

exhibited were re-inspected to confirm presence/absence of sign, and were found to lack any diagnostic indicators of kangaroo rat activity; thus, they were not trapped during this trapping survey.

On the evening of November 12th, a total of 225 traps were set out at 11 different trap lines (Figure 2). Only one site (trap line #5) was considered likely to have SKR, while the resident species at the other ten sites was expected to be the DKR. Extra-large modified Sherman live-traps were set out at sunset and baited with a millet dominated bird-seed mixture. Traps were first checked at midnight, and then again at dawn at which time they were closed. Traps were set out for five consecutive nights from 12-17 November 2009. All trapped animals were released unharmed after being identified. Traps were checked for the last time and picked up on the morning of 17 November, with a total of 1125 trap-nights accrued during the entire trapping effort. Trapping was conducted by Daniel Grout (a sub-permittee to Stephen J. Montgomery TE745541-10 and CDFG MOU).

One location just northeast of a clay brick plant in the far southeast corner of Figure 2, which due to a lack of access during the previous habitat assessment was not identified as having a potential for SKR, was tapped during the trapping survey (see Trap Line 9). This area was trapped as a precaution, to insure that all areas with any potential for this species were fully analyzed for SKR presence/absence.

RESULTS

Weather conditions during the trapping period were mild, usually consisting of the following conditions: clear, sunny and warm during the day (75-85 F) with light breezes of 10-15 mph, and with nightly lows of ~ 60F and low wind speeds.

Trapping confirmed SKR at one small isolated area generally defined by trap line #5 (Table 1, Figure 2). Three unique SKR were captured a total of six times at this location. This small area of occupied SKR habitat very likely represents a remnant population of this species from a population that was previously more expansive, prior to the introduction of a variety of disturbances (e.g. discing, highway/road, residential and commercial development, cultivation impacts). Several DKR also were trapped in this area, which is dominated by sparse brittlebush (*Encelia farinosa*) and sparse non-native grasses.

The Dulzura kangaroo rat was the only kangaroo rat species trapped at the other ten trap sites (Table 1); a total of 98 DKR were captured during the entire trapping effort. Also recorded during the trapping survey were 141 deer mice (*Peromyscus maniculatus*), 142 San Diego pocket mice (*Chaetodipus fallax fallax*), and 3 desert woodrats (*Neotoma bryanti*).

DISCUSSION

The trapping results were as expected. SKR were only caught in very open habitat with minimal shrub and herb cover, in level to gently sloped terrain. The overall quality of habitats in the

project area for SKR is low. In general, most of the area exhibits terrain too steep and rocky and/or too disturbed for substantial populations of this species to occur. In addition, soils in much of this area are sub-optimal for this species. Also, the apparent absence of SKR populations in the immediate vicinity greatly reduces or eliminates the potential for passive colonization of any small patches of suitable habitat that do occur within the study area. Although the most southerly lands in the project area are generally level or gently sloping, and exhibit soils generally suitable for SKR, this area has been heavily disturbed and SKR are not present. The species would not be expected to occur in this area in the future due to historic and on-going disturbance, as well as the apparent absence of nearby sources of individuals to colonize the project site.

It is recommended that any project related activities proposed for locations confirmed as occupied by SKR be relocated so as to avoid incidental take of this species. However, since populations of this species are undoubtedly very limited in area and distribution, such project relocations would be expected to be limited and minor in scope.

Due to the potential for substrate disturbances in the area of project activities and construction features, it is recommended that any SKR habitat be avoided by vehicles (including driving and parking) and structures by a distance of approximately 50 feet. Such areas to be avoided should be clearly marked in the field by a qualified SKR biologist. Such marked areas should be maintained throughout the project construction period, and all project personnel should be educated in formal meetings to the requirements and methods of SKR habitat avoidance throughout the project period. Prior to the commencement of construction related activities each morning, a biologist should check for SKR around parked vehicles in the area around occupied habitat, and any observed SKR should be moved away from such vehicles. If any open trenches or other steep walled excavations are present overnight in the vicinity of occupied SKR habitat, such low areas should be checked for SKR and any SKR should be removed and released in nearby suitable habitat areas with extant burrows usable by this species.

If avoidance of mapped SKR habitat is not feasible during the project, an appropriate exclusion fence can be constructed around occupied habitat, after which resident SKR may be trapped and relocated to nearby habitat areas that are deemed suitable for this species and not proposed for any type of project related disturbances. If this approach is followed, the relocation area should be surrounded by appropriate fencing prior to the relocation effort, and artificial burrows should be installed inside the fenced relocation area by a biologist familiar with this method of habitat improvement, thereby providing an immediate source of shelter for relocated animals. A minimum of two burrows per individual, placed approximately 24 inches apart at each pre-determined burrow site, should be installed in the same relative locations at the relocation site as occupied burrows are located at the home site. Artificial burrows should be installed by an SKR biologist with experience with such work, and burrows should be placed at an angle of no greater than 30 degrees (from the horizontal) to a depth of no less than 42 inches.

Prior to any SKR habitat disturbance, full details of the fencing and methods of SKR removal/relocation would be provided by a permitted SKR biologist fully familiar with the proposed avoidance/minimization actions.

Please contact me if you have any questions regarding this report or the associated field effort.

Sincerely,

Stephen J. Montgomery

SJM Biological Consultants,Inc.
8455 Slayton Ranch Road
Flagstaff, Arizona 86004
Office (928) 527-1604
FAX (928) 527-1632
cell (858) 232-9602

email - steve@sjmbio.com

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Table 1. Trap Results for Alberhill, November 2009

Area	# Traps	Date (2009)	Captures*				
			SKR	DKR	CHFA	PEMA	NELE
1	10	13-Nov			1		
	10	14-Nov				1	
	10	15-Nov		1	1	1	
	10	16-Nov			1		
	10	17-Nov		1			
2	15	13-Nov		1	4	3	
	15	14-Nov		1	3	2	
	15	15-Nov		2	4	2	
	15	16-Nov		1	3	3	
	15	17-Nov		1	3	4	
3	25	13-Nov		5		7	
	25	14-Nov		4	6	6	
	25	15-Nov		5	5	4	
	25	16-Nov		4	3	5	
	25	17-Nov		3	4	4	
4	25	13-Nov		3			
	25	14-Nov				4	
	25	15-Nov		1		3	
	25	16-Nov		1	1	4	
	25	17-Nov		1		3	
5	25	13-Nov	**1AM**	4		4	
	25	14-Nov	**1AM, 1AF**	3		4	
	25	15-Nov	**1AF**	2	3	5	
	25	16-Nov	**1AM**	2		5	
	25	17-Nov	**1AF**		2	3	
6	15	13-Nov		1	1	5	1
	15	14-Nov		1	1	4	1
	15	15-Nov				6	
	15	16-Nov		1		5	1
	15	17-Nov			1	4	
7	10	13-Nov		2	2	1	
	10	14-Nov		1	2	2	
	10	15-Nov		2	2	1	
	10	16-Nov		1	1	1	
	10	17-Nov			1		
8	15	13-Nov				3	
	15	14-Nov			1	4	
	15	15-Nov		1	1	3	
	15	16-Nov			2	2	
	15	17-Nov		1	1	1	
9	25	13-Nov		1	4	3	
	25	14-Nov		1	3	4	
	25	15-Nov			2	5	
	25	16-Nov		1	3	4	
	25	17-Nov		1	3	3	
10	10	13-Nov		2			
	10	14-Nov		2		1	
	10	15-Nov		1	1		
	10	16-Nov		2			
	10	17-Nov		1		1	
11	50	13-Nov		8	12		
	50	14-Nov		6	9	1	
	50	15-Nov		8	10	1	
	50	16-Nov		7	7	2	
	50	17-Nov		9	8		
Totals	**1125**		**6 (3 individuals)**	**98**	**142**	**141**	**3**

*Captures - Only SKR were marked. Thus, totals for other species do not represent number of unique individuals

SKR	Stephens' kangaroo rat (*Dipodomys stephensi*)
DKR	Dulzura kangaroo rat (*Dipodomys simulans*)
SDPM	San Diego pocket mouse (*Chaetodipius fallax fallax*)
PEMA	Deer mouse (*Peromyscus maniculatus*)

Assessment of Potential Federal and State Jurisdictional Streambeds and Wetlands
Proposed SCE Alberhill Substation Site
Riverside County

June 23, 2010

Prepared For:

AECOM
1461 E. Cooley Dr.
Suite 100
Colton, CA 92324

Prepared By:

Edith Read, Ph.D
E Read and Associates, Inc.
368 South Grand St.
Orange, CA 92866

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Figures

Tables

Appendices

Appendix 3. Arid West Region Wetland Determination Data Forms

List of Acronyms

CDFG	California Department of Fish and Game
DBESP	Determination of Biologically Equivalent or Superior Preservation Report
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
NRCS	Natural Resources Conservation Service
SCE	Southern California Edison
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers

Introduction

Southern California Edison (SCE) proposes to construct a substation on a former horse ranch located northwest of Lake Elsinore in western Riverside County (Figure 1). A 115 kV transmission line is also proposed but only the Alberhill Substation site is the subject of this report. The site is in the watershed of Temescal Canyon Wash, in Section 16 of Township 5 South, Range 5 West, of the U.S. Geological Survey (USGS) Alberhill 7.5' Quadrangle. The following Assessor's Parcel Numbers are included: 39112007, 391120015, 39112003, 391120026, 391120016, 391120022, 391160021, and 39116022. Collectively these parcels are in Criteria Area cells 3649, 3650, and 3749 of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP County of Riverside, 2003). Site elevations range from about 1,200 feet to 1,600 feet above mean sea level. Proposed areas of disturbance are not known at this time. The purpose of this study is to assist the planning process by assessing the potential for Federal and California State jurisdictional waters, streambeds and wetlands, and for riparian/riverine features covered by the MSHCP. Recommendations for compliance with State, Federal, and County requirements pertaining to waters, streambeds, riparian communities, and wetlands are also provided.

Methods

Document Review

Site-Specific Data. A desktop analysis of potential jurisdictional features was conducted by AECOM for guidance in the field. A vegetation map was also provided by AECOM (Appendix 1). Historical documents reviewed included aerial photographs, topographic maps, a vegetation community map prepared by the Wieslander survey team in the early 1930's, and soil survey data available from the National Cooperative Soil Survey (USDA-NRCS, 2008).

Delineation Protocols. Documents consulted for delineation of Federal jurisdiction consisted of Lichvar and McColley (2008) regarding identification of "ordinary high water mark" in arid regions, the U.S. Army Corps of Engineers (USACE) guidelines for interpretation of Federal jurisdiction following the Rapanos, Carabell, and SWANCC decisions (USACE, 2007a,b; USACE and EPA, 2007), the USACE 1987 Wetland Delineation Manual (Environmental Laboratory, 1987), and USACE guidelines for jurisdictional determination in the arid southwest (USACE, 2001). Delineation of California State jurisdiction (CDFG and RWQCB) was based on definitions and regulations specified by Sections 1600-1616 of the Fish and Game Code, Title 14 of the California Code of Regulations, and Section 13050 of the California Water Code.

Field Survey

A field survey of the site was conducted by Dr. Edith Read and Andrew Forde on April 1, 2010. Site features were assessed for potential indicators of stream, riparian, or wetland functions. Indicators of stream functions, particularly surface flows, typically include a clearly defined bed and bank structure, bank shelving, deposits of organic debris, cracked mud or clay, and/or

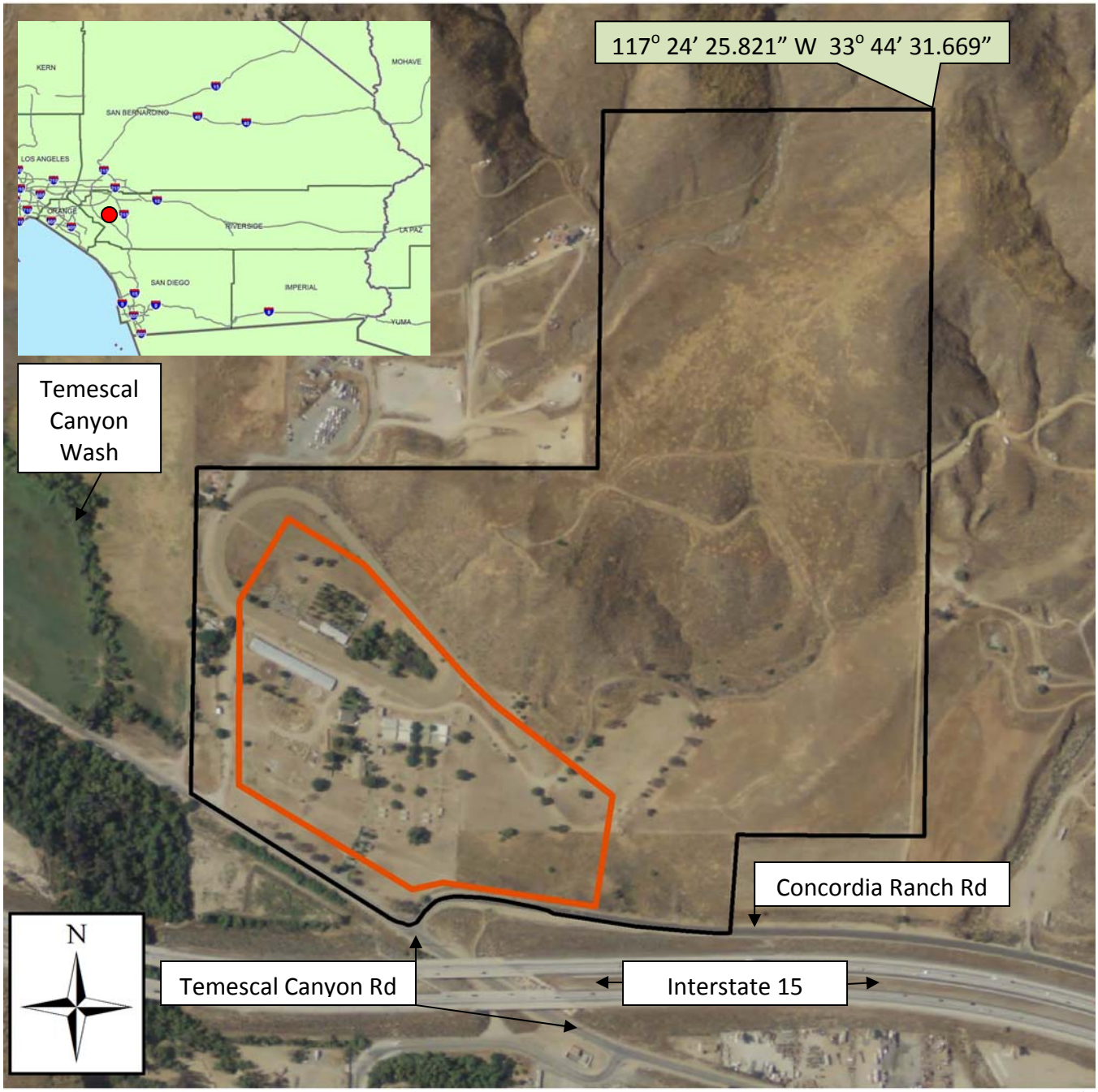


Figure 1. Site Location

water marks on rocks or soil. Indicators of wetland functions typically include wetland or riparian vegetation, and/or soils with anaerobic or redoxymorphic features. Where wetland indicator vegetation was present (i.e. at the only pond on site), soil characteristics were evaluated from three core samples obtained by auger. This auger method (as opposed to larger pits dug by shovel) was used in order to minimize potential for habitat impacts. Dominant plant species were identified within a plot of about three (3) square meters centered on each auger point. This plot size was selected based on estimation of how much area each auger sample could be expected to represent. Dominant vegetation of the pond as a whole was also recorded. Standard field survey forms for the Arid West Region were used to record and summarize field observations (USACE, 2008).

Delineation Criteria

CDFG

The California Department of Fish and Game (CDFG) has jurisdictional authority over resources associated with rivers, streams, and lakes within the State of California.[1] The California Code of Regulations define a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish and other aquatic life including watercourses having a surface or sub surface flow that supports or has supported riparian vegetation."[2] A lake is defined as natural or man-made.[3] CDFG jurisdiction typically extends between the top of each bank or to the outer edge of contiguous riparian vegetation, whichever is greater.

County of Riverside MSHCP

The County of Riverside MSHCP (2003) requires an assessment of potential project effects on riparian/riverine areas and vernal pools. Riparian/riverine areas are defined as " lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year" (County of Riverside, 2003, Section 6.1.2). Vernal pools are defined in Section 6.1.2 of the MSHCP as "seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season." If a project is expected to impact a riparian/riverine area, vernal pool, or other covered resource, a Determination of Biologically Equivalent or Superior Preservation Report (DBESP) must be prepared.

[1] Fish & Game Code §§ 1600 – 1616
[2] California Code of Regulations (C.C.R.), Title 14 § 1.72
[3] 14 C.C. R. § 1.56

USACE

The USACE regulates placement of "dredge" and "fill" in waters of the U.S. including adjacent wetlands under the authority of Section 404 of the Clean Water Act.[4] The Code of Federal Regulations defines "waters of the U.S." as intrastate lakes, rivers, streams, mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds. Wetlands are defined as "areas that are inundated or saturated by surface water or ground water 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." Assessment of Federal jurisdiction is based on two main factors: 1) nexus to "traditionally navigable waters" or "relatively permanent waters"; and 2) presence of "ordinary high water marks."

RWQCB

Federal authority over water quality under Section 401 of the Federal Clean Water Act is typically delegated to State and regional water quality control boards. Section 401 of the Clean Water Act requires that "any applicant for a Federal permit for activities that involve a discharge to Waters of the U.S., shall provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal Clean Water Act."

In addition to Section 401 of the Federal Clean Water Act, the RWQCB exerts authority over "Waters of the State" and water quality by means of State law. "Waters of the State" are broadly defined by sections of the California Water Code, known as the Porter-Cologne Water Quality Control Act, as "any surface water or groundwater, including saline waters, within the boundaries of the state."[5]

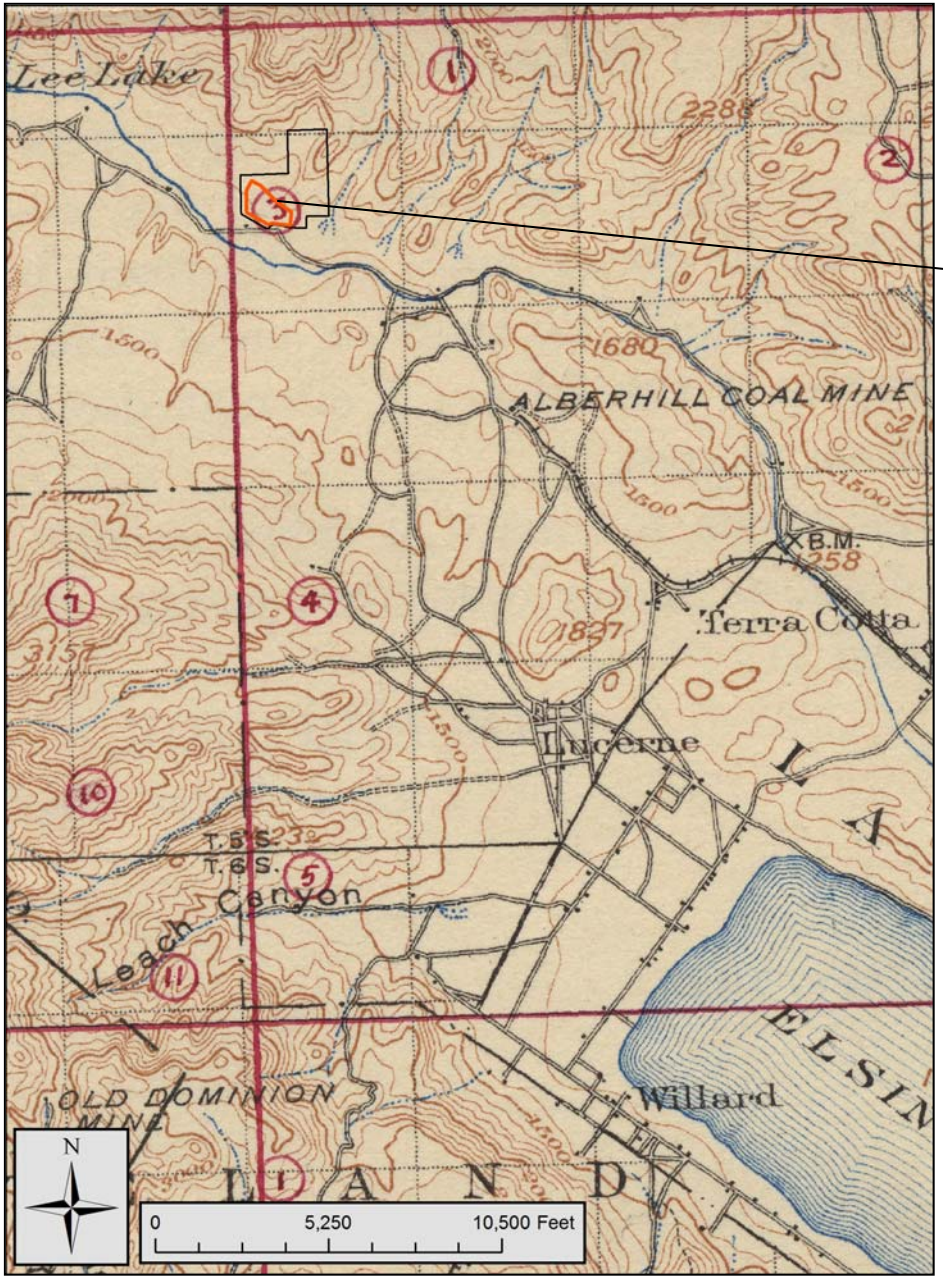
Results and Discussion

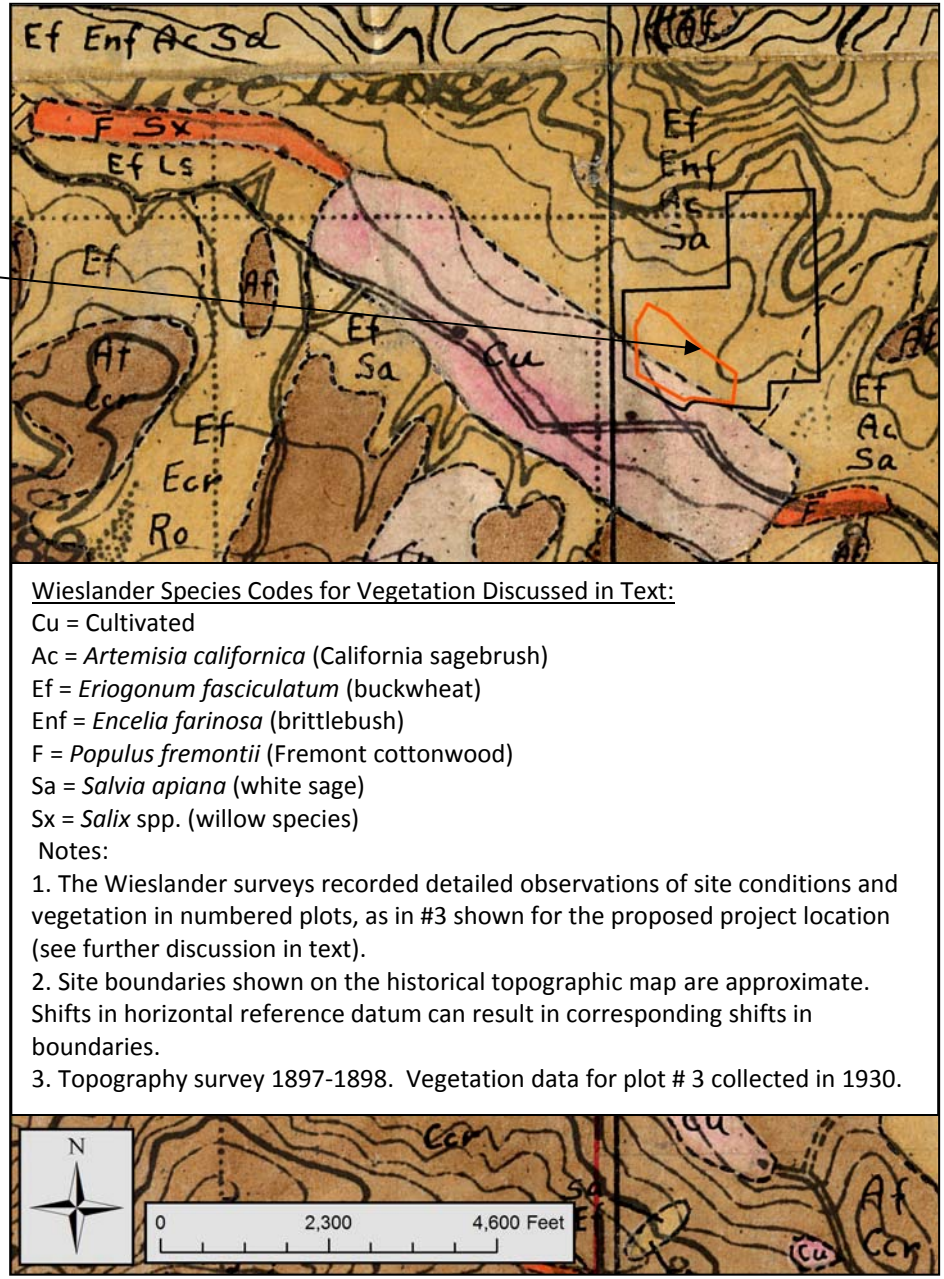
Historical Site Conditions

A review of historical site conditions is important for determining whether present-day features are natural or an artifact of human alteration of the landscape. The following timeline was derived from this review:

1897-1930 (Figure 2). Two "blue-line" intermittent drainages are shown on the 1897-1898 topographic map, but these were off-site to the east and did not connect to Temescal Canyon Wash. According to the Wieslander vegetation records, the area burned in 1925. This observation suggests that most, if not all, of the flora on the site consist of species that colonized or re-sprouted after the 1925 fire. By 1930, the southwest portion of the site and portions of Temescal Canyon Wash (off site) were in cultivation. The rest of the site was dominated by upland vegetation consisting mainly of buckwheat (*Eriogonum fasciculatum*),

[4] Clean Water Act of 1972 § 404. See also 33 U.S.C. § 1341
[5] California Water Code § 13050(e)





Wieslander Species Codes for Vegetation Discussed in Text:

Cu = Cultivated
Ac = *Artemisia californica* (California sagebrush)
Ef = *Eriogonum fasciculatum* (buckwheat)
Enf = *Encelia farinosa* (brittlebush)
F = *Populus fremontii* (Fremont cottonwood)
Sa = *Salvia apiana* (white sage)
Sx = *Salix* spp. (willow species)

Notes:

1. The Wieslander surveys recorded detailed observations of site conditions and vegetation in numbered plots, as in #3 shown for the proposed project location (see further discussion in text).
2. Site boundaries shown on the historical topographic map are approximate. Shifts in horizontal reference datum can result in corresponding shifts in boundaries.
3. Topography survey 1897-1898. Vegetation data for plot # 3 collected in 1930.

Figure 2. Historical Topography, Drainage, and Vegetation 1897/98-1930

California sagebrush (*Artemisia californica*), and white sage (*Salvia apiana*). The approximate location of one plot from the Wieslander vegetation survey in 1930 is near a pond that is currently on site (see discussion below). Plot observations recorded in 1930 included the above-listed upland species plus grasses and another upland species, deerweed (*Lotus scoparius*). No water or wetland species were reported by the Wieslander survey at this location. Riparian vegetation consisting of Fremont cottonwoods (*Populus fremontii*) and willows (*Salix* spp.) was mapped during this period, but only off-site to the northwest and southeast in limited stands associated with Temescal Canyon Wash.

1967-1994 (Figures 3 and 4). The racetrack on site was constructed between 1978 and 1981. By 1978 the southwest portion of the site was graded, and a number of roads were constructed across the slopes. A pond was constructed within the southeast inner perimeter of a racetrack sometime between 1981 and 1988. The topographic map for the area (Figure 4) shows one "blue-line" drainage in the northeastern part of the site that terminates in uplands and does not connect to Temescal Canyon Wash. This drainage is not shown on the 1897-1898 topographic map (Figure 2), which was published prior to extensive human alteration of the site and erosion that may have occurred in subsequent wet years after the 1925 fire (e.g. 1938-1939, 1969). Collectively this information suggests that the termination of this drainage in uplands is natural, albeit disturbed by human activity.

Jurisdictional Features

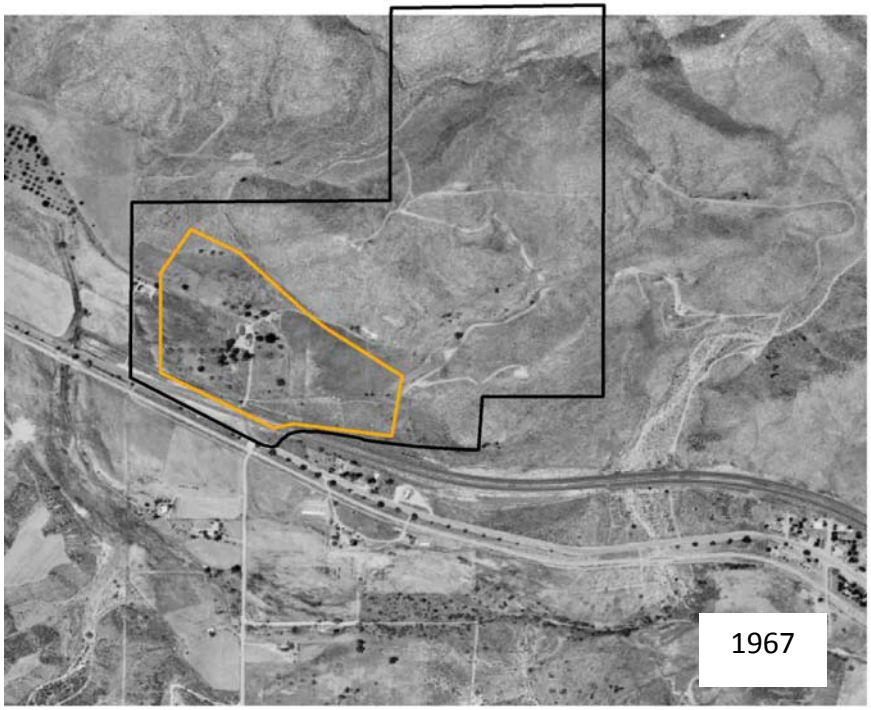
The constructed, approximately 0.84-acre pond was the only feature on-site concluded to be potentially jurisdictional under CDFG and RWQCB laws and regulations. As described below, no features qualifying for Federal jurisdiction were observed on site. Additional features inspected on site but excluded from jurisdiction are discussed in the "Non-Jurisdictional Features" section below.

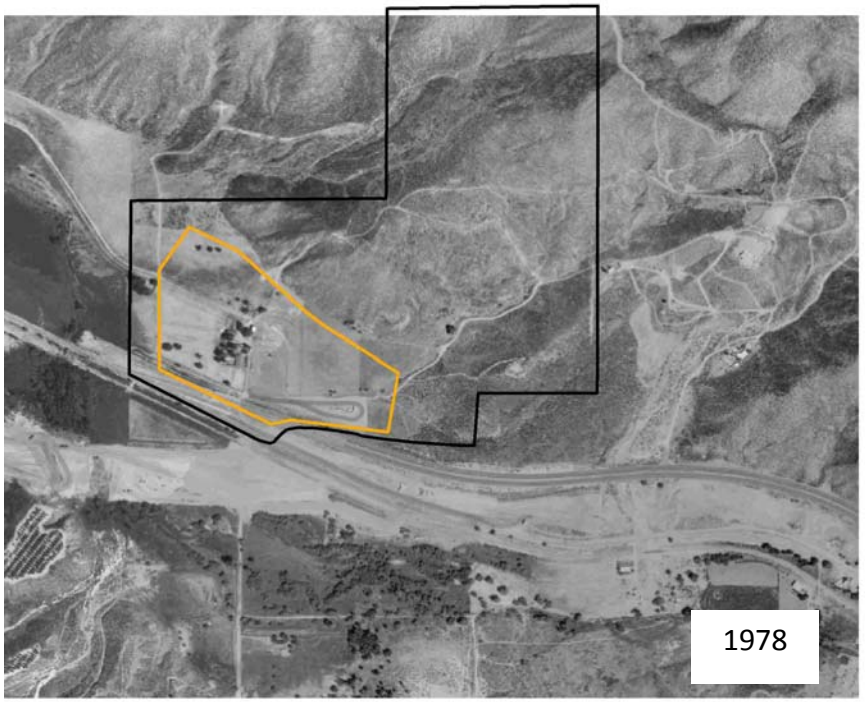
RWQCB

The RWQCB exerts authority over "Waters of the State" and its associated water quality through the Porter-Cologne Water Quality Control Act. Since no distinctions are made in the State code between artificial and natural bodies of water, the RWQCB retains jurisdiction over the pond. Written concurrence of non jurisdiction is required from the local RWQCB office prior to an activity associated with the pond.

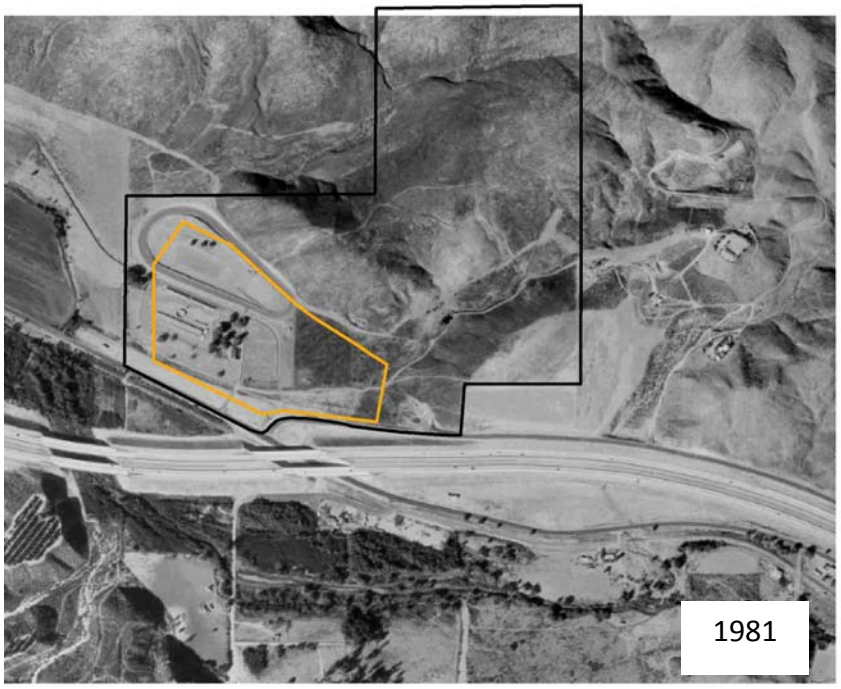
CDFG

The constructed, approximately 0.84-acre pond was concluded to be potentially jurisdictional as a Waters of the State and a wetland (Figures 5 and 6). The vegetation associated with this pond was classified by AECOM as a mix of Mulefat Scrub/Southern Willow Scrub/Valley Fresh Water Marsh (Appendix 1). Dominant plant species include bulrush (*Scirpus acutus*), cattail (*Typha* sp.), willow (*Salix* spp.), mulefat (*Baccharis salicifolia*), and Fremont cottonwood





Sources: HistoricAerials.com, Google Earth



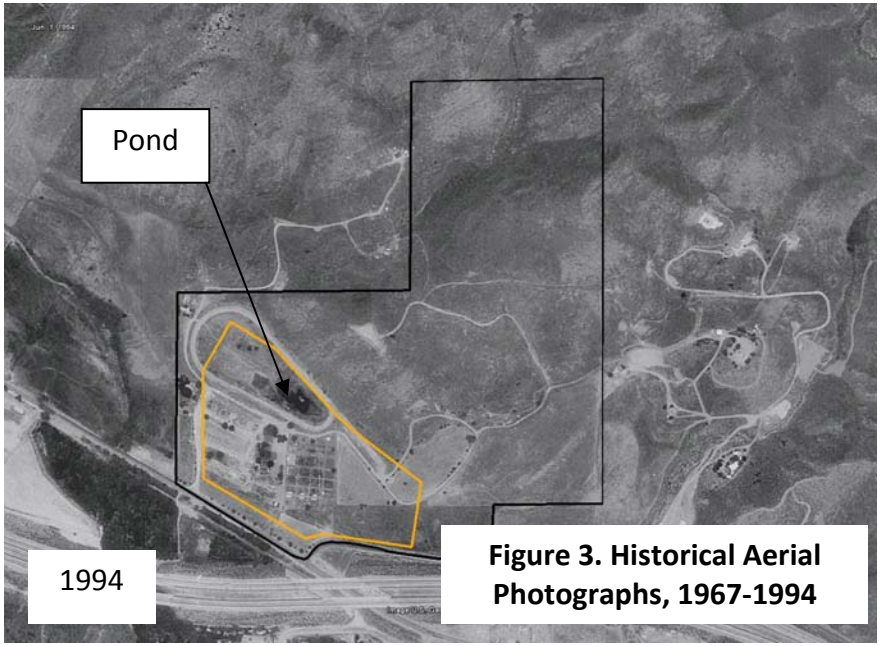


Figure 3. Historical Aerial Photographs, 1967-1994

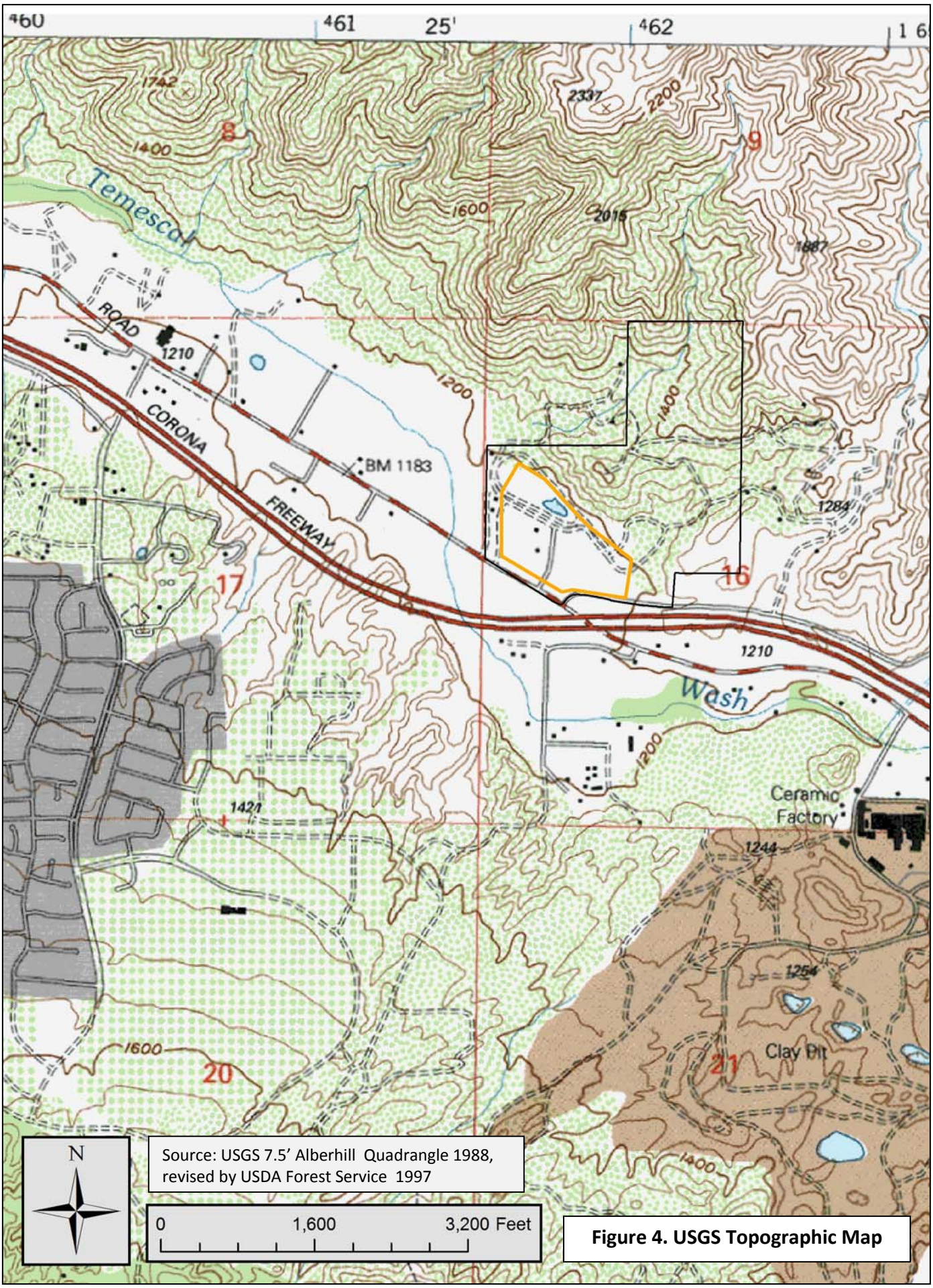


Figure 4. USGS Topographic Map

Figure 5. CDFG and RWQCB Jurisdictional Pond

Figure 6. Photographs of Pond Vegetation

(*Populus fremontii*). Subsurface soil within the portion of the pond dominated by bulrush (*Scirpus acutus*) has a high proportion of clay and appears to be a localized anomaly within a region that is otherwise mapped as loamy sand or sandy loam (Appendix 2). It is possible this clay was imported and used as a liner to construct the pond. Appendix 3 provides copies of the delineation forms with details of the pond observations. Table 1 summarizes the data. While the pond is of artificial origin, California regulations regarding Waters of the State do not clearly distinguish between artificial and natural ponds or lakes. Historical evidence indicates the pond was constructed sometime between 1981 and 1994, after laws and regulations governing "lakes" were enacted. CDFG has jurisdiction over the pond unless excluded in writing by CDFG. The perimeter of potential jurisdiction extends to the outer canopy of riparian indicator vegetation and top of bank as shown on Figure 5.

No outlet or weir structures, or connection to downstream water bodies or streams, were observed. The pond appears to have been impounded over a localized clay layer by construction of a berm across the eastern end, and captures rainfall. No other source of water was observed on-site. As discussed above, historical evidence suggests that the pond is entirely artificial in origin and most likely constructed as an ornamental water feature for the racetrack.

Table 1. Summary of Pond Soil Observations

Core Number	Depth (inches)	Dominant Vegetation	Matrix Color	Mottle Abundance/Contrast	Mottle Colors	Texture
1	9	Bulrush (*Scirpus* sp.)	Gley 1/7	Common/prominent	7.5YR/7	clay
2	24	Non-native annual grasses (*Bromus* sp., *Avena* sp.)	10 YR/5	none	n/a	sandy loam
3	25	Mulefat (*Baccharis salicifolia*)	10 YR/5	none	n/a	sandy loam

County of Riverside MSHCP

The pond on site is not afforded protection under the MSHCP because it is artificial. Section 6.1.2 of the MSHCP states the following: "With the exception of wetlands created for the purpose of providing wetlands Habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics as described above which are artificially created are not included in these definitions." Additional features inspected on site but excluded from coverage under the MSHCP are discussed in the "Non-Jurisdictional Features" section below.

USACE

No features qualifying for Federal jurisdiction were observed on site. Appendix 3 provides copies of field data forms for the constructed pond on site. There are several reasons for excluding the pond from Federal jurisdiction. Section 404, subsection (f)(1) of the Federal Water Pollution Control Act (also known as the Clean Water Act) excludes farm stock ponds and irrigation ditches. In addition, subsequent guidance memoranda from the USACE following U.S. Supreme Court decisions, exclude isolated water bodies that are not adjacent or hydrologically connected to traditionally navigable waters or relatively permanent waters. Additional features inspected on-site but excluded from Federal jurisdiction are discussed in the "Non-Jurisdictional Features" section below.

<u>Non-Jurisdictional Features</u>

Figure 7 illustrates feature "A." While the aerial photograph clearly shows this feature, and the USGS topographic map shows this feature as a "blue-line" drainage (Figure 4), field observations (photographs in Figure 7) indicate this feature should be excluded from CDFG, RWQCB, MSHCP, and Federal jurisdiction. The feature is best described as a swale, without a clearly defined bed, water marks, or vegetation indicators of flow or presence of water. The feature is not shown as a "blue-line" drainage on the historical topographic map (Figure 2). The feature terminates about 2,100 feet east of Temescal Canyon Wash, with no evidence of surface or subsurface connectivity. The visual contrast between this feature and surrounding terrain visible in the aerial photograph appears to be superficial and due to dominance of brittlebush (*Encelia farinosa*), an upland shrub, rather than consistent erosive effects of stream flow.

Figure 8 illustrates "Feature B." Like feature A, feature B is best described as a discontinuous swale. This feature ultimately drains into Temescal Canyon Wash through a series of culverts across the horse ranch, but based on historical evidence, this current connection to Temescal Canyon Wash, even if left undisturbed by horse ranching activity, would be entirely artificial within uplands. The purpose of the culverts appears to be to convey periodic irrigation runoff. Limited evidence of shelving and bed structure within the upper section of the drainage

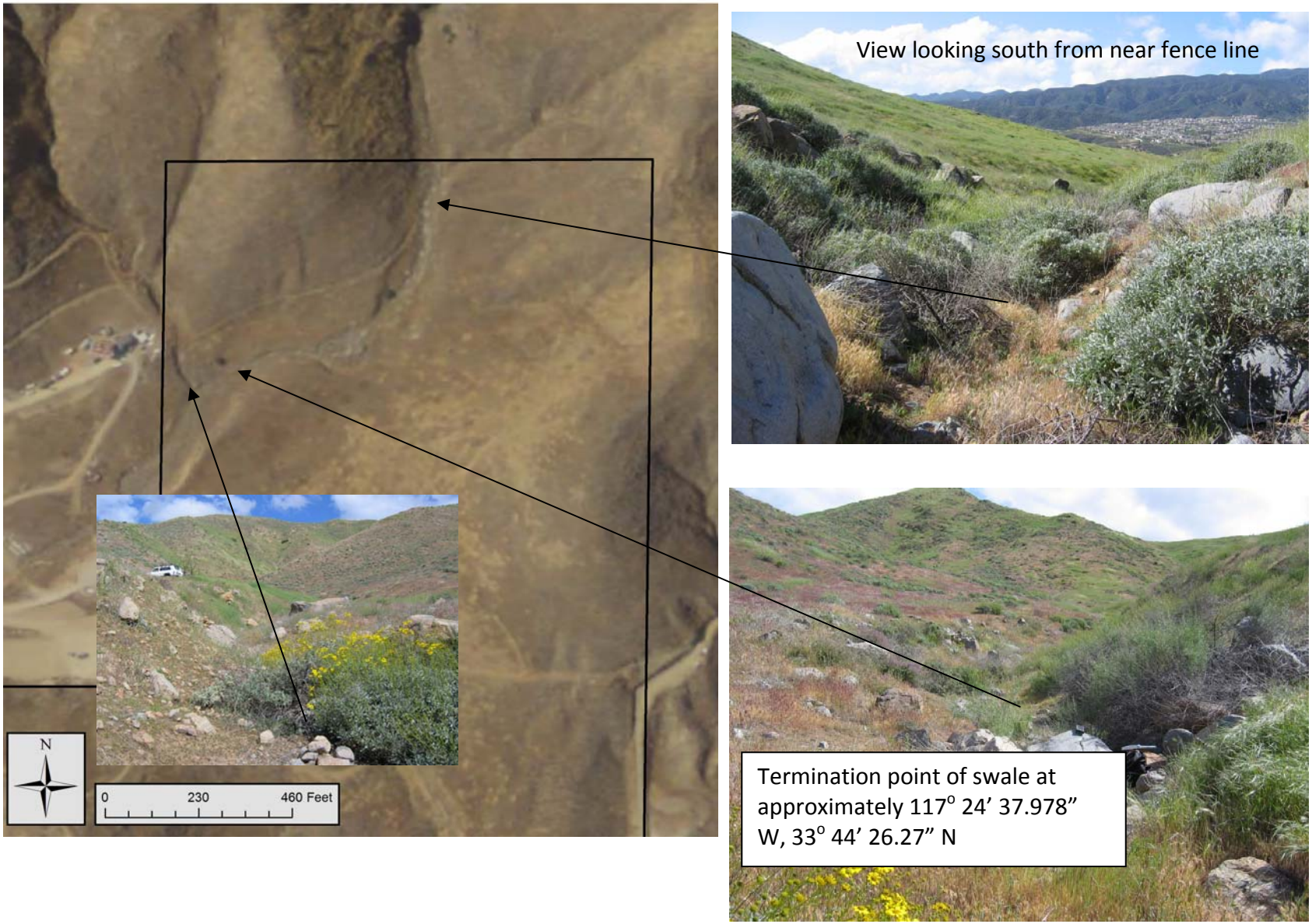


Figure 7. Feature "A" Excluded from CDFG, RWQCB, MSHCP and Federal Jurisdiction

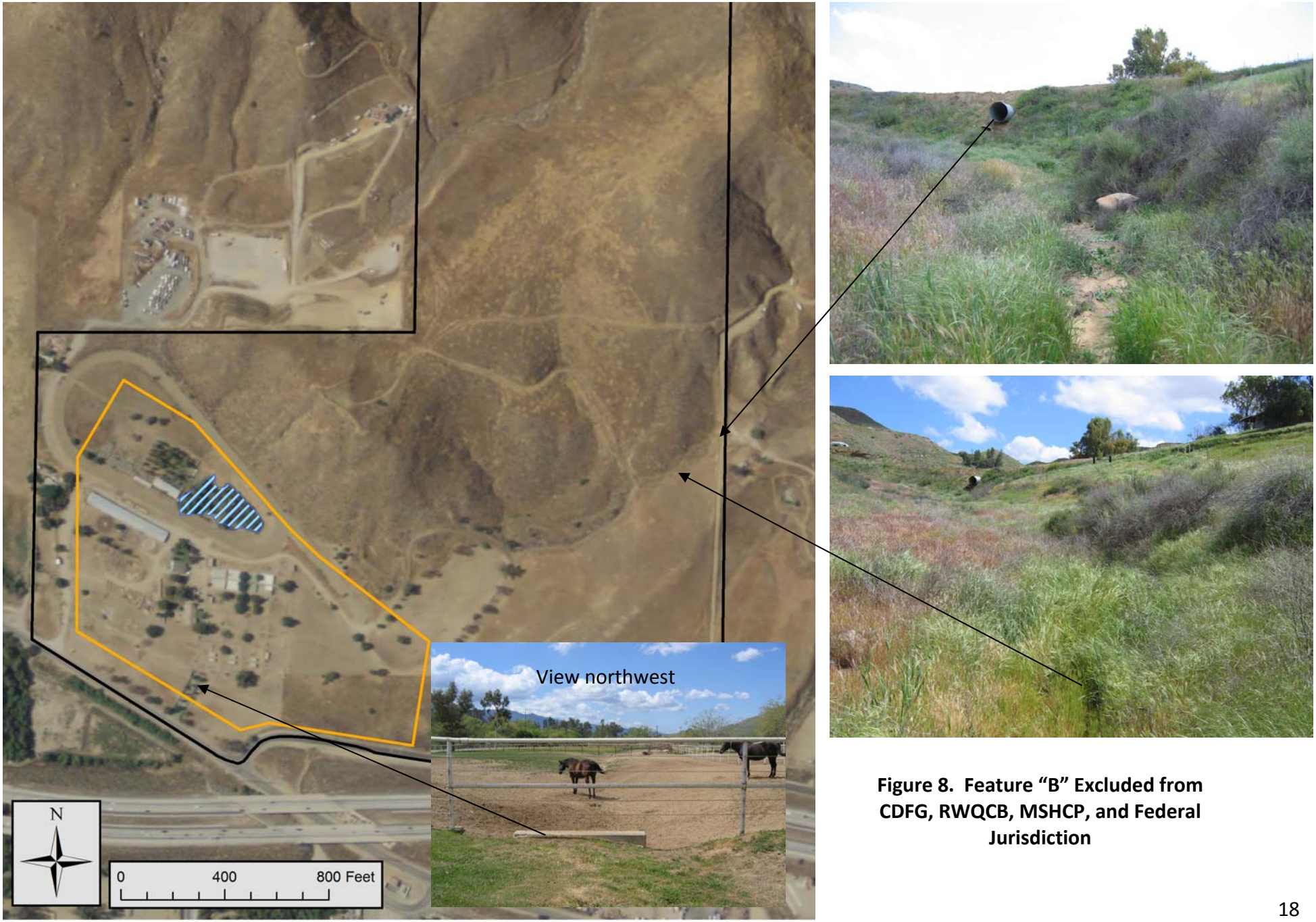


Figure 8. Feature "B" Excluded from CDFG, RWQCB, MSHCP, and Federal Jurisdiction

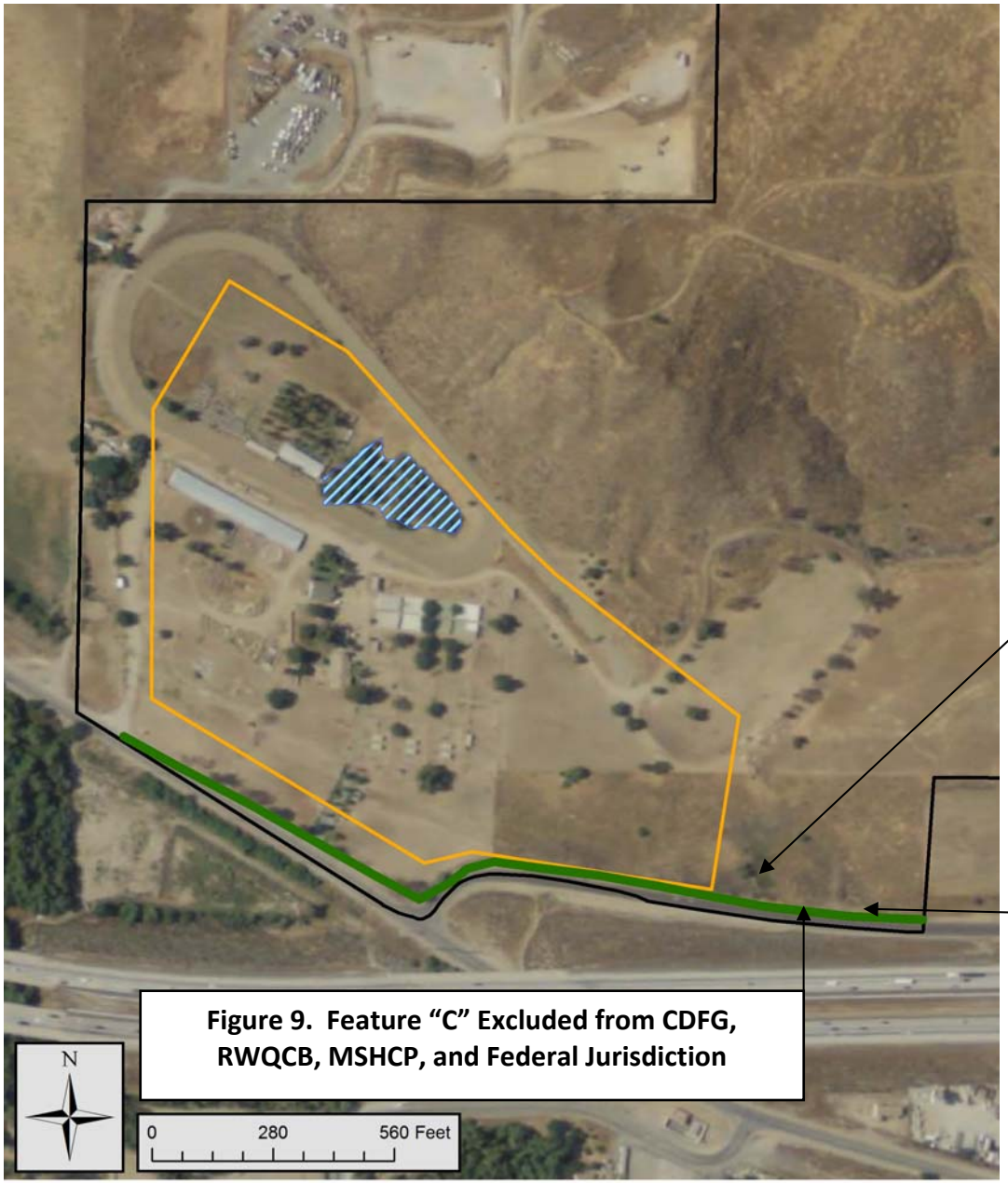
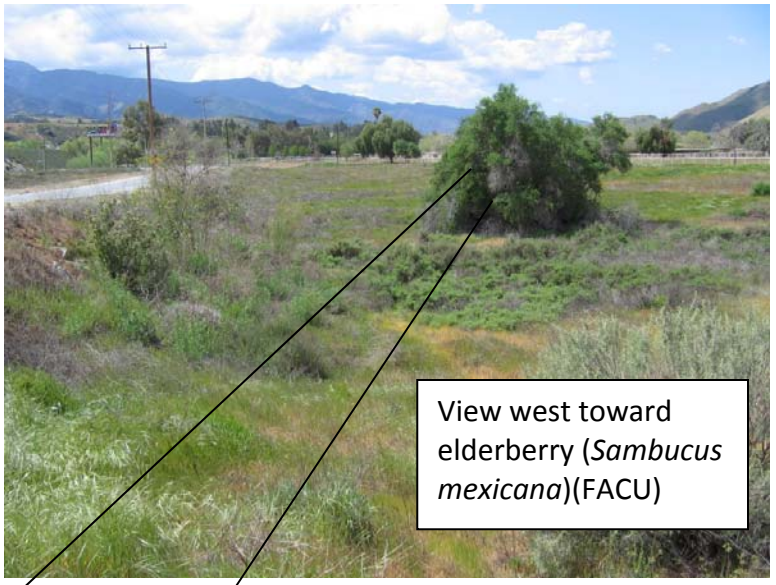


Figure 9. Feature "C" Excluded from CDFG, RWQCB, MSHCP, and Federal Jurisdiction



View west toward elderberry (*Sambucus mexicana*)(FACU)

appears to be entirely the result of ephemeral irrigation outflow from a culvert constructed off-site on the adjacent property. This outflow has been insufficient to support riparian or wetland vegetation – such vegetation is absent throughout the feature on-site. These conditions also exclude Feature B from RWQCB jurisdiction under the Porter-Cologne Act, which applies to "surface waters" and "groundwater". There are no vegetation indicators of surface or groundwater associated with Feature B.

Figure 9 illustrates "Feature C." Like features A and B, Feature C is best described as a discontinuous swale. For most of its length it is nearly indiscernible from the surrounding landscape, following the north side of Concordia Ranch Road and Temescal Canyon Road west through a series of small culverts. Historical evidence and site observations indicate that this feature is an old drainage ditch constructed in uplands, formed from road berms to convey runoff from off-site properties to the east. There are no vegetation indicators of surface or groundwater associated with Feature C.

Summary and Recommendations

One constructed pond, about 0.84 acre, was concluded to be potentially jurisdictional under CDFG and RWQCB criteria but not County (MSHCP) or Federal criteria. The pond is classified as Waters of the State and a wetland because current regulations do not clearly distinguish between artificial and natural ponds or lakes. The MSHCP excludes constructed wetlands that were not specifically created for habitat.

All of the other features on-site are classified either as natural swales or artificial drainage ditches constructed in uplands. As such, these features are excluded from USACE, RWQCB, CDFG, and MSHCP jurisdiction by this author. None support wetland or riparian vegetation. But because regulations are subject to change, and interpretation of field indicators for swales can be subjective (especially under CDFG and RWQCB criteria), concurrence with these conclusions should be obtained in writing from the CDFG, RWQCB, and USACE prior to construction.

These conclusions and recommendations are limited to on-site features. Off-site potentially jurisdictional features, specifically Temescal Canyon Wash, were not surveyed. Temescal Canyon Wash could be indirectly impacted by a project, such as by discharge conveyed through existing non-jurisdictional swales, new drains or culverts. Potential for such impacts and related permit requirements need to be evaluated once a specific project description and site plan have been developed.

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Lichvar, R.W. and S.M. McColley, 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. A Delineation Manual. U.S. Army Corps of Engineers, Engineer Research and Development Center. Technical report ERDC/CRREL TR-08-12.

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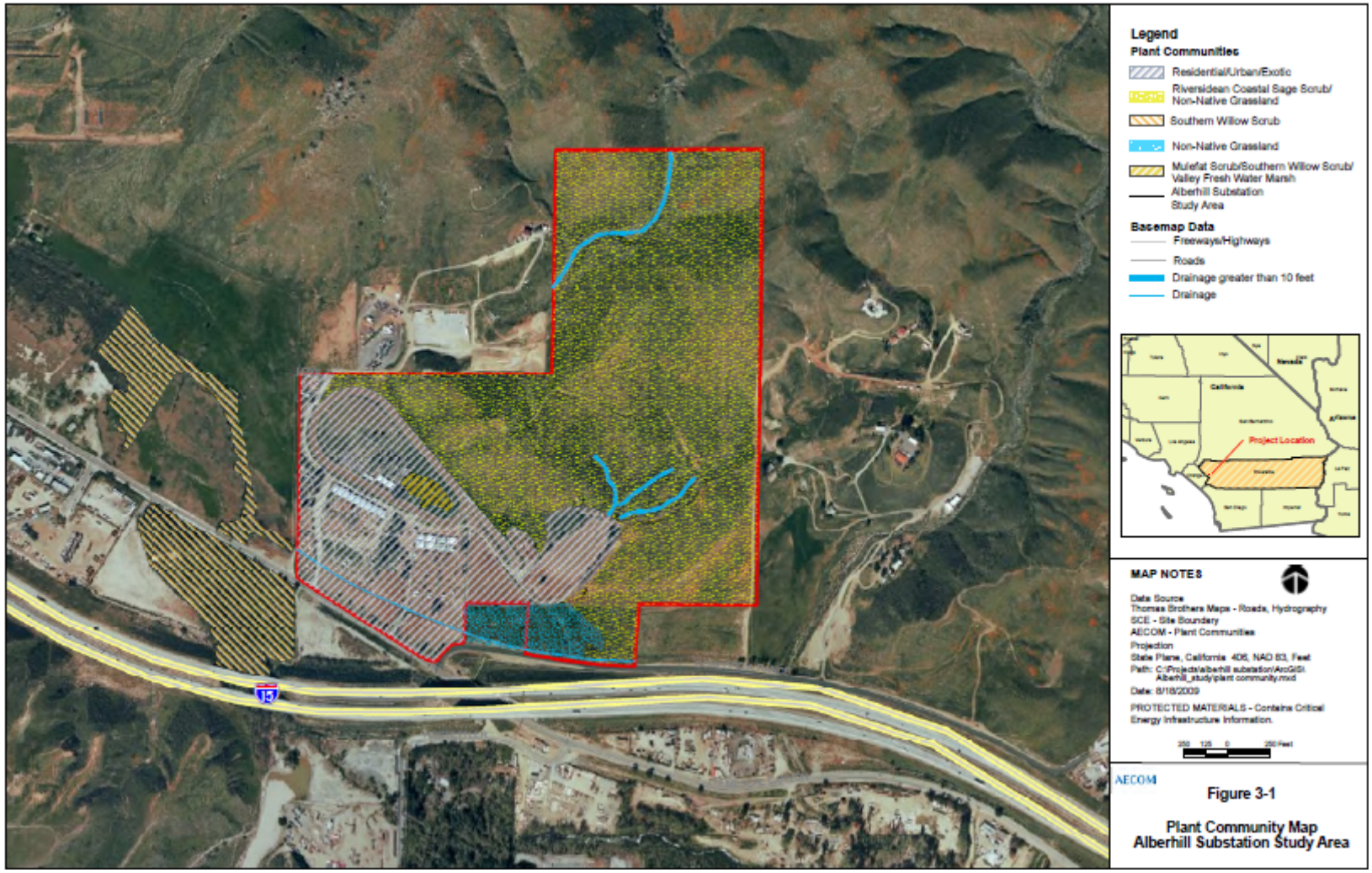
USACE, 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Report No. ERDC/EL TR-08-28, issued September 2008.

U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS), 2008. Soil Survey of Western Riverside Area, California, Version 5, January 3, 2008.

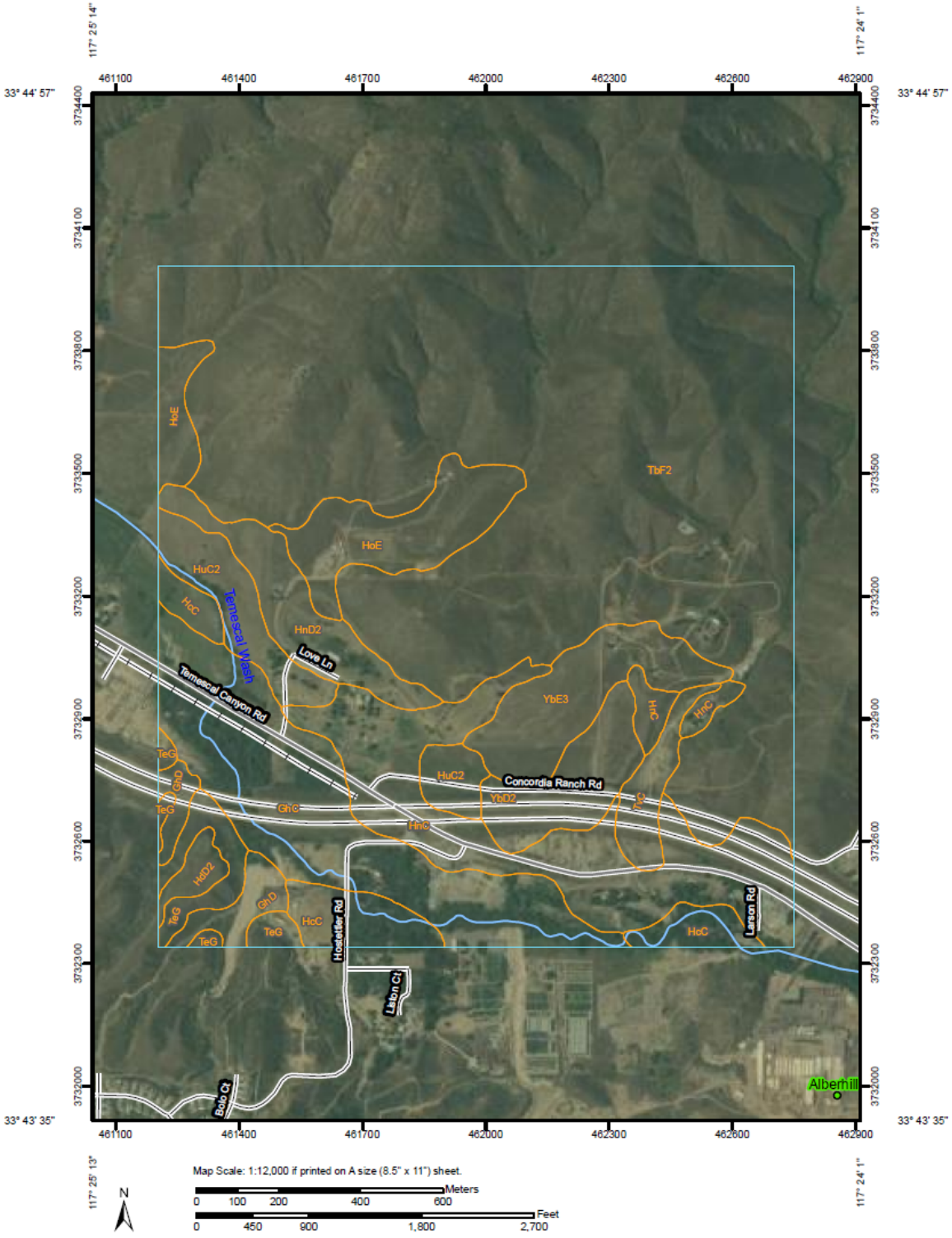
Wieslander, A.E., H.S. Yates, H.A. Jensen, P.L. Johannsen, circa 1921. Manual of Field Instructions for Vegetation Type Map of California and Vegetation Map for the Elsinore Quadrangle. Copy available via the Vegetation Type Mapping (VTM) Project: http://vtm.berkeley.edu.

APPENDIX 1
Vegetation Community Map


Legend
Plant Communities
Residential/Urban/Exotic
Riversidean Coastal Sage Scrub/ Non-Native Grassland
Southern Willow Scrub
Non-Native Grassland
Mulefat Scrub/Southern Willow Scrub/ Valley Fresh Water Marsh
Alberhill Substation Study Area
Basemap Data
Freeways/Highways
Roads
Drainage greater than 10 feet
Drainage
California
Project Location
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary
AECOM - Plant Communities
Projection
State Plane, California 405, NAD 83, Feet
Path: C:\Projects\alberhill substation\ArcGIS\ Alberhill_study\plant community.mxd
Date: 8/18/2009
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
AECOM
Figure 3-1
Plant Community Map
Alberhill Substation Study Area

APPENDIX 2
NRCS Soil Survey

Soil Map—Western Riverside Area, California



USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

4/20/2010
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:12,000 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 11N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 5, Jan 3, 2008

Date(s) aerial images were photographed: 6/7/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Western Riverside Area, California (CA679)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
GhC	Gorgonio loamy sand, 0 to 8 percent slopes	67.6	10.6%
GhD	Gorgonio loamy sand, 8 to 15 percent slopes	10.0	1.6%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	21.2	3.3%
HdD2	Hanford cobbly coarse sandy loam, 2 to 15 percent slope s, eroded	4.0	0.6%
HnC	Honcut sandy loam, 2 to 8 percent slopes	69.1	10.8%
HnD2	Honcut sandy loam, 8 to 15 percent slopes, eroded	20.3	3.2%
HoE	Honcut cobbly sandy loam, 2 to 25 percent slopes	31.7	5.0%
HuC2	Honcut loam, 2 to 8 percent slopes, eroded	21.6	3.4%
TbF2	Temescal rocky loam, 15 to 50 percent slopes, eroded	326.9	51.3%
TeG	Terrace escarpments	12.7	2.0%
TvC	Tujunga loamy sand, channeled, 0 to 8 percent slopes	9.0	1.4%
YbD2	Yokohl loam, 8 to 15 percent slopes, eroded	18.3	2.9%
YbE3	Yokohl loam, 8 to 25 percent slopes, severely eroded	25.4	4.0%
Totals for Area of Interest		**637.8**	**100.0%**

APPENDIX 3
Arid West Region Wetland Determination Data Forms (for pond feature on site; see map at end of appendix for sample plot locations)

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Alberhill Proposed Substation | City/County: /Riverside | Sampling Date: 4/1/2010

Applicant/Owner: SCE | State: CA | Sampling Point: 1

Investigator(s): E. Read, A. Forde | Section, Township, Range: Section 16, Township 5 South, Range 5 West

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): C | Lat: 33.737 N | Long: 117.413 W | Datum: NAD 1983 Feet

Soil Map Unit Name: Honcut Sandy Loam, 8 to 15 percent slopes, eroded | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☒, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒ No ☐		
Wetland Hydrology Present?	Yes ☒ No ☐		

Remarks: soil properties inconsistent with NRCS mapped soil unit; historical data indicate this is a constructed pond in otherwise upland area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size:3 m2)			
1. *Scirpus acutus*	60	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 40	% Cover of Biotic Crust 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	60	x1 =	60
FACW species	0	x2 =	0
FAC species	0	x3 =	0
FACU species	0	x4 =	0
UPL species	0	x5 =	0
Column Totals:	60 (A)		60 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☒ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:	plot is partially cleared of emergent vegetation, probably by landowner; dominant vegetation outside the plot location and for the pond as a whole include cattail (*Typha* sp.), Fremont cottonwood (*Populus fremontii*), mulefat (*Baccharis salicifolia*), and willow (*Salix* spp.).

Project Site: Alberhill Proposed Substation

SOIL Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
9	Gley 1/7	100	7.5YR/7	30	C	M	clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: clay

Depth 9

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: soil texture inconsistent with NRCS mapped soil unit; clay may have been imported for pond construction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☒ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☒ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 0

Water Table Present? Yes ☒ No ☐ Depth (inches): 9

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 9

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: aerial photographs: 1968, 1978, 1981, 1994; topo 1897/98,1997

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Alberhill Proposed Substation | City/County: /Riverside | Sampling Date: 4/1/2010

Applicant/Owner: SCE | State: CA | Sampling Point: 2

Investigator(s): E. Read, A. Forde | Section, Township, Range: Section 16, Township 5 South, Range 5 West

Landform (hillslope, terrace, etc.): slope | Local relief (concave, convex, none): none | Slope (%): 5

Subregion (LRR): C | Lat: 33.736 N | Long: 117.413 W | Datum: NAD 1983 Feet

Soil Map Unit Name: Honcut Sandy Loam, 8 to 15 percent slopes, eroded | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☒, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☒, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐ No ☒		
Wetland Hydrology Present?	Yes ☐ No ☒		

Remarks: **mowed area sround south bank up slope from sample point #1**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size:3 m2)			
1. *Bromus, Avena.*	100	yes	NL (UPL)
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 0		% Cover of Biotic Crust 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	0	x3 =	0
FACU species	0	x4 =	0
UPL species	100	x5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☒ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:	mowed grass; mowing may be restricting expansion of emergent vegetation into this location from sample point #1; dominant vegetation outside the plot location and for the pond as a whole include cattail (*Typha* sp.), Fremont cottonwood (*Populus fremontii*), mulefat (*Baccharis salicifolia*), and willow (*Salix* spp.).

Project Site: Alberhill Proposed Substation

SOIL Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
24	10YR/5	100					sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: soil texture consistent with NRCS mapped soil unit

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: aerial photographs: 1968, 1978, 1981, 1994; topo 1897/98,1997

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Alberhill Proposed Substation | City/County: /Riverside | Sampling Date: 4/1/2010

Applicant/Owner: SCE | State: CA | Sampling Point: 3

Investigator(s): E. Read, A. Forde | Section, Township, Range: Section 16, Township 5 South, Range 5 West

Landform (hillslope, terrace, etc.): slope | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C | Lat: 33.736 N | Long: 117.413 W | Datum: NAD 1983 Feet

Soil Map Unit Name: Honcut Sandy Loam, 8 to 15 percent slopes, eroded | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☒, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☒, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐ No ☒		
Wetland Hydrology Present?	Yes ☒ No ☐		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size:3 m2)			
1. *Baccharis salicifolia*	80	yes	FACW
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size:_____)			
1.		n/a*	-
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	0	x1 =	0
FACW species	80	x2 =	160
FAC species	0	x3 =	0
FACU species	0	x4 =	0
UPL species	0	x5 =	0
Column Totals:	80 (A)		160 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:	Additional dominant vegetation outside the plot location and for the pond as a whole include cattail (*Typha* sp.), Fremont cottonwood (*Populus fremontii*), and willow (*Salix* spp.).

Project Site: Alberhill Proposed Substation

SOIL Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
25	10YR/5	100					sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: soil texture consistent with NRCS mapped soil unit

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

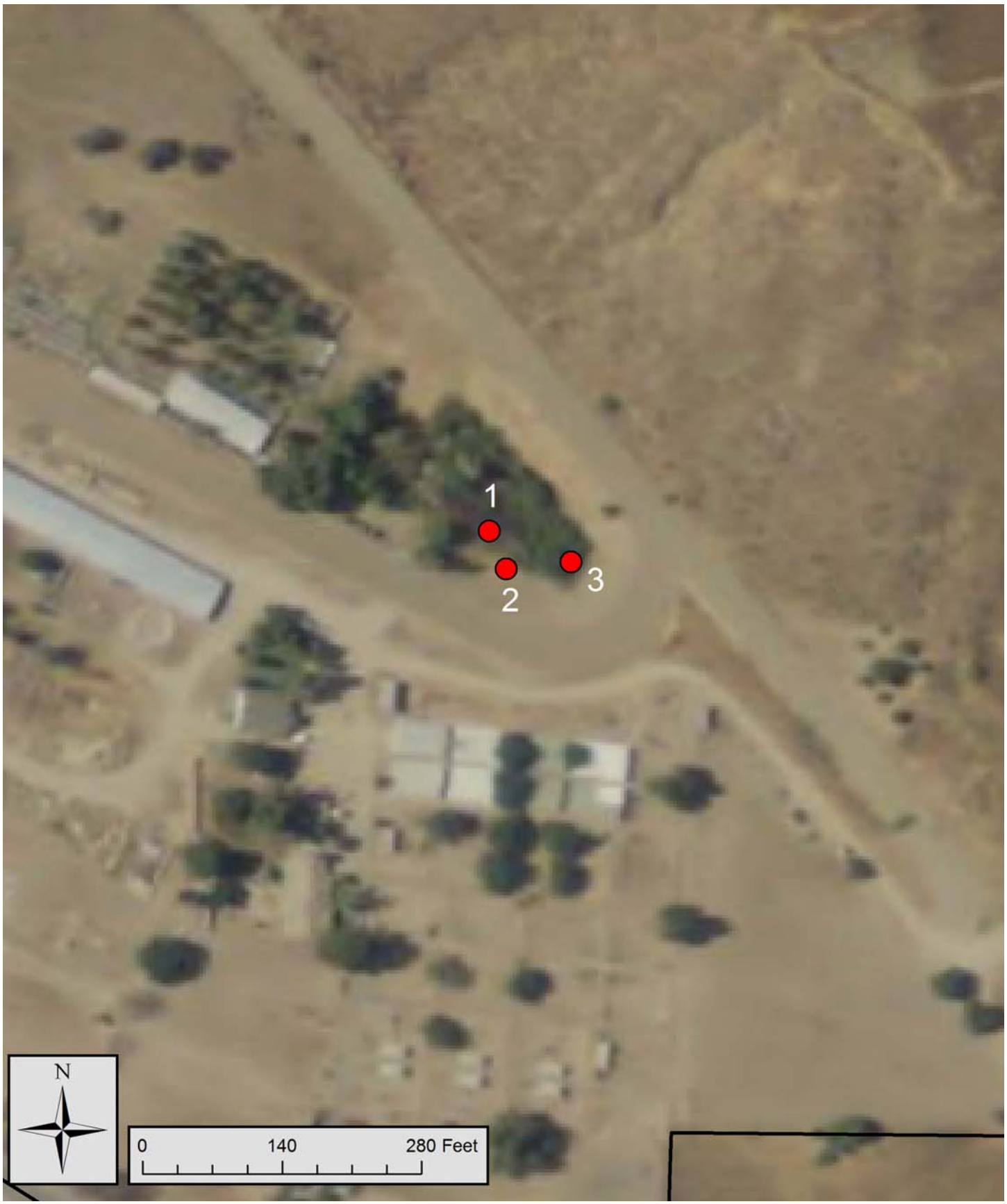
Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: aerial photographs: 1968, 1978, 1981, 1994; topo 1897/98,1997

Remarks:

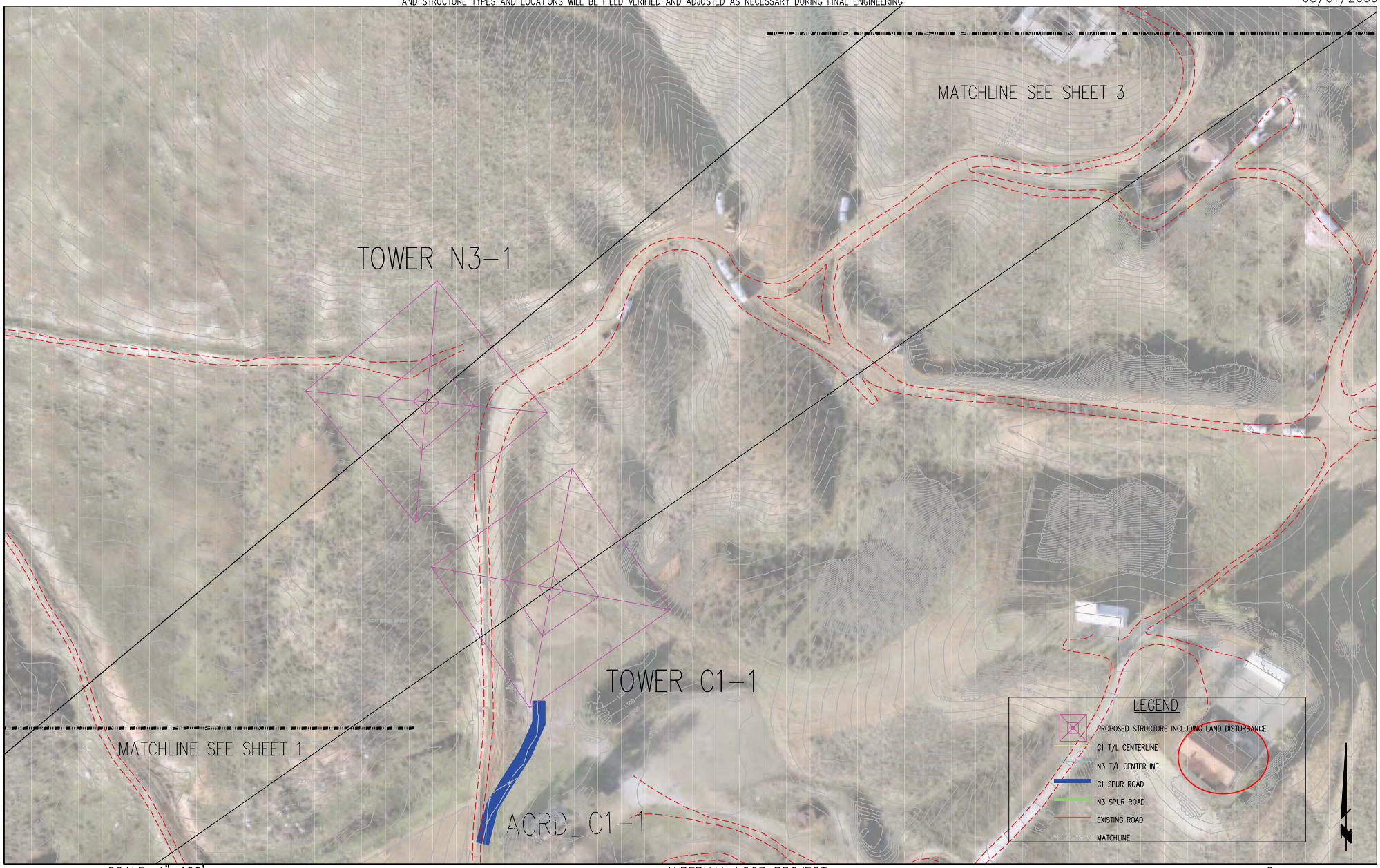


Soil Sample Plot Locations


Residential Receptor
Commercial Receptor
Love Ln
Earthmover Cir
Temescal Canyon Rd
Corona Fwy
Concordia Ranch Rd
© 2010 Google
©2009 Google

NOTE: PRELIMINARY ENGINEERING LOCATIONS SHOWN. ROW BOUNDARY, CONSTRUCTION AREAS, ROADS, CONSTRUCTION YARDS, AND STRUCTURE TYPES AND LOCATIONS WILL BE FIELD VERIFIED AND ADJUSTED AS NECESSARY DURING FINAL ENGINEERING

08/31/2009



SCALE: 1"=100'

ALBERHILL LOOP PROJECT


Trailer to be removed from substation site during demolition
Appears to be an abandoned residence
Lovell Ln
Concordia Ranch Rd
Black Powder Rd

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-005

To: ENERGY DIVISION
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 01/12/2010

Question 5.19.1:

a. Confirm if crossing is at Crooked Arrow Rd. or Story Rd. (or both) Map 12. From an aerial map it looks like the line also crosses Story Rd. Confirm if the line also crosses Beth Drive (south of Craig Avenue crossing – new development) Map 16.

Response to Question 5.19.1:

Story Road appears to be a private road completely contained within a parcel of land - but would be crossed by the Proposed Project. Beth Drive would also be crossed by the project.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-006

To: ENERGY DIVISION
Prepared by: Ted Heath
Title: Project Manager
Dated: 02/22/2010

Question 6.1.2:

a. Confirm where all spans of conductor would be removed (or both physical and electrical separations made, see data response 7.40) or switch poles added (e.g., east of Newcomb Substation). Refer to the map on Slide #15 in the PowerPoint presentation submitted in responses to Data Gap 3.1 as well as PEA Figure 2.3. If additional switch poles or open spans need to be added to the map shown on Slide #15, indicate these locations.
b. Slide #15, when compared to Slide #12, indicates that a new switch would be installed or span removed just east of Newcomb Substation. It also indicates that a new switch would be installed north and east of Lake Elsinore Substation.
   - Describe the installation process (e.g., number of poles installed removed, length of span to be removed, acres of land disturbance) for this switch and open span indicated on Slide #15.
   - The open span, switch, and tie in north of Newcomb Substation (along the Serrano-Valley 500-kV line) are already documented in the PEA and follow-up data gaps. No additional information is needed for this location.
c. In addition, please note Data Gap Response 7.9 in your response to this Data Gap, 6.1.2:
   DG Question: c) Include land disturbance related to installation of the switch pole east of the Newcomb Substation (see PEA Figure 2.3) in Table 3.3 or 3.4 as applicable.
   DG Response: "c) The land disturbance for this switch pole is already accounted for in Table 3.3."

Response to Question 6.1.2:

a. Please see Figure 6.1.2.a attached which shows the locations for proposed Open Spans, Pole Switches and Open Circuit Breakers to be located.

b. The Open Switch on the 115 kV line east of Newcomb Substation identified in Figure 2.3 of the PEA will not be needed. SCE will open the circuit breaker within Newcomb Substation instead. No installation or removal of equipment or poles would be required. No ground disturbance would be incurred at this location.

   The Pole Switch north and east of Elsinore Substation is an existing pole switch. No installation or removal of equipment or poles would be required. No ground disturbance would be incurred at this location.

c. Land disturbance for the installation of a Pole Switch east of Newcomb Substation was included in Table 3.3 of the PEA. The reduction in ground disturbance as a result of not installing this pole equals 0.01 acres and does not result in a substantive change in Table 3.3 of the PEA.

2 attachments

Alberhill-Energy Division-SCE-006 Q.6.01.02 Attachment - Alberhill-ED-SCE-003_Slide 15 map.ppt

Alberhill-Energy Division-SCE-006 Q.6.01.02 Attachment - Alberhill_CPUC_DR6.1.2.pdf

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-008

To: ENE
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 05/14/2010

Question 8.1:

As an alternative to the proposed project, provide a 115-kV power-flow analysis for the Valley South 115-kV System with the addition of a fifth load-serving transformer at Valley Substation. Show how the additional 115-kV power would be distributed to the Electrical Needs Area, including the Substation Target Area (PEA Figure 1.1).

For the purposes of this power-flow analysis, do not incorporate the proposed Alberhill Substation.

The analysis should consider normal and N-1 conditions and be representative of both 2012 and 2017 loading conditions.

In addition, explain how the Substation Target Area was determined.

Response to Question 8.1:

The proposed addition of a fifth load-serving transformer at Valley Substation, or a third load-serving 560 MVA 500/115 kV transformer on the Valley South 115 kV System (in lieu of the Alberhill System Project), does not affect the power flow analysis of the 115 kV subtransmission lines. The power flow analysis on the 115 kV subtransmission lines is dependent on the distribution of electrical demand throughout the area served. The amount of source transformation only affects this to the extent that it ultimately limits the amount of power in total that can be delivered. The loading levels of the transformers can also affect other factors including maintaining adequate voltage levels and safety issues related to equipment overloads.

The "Substation Target Area" is generally an area contained within the Electrical Needs Area. It is typically identified by the system planning engineer and is meant to represent a focused area within the Electrical Needs Area in which anywhere a substation site could be selected and would substantially satisfy the project objectives.

The Valley South 115 kV System as a whole is the identified Electrical Needs Area. From a system planning perspective the two primary objectives of the Alberhill System Project are to add transformer capacity and to increase system reliability and operational flexibility. If one looks only to provide increased transformer capacity, this capacity could be placed almost anywhere within the Electrical Needs Area. To satisfy the second objective however, requires

that the site of the project be in a location that allows for a reasonable means to split up the electrical demand that offloads the Valley South 115 kV System in a way which provides for the ability to increase the system operational flexibility under both normal and abnormal conditions. Doing so allows distribution substations to be transferred as needed from one system to the other to allow for activities such as planned maintenance or construction and unplanned repairs.

For the Alberhill System Project, this area was determined by evaluating several factors including: (1) locations whereby the existing Valley South 115 kV System could be split in a manner that would provide sufficient relief to the two Valley South 500/115 kV transformers; (2) locations whereby any new 115 kV subtransmission line construction required could be minimized and existing 115 kV lines could be efficiently utilized (adequate 115 kV line capacity and system ties); and (3) locations whereby new 500 kV transmission line construction could be minimized.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-008

To: ENE
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 05/14/2010

Question 8.3:

a. Assuming a fifth transformer is installed at Valley Substation as described under Data Gap 8.2, indicate the resultant effect on short-circuit values and the induction motor issue described in SCE's response to Data Gap 7.3.

b. Discuss the effect on short-circuit values at Valley Substation and the induction motor issue described in SCE's response to Data Gap 7.3 once the new Devers-Palo Verde #2 Line (now approved) is connected to Valley Substation.

c. In what ways would connecting the Devers-Palo Verde #2 Line to Valley Substation "stiffen" the system, including the Valley South System, as discussed in SCE's response to Data Gap 7.3?

d. Discuss the assumptions (in addition to the third load-serving transformer) underlying the calculations for 48 kA in 2012 and exceeding 50 kA in 2014 provided in SCE's response to Data Gap 7.3.

Response to Question 8.3:

Part a.
The 2010 short circuit current value at the Valley South 115 kilovolts (kV) bus with two transformers in operation is calculated to be 32 kiloamps (kA). Assuming no increase in the amount of short circuit current available from the transmission system, the addition of a third transformer (or fifth load-serving transformer at Valley Substation) on the Valley South 115 kV bus would result in a short circuit current value at the Valley South 115 kV System calculated to be 48 kA.

The proposed addition of a third load-serving transformer on the Valley South 115 kV System would have an adverse impact in the overall susceptibility of the area to Fault Induced Delayed Voltage Recovery (FIDVR) or events. This would be because the addition of the transformer could have a variety of different FIDVR impacts depending on the location of the FIDVR triggering event (i.e., fault location).

For example, if the FIDVR triggering event is assumed to be a fault at or near the Valley South 115 kV bus, the third transformer on the Valley South 115 kV System would actually increase the FIDVR susceptibility in the Valley North 115 kV System, but would have little impact on the

FIDVR susceptibility in the Valley South 115 kV System. The resulting higher short circuit current in Valley South 115 kV System would help reduce the time duration of some, but not all of the typical power quality and voltage regulation problems that follow a FIDVR event.

The most important reason why the addition of a third transformer would have an adverse FIDVR impact is because of the increased electrical demand that the Valley South 115 kV system could serve. FIDVR events are, fundamentally, the result of the simultaneous behavior of large amounts of induction motor load (geographically and electrically concentrated) in response to normal system faults. Therefore, if total electrical demand served out of the Valley South 115 kV System were allowed to increase, the amount of induction motor load concentrated within this system would also increase and FIDVR problems would worsen.

The electric utility does not control the composition of the electrical demand it is obligated to serve. The behavior of customer-connected induction motor load is by definition beyond the control of the utility and the most viable solution to mitigating the susceptibility of the area served by the Valley Substation to a FIDVR event is through limiting the amount of induction motor load served in one system. By creating an additional system and dividing the existing electrical demand between them, each system becomes less susceptible to voltage deviations under normal and abnormal conditions.

Part b.
As a point of clarification, the Devers-Palo Verde #2 500 kV line will not connect to Valley Substation, it will connect to Devers Substation. SCE assumes that the question is referring to the termination of the new Devers-Valley #2 500 kV line at Valley Substation. The addition of the Devers-Valley #2 500 kV line would increase the number of bulk transmission system 500 kV source lines serving Valley Substation from two to three. This addition increases the available short circuit current to both the Valley North and South 115 kV Systems by approximately 400 amps or 0.4 kA.

In response to CPUC Data Request 7 Question 3, SCE responded “two primary means to reduce the susceptibility to the induction motor stalling phenomenon would be to “stiffen” the 500 kV transmission system or to reduce the amount of induction motor load in the distribution system.” This answer did not adequately identify the relative significance of both measures. The addition of the Devers-Valley #2 500 kV line would not have a clear and significant impact on FIDVR events in the Valley System because the additional transmission line could have a variety of different FIDVR impacts (positive or negative) that would be dependent on the location of the FIDVR triggering event (i.e., fault location).

For example, if the FIDVR triggering event is assumed to be a 500 kV transmission line fault, the exposure due to the increased number of miles of 500 kV transmission lines in the area, would increase the frequency of 500 kV line faults and have an adverse FIDVR impact. However, if the FIDVR triggering event is instead assumed to be a fault at or near Valley South 115 kV bus, an additional 500 kV line serving Valley Substation would decrease the FIDVR susceptibility in the Valley North 115 kV System (due to the higher short circuit current) and yet would have little impact on the FIDVR susceptibility in the Valley South 115 kV System (even though the higher short circuit duty would help reduce the time duration of some – not all – of

the typical power quality and voltage regulation problems that follow a FIDVR event).

The second measure mentioned in the response CPUC Data Request 7 Question 3 identifies reducing the amount of induction motor load served in the distribution system. This measure has a tremendous impact on reducing FIDVR susceptibility and only has a positive impact regardless of the location of the triggering event. FIDVR events are, fundamentally, the result of the simultaneous behavior of large amounts of induction motor load (geographically and electrically concentrated) in response to normal system faults. Therefore, the key element of the FIDVR phenomenon in the Valley System is the large concentration of induction motor load served, not the number of transmission lines serving the area. Recognizing that the electric utility does not control the composition of the electrical demand it is obligated to serve, and that the behavior of customer-connected induction motor load is by definition also beyond the control of the utility, the most viable solution to mitigating the susceptibility of the area served by the Valley Substation to a FIDVR event is through limiting the amount of induction motor load served in one system. By creating an additional system and dividing the existing electrical demand between them, each system becomes less susceptible to voltage deviations under normal and abnormal conditions.

Part c.
Please refer to the answer provided to Question 3, Part b.

Part d.
The 2010 calculated short circuit current value at the Valley South 115 kV bus is 32 kA. This represents a normal system operating configuration with two transformers serving the Valley South 115 kV bus. There is a generation interconnection project that has filed an application to deliver power to the Valley South 115 kV bus with an operating date of 2012. This short circuit current contribution is calculated to be 16 kA. Upon completion of the generation interconnection project and assuming no increase in the amount of short circuit current delivered from the 500 kV transmission system, the calculated short circuit current at the Valley South 115 kV System would be 32 kA + 16 kA = 48 kA.

The 2010 short circuit value at the Valley South 115 kV bus with three transformers operating in parallel is calculated to be 48 kA. Upon the completion of the generation interconnection project, and with its contribution of 16 kA, the calculated short circuit current would be 48 kA + 16 kA = 64 kA, or in excess of 50 kA.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-008

To: ENE
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 05/14/2010

Question 8.1.1:

Provide a description of the changes, additions, and improvements that would have to be made to the existing Valley South 115-kV System in order to make the output of a third transformer useful in meeting future Valley South load in a reliable and flexible manner. In the absence of specific additional upgrades, we will assume that the existing Valley South 115-kV system is adequate to accommodate the output of a third transformer.

Response to Question 8.1.1:

Without the Alberhill System Project and assuming a third transformer was able to serve the Valley South 115 kV System electrical demand, the following 115 kV subtransmission system upgrades are expected to be needed under the following assumptions.

- Currently planned projects through 2014 (with the exception of the Alberhill System Project) would be in-service.
- Analysis was performed using the electrical demand levels at the end of SCE's 10-year planning horizon.
- Electrical demand growth would not increase beyond levels identified in the current forecast.

Preliminary analysis using the above assumptions indicate that the following system upgrades would be required (to meet basecase and N-1 criteria).

- Construction of a new 115 kV line approximately 20 miles in length from Valley Substation to Pauba Substation.
- Reconductoring of approximately 11 miles of the Skylark leg of the existing Valley-Newcomb-Skylark 115 kV line.

Additionally, two other 115 kV subtransmission lines would be at 92% and 96% of their respective capacities under N-1 conditions. This indicates that within just several years beyond the planning horizon, additional construction activities would become necessary to address the overloads that would be identified.

The above system upgrades only represent that which would be expected to be required for the 115 kV subtransmission network. There was no additional analysis performed to quantify the feasibility nor impacts of the addition of the third transformer such as on short circuit current values, impacts on Fault Induced Delayed Voltage Recovery events, or the impacts to system operational flexibility and reliability (i.e., lack of addressing 115 kV system ties).

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-008

To: ENE
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 05/14/2010

Question 8.2:

As an alternative to the proposed project, provide a 115-kV power-flow analysis as stated under Data Gap Request 8.1 but for a fifth transformer that steps-down power from the Inland Empire Energy Center (Unit 1 outputting 400 MW) from 500 kV to 115 kV prior to connecting to the existing Valley South 115-kV System. The transformer may be installed at or near the existing Valley Substation. It would connect directly to the existing 115-kV switching system at the Valley Substation.

For the purposes of this power-flow analysis, do not incorporate the proposed Alberhill Substation.

The analysis should consider normal and N-1 conditions and be representative of both 2012 and 2017 loading conditions.

In addition, discuss the status of the interconnection agreement between SCE and the Inland Empire Energy Center with regard to Unit 2.

Response to Question 8.2:

There would be no impact to the 115 kV subtransmission power flow were a third load-serving transformer added to the Valley South 115 kV System via the Inland Empire Energy Center (IEEC) 500 kV source line. As all of the 115 kV subtransmission lines are connected to the Valley South 115 kV bus, they all derive their source from the same point.

The IEEC is a generator under FERC jurisdiction and sells its power into the CAISO market. SCE does not purchase nor dispatch the power produced by IEEC and does not control its availability.

For the reasons mentioned above, SCE cannot consider the alternative identified in the question (either Unit 1 or Unit 2) as a solution to the project's objectives to provided additional system capacity. The alternative identified does not provide for one of the key objectives of the Alberhill System Project and therefore does not improve system reliability and operation flexibility.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-009

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 05/31/2010

Question 9.1:

Section 3.1.1.9 of the PEA describes demolition of the existing horse ranch and relocation of an existing agricultural water line as part of Alberhill Substation site preparation. Further details about ranch demolition activities have been provided in SCE response to Data Gap Question 1.8. However, ranch demolition and removal of the existing water line and trenching/installation of the new water line are not clearly identified in the construction equipment list provided in Appendix F of the PEA or in the air quality construction emission calculations for the substation provided in Appendix H of the PEA. Were equipment and emissions associated with ranch demolition activities and water pipeline relocation activities included with the air quality calculations in Appendices F and H?

If yes, indicate where the equipment and related emissions have been included in Appendices F and H.

If no, provide a description of equipment for demolition activities and water pipeline relocation (to the same level of detail as for the other substation construction activities included in Appendix F) and provide emission calculations for demolition activities and water pipeline relocation (to the same level of detail as the emission calculations for the other substation construction activities in Appendix H).

Response to Question 9.1:

Please see the attached spreadsheets for the ranch demolition activities and water pipeline relocation activities. These activities are anticipated to occur prior to construction of the substation, transmission, subtransmission, and telecommunications portions of the project. All emissions are under SCAQMD thresholds. Total greenhouse gas emissions during demolition and water line relocation are estimated to be 296 MT. GHG emissions during the other construction activities are estimated at 3,600 MT, so the new total during construction is estimated at 3,896 MT. The total amortized over 30 years would be approximately 130 MT/yr. Operational GHG emissions would be approximately 3,430 MT/yr, for a total for construction and operation of approximately 3,560 MT/yr. This is still well below the SCAQMD threshold of 10,000 MT/yr.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-009

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 05/31/2010

Question 06:

In the localized significance threshold (LST) analysis included in the PEA, the two closest receptors to substation and telecommunication construction are identified as a commercial receptor and residential receptor located 270 meters and 420 meters from the substation site, respectively. However, a review of data and aerial images in the project area indicates that two residential receptors are located nearer to the substation site (20 meters and 70 meters). Explain why these closer receptors were not used in the LST analysis. In addition, provide the address or geographical locations of the receptors used in the LST analysis.

Relative to construction for the 500-kV transmission line, the LST analysis identifies the closest receptor at 93 meters. However, a review of data and aerial images in the project area indicate that two residential receptors are located within approximately 50 m of proposed Tower C1-1 and approximately 40 m of proposed Tower C1-2. Explain why these closer receptors were not used in the LST analysis. In addition, provide the address or geographical locations of the receptors used in the LST analysis.

Explain why the activity that generates the highest PM_{10} and $PM_{2.5}$ on-site emissions during 115-kV subtransmission line construction (i.e., Roads and Landing Work) was not used in the LST analysis.

Response to Question 06:

The receptors used in the LST analysis for the substation site and 500 kV transmission segments are shown in Figure 1 attached.

Figure 2 (attached) shows what appears to be the receptors referred to in the data request.

Table 4 in Appendix H indicates that the highest PM10 emissions at a single location during subtransmission line construction would occur at the Marshalling Yard, and the highest PM2.5 emissions at a single location would occur during wire stringing. Although overall daily emissions during Roads and Landing Work are higher than for the other activities, those emissions would occur at six different structure pads each day, so the total emissions during Roads and Landing Work were divided by six to estimate daily emissions at each location.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-010

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 06/23/2010

Question 10.1:

- The SCE Report to CAISO provided in PEA Appendix C describes the Auld System Project as an alternative to the Alberhill System Project. Both projects are part of SCE's 2004 long-range master plan for the San Jacinto Region. The CAISO Memorandum to the ISO Board of Governors (attached) about the decision on the Alberhill System Project states that the Auld System Project would "provide loading relief to Valley transformers for at least the 10-year planning Horizon." The Auld System Project was rejected as an alternative on the basis that it would take longer to construct than the Alberhill System Project.
- Given that the updated electrical demand data provided in response to Data Gap 4.6 (Valley South Loads 2005 to 2020) now indicates that demand would not exceed Valley South transformer capacity until 2014, discuss the feasibility of constructing the Auld System Project as an alternative to the Alberhill System Project. NOTE: The SCE Report to CAISO (PEA Appendix C) projected that Valley South demand would be exceeded by 2011. This indicates that there would be 3 additional years to construct the Auld System Project based on SCE's response to Data Gap 4.6 (Valley South Loads 2005 to 2020).

Response to Question 10.1:

The CAISO Board of Governors rejected the Auld System Project as identified in SCE's 2004 conceptual long-range master plan for serving the electrical needs of the San Jacinto Region for several reasons including the following.

One of the reasons was based on the electrical demand forecasts and the resulting need date of a new system project, the required need date could not be realized based on the conceptual scope of work associated with constructing the Auld System Project. In discussions with the CAISO during late 2009, the revised need date for the Alberhill System Project (2014) had already been identified, and as such, the three year change in need date was acknowledged. SCE's conceptual plan identified providing two 500 kV source lines originating from the existing Valley 500 kV Substation to the proposed location of the new Auld 500 kV Substation. These two lines would have been approximately 14 miles in length each and would be required to be diverse paths to meet reliability criteria. As there are currently no transmission line corridors in the vicinity of where these lines would be needed, this would require extensive rights-of-way acquisition and would likely result in significant licensing and permitting activities. These activities would take many years to complete, and as a result, by inspection this alternative could not meet the critical need date of 2014 for a new system project.

Another reason that the Auld System Project, as proposed, was rejected was because of SCE's conceptual design to provide both 500 kV source lines originating from Valley Substation. The CAISO system planners identified that SCE's proposed method-of-service to provide two 500 kV lines from Valley Substation would not be approved stemming from reliability concerns. In discussions held with CAISO system planners, SCE was told that an alternative method-of-service would have to be proposed in order for CAISO approval to be granted. SCE has not yet begun preparing an alternative method-of-service; however, based on the existing 500 kV systems in the area, this would likely include one of the two 500 kV lines originating from either the Serrano 500 kV System or the Devers 500 kV System, each approximately 40-50 miles away.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-010

To: ENERGY DIVISION
Prepared by: Hans Bakker
Title: Telecommunications Engineer
Dated: 06/23/2010

Question 10.2:

One section of the Santiago Peak Communications Site is located in Riverside County and the other in Orange County. Confirm that construction and operations of the proposed project would occur only in the Riverside County section of the Santiago Peak Communications Site.

Response to Question 10.2:

The SCE Santiago Peak Communications Site is located in Orange County. Construction and operations of the proposed project would occur only in Orange County.

SOUTHERN CALIFORNIA
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July 6, 2010

Karen Ladd
Ecology & Environment
130 Battery Street
San Francisco CA 94111

Dear Ms. Ladd,

Please find enclosed a copy of the results from two biological surveys conducted for SCE's Alberhill System Project. The enclosed CD contains copies of the wetlands delineation report and the Fairy Shrimp habitat assessment report. During the coming weeks I will be sending the results for four additional surveys conducted for the project.

A copy of this CD has also been sent to Jensen Uchida at the CPUC.

If you have any questions, please call me at (626) 302-2524.

Thank you,

Erika Wilder

P.O. Box 800
Rosemead, CA 91770

REVISED FINAL
ALBERHILL SYSTEM PROJECT
2010 FOCUSED SURVEYS FOR LEAST BELL'S VIREO AND SOUTHWESTERN WILLOW FLYCATCHER

Prepared for:

SOUTHERN CALIFORNIA EDISON

Biological and Archaeological Resources Group
2244 Walnut Grove Avenue
Rosemead, CA 91770
Contact: Adelina O. Muñoz, Biologist
(626) 302-3088 (PAX 23088)

Prepared by:

AECOM

Contact: Matthew Mallé, Biologist (Colton Office)
(909) 554-5041

October 2010

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List of Acronyms

CDFG	California Department of Fish and Game
kV	kiloVolt
LBV	least Bell's vireo
Project	Alberhill System Project
SCE	Southern California Edison
SJR	San Jacinto River
SSC	Species of Special Concern
Sub	subtransmission
SWF	southwestern willow flycatcher
T/L	transmission line
USFWS	U.S. Fish and Wildlife Service
WIFL	willow flycatcher

Executive Summary

This report summarizes the results of a focused survey completed by AECOM for the Alberhill System Project (Project) in Riverside County, California. The survey was conducted for two federally and state listed riparian bird species known to breed in the southern California region, the least Bell's vireo (*Vireo bellii pusillus*) (LBV) and the southwestern willow flycatcher (*Empidonax traillii extimus*) (SWF). The surveys for both species were performed concurrently and were completed between April 26 and July 26, 2010. The surveys followed protocol established for these species by the U.S. Fish and Wildlife Service (USFWS).

1.0 Project Description

Southern California Edison (SCE) proposes to construct the Alberhill System Project (Project) to serve current and projected demand for electricity and to maintain electric system reliability in southwestern Riverside County, including the cities of Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, and Wildomar, as well as the surrounding unincorporated areas.

The Project Area is defined as the area analyzed for the following Project components: the proposed Alberhill Substation, the proposed 500 kiloVolt (kV) transmission lines (T/Ls), the proposed 115-kV subtransmission (Sub) T/L, and the alternative 115-kV Sub T/L (Figure 1).

- The horse ranch and adjacent undeveloped areas compose the Alberhill Substation survey area.
- The proposed 500 kV T/L would connect the proposed Alberhill Substation to SCE's existing Serrano-Valley 500 kV T/L.
- The proposed 115 kV Sub T/L would consist of a new 115 kV Sub T/L and modification of the existing 115 kV Sub T/L.
- An alternative to the proposed 115 kV Sub T/L has also been analyzed (alternative 115 kV Sub T/L). This alternative consists of an optional routing of the eastern portion of the proposed 115 kV Sub T/L.

The surveys investigated all areas within the Project Area having potentially suitable habitat for least Bell's vireo (*Vireo bellii pusillus*) (LBV) and southwestern willow flycatcher (*Empidonax traillii extimus*) (SWF) in the proposed and alternative 115 kV sub T/L segment that are anticipated to be directly or indirectly impacted by the proposed Project. The survey area included a buffer area of at least 200 feet around the Project's direct limits of disturbance. The elevation of the various survey sites investigated ranged from 1,267 feet to 1,772 feet above mean sea level. Figures 1-1 and 2-1 through 2-7 show the Project's regional location and specific LBV and SWF survey locations, respectively.

1.1 Species Descriptions

The **least Bell's vireo** is one of four subspecies of the Bell's vireo, a small, insectivorous, migratory songbird. The breeding range of LBV is currently restricted to southwestern California and northwestern Baja California, although it historically bred extensively into the Central Valley of California (USFWS 1998). It is thought to winter primarily in southern Baja California. Loss and degradation of breeding habitat and brood parasitism by the brown-headed cowbird (*Molothrus ater*) are considered major factors resulting in the decline of the LBV population in California. Habitat conversion for agriculture and development has removed much of the riparian woodlands required for nesting by LBV and other riparian-dependent birds. Flood control measures and channelization have also depleted important habitat for riparian species. Grazing by cattle has impacted habitat suitability by removing or thinning the understory vegetation that is required by many riparian nesting birds, including LBV. Additionally, the presence of livestock generally leads to increased cowbird populations and, in turn, increased pressure from brood parasitism in local songbird populations.

The significant reduction in the population size and range of LBV resulted in its listing by the California Department of Fish and Game (CDFG) as endangered in June 1980 and by the United States Fish and

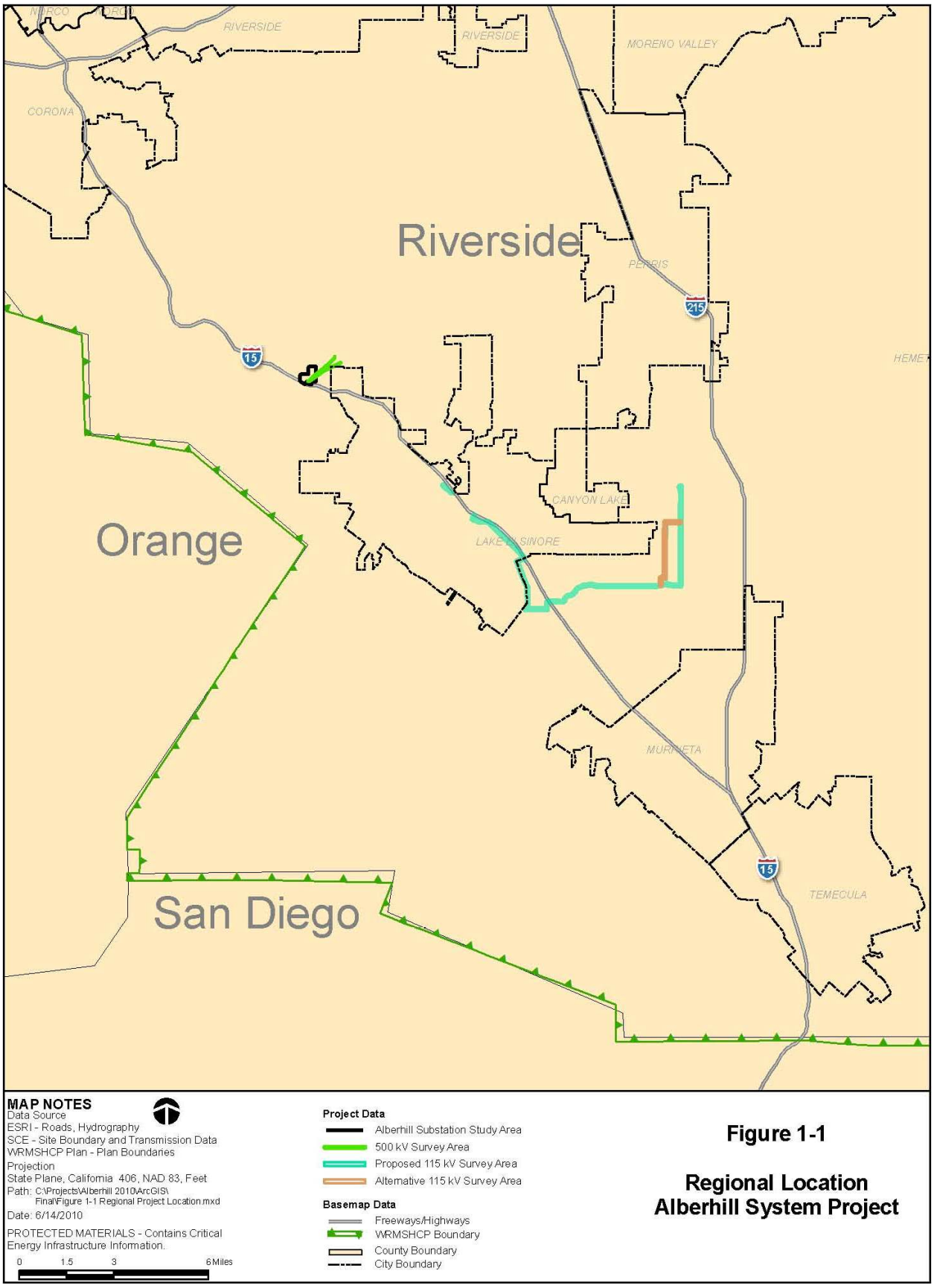

Figure 1-1

Regional Location
Alberhill System Project

Wildlife Service (USFWS) as endangered in May 1986. Since the early 1990s, however, many LBV populations have demonstrated fairly significant growth, especially those having received conservation and management efforts. Census data from 1986 indicated that an estimated 300 pairs existed in southern California, but by 2000 the estimate had risen to a total of 2,000 pairs (USFWS 2001). Extensive cowbird trapping and habitat restoration are presumed to be the primary factors contributing to this recent recovery trend. LBV has been reoccupying large portions of its former range in southern California, and in 2005 a pair of LBV successfully bred in the San Joaquin Valley, the first such occurrence in this area in many decades.

The LBV prefers riparian habitat with a dense understory of young willows (*Salix* spp.), mule fat (*Baccharis salicifolia*), Mexican elderberry (*Sambucus mexicana*), California rose (*Rosa californica*), desert wild grape (*Vitis girdiana*), and a variety of other shrubby species. The LBV is generally found in riparian areas that are dominated by one or more willow species, especially where a mixed age composition occurs. These areas frequently include other trees such as cottonwood (*Populus* spp.) or California sycamore (*Platanus racemosa*), particularly where the canopy is within or immediately adjacent to an understory layer of vegetation (Salata 1983). One analysis indicated that LBV prefers stratified vegetation with low amounts of aquatic and herbaceous cover (RECON 1990). Another ecological variable is the width of the willow riparian woodland. LBV exhibits a clear preference for relatively broad woodlands, which typically exhibit more stratification of vegetation. It was noted that an increase in occupied habitat occurs as the width of the willow riparian woodland exceeds 50 meters wide versus 10 meters or less (RECON 1990). As local populations continue to expand, however, and occupy the remaining areas of more typical habitat, a higher incidence appears of LBV using lower quality or "marginal" habitats.

The core of the LBV range in southern California has been in San Diego County, which continues to support several significant populations. Another substantial population has been in the Prado Basin, in southwestern Riverside County (approximately 25 miles northwest of Lake Elsinore), where a total of 538 LBV territories were recorded in 2009 (Jim Pike, personal communication with Doug Willick, August 5, 2010). The Santa Ana River upstream and downstream of Prado Basin has also been known to support increasing numbers of LBV in recent years. Although many local populations have apparently leveled off in recent years (such as in San Diego County and Prado Basin), this may be the result of areas with suitable LBV habitat reaching saturation levels.

The **southwestern willow flycatcher** is a small, olive-colored, migratory songbird. One of four commonly recognized subspecies of the willow flycatcher, the SWF was listed as a federally endangered species by the USFWS in March 1995. In addition, all willow flycatcher subspecies that nest in California (including SWF and two other subspecies in northern California) are considered state endangered by CDFG. The breeding range of SWF includes southern California, Arizona, New Mexico, southwestern Colorado, extreme southern portions of Nevada and Utah, and (possibly) western Texas (Sogge et al. 1997). As with other willow flycatcher subspecies, its winter range occurs south of the United States. Throughout its range, the SWF is one of the latest migratory species to arrive on its breeding grounds (Garrett and Dunn 1981). In southern California, it is present from early to mid May through August and possibly early September.

The identification of SWF in the field is quite difficult due to its close resemblance to other flycatcher species in the *Empidonax* genus. In addition, due to extreme similarity of appearance and vocalizations, it is not possible to positively identify the various willow flycatcher (WIFL) subspecies in the field. Populations of other subspecies of WIFL (e.g., *E.t. brewsteri* and *E.t. adastus*, which breed as far north as southwestern Canada) are apparently maintaining stable populations. They are widespread during migration and can be encountered at this time in SWF breeding habitat, as well as in a variety of other native and nonnative habitats (Garrett and Dunn 1981, Hamilton and Willick 1996). In fact, at the species level, WIFLs currently occur as fairly common migrants in southern California, although these birds are all assumed to belong to the more common, northerly-breeding subspecies. It is currently recognized, however, that the SWF subspecies is the only one known to breed in southern California. Consequently,

SWF surveys extend through the breeding season to differentiate the SWF from other purely migratory subspecies of willow flycatcher. The survey protocol's increased frequency of site visits between June 20 and July 17 is intended to increase the likelihood of detecting any SWF that may be present in a survey area at a time when no other WIFL subspecies is expected to be present in southern California.

Breeding habitat for SWF is restricted to dense, well-developed riparian woodland, from sea level in California to approximately 8,000 feet in Arizona. Typically this habitat occurs near surface water or saturated soil (Sogge et al. 1997). Sogge et al. (1997) suggest that nesting habitat for SWF typically includes patches at least two acres or greater in extent, with linear-shaped habitats at least 10 meters (33 feet) wide. Specific habitat characteristics, such as species composition and diversity, dominant vegetation, and vegetative structure, have been found to be quite varied. For many years, SWF breeding habitat in California was thought to be generally limited to willow dominated riparian communities (Garrett and Dunn 1981, Grinnell and Miller 1944). In southern California, however, more recent work (e.g., Robert McKernan, Bill Haas) has revealed this species occasionally occupying habitats dominated by alders (*Alnus rhombifolia*), coast live oak (*Quercus agrifolia*), and other species. Along the lower Colorado River, salt cedar (*Tamarix ramosissima*) dominated habitats are known to support substantial numbers of SWF breeding territories (McKernan and Braden 1999).

Historically, the SWF was considered a common summer resident in appropriate habitat throughout the state of California (Grinnell and Miller 1944). In recent decades, however, this taxon experienced significant population declines. In 1997, the known breeding population was estimated at between 300 and 500 pairs, with only a small percentage of this total occurring in California (Sogge et al. 1997). Since then, most of the California populations have shown no evidence of improvement. Similar to LBV, the SWF's decline throughout its range is widely attributed to habitat loss, habitat degradation, and brood parasitism by the brown-headed cowbird. Although the willow flycatcher as a species is a fairly common migrant through southern California, these birds are assumed to belong to the more common subspecies breeding as far north as southwestern Canada.

1.2 Methods

The survey protocol for SWF and LBV followed guidelines provided for these species by the USFWS. The SWF protocol, as revised in 2001, specifies a total of five site visits to areas with potential habitat for the flycatcher. These visits are to be conducted during three separate time periods, with successive surveys at any site at least five days apart. The three time periods identified for SWF surveys are as follows: May 15 through 31 (one site visit), June 1 through 21 (one site visit), and June 22 through July 17 (three site visits). Three of the site visits are conducted during the last survey period as this is the best period to verify the summer resident status of SWF and eliminate the possibility of other strictly transient (in southern California) subspecies of willow flycatcher. Guidelines adopted by the USFWS for LBV surveys specify eight visits between April 10 and July 31, with a minimum of 10-day intervals between site visits. Combining protocol survey recommendations for both SWF and LBV results in a total of nine site visits conducted between April 10 and July 31. The protocol for LBV requires a maximum survey area per biologist per day of three linear kilometers (1.86 miles) or 50 hectares (123 acres). The combined acreage of all LBV/SWF survey sites for the Project was considerably less than these limits.

For the SWF, survey protocol requires that SWF song recordings be broadcast at regular intervals in areas of suitable habitat to optimize the potential for the detection of this species. Due to the potential for these recordings to adversely impact nesting activity, and the difficulty in finding and identifying SWF, USFWS requires that the surveying biologist be in possession of a current endangered species [Section 10(a)(1)(A)] permit that authorizes survey activities for SWF. No endangered species permit is required to conduct surveys for LBV, and the use of song recordings is not required for this species. All surveys were performed by AECOM avian biologist Doug Willick, who is permitted to conduct surveys for SWF (permit #TE-821404-5).

Concurrent with the LBV/SWF survey, the project site was assessed for other special status riparian birds. Based on habitat present in at least portions of the Project's survey area, other special status riparian birds with some potential to occur include yellow warbler (*Dendroica petechia*) and yellow-breasted chat (*Icteria virens*). These species are considered California Species of Special Concern (SSC) by CDFG. A compendium of all bird species recorded during this focused riparian bird survey is included at the end of this report (Appendix A).

Surveys were performed by slowly walking through, or along, all areas of suitable habitat for LBV and SWF and stopping and listening periodically to detect song and/or other vocalizations. Surveys were conducted primarily during morning hours. The surveys avoided weather conditions (e.g., excessive wind, heat, rain, fog) that would not be conducive to the detection of LBV and SWF or small songbirds in general. Table 1-1, below, identifies the survey dates, time of day during which the survey was conducted, and the weather conditions during the survey.

Table 1-1. Survey Details and Conditions

Date	Time of Day	Survey Conditions
4/26/2010	0930-1500	Clear (throughout survey). Temps from 70° to mid 80°s, with mild to moderate (2-8 mph) S.W. winds.
4/28/2010	0730-1315	Partly cloudy most of day, especially a.m. (front passing through overnight). Some rain in early a.m. hours. 50°s to high 60s. S.W. winds from 2-10 mph.
5/10/2010	0920-1350	Cloudy to partly cloudy throughout survey (30-75% c.c.). 67° at start of survey. Low to mid 70°s at end. Variable winds throughout day, at 2-6 mph.
5/24/2010	0840-1240	10-20% c.c., low 60°s, 0-3 mph winds at start. Still 20% c.c. and only low 70°s at end, with 3-6+ mph S.W. winds.
6/4/2010	0810-1240	Clear (throughout survey), 70°, and calm at start. Mid 80°s, with 3-8 mph (S.W.?) winds at end.
6/16/2010	0830-1230	Unusually mild weather: clear (throughout survey), 67° and 0-3 mph S.W. winds at start. Low to mid 70°s, and 2-5 mph winds, at end.
6/25/2010	0750-1149	Clear (throughout survey), 66° and calm at start. Mid 80°s, with 2-3 mph S.W. winds at end.
7/1/2010	0800-1200	Clear (throughout survey), 72°and generally calm at start. 86°, 2-3 mph S.W. winds at end.
7/16/2010	0745-1115	Appeared to have rained during previous evening. 20% c.c. (mainly over mountains to west), 79°, calm and humid at start. Clear, 93°, 2-4 mph winds (direction not noted) at end.
7/26/2010	0751-1158	Overcast (low clouds) early, becoming less than 20% c.c. by 0915. 67°, 1-4 mph S.W. winds at start. High, thin clouds moving in from south during late a.m., becoming 40% c.c. at end of survey (and 75°, 2-4 mph winds).

All temperatures are in degrees Fahrenheit

Abbreviations
c.c = cloud cover
mph = miles per hour

1.3 Habitat Assessment

During the initial site visit for this survey, the AECOM avian biologist, Doug Willick, examined all areas within the 115-kV portion of the Project Area that had previously been mapped as riparian woodland or riparian scrub habitats. This initial habitat assessment was conducted in order to identify all sites of potentially suitable LBV/SWF breeding habitat within the study area. The primary criteria used to evaluate the suitability of riparian related habitats included the following:

Species composition and structure. Although both LBV and SWF are known to utilize a variety of riparian trees and shrubs in habitat occupied by breeding birds, certain species (e.g., willows and mule fat) are more commonly found when LBV and SWF are present. Conversely, some riparian habitats (native or nonnative) are not typically favored by nesting LBV and SWF, such as those dominated by white alder (*Alnus rhombifolia*) and giant reed (*Arundo donax*). Both birds typically occupy habitat with a diverse structure that includes a variety of young to moderate aged trees and a fairly dense, shrubby understory.

Habitat condition. Habitat condition, or quality, can be an important factor in whether or not a particular site would provide potential nesting habitat for LBV or SWF. Cattle grazing, flooding, or human disturbance, for example, can degrade or eliminate the understory component of a riparian area and substantially reduce its suitability for these species.

Minimum habitat size. The overall extent of potential LBV/SWF habitat that is available at a given site may limit its suitability as breeding habitat. Although the area occupied by a LBV or SWF breeding territory will vary, minimum territory sizes for each species are generally at least 0.5 acre, and usually much larger (Sogge et al. 2010; Kus et al. 2010). Therefore, patches of potentially suitable habitat smaller than 0.5 acre will likely be unsuitable as breeding habitat for these species.

Isolation of Habitat. The extent of potentially suitable habitat is especially important when an area is completely isolated by extensive areas of unsuitable habitat. Therefore, the more a patch of potentially suitable habitat might be isolated, the more important it is that the habitat patch be of sufficient size to support a breeding territory.

2.0 Survey Results

Based on the initial habitat assessment conducted in the 115-kV segment of the Project's study area, a total of 11 sites were determined to have limited to moderate potential to support LBV and/or SWF (Figures 2-1 through 2-7). In summary, approximately four of the sites appeared to have moderate potential to support LBV breeding habitat, while the remaining seven sites were considered to be only marginally suitable for this species. For SWF, due to their preference for more mesic riparian communities, only one site (i.e., CWR2-1, Figure 2-1) was considered to have at least marginal potential for SWF breeding habitat. The remainder of the sites were not considered suitable breeding habitat for SWF. Characteristics of the individual survey sites that were examined during this survey will be discussed in more detail below.

2.1 Least Bell's Vireo

Although no LBV were located within any of the survey sites, individual LBV territories were recorded in fairly close proximity to two of the sites. While conducting the first site visit at CWR2-1 (April 26, 2010), a singing male LBV was initially heard, and later observed, in relatively mature willow-cottonwood riparian habitat immediately upstream of CWR2-1. This individual was recorded on all subsequent visits with the exception of June 10, July 1, and July 16, 2010. Although this territorial bird occasionally roamed as close as 30 feet from the closest edge of the CWR2-1, it was never detected within this survey site and was usually about 150 feet to 300 feet upstream of CWR2-1. Prior to the last survey, it was suspected that this represented a bachelor male territory, as no other LBV were detected at this location. However, during the last visit, on July 26, 2010, two LBVs were found here, including a silent bird that showed evidence of heavy molt along with missing tail feathers, and a singing bird with a full tail. Based on the July 26 observations, it is not clear whether a pair or just a bachelor male had maintained the LBV territory immediately upstream of CWR2-1. It is not unusual for LBV to begin local dispersal in mid to late summer. This may be more typical of older juveniles, although adults (e.g., failed breeders or unpaired birds) may also begin dispersing at this time of year.

The second LBV territory to be recorded during this survey occurred during the first site visit to SWS1-1. A LBV was heard singing, and later seen, in riparian scrub roughly 550 to 600 feet north-northwest of this small survey site. On subsequent visits, the LBV was heard singing as close as approximately 400 feet northwest of SWS1-1 (Figure 2-2). This LBV was found on three of the first four site visits (i.e., April 26 and 28, and May 24, 2010) but was not detected on any subsequent visits. During all three visits when it was known to be present, the bird sang consistently and was therefore easy to locate. Due to the presumed brevity of this bird's presence in the vicinity of SWS1-1, and the fact that no other LBV could be detected at this location, it is suspected that this territory was occupied by a single bachelor male. No other LBVs were found during this survey.

2.2 Southwestern Willow Flycatcher

No SWF were detected during this survey, including on both the survey sites and the areas adjacent to the sites. As stated above, CWR2-1 was the only site that appeared to show several of the characteristics of SWF breeding habitat. Therefore, CWR2-1 was the only site where the full SWF survey protocol was employed. The remaining sites were considered unsuitable as SWF breeding habitat due to the lack of surface water and often very limited extent and fairly sparse structure of the riparian vegetation.


471600
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472200
472300
3725100
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3724800
3724700
3724600
CWR2-1
TS-1
SAN JACINTO RIVER
CASINO
PACIFIC
DAWES
LAKESHORE
RAILROAD CANYON
SUMMERHILL
Legend
Project Data
Existing 115 kV Sub-Transmission Line (SCE, 2008)
115 kV Buffer
Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo Territory
Location Map
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
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PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
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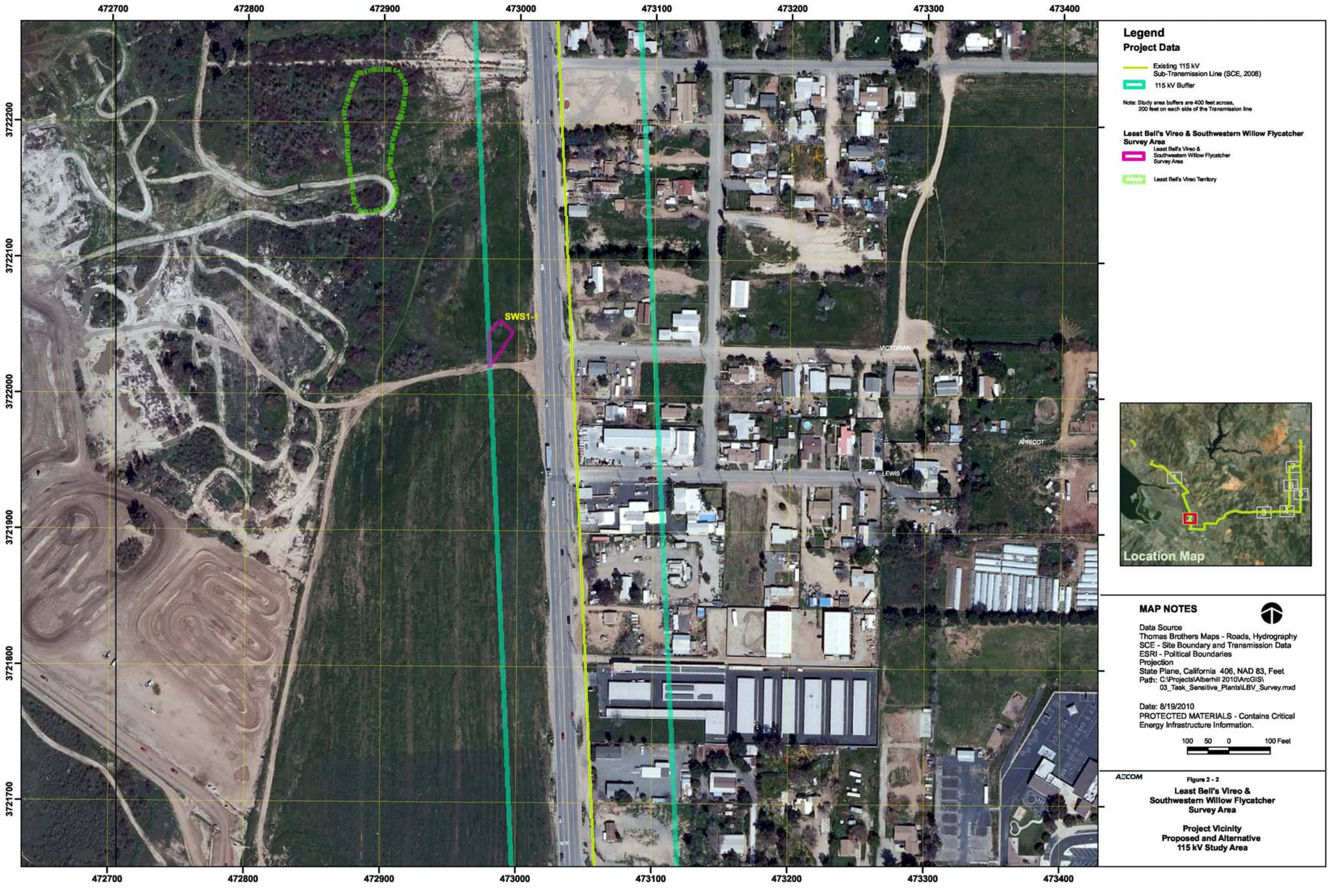
Figure 2 - 1
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Project Vicinity
Proposed and Alternative
115 kV Study Area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SWS1-1
VICTORIAN
APRICOT
LEWIS
Legend
Project Data
Existing 115 kV Sub-Transmission Line (SCE, 2008)
115 kV Buffer
Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo Territory
Location Map
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
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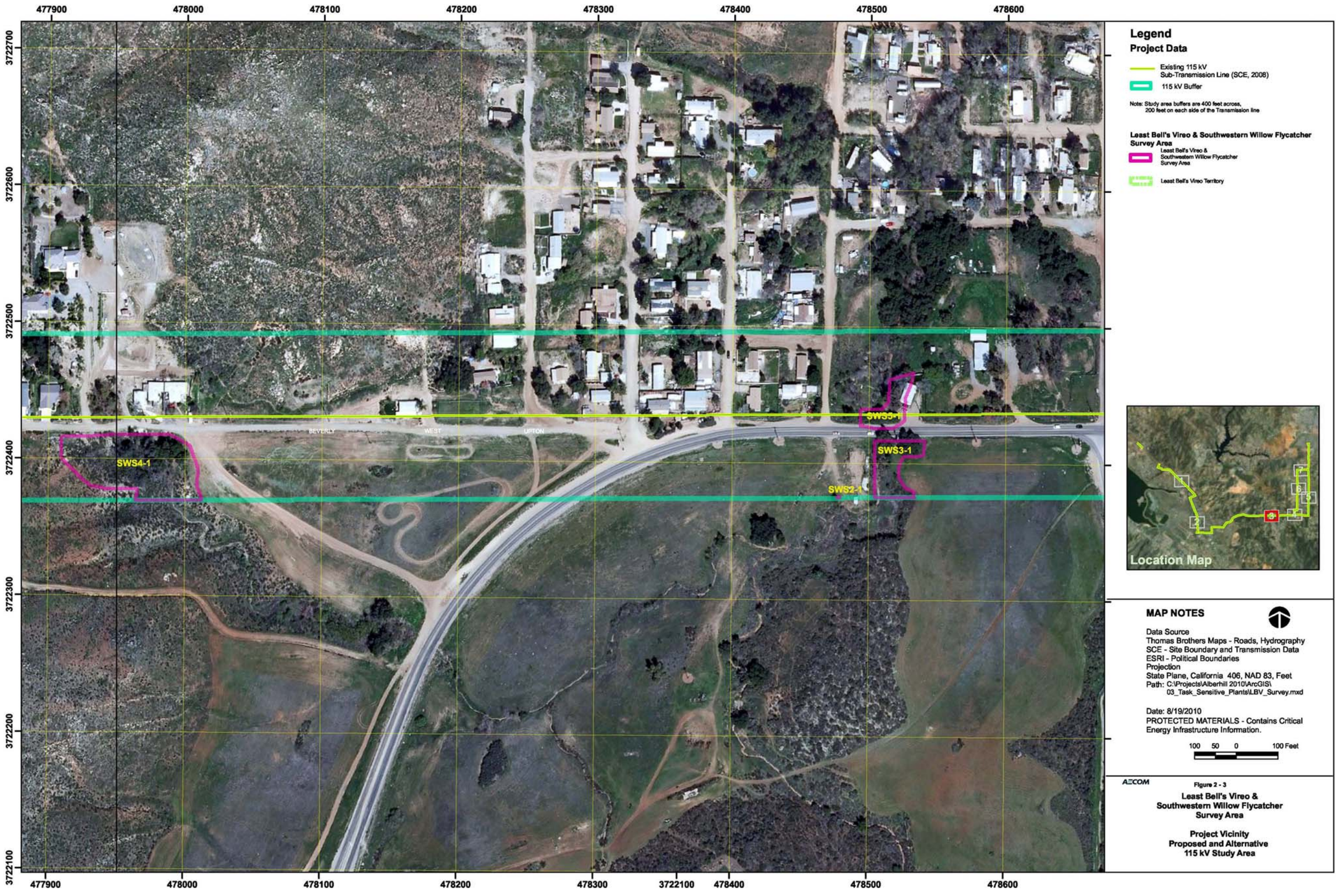
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Project Vicinity
Proposed and Alternative
115 kV Study Area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3722100
SWS4-1
SWS3-1
SWS2-1
BEVERLY
WEST
UPTON
Legend
Project Data
Existing 115 kV Sub-Transmission Line (SCE, 2008)
115 kV Buffer
Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo Territory
Location Map
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
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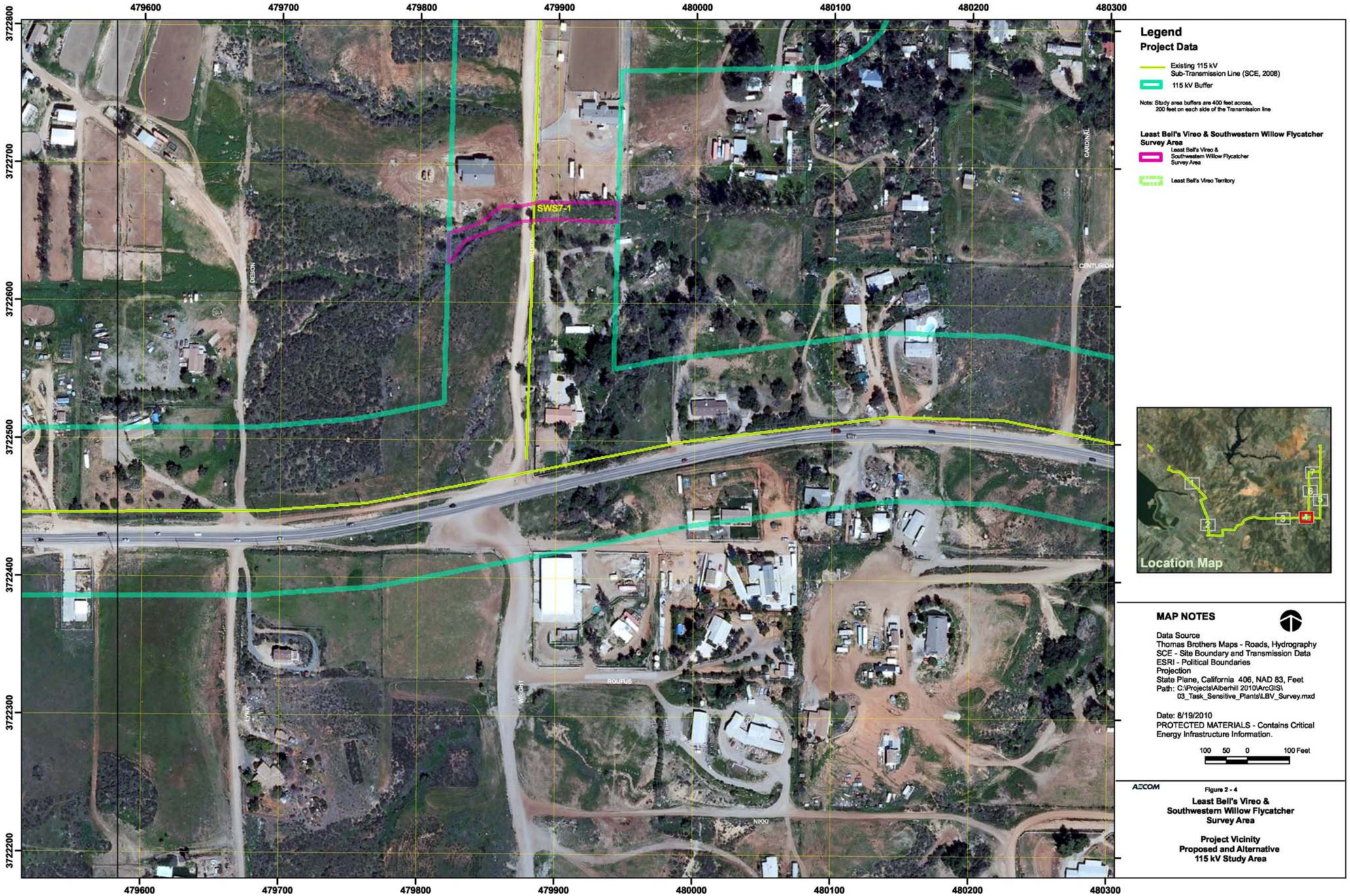
Figure 2 - 3
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Project Vicinity
Proposed and Alternative
115 kV Study Area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SWS7-1
DEBON
CENTURION
CARDINAL
WRIGHT
RUFUS
NIKKI
Legend
Project Data
Existing 115 kV Sub-Transmission Line (SCE, 2008)
115 kV Buffer
Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo Territory
Location Map
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
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Figure 2 - 4
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Project Vicinity
Proposed and Alternative
115 kV Study Area


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SWS10-1
Legend
Project Data
Existing 115 kV Sub-Transmission Line (SCE, 2008)
115 kV Buffer
Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo Territory
Location Map
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
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Figure 2 - 5
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Project Vicinity
Proposed and Alternative
115 kV Study Area


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480500
3724600
3724500
3724400
3724300
3724200
3724100
SWS11-1
BLUE JAY
BYERS
ROLLING HILLS
CLEVELAND
GARBANI
Legend
Project Data
Existing 115 kV Sub-Transmission Line (SCE, 2008)
115 kV Buffer
Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo Territory
Location Map
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
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PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
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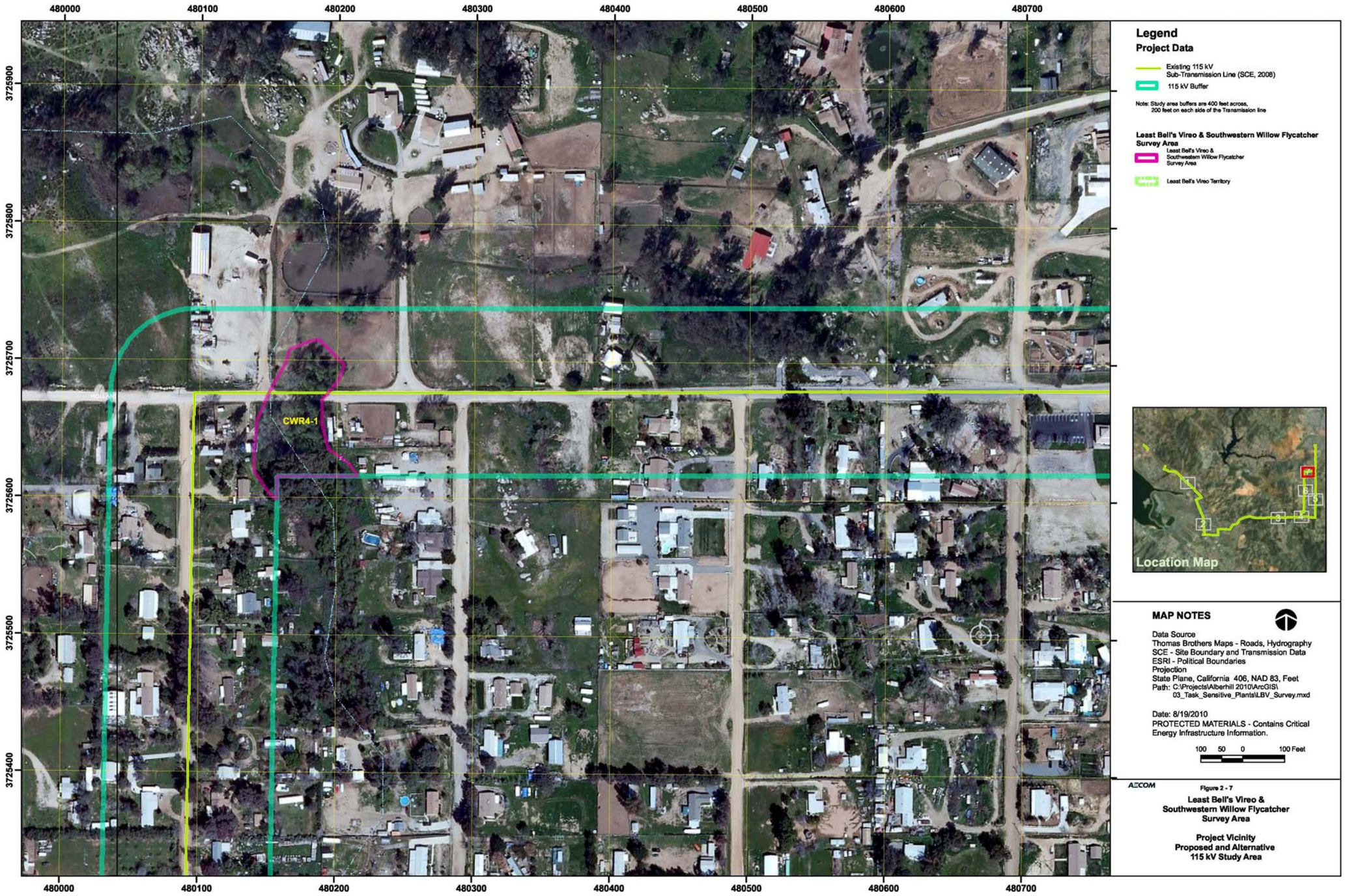
Figure 2 - 6
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Project Vicinity
Proposed and Alternative
115 kV Study Area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CWR4-1
Legend
Project Data
Existing 115 kV Sub-Transmission Line (SCE, 2008)
115 kV Buffer
Note: Study area buffers are 400 feet across, 200 feet on each side of the Transmission line
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Least Bell's Vireo Territory
Location Map
MAP NOTES
Data Source
Thomas Brothers Maps - Roads, Hydrography
SCE - Site Boundary and Transmission Data
ESRI - Political Boundaries
Projection
State Plane, California 406, NAD 83, Feet
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PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.
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AECOM
Figure 2 - 7
Least Bell's Vireo & Southwestern Willow Flycatcher Survey Area
Project Vicinity
Proposed and Alternative
115 kV Study Area

2.3 Description of Survey Sites

The **CWR2-1** survey site contains relatively mature willow and cottonwood riparian woodland, which occurs in somewhat narrow stands bordering the San Jacinto River (SJR), immediately upstream of Casino Road (Figure 2-1). This habitat also continues upstream from CWR2-1, extending to Interstate 15, approximately 450 feet northeast of CWR2-1. The SJR along this stretch carried running water through most of the survey period (i.e., approximately April to June). During July, only one fairly deep pool remained that held some surface water until the end of the survey (July 26, 2010). CWR2-1 and the area immediately upstream have the largest amount of well-developed riparian woodland habitat of the sites included in this survey.

The **TS1-1** survey site is immediately downstream of CWR2-1, separated only by the Casino Road bridge (Figure 2-1). The vegetation within TS1-1, which lines a broader and more open section of SJR, appears as a significantly more disturbed riparian community. Although it still supports a few mature willow trees, it is dominated by nonnative vegetation, including salt cedar and giant reed. The upper banks of this survey site are also dominated by ruderal vegetation [e.g., mustard (*Brassica* sp.), tocalote (*Centaurea melitensis*), and castor bean (*Ricinus communis*)].

SWS1-1 is a very small survey site consisting primarily of a few young willow trees growing in an otherwise open field (Figure 2-2). Approximately 150 feet west of the SWS1-1 survey site, however, begins a fairly extensive riparian scrub habitat dominated by a mix of young to moderate aged willows and salt cedar. This riparian scrub habitat did not appear to be associated with any noticeable drainage, as the terrain throughout this area is relatively flat.

SWS4-1 supported a mix of trees, including a few mature coast live oaks and evergreen ash (*Fraxinus uhdei*) (Figure 2-3). This survey site was quite dry, had a minimal understory, and merged into a chaparral plant community to the west. SWS4-1 showed noticeable evidence of human disturbance with Beverly Road and multiple residential units immediately to the north and a dirt road to the east.

Survey sites **SWS2-1**, **SWS3-1,** and **SWS5-1** are relatively small and close together (Figure 2-3). In general, they supported a broad mix of trees, including several mature willows (especially within the SWS5-1 site), coast live oak, and eucalyptus trees (*Eucalyptus* sp.). All sites lacked a significant understory component and were fairly heavily disturbed by significant human activity. Sites SWS3-1 and SWS5-1 lie immediately adjacent to a busy Bundy Canyon Road, and residences border the SWS5-1 site to the east and west. A fenced storage area and illegal dumping were noted adjacent to the SWS2-1 and SWS3-1 sites.

The **SWS7-1** survey site consists of a broken and very narrow string of young willows that is bisected by Waldon Road (Figure 2-4). Immediately to the north are rural residential properties. The habitat quality of this site was considered poor due to the degree of human disturbance and the overall sparseness of vegetation.

SWS10-1 follows a small drainage through an agricultural field (Figure 2-5). The drainage is bordered narrowly with young willows and mule fat. Although nearly 600 feet in length, a very busy Murrieta Road parallels this survey site as close as 40 feet to the west. The willow scrub habitat is very narrow and is disturbed by active farming practices. The habitat quality of this survey site was considered poor.

The **SWS11-1** survey site is primarily in a front yard of a rural residential property and lies immediately east of Byers Road (Figure 2-6). It consists of a very narrow strip of young willows which have a minimal understory and are quite sparse. The habitat quality of this site was considered poor due to the sparseness and small extent of vegetation and degree of human disturbance at this location.

CWR4-1 is located on a small drainage that runs through several rural residential properties (Figure 2-7). The survey site consisted of several mature willows and cottonwoods as well as a mix of nonnative trees and shrubs. Due to private property issues, the only access to the site was by way of Holland Road, which runs east-west through the middle of CWR4-1. As several horses were kept on the property to the north of Holland Road and had access to the riparian habitat, the understory habitat was noticeably disturbed. South of Holland Road, due to denseness of the tree canopy and possible thinning by the property owner, the understory vegetation was fairly minimal and disturbed in appearance.

2.4 Special Interest Avian Species

Three special interest bird species were identified during the course of this focused LBV/SWF survey. These included yellow warbler (*Dendroica petechia*), Cooper's hawk (*Accipiter cooperii*), and California horned lark (*Eremophila alpestris actia*). CDFG recognizes nesting yellow warblers as a California SSC. SSC species are those which have not been afforded protection under either the state or federal endangered species act but for which there is conservation concern due to declining populations, limited ranges, and/or continuing threats to their existence. Cooper's hawk and California horned lark were formerly considered SSC species; but during recent revisions to the SSC list published in 2008 (Shuford and Gardali 2008), these two species were removed from the list and are now considered only "Taxa to Watch."

Yellow warbler territory was consistently present through most of the survey period just upstream of CWR2-1. This territory overlapped the LBV territory at this location (as described above) and was therefore on average about 15 feet to 300 feet upstream of CWR2-1. A singing male was detected here on all visits between April 26 and July 1, and breeding was confirmed on June 16 and 25 when a family group was detected. A Cooper's hawk was seen flying over on May 24, 2010, between 750 feet to 1,000 feet northwest of CWR4-1. Raptor nests were not detected in or immediately adjacent to the CWR4-1 survey site. A singing California horned lark was heard along Byers Road, roughly 1,200 feet northeast of SWS11-1. No suitable breeding habitat for this species was present in or adjacent to the SWS11-1 survey site.

3.0 Conclusion

No breeding territories of either LBV or SWF were detected in the Project's survey sites during this focused survey conducted by AECOM. Single LBV territories were found within fairly close proximity to two of the survey sites (CWR2-1 and SWS1-1). One of these territories likely involved an unpaired male, although it was unclear if the other territory involved a lone male or a potential pair. Only four of the survey sites (i.e., CWR2-1, CWR4-1, SWS1-1, and TS1-1) appeared to have a moderate potential to be breeding habitat for LBV. The remaining survey sites were considered to have only marginally suitable habitat for LBV. Only one survey site (CWR2-1) was considered to have moderate potential as SWF breeding habitat, while the remainder was considered to be unsuitable for this species.

In addition to LBV, three other special interest birds were recorded during this focused survey: yellow warbler, Cooper's hawk, and California horned lark. All of these species were present in the vicinity of, but not within, the LBV/SWF survey area for this Project.

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Appendix A
Species List

The following is a list of all bird species recorded during the focused least Bell's vireo and southwestern willow flycatcher surveys conducted April 26 to July 26, 2010, for the Alberhill System Project.

Scientific Name	**Common Name**
Accipiter cooperii	Cooper's hawk
Aeronautes saxatalis	white-throated swift
Agelaius phoeniceus	red-winged blackbird
Anas platyrhynchos	mallard
Aphelocoma californica	western scrub-jay
Archilochus alexandri	black-chinned hummingbird
Ardea alba	great egret
Ardea herodias	great blue heron
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Callipepla californica	California quail
Calypte anna	Anna's hummingbird
Carpodacus mexicanus	house finch
Cathartes aura	turkey vulture
Catharus ustulatus	Swainson's thrush
Chondestes grammacus	lark sparrow
Colaptes auratus	northern flicker
Columba livia	rock pigeon
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Dendroica petechia	yellow warbler
Egretta thula	snowy egret
Eremophila alpestris	horned lark
Euphagus cyanocephalus	Brewer's blackbird
Falco sparverius	American kestrel
Geococcyx californianus	greater roadrunner
Geothlypis trichas	common yellowthroat
Guiraca caerulea	blue grosbeak
Icterus bullocki	Bullock's oriole
Icterus cuculattus	hooded oriole
Larus californicus	California gull
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Mimus polyglottos	northern mockingbird
Molothrus ater	brown-headed cowbird
Myiarchus cinerascens	ash-throated flycatcher
Nycticorax nycticorax	black-crowned night-heron
Passerina amoena	lazuli bunting
Petrochelidon pyrrhonota	cliff swallow
Phainopepla nitens	phainopepla
Pheucticus melanocephalus	black-headed grosbeak
Picoides nuttallii	Nuttall's woodpecker
Pipilo maculatus	spotted towhee
Piranga ludoviciana	western tanager
Psaltriparus minimus	bushtit
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe

Scientific Name	Common Name
Spinus lawrencei	Lawrence's goldfinch
Spinus psaltria	lesser goldfinch
Spinus tristis	American goldfinch
Stelgidopteryx serripennis	northern rough-winged swallow
Streptopelia decaocto	Eurasian collared dove
Sturnus vulgaris	European starling
Thryomanes bewickii	Bewick's wren
Toxostoma redivivum	California thrasher
Tyrannus verticalis	western kingbird
Tyrannus vociferans	Cassin's kingbird
Vireo pusillus	Bell's vireo
Wilsonia pusilla	Wilson's warbler
Zenaida macroura	mourning dove

Appendix B
Photographs

Photo 1. April 26, 2010. Proposed Alberhill Substation. Just upstream of CWR2-1.

Photo 2. April 26, 2010. CWR2-1.

Photo 3. July 26, 2010. CWR2-1. Just upstream of the San Jacinto River.

Photo 4. April 26, 2010. SWS1-1. Looking northwest from the proposed Alberhill Substation.

Photo 5. April 26, 2010. TS1-1.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-009

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 05/31/2010

Question 9.2:

Provide a discussion of the potential for asbestos in the existing ranch buildings at the Alberhill Substation site:

Are asbestos containing materials (ACMs) present in the ranch buildings? If yes, provide a rough estimate of the volume of buildings to be demolished (in cubic feet) on a daily basis.

Has an ACM survey been performed at this facility? If yes, provide a copy of this survey.

Response to Question 9.2:

South Coast Air Quality Management District requires consultation for demolition activities per Rule 1403. Prior to demolition activities, SCE would notify, survey, and sample for ACM consistent with SCAQMD Rules. If ACM is found to be present, the material would be handled, removed, and disposed of consistent with SCAQMD Rule 1403.

The substation site is presently occupied by tenants, and SCE will not begin structure surveys or demolition activities until the site is vacated.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-009

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 05/31/2010

Question 9.3:

Section 3.2.1.4 of the PEA indicates that a temporary concrete batch plant would be set up if existing concrete supply facilities are not available. Emission calculations in Appendix H appear to be based on use of existing concrete supply facilities because no concrete batch plant is identified in the construction equipment list provided in Appendix F of the PEA or in the air quality construction emission calculations for the substation provided in Appendix H of the PEA.

a. Provide a detailed estimate of the fugitive dust and combustion emissions associated with temporary concrete batch plant operations, including emissions associated with the travel of concrete trucks from the batch plant to construction sites. The estimate should be in the same level of detail as the calculations provided in Appendix H.

b. Indicate if the temporary batch plant (if needed) would be located at the Alberhill Substation site (primary staging area) or at the additional staging area proposed to be located at the Valley-Serrano 500-kV transmission line ROW (0.75 miles north of Big Canyon Drive).

Response to Question 9.3:

a) Utilizing existing local sources of concrete is still the planned method of construction.
b) Not applicable

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-009

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 05/31/2010

Question 9.4:

Section 3.2.3.2 of the PEA indicates that a helicopter may be used if needed in some difficult terrain for the installation of 500-kV structure(s). Appendix H includes emissions for the use of a helicopter for 500-kV wire stringing operations. However, Appendix H does not include helicopter emissions for the installation of 500-kV tower structures.

a. Are the current emission estimates in Appendix H based on the assumption that land-based cranes and no helicopters would be used for the installation of all 500-kV tower structures? If no, please explain what assumptions were used for the installation of these structures.

b. Provide emission calculations for the potential maximum use of helicopters for the installation of 500-kV tower structures. Emission calculations should have the same level of detail as for other construction activities in Appendix H. In addition, provide a description of helicopter usage to the same level of detail as for the other construction activities in Appendix F. These estimates should include the use of any ground-based equipment to support helicopter use.

c. Provide an estimate of the net decrease in emissions from land-based equipment that would be unnecessary if helicopters are used for the installation of 500-kV tower structures (as described under bullet "b" above). Emission calculations should have the same level of detail as in Appendix H. In addition, provide a description of equipment to the same level of detail as in Appendix F.

Response to Question 9.4:

a) Yes
b) Ground based tower construction is still the planned method of construction. Construction of the project is expected to exceed SCAQMD thresholds of significance for ozone precursors, PM10, and PM2.5, and the use of helicopters for tower construction would not reduce these effects to less than significant.
c) Not applicable

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-009

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 05/31/2010

Question 9.5:

Provide the approximate date (month and year) for the scheduled start of each of the different sub-phases of construction for each project component (i.e., substation, 500-kV transmission lines, 115-kV subtransmission lines, and telecommunications), as detailed in Appendix H, Table 1.

Response to Question 9.5:

The attached preliminary schedule was used to estimate concurrent construction activities.

1 attachment

ED-SCE-009 Q.05 Attachment - Alberhill Preliminary Construction Schedule.pdf

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-009

To: ENE
Prepared by: Erika Wilder
Title: Environmental Coordinator
Dated: 05/31/2010

Question 9.7:

The introduction to Appendix H indicates how the annual emissions from leakage of SF_6 storage capacities of the 500-kV switchrack gas insulated switchgear (GIS) were calculated. Table 48 indicates 500-kV and 115-kV equipment have SF_6 storage capacities of 50,000 pounds and 15,000 pounds, respectively. However, Data Gap Response 7.25 lists the SF_6 storage capacities of the 500-kV switchrack from 25,000 to 35,000 pounds and the 115-kV switchrack from 750 to 1,100 pounds.

a. Provide an explanation for the differences in these values.
b. Do the emission estimates in Table 48 account for SF_6 storage in additional gas-insulated electrical equipment (i.e., capacitors, other equipment) at the Alberhill Substation?
c. What is the SF_6 capacity (in pounds) of the additional gas-insulated equipment at the Alberhill Substation?

Response to Question 9.7:

(a) The volume of SF6 storage capacities in Table 48, Appendix H of the PEA was provided as a conceptual estimate of SF6 use for the Alberhill System Project. The response to Data Gap 7.25 provided a preliminary engineering estimate of SF6 storage capacity at the facility. No final engineering studies have been performed for determining SF6 use for the Alberhill Substation.

(b) SF6 will be used only in the circuit breakers, switches, and buses of the substation's 500 kV GIS and the open-air circuit breakers of the 115 kV yard. No other electrical equipment would utilize SF6.

(c) Zero. No additional gas-insulated equipment will be used for the Alberhill System Project. Based on the currently available information, Table 48 of Appendix H provides the most conservative estimate of SF6 use at the site.

Streptocephalus wootoni

Riverside fairy shrimp

Element Code: ICBRA07010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: ENDEMIC TO W RIV, ORA & SDG COUNTIES IN AREAS OF TECTONIC SWALES/EARTH SLUMP BASINS IN GRASSLAND & COASTAL SAGE SCRUB.

Micro: INHABIT SEASONALLY ASTATIC POOLS FILLED BY WINTER/SPRING RAINS. HATCH IN WARM WATER LATER IN THE SEASON.

Occurrence No. 19 **Map Index:** 51932 **EO Index:** 51932

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2001-XX-XX
Site: 2001-XX-XX

Record Last Updated: 2003-07-30

Quad Summary: Murrieta (3311752/068C)

County Summary: Riverside

Lat/Long: 33.59337º / -117.22089º
UTM: Zone-11 N3717093 E479504
Radius: 80 meters
Elevation: 1,350 ft

Mapping Precision: SPECIFIC
Symbol Type: POINT

Township: 07S
Range: 03W
Section: 05 **Qtr:** XX
Meridian: S

Location: SOUTH OF CLINTON KEITH ROAD & 1.2 MILES EAST OF I-15 AT OAK SPRINGS RANCH.

Location Detail: 0.2 ACRE ABANDONED STOCK POND

Ecological: POND WAS 2 FT X 6 FT AND 2 INCHES DEEP WITH HIGH TURBIDITY.

Threat: AREA PROPOSED FOR DEVELOPMENT

General: A FEW HUNDRED ESTIMATED TO EXIST IN POND. 7 INDIVIDUALS COLLECTED AS VOUCHERS.

Owner/Manager: PVT

Streptocephalus wootoni

Riverside fairy shrimp

Element Code: ICBRA07010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: ENDEMIC TO W RIV, ORA & SDG COUNTIES IN AREAS OF TECTONIC SWALES/EARTH SLUMP BASINS IN GRASSLAND & COASTAL SAGE SCRUB.

Micro: INHABIT SEASONALLY ASTATIC POOLS FILLED BY WINTER/SPRING RAINS. HATCH IN WARM WATER LATER IN THE SEASON.

Occurrence No. 8 **Map Index:** 39240 **EO Index:** 34242

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1998-03-22
Site: 1998-04-29
Record Last Updated: 1998-07-28

Quad Summary: Murrieta (3311752/068C)
County Summary: Riverside

Lat/Long: 33.60552º / -117.22531º
UTM: Zone-11 N3718440 E479097
Radius: 80 meters
Elevation: 1,510 ft
Mapping Precision: SPECIFIC
Symbol Type: POINT
Township: 06S
Range: 03W
Section: 31 **Qtr:** NE
Meridian: S

Location: 3 MILES NORTH OF INTERSECTION OF WASHINGTON AVE & LEMON ST IN MURRIETA, & 1.2 MILES NE OF OAK SPRINGS RANCH.

Location Detail: POND IS OFFSITE TO NORTH OF SCHLEUNIGER PROPERTY. SLIDE OF THIS SITE IN THE FILE.

Ecological: VERNAL POOL IN GRASSLAND AND SCRUB (FROM PHOTO SENT WITH FIELD SURVEY FORM)

Threat: NEARBY DEVELOPMENTS & AGRICULTURE.

General: POOL IS NORTH OF PROJECT SITE. 100'S TO 1000'S OBSERVED. COLLECTION DEPOSITED IN CALIF ACADEMY OF SCIENCES.

Owner/Manager: PVT

Streptocephalus wootoni

Riverside fairy shrimp

Element Code: ICBRA07010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: ENDEMIC TO W RIV, ORA & SDG COUNTIES IN AREAS OF TECTONIC SWALES/EARTH SLUMP BASINS IN GRASSLAND & COASTAL SAGE SCRUB.

Micro: INHABIT SEASONALLY ASTATIC POOLS FILLED BY WINTER/SPRING RAINS. HATCH IN WARM WATER LATER IN THE SEASON.

Occurrence No. 11 **Map Index:** 41872 **EO Index:** 41872

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1998-02-05
Site: 1998-02-05
Record Last Updated: 1999-11-10

Quad Summary: Lake Elsinore (3311763/069A)
County Summary: Riverside

Lat/Long: 33.65454º / -117.30825º
UTM: Zone-11 N3723895 E471418
Radius: 1/10 mile
Elevation: 1,260 ft
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Township: 06S
Range: 04W
Section: 16 **Qtr:** NW
Meridian: S

Location: BACK BASIN OF LAKE ELSINORE, NW OF SEDCO HILLS.

Location Detail: POOL IS LOCATED IN AN AREA THAT HAS BEEN GRADED.

Ecological: HABITAT CONSISTS OF AN ARTIFICIAL VERNAL POOL IN THE LAKE ELSINORE BACK BASIN. POOL IS 0.937 ACRE IN SIZE AND 20 INCHES DEEP.

Threat: THREATS INCLUDE ORV USE AND POTENTIAL DEVELOPMENT.

General: 10K+ OBSERVED ON 5 FEB 1998. COLLECTION DEPOSITED IN LACM. BRANCHINECTA LINDAHLI ALSO FOUND HERE.

Owner/Manager: UNKNOWN

Streptocephalus wootoni

Riverside fairy shrimp

Element Code: ICBRA07010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CDFG Status:**
State: None	**State:** S1	

Habitat Associations

General: ENDEMIC TO W RIV, ORA & SDG COUNTIES IN AREAS OF TECTONIC SWALES/EARTH SLUMP BASINS IN GRASSLAND & COASTAL SAGE SCRUB.

Micro: INHABIT SEASONALLY ASTATIC POOLS FILLED BY WINTER/SPRING RAINS. HATCH IN WARM WATER LATER IN THE SEASON.

Occurrence No. 24 **Map Index:** 47233 **EO Index:** 57829

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2002-06-08
Site: 2002-06-08

Record Last Updated: 2004-11-01

Quad Summary: Romoland (3311762/068B)

County Summary: Riverside

Lat/Long: 33.64182º / -117.15314º
UTM: Zone-11 N3722453 E485799
Area: 1.2 acres
Elevation: 1,485 ft

Mapping Precision: SPECIFIC
Symbol Type: POLYGON

Township: 06S
Range: 03W
Section: 13 **Qtr:** SW
Meridian: S

Location: IMMEDIATELY NORTHEAST OF INTERSECTION OF MENIFEE AND SCOTT ROADS, 1.2 AIR MILES SOUTH OF BELL MOUNTAIN, NEAR MENIFEE.

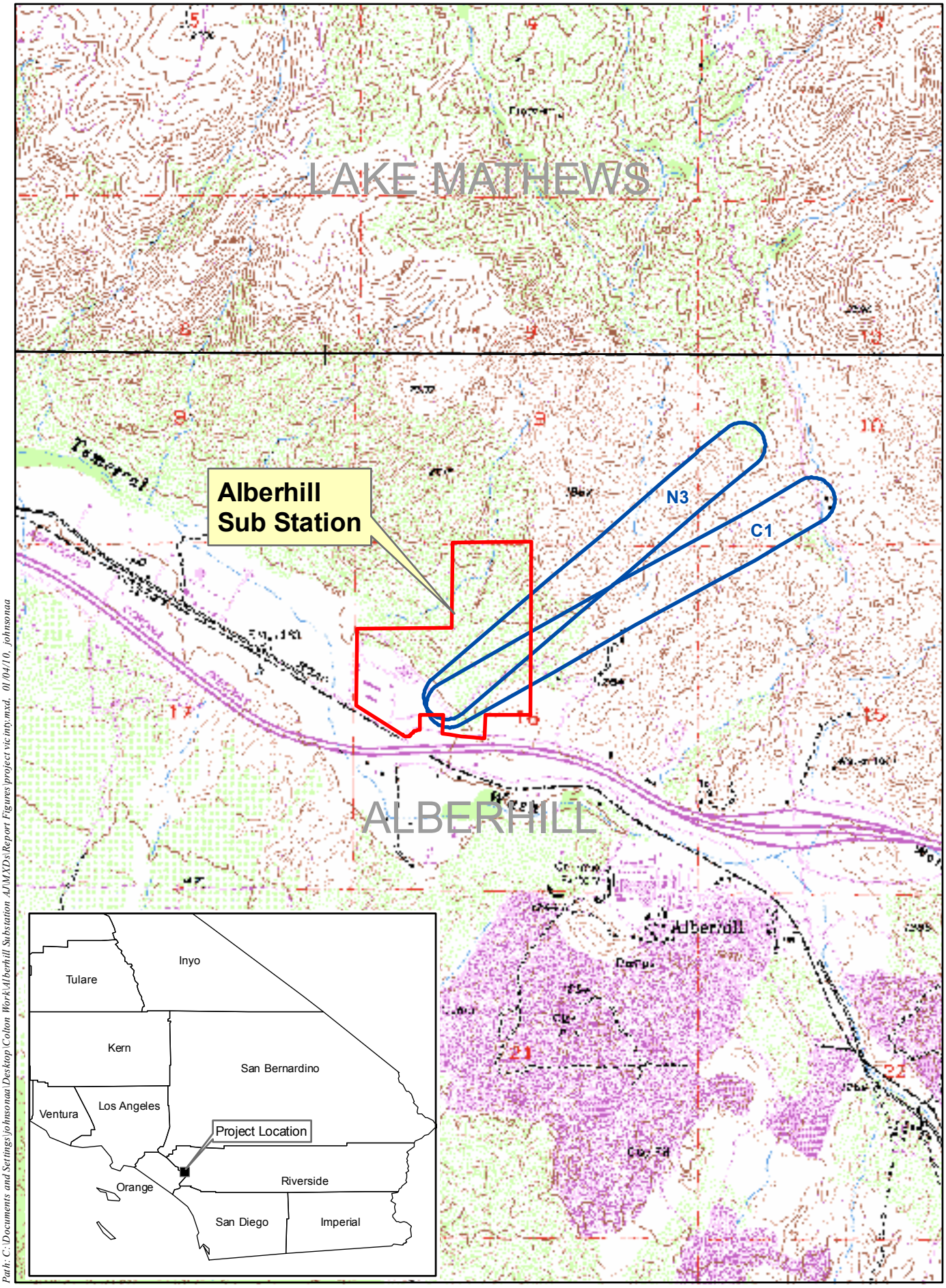
Location Detail: IN A VERNAL POOL IN AN AGRICULTURAL FIELD.

Ecological: BASIN IS DOMINATED BY EPILOBIUM PYGMAEUS, ELEOCHARIS GENICULATA, POLYGONUM ARENARIUM, NAVARRETIA FOSSALIS. OTHER ASSOCIATES INCLUDE LYTHRUM HYSSOPIFOLIUM, CRYPSIS SCHOENOIDES.

Threat: DISTURBED BY TILLING ASSOCIATED WITH FARMING. POSSIBLY THREATENED BY FUTURE DEVELOPMENT OF SITE.

General: SEVERAL S. WOOTTONI CYSTS TAKEN FROM DRY SEASON SOIL SAMPLES; 4 FROM SAMPLE 2.1, 1 FROM SAMPLE 3.2, AND 1 FROM SAMPLE 8.1. ECOLOGICAL AND THREAT INFORMATION TAKEN FROM DATA FOR OCCURRENCE 31 OF ORCUTTIA CALIFORNICA.

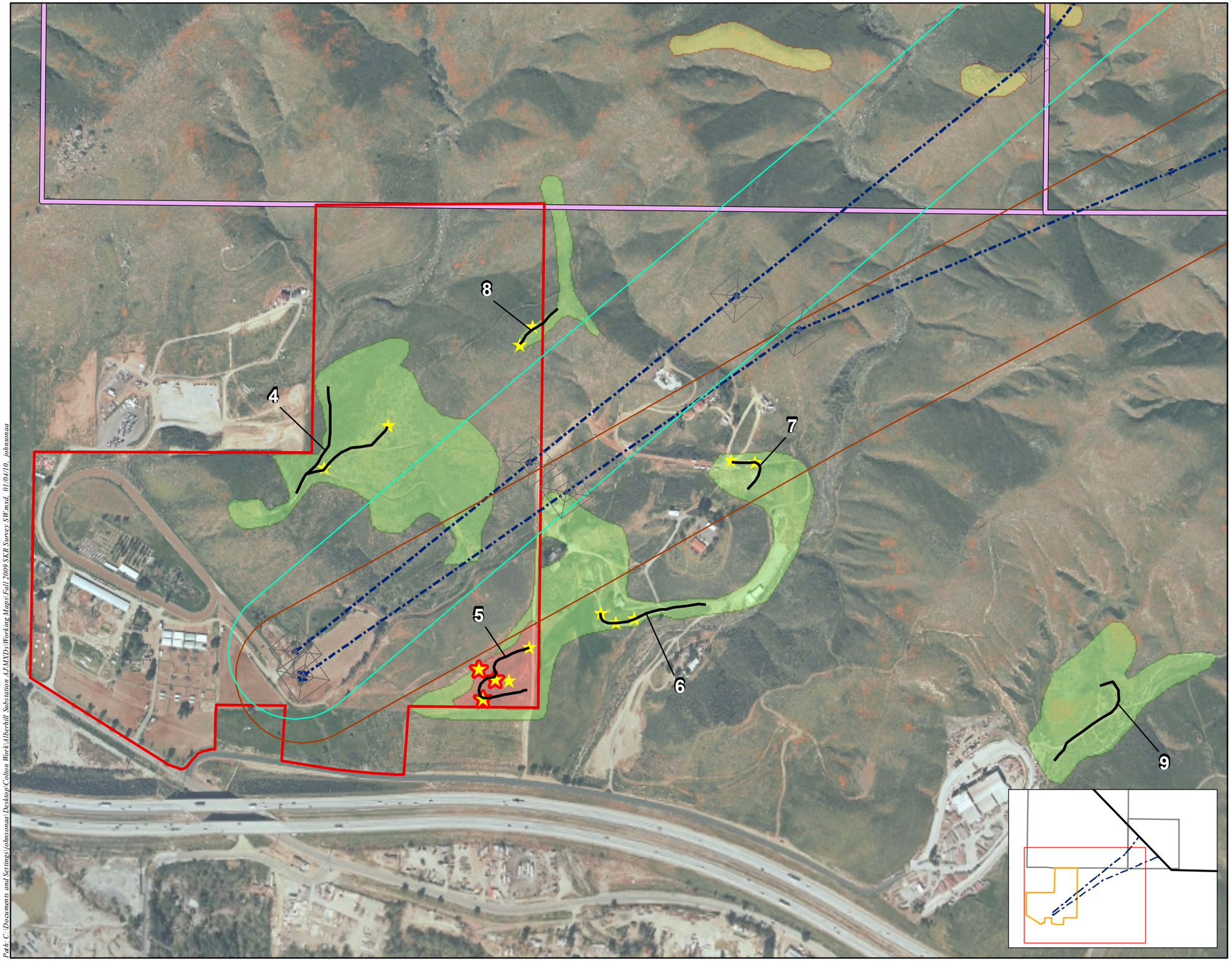
Owner/Manager: PVT



Path: C:\Documents and Settings\johnsonaa\Desktop\Colton Work\Alberhill Substation AJ\MXDs\Report Figures\project vicinity.mxd, 01/04/10, johnsonaa

Project Location
Alberhill Substation Site
Riverside County, CA

Figure 1



Legend

- Existing 500 kV Transmission Line
- C1 Study Area
- N3 Study Area
- Proposed 500kv Transmission Line
- Substation Location
- RCHCA Managed Land

Kangaroo Rat Surveys

- Active Kangaroo Rat Scat and Burrow Locations - Summer 2009
- Stephens' Kangaroo Rat Captures - Fall 2009
- SKR Traplines - Fall 2009
- Occupied SKR Habitat (SKR present, confirmed by trapping Fall 2009)
- Potential habitat for SKR (Scat and burrows present at most locations [as indicated by yellow stars]. Due to the density of herbaceous vegetation at some polygons in summer 2009, kangaroo rat sign may have been missed. Such polygons were re-checked for sign in fall 2009 when herb cover was reduced, to confirm kangaroo rat absence. Those confirmed as lacking kangaroo rat sign are shown here as unoccupied habitat [see below].)
- Unoccupied by kangaroo rats, confirmed by two (summer and fall) checks for sign.

MAP NOTES

Data Source
AECOM - SKR Survey
SCE - Site Boundary and Transmission Data
Aerial- 2009, i-cubed©
Riverside County Assessor - RCHCA Managed Land

Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Documents and Settings\johnsonaa\Desktop\Colton Work\Alberhill Substation AJ\MXDs\Working Maps\Fall 2009 SKR Survey SW.mxd
Date: 1/4/2010
PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

500 250 0 500 Feet

Figure 2

Alberhill System Project
Stephens' Kangaroo Rat Survey
Fall 2009

Path: C:\Documents and Settings\johnsonaa\Desktop\Colton Work\Alberhill Substation AJ\MXDs\Working Maps\Fall 2009 SKR Survey SW.mxd, 01/04/10, johnsonaa

391060006

390100002

1

2

3

7

10

11

Legend

- Existing 500 kV Transmission Line
- C1 Study Area
- N3 Study Area
- Proposed 500kv Transmission Line
- Substation Location
- RCHCA Managed Land

Kangaroo Rat Surveys

- Active Kangaroo Rat Scat and Burrow Locations - Summer 2009
- Stephens' Kangaroo Rat Captures - Fall 2009
- SKR Traplines - Fall 2009
- Occupied SKR Habitat (SKR present, confirmed by trapping Fall 2009)
- Potential habitat for SKR (Scat and burrows present at most locations [as indicated by yellow stars]. Due to the density of herbaceous vegetation at some polygons in summer 2009, kangaroo rat sign may have been missed. Such polygons were re-checked for sign in fall 2009 when herb cover was reduced, to confirm kangaroo rat absence. Those confirmed as lacking kangaroo rat sign are shown here as unoccupied habitat [see below].)
- Unoccupied by kangaroo rats, confirmed by two (summer and fall) checks for sign.

MAP NOTES

Data Source
AECOM - SKR Survey
SCE - Site Boundary and Transmission Data
Aerial- 2009, i-cubed©
Riverside County Assessor - RCHCA Managed Land

Projection
State Plane, California 406, NAD 83, Feet
Path: C:\Documents and Settings\johnsonaa\Desktop\Colton Work\Alberhill Substation AJ\MXDs\Working Maps\Fall 2009 SKR Survey NE.mxd
Date: 1/4/2010

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

500 250 0 500 Feet

Figure 3

Alberhill System Project
Stephens' Kangaroo Rat Survey
Fall 2009

Path: C:\Documents and Settings\johnsonaa\Desktop\Colton Work\Alberhill Substation AJ\MXDs\Working Maps\Fall 2009 SKR Survey NE.mxd, 01/04/10, johnsonaa

RCHCA
RIVERSIDE COUNTY HABITAT CONSERVATION AGENCY

October 18, 2010

Mr. Jensen Uchida
Energy Division
California Public Utilities Commission
505 Van Ness
San Francisco, California 94102

RE: Southern California Edison (SCE) Alberhill System Project (ASP)

Dear Mr. Uchida:

My client, the Riverside County Habitat Conservation Agency (RCHCA) has requested that I provide you with a response to the questions presented in your letter to Ms. Gail Barton dated September 30, 2010 concerning the above-referenced project.

For purposes of our response, we assume your reference to "SKR habitat" in your questions and in the letter generally means the SKR Core Reserve and specifically, those portions of the Lake Mathews SKR Core Reserve either owned in fee by the RCHCA or over which the RCHCA has a conservation easement.

Based on the limitations identified in the foregoing sections of the HCP, the CPUC project team requests the RCHCA to explain whether or not, SCE, an investor-owned utility, can construct new towers, etc. within the SKR habitat.

The Habitat Conservation Plan for the Stephens' kangaroo rat (SKR HCP) and corresponding Implementation Agreement place extensive restrictions on actions resulting in take of the SKR within established core reserves. As referenced in your letter, Sections 5.c.1.s. concerning Public Facility Improvements and 5.c.1.t. concerning Public Facility Operations and Maintenance Activities contained in the SKR HCP allow for take to occur in the core reserves in connection with certain described activities. However, Section 5.c.1.s and Section III.A.1.a.(3) of the Implementation Agreement only allow take in connection with public facility improvements constructed by a public agency. SCE, an investor-owned utility, is not a public agency. Thus, SCE's ASP could not be constructed within the Lake Mathews SKR Core Reserve, if take of SKR would occur.

4080 Lemon Street, 12th Floor • Riverside, California 92501 • (951) 955-6097
P.O. Box 1605 • Riverside, California 92502-1605 • Fax (951) 955-0090

Additionally, Section 5.c.1.t. of the SKR HCP and Section III.A.1.a.(4) of the Implementation Agreement only allow take in connection with the operation and maintenance of existing infrastructure improvements including electric and other public utility facilities. Since you have opined in your letter that the ASP involves the construction of new facilities and is not the operation and maintenance of existing facilities, SCE's ASP could not be constructed within the Lake Mathews SKR Core Reserve, if take of SKR would occur.

In the event SCE's ASP can be constructed/configured in such a way that avoidance of SKR take can be achieved, the RCHCA could consider entering into a lease with SCE in order to allow construction of SCE's ASP on RCHCA owned property. Of course, at a minimum, appropriate compensation would be required and the impact of the road bisecting our reserve would need to be addressed.

If the RCHCA determines that new construction is permissible by SCE (i.e., new towers, etc.) within the SKR habitat, what limitations, if any, are there on new construction?

It should be noted that we are unable to make any determination that new construction is permissible by SCE within our reserve. As indicated previously, the RCHCA cannot authorize take of the SKR within the core reserves. Additionally, SCE could be limited by the need for the lease and whether or not such a lease would be acceptable to the RCHCA.

If the RCHCA determines that SCE can construct new towers, etc. within the SKR habitat, will SCE be required to get a determination from the U.S. Fish and Wildlife Service that SCE can construct new facilities within the SKR?

Again, we are unable to make any determination that new construction is permissible by SCE within our reserve. If take of SKR can be avoided and a lease of RCHCA property is something that the RCHCA would be willing to consider, the RCHCA would consult with the U.S. Fish and Wildlife Service about the SCE project and any lease of property within the reserve. SCE would not be required to get a determination from the Service.

Will SCE be required to get a similar determination from the California Department of Fish and Game?

See previous response above.

If the RCHCA finds that sections 5.c.1.s and 5.c.1.t exclude the construction of projects such as the ASP in the SKR habitat, please explain process, if any, the RCHCA is required to undertake to issue variances to the provisions of the HCP.

There is no process the RCHCA is required to undertake to issue variances pursuant to the provisions of the SKR HCP nor does a variance procedure exist.

Additionally, please explain the process, if any, the RCHCA is required to follow to resolve disputes between public agencies. That is, if there are questions as to the interpretation of certain sections in the HCP, how are the questions resolved?

There is no process the RCHCA is required to follow to resolve disputes between public agencies.

If you have any further questions concerning this matter, please do not hesitate to contact me.

Very truly yours,

Karin Watts-Bazan
General Counsel

KWB:psg

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

Laura Renger
Senior Attorney
laura.renger@sce.com

November 4, 2010

Karin Watts-Bazan, Esq.
General Counsel
Riverside County Habitat Conservation Agency
4080 Lemon Street, 12th Floor
Riverside, CA 92501

Re: Alberhill System Project

Dear Ms. Watts-Bazan:

I write to clarify Southern California Edison Company's (SCE) position on why the Alberhill System Project (Alberhill or the Project) may be constructed within core reserves identified in the Habitat Conservation Plan (HCP) for the Stephens' Kangaroo Rat (SKR) administered by the Riverside County Habitat Conservation Agency (RCHCA). Specifically, this letter responds to issues raised in: (1) the California Public Utilities Commission (Commission) correspondence to the RCHCA dated September 30, 2010; and (2) RCHCA's response dated October 18, 2010. SCE has also received the Commission's letter and information request dated November 3, 2010, relating to the same issue.[1]

RCHCA stated in its October 18 response that if SCE designs and constructs Alberhill so that it avoids incidental take of SKR in the HCP core reserves, the proposed Project *will be consistent* with the HCP and therefore SCE may construct the proposed Project in the core reserves regardless of whether SCE is a public agency under the HCP. SCE agrees, and does not believe that Alberhill's construction, operation, or maintenance will result in the incidental take of SKR as explained below. Accordingly, construction of the proposed Project in the core reserves is consistent with the HCP, and the HCP's restrictions on construction in core reserves do not require changes to the Project as proposed. SCE is preparing a more detailed response to the Commission's information request, which it will provide separately to the Commission and RCHCA at a later date.

The Project as proposed will not be located in occupied SKR habitat based on the best available biological data. *See* Proponent's Environmental Assessment for Alberhill System Project (PEA) at 4-97. Focused habitat assessments for SKR were performed within the proposed Project's Alberhill Substation parcels and 500 kV transmission line segments on June 27, July 6, and July 30, 2009. *Id.* No SKR were observed. *Id.* Limited potentially suitable SKR habitat was identified

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[1] Specifically, the Commission requested that SCE formulate a feasible project alternative to work around restrictions on constructing SCE facilities within the HCP core reserves.

within the areas surveyed. *Id.* Trapping surveys were conducted November 12-17, 2009, and SKR were caught only in an area near an existing road maintained by an adjacent private property owner, approximately one-half mile south of the Lake Mathews-Estelle Mountain Core Reserve boundary.[2] No SKR were found in any location that would be affected by the proposed Project. SCE therefore does not believe at this time that Alberhill requires incidental take authorization.

RCHCA stated in its letter that Section 5(C)(1)(s) of the HCP and Section III(A)(1)(a)(3) of the Implementation Agreement for the Riverside County Long Term Habitat Conservation Plan (Implementation Agreement) apply only to public facilities constructed by public agencies, and that HCP Section 5(C)(1)(t) and Implementation Agreement Section III(A)(1)(a)(4) apply only to operation and maintenance of existing infrastructure improvements, including electric and other public utility facilities. SCE projects that its electrical facilities in the Western Riverside County area could reach full capacity by 2014, and SCE's existing facilities do not have the capacity to handle the increased demand and load growth. *SCE's Testimony on Purpose and Need and Cost Support for the Alberhill System Project*, Paul McCabe, at 4:13-15, 5:26-6:2 (Commission Application No. A.09-09-022, Ex. SCE-1) (June 16, 2010); *see also SCE Response to Data Request Set Alberhill-Energy Division-SCE-004*, Q.01 A-E (Dec. 16, 2009). Alberhill consists of capacity, safety, and reliability upgrades to SCE's existing facilities to address these constraints. *See* PEA at 1-2 to 1-13. Sections 5(C)(1)(s) and 5(C)(1)(t) and Implementation Agreement Sections III(A)(1)(a)(3) and III(A)(1)(a)(4) of the HCP should reasonably apply to Alberhill, especially given the HCP's stated intent to ensure public safety and welfare. *See* HCP § 5(C)(1)(s), (t); Implementation Agreement § III(A)(1)(a)(3).

SCE believes that HCP Sections 5(C)(1)(s) and 5(C)(1)(t) and Implementation Agreement Sections III(A)(1)(a)(3) and III(A)(1)(a)(4) should also apply to Alberhill based on the Commission's exclusive jurisdiction over the siting and design of transmission facilities such as Alberhill under California Public Utilities Code Section 1007.5 and Commission General Order 131-D. The California Public Utilities Code establishes a legal obligation, overseen and implemented by the Commission, that SCE must provide electrical service to the public in its service area and to ensure safe, reliable operation and maintenance of its transmission facilities. *See* Cal. Pub. Util. Code §§ 701, 702, 761, 761.3. The Commission's approval of the proposed Project would result in the Commission's issuance of a Certificate of Public Convenience and Necessity (CPCN) ordering SCE to construct, operate, and maintain Alberhill according to the specifications in the CPCN. If HCP Sections 5(C)(1)(s) and 5(C)(1)(t) and Implementation Agreement Sections III(A)(1)(a)(3) and III(A)(1)(a)(4) were to be interpreted not to apply to Alberhill, that interpretation could undesirably narrow the Commission's exclusive jurisdiction over the siting and design of transmission facilities and impede the HCP's stated intent of ensuring public safety and welfare.

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[2] The results of the trapping surveys are in a report dated January 11, 2010, by SJM Biological Consultants. SCE enclosed the trapping study report in letters to RCHCA and the Commission dated August 9, 2010.

Alberhill, if approved, will provide the residents of Riverside County with critically important infrastructure upgrades. SCE does not believe that Alberhill's construction, operation, or maintenance will result in the incidental take of SKR, and as RCHCA agrees, the proposed Project will be consistent with the HCP if Alberhill avoids incidental take of SKR. In the unlikely event that Alberhill requires incidental take authorization, SCE is committed to working with RCHCA to ensure consistency with the HCP.

SCE would like to meet with RCHCA at RCHCA's earliest convenience to discuss application of the HCP to Alberhill. Please let me know when RCHCA would like to meet with SCE, and whether you have any questions. Thank you for consideration of this information, as well as providing SCE with an opportunity to respond.

Sincerely,

Laura Renger

cc: Gail Barton
Principal Planner
Riverside County Habitat Conservation Agency
4080 Lemon Street, 12th Floor
Riverside, CA 92501

Mary Jo Borak
Supervisor, Energy Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 941

Kenneth Lewis
Program Manager, Energy Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Nicholas Sher, Esq.
Project Attorney
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Jensen Uchida
Project Manager, Energy Division
California Public Utilities Commission
505 Van Ness Avenue

San Francisco, CA 94102

Karen Ladd
Project Manager
Ecology and Environment, Inc.
130 Battery Street, 4th Floor
San Francisco, CA 94111

Rob Peterson
Deputy Project Manager
Ecology and Environment, Inc.
130 Battery Street, 4th Floor
San Francisco, CA 94111

Jennifer Siu
Biologist
Ecology and Environment, Inc.
130 Battery Street, 4th Floor
San Francisco, CA 94111

Ted Heath, P.E.
Project Licensing
Southern California Edison Company
2131 Walnut Grove Avenue
Rosemead, CA 91770

Milissa Marona
Regulatory Policy and Affairs
Southern California Edison Company
2131 Walnut Grove Avenue
Rosemead, CA 91770

California Independent
System Operator Corporation

Memorandum

To: ISO Board of Governors

From: Dr. Keith Casey, Vice President of Market & Infrastructure Development

Date: December 9, 2009

Re: **Decision on Alberhill Substation Project**

This memorandum requires Board action.

EXECUTIVE SUMMARY

This memorandum requests ISO Board of Governors approval of the Alberhill Substation Project (Project), proposed by Southern California Edison Company (SCE). Based on the *ISO Business Practice Manual for the Transmission Planning Process*, transmission projects with capital cost greater than $50 million require Board approval. The Project has an estimated total cost of $315 million, which includes both the distribution retail cost as well as the transmission access charge (TAC) cost under the ISO. The TAC-related cost is $171 million. Management's principal determinations and findings are:

- The Project is needed by summer 2014, based on SCE's 1-in-5 year[1] heat wave load forecast for the local area[2], to provide additional transformer capacity to mitigate the Valley South 500/115 kV transformer overloading concerns. The Valley South transformers are located within the Valley Substation in Romoland, California.

- In the absence of a certain generation alternative, the proposed Project, with its ultimate build-out of three, 560 MVA, load-carrying transformers (and one spare transformer), will provide robust substation capacity to serve load growth in the southern Riverside County area, at least for the next fifteen years, based on the current load projection;

[1] SCE plans for infrastructure upgrades under its own operational jurisdiction (i.e., Valley 115 kV system) based on 1-in-5 year heat wave load forecast. The Valley 115 kV system is not under ISO's operational control and is not subject to ISO planning standards that require 1-in-10 year heat wave load forecast.

[2] The California Energy Commission (CEC) provides the ISO with individual participating transmission owners system load forecast for planning studies. However, the owners provide the ISO with the sub-area load projections. These owners are responsible for ensuring that the aggregated coincidental sub-area forecasts match with the CEC load forecast for its aggregated larger area.

- The Project will enable SCE to improve its reliability in serving load in Riverside County by minimizing the loss of load exposure[3] in the event of a substation outage; and

- The Project is expected to cause minimum environmental impact in the area.

Management recommends that the Board approve the Project and directs SCE to proceed with its necessary permitting and engineering:[4]

> ***Moved, that the ISO Board of Governors finds that the Alberhill 500/115 kV Substation Project, as described in the memorandum dated December 9, 2009, is a necessary and cost-effective long-term transmission addition to the CAISO Controlled Grid.***
>
> ***Moved, that the ISO Board of Governors directs Southern California Edison to continue with the design, licensing, and construction of this project.***

BACKGROUND

SCE's Valley Substation, located in Romoland, California, is the sole source serving customers' loads in the San Jacinto Region of southwestern Riverside County. This area encompasses about 1,260 square miles and serves approximately 325,000 customers. Valley Substation transforms voltage from 500 kV to 115 kV, with four load-carrying 560 MVA transformers. In 2004, the Valley 115 kV system was split into two separate 115 kV systems: Valley North and Valley South. Each of these systems is served by two 560 MVA transformers from the same 500 kV source. A stand-by spare transformer[5] is scheduled to be installed at Valley Substation in 2010. This spare transformer will provide back-up transformer capacity in the event of a transformer failure at Valley Substation. Since SCE has operational control on radial transmission facilities, the cost of the spare Valley transformer will be incurred by its Distribution Department and recovered through its retail rate.

The ISO transmission planning process requires participating transmission owner's sponsored projects to be submitted through the request window for evaluation and recommendation in the transmission plan for that study cycle. Accordingly, SCE submitted the Project during the 2008 request window, along with the supporting information required by the tariff and the *Business Practice Manual (BPM) for Transmission Planning*. The *2009 Transmission Plan* identified the Project as one of the various alternatives requiring further information for ISO evaluation prior to submitting for Board approval.[6]

---

[3] SCE 1-in-5 load forecast for the Valley Substation is 1,642 MW for 2010.
[4] Estimated cost for final engineering and design works is approximately 10% of the total project cost.
[5] The stand-by transformer is the fifth transformer to be installed at Valley Substation; the other four existing transformers are load-carrying transformers.
[6] See Table 1-4, page 20 of the ISO *2009 Transmission Plan* (http://www.caiso.com/2354/2354f34634870.pdf).

ISO STAFF ASSESSMENT

Evaluation of need for Project

ISO staff conducted a reliability assessment and determined that there was a need for the Project, based on the projections for the Valley South 115 kV system load. Specifically, the assessment found the Valley South system load will exceed its transformer capability by summer 2014 (i.e., 1122 vs. 1120 MVA). The Valley North and South systems are two separate electrical systems: Valley North is served from the 115 kV gas insulated switchgear and the Valley South is served from the 115 kV open air substation facilities. Due to high load growth (approximately 14% per year) between the 2000 and 2004 time frame, the Valley North and Valley South systems were split into two separate electrical systems in 2004. This allowed the Valley South system to be served from the expanded 115 kV open air switchgear, rather than being connected to the limited gas insulated switchgear. Based on the existing system design limitation, the Valley North switchgear cannot be expanded further.

Evaluated alternatives to the Project

Management requested that SCE provide engineering feasibility and planning level cost estimates of five other alternatives in its evaluation of the Project. These alternatives are summarized in the following *Table 1*.

Table 1. Summary of Rejected Alternatives

Alternative	Scope of Project	Evaluations	Amount[7]
Alternative 1 Transfer Load from Valley South to Valley North	• Transfers two 115kV Substations from the Valley South bus to the Valley North bus within the existing valley substation • Constructs new 115 kV transmission line	**Pros:** • Low costs **Cons:** • Requires rebuilding a substantial portion of the existing lines • Only shifts the problem without solving it • Is considered short-term mitigation that requires additional upgrades (i.e., new substation) within two years of its completion	Less than $30 million
Alternative 2 Expansion of 500/115 kV Valley Substation	• Installs a new 560 MVA 500/115 kV Transformer Bank at the existing Valley Substation • Replaces 16 existing 115 kV breakers on Valley South System with 63 kA rated units	**Pros:** • Low costs **Cons:** • Does not create any new 115 kV system ties for substation load transfers • Exceeds SCE's substation design practice of limiting to 3 load-carrying banks and 1 spare within 500 kV substation • Increases further loss of load exposure	Less than $50 million

[7] Listed costs for alternatives are approximate costs due to proprietary information from SCE. However, ISO Staff has actual planning costs provided by SCE for evaluation of alternatives.

Alternative 3 Build New 230/115 kV Substation	• Constructs new 230/115 kV Substation • Constructs three new 30 mile 230 kV T/L	**Pros:** • Provides loading relief to Valley transformers for 10-year planning horizon **Cons:** • Is considered difficult to permit because this option requires CPCN permitting for at least 30 miles of rights-of-way through populated areas • Proposed location is far from major load areas	$300 - $350 million
Alternative 4 Construction of new Auld Substation	• Constructs a new 500/115 kV substation south of the existing valley substation • Constructs two 14 mile 500 kV T/L	**Pros:** • Provides loading relief to Valley transformers for at least 10-year planning horizon **Cons:** • Is considered difficult to permit because it requires CPCN permitting and acquisition of a minimum of 28 miles of rights-of-way through heavily populated areas • Requires much longer construction time	$300 - $350 million
Alternative 5 Generation Option (EME-proposed Sun Valley Energy Project)	• Edison Mission Energy proposed to construct 5x101.5 MW peakers (507.5 MW total capacity) • Currently is at the permitting stage at the California Energy	**Pros:** • If this project receives appropriate environmental permits from the CEC and the South Coast Air Quality Management District, receives power purchase agreement, and is able to complete by June	Less than $40 million[8] for connection of this generation to Valley Substation

[8] Non-TAC costs due to proposed connection of generation project to SCE-Controlled 115 kV sub-transmission radial system

	Commission • Connects to Valley South 115 kV bus at Valley Substation	2014, it will negate the need for the transmission option. **Cons:** • Project is located in South Coast Air Quality Management District (SCAQMD), which currently has priority reserve issues • Uncertain in obtaining air credits from SCAQMD for construction • Project is still under environmental review by the CEC and has not yet been granted permit to construct • Has no signed power purchase agreement with Utility Distribution Company • Is considered uncertain generation project due to above environmental issues that need to be resolved	

Description of proposed Project

SCE proposes to construct the Project to serve current and projected demand for electricity in the southwestern Riverside County, including the cities of Lake Elsinore, Canyon Lake, Perris, Menifee, Murrieta, Murrieta Hot Springs, Temecula, Wildomar, and the surrounding unincorporated portions of Riverside County. The following is the scope of the project:

1. Construction of a new 500/115 kV substation to provide additional substation capacity to the area currently served by Valley Substation; the project will have two 560 MVA 500/115 kV AA-transformer banks initially. The ultimate substation arrangement will have a total of four 560 MVA transformer banks, with three banks carrying load and

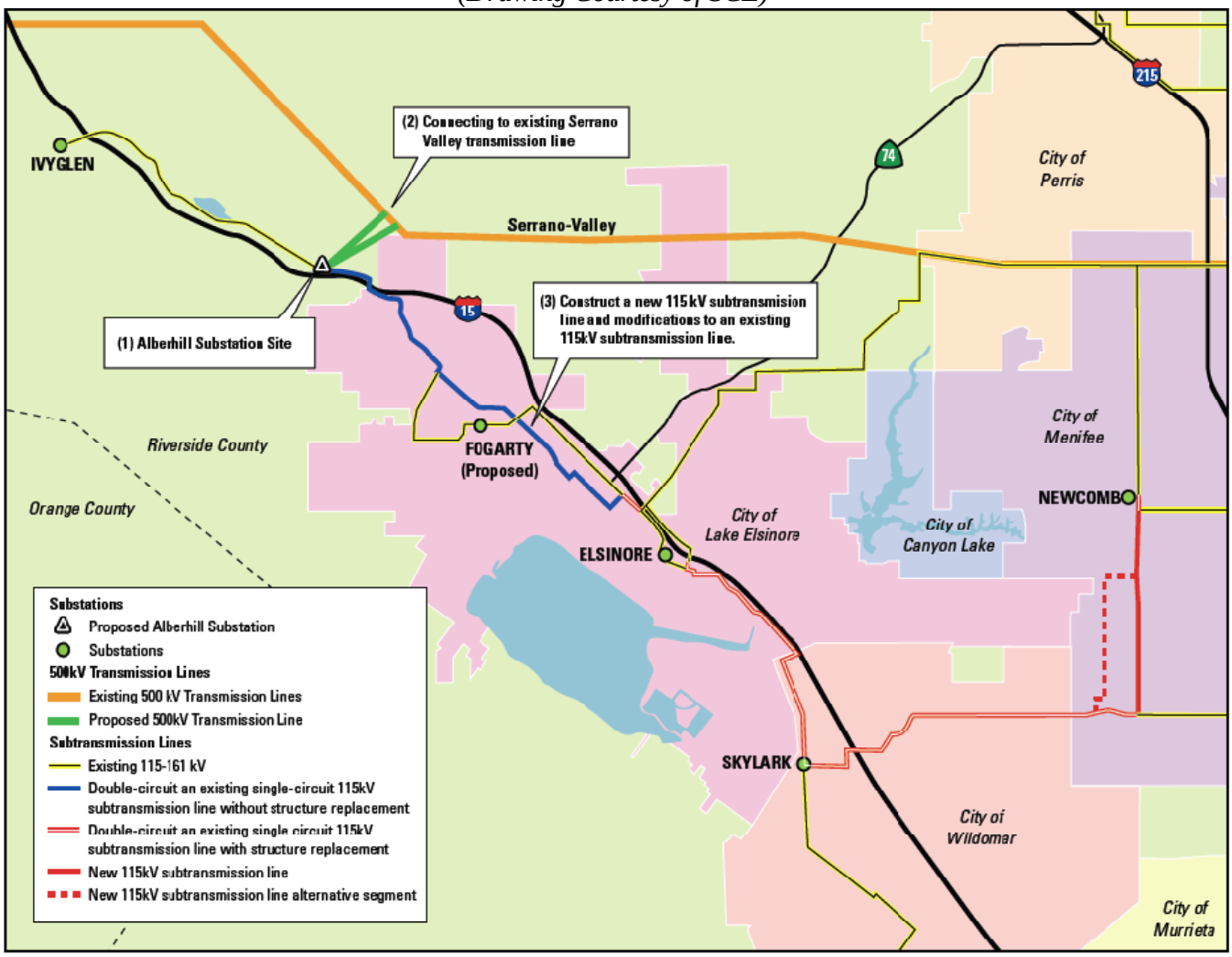
one serving as a stand-by spare unit in the event of a bank failure. The 500/115 kV substation will be constructed using a hybrid (500 kV gas insulated switchgear/115 kV open air) configuration.

2. Construction of two, 1.5-mile lengths of new, 500 kV single-circuit transmission lines to connect the new substation by loop-in of the existing Serrano – Valley 500 kV transmission line;

3. Construction of a new 115 kV sub-transmission line (approximately three miles in length) and modifications to four existing 115 kV sub-transmission lines to transfer loads from Valley South system to the new Alberhill substation. The cost for performing these works is recovered through retail rate and is not under the ISO TAC cost, since SCE's 115 kV radial facilities are not under ISO operational control.

4. Installation of telecommunication improvements to connect the new facilities to SCE's telecommunication network. The cost for most of this work is not included in the ISO TAC costs.

Figure 1. Alberhill Substation Project
(Drawing Courtesy of SCE)



Costs of Alberhill Substation Project

The total cost of this project is $315 million, which includes both the TAC and non-TAC portions. The TAC-related cost is $171 million and covers the cost of the transmission facilities under ISO's operational control. The retail rate cost is $144 million and covers the cost of the 115 kV sub-transmission facilities that are under SCE's operational control. The estimated annual levelized revenue requirement for the TAC cost portion is estimated to be $22 million, if the annual carrying charge is 13 percent. This estimate is for illustration only because SCE has yet to bring this project to the Federal Energy Regulatory Commission for cost recovery approval. An updated transmission revenue requirement will be available upon their review and approval.

POSITIONS OF THE PARTIES

Management presented this proposed project to stakeholders as part of the 2009 transmission planning process. In *Table 1-4*, page 20 of the *Final ISO 2009 Transmission Plan Report*[9], posted on the ISO website, the Management indicated that this proposed Project would be evaluated further with other alternatives before recommending to the Board for approval. On September 30, 2009, SCE submitted to the CPUC its CPCN permit filing. The CPUC has initiated a proceeding to conduct the environmental permit review of this project. Currently, SCE anticipates receiving the final decision from the CPUC regarding this project in the Fall of 2011. The planned completion date for this project is June 2014.

MANAGEMENT RECOMMENDATION

Based on Management's findings that the project is the most robust transmission alternative with expected minimum environmental impact in meeting reliability needs and providing long-term transformer capacity for serving load growth in the southwestern Riverside County, Management recommends the Board approve this project as a new addition to the ISO controlled grid. In addition, SCE should be directed to proceed with necessary permitting, engineering and construction of the project, with a planned operational date of June 2014.

[9] The ISO Transmission Plan is posted at http://www.caiso.com/2354/2354f34634870.pdf.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Wendy Worthey
Title: Biologist
Dated: 07/20/2011

Question 5.8.1:

The responses to Data Gap 5.8 did not apply to the 500-kV lines or 115-kV segments because additional surveys results were pending. Provide the information requested in Data Gap 5.8 for the 500-kV lines and all of the 115-kV segments. In addition, include access and spur roads for both the 500-kV lines and 115-kV segments (e.g., the 115-kV segment through the mountainous area between Skylark Substation and Newcomb Substation). Include the results of the additional pending 2010 Biological Surveys.

Response to Question 5.8.1:

The draft GIS data for 2011 bio surveys is attached. However, it does not include all delineated waters or all the SKR data. It also does not include the portion of the Alberhill alignment that follows the Valley-Ivyglen (VIG) Phase 2 alignment as that was done by a separate consultant. SCE is in the process of obtaining the bio survey data from the VIG Phase 2 consultant. SCE anticipates receiving all the final 2011 GIS bio data by August 31st. Even with final GIS data and survey results, SCE cannot provide temporary and permanent disturbance area calculations along the 500 kV and 115 kV lines without final engineering. Using the draft GIS data, sensitive biological resources maps have been provided to the 500 kV and 115 kV design teams for the purposes of avoiding sensitive resources to the extent feasible.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Allen Wilridge
Title: Transmission Design, Planner 3
Dated: 07/20/2011

Question 12.12.1:

a. The response to Data Gap Request 12.12 indicates that for 115-kV subtransmission reconductoring within public ROW, 0.1 acres would be permanently disturbed for 0.06 miles of new access and spur roads. Map the location of each new access and spur road.

b. Confirm that there would be no new access or spur roads for 115-kV subtransmission reconductoring outside of public ROW.

Response to Question 12.12.1:

a. After further review, there will be no new access or spur roads within public ROW for 115-kV subtransmission reconductoring.

b. There will be no new access or spur roads for 115-kV subtransmission reconductoring outside of public ROW.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 07/20/2011

Question 12.1.1:

Confirm that the following statements are accurate, and estimate the date when load would be exceeded and a third transformer would be required. The substation would be constructed with enough space for two additional 560 MVA 500/115-kV transformers. When electrical load exceeds 560 MVA, the first two transformers would serve the load and a third transformer would be installed as a spare. Based on the applicant's projections, the load may exceed560 MVA as early as [INSERT DATE]. A fourth transformer would be installed as a spare and the first three transformers would serve the load when electrical load exceeds 1,120 MVA, which is not anticipated to occur before 2018, based on the applicant's projections

Response to Question 12.1.1:

The Alberhill Substation would be designed for two additional 560 MVA transformers to be installed.

It is estimated that the Valley South 115 kV System would again reach capacity within the range of years from 2024-2029 at which point additional electrical demand would need to be transferred to the Alberhill System. Upon this transfer is when it is projected that the electrical demand of the Alberhill System would exceed 560 MVA in total.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Alisa Krizek
Title: Environmental Coordinator
Dated: 07/20/2011

Question 7.12.2 a:

a. Confirm the source of de-ionized water for the Valley Substation. Is water supplied from the local water agency then de-ionized at the Valley Substation or another SCE facility?

Response to Question 7.12.2 a:

Water is supplied from the local water agency and deionized at either Valley Substation or Skylark Substation.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 07/20/2011

Question 7.12.2 b:

At what frequency would 3,000 gallons of de-ionized water be consumed at the Alberhill Substation for cleaning electrical equipment?

Response to Question 7.12.2 b:

3000 gallons of de-ionized water represents one truck load amount. Once per, year a washing truck will bring this amount of water to the new Alberhill substation to wash the electrical equipment. The entire quantity of 3000 gallons would be consumed in one day at the new substation. The same operation will be repeated annually for the life of the project.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 07/20/2011

Question 7.38.1 a:

Would the agricultural pipeline be relocated outside the boundary of the proposed Alberhill Substation property?

Response to Question 7.38.1 a:

SCE is negotiating with the Elsinore Valley Municipal Water District (EVMDW) to relocate approximately 1700 feet of an agricultural pipeline that bisects the proposed Alberhill Substation property. The ongoing negotiations aim to meet the operational needs of both SCE and EVMWD.

For the most part, the relocated line will be within the proposed Alberhill Substation property, but completely outside the station's perimeter wall (see attached diagram).

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 07/20/2011

Question 7.38.1 b:

Provide the latest engineering diagrams for relocation of the agricultural water pipeline.

Response to Question 7.38.1 b:

Please see the attached file Ag-WL-Exhibit Waterline_Exhibit(1).pdf for engineering diagrams for the waterline relocation.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 07/20/2011

Question 7.38.1 c:

Clearly indicate on a map or engineering diagram where the new pipeline segment would be located in relation to the ROW of public roadways including Temescal Canyon Road and Concordia Ranch Road.

Response to Question 7.38.1 c:

Please see the attached file Ag-WL-Exhibit Waterline_Exhibit(1).pdf for engineering diagrams for the waterline relocation.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Allen Wilridge
Title: Transmission Design, Planner 3
Dated: 07/20/2011

Question 7.7.1:

Specify the number and locations where poles currently supporting 115-kV lines would be removed. For each location, specify the height and type (LWS, TSP, H-frame) of pole to be removed. Specify the number and locations where new poles would be installed to support 115-kV lines. For each location, specify the height and type (LWS, TSP, H-frame) of pole to be installed. Provide this information as GIS shape files.

Response to Question 7.7.1:

SCE will create and engineer this information during the final engineering stage. It is not available at this time.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-012

To: ENERGY DIVISION
Prepared by: Wendy Worthey
Title: Biologist
Dated: 05/18/2011

Question 12.16:

a. Provide maps at a scale of 1 inch:400 feet or more detailed that show vegetation types (including oak trees, shrub stands, aquatic resources, etc.) and suitable habitat for sensitive and special status plant and wildlife species along the 500-kV line and 115-kV line routes.

b. The responses to Data Gaps 1.13, 7.52, 7.54, 7.55, 7.56, and 7.58 did not include the results of the 2010 Biological Surveys. Provide updated responses to each of the data gap requests based on the 2010 survey results; include 2011 survey data as available. For data that were requested on maps or GIS coordinates in the previous data gap requests, the updated responses may be combined with the maps provided in response to part "a" of this request.

Response to Question 12.16:

a. Please see attached maps. The GIS files have been provided in DR 7 Q 51.

b. For DR 1 Q 13 and DR 7 Q 58, the original responses apply. Should the need for tree removal be necessary during construction, SCE would obtain all applicable permits as required.

For DR 7 Q 54, the original responses apply. The potential for nesting birds exists throughout the project.

For DR 7 Q 55 and DR 7 Q 56, the original responses apply. A delineation of jurisdictional waters, including wetlands, is in progress and jurisdictional water features would be avoided to the extent feasible. Ongoing biological surveys and final engineering will determine specific impact calculations.

For DR 7 Q 52, GIS data has been provided in the past, and will continue to be provided as it becomes available.

Proposed 500kV Project Elements Aerial Overview

March 11, 2011

Original Proposed Routes (PEA, 2009)

- N3
- C1
- Original Pulling Locations

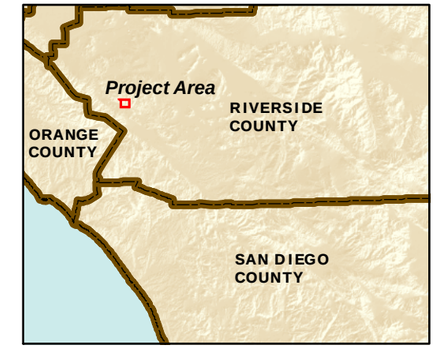
Proposed Alternative Routes (2011)

- SA
- VA
- Proposed Pulling Locations
- Proposed Alberhill Substation
- Road Extents
- Road Land Disturbance
- Original Proposed Towers (PEA, 2009)
- Proposed Alternative Towers (2011)
- Parcels

N W E S

Feet

0 1,000



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CONFIDENTIAL - Contains Critical Energy Infrastructure Information
Contact Corporate Security (27910) for handling/storage requirements, if any questions.

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P:\GISData\Projects\MasterData\Major Transmission Projects\Alberhill 500 kV Sub Project_AHSP\Alberhill_2011\Alberhil_2011_Maps\AerialOverview500kV.mxd

Figure 2.1
Substation Site Alternatives

Substation Site Alternatives

Subtransmission Lines

Existing 115-161 kV (SCE, 2009)

Major Transmission Lines

Existing 500 kV (SCE, 2009)

N
W E
S

0 0.14 Miles

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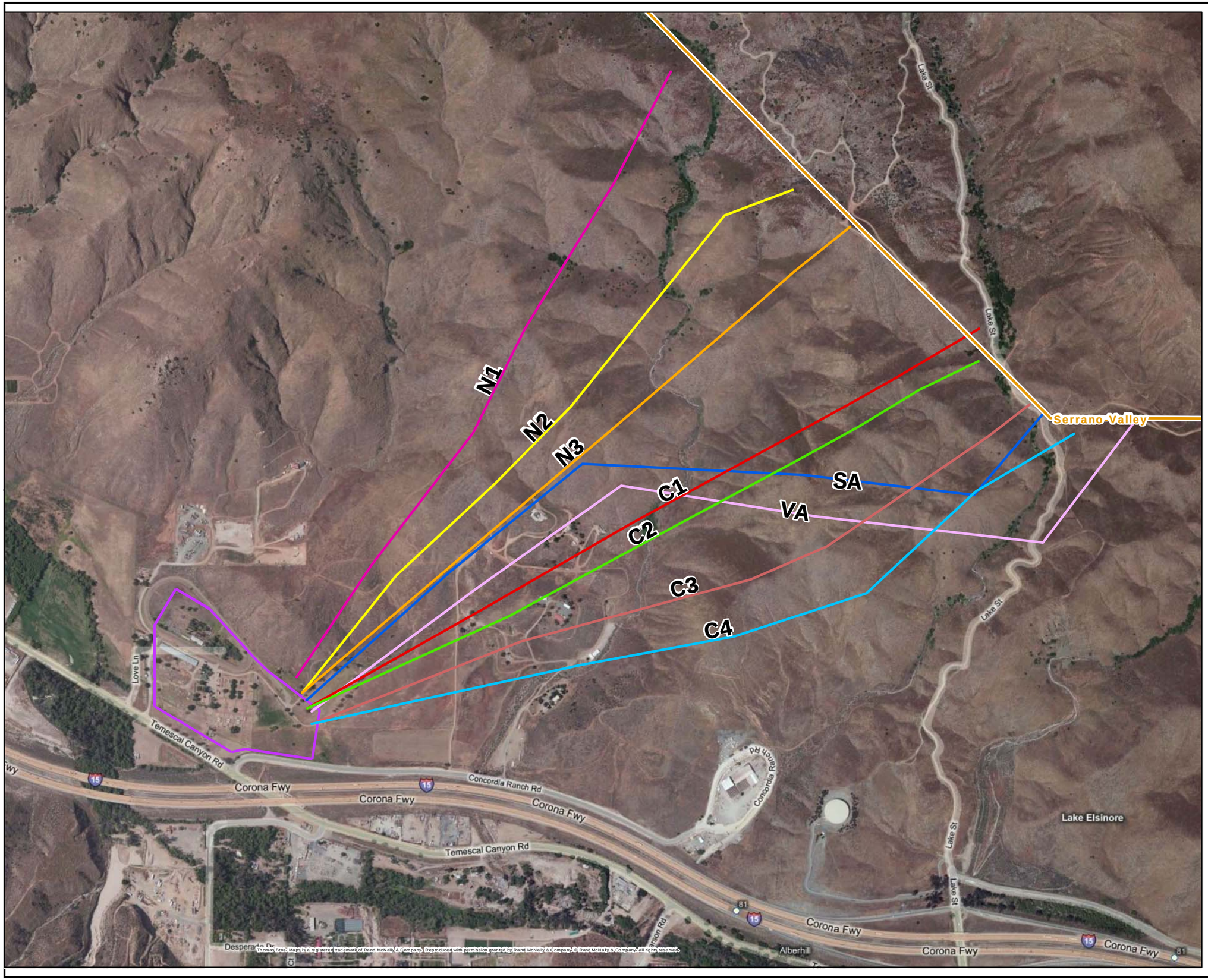
Figure 2.2a
500 kV Transmission Line Segment Alternatives



500kV Transmission Alternatives

- Segment C1
- Segment C2
- Segment C3
- Segment C4
- Segment N1
- Segment N2
- Segment N3
- Segment SA
- Segment VA
- Existing 500 kV (SCE, 2006)
- Proposed Alberhill Substation

N
W E
S

0 0.2 Miles

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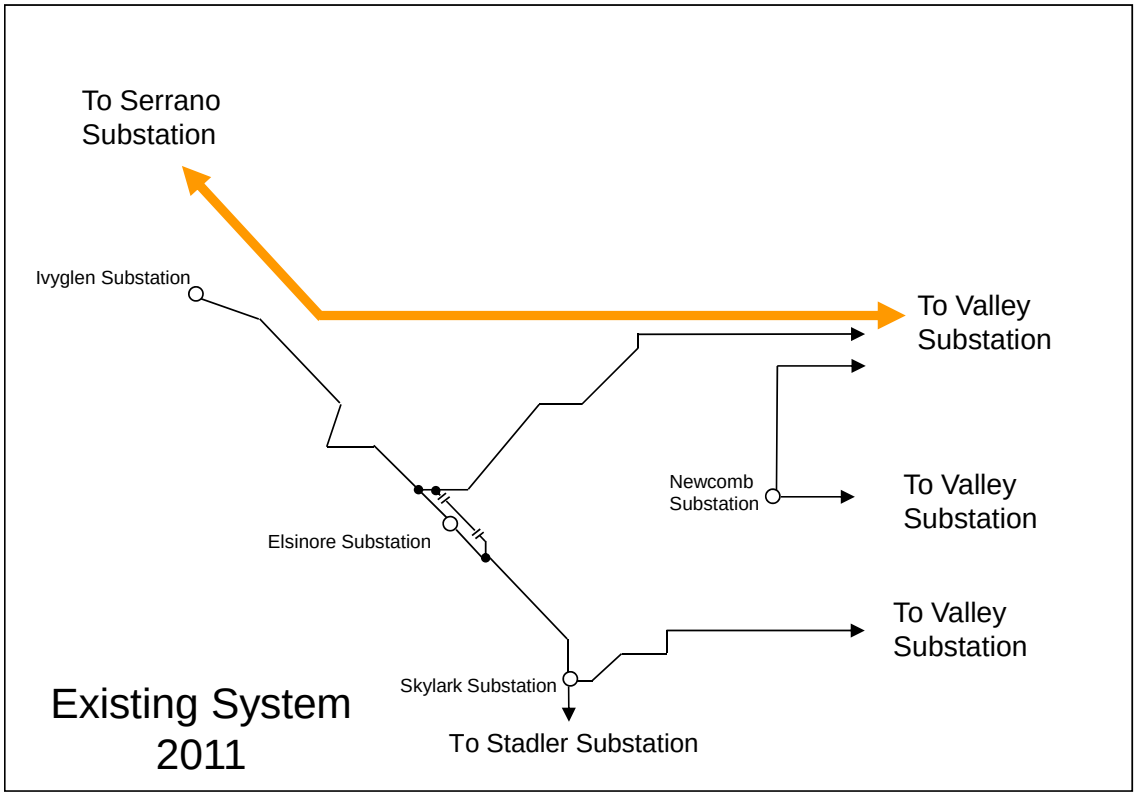

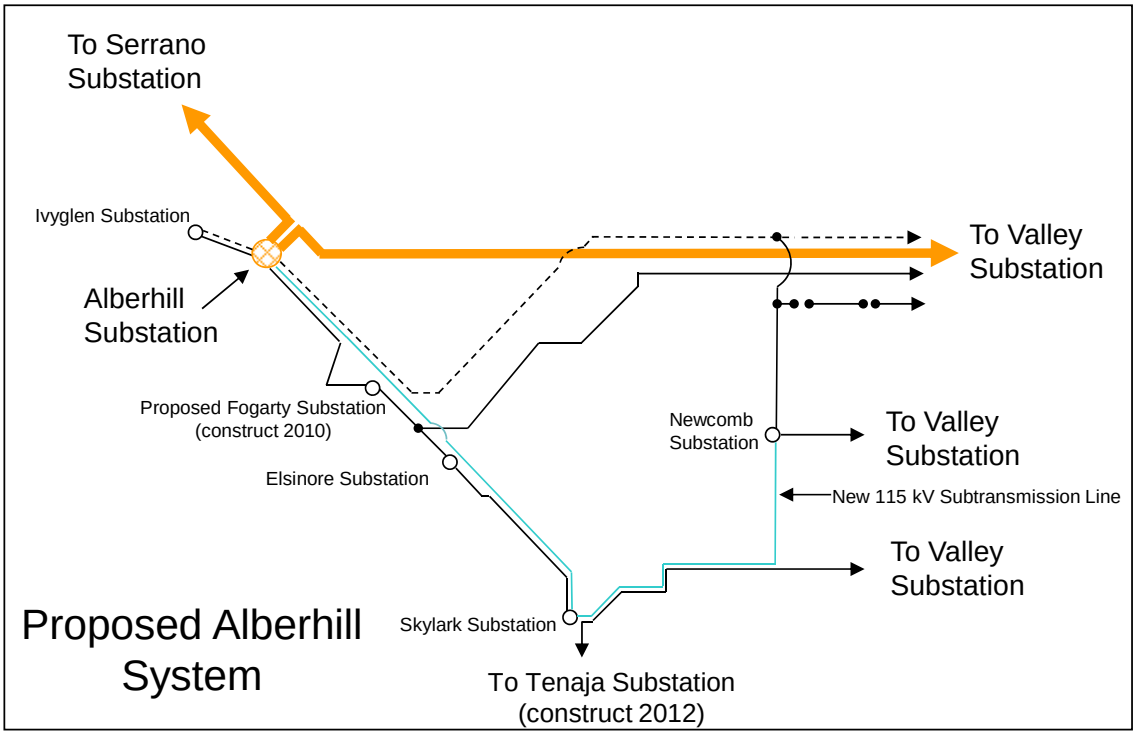

LEGEND

- 500 kV Transmission Line
- Existing 115 kV Subtransmission Line
- Valley-Ivyglen 115 kV Subtransmission Line (construct 2010)
- 115 kV Subtransmission Circuit Installed for Alberhill System Project
- 115 kV Subtransmission Line Separation

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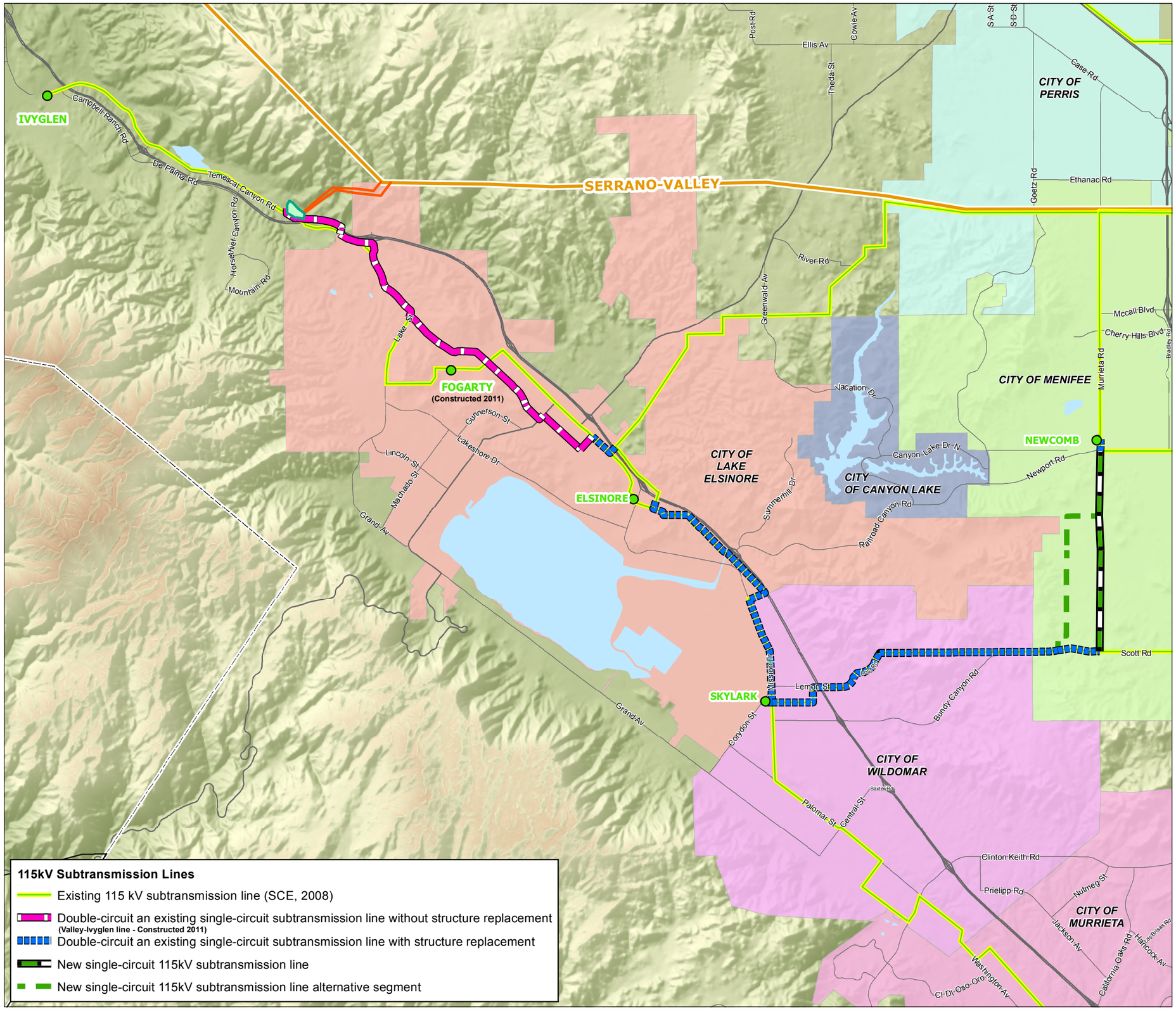
Figure 2.3a
Alberhill System Configuration

Figure 2.4a
Proposed Project and Alternative



115kV Subtransmission Lines

- Existing 115 kV subtransmission line (SCE, 2008)
- Double-circuit an existing single-circuit subtransmission line without structure replacement (Valley-Ivyglen line - Constructed 2011)
- Double-circuit an existing single-circuit subtransmission line with structure replacement
- New single-circuit 115kV subtransmission line
- New single-circuit 115kV subtransmission line alternative segment

Substations

- Proposed Alberhill Substation
- Substations (SCE, 2008)

500kV Transmission Lines (SCE, 2007)

- Existing 500 kV Transmission Lines (SCE, 2007)
- Proposed 500kV Alternative Routes

Basemap Data

- Transportation Lines (TBM, 2008)
- SCE Service Territory Boundary (SCE, 2006)
- County Boundaries (TBM, 2008)
- Water Features (TBM, 2008)

N W E S

0 0.5 1 2 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.

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Major Transmission Projects - Alberhill Sub Project

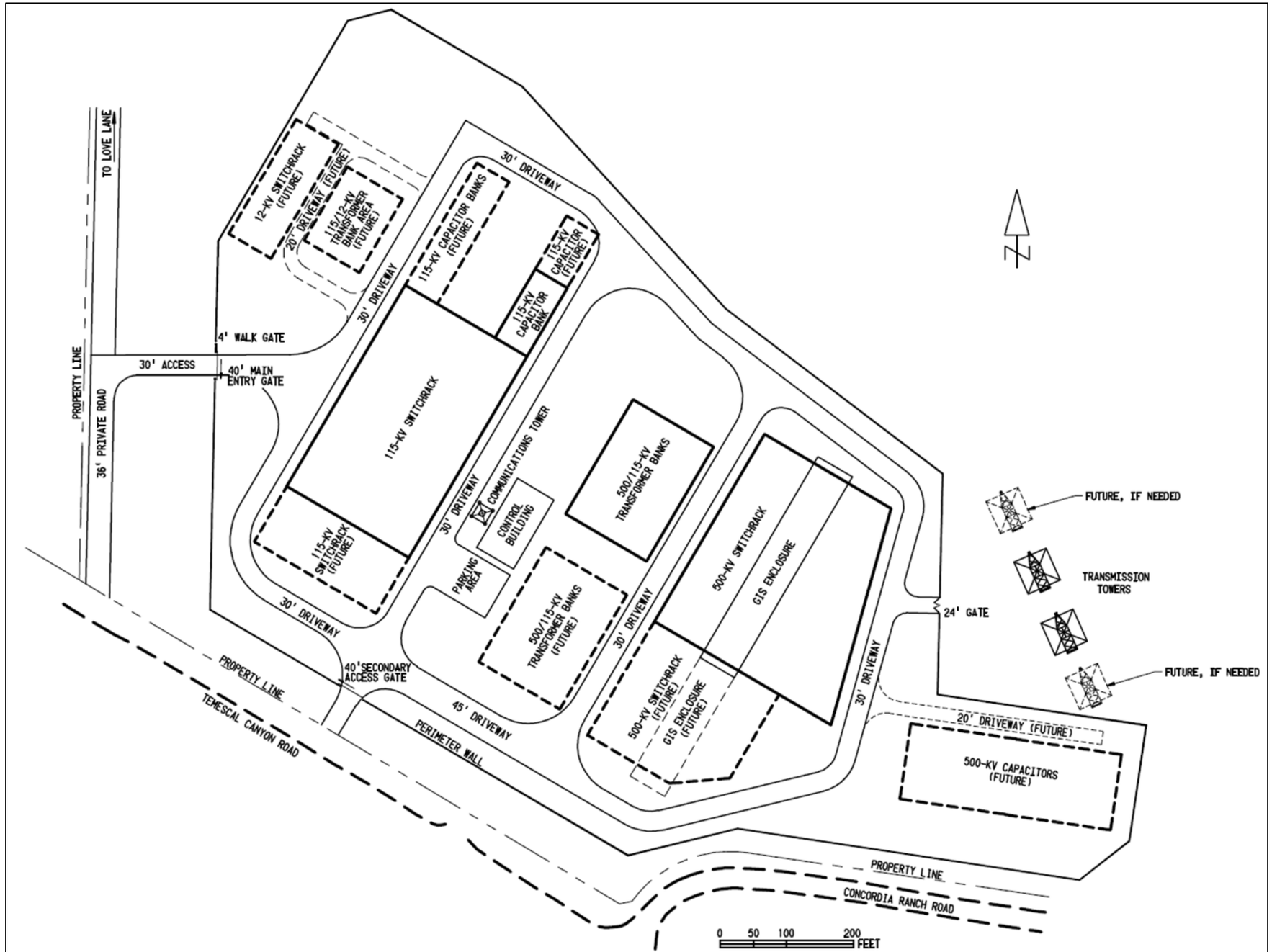

Figure 3.1a
Alberhill Substation Layout

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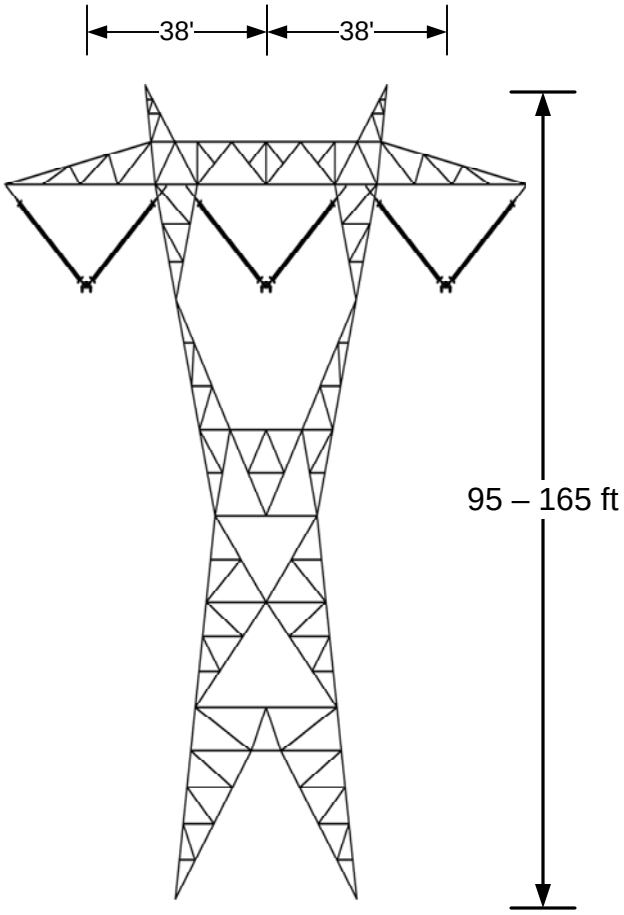
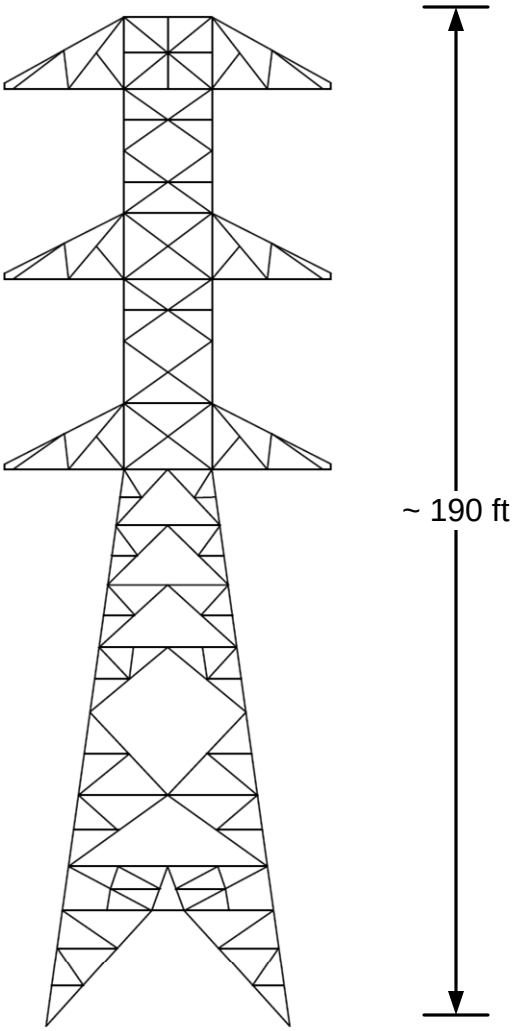


Typical
Single-circuit 500 kV Tower



Typical
Double-circuit 500 kV Tower

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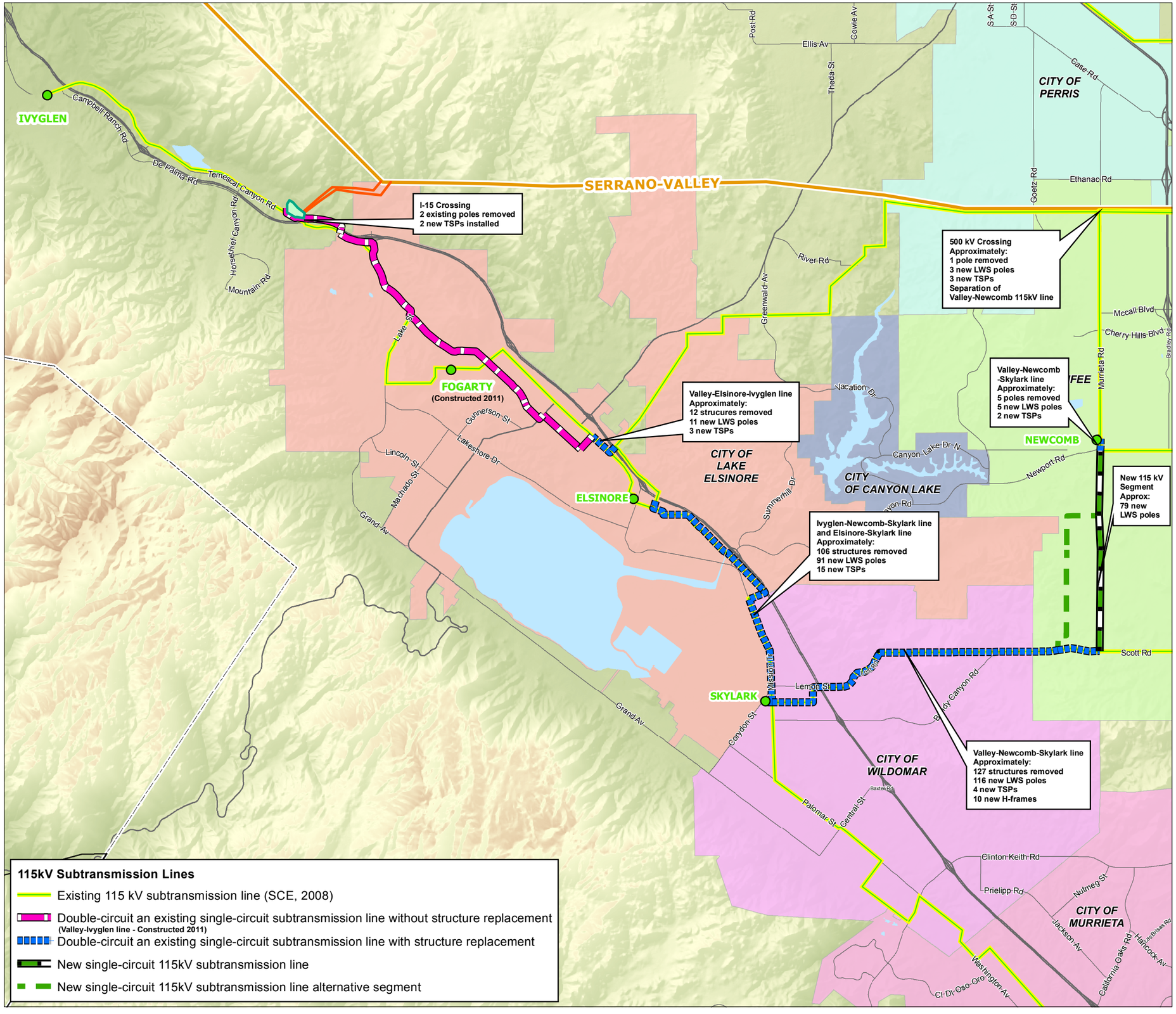
Figure 3.2a
Typical 500 kV Structures

Figure 3.3a
115 kV Subtransmission Line Description



Major Transmission Projects - Alberhill Sub Project

Substations

- Proposed Alberhill Substation
- Substations (SCE, 2008)

500kV Transmission Lines (SCE, 2007)

- Existing 500 kV Transmission Lines (SCE, 2007)
- Proposed 500kV Alternative Routes

Basemap Data

- Transportation Lines (TBM, 2008)
- SCE Service Territory Boundary (SCE, 2006)
- County Boundaries (TBM, 2008)
- Water Features (TBM, 2008)

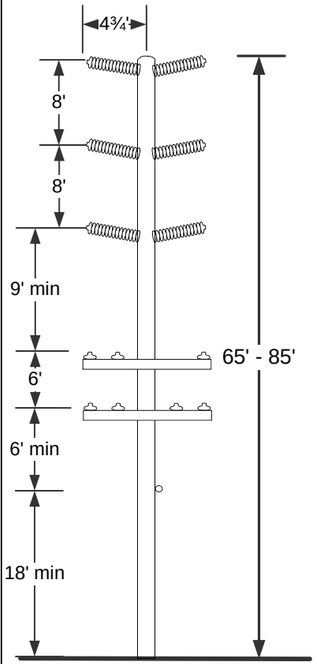
N W E S

0 0.5 1 2 Miles

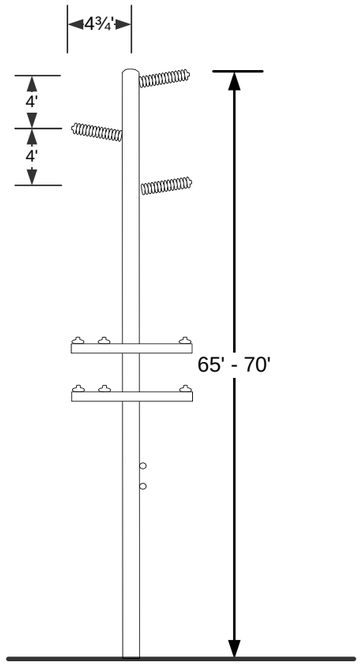
Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.

Figure 3.4a

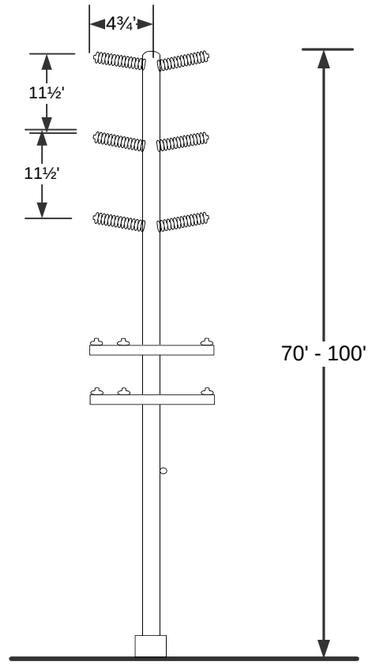
Typical 115 kV Subtransmission Structures



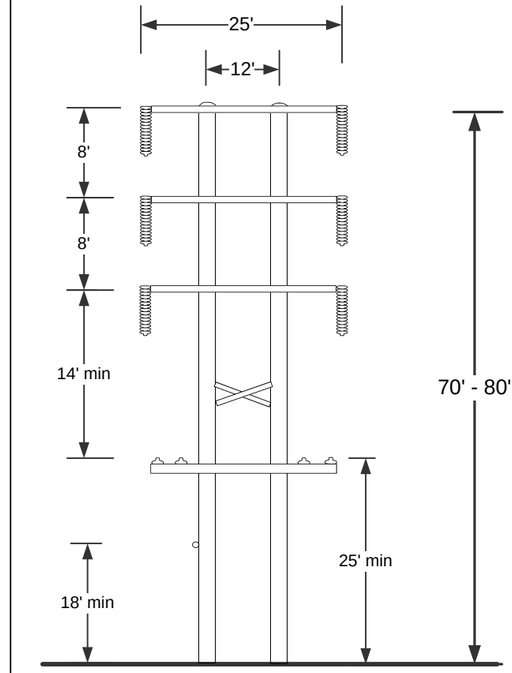
Lightweight Steel Pole (Double Circuit)



Lightweight Steel Pole (Single Circuit)



Tubular Steel Pole (Double Circuit)



H-Frame (Double Circuit)

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APPENDIX F

APPENDIX F Construction Equipment and Personnel Requirements

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
Substation					
Survey					
Crew Vehicle	200	Gasoline	2	15	2
Grading					
Dozer	305	Diesel	1	60	7
Loader	147	Diesel	2	60	4
Scraper	267	Diesel	1	60	7
Grader	110	Diesel	1	60	7
Water Truck	350	Diesel	1	60	7
4x4 Backhoe	79	Diesel	2	60	7
4x4 Tamper	174	Diesel	1	60	7
Crew Vehicle	200	Gasoline	5	60	7
Fencing					
Bobcat	75	Diesel	1	15	8
Flatbed Truck	350	Diesel	1	15	3
Crewcab Truck	300	Diesel	3	15	2
Civil					
Excavator	152	Diesel	2	90	4
Foundation Auger	79	Diesel	2	90	7
Backhoe	79	Diesel	3	90	6
Dump Truck	350	Diesel	2	90	2
Skip Loader	75	Diesel	2	90	3
Water Truck	350	Diesel	1	90	5
Bobcat Skid Steer	75	Diesel	2	90	4
Forklift	83	Diesel	1	90	4
17-ton Crane	125	Diesel	1	90	2
Control Building					
Carry-all Truck	350	Diesel	2	20	2
Stake Truck	350	Diesel	1	20	2

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
Electrical					
Scissor Lift	87	Diesel	2	300	5
Manlift	43	Diesel	2	300	7
Reach Manlift	87	Diesel	2	300	6
15-ton Crane	125	Diesel	1	300	5
Crew Truck	200	Gasoline	6	300	2
Wiring					
Manlift	43	Diesel	1	250	4
Crew Truck	200	Gasoline	4	250	2
Transformers					
Crane	125	Diesel	1	90	6
Forklift	83	Diesel	1	90	6
Crew Truck	200	Gasoline	4	90	2
Low Bed Truck	350	Diesel	1	90	4
Maintenance Crew Equipment Check					
Maintenance Truck	300	Diesel	2	60	4
Testing					
Crew Truck	200	Gasoline	2	200	3
Asphalting					
Paving Roller	46	Diesel	2	30	4
Asphalt Paver	152	Diesel	1	30	4
Stake Truck	350	Diesel	1	30	4
Tractor	45	Diesel	1	30	3
Dump Truck	350	Diesel	1	30	3
Crew Trucks	200	Gasoline	2	30	2
Asphalt Curb Machine	35	Diesel	1	30	3
Landscaping					
Tractor	45	Diesel	1	45	7
Dump Truck	350	Diesel	1	45	3
Forklift	83	Diesel	1	45	4
Crew Truck	200	Gasoline	4	45	2

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
500 kV Transmission					
Survey					
1/2-Ton Pick-up Truck, 4x4	~~200~~300	Gas	2	~~3~~4	8
Marshalling Yard					
1-Ton Crew Cab, 4x4	300	Diesel	1	All	~~2~~4
~~30 Ton Crane Truck~~10,000 lb Rough Terrain Fork Lift	~~300~~125	Diesel	1	All	~~2~~6
~~10,000 lb Rough Terrain Fork Lift~~Boom/Crane Truck	~~200~~215	Diesel	1	All	~~5~~2
Truck, Semi, Tractor	~~350~~400	Diesel	1	All	~~1~~2
Roads and Landing Work					
1-Ton Crew Cab, 4x4	300	Diesel	2	9	2
Road Grader	~~350~~50	Diesel	1	9	~~4~~6
Water Truck	~~350~~300	Diesel	2	9	8
Backhoe/Front Loader	~~350~~125	Diesel	1	9	~~6~~8
Drum Type Compactor	~~250~~100	Diesel	1	9	~~4~~6
Track Type Dozer	~~350~~150	Diesel	1	9	~~6~~8
Excavator	~~300~~250	Diesel	1	~~9~~6	6
Lowboy Truck/Trailer	~~500~~450	Diesel	1	9	2
Tower Removal					
~~3/4~~1-Ton ~~Pick-up Truck~~Crew Cab, 4x4	300	~~Diesel~~Gas	2	4	~~5~~4
1-Ton ~~Crew Cab~~ Flat Bed, 4x4	300	~~Diesel~~Gas	2	4	~~5~~6
Compressor Trailer	~~120~~60	Diesel	1	4	~~6~~8
Flat Bed Truck/Trailer	400	Diesel	1	4	4

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
~~80 Ton~ Rough Terrain Crane	~~350~~275	Diesel	1	4	6
Tower Foundation Removal					
1-Ton Crew Cab, 4x4	300	Gas	1	4	4
Compressor Trailer	60	Diesel	1	2	8
Backhoe/Front Loader	125	Diesel	1	2	6
Dump Truck	350	Diesel	1	2	6
Install Tower Foundations					
1-Ton ~~Crew Cab~ Flat Bed, 4x4	300	~~Diesel~Gas	2	~~26~20	2
~~30 Ton~ Boom/Crane Truck	~~300~350	Diesel	1	~~26~20	5
Backhoe/Front Loader	~~200~125	Diesel	1	~~26~20	8
Auger Truck	~~500~210	Diesel	1	~~26~12	8
~~4000 gallon~ Water Truck	~~350~300	Diesel	1	~~26~20	8
~~10 cu. yd.~ Dump Truck	350	Diesel	~~2~1	~~26~20	8
~~10 cu. yd.~ Concrete Mixer Truck	~~425~350	Diesel	3	~~26~12	5
Tower Steel Haul					
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~Gas	2	~~13~10	~~2~4
~~10,000 lb~ Rough Terrain Fork Lift	~~200~125	Diesel	1	~~13~10	6
~~40'~ Flat Bed Truck/ Trailer	~~350~400	Diesel	1	~~13~10	8
Tower Steel Assembly					
3/4-Ton Pick-up Truck, 4x4	~~300~275	~~Diesel~Gas	~~3~2	~~26~40	4
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~Gas	2	~~26~40	4
~~10,000 lb~ Rough Terrain Fork Lift	~~200~125	Diesel	1	~~26~40	6

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
~~30 Ton Crane Truck~~Compressor Trailer	~~300~~60	Diesel	~~2~~1	~~26~~40	8
~~Compressor Trailer~~Rough Terrain Crane	~~350~~215	Diesel	~~2~~1	~~26~~40	6
Tower Erection					
3/4-Ton Pick-up Truck, 4x4	~~300~~275	~~Diesel~~Gas	~~2~~3	~~13~~33	~~5~~4
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~~Gas	2	~~13~~33	~~5~~4
Compressor Trailer	~~120~~60	Diesel	1	~~13~~33	~~6~~8
~~80 Ton~~ Rough Terrain Crane (M)	~~350~~215	Diesel	1	~~13~~22	6
Rough Terrain Crane (L)	275	Diesel	1	11	6
Wire Stringing					
3/4-Ton Pick-up Truck, 4x4	~~300~~275	~~Diesel~~Gas	~~6~~4	~~5~~9	~~8~~4
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~~Gas	~~5~~6	~~5~~9	~~8~~4
Wire Truck/Trailer	350	Diesel	~~6~~4	~~5~~6	~~2~~6
~~Pole~~Dump Truck~~ Trailer~~ (Trash)	~~500~~350	Diesel	1	~~5~~9	~~6~~4
~~Dump~~Bucket Truck ~~(Trash)~~	~~350~~250	Diesel	~~1~~2	~~5~~9	~~2~~8
~~20,000 lb. Rough Terrain Fork Lift~~Boom/Crane Truck	350	Diesel	~~1~~2	~~5~~9	~~2~~6
~~22 Ton Manitex~~Rough Terrain Crane (M)	~~350~~215	Diesel	~~1~~2	~~5~~9	~~8~~6
~~30 Ton Manitex~~Spacing Cart	~~350~~10	Diesel	~~4~~2	~~5~~3	~~6~~8
~~Splicing Rig~~Static Truck/ Tensioner	350	Diesel	~~2~~1	~~5~~9	~~2~~6

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
~~Splicing Lab~~3 Drum Sock line Puller	300	Diesel	~~2~~1	~~5~~4	~~2~~6
~~Spacing Cart~~Bull Wheel Puller	~~10~~525	Diesel	~~3~~1	5	~~8~~6
~~Static Truck/ Tensioner~~Sag Cat w/ 2 winches	350	Diesel	~~1~~2	~~5~~9	~~2~~4
~~3 Drum Straw line Puller~~Backhoe/Front Loader	~~300~~125	Diesel	~~2~~1	~~5~~9	4
~~60lk Puller~~D8 Cat	~~525~~350	Diesel	~~1~~2	~~5~~9	~~3~~4
~~Sag Cat w/ 2 winches~~Lowboy Truck/Trailer	~~350~~450	Diesel	~~2~~3	~~5~~9	2
~~580 Case Backhoe~~Hughes 500 E Helicopter	~~120~~	~~Diesel~~Jet A	1	~~5~~2	~~2~~6
~~D8 Cat~~Fuel, Helicopter Support Truck	300	Diesel	~~4~~1	~~5~~2	~~1~~4
~~Lowboy Truck/Trailer~~	~~500~~	~~Diesel~~	~~1~~	~~5~~	~~2~~
~~Hughes 500 E Helicopter~~		~~Jet A~~	~~1~~	~~1~~	~~4~~
~~Fuel, Helicopter Support Truck~~	~~300~~	~~Diesel~~	~~1~~	~~1~~	~~2~~
Restoration					
1-Ton Crew Cab, 4x4	300	~~Diesel~~Gas	2	4	~~2~~4
Road Grader	~~350~~250	Diesel	1	4	6
Water Truck	~~350~~300	Diesel	1	4	8
Backhoe/Front Loader	~~350~~125	Diesel	1	4	~~6~~4
Drum Type Compactor	~~250~~100	Diesel	1	4	6
~~Track Type Dozer~~	~~350~~	~~Diesel~~	~~1~~	~~4~~	~~6~~
Lowboy Truck/Trailer	~~300~~450	Diesel	1	4	~~3~~2
115 kV Subtransmission					
Survey					

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
1~~/2~~-Ton ~~Pick-up~~ Truck, 4x4	~~200~~300	Gas	2	18	8
Marshalling Yard					
1-Ton Crew Cab, 4x4	300	~~Diesel~~Gas	1	~~All~~Duration of Project	~~2~~4
~~30-Ton~~ Boom/Crane Truck	~~300~~215	Diesel	1	~~All~~Duration of Project	2
~~10,000 lb~~ Rough Terrain ~~Fork Lift~~Forklift	~~200~~125	Diesel	1	~~All~~Duration of Project	~~5~~6
Truck, Semi, Tractor	~~350~~400	Diesel	1	~~All~~Duration of Project	~~1~~2
~~Roads and Landing Work~~R/W Clearing					
1-Ton Crew Cab, 4x4	300	~~Diesel~~Gas	~~2~~1	~~86~~0	~~2~~8
Road Grader	~~350~~250	Diesel	1	~~86~~0	~~4~~6
Water Truck	~~350~~300	Diesel	~~2~~1	~~86~~0	8
Backhoe/Front Loader	~~350~~125	Diesel	1	~~86~~0	6
Track Type Dozer	150	Diesel	1	0	6
Lowboy Truck/Trailer	450	Diesel	1	0	4
Roads & Landing Work					
1-Ton Crew Cab, 4x4	300	Gas	1	88	2
Road Grader	250	Diesel	1	88	4
Water Truck	300	Diesel	1	88	8
Backhoe/Front Loader	125	Diesel	1	88	6
Drum Type Compactor	~~250~~100	Diesel	1	~~86~~88	4
Track Type Dozer	~~350~~150	Diesel	1	~~86~~88	6
Excavator	~~300~~250	Diesel	1	~~43~~44	6
Lowboy Truck/Trailer	~~500~~450	Diesel	1	~~43~~44	2

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
Guard Structure Installation					
3/4-Ton ~~Pick-up~~ Truck, 4x4	~~300~~275	~~Diesel~~Gas	~~2~~1	26	6
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~~Gas	1	26	6
Compressor Trailer	~~120~~60	Diesel	1	26	6
Auger Truck	~~500~~210	Diesel	1	26	6
Extendable Flat Bed Pole Truck	~~350~~400	Diesel	1	26	6
~~30-Ton~~ Boom/Crane Truck	~~500~~350	Diesel	1	26	8
~~80ft. Hydraulic Man-lift/~~Bucket Truck	~~350~~250	Diesel	1	26	4
Remove Existing Wood H-Frames & Poles					
1-Ton Crew Cab, 4x4	300	~~Diesel~~Gas	2	23	5
~~10,000 lb.~~ Rough Terrain Forklift	~~200~~125	Diesel	1	23	4
~~30-Ton~~ Boom/Crane Truck	~~300~~350	Diesel	~~2~~1	23	6
Compressor Trailer	~~120~~60	Diesel	~~2~~1	23	6
Flat Bed Pole Truck~~/ Trailer~~	~~350~~400	Diesel	1	23	8
Remove Existing Tubular Steel / Light Weight Steel Poles					
3/4-Ton ~~Pick-up~~ Truck, 4x4	~~300~~275	~~Diesel~~Gas	2	~~3~~5	5
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~~Gas	2	~~3~~5	5
Compressor Trailer	~~120~~60	Diesel	1	~~3~~5	5
~~80-Ton Rough Terrain~~ Boom/Crane Truck	350	Diesel	1	~~3~~5	6
Install ~~TSP~~Tubular Steel Pole Foundations					
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~~Gas	~~3~~1	~~74~~96	2

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
~~30-Ton~~ Boom/Crane Truck	~~300~~350	Diesel	1	~~74~~96	5
Backhoe/Front Loader	~~200~~125	Diesel	1	~~74~~96	8
Auger Truck	~~500~~210	Diesel	1	~~50~~65	8
~~4000 gallon~~ Water Truck	~~350~~300	Diesel	1	~~74~~96	8
~~10-cu. yd.~~ Dump Truck	350	Diesel	~~2~~1	~~74~~96	8
~~10-cu. yd.~~ Concrete Mixer Truck	~~425~~350	Diesel	3	~~50~~65	5
Steel Pole Haul					
3/4-Ton ~~Pick-up~~ Truck, 4x4	~~300~~275	~~Diesel~~Gas	2	~~125~~128	5
~~80-Ton Rough Terrain~~ Boom/Crane Truck	350	Diesel	1	~~125~~128	6
40' Flat Bed Pole Truck~~/ Trailer~~	~~350~~400	Diesel	~~2~~1	~~125~~128	8
Steel Pole Assembly					
3/4-Ton Pick-Up Truck, 4x4	~~300~~275	~~Diesel~~Gas	2	~~249~~255	5
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~~Gas	2	~~249~~255	5
Compressor Trailer	~~120~~60	Diesel	1	~~249~~255	5
~~80-Ton Rough Terrain~~ Boom/Crane Truck	350	Diesel	1	~~249~~255	6
Steel Pole Erection					
3/4-Ton Pick-up Truck, 4x4	~~300~~275	~~Diesel~~Gas	2	~~249~~255	5
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~~Gas	2	~~249~~255	5
Compressor Trailer	~~120~~60	Diesel	1	~~249~~255	5

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
~~80-Ton Rough Terrain~~ Boom/Crane Truck	350	Diesel	1	~~249~~255	6
~~Wire Stringing~~Install Conductor & OHGW/GW					
3/4-Ton ~~Pick-up~~ Truck, 4x4	~~300~~275	~~Diesel~~Gas	2	89	~~8~~4
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~~Gas	~~4~~3	89	~~8~~4
Wire Truck/Trailer	350	Diesel	2	60	2
Dump Truck ~~(Trash)~~	350	Diesel	1	89	~~2~~4
Bucket Truck	~~350~~250	Diesel	~~2~~4	89	8
~~22-Ton Manitex~~Boom/Crane Truck	350	Diesel	2	89	8
Splicing Rig	350	Diesel	1	~~23~~20	~~2~~6
~~Splicing Lab~~	~~300~~	~~Diesel~~	~~1~~	~~23~~	~~2~~
3 Drum ~~Straw~~Sock Line Puller	300	Diesel	1	45	6
Static Truck/ Tensioner	350	Diesel	1	45	6
Guard Structure Removal					
3/4-Ton ~~Pick-up~~ Truck, 4x4	~~300~~275	~~Diesel~~Gas	~~2~~1	18	6
1-Ton Crew Cab Flat Bed, 4x4	300	~~Diesel~~Gas	~~2~~1	18	6
Compressor Trailer	~~120~~60	Diesel	~~2~~1	18	6
Extendable Flat Bed Pole Truck	~~350~~400	Diesel	~~2~~1	18	6
~~30-Ton~~ Boom/Crane Truck	~~500~~350	Diesel	1	18	8
~~80ft. Hydraulic Man-lift /~~ Bucket Truck	~~350~~250	Diesel	1	18	4
Restoration					

Primary Equipment Description	Estimated Horsepower	Probable Fuel Type	Primary Equipment Quantity	Estimated Schedule (Days)	Duration of Use (Hours/Day)
1-Ton Crew Cab, 4x4	300	~~Diesel~~Gas	2	18	2
Road Grader	~~350~~250	Diesel	1	18	6
Water Truck	~~350~~300	Diesel	1	18	8
Backhoe/Front Loader	~~350~~125	Diesel	1	18	6
Drum Type Compactor	~~250~~100	Diesel	1	18	6
~~Track Type Dozer~~	~~350~~	~~Diesel~~	~~1~~	~~18~~	~~6~~
Lowboy Truck/Trailer	~~300~~450	Diesel	1	18	3
Telecommunications					
Tower Foundation					
Crew Truck	300	Diesel	2	5	8
Backhoe	79	Diesel	1	5	8
Stake bed truck	350	Diesel	1	5	8
Concrete Mixer	120	Diesel	1	5	8
Tower Construction					
Crew Trucks	300	Diesel	2	30	2
150-foot crane	300	Diesel	1	30	8
150-foot lift truck	100	Diesel	1	30	8
Dish Installation					
Crew Truck	300	Diesel	1	10	2
150-foot lift truck	300	Diesel	1	10	8
Control Building					
Crew Truck	300	Diesel	1	25	2
Bucket Truck	350	Diesel	1	25	8
Overhead Communications Installation					
Bucket truck	350	Diesel	1	31	8
Reel truck	300	Diesel	1	31	8
Substation Telecommunications Equipment Installation					
Van	200	Gasoline	2	10	2

Activity and Crew Size Assumptions

Activity	Crew Size Assumption
Substation	
Survey	One 4-person crew
Grading	One 10-person crew
Fencing	One 10-person crew
Civil	One 15-person crew
Control Building	One 6-person crew
Electrical	One 15-person crew
Wiring	One 8-person crew
Transformers	One 10-person crew
Maintenance Crew Equipment Check	One 4-person crew
Testing	One 4-person crew
Asphalting	One 10-person crew
Landscaping	One 10-person crews
500 kV Transmission	
Survey	One 4-person crew
Marshalling Yards	One 4-person crew
Roads & Landing Work	One 5-person crew
LST Removal	One 8-person crew
LST Foundation Removal	One 4-person crew
Install Foundations for LSTs	One 9-person crew
LST Steel Haul	One 4-person crew
LST Steel Assembly	~~Two 7~~One 10-person ~~crews~~crew
LST Erection	One ~~8~~12-person crew
Wire Stringing	~~Four 8~~One 55-person ~~crews~~crew
Restoration	One 7-person crew
115 kV Subtransmission	
Survey	One 4-person crew
Marshalling Yards	One 4-person crew
Roads & Landing Work	One 5-person crew
Guard Structure Installation	One 6-person crew
Remove Existing Wood Poles	One 6-person crew
Remove Existing TSP / LWS Poles	One 8-person crew

Activity	Crew Size Assumption
Install Foundations for Tubular Steel Poles	One 7-person crew
Steel Pole Haul	One 4-person crew
Steel Pole Assembly	One 8-person crew
Steel Pole Erection	One 8-person crew
Conductor & OHGW/OPGW Installation	Two ~~8~~10-person crews
Guard Structure Removal	One 6-person crew
Restoration	One 7-person crew
Telecommunications	
Tower Foundation	One 4-person crew
Tower Construction	One 4-person crew
Dish Installation	One 4-person crew
Control Building	One 2-person crew
Overhead Telecommunications Installation	One 4-person crew
Substation Telecommunications Equipment Installation	One 2-person crew

2.0 PROJECT ALTERNATIVES

The following sections describe the development of alternatives for the selection of the Alberhill Substation site, 500 kV transmission line segments to serve the Alberhill Substation, the required 115 kV subtransmission line modifications, and alternatives for a new 115 kV subtransmission line.

2.1 500/115 kV Substation Site Alternatives

Site selection for the Alberhill Substation began with the development of a Substation Target Area that delineated an area within which the Alberhill Substation would have the maximum electrical benefit for the Electrical Needs Area, and meet both the Purpose and Need for the project and be consistent with the Basic Objectives of the project. The Substation Target Area was developed using the following basic requirements:

- The substation site should be in proximity to the Serrano-Valley 500 kV transmission line to facilitate connection of the new substation to SCE's existing 500 kV transmission system

- The substation site should be in proximity to existing 115 kV subtransmission lines to facilitate the transfer of existing 115/12 kV substations from the Valley South 115 kV System to the new Alberhill System

- The substation site should be in proximity to planned development along the I-15 corridor to facilitate service of additional 115 kV substations, should they become required in the future

Substation sites would require a minimum parcel size of 40 acres. After a review of available land of 40 acres or more, three potential substation sites were identified. These sites are shown on Figure 2.1, Substation Sites Alternatives, and are described below. In addition, SCE also evaluated the Nevada Hydro Company's LEAPS Lake Switchyard site, as described in Section 2.1.1, LEAPS Lake Switchyard Site, below.

2.1.1 LEAPS Lake Switchyard Site

Previous applications from the Nevada Hydro Company to the CPUC for a Certificate of Public Convenience and Necessity (CPCN) to construct the Lake Elsinore Advanced Pump Storage (LEAPS) project have included a proposed switchyard on property between the I-15 freeway and Temescal Canyon Road adjacent to Lee Lake. SCE evaluated the LEAPS Lake Switchyard Site, and determined the site would be unsuitable for a 500/115 kV substation. The site is susceptible to liquefaction, and there is evidence of past faulting on and adjacent to the site. The site is less than 40 acres and is in a shape that can not accommodate the substation equipment. In addition, the 500 kV lines would have to be constructed over Lee Lake, presenting engineering and maintenance issues and potential environmental impacts. As a result, SCE did not pursue this site as a viable substation site alternative.

2.1.2 Alternative Site A

Alternative Site A is approximately 124 acres, on the north side of the intersection of Temescal Canyon Road and Concordia Ranch Road. It has been previously disturbed and is presently used as a horse farm. Although much of the northern part of the property has steep topography, a sufficient portion of the southern portion of the property is flat. This parcel has been designated light industrial in the Riverside County General Plan. This site is a viable site for the Alberhill Substation.

2.1.3 Alternative Site B

Alternative Site B is located on a west-facing slope of the Gavilan Hills. This site consists of two 80 acre parcels, totaling 160 acres. These parcels are not located adjacent to an existing paved road and would require cutting into the slope midway up the mountain along with extensive grading to accommodate the substation. This grading would be more than required for Alternative Site A. As a result, SCE did not pursue this site as a viable substation site alternative.

2.1.4 Alternative Site C

Alternative Site C consists of 45 acres located adjacent to and east of Alternative Site A. Although the size of the site is above the 40 acres needed for the substation, the site would require that the substation incorporate gas-insulated switchgear on both the high side and low side of the transformer banks in order to conserve space, increasing the cost of constructing and operating the substation. Extensive blasting/fracturing would be required for site preparation. Extensive waste material would be required to be removed from the site. As a result, SCE did not pursue this site as a practical substation site alternative.

2.1.5 Alberhill Substation Site Selection

The only viable and practical substation site identified during the siting process was Alternative Site A. As a result, SCE selected this site to construct the Alberhill Substation, and is in the process of purchasing the site. The entire substation property would total 124 acres. Due to the mountainous nature of the property, approximately 34 acres would be devoted to the substation and its surrounding improvements such as landscaping and access roads. With the exception of a portion of the site dedicated to the 500 kV transmission lines leading to the substation, the remaining property would not be disturbed.

Figure 2.1 Substation Sites Alternatives

2.2 500 kV Transmission Lines Segments

After the site selection for the Alberhill Substation concluded, SCE commenced development of 500 kV transmission line segment options to access the existing Serrano-Valley 500 kV transmission line to source the new substation. During this process, seven alternative routes were developed. These segments are shown on Figure 2.2-(a), 500 kV Transmission Line Segment Alternatives. Two additional segments were added in March 2011. All of these segments are described below.

~~Figure 2.1 Substation Sites Alternatives~~

~~Figure 2.1 Substation Sites Alternatives~~

~~Figure 2.2 500 kV Transmission Line Segment Alternatives~~

~~Figure 2.2 500 kV Transmission Line Segment Alternatives~~

All the segments ~~are viable segments, and~~ originate at the Alberhill Substation and extend into a mountainous area through Critical Habitat ~~and~~for the California gnatcatcher (federally threatened), as well as conservation land (or land designated for conservation) to the existing Serrano-Valley 500 kV transmission line. ~~Only the~~These features are also shown on Figure 2.2a, 500 kV Transmission Line Alternative Segments. There are two types of conservation land in the area that is crossed by one or more of the segments:

- Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan (HCP) Core Reserve: This land has been established as part of the SKR HCP for the conservation, preservation, restoration and enhancement of the SKR and its habitat.

- Designated conservation land for the Western Riverside County Multiple Species Habitat Conservation Plan (WRMSHCP): This land is presently owned by Riverside County and is designated to have ownership transferred to the Regional Conservation Authority for conservation under the WRMSHCP.

Each segments' distinctive features are ~~listed~~described below.

- Segment N1: This segment crosses an area with the steepest topographic features, and some tower sites may not be accessible by road and would require helicopter construction. This segment crosses land designated as SKR HCP Core Reserve.

- Segment N2: This segment would have a greater number of dead-end structures, adding to the cost, and some tower sites may not be accessible by road and would require helicopter construction. This segment crosses land designated as SKR HCP Core Reserve.

- Segment N3: One of the straightest segments, minimizing the need for extensive engineering and minimizing use of large-sized towers. This segment crosses land designated as SKR HCP Core Reserve.

- Segment C1: One of the straightest segments, minimizing the need for extensive engineering and minimizing use of large-sized towers. This segment crosses land designated as SKR HCP Core Reserve.

- Segment C2: There is a residence in very close proximity to the segment, and the construction effort would require entry onto land managed by the Bureau of Land Management. This segment crosses land designated as SKR HCP Core Reserve.

- Segment C3: The construction effort would require entry onto land managed by the Bureau of Land Management. This segment crosses land designated as SKR HCP Core Reserve.

- Segment C4: The longest segment of the N and C segments, and would have a comparatively greater number of large-sized towers and access roads. ~~This segment crosses land designated as SKR HCP Core Reserve.~~

DG 12.2 this statement about Segment C4 is not correct

- Segment SA: Approximately one-half mile longer than the N and C segments, this segment would avoid the SKR HCP Core Reserve.
- Segment VA: Approximately one-half mile longer than the N and C segments, this segment would avoid the SKR HCP Core Reserve and span the designated conservation land for the WRMSHCP.

2.2.1 500 kV Transmission Line Segment Selection

SCE selected Segments N3 and C1 as the 500 kV transmission line segments to connect the Alberhill Substation to the existing Serrano-Valley 500 kV transmission line. These two segments are anticipated to have the fewest construction issues, and would require the fewest number of large-sized towers.

Segment SA and Segment VA are now being proposed as potential 500 kV segments. Both SA and VA would avoid the SKR HCP Core Reserve.

2.3 115 kV Subtransmission Lines

SCE evaluated the ability of the existing subtransmission lines to support the transfer of the Ivyglen, Fogarty, Elsinore, Skylark, and Newcomb Substations to the new Alberhill 115 kV system. As a result of this evaluation, portions of four existing 115 kV subtransmission lines were identified as requiring additions or extensions in order to reliably serve existing substations from the new Alberhill Substation. This change in configuration is shown on Figure 2.3, Alberhill System Configuration. The existing lines that require additional circuits are described in detail in Chapter 3, Project Description.

As shown on Figure 2.~~3~~3a, Alberhill System Configuration, there is no existing connection between Newcomb Substation and Skylark Substation. Both Newcomb Substation and Skylark Substation are presently connected to Valley Substation from two separate subtransmission lines, each originating at Valley Substation. Because both Newcomb Substation and Skylark Substation would be served from the new Alberhill System, a connection is necessary between Newcomb and Skylark Substations to maintain the minimum number of source lines for each substation. Two potential new 115 kV subtransmission routes were identified to accomplish this connection and are described below.

Figure 2.2a 500 kV Transmission Line Segment Alternatives

Figure 2.2a 500 kV Transmission Line Segment Alternatives

Figure 2.3a Alberhill System Configuration

Figure 2.3a Alberhill System Configuration

2.3.1 New 115 kV Subtransmission Line Segment Alternatives Considered

2.3.1.1 New 115 kV Subtransmission Line Segment Alternative 1

New 115 kV Subtransmission Line Segment Alternative 1 originates at the intersection of Newport Road and Murrieta Road in the City of Menifee. The route travels south along an existing SCE distribution line route on the west side of Murrieta Road to the intersection of Murrieta Road and Bundy Canyon Road where it would connect to the Valley-Skylark 115 kV subtransmission line ROW. The entire segment alternative would follow SCE's existing distribution lines.

In total, New 115 kV Subtransmission Line Segment Alternative 1 is approximately 3 miles long, and crosses land that is presently undeveloped, rural residential, or is used as an exterior buffer for new housing developments.

2.3.1.2 New 115 kV Subtransmission Segment Alternative 2

New 115 kV Subtransmission Line Segment Alternative 2 originates at the intersection of Newport and Murrieta Roads in the City of Menifee. The route travels south along an existing distribution line on the west side of Murrieta Road for approximately 1 mile to the intersection of Murrieta Road and Holland Road, and then turns west on Holland Road for approximately 0.5 miles to the intersection of Holland Road and Byers Road. The route would travel south and west on Byers Road for approximately 2 miles and then follow Waldon Road for approximately 0.5 miles to the intersection of Waldon Road and Bundy Canyon Drive and the Valley-Skylark 115 kV subtransmission line ROW. The entire segment alternative would follow SCE's existing distribution lines.

In total, New 115 kV Subtransmission Line Segment Alternative 2 is approximately 4 miles long, and crosses land that is presently undeveloped or is used for rural residential purposes.

~~2.3.2 Figure 2.3 Alberhill System Configuration~~

~~2.3.3 Figure 2.3 Alberhill System Configuration~~

2.3.2 New 115 kV Subtransmission Line Segment Alternative Recommendation

Both New 115 kV Subtransmission Segment Alternatives 1 and 2 have the ability to serve the Alberhill Substation Project. However, New 115 kV Subtransmission Line Segment Alternative 1 would be built along paved roads, facilitating access for construction and maintenance. New 115 kV Subtransmission Line Segment Alternative 1 is also shorter in length, slightly reducing the amount of new construction required for the project.

New 115 kV Subtransmission Segment Alternative 2 would require construction on unpaved roads in hilly terrain along a route that is slightly longer in length. This would require more earthwork and dust control during construction.

For these reasons, New 115 kV Subtransmission Line Segment Alternative 1 was selected as the preferred route.

2.4 Proposed Project

SCE proposes to construct the Alberhill System Project utilizing the Substation Site Alternative A, 500 kV transmission line segments ~~N3~~SA and ~~C1~~VA, and New 115 kV Subtransmission Line Segment Alternative 1 (Proposed Project). The Proposed Project meets the basic objectives of the Alberhill System Project, and is described in detail in Chapter 3, Project Description.

New 115 kV Subtransmission Line Segment Alternative 2 is evaluated in this PEA as an Alternative 115 kV Segment to the Proposed Project.

These components are shown on Figure 2.~~4~~4a, Proposed Project and Alternative.

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Figure 2.44a Proposed Project and Alternative

Figure 2.~~4~~4a Proposed Project and Alternative

3.0 PROJECT DESCRIPTION

The proposed Alberhill System Project includes the following components:

- Construction of a new 1,120 MVA 500/115 kV substation to increase electrical service capacity to the area presently served by the Valley South 115 kV System
- Construction of two new 500 kV transmission line segments to connect the new substation to SCE's existing Serrano-Valley 500 kV transmission line
- Construction of a new 115 kV subtransmission line and modifications to existing 115 kV subtransmission lines to transfer five existing 115/12 kV substations (Ivyglen, Fogarty, Elsinore, Skylark, and Newcomb Substations) presently served by the Valley South 115 kV System to the new 500/115 kV substation
- Installation of telecommunications improvements to connect the new facilities to SCE's telecommunications network

The Proposed Project is described in more detail below. The Alberhill Substation would be constructed in unincorporated Riverside County. Construction of the 500 kV transmission line segments between the Alberhill Substation and the existing Serrano-Valley 500 kV transmission line would occur in unincorporated Riverside County and within the northwestern boundary of the City of Lake Elsinore. The new and modified 115 kV subtransmission lines would be constructed in unincorporated Riverside County and the cities of Lake Elsinore, Wildomar, and Menifee.

3.1 Proposed Project Components

3.1.1 Alberhill Substation Description

The Proposed Alberhill Substation would be an unstaffed, automated, 1,120 MVA 500/115 kV substation capable of an ultimate buildout of 1,680 MVA. Because the substation would be located in an area susceptible to earthquake forces, the substation structures would be designed consistent with the Institute of Electrical and Electronic Engineers (IEEE) 693, Recommended Practices for Seismic Design of Substations. Its components are described in more detail below.

3.1.1.1 500 kV Switchrack

The proposed 500 kV switchrack would be comprised of gas-insulated switchgear contained within a steel enclosure measuring approximately 350 feet long, 60 feet wide, and 49 feet in height. Four dead end structures would be erected outside the gas-insulated switchgear enclosure to facilitate connections between the two 500 kV transmission line segments and the switchrack, and each would be approximately 90 feet long and 108 feet high.

The 500 kV switchrack would consist of six positions with two operating buses and arranged in a breaker-and-a-half configuration. Initially, four positions would be installed. Four positions would be equipped for two 500 kV line positions and two transformer bank positions.

3.1.1.2 115 kV Switchrack

The 115 kV switchrack would consist of eleven bays with two operating buses in a breaker-and-a-half configuration. Initially, seven positions would be installed. One position would be equipped for bus sectionalization, and five positions would be equipped for five 115 kV lines and two 115 kV transformer bank positions. One position would remain empty but is necessary to maintain the alignment of the 115 kV lines as they exit the substation. The 115 kV switchrack would use a high and low dead-end structure with heights of 60 feet and 43 feet, respectively.

3.1.1.3 Transformers

Transformation would initially occur using two 560 MVA 500/115 kV transformers, with an ultimate capability for three transformers in service, plus the spare transformer as required by SCE's Transmission Planning Criteria and Guidelines. Each 560 MVA transformer would be approximately 37 feet high.

3.1.1.4 Capacitor Banks

One 115 kV capacitor bank rated at 46.8 megavolts ampere reactive (MVAR) would be installed with a circuit breaker and a disconnect switch. The capacitor bank would be approximately 14 feet high. In addition, should they be required at a future date, space is reserved at the substation site for three additional 115 kV capacitor banks and two 500 kV capacitor banks.

3.1.1.5 Control Building

The monitoring equipment for the substation would be located in a permanent control building structure that would typically be constructed of concrete block, and would include a full basement. This building would require a building permit, and would be designed consistent with the applicable California Building Code standards for the area. The control building would be equipped with air conditioning, control and relay panels, a battery and battery charger, AC and DC distribution, a human-machine interface rack, communication equipment, and local alarms. The control building dimensions would be approximately 64 feet wide, 110 feet long, and 20 feet high.

3.1.1.6 Substation Electrical Power

The new substation would have three independent sources of electrical power for the control building and other ancillary facilities. The primary source of power to the control building would be an output of one of the substation's main transformers. A second source would be a nearby distribution line that would be connected to the substation site.

For use in case of emergency, one 500 kVA 120/240 volt 3-phase stationary backup generator would be installed at the substation site for emergency backup power. It would have a diesel tank capable of storing approximately 960 gallons of fuel. The stationary generator would be permitted by the South Coast Air Quality Management District.

3.1.1.7 Restroom Facility

A stand-alone prefabricated permanent restroom would be installed within the substation perimeter near the control building. Domestic water is currently available at the site and would serve the restroom as well as irrigation required for landscaping. The site is not served by a public sewer system, so a new septic system would be installed and permitted by Riverside County. The restroom enclosure would be approximately 10 feet high, 10 feet long and 10 feet wide.

3.1.1.8 Substation Access

Presently, access to the proposed substation site and to privately owned properties to the north of the substation site is attained from Temescal Canyon Road along an unpaved private road leading to Love Lane at the north of the substation site. The present location of this road is within the footprint of Alberhill Substation, and would have to be relocated prior to substation construction.

The private road would be relocated to the western boundary of the substation property and serve as the primary access to the substation's main gate. The relocated private road would become a 36-foot wide paved road extending approximately 250 feet north of Temescal Canyon Road. At that point a 30-foot wide paved substation access driveway would connect to the main substation gate. The remainder of the relocated private road would be unpaved and would extend to the north joining with the existing unpaved Love Lane, approximately 400 feet north of the substation entrance.

The substation entrance would have an electrically operated gate for two-way traffic access into the substation (shown on Figure 3.~~1~~1a, Alberhill Substation Layout). A similar secondary access gate would be located on Temescal Canyon Road. A third manually operated gate located at the eastern end of the substation would provide access to the 500 kV transmission line corridors. All access gates would be a minimum of 8 feet in height. The primary and secondary gates would be approximately 40 feet wide while the transmission line access gate would be 24 feet wide. In addition, SCE would install a walk-in gate within the substation wall for additional access into the substation.

Within the substation enclosure, one 45-foot wide driveway and a series of 30-foot wide driveways would facilitate vehicular movement around the substation equipment. In addition, a 7,600 square foot parking area would be constructed within the substation enclosure for vehicular parking.

3.1.1.9 Substation Site Preparation

Water Line Relocation

An existing 30 inch gravity agricultural water line owned and operated by the Elsinore Valley Municipal Water District (EVMWD) currently crosses through the proposed substation site. Relocation of this water line would be required prior to any substation grading or construction. The relocation of this line is not expected to have any impact on local water service.

The new water line alignment would begin with a connection to the existing pipe at the southeast corner of the substation site near Temescal Canyon Road, and continue in a northwest direction to follow the relocated private road, and connect to the existing water line at the northwest corner of the substation site. On average, the trench excavated to install the new water line would be approximately 4 feet wide and 6 feet deep, and be approximately 1,700 feet long. SCE would consult with EVMWD prior to construction, and would build the new water line to EVMWD specifications. The existing pipe would be removed and disposed of off-site.

~~Demolition~~

~~The site is an existing horse ranch with improvements consisting of frame buildings, stables, corrals, and fences. Removal of all improvements would be required prior to the commencement of site grading. The location of the existing site septic system would be identified and the proper measures would be taken to remove and fill the facility.~~

3.1.1.10 Substation Drainage

The substation site would be graded to a slope between one and two percent and compacted to 90 percent of the maximum dry density. Construction of the substation would interrupt the existing drainage patterns throughout the site and would require diversion around the substation to areas where percolation would continue or through channels and pipes to be installed to the existing discharge point at the Temescal Wash along the southwest corner of the substation property. The drainage would be designed to maintain a discharge of stormwater runoff from the site consistent with that currently experienced at the site. SCE would consult with Riverside County prior to finalizing the substation drainage design.

3.1.1.11 Substation Site Ground Surface Improvements

The ground surface of the substation site would be finished with materials imported to the site and materials excavated and used on the site. These materials, and their approximate square footage and volumes are listed in Table 3.1, Substation Ground Surface Improvement Materials and Volumes.

Figure 3.~~1~~1a Alberhill Substation Layout

Figure 3.~~1~~1a Alberhill Substation Layout

Table 3.1 Substation Ground Surface Improvement Materials and Volumes

Element	Material	Approximate Surface Area (sq ft)	Approximate volume (cu yd)
Site grading, cut	Soil	740,000	70,000
Site grading, fill[1]	Soil	740,000	63,000
Drainage structures	Concrete	12,500	650
Substation equipment foundations	Concrete	49,000	10,000
Cable trenches[2]	Concrete	80	6
Water line relocation	Soil	68,000	1,500
Internal driveways	Asphalt Concrete/ Class II aggregate	140,000	3,400
External roads	Asphalt Concrete/ Class II aggregate	16,000	500
Rock surfacing	Crushed rock	870,000	10,800
Wall foundation	Concrete	4,300	320

Notes:
[1]Includes allowances for shrinkage and settlement.
[2]The concrete cable trenches are factory fabricated and delivered to the site.

Based on preliminary design, approximately 8,000 cubic yards of soil, vegetation, and rock would be removed from the site. Any waste material would be handled as described in Section 3.7, Waste Management.

Approximately 10,000 cubic yards of soil would be excavated as a result of excavation for foundation and building footings. This soil would be stock piled during excavation and ultimately would be graded and compacted on site.

The substation grading design would incorporate Spill Prevention Control and Countermeasure (SPCC) Plan requirements due to the planned operation of oil-filled transformers at the substation (in accordance with 40 CFR Part 112.1 through Part 112.7). Typical SPCC features include secondary containment, curbs, berms, and basins designed and installed to contain spills, should they occur. These features would be part of SCE's final engineering design for the Proposed Project.

3.1.1.12 Substation Lighting

The proposed substation would have access and maintenance lighting. The access lighting would be low-intensity and controlled by a photo sensor. Maintenance lights would be controlled by a manual switch and would normally be in the "off" position. Maintenance lights would be used only when required for maintenance outages or emergency repairs occurring at night. The lights would be located in the switchracks,

around the transformer banks, and in areas of the substation where maintenance activity may take place, and would be directed downward and shielded to reduce glare outside the facility.

Each gate at the substation would have a beacon light installed for safety and security purposes. It would be illuminated only while the gate is open or in motion. Typically, SCE utilizes double flash strobe lights as beacon lights on substation gates.

3.1.1.13 Substation Perimeter

An 8-foot high perimeter wall would surround the substation. The wall would be made of concrete panels or decorative block, consistent with safety standards for major electrical facilities, and consistent with surrounding community standards (subject to the requirements of SCE). At a minimum, a band of at least three strands of barbed wire would be affixed near the top of the perimeter wall inside of the substation and would not be visible from the outside.

Landscaping and irrigation would be installed after the substation wall is constructed. Prior to the start of the substation construction, SCE would develop a landscaping and irrigation plan that is consistent with surrounding community standards.

3.1.2 500 kV Transmission Line Connection

Two new 500 kV transmission line segments would connect the Alberhill Substation to the existing Serrano-Valley 500 kV transmission line. To reliably operate the Proposed Project, two 500 kV transmission line segments on separate structures are required to interconnect the substation to the Serrano-Valley 500 kV transmission line as shown on Figure 2.~~1~~4, Proposed Project and Alternative. The northern segment is approximately 1.~~1~~6 miles long, and the southern segment is approximately 1.~~2~~7 miles long.

Construction of the two 500 kV transmission line segments would require approximately ~~twelve~~two double circuit and ten single circuit lattice towers. ~~Approximately five towers would be utilized for the southern~~Each segment ~~and~~ would utilize approximately one double circuit tower and five single circuit towers ~~would be utilized for~~. At the ~~northern segment. Approximately four existing towers~~connection points on the Serrano-Valley 500 kV transmission line, two of the existing structures would be ~~removed and~~ replaced ~~with~~utilizing two of the new ~~towers to facilitate the connection~~structures mentioned above.

Based on preliminary designs, the towers would have a dull galvanized steel finish and would range in height from approximately 95 to ~~172~~190 feet, with span lengths between towers ranging between approximately 400 to 2,100 feet. Lattice steel structures ~~typically~~ require ~~an~~four excavated ~~hole of~~holes typically 3 to 6 feet in diameter and 20 to 45 feet deep. On average each foundation would extend above the ground between approximately 1 to 4 feet. See Figure 3.~~2~~2a, Typical 500 kV Transmission ~~Structure~~Structures, for a depiction of tower designs for the 500 kV line segment structures. The information presented in this section is based on preliminary engineering

and design, and refinement during final engineering design may result in components that are modified from the descriptions provided in this PEA.

Figure 3.~~2~~2a Typical 500 kV Transmission ~~Structure~~Structures

Figure 3.~~2~~2a Typical 500 kV Transmission ~~Structure~~Structures

The towers used for the 500 kV transmission line segments would support 2,156 kcmil non-specular aluminum conductor steel reinforced (ACSR) conductors, polymer insulators, ~~one optical ground wire (OPGW),~~ and ~~one~~two overhead ~~groundwire~~groundwires (OHGW) for ~~telecommunications and~~ shielding.

Each structure site would require 24-hour vehicular access during operation of the Proposed Project for emergency and maintenance activities. Approximately 2 miles of 14-wide access roads and spur roads would be installed with the 500 kV transmission line segments ROW. The road may be wider in areas that require slope stabilization. Existing and new access roads and spur roads for the Proposed Project are shown in Appendix D, Proposed Project Road Story.

3.1.3 115 kV Subtransmission Line Description

The Alberhill System Project would require modification of existing 115 kV subtransmission facilities and construction of new 115 kV subtransmission facilities. The modification of existing 115 kV facilities include:

- Double-circuit an existing single-circuit 115 kV subtransmission line without structure replacement (approximately 6.5 miles)
- Double-circuit an existing single-circuit 115 kV subtransmission line with structure replacement (approximately 8 miles)
- ~~Replace an existing pole with a new switch pole~~
- Replace two existing poles with new poles at an existing I-15 freeway crossing

In addition, the Alberhill System Project would require the following new facilities:

- Construct a new 115 kV subtransmission line (approximately 3 miles)
- Install new 115 kV subtransmission structures at the Alberhill Substation site
- Install new 115 kV subtransmission structures within SCE's existing Serrano-Valley 500 kV corridor

These components are shown on Figure 3.~~3~~3a, 115 kV Subtransmission Line Description, and are described in detail in the sections below.

Construction of the new and modified 115 kV subtransmission lines would utilize light weight steel (LWS) poles, tubular steel poles (TSPs), and H-frames~~, and switch poles.~~. Each structure would support polymer insulators ~~and~~ , 954 stranded aluminum conductor~~.~~ and a single 4/0 aluminum conductor steel reinforced conductor for grounding. If needed, 954 aluminum conductor steel reinforced ground conductor would be used at locations requiring higher tension. The dimensions of these structures are shown on Figure 3.~~4~~4a, Typical 115 kV Subtransmission Structures, and summarized in Table 3.2, Typical 115 kV Subtransmission Structure Dimensions. Because the Proposed Project is located in a

raptor concentration area, all 115 kV subtransmission structures would be designed to be consistent with the Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 2006[1].

Table 3.2 Typical Subtransmission Structure Dimensions

Pole Type	Approximate Diameter	Approximate Height Above Ground	Approximate Auger hole Depth	Approximate Auger Diameter
Light Weight Steel (LWS)†	Between 1.5 and 2.5 feet	Between 65 and 91 feet	Between 7 and 10 feet	Between 2 and 3 feet
Tubular Steel Pole (TSP)	Between 2 and 4 feet	Between 70 and 100 feet	Not applicable	Not applicable
TSP Concrete Foundation	Between 5 to 8 feet	2 feet	Between 20 and 40 feet	Between 5 and 8 feet

Note: Specific pole height and spacing would be determined upon final engineering and would be constructed in compliance with CPUC General Order 95.
†The H-frames would utilize two LWS poles approximately 12 feet apart

Light weight steel poles would be direct buried and extend approximately 65 to 91 feet above ground. The diameter of LWS poles are typically 1.5 to 2 feet at the base, and taper to approximately 1 foot at the top of the pole. Approximately 304 LWS poles would be utilized for the Proposed Project.

The TSPs are used in areas where the length and strength of LWS poles are inadequate, such as freeway crossings, turning points, and other locations where extra structure strength is required. The TSPs utilized for the Proposed Project would extend between 70 feet and 100 feet above ground, and the tallest poles would be used at crossings of the I-15 freeway. The TSPs would be attached to a concrete foundation approximately 5 to 8 feet in diameter that extends between approximately 20 to 40 feet below ground and may extend up to 2 feet above ground. Approximately 40 TSPs would be utilized for the Proposed Project.

H-frame structures would also be used for the Proposed Project. H-frames are used in areas where extra structure strength is required. These structures are shown on Figure 3.44a, Typical 115 kV Subtransmission Structures, and would range in height from approximately 65 feet to 75 feet above ground. Approximately 10 H-frames would be utilized for the Proposed Project.

[1] Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 2006 is published by the Edison Electric Institute and the Avian Power Line Interaction Committee in collaboration with the Raptor Research Foundation.

Figure 3.~~3~~3a 115 kV Subtransmission Line Description

Figure 3.~~3~~3a 115 kV Subtransmission Line Description

Figure 3.44a Typical 115 kV Subtransmission Structures

(To be provided separately)

Figure 3.44a Typical 115 kV Subtransmission Structures

~~Switch poles are used in specific locations to create system ties that can be opened or closed. The switch pole for the Proposed Project would be approximately 85 feet high and would be made of LWS.~~

3.1.3.1 Double-circuit an existing single-circuit 115 kV subtransmission line without structure replacement

Pending approval from the CPUC, SCE will be constructing a new 115 kV subtransmission line between Valley Substation and Ivyglen Substation as part of the Valley-Ivyglen/Fogarty Project (CPUC Application Nos. A.07-01-031 and A.07-04-028).

The Alberhill System Project would require that an approximate 6.5 mile portion of the Valley-Ivyglen 115 kV subtransmission line be double-circuited between the Alberhill Substation site and the intersection of Third Street and Collier Avenue. Because the new Valley- Ivyglen 115 kV subtransmission line has been designed to support two circuits, it is not anticipated that additional structures or structure replacement would be required. This portion of the Alberhill 115 kV subtransmission line modifications would require the addition of crossarms, anchors, insulators, and 954 SAC to existing structures.

The double-circuiting of an existing single-circuit subtransmission line without structure replacement would begin at the Alberhill Substation and follow Concordia Ranch Road to its terminus, cross the I-15 freeway to Temescal Canyon Road, to Lake Street. From that point, the line would be located within a proposed Castle & Cooke utility corridor that follows the present alignment of Lake Street to Coal Avenue. The line would then follow Coal Avenue to Nichols Road, then turn southeast on Baker Street Avenue to Riverside Avenue (State Route 74). The route crosses a drainage channel and continues southeast on Pasadena Avenue, then turns northeast on Third Street to the intersection of Third Street and Collier Avenue. However, the final route of this portion of the subtransmission modifications would be dependent on CPUC final approval of the Valley-Ivyglen line, expected in late 2009/early 2010.

3.1.3.2 Double-circuit an existing single-circuit 115 kV subtransmission line with structure replacement

Portions of four existing single-circuit 115 kV subtransmission lines would need to be removed and new structures capable of supporting a double-circuit subtransmission line would need to be installed.

Valley-Elsinore-Ivyglen 115 kV Subtransmission Line

An approximate 0.3 mile section of the existing Valley-Elsinore-Ivyglen 115 kV subtransmission line in the City of Lake Elsinore between the intersection of Third Street and Collier Avenue and the intersection of Second Street and Camino del Norte, would require new structures to support a second circuit. This section would rebuild an existing crossing of the I-15 freeway, and require the removal of approximately 12 existing structures and the installation of approximately 11 new LWS poles and three TSPs.

Ivyglen-Newcomb-Skylark and Elsinore-Skylark 115 kV Subtransmission Lines

Approximately 4.5 miles of existing 115 kV subtransmission lines in the cities of Lake Elsinore and Wildomar between the intersection of East Hill Street and Flint Street and Skylark Substation would require new structures to support a second circuit. Three poles paralleling East Hill Street on the Ivyglen-Newcomb-Skylark 115 kV subtransmission line would be replaced, and approximately 104 poles of the existing Elsinore-Skylark 115 kV subtransmission line along Franklin Street, Auto Center Drive, Casino Drive, Malaga Road, and Mission Trail to Skylark Substation would be replaced. This section would require removal of approximately 106 existing structures and the installation of approximately 91 new LWS poles and approximately 15 new TSPs .

Valley-Newcomb-Skylark 115 kV Subtransmission Line

An approximate 5.5 mile section of the existing Valley-Newcomb-Skylark 115 kV subtransmission line between Skylark Substation and the intersection of Scott Road and Murrieta Road in the cities of Wildomar and Menifee would require new structures to support a second circuit. From Skylark Substation, this section of line follows Waite Street, turns north on Almond Street, turns east on Lemon Street, and crosses the I-15 freeway. The line then follows Lost Road, and generally follows Crab Hollow Circle to Beverly Street, where it then follows Bundy Canyon Road and Scott Road to the intersection of Scott Road and Murrieta Road. This section would require the removal of approximately 127 existing structures and installation of approximately 116 new LWS poles, four new TSPs, and 10 new H-frame structures.

There is a second section of the Valley-Newcomb-Skylark 115 kV subtransmission line in the City of Menifee that would be modified as part of the project. An approximate 0.2 mile section of the existing Valley-Newcomb-Skylark 115 kV subtransmission line between Newcomb Substation and the intersection of Newport Road and Murrieta Road would need to be replaced with structures capable of supporting a double circuit. This section would require the removal of approximately five existing structures and installation of approximately five new LWS poles and approximately two new TSPs.

~~New Switch Pole and~ New Poles at Existing I-15 Freeway Crossing

~~A new switch pole would be installed immediately east of the intersection of Murrieta Road and the Serrano Valley~ and Line Separation at 500 kV ~~corridor in the City of Menifee in order to facilitate transfers between the Valley South 115 kV System and the Alberhill System. In addition, one span of wire on the Valley-Newcomb 115 kV subtransmission line would be removed.~Crossing

Two existing 115 kV subtransmission poles would be replaced at the existing I-15 freeway crossing immediately south of the Alberhill Substation site. This area is shown on Figure 3.~~3~~3a, 115 kV Subtransmission Line Description.

The existing Valley-Newcomb 115 kV subtransmission line would be physically and electrically separated by disconnecting existing jumper loop wires at the 500 kV crossing. This is also shown on Figure 3.3a, 115 kV Subtransmission Line Description.

3.1.3.3 New 115 kV Subtransmission Lines

A distribution line approximately 3 miles long between the intersection of Newport Road and Murrieta Road and Murrieta Road and Bundy Canyon Road would be rebuilt as a single-circuit 115 kV subtransmission line and the existing distribution line would be transferred to the new 115 kV structures below the 115 kV circuit. This section would require the removal of approximately 66 existing poles and installation of approximately 78 new LWS poles.

Approximately 11 new TSPs would be installed at the Alberhill Substation site and Concordia Ranch Road to facilitate the 115 kV subtransmission connection from the Alberhill Substation to existing 115 kV subtransmission lines along Concordia Ranch Road.

In addition, a connection between the Valley-Ivyglen 115 kV subtransmission line on the north side of the Serrano-Valley 500 kV corridor and the Valley-Newcomb 115 kV subtransmission line located on the south side of the corridor, would be made. This section is approximately 300 feet long and would require removal of approximately one existing structure, and installation of approximately three LWS poles and three TSPs. An access road would also be installed. This area is shown on Figure 3.~~3~~3a, 115 kV Subtransmission Line Description.

3.1.4 Telecommunications Improvements

The proposed Alberhill Substation requires the installation of new telecommunication infrastructure to protect the transmission and subtransmission lines and provide protective relaying, data transmission, and telephone services to the substations served by the Alberhill 115 kV System. These new facilities include modifications to the existing SCE microwave system and the addition of new fiber optic cable.

3.1.4.1 Microwave System

To connect the Alberhill Substation to SCE's microwave communications system, a 120-foot tall antenna tower would be built at Alberhill Substation to provide a line of sight with an antenna tower at Santiago Peak Communications Site, approximately 7 miles to the southwest.

In total, three new microwave dish antennas would be installed on existing tower structures: two at Santiago Peak Communications Site (one directed at the Alberhill Substation, and one directed at Serrano Substation), and one microwave dish antenna would be installed at Serrano Substation and directed at the Santiago Peak Communications Site. Typical microwave dish antennas are approximately 10 feet in diameter.

New microwave radios and new channel equipment would also be installed inside the existing telecommunications control room at Santiago Peak, Serrano Substation, and the new telecommunications control room to be installed at Alberhill Substation.

3.1.4.2 Fiber Optic Cable

Alberhill Substation would be connected to an existing fiber optic system serving Valley, Mira Loma, and Serrano Substations. In addition, the five 115/12 kV substations that would be transferred to the new Alberhill System would be connected by new and existing fiber optic cable, and new telecommunications equipment would be installed within the telecommunications rooms at Serrano, Barre, Walnut, Mira Loma, Valley, Ivyglen, Fogarty, Newcomb, Tenaja, and Skylark Substations to facilitate the new connections. In addition to each segment of the 500 kV transmission line segments carrying OPGW, approximately 8.5 miles of overhead cable would be installed on 115 kV structures installed as part of the Proposed Project. This distance and location are subject to change as the surrounding area develops and space on or within existing facilities is put to use by other utilities, and new facilities become available for SCE's use. The preliminary areas of fiber optic installation are shown in Appendix E, Telecommunications Improvements.

3.2 Proposed Project Construction Plan

The Proposed Project would include construction of the Alberhill Substation, two 500 kV transmission line segments, new and modified 115 kV subtransmission lines, and telecommunications improvements. Construction would also include construction support activities, such as establishing material staging yards, and the development of access roads and spur roads. The following sections provide more detailed information on the tasks that would be associated with construction of the Proposed Project.

3.2.1.1 Storm Water Pollution Prevention Plan

Because construction of the Proposed Project would disturb a surface area greater than one acre, SCE would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit. The State Water Resources Control Board may require either the Santa Ana Regional Water Quality Control Board (SARWQCB) or the San Diego Regional Water Quality Control Board (SDRWQCB) to monitor adherence to permit conditions. To acquire the permit, SCE would prepare a Storm Water Pollution Prevention Plan (SWPPP) that includes project information; monitoring and reporting procedures; and Best Management Practices (BMPs), such as dewatering procedures, storm water runoff quality control measures, and concrete waste management, as necessary. The SWPPP would be based on final engineering design and would include all project components.

3.2.1.2 Dust Control

The construction activities would occur in the South Coast Air Quality Management District (SCAQMD) and would be subject to SCAQMD Rule 403. This rule minimizes emissions of fugitive dust by requiring persons to take action to prevent, reduce or mitigate fugitive dust emissions by utilizing one or more applicable best available control measures. These measures include actions such as the application of water or chemical stabilizers to disturbed soil.

3.2.1.3 Marshalling Yards and Material Staging Yards

Temporary marshalling yards would be used to stage equipment and materials during construction. Materials and equipment typically staged at these marshalling yards would include, but would not be limited to, construction trailers, construction equipment, steel, conductor, wire reels, cable, hardware, insulators, signage, fuel, joint compound, and other consumable materials. The Proposed Project would utilize the Alberhill Substation site as a primary marshalling yard, but may use additional yards as needed. Preparation of the marshalling yard may include the application of gravel and the installation of perimeter fencing.

The marshalling yard would be used as a reporting location for workers, and for vehicle and equipment parking and material storage. The yard would have offices for supervisory and clerical personnel. Normal maintenance of construction equipment would be conducted at the marshalling yard. The maximum number of workers reporting to the marshalling yard is not expected to exceed approximately 100 workers at any one time.

In addition to the primary marshalling yard, temporary secondary material staging yards would be established for short-term utilization near construction sites. Where possible, the secondary staging yards would be sited in areas of previous disturbance near the construction areas. Final siting of these yards would depend upon availability of appropriately zoned property that is suitable for this purpose. The number and size of the secondary yards would be dependent upon a detailed field inspection and would take into account, where practical, suggestions by the successful bidder for the construction work. Typically, an area approximately 1 to 3 acres would be required. Once sites for secondary yards are proposed, an environmental review would be conducted before final site selection. Preparation of the secondary staging yards would include installation of perimeter fencing. The application of road base may also occur, depending on existing ground conditions at the yard site. Land disturbed at the temporary material staging areas, if any, would be restored to preconstruction conditions or to a condition agreed upon between SCE and the landowner following the completion of construction of the Proposed Project.

All materials associated with construction efforts would be delivered by truck to an established marshalling or material staging yard. Delivery activities requiring major street use would be scheduled to occur during off-peak traffic hours to the extent feasible in accordance with applicable local ordinances.

If necessary, SCE would hire a local security company to provide 24-hour attendance at the marshalling yard or material staging yards during construction.

3.2.1.4 Concrete Use

During construction, existing concrete supply facilities would be used where feasible. If concrete supply facilities are not available, a temporary concrete batch plant would be set up. If necessary, approximately 2 acres of property would be partitioned from an established marshalling yard or material staging yard for a temporary concrete batch

plant. Equipment would include a central mixer unit (drum type); three silos for injecting concrete additives, fly ash, and cement; a water tank; portable pumps; a pneumatic injector; and a loader for handling concrete additives not in the silos. Dust emissions would be controlled by watering the area and by sealing the silos and transferring the fine particulates pneumatically between the silos and the mixers.

3.2.1.5 Traffic Control

Construction activities completed within public street rights-of-way would require the use of a traffic control service and all lane closures would be conducted in accordance with local ordinances and city permit conditions. These traffic control measures are typically consistent with those published in the ~~WATCH Manual (Work Area Protection and~~California Joint Utility Traffic Control Manual~~, American Public Works Association,~~ (April ~~2006~~, 2010).

3.2.1.6 Identification of Underground Utilities During Construction

Prior to drilling boreholes for foundations or for direct bury of LWS poles, SCE or its contractor would contact Underground Service Alert to identify any underground utilities in the construction area. If other utilities are located in the construction area, SCE would contact the owner of such utility to discuss protection or relocation of such utility.

3.2.1.7 Nighttime Construction

Under normal circumstances, construction of the Proposed Project would occur during daylight hours. However, there is a possibility that construction would occur at night, and temporary artificial illumination would be required. SCE would use lighting to protect the safety of the construction workers, but orient the lights to minimize their effect on any nearby receptors.

~~3.2.1.8 Blasting/Fracturing~~

~~During the access road construction, spur road construction, grading, and foundation work activities, blasting or fracturing may be a desired method to use for rock removal. If these methods are used, a person licensed by the Federal Bureau of Alcohol, Tobacco, and Firearms would assess the area, make any required site measurements (e.g., distance to utilities or houses), and engineer the charge for a safe and effective explosion. Pre-blast notifications would be made to the local fire department, residents, utilities, and others potentially affected by blasting operations. Once the notifications are complete, the holes would be drilled and the explosive charges loaded into the holes. If the blast is near sensitive receptors (houses, power lines, roads), special protective measures (e.g., gravel or blast mats) would be installed to control flying rock from the blast site. In addition, the area would be secured to avoid inadvertent entry by the public or other personnel. After the area is secured, the appropriate pre-blast warning signals would be given and the charge detonated. After detonation, a post-blast safety inspection would be conducted to ensure that the blast completely discharged and personnel may enter safely to excavate the blasted material.~~

3.2.2 Alberhill Substation Construction

The following sections describe the construction activities associated with installing the components of the proposed Alberhill Substation.

The substation site would be prepared by clearing existing vegetation and installing a temporary chain link fence to surround the construction site. The site would be graded in accordance with a grading plan developed in consultation with Riverside County. The area to be enclosed by the perimeter wall would be graded to a slope that varies between one and two percent and compacted to 90 percent of the maximum dry density. The areas outside the substation wall that would be used as a buffer would be graded in a manner consistent with the overall site drainage design as described in Section 3.1.1.10, Substation Drainage.

After the substation site is graded, below grade facilities would be installed. Below grade facilities include a ground grid, trenches, building foundations, equipment foundations, utilities, and the base of the substation wall. The design of the ground grid would be based on soil resistivity measurements collected during a geotechnical investigation that would be conducted prior to construction (as described in Section 3.5, Geotechnical Studies). Above grade installation of substation facilities (i.e. buses, capacitors, circuit breakers, transformers, steel support structures, and the control building) would commence after the below grade structures are in place.

The transformers would be delivered by heavy-transport vehicles and off-loaded on site by large cranes with support trucks. A traffic control service may be used for transformer delivery, if necessary.

3.2.3 500 kV Transmission Line Segment Construction

The following sections describe the construction activities associated with the construction of the 500 kV transmission line segments.

3.2.3.1 Access Roads and Spur Roads

Transmission line roads are classified into two groups: access roads and spur roads. Access roads are through roads that run between tower sites along a ROW and serve as the main transportation route along transmission line ROWs. Spur roads are roads that lead from line access roads and terminate at one or more of the structure sites. It is anticipated that most of the roads constructed to accommodate construction of the Proposed Project would be left in place to facilitate future access for operations and maintenance purposes. Gates would be installed where required at fenced property lines to restrict general and recreational vehicular access to ROW roads.

All access roads and spur roads (new and existing) would first be cleared and grubbed of vegetation. Roads would be blade-graded to remove potholes, ruts, and other surface irregularities, and re-compacted to provide a smooth and dense riding surface capable of supporting heavy construction equipment. The graded road would have a minimum

drivable width of 14 feet (preferably with 2 feet of shoulder on each side), but may be wider depending on final field conditions.

In addition, drainage structures (e.g., wet crossings, water bars, overside drains, pipe culverts, and energy dissipaters) may be installed along roads to protect the road from the effects of uncontrolled water flow. Slides, washouts, and other slope failures would be repaired and stabilized along the roads by installing retaining walls or other means necessary to prevent future failures. The type of drainage structure or earth-retaining structure to be used would be based on site-specific conditions and final engineering of the Proposed Project.

Existing and new access roads and spur roads for the Proposed Project are shown in Appendix D, Proposed Project Road Story.

3.2.3.2 500 kV Tower Site Preparation

The new tower pad locations would first be graded and/or cleared to provide a reasonably level and vegetation-free surface for footing construction. Sites would be graded such that water would run toward the direction of the natural drainage and prevent ponding and erosive water flows that could cause damage to the tower footings. The graded area would be compacted to at least 90 percent relative density, and would be capable of supporting heavy vehicular traffic.

Each tower site would typically require a laydown area of approximately 200 feet by 200 feet. In locations where the terrain in the laydown area is already reasonably level, only vegetation removal would occur to prepare the site for construction. In locations where a level surface is not present both vegetation clearing and grading would be necessary to prepare the laydown area for construction.

Tower installation may also require establishment of a temporary crane pad to allow an erection crane to set up 60 feet from the centerline of each structure. The crane pad would be located transversely from each applicable structure location. In most cases, this crane pad would be located within the laydown area used for structure assembly. If a separate pad is required, it would occupy an area of approximately 50 feet by 50 feet. The decision to use a separate crane pad would be determined by the final engineering for the Proposed Project and the selection of the appropriate construction methods to be used by SCE or its contractor.

In mountainous areas, benching may be required to provide access for footing construction, assembly, erection, and wire-stringing activities during line construction. Benching is a technique in which a tracked earth-moving vehicle excavates a terraced access to excavation areas in extremely steep and rugged terrain. Benching would be used on an as-needed basis in areas to help ensure the safety of personnel during construction activities, and to control costs in situations where potentially hazardous, manual excavations would be required.

Where there would be a structure located in terrain inaccessible by a crane, it is anticipated that a helicopter may be used for the installation of the structure. The final decision on helicopter use would be made by SCE and the construction contractor. The use of helicopters for the erection of structures would be in accordance with SCE specifications and would be similar to methods detailed in IEEE 951-1996, Guide to the Assembly and Erection of Metal Transmission Structures, Section 9, Helicopter Methods of Construction. Helicopter use for the Proposed Project is explained in more detail in Section 3.2.3.5, Wire Stringing Operations.

3.2.3.3 Tower Foundations

Structure foundations for the towers would typically be drilled concrete piers. Each tower would be constructed on four drilled concrete foundations. The foundation process would start with the auguring of the holes for each tower. The holes would be bored using truck or track-mounted excavators with various diameter augers to match diameter requirements of the foundation sizes.

Foundations in soft or loose soil that extend below the groundwater level may require the borehole be stabilized with mud slurry during drilling. If this is the case, a mud slurry would be mixed and pumped into the borehole after drilling to prevent the sidewalls from sloughing. The concrete for the foundation is then pumped to the bottom of the hole, displacing the mud slurry. The mud slurry that is brought to the surface is typically collected in a pit adjacent to the foundation, and then pumped out of the pit to be reused or discarded at an off-site disposal facility in accordance with all applicable laws.

Following excavation for the foundation, reinforcing steel, and stub angles would be installed and the concrete would then be placed. Steel reinforced cages and stub angles would be assembled at laydown yards and delivered to each structure location by flatbed truck. A typical tower would require 25 to 100 cubic yards of concrete delivered to each structure location. Concrete samples would be drawn at time of pour and tested to ensure engineered strengths were achieved. A normally specified SCE concrete mix typically takes approximately 20 working days to cure to an engineered strength. This strength is verified by controlled testing of sampled concrete. Once this strength has been achieved, crews would be permitted to commence erection of steel.

Conventional construction techniques would generally be used as described above for new footing installation. In certain cases, equipment and material may be deposited at structure sites using helicopters or by workers on foot, and crews may prepare the footings using hand labor assisted by hydraulic or pneumatic equipment, or other methods.

3.2.3.4 Tower Assembly

Each tower would be assembled at laydown areas at its location, and then erected and bolted to the foundations. Tower assembly would begin with hauling and stacking bundles of steel at tower location per engineering drawing requirements. This activity requires use of several tractors with 40-foot trailers and a rough terrain forklift. After

steel is delivered and stacked, crews would proceed with the assembly of leg extensions, body panels, boxed sections and the bridges. The assembled tower sections would be lifted into place with a minimum 80-ton all-terrain or rough terrain crane. The steel work would be completed by a combined erection and torquing crew with a lattice boom crane. The construction crew may opt to install insulators and wire rollers (travelers) for the conductor installation at this time.

3.2.3.5 Wire Stringing Operations

Wire-stringing includes all activities associated with the installation of conductors onto the structure. This activity includes the installation of primary conductor and OPGW or ground wire, vibration dampeners, weights, spacers, and suspension and dead-end hardware assemblies. Wire-stringing activities would be conducted in accordance with SCE specifications, which is similar to process methods detailed in IEEE Standard 524-2003, Guide to the Installation of Overhead Transmission Line Conductors. A standard wire-stringing plan includes a sequenced program of events starting with determination of wire pulls and wire pull equipment set-up positions. Advanced planning determines circuit outages, pulling times, and safety protocols needed for ensuring that safe and quick installation of wire is accomplished.

Wire pulls are the length of any given continuous wire installation process between two selected points along the line. Typically, wire pulls occur every 15,000 to 18,000 feet on flat terrain or less in rugged terrain. Wire splices typically occur every 7,500 to 9,000 feet on flat terrain or less in rugged terrain. Wire pulls are selected, where possible, based on availability of dead-end structures at the ends of each pull, geometry of the line as affected by points of inflection, terrain, and suitability of stringing and splicing equipment setups. To ensure the safety of workers and the public, safety devices such as traveling grounds, guard structures, and radio-equipped public safety roving vehicles and linemen would be in place prior to the initiation of wire-stringing activities.

The following four steps describe the wire installation activities proposed by SCE:

- Sock Line Threading: A helicopter would fly a lightweight sock line from tower to tower, which would be threaded through the wire rollers in order to engage a cam-lock device that would secure the pulling sock in the roller. This threading process would continue between all towers through the rollers of a particular set of spans selected for a conductor pull.

- Pulling: The sock line would be used to pull in the conductor pulling cable. The conductor pulling cable would be attached to the conductor using a special swivel joint to prevent damage to the wire and to allow the wire to rotate freely to prevent complications from twisting as the conductor unwinds off the reel. A piece of hardware known as a running board would be installed to properly feed the conductor into the roller; this device keeps the conductor from wrapping during installation.

- Splicing, Sagging, and Dead-ending: After the conductor is pulled in, all mid-span splicing would be performed. Once the splicing has been completed, the conductor would be sagged to proper tension and dead-ended to structures.

- Clipping-in: After conductor is dead-ended, the conductors would be attached to all structures; a process called clipping in.

The dimensions of the area needed for the stringing setups associated with wire installation are variable and depend upon terrain. The preferred minimum size needed for tensioning equipment set-up sites requires an area of 500 feet by 150 feet, the preferred minimum size needed for pulling equipment set-up sites requires an area of 300 feet by 150 feet, the preferred minimum size needed for splicing equipment set-up sites requires an area 150 feet by 100 feet; however, crews can work from within slightly smaller areas when space is limited. Each stringing operation would include one puller positioned at one end and one tensioner and wire reel stand truck positioned at the other end. Splicing sites would be strategically located to support the stringing operations; splicing sites include specialized support equipment such as skidders and wire crimping equipment.

The puller, tensioner, and splicing set-up locations are used to remove temporary pulling splices and install permanent splices once the conductor is strung through the rollers located on each tower, and are necessary as the permanent splices that join the conductor together cannot travel through the rollers. For stringing equipment that cannot be positioned at either side of a dead-end transmission tower, field snubs (i.e., anchoring and dead-end hardware) would be temporarily installed to sag conductor wire to the correct tension.

The puller, tensioner, and splicing set-up locations require level areas to allow for equipment maneuvering. When possible, these locations would be located on existing level areas and existing roads to minimize the need for grading and cleanup. These temporary wire stringing areas would be restored to previous conditions following completion of pulling and splicing activities. The number and locations of the puller, tensioner, and splicing sites will be determined by the final engineering for the Proposed Project and the construction methods chosen by SCE or its contractor.

~~An OPGW and~~ An OHGW would be installed on the transmission towers for shielding ~~and communication. Both~~. The OHGW ~~and the OPGW~~ would be installed in the same manner as the conductor; it is typically installed in continuous segments of 11,000 feet or less, depending upon various factors including line direction, inclination, and accessibility. ~~Following installation of the OPGW, the strands in each segment are spliced together to form a continuous length from one end of a transmission line to the other. At a splice tower, the fiber cables are routed down the structure where the splicing occurs. The splices are housed in a splice box (an approximate 3 foot by 3 foot by 1 foot metal enclosure) that is mounted to one of the structure legs some distance above the ground.~~

3.2.3.6 Helicopter Use

The operations area of the small helicopter utilized during the sock line threading would be limited to helicopter staging areas, such as Skylark Field, and positions that are considered safe locations for landing. Final siting of staging areas for helicopter use would be conducted with the input of the helicopter contractor and local agencies. Helicopter fueling would occur at staging areas or at a local airport (e.g., Skylark Field) using either the helicopter contractor's fuel truck or the fuel service available at the airport. The helicopter and fuel truck may stay overnight at a local airport or at a staging area if adequate security is in place.

3.2.4 115 kV Subtransmission Line Construction

The following sections describe the construction activities associated with the 115 kV subtransmission line.

3.2.4.1 Airstrip

Construction of the modified 115 kV subtransmission lines for the Proposed Project would occur within 1,200 feet of a private airstrip (Skylark Field) near the south side of Lake Elsinore that is primarily used for skydiving. SCE would provide a construction schedule to the operator of Skylark Field prior to construction of the 115 kV subtransmission modifications near Skylark Substation, including the construction that would occur on Mission Trail, Waite Street, Lemon Street, Lost Road, and Beverly Street.

3.2.4.2 Site Preparation and Grading

The new LWS pole and TSP locations would first be graded and/or cleared to provide a reasonably level and vegetation-free surface for footing construction. An approximate 150 by 75 foot area around each 115 kV LWS pole and an approximate 200 by 100 foot area around each 115 kV TSP would be cleared of vegetation to provide a safe working area during construction. Any steel poles that are replacing existing wood poles would be installed as close as possible to the original structure and would require new excavations to set the poles. Depending on their location, the assembly and erection of some of the new TSPs may require that a new crane pad, approximately 50 feet by 50 feet, be prepared to allow an erection crane to set up 60 feet from the centerline of each TSP. The crane pad would be located transversely from each applicable TSP location.

Assembly of LWS and TSP poles typically would require a laydown area of approximately 200 feet by 100 feet. In locations where the terrain in the laydown area is already reasonably level, only vegetation removal would occur to prepare the site for construction. In locations where a level surface is not present, both vegetation clearing and grading would be necessary to prepare the laydown area for construction.

3.2.4.3 Light Weight Steel Pole Installation

LWS poles would be installed in the native soil in holes bored approximately 2 to 3 feet in diameter and 7 to 10 feet deep. LWS poles are normally shipped in sections with slip joints to the lay-down yard and then jacked together at the new pole location. LWS poles are normally installed using a line truck. Once the LWS poles are set in place, bore spoils (material from holes drilled) would be used to backfill the hole. If the bore spoils are not suitable for backfill, imported clean fill material, such as clean dirt and/or base material, would be used. Excess bore spoils would be distributed at each pole site and used as backfill for the holes left after removal of existing structures, or disposed of off-site in accordance with all applicable laws.

3.2.4.4 Tubular Steel Pole Installation

Structure foundations for the TSPs would typically be drilled concrete piers. The TSPs would be installed on top of cylindrical concrete foundations approximately 5 to 8 feet in diameter and approximately 20 to 40 feet deep (approximately 35 cubic yards would be removed) and is similar in method to that described above for the installation of 500 kV transmission tower foundations. A crane would be used to position each pole base section onto the foundation. When the base section is secured, the top section would be placed above the base section. The two sections would be bolted together and may be spot welded together for additional stability.

3.2.4.5 Subtransmission Wire Stringing Activities and Guard Structures

Conductor would be installed on the LWS poles and TSPs as similarly described above for the 500 kV transmission wire stringing activities, except that a line truck would drive from location to location to string the sock line, rather than use a helicopter.

Guard structures may be installed at transportation, flood control, and utility crossings. Guard structures are temporary facilities designed to stop the movement of a conductor should it momentarily drop below a conventional stringing height. Temporary netting could be installed to protect some types of under-built infrastructure. Typical guard structures are standard wood poles, 60 to 80 feet tall, and depending on the width of the conductor being constructed, the number of guard poles installed on either side of a crossing would be between two and four. The guard structures are removed after the conductor is secured into place. In some cases, the wood poles could be substituted with the use of specifically equipped boom-type trucks with heavy outriggers staged to prevent the conductor from dropping. Approximately 104 guard structures would be used for installing the 115 kV subtransmission lines.

Public agencies differ on their policies for preferred methods to protect public safety during conductor stringing operations. For highway and open channel aqueduct crossings, SCE would work with the applicable agency to secure the necessary permits to string conductor across the applicable infrastructure. For major roadway crossings, typically one of the following four methods is employed to protect the public:

- Erection of a highway net guard structure system;
- Detour of all traffic off a highway at the crossing position;
- Implementation of a controlled continuous traffic break while stringing operations are performed; or
- Strategic placement of special line trucks with extension booms on the highway deck.

Some agencies may require the use of a secondary safety take out sling at highway crossings.

3.2.4.6 Removal of Existing Subtransmission Structures

After the existing subtransmission, distribution lines, and telecommunication lines are transferred (where applicable) to the new subtransmission poles, the existing structures would be completely removed (including the below-ground portion) and the hole would be backfilled using imported fill in combination with fill that may be available as a result of excavation for the installation of the new steel poles. Depending on their condition and original chemical treatment, any wood poles removed may be reused by SCE, returned to the manufacturer, disposed of in a Class I hazardous waste landfill, or disposed of in the lined portion of a Regional Water Quality Control Board (RWQCB)-certified municipal landfill.

3.2.5 Energizing the Constructed 500 kV Transmission and 115 kV Subtransmission Lines

The final step in completing construction of the 500 kV transmission line segments and new and modified 115 kV subtransmission lines involves energizing the new conductor. To accomplish this, the existing lines in service would be de-energized, and the connections between the new and modified lines made. De-energizing and connecting the new lines to the existing system would typically occur when electrical demand is low, in order to reduce the need for electric service outages. Once the connection is complete, the existing lines would be returned to service and the new facilities would be energized.

3.2.6 Telecommunications Construction

The following sections provide detail on the construction activities associated with the telecommunications improvements.

3.2.6.1 Microwave System Construction

A 120-foot microwave tower would be installed at Alberhill Substation. All tower material would be delivered by truck and would be staged within a lay down area at the substation site. After the tower foundation is installed, each tower section would be assembled on site and erected using a 120-foot crane and a 120-foot lifting (bucket) truck.

The microwave dish antennas at Alberhill Substation, Santiago Peak, and Serrano Substation would be installed on the towers using a bucket truck.

3.2.6.2 Fiber Optic System Construction

The fiber optic system construction would include the installation of overhead facilities, underground facilities, and new telecommunications equipment at Serrano, Barre, Walnut, Mira Loma, Valley, Ivyglen, Fogarty, Newcomb, Tenaja, and Skylark Substations. The overhead telecommunications cable would be installed by attaching cable to structures in a manner similar to that described above for subtransmission wire stringing.

3.2.7 Post Construction Cleanup

SCE would restore all areas that were temporarily disturbed by construction of the Proposed Project (including temporary material staging yards, and conductor pull/tension/splicing sites) to as close to preconstruction conditions as possible, or to the conditions agreed upon between the landowner and SCE following the completion of construction of the Proposed Project. Any damage to existing roads as a result of construction would be repaired once construction is complete in accordance with local requirements.

In addition, all construction materials and debris would be removed from the area and recycled or properly disposed of off-site. SCE would conduct a final inspection to ensure that cleanup activities were successfully completed.

3.3 Land Acquisition

SCE is in the process of acquiring approximately 124 acres of land for use as the Alberhill Substation site, approximately 24 acres of which would be within the substation wall. Approximately 4 acres of land immediately outside the substation perimeter wall to the west, east and south would be used for subtransmission and transmission line access, vehicular access, buffers, and landscaping. Approximately six acres located to the outside of the north substation wall, plus the north-east and north-east corners would be primarily dedicated to the control of stormwater run-off. The remaining approximately 90 acres of the property is either excess land that is not needed, or is comprised of steep hills that is not suitable for development.

Each 500 kV transmission line segment, originating at the Alberhill Substation and extending to the Serrano-Valley 500 kV transmission line, would require a 200 foot wide ROW. Approximately 12 acres of these ROWs would be on the substation parcel acquired for Alberhill Substation, and approximately ~~10~~99 acres of ROWs would be acquired from four private property owners and a parcel owned by ~~the~~ Riverside County ~~Habitat Conservancy Agency~~ (for which SCE would acquire a permit to cross).

3.4 Land Disturbance

Land disturbance would include the ground surface modifications at the substation site, the installation of the 500 kV transmission line segments and access roads, and the installation of the 115 kV subtransmission line structures. The portions of the Proposed Project construction that occurs along existing roads in the franchise position is summarized in Table 3.3, Summary of Land Disturbance Within Public ROW. Land disturbance associated with portions of the Proposed Project that would be constructed in areas away from public streets are summarized in Table 3.4, Summary of Land Disturbance Outside of Public ROW. Rights-of-way acquisition requirements are discussed above in Section 3.3, Land Acquisition.

3.5 Geotechnical Studies

Prior to the start of construction, SCE would conduct a geotechnical study of the substation site and the 500 kV transmission line segments and the new and modified 115 kV subtransmission line routes that would include an evaluation of the depth to the water table, liquefaction potential, physical properties of subsurface soils, soil resistivity, slope stability, and the presence of hazardous materials. This information would be used to develop final engineering of the Proposed Project facilities.

3.6 Hazards and Hazardous Materials

Construction and operation of the Proposed Project would require the limited use of hazardous materials, such as fuels, lubricants, and cleaning solvents. All hazardous materials would be stored, handled, and used in accordance with the applicable regulations. For all hazardous materials in use at the construction site, Material Safety Data Sheets would be made available to all site workers in case of emergency.

The SWPPP prepared for the Proposed Project would provide detail of locations where hazardous materials may be stored during construction, and the protective measures, notifications, and cleanup requirements for any accidental spills or other releases of hazardous materials that could occur.

Table 3.3 Summary of Land Disturbance Within Public ROW

Project Activity	Site Quantity	Disturbed Area	Acres Disturbed During Construction	Acres to be Restored	Acres Required Within Public ROW
Guard Structures	100	50’ x 75’	8.7	8.7	--
Remove Existing 115 kV TSP	7	200’ x 100’	3.2	3.2	--
Remove Existing 115 kV LWS	2	50’ x 50’	0.1	0.1	--
Remove Existing 115 kV Wood Pole	292	50’ x 50’	16.8	16.8	--
Construct New 115 kV TSP	40	200’ x 100’	18.4	16.0	2.4
Construct New 115 kV LWS	284	150’ x 75’	73.3	59.1	14.2
115 kV Wire Stringing - Puller	16	200’ x 100’	7.3	7.3	--
115 kV Wire Stringing - Tensioner	16	500’ x 100’	18.4	18.4	--
115 kV Wire Stringing - Splicing	3	150’ x 100’	1.0	1.0	--
New Roads (Access & Spur)	0.06	Linear miles x 14’ wide	0.8	--	0.8
Subtotal: 115 kV Subtransmission Within Public ROW			**148**	**130**	**18**

Note: The disturbed acreage calculations are estimates based upon SCE’s preferred area of use and the width of the proposed right-of-way for the described project feature; they are subject to revision based upon final engineering.

Table 3.4 Summary of Land Disturbance Outside of Public ROW

Project Activity	Site Quantity	Disturbed Area	Acres Disturbed During Construction	Acres to be Restored	Acres Required
Alberhill Substation	**1**	--	**34**	--	**34**
Remove Existing 500 kV Towers	~~4~~2	150' x ~~75'~~150'	1.0	1.0	--
Construct New 500 kV Towers	12	200' x 200'	11.0	8.6	2.4
500 kV Wire Stringing - Puller	~~1~~2	~~300'~~100' x ~~150'~~50'	~~1.~~0.2	~~1.~~0.2	--
500 kV ~~Wire Stringing - Tensioner~~Field Snub Area	~~1~~2	~~500'~~50' x ~~150'~~50'	0.1~~.7~~	0.1~~.7~~	--
~~500 kV Wire Stringing - Splicing~~	~~1~~	~~150' x 100'~~	~~0.3~~	~~0.3~~	~~--~~
New Roads (Access & Spur)	~~2.0 --~~	~~linear miles x 14' wide~~See Note (1) below	~~3.4~~11.1	--	~~3.4~~11.1
Subtotal: 500 kV Transmission			**~~19~~23**	**~~13~~11**	**~~6~~14**
Guard Structures	4	50' x 75'	0.3	0.3	--
Remove Existing 115 kV Wood H-Frame	15	75' x 50'	1.3	1.3	--
Remove Existing 115 kV Wood Pole	20	50' x 50'	1.1	1.1	--
Construct New 115 kV LWS	20	150' x 75'	5.2	4.2	1.0
Construct New 115 kV Wood H-Frame	10	100' x 50'	1.1	0.4	0.7
115 kV Wire Stringing - Puller	1	200' x 100'	0.5	0.5	--
115 kV Wire Stringing - Tensioner	1	500' x 100'	1.1	1.1	--
115 kV Wire Stringing - Splicing	1	150' x 100'	0.3	0.3	--

Project Activity	Site Quantity	Disturbed Area	Acres Disturbed During Construction	Acres to be Restored	Acres Required
Subtotal: 115 kV Subtransmission			**11**	**9**	**2**
Total Outside Public ROW			**63**	**21**	**42**

Note: The disturbed acreage calculations are estimates based upon SCE's preferred area of use and the width of the proposed right-of-way for the described project feature; they are subject to revision based upon final engineering.
(1) Disturbance acreages for the access roads was estimated using Civil 2008 in conjunction with AutoCAD software.

3.7 Waste Management

Construction of the Proposed Project would result in the generation of various waste materials that can be recycled and salvaged. These items would be gathered by construction crews and separated into roll-off boxes. Salvageable items (i.e., conductor, steel, and hardware) would be transported to the material staging yards, sorted, and baled, and then sold through available markets. Items that may be recycled include the steel from towers (i.e., towers, nuts, bolts, and washers), the conductor wire and the hardware (i.e., shackles, clevises, yoke plates, links, or other connectors used to support conductor).

Construction of the Proposed Project would also generate waste materials that cannot be reused or recycled (i.e., wood, soil, vegetation, and sanitation waste); local waste management facilities would be used for the disposal of these types of construction waste. The disposal of any hazardous waste would be done at an appropriately licensed facility.

3.8 Environmental Surveys

Prior to the start of construction, detailed environmental surveys would be conducted to identify sensitive biological and cultural resources in the vicinity of the Proposed Project. Where feasible, the information gathered from these surveys may be used to modify the project design in order to avoid sensitive resources, or to implement Applicant Proposed Measures (APMs) to minimize the impact to sensitive resources from project-related activities. The results of these surveys would also determine the extent to which environmental specialist construction monitors would be required.

The following focused biological resource surveys would be conducted during Spring ~~2010, and some surveys would occur annually until construction.~~2011. More information on these sensitive species can be found in Section 4.4, Biological Resources.

- Focused plant surveys. Focused plant surveys would be conducted ~~in the spring following a winter season of adequate rainfall throughout the region~~ for ~~the special status~~narrow endemic plant and WRMSHCP criteria area plant species with the potential to occur within the vicinity of the Proposed Project~~, and are necessary to determine the impacts the Proposed Project would have on any sensitive plant species.~~. The special status plant surveys would follow guidelines developed by California Natural Plant Society (CNPS) to identify sensitive species that have the potential to be present in the area. If sensitive species are present, and avoidance is not feasible, consultation with the US Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) would be necessary to determine if a permit would be required to impact any one of these species, and SCE would propose APMs to minimize impacts.

- ~~Focused wildlife surveys. Focused wildlife surveys would be conducted for the special status wildlife species with potential to occur within the vicinity of the Proposed Project. These surveys would be performed at the appropriate time of year to detect the species, and are necessary to establish the impacts of the Proposed Project on any listed species. If sensitive wildlife species are present, and avoidance is not feasible, consultation with the USFWS and the CDFG would be necessary to determine if a permit would be required to impact any one of these species, and SCE would propose APMs to minimize impacts.~~

- ~~Stephen's Kangaroo Rat. SCE would conduct focused surveys, including trapping, throughout the permitting period for the Alberhill System Project within the areas managed by the Riverside County Habitat Conservation Agency.~~

~~In addition, SCE would conduct the following surveys as the Proposed Project approaches final design:~~

- Jurisdictional Drainages~~.~~ and Riparian and Riverine Surveys. A wetland delineation would be conducted~~ during Spring 2010~~ to describe and map the extent of resources under the jurisdiction of the US Army Corps of Engineers (USACE), the RWQCB, the CDFG, and/or the ~~CDFG~~WRMSHCP following the guidelines presented in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region~~.~~ and other agency guidance documents. As appropriate, SCE would secure appropriate permits such as a Streambed Alteration Agreement from the CDFG, and Clean Water Act Section 404 and 401 permits from the USACE and State Water Resources Control Board, respectively, and/or a certificate of inclusion from the WRMSHCP.

- Burrowing owl. Focused burrowing owl surveys would be conducted in the areas affected by the Proposed Project following California Department of Fish and Game Guidelines. If burrowing owls are observed within the construction areas of

the Proposed Project, CDFG Protocols would be implemented, and SCE would propose APMs to minimize impacts.

- Stephens' Kangaroo Rat and other small mammals. Focused surveys for Stephens' kangaroo rat and other small mammals with the potential to occur in the vicinity of the Proposed Project would be conducted during the appropriate time of year to detect the species. If Stephens' kangaroo rat or other small mammals listed by USFWS and/or CDFG are present and avoidance is not feasible, consultation with the USFWS and the CDFG would be necessary to determine if a permit would be required to impact any one of these species.

In addition, SCE would conduct the following surveys as the Proposed Project approaches final design:

- Paleontological Resource Survey. SCE would conduct a paleontological resource survey to identify sensitive paleontological resources in the areas potentially affected by the project. This information would be used to modify the design of the project, or develop a Paleontological Resources Recovery Plan, should it be necessary.

The following environmental surveys would occur prior to construction.

- Burrowing owl. The preconstruction surveys for burrowing owl would be conducted no more than 30 days prior to ground-disturbing activities. Potential burrows that are identified and determined to be unoccupied outside of the nesting season would be collapsed to avoid construction impacts to the species during nesting season. If burrowing owls are observed within the construction areas of the Proposed Project, CDFG Protocols would be implemented, and SCE would propose APMs to minimize impacts.

- Biological Resource Clearance Surveys. These surveys would identify all sensitive resources within a given work area within 10 days of any ground disturbing work. Should any special-status plants and/or wildlife species be located during this survey, appropriate measures would be implemented to avoid any impacts to special-status species (i.e., flag and avoid, utilization of construction fencing, biological monitor present during work, etc.). If avoidance cannot be maintained, consultation with appropriate agencies would occur

- Active nests. The nesting season is generally February 15 to August 31. Work near nests would be scheduled to take place outside the nesting season when feasible. If a nest must be moved during the nesting season, SCE would coordinate with the CDFG and USFWS and obtain approval prior to moving the nest.

- Protected Trees. Prior to construction of the Proposed Project, SCE would determine if removal or alteration of trees protected by local ordinances would be

required. If protected trees cannot be avoided, SCE would obtain the appropriate permits from the local agency prior to removing the tree.

- ~~Biological Resource Clearance Surveys. These surveys would identify all sensitive resources within a given work area within 10 days of any ground disturbing work. Should any special-status plants and/or wildlife species be located during this survey, appropriate measures would be implemented to avoid any impacts to special-status species (i.e., flag and avoid, utilization of construction fencing, biological monitor present during work, etc.). If avoidance cannot be maintained, consultation with appropriate agencies would occur~~

3.9 Worker Environmental Awareness Training

Prior to construction, a Worker Environmental Awareness Plan would be developed based on the final engineering design, the results of preconstruction surveys, and a list of mitigation measures, if any, developed by the CPUC to mitigate significant environmental effects of the Proposed Project. A presentation would be prepared by SCE and shown to all site workers prior to their start of work. A record of all trained personnel would be kept with the construction foreman.

In addition to the instruction for compliance with any site-specific biological or cultural resource protective measures and project mitigation measures, all construction personnel would also receive the following:

- A list of phone numbers of SCE personnel associated with the Proposed Project (archeologist, biologist, environmental compliance coordinator, and regional spill response coordinator)
- Instruction on the South Coast Air Quality Management District Rule 403 for control of dust
- Instruction on what typical cultural resources look like, and if discovered during construction, to suspend work in the vicinity of any find and contact the site foreman and archeologist or environmental compliance coordinator
- Instruction on washing the wheels, tracks, and underbodies of construction vehicles to minimize the spread of invasive species
- Instruction on individual responsibilities under the Clean Water Act, the project SWPPP, site-specific BMPs, and the location of Material Safety Data Sheets for the project
- Instructions to notify the foreman and regional spill response coordinator in case of hazardous materials spills and leaks from equipment, or upon the discovery of soil or groundwater contamination
- A copy of the truck routes to be used for material delivery

- Instruction that noncompliance with any laws, rules, regulations, or mitigation measures could result in being barred from participating in any remaining construction activities associated with the Proposed Project

3.10 Construction Equipment and Personnel

The estimated elements, equipment, and number of personnel required for construction of the Proposed Project are summarized in Appendix F, Construction Equipment and Personnel Requirements.

Construction would be performed by either SCE construction crews or contractors, depending on the availability of SCE construction personnel at the time of construction. If SCE transmission and telecommunications construction crews are used they would likely be based at one of SCE's local facilities such as the Valley Substation or the Wildomar Service Center. Contractor construction personnel would be managed by SCE construction management personnel.

In general, construction efforts would occur in accordance with accepted construction industry standards. Construction activities generally would be scheduled during daylight hours (e.g., 7:00 am to 7:00 pm), Monday through Saturday. When different hours or days are necessary, SCE would obtain variances, as necessary, from the jurisdiction in which the work would take place. All materials associated with construction efforts would be delivered by truck or helicopter to established marshalling yards. Delivery activities requiring major street use would be scheduled to occur during off-peak traffic hours.

3.11 Construction Schedule

SCE anticipates that construction of the Proposed Project would take approximately 23 months. Construction would commence following CPUC approval, final engineering, and procurement activities. A preliminary construction schedule can be found in Table 3.5, Preliminary Proposed Project Construction Schedule. The Proposed Project is scheduled to be in operation June 2014.

Table 3.5 Preliminary Proposed Project Construction Schedule

Activity	Duration
Substation Construction	23 months
Subtransmission Construction	12 months
Transmission Construction	12 months
Telecommunications	12 months
Testing	1 month

3.12 Project Operation

Components of the Alberhill Substation Project would require routine maintenance, and may require emergency repair for service continuity. Alberhill Substation would be unstaffed, and electrical equipment within the substation would be remotely monitored and controlled by an automated system from SCE's Valley Substation Regional Control Center. SCE personnel would visit for electrical switching and routine maintenance purposes. Routine maintenance would include equipment testing, equipment monitoring, and repair. SCE personnel would generally visit the substation three to four times per month.

The new 500 kV transmission line segments and new and modified 115 kV subtransmission lines would be maintained in a manner consistent with CPUC General Order 165. SCE inspects transmission and subtransmission lines at least once per year by driving and/or flying the line routes, and the lines may otherwise occasionally require emergency repairs.

The telecommunications system would require routine maintenance, which would include equipment testing, monitoring, and repair. No additional SCE personnel, beyond normal staffing levels, would be required to operate or maintain the telecommunications system at the substations. Once per year, one individual would perform routine maintenance of the telecommunications components located at the substations.

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Geotechnical Investigation Plan

for the 500kV Element

Southern California Edison
Alberhill System Project

Southern California Edison Corporate Environment, Health and Safety Division

6/22/2011 DRAFT

This document provides a description of the proposed geotechnical investigations, preliminary boing locations, contingency planning for drilling operations, a description of special status biological resources and special status biological resource avoidance/minimization measures for geotechnical investigations for the Southern California Edison Alberhill System Project in Riverside County, California.

Geotechnical Investigation Plan for the Alberhill System Project

The Southern California Edison Company (SCE) is planning construction of the Alberhill System Project in western Riverside County (Attachment A). The Alberhill System Project is awaiting release of the Draft Environmental Impact Report (DEIR) prepared by the California Public Utilities Commission (CPUC). Public review of the DEIR is anticipated to begin in the Fall 2011. SCE is in the process of completing additional design and acquiring permits from other federal and state agencies prior to construction. Geotechnical borings along the 500Kv alignment are necessary to determine soil conditions and characteristics, an essential part of confirming completion of final design. Confirmation on the final design of the project is required in order to complete the permitting process.

A number of federal and/or state protected plant and animal species have the potential to occur within or adjacent to the project area. SCE has completed biological surveys for the purposes of DEIR preparation and continues to conduct additional surveys required to determine the presence/absence and likelihood of occurrence for these species. SCE has been in consultation with the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) concerning this project and there is a possibility that SCE will have to acquire "take" of one or more species for the construction of the project. Information gained from the geotechnical boring required to confirm final engineering (i.e., placement of structures along the route) is also essential to ensure that impacts to sensitive resources are avoided.

The information in this document is being provided to confirm that the geotechnical work can occur with no 'take' of species prior to acquiring take authorization for other parts of the project. The purpose of this document is to identify and discuss measures that will be implemented to avoid 'take' of these protected biological resources during the conduction of geotechnical borings along the transmission line corridor.

This plan is comprised of the following components:

1. Geotechnical Sampling Description and Equipment
2. Boring Locations
3. Contingency Planning for Drilling Operations
4. Special Status Biological Resources
5. Special Status Biological Resource Avoidance Measures

1. Geotechnical Sampling Description and Equipment

Geotechnical samples would be collected using one drill rig and two support trucks. The drilled borings will be a diameter of 5 to 8 inches and extend to approximately 50 feet in

depth. Some borings would be extended into unconsolidated material, for which a hollow stem auger drill rig would suffice. Hollow stem drilling does not require any ancillary equipment outside the rods, bits, spoons, and auger, all of which can be staged on the trucks. The trucks would be staged on existing roads and would not require the surface vegetation to be cleared. Hollow stem drilling brings soil cuttings to the surface, which are shoveled into a pile adjacent to the boring and later used to backfill the open hole. There is typically no excess soil generated by hollow stem drilling activities; however, any excess soil generated will be transported off-site.

There is a strong potential to encounter solid bedrock in borings B2, B4, and B5, for which a mud rotary rig would be used. Mud rotary requires a mud basin to be staged over the boring during drilling to contain the drilling mud (drilling mud is typically comprised of an inert mixture of water and bentonite powder). After the samples are collected, the mud is pumped into drums and discarded off-site at an appropriate facility. The boring would be backfilled with a bentonite slurry (bentonite slurry is typically comprised of an inert mixture of water, bentonite powder, and Portland cement). All equipment would be staged on existing roads.

2. Boring Locations

Approximately four (4) vertical soil borings will be drilled along the proposed line route, including both existing and proposed right of way. Geotechnical samples will be collected at each of these locations to determine the soil properties for transmission structure design. The approximate boring locations and proposed access routes are shown on the attached figure. These locations may change as a result of preconstruction biological surveys in coordination with project geologists. No new roads would be installed for the geotechnical sampling. These areas are shown on the attached figure.

3. Contingency Planning for Drilling Operations

Individual boring locations will be completed and backfilled the same day they are started, and they are not left open overnight. Occasionally, there are issues that arise during drilling that could require temporary shutdown of the drilling operation, including equipment failure, and encountering unanticipated buried material. If a partially-finished location must be left overnight, the hole will be filled in or a steel plate would be placed over the unfinished boring prior to the crew leaving the area. At no time will any open bore hole be left unattended. All drilling augers and other equipment will be placed on the rig and not left on the ground overnight. All drill rigs will be equipped with a spill kit to reduce the effects of any leaks should they occur during drilling. The phone number of SCE's Spill Response Coordinator will be provided to the drilling company in the event a spill occurs.

Drilling into unanticipated buried material would require the drill rig to stop and call the property owner, County, or other public agency for investigation. Typically in these

situations, a new boring location will have to be identified and evaluated to determine the most appropriate location to resume drilling activities. If unanticipated bedrock is encountered by hollow stem drilling, the drilling would stop, and the hollow stem rig would be replaced with or converted to a mud rotary rig to continue the boring.

Lightning in the area requires shutdown and exit of the work location until it is safe to return. Prior to leaving, the bore hole will be covered or filled in and all material placed on the drill rig and not on the ground.

4. Special Status Resources

A brief description of the vegetation present at each of the four locations is provided below. Refer to Attachment B for a detailed figure of each location:

B1: The boring location is situated within the formerly developed portion of the proposed Alberhill Substation. The area surrounding the bore location is dominated by ruderal vegetation, and non-native grasses (NNG) with a few scattered annuals.

B2: The boring location is situated on an existing dirt road within the Alberhill 500 kV Alignment. This road also serves as a private driveway for residences located in the area. The boring location occurs within ruderal vegetation.

B4: The boring location is situated just off the existing dirt road within an undeveloped portion of the Alberhill 500 kV Alignment. The boring location occurs within disturbed Riversidean sage scrub (RSS).

B5: The boring location is situated on an existing dirt road along the existing Serrano-Valley 500 kV corridor. The dirt road runs through an area with NNG on one side and disturbed RSS on the other.

The listed and other sensitive species of concern (i.e. special status species) that may occur along the transmission corridor are presented in the following Tables 1 (Plants) and Table 2 (Wildlife).

Table 1 – PLANTS POTENTIALLY AFFECTED AT OR NEAR GEOTECH BORING LOCATIONS

COMMON AND SCIENTIFIC NAMES	SENSITIVITY STATUS	BLOOMING PERIOD	PLANT COMMUNITY TYPES AFFECTED	SUITABLE HABITAT AND POTENTIAL FOR OCCURRENCE
Longspined spineflower *Chorizanthe polygonoides var. longispina*	CNPS:1B.2	April-July	CC, MC, RSS, NNG	Occurs in Gabbroic clay soils within chaparral, coastal scrub, meadows, valley/foothill grasslands. 30–1530 meters. ***Occurs in vicinity of B-2 but can be avoided with monitoring.***
Paniculate tarplant *Deinandra paniculata*	CNPS: 4.2	April-Nov	RSS, NNG	Occurs within dry foothills and mesas in sage scrub, valley/foothill grasslands and non-native grasslands. Often associated with disturbed sites within these habitat types. ***Low potential to occur in B- 1 but can be avoided with biological monitoring.***
Robinson's Pepper Grass *Lepidium virginicum* var. *robinsonii*	CNPS:1B.2	Jan-July	CC, MC, RSS,	Occurs within chaparral, coastal scrub. Often associated with dry soils. 1–885 meters ***Occurs in vicinity of B-2, B-4 and B-5, but can be avoided with biological monitoring.***

Source: CNPS (2009a)

Plant Community Type Code	**CNPS Codes:**
CC–Chamise chaparral MC–Mixed chaparral RSS–Riversidean sage scrub NNG - Non-native grasslands	1A. - Presumed extinct in California 1B. - Rare or Endangered in California and elsewhere 2. - Rare or Endangered in California, more common elsewhere 3. - Plants for which we need more information - Review list 4. - Plants of limited distribution - Watch list .1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat) .2 - Fairly endangered in California (20-80% occurrences threatened) .3 - Not very endangered in California (<20% of occurrences threatened or no current threats known)

Table 2 – WILDLIFE POTENTIALLY AFFECTED AT OR NEAR GEOTECH BORING LOCATIONS

COMMON AND SCIENTIFIC NAMES	SENSITIVITY STATUS	PLANT COMMUNITIES WITH POTENTIAL TO PROVIDE HABITAT	PREFERRED HABITAT, SEASONAL STATUS AND DISTRIBUTION *POTENTIAL FOR OCCURRENCE*
REPTILES			
Belding's Orange-throated Whiptail* *Aspidoscelis hyperythra (Cnemidophorus hyperythrus beldingi)*	SSC	RSS	Occurs in a limited range within the coastal slope of southern California, from the Santa Ana River area portions of Orange, Riverside and San Bernardino counties, and south into Baja California. From sea level to approximately 2,000' elevation. Prefers semi-arid brushy areas typically with loose soil and rocks, including coastal sage scrub, chaparral, rocky hillsides, washes and streams. ***Moderate potential to occur, but can avoid with biological monitoring.***
Northern Red-diamond Rattlesnake* *Crotalus ruber ruber*	SSC	RSS, NNG	Occurs in southern California from the Morongo Valley area of San Bernardino county west to the coast and south along the peninsular ranges to Baja California. Inhabits arid rocky brushy area, including coastal sage scrub, chaparral, as well as oak and other woodlands, and grasslands. ***Moderate potential to occur, but can avoid with biological monitoring.***
BIRDS			
Southern California Rufous-Crowned Sparrow* *Aimophila ruficeps canescens*		CC, MC, RSS, NNG	A fairly common resident, and breeder, in cismontane southern California. Prefers relatively steep, often rocky hillsides, with dominant vegetation ranging from grasses and forbs, to a moderate shrub cover (including coastal sage scrub or sparse chaparral communities). ***Low potential to occur but can avoid if work done outside of nesting season and with biological monitoring. If work is done within nesting season, buffers will established to avoid impacts and may result in the location of the bore being moved to an area of no impact.***

COMMON AND SCIENTIFIC NAMES	SENSITIVITY STATUS	PLANT COMMUNITIES WITH POTENTIAL TO PROVIDE HABITAT	PREFERRED HABITAT, SEASONAL STATUS AND DISTRIBUTION *POTENTIAL FOR OCCURRENCE*
Grasshopper Sparrow* *Ammodramus savannarum*	SSC	RSS, NNG	An uncommon, very localized summer resident (March through August), and breeder, in cismontane southern California. Declining throughout much of its former range. Nests and forages in areas of relatively expansive grasslands (both native and non-native), including grasslands interspersed with occasional shrubs (e.g., sage scrub species) or taller weeds (e.g., wild artichoke). Can occur on level or sloping terrain; generally found in lower elevations. ***Low potential to occur but can avoid if work done outside of nesting season and with biological monitoring. If work is done within nesting season, buffers will established to avoid impacts and may result in the location of the bore being moved to an area of no impact.***
Golden Eagle* *Aquila chrysaetos*	SP BCC	CC, MC, RSS, NNG,	A fairly rare resident, and breeder, in more remote regions of southern California, with generally some influx occurring into the region during winter. Forages over a variety of habitats and terrain, including grasslands, brushlands, and open woodland and savannah. This species is primarily restricted to rugged, mountainous terrain for nesting, and generally well away from human disturbance. ***Low potential to occur but can avoid if work done outside of nesting season and with biological monitoring. If work is done within nesting season, buffers will established to avoid impacts and may result in the location of the bore being moved to an area of no impact.***
Burrowing Owl* *Athene cunicularia hypugaea*	SSC BCC	CC, MC, RSS, NNG	Now a fairly rare, and decreasing, resident breeder in southern California, away from the Imperial Valley. A small influx of non-breeding birds often occurs during the winter. Prefers open, low-growing grasslands, fallow fields, agricultural areas, earth-lined flood control channels/ditches, dairies. Relies on the presence of burrowing rodents (especially California ground squirrel) for roost and nest sites. ***Low potential to occur but can avoid if work done outside of nesting season and with biological monitoring. If work is done within nesting season, buffers will established to avoid impacts and may result in the location of the bore being moved to an area of no impact.***

COMMON AND SCIENTIFIC NAMES	SENSITIVITY STATUS	PLANT COMMUNITIES WITH POTENTIAL TO PROVIDE HABITAT	PREFERRED HABITAT, SEASONAL STATUS AND DISTRIBUTION *POTENTIAL FOR OCCURRENCE*
Coastal California Gnatcatcher* *Polioptila californica californica*	FT SSC	RSS	An uncommon resident species, and breeder, in cismontane southern California from southeastern Ventura County to western San Diego County. Restricted to Riversidean, Diegan and Ventural sage scrub communities, in arid washes, mesas, and on mild to moderate slopes. Habitat typically dominated or co-dominated by California sagebrush, California buckwheat, and brittlebush. Most populations occur below 1,500' elevation. Breeding typically occurs between March and August. ***Moderate potential to occur but can avoid if work done outside of nesting season and with biological monitoring; No removal of RSS is permitted. If work is done within nesting season, buffers will established to avoid impacts and may result in the location of the bore being moved to an area of no impact.***
MAMMALS			
Northwestern San Diego Pocket Mouse* *Chaetodipus fallax fallax*	SSC	CC, MC, RSS, NNG	Occurs on the coast slope of southern California from Los Angeles and San Bernardino counties south to San Diego County. It inhabits coastal sage scrub, scrub/grassland ecotones and chaparral communities, often in rocky area. ***Low potential to occur but can be avoided if stay on existing roads, flag resources, avoid RSS, avoid burrow complexes, and all work is overseen by a biological monitor.***
Stephen's Kangaroo Rat* *Dipodomys stephensi*	FE ST	RSS, NNG	This species has a small range limited to western Riverside County and north-western and north-central San Diego County. Restricted to annual grassland and open Riversidean sage scrub with a shrub cover of less than 30%. Prefers loose, friable, well-drained soil (generally at least 1.5' deep) and flat or gently rolling terrain. This species may recolonize abandoned agricultural land. It is most abundant where stands of native vegetation remain. ***Moderate potential to occur at B-1 and B-2 but can be avoided if stay on existing roads, flag resources, avoid RSS, avoid areas of burrow complexes, especially those in NNG, and all work is overseen by a biological monitor.***
San Diego Black-tailed Jackrabbit* *Lepus californicus bennettii*	SSC	RSS, NNG	Occurs west of the mountains in southern California, from Ventura to San Diego counties. A generalist that prefers a variety of open and semi-open habitats including grasslands, agricultural fields, sparse coastal sage scrub, open alluvial washes. Typically avoids dense chaparral and woodland habitats. *Moderate potential to occur in the 500 kV study area.* ***Moderate potential to occur but can be avoided with biological monitoring.***

COMMON AND SCIENTIFIC NAMES	SENSITIVITY STATUS	PLANT COMMUNITIES WITH POTENTIAL TO PROVIDE HABITAT	PREFERRED HABITAT, SEASONAL STATUS AND DISTRIBUTION *POTENTIAL FOR OCCURRENCE*
San Diego Desert Woodrat* *Neotoma lepida intermedia*	SSC	CC, MC, RSS	Occurs in coastal California from San Luis Obispo County south through the Transverse and Peninsular ranges into Baja California. Occurs in a variety of habitats and elevations. Prefers pinyon juniper woodland, chaparral and sage scrub communities, and most desert habitats. Most abundant in rocky outcrops and on rocky slopes, building their stick nests typically in cracks within rocky outcrops and boulder piles. ***Moderate potential to occur but can be avoided if stay on existing roads, flag resources, avoid RSS and rock outcroppings, avoid middens, and all work is overseen by a biological monitor..***

Source: Bond 1977, Unitt 1987 and 2004, McKernan 1993 and 1997, Yosef 1996, Beedy and Hamilton 1999, Collins 1999, Hughes 1999, Atwood et al. 2001, AECOM 2009a, Shuford and Gardali 2009, CDFG 2009a.

Gray highlighted cells contain species that are listed (i.e., federal and/or state threatened and endangered

Plant Community Type Code CC - Chamise chaparral MC - Mixed chaparral RSS - Riversidean sage scrub NNG - Non-native grasslands	**Federal Status Designations**: FE – Federally Endangered FT – Federally Threatened FC – Federal Candidate Species for Listing FD – Federally Delisted BCC – U.S. Fish and Wildlife Service Birds of Conservation Concern FSS – U.S. Department of Agriculture Forest Service Sensitive **State Status Designations:** SC – State Candidate Species for Listing SSC – California Department of Fish and Game Species of Special Concern FP – California Department of Fish and Game Fully Protected Species (*) Species is covered under WRMSHCP Gray highlighted cells contain species that are listed (i.e., federal and/or state threatened and endangered

5. Special Status Resource Avoidance and Minimization Measures

The following measures will be incorporated into the overall geotechnical investigation:

- All field personnel will undergo environmental training prior to initiating field operations. This training will include a description of the laws and regulations protecting special status resources, special status biological resources with potential to occur in the area, methods for protection of these resources, other measures for resource protection, and biological monitoring requirements.

- Boring locations and road areas will be assessed by a qualified biologist prior to utilization to ensure that special status resources will not be impacted (refer to Biological Clearance Survey section below). This will include flagging of any known or discovered resources along the access roads and at drilling locations to restrict activities to defined areas.

- All surveying/staking, set-up activities and boring work will be overseen by a qualified biological monitor (refer to Biological Monitoring section below).

- Activities within potential habitat for coastal California gnatcatcher (CGN) and other nesting birds will occur outside of breeding season (generally defined as February 15 – August 31).

- Geotechnical drilling may proceed during nesting season should it be determined that: 1) there is no suitable habitat for CGN that could be affected by this work; 2) there are no active nests within 300 feet of the proposed drilling locations; and/or 3) there is no nest disruption of nesting birds within 300 feet. See further details below in Biological Monitoring.

- Boring locations will be accessed utilizing existing access roads.

- No new roads will be graded.

- Removal of sensitive vegetation is not permitted. Equipment will be positioned in areas encompassing non-sensitive vegetation. The biological monitor will assist in placement of equipment to ensure no sensitive vegetation is affected.

- No compacting of soils will occur as a result of staging the drilling equipment.

- Drilling activities will not take place at night.

- Augers and other equipment will be stored on vehicles and not left on the ground overnight.

- All refuse will be collected and be disposed of off-site.

- Boreholes will be filled immediately after completion of boring. If open holes must be left overnight, crews must fill or cover all holes at the end of each day to prevent wildlife from becoming trapped. If in compliance with SCE safety policies, the biological monitor will check incomplete holes at the beginning of each work day to ensure that no animals have entered the hole prior to resumption of drilling.

Biological Clearance Surveys

The biological clearance surveys will use results from previously conducted surveys to focus in on any possible species present at the drilling sites and along access roads.

- Surveying and Staking: Each potential location will be surveyed and staked prior to the clearance survey. During staking, surveyors will only use existing roads and will access boring locations by foot. A biological monitor will accompany the surveyors to prevent disturbance to special status biological resources and to assist in determining boring locations that will not result in any impacts to sensitive biological resources.
- Initial biological clearance surveys will be conducted within identified (i.e. staked) drilling site locations and access routes to identify special status biological resources. These surveys will focus on location and avoidance of any regulated waters, sensitive vegetation, suitable habitat for Stephen's kangaroo rat, coastal Cailfornia gnatcatcher, burrowing owl burrows, and other nesting bird locations (if drilling is to occur during nesting season). This will be conducted 1 to 2 weeks prior to initiation of drilling on the site.
- The sites and access roads will be reassessed each day (i.e., daily biological sweep) prior to drilling to confirm the presence and absence of biological resources and to determine if any previously unknown resources have moved into work areas or access roads.

Biological Monitoring

Based on the results of the biological clearance surveys, the following biological monitoring requirements would apply.

- A biological monitor will accompany drilling crews full-time to assure that resources are avoided and drilling crews follow environmental procedures. The biological monitor will be a qualified biologist who is familiar with the species in the area their habitats, their tracks, signs, nesting behavior,

burrows and dens. The biological monitor will ensure that there is no take of any special status species.

- Monitoring will be conducted at all boring locations and along the access roads. Monitoring will assure that resources are avoided through flagging, maintenance of appropriate avoidance buffers, or through relocation of boring locations if needed to avoid sensitive resources.
- The biological monitor, in cooperation with the SCE Lead Biologist, has the authority to stop work should issues of non-compliance arise.
- As appropriate and in cooperation with CDFG, a qualified biologist will determine the end of nesting season.
- If work encroaches into the general nesting bird season (February 15 – August 31) and occupied nests are observed during biological clearance surveys, monitors will flag an appropriate buffer for avoidance to ensure that nests are not negatively impacted by the geotechnical work. The buffer will be dependent on a variety of factors including: species, protection status, nesting behavior, including signs of agitation and nest disruption, and surrounding environment.
- Appropriate bird buffer avoidance areas are described below. The buffer areas shall be flagged by the qualified biological monitor prior to any drilling equipment entering the work areas:
    - Buffers around active bird nests shall be established per the "Active Nest Management and Buffer Modification" Plan (Plan) prepared in cooperation with CDFG; Buffers will be established by the qualified biological monitor based on this Plan guidance and observations ensuring that nest disruption is not occurring.
    - Establish a 250-foot around burrowing owl burrows (if February 1 to August 31)
    - Establish a 160-foot around burrowing owl burrows (if September 1 to January 31)
    - No take of CGN is permitted, nor is removal of habitat suitable for their presence.
- No take of SKR is permitted. All burrow complexes shall be avoided. Should any small mammal burrows be observed within existing (i.e., currently used) dirt roads, plywood will be used to evenly distribute the weight of the equipment traveling over the road thus preventing crushing of the burrows.
- All woodrat middens shall be flagged and avoided by establishing a 30-foot buffer during their breeding season (February 1 – May 31) and a 5-foot buffer outside of their breeding season.

- All reptiles observed in the vicinity of work areas or within/along access roads shall be relocated out of harm's way.

- Sensitive plant species will be avoided. If necessary, the biological monitor will assist the crews in repositioning drill rigs and other equipment to ensure avoidance of any sensitive plants

- The biological monitor shall ensure that all equipment is placed outside of drip line for oaks and other trees.
- The biological monitor shall establish a 100-foot buffer around jurisdictional waters by implementing applicable Best Management Practices (BMPs) (e.g. silt fencing).

Attachment A

Vicinity Map

Attachment B

Preliminary Boring Locations
and
Special Status Biological Resources

Attachment C

Photographs of Similar Geotechnical Boring Programs

The following photographs illustrate a typical drilling rig and boring activities to the program planned for the San Joaquin Cross Valley Loop Transmission project. These photographs were taken of a recent geotechnical boring program conducted by Southern California Edison in southern California.

Typical Drilling Operation Showing Augers. The augers will not be allowed to remain on the ground for this project

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Drill Rig Starting Boring Operation

Boring Site Prior to Drilling

Boring Site After Completion of Boring and Back Filling

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Jeff Miller
Title: Project Manager
Dated: 07/20/2011

Question 7.12.1:

a. The response to Data Gap 7.12 indicated that the amount of water needed for dust suppression could not be estimated. It is acknowledged that there would be variables, but Table 52 in Appendix H of the PEA indicates that unpaved roads would be watered twice per day, reducing fugitive dust emissions from motor vehicle use by 55%. Provide an estimate for the amount of water that would be required to control fugitive dust.

b. Estimate the amount of water required for other construction activities.

Response to Question 7.12.1:

a. The factor used for road dust emission in Table 55, Motor Vehicle Entrained Road Dust Emission Factors, not Table 52, SCAB Fleet Average Emission Factors (Diesel), in Appendix H is an example of an AQMD mitigation measure as it states in column "Control Efficiency %", footnote 'd': *Control efficiency from watering unpaved roads twice per day, from Table XI-D, Mitigation Measure Exmaples, Fugitive Dust from Unpaved Roads, http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html* . This information was used since SCE initially stated that the amount of water needed could not be estimated.

With the caveat that there may be variables, for subtransmission and transmission activities, SCE estimates that approximately 1.53 million gallons of water may be used to control fugitive dust during construction of the Proposed Project.

b. With the caveat that there may be variables, SCE typically requests approximately 250,000 gallons of water per day for substation construction. This would include dust suppression for the earth moving activities and moisture conditioning of the soils for compaction purposes.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-014

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 08/22/2011

Question 8.1.2:

The response to Data Gap Request 8.1.1 indicates that to make the output from an additional transformer at Valley Substation for the Valley South System useful, an approximately 20-mile 115-kV subtransmission line would need to be constructed from Valley Substation to Pauba Substation.

Explain why construction of a 20-mile line to Pauba Substation is relevant to an alternative that would install an additional transformer at Valley Substation to meet demand projected in proximity to the proposed Alberhill Substation site. Provide the assumptions and calculations that lead to the conclusion that a new 115-kV line to Pauba Substation would be required due to construction of the proposed Alberhill System Project or confirm that the need for the new line to Pauba Substation exists regardless of approval to construct the proposed Alberhill System Project

Response to Question 8.1.2:

SCE understood Question 8.1.1 to ask about the upgrades at Valley that would need to be included to expand the Valley South 115 kV System such that the Alberhill System Project would not be needed or could be deferred. It also asks about the third transformer not a fourth, as stated above.

SCE's answer to Question 8.1.1 indicated that in lieu of constructing the Alberhill System Project, the identified upgrades would be needed to further build out the Valley South 115 kV System to address the load requirements (transformer and any 115 kV lines). This covered any upgrades specifically needed as part of the requirement to utilize this added transformer capacity and well as any upgrades needed in spite of the transformer capacity addition (i.e., those needed for functionality of the Valley South 115 kV System with or without the Alberhill System Project - specifically the Valley-Pauba 115 kV line project which is a project that is needed either way). This project was included, as the answer was developed to answer to the specific question of what upgrades would need to occur in the Valley South 115 kV System to make it functional in the absence of the Alberhill System Project.

The Valley-Pauba 115 kV line project is needed whether or not the Alberhill System Project is constructed. It would not be a required system upgrade resulting from the addition of a third load-serving transformer on the Valley South 115 kV System.

INTERCONNECTION FACILITIES AGREEMENT

BETWEEN

INLAND EMPIRE ENERGY CENTER, LLC

AND

SOUTHERN CALIFORNIA EDISON COMPANY

INTERCONNECTION FACILITIES AGREEMENT BETWEEN INLAND EMPIRE ENERGY CENTER, LLC AND SOUTHERN CALIFORNIA EDISON COMPANY

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**INTERCONNECTION FACILITIES AGREEMENT BETWEEN
INLAND EMPIRE ENERGY CENTER, LLC
AND
SOUTHERN CALIFORNIA EDISON COMPANY**

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**INTERCONNECTION FACILITIES AGREEMENT BETWEEN
INLAND EMPIRE ENERGY CENTER, LLC
AND
SOUTHERN CALIFORNIA EDISON COMPANY**

1. **Parties**:

The Parties to this Interconnection Facilities Agreement are Inland Empire Energy Center, LLC, ("IEEC"), a Delaware limited liability company and Southern California Edison Company ("SCE"), a California corporation, hereinafter sometimes referred to individually as "Party" and collectively as "Parties."

2. **Recitals**:

This Agreement is made with reference to the following facts, among others:

2.1. SCE is a California public utility engaged in the business of generating and transmitting electric energy in the States of Arizona, California, Nevada, and New Mexico. SCE is further engaged in the business of distributing such energy in the State of California.

2.2. Calpine Corporation ("Calpine") is a California corporation engaged in the development, construction, ownership and operation of power generation facilities and the sale of electricity predominantly in the United States, as well as in Canada and the United Kingdom, and among other things, was the original owner of IEEC.

2.3. IEEC is now an indirect, wholly owned subsidiary of General Electric Company ("GE"), and it owns and operates the Inland Empire Energy Center Project.

2.4. IEEC intends to design and construct the Inland Empire Energy Center Project and interconnect to the ISO Controlled Grid at SCE's Valley 500 kV Substation Switchyard via a 500 kV transmission line originating from the Inland Empire Energy Center Project generation station switchyard.

2.5. On August 7, 2000, Calpine submitted a request to SCE to interconnect the original 669 MW proposed project to the ISO Controlled Grid in accordance with the terms of SCE's Transmission Owner Tariff ("TO Tariff") in order to deliver Energy and/or Ancillary Services from the project to the ISO Controlled Grid.

2.6. SCE performed a System Impact Study, which was transmitted to Calpine on January 19, 2001, that indicated that SCE's electrical system is not adequate to accommodate the original proposed project and that upgrades and additions to SCE's electrical system are required.

2.7. SCE performed a Facilities Study, which was transmitted to Calpine on June 21, 2001, that identified the facilities and associated costs required to

accommodate the original proposed project.

2.8. SCE re-evaluated the load flow and short circuit duty results previously performed for the original proposed project, due to other generating projects preceding Calpine in SCE's interconnection queue having withdrawn their interconnection applications. Such re-evaluation, which was transmitted to Calpine on June 13, 2002 revised the list of identified facilities and associated costs required to accommodate the original proposed project.

2.9. On December 21, 2004, SCE received a copy of the new Generator Interconnection Application Form submitted by Calpine to the ISO. Calpine's revised Interconnection Application increased the rated output of the project to 810 MW and included machines different than those listed in the original application. The remainder of the original project was unchanged.

2.10. The Parties entered into a Combined System Impact and Facilities Study Agreement on March 25, 2005. SCE transmitted the results of the System Impact Study to IEEC on May 24, 2005.

2.11. The Parties entered into this Agreement on July 29, 2005, to specify the terms for SCE to provide Interconnection service; for SCE to engineer, design, construct, install, own, operate and maintain the Interconnection Facilities and Reliability Upgrades; and for IEEC to pay for such service and facilities.

2.12. This Agreement became effective on August 4, 2005, in accordance with FERC's letter order issued in Docket No. ER05-1287-000.

2.13. SCE completed a revised Facilities Study dated April 1, 2006, to determine the required facilities and associated costs required to accommodate the increase in rated output and change in machines associated with the Inland Empire Energy Center Project. Such revised Facilities Study was submitted to IEEC on March 30, 2006.

2.14. The Parties are concurrently entering into a letter agreement to amend this Agreement to specify the terms for SCE to engineer, design, construct, own, operate and maintain additional Reliability Upgrades required as a result of the April 1, 2006 Facilities Study and for IEEC to pay SCE for such work. Such amendment has been incorporated herein.

3. **Agreement**:

In consideration of the premises and the mutual covenants and agreements contained herein, the Parties agree as follows:

4. **Definitions**:

All terms with initial capitalization not otherwise defined herein shall have the meanings assigned to them in the TO Tariff as that Tariff may be amended from time to time. The following terms, when used herein with initial capitalization, whether in the singular or the plural, shall have the meanings specified:

4.1. Accounting Practice: Generally accepted accounting principles and practices applicable to electric utility operations.

4.2. Agreement: This Interconnection Facilities Agreement between Inland Empire Energy Center, LLC and Southern California Edison Company.

4.3. Authorized Representative: The representative of a Party designated in accordance with Section 18.

4.4. Capital Additions: Any Units of Property which are added to the Interconnection Facilities; the enlargement, modification or betterment of any Units of Property constituting a part of the Interconnection Facilities; or the replacement of any Units of Property constituting a part of the Interconnection Facilities, irrespective of whether such replacement constitutes an enlargement, modification or betterment of that which it replaces; the costs of which additions, enlargements, modifications, betterments or replacements in accordance with Accounting Practice would be capitalized and have not previously been included in the Interconnection Facilities Cost.

4.5. Capital Additions Cost: All costs, excluding One-Time Cost, determined by SCE to be associated with the design, engineering, procurement, construction and installation of Capital Additions.

4.6. Capital Additions Payment: The sum of the Capital Additions Cost and associated One-Time Cost.

4.7. CPUC: The California Public Utilities Commission, or its regulatory successor.

4.8. Credit Provider: Provider of any Credit Support.

4.9. Credit Support: Parent guarantee, letter of credit, surety bond, cash or other security meeting the requirements of Section 7.2.

4.10. Customer-Financed Interconnection Facilities: Facilities, as specified in Exhibit A-1, financed by IEEC and owned by SCE to interconnect the Inland Empire Energy Center Project to the ISO Controlled Grid, as such facilities may be modified during the term of this agreement.

4.11. Customer-Financed Interconnection Facilities Cost: All costs, excluding One-Time Cost, determined by SCE to be associated with the design, engineering, procurement, construction and installation of the Customer-Financed Interconnection Facilities. The Customer-Financed Interconnection Facilities Cost is provided in Exhibit B.

4.12. Customer-Financed Monthly Rate: The rate most recently adopted by the CPUC for application to SCE's retail electric customers for customer- financed added facilities, which does not compensate SCE for replacement of added facilities. The currently effective Customer-Financed Monthly Rate is stated in Exhibit B.

4.13. FERC: Federal Energy Regulatory Commission, or its regulatory successor.

4.14. Generation Tie-Line Facilities Agreement: The agreement entered into by IEEC and SCE on July 29, 2005, to specify the terms for (i) SCE to engineer, design, procure, construct, install, own, operate and maintain a 500 kV generation tie-line from the Inland Empire Energy Center Project switchyard to the interconnection at SCE's Valley Substation, and appurtenant facilities; (ii) SCE to apply to the CPUC for regulatory approvals required for

construction of the generation tie-line, and appurtenant facilities; and (iii) IEEC to pay SCE to engineer, design, procure, construct, install, own, operate and maintain the generation tie-line and to apply to the CPUC for a Certificate of Public Convenience and Necessity for construction of the generation tie-line and appurtenant facilities.

4.15. Inland Empire Energy Center Project: All equipment and facilities comprising the Inland Empire Energy Center generating station, as disclosed by Calpine in its interconnection application, totaling 810 MW, including but not limited to two "H System" natural gas combined cycle combustion turbine generating system units, which consist of two General Electric Company combustion

turbine generators and one Toshiba steam turbine generator per H System unit, two 19.5 kV/525 kV step up power transformers, meters, Remote Terminal Units, switchgear and appurtenant facilities.

4.16. Interconnection Facilities: The Customer Financed Interconnection Facilities and the SCE-Financed Interconnection Facilities.

4.17. Interconnection Facilities Charge: The monthly charge to IEEC to recover the revenue requirements for the Interconnection Facilities, calculated as the sum of (a) the product of the Customer-Financed Monthly Rate and the Customer-Financed Interconnection Facilities Cost; and (b) the product of the SCE-Financed Monthly Rate and the SCE-Financed Interconnection Facilities Cost as provided in Exhibit B.

4.18. Interconnection Facilities In-Service Date: The date upon which the construction of the Interconnection Facilities is complete and such facilities are successfully tested and ready for service.

4.19. Interconnection Facilities Payment: The sum of the Customer-Financed Interconnection Facilities Cost, and associated One-Time Cost. The Interconnection Facilities Payment is provided in Exhibit B.

4.20. IRS: The Internal Revenue Service.

4.21. One-Time Cost: All costs determined by SCE to be associated with the installation of Interconnection Facilities, Reliability Upgrades or Capital Additions which are not capitalized. The Interconnection Facilities One-Time Cost and Reliability Upgrades One-Time Cost is provided in Exhibit B.

4.22. Reliability Upgrades: Facilities, as specified in Exhibit A-2, beyond the first point of interconnection, excluding the Interconnection Facilities, necessary to interconnect the Inland Empire Energy Center Project safely and reliably to SCE's electrical system and the ISO Controlled Grid, which facilities would not be necessary but for the interconnection of the Inland Empire Energy Center Project (and other projects with interconnection applications preceding that of Calpine), including without limitation, upgrades necessary to remedy short circuit or stability problems potentially resulting from the interconnection of the Inland Empire Energy Center Project (and other projects with interconnection applications preceding that of Calpine) to SCE's electrical system and the ISO Controlled Grid, as such facilities may be modified during the term of this Agreement.

4.23. Reliability Upgrades Cost: All costs, excluding One-Time Cost, determined by SCE to be associated with the design, engineering, procurement, construction and installation of the Reliability Upgrades. The Reliability Upgrades Cost is provided in Exhibit B.

4.24. Reliability Upgrades In-Service Date: The date upon which the construction of the Reliability Upgrades is complete and such facilities are successfully tested and ready for service.

4.25. Reliability Upgrades Payment: The sum of the Reliability Upgrades Cost, and associated One-Time Cost. The Reliability Upgrades Payment is provided in Exhibit B.

4.26. Removal Cost: The actual cost SCE incurs for the removal of the Interconnection Facilities, which is calculated as the amount, if positive, of the costs of removal minus the salvage value of the Interconnection Facilities.

4.27. SCE-Financed Interconnection Facilities: Facilities, as specified in Exhibit A-1, financed and owned by SCE to interconnect the Inland Empire Energy Center Project to the ISO Controlled Grid, as such facilities may be modified during the term of this Agreement.

4.28. SCE-Financed Interconnection Facilities Cost: All costs, excluding One-Time Cost, determined by SCE to be associated with the design, engineering, procurement, construction and installation of the SCE-Financed Interconnection Facilities. The SCE-Financed Interconnection Facilities Cost is provided in Exhibit B.

4.29. SCE-Financed Monthly Rate: The rate most recently adopted by the CPUC for application to SCE's retail electric customers for SCE-financed added facilities, which does not compensate SCE for replacement of added facilities. The currently effective SCE-Financed Monthly Rate is stated in Exhibit B.

4.30. Special Protection System ("SPS"): A system that reduces or trips generation under contingency outages to maintain system stability or to limit overloads on system facilities.

4.31. Units of Property: As described in FERC's "List of Units of Property for Use in Connection with Uniform System of Accounts Prescribed for Public Utilities and Licensees" in effect as of the date of this Agreement, and as such list may be amended from time to time.

4.32. WECC: The Western Electricity Coordinating Council or a successor entity.

5. **Effective Date And Term**:

5.1. This Agreement shall become effective upon the effective date ordered by FERC ("Effective Date").

5.2. This Agreement shall terminate on the earliest of: (i) the date thirty (30) years from the Interconnection Facilities In-Service Date, (ii) termination date of the Generation Tie-Line Facilities Agreement entered into by the Parties, (iii) the date specified by IEEC upon one hundred eighty (180) calendar days advance written notice to SCE if the notice of termination is received by SCE on or after the earliest of the Interconnection Facilities In-Service Date or the Reliability Upgrades In-Service Date, (iv) the date specified by IEEC upon thirty (30) calendar days written notice to SCE if the notice of termination is received by SCE before the earliest of the Interconnection Facilities In-Service Date or the Reliability Upgrades In-Service Date, (v) the date specified pursuant to Section 8.12, or (v) the date specified pursuant to Section 15.4. In addition SCE shall have the right to terminate this Agreement subject to FERC acceptance and

approval, if IEEC: (1) notifies SCE that it terminates its plan to complete and energize the Inland Empire Energy Center Project prior to the Interconnection Facilities In-Service Date; or (2) fails to utilize the Interconnection Facilities provided under this Agreement for a period of two consecutive years or more following the Interconnection Facilities In-Service Date (except for any period when IEEC does not utilize the Interconnection Facilities due to the occurrence of an Uncontrollable Force or default of SCE under this Agreement).

5.3. Any obligations of one Party to the other, including payment obligations, as a result of this Agreement, which accrued prior to or as a result of termination of this Agreement, shall survive termination.

5.4. If IEEC has given notice of termination and a filing with FERC is required to terminate this Agreement, IEEC shall support such filing before the FERC if requested by SCE.

5.5. Upon termination of this Agreement, IEEC shall pay SCE any remaining balance owed for SCE's costs incurred or irrevocably committed to be incurred pursuant to this Agreement as of the effective date of termination, within sixty (60) calendar days following receipt of a billing from SCE requiring such payment. Such billing shall reflect all payments received by SCE, which shall be credited against the amount of SCE's costs and expenses incurred or irrevocably committed to be incurred in accordance with this Agreement.

6. **Agreement Pursuant To The TO Tariff**:

This Agreement governs services pursuant to the TO Tariff as such Tariff may be amended from time to time. Accordingly, the rights and obligations of the Parties pursuant to this Agreement are subject to applicable provisions of the TO Tariff, including without limitation its provisions regarding indemnification and Uncontrollable Force, in addition to the provisions of this Agreement. In case of a conflict in the terms contained in this Agreement and the terms in the TO Tariff, the terms of the TO Tariff shall apply. IEEC has read and is familiar with the terms of the TO Tariff.

7. **Creditworthiness**:

7.1. Upon the Effective Date and until all payment obligations of IEEC to SCE under this Agreement, including any obligation to pay Removal Costs in accordance with Section 12.2, 14.1 and 15.2 have been finally and irrevocably paid after the termination date pursuant to Section 5, IEEC shall either maintain Eligible Credit Ratings or provide and maintain additional security as described in Section 7.2 clauses (a) through (e). Eligible Credit Ratings means with respect to an entity, that such entity's senior unsecured long-term debt is rated at least Baa3 from Moody's Investor Service, Inc. ("Moody's") or BBB- from Standard and Poor's Corporation ("S&P").

7.2. Within the earlier of (i) one year after the Effective Date or, (ii) the Interconnection Facilities In-Service Date, IEEC shall provide to SCE, in a form that is acceptable to SCE in its sole discretion, evidence that IEEC has the ratings specified in Section 7.1. If at any time during the applicable period as specified in this Section 7.2, IEEC fails to maintain such ratings, IEEC shall provide to SCE, in a form that is acceptable to SCE in its sole discretion; (a) an unconditional and irrevocable guarantee of IEEC's obligations from an entity that meets the ratings specified in Section 7.1; (b) an unconditional and irrevocable letter of credit in US dollars from a depository institution organized under the laws of the United States of America or any State (or any domestic branch of a foreign bank), which (i) has either (A) a long-term unsecured debt rating of A or higher by S&P and A2 or higher by Moody's or (B) a certificate of deposit rating of A-1+ by S&P and P-1 by Moody's, and (ii) whose deposits are insured by FDIC, together with evidence of such ratings; (c) an unconditional and irrevocable surety bond in US dollars issued by an insurance company that has and maintains an Insurance Financial Strength rating of A2 or higher from Moody's and A or higher from S&P, and is rated no less than A- (with a minimum size rating of VIII) by Best's Insurance Guide and Key Ratings, together with evidence of such ratings; (d) cash or (e) other security that is acceptable to SCE in its sole discretion.

7.3. Until all payment obligations of IEEC to SCE under this Agreement, including any obligation to pay Removal Costs in accordance with Sections 12.2, 14.1 and 15.2, have been finally and irrevocably paid after the termination date

pursuant to Section 5, if any such applicable rating is reduced at any time, IEEC shall notify SCE in writing within five (5) calendar days after such reduction.

7.4. Any Credit Support provided hereunder shall be payable in at least the amount specified in Section 7.5, and shall be issued in favor of or for the benefit of SCE and its successors and assignees, and shall state that it may be drawn upon in whole or in part by SCE or its successors or assignees at any time (i) if a substitute Credit Support meeting the requirements of Section 7.2 is not provided within fifteen (15) calendar days after any reduction in the applicable rating of the Credit Provider meeting the requirements of Section 7.2 below the level specified herein; (ii) if a substitute Credit Support has not been provided at least thirty (30) calendar days before any expiration of the Credit Support; or (iii) upon any failure by IEEC to make any payment required by this Agreement when due and following the expiration of any applicable cure period, pursuant to Section 15.4.

7.5. The amount available to be drawn under any Credit Support shall be equal to $204,800.00. The disposition of any released Credit Support shall be directed by IEEC.

7.6. In addition to the provisions described above, any Credit Support provided hereunder shall contain such terms, conditions, waivers, representations, covenants, and other provisions as may be customary for similar instruments delivered in the State of California, as approved by SCE in its reasonable discretion.

8. **Interconnection Principles**:

8.1. SCE shall design, engineer, procure, construct, install and own the Interconnection Facilities and Reliability Upgrades pursuant to Good Utility Practice and apply for any regulatory approvals necessary for the construction, operation and maintenance of the Interconnection Facilities and Reliability Upgrades.

8.2. IEEC, at its sole expense, shall engineer, design, procure, construct, install and own the Inland Empire Energy Center Project.

8.3. IEEC shall connect the Inland Empire Energy Center Project with SCE's electrical system in accordance with all applicable ISO, WECC and NERC criteria, SCE specifications, and Good Utility Practice.

8.4. IEEC shall execute the Reliability Management System Agreement in Exhibit E.

8.5. Certain metering and communications equipment required for SCE to obtain real-time telemetry from IEEC in accordance with Section 10.7 and Interconnection Facilities (which may include such metering and communications equipment) will be located on property which is leased or owned by IEEC. IEEC shall grant, or cause to be granted, easements to SCE for the term of this Agreement, at no cost to SCE, providing for appropriate space and access rights for installation, operation, maintenance, replacement

and removal of such metering and communications equipment, Interconnection Facilities and Special Protection Systems. SCE and IEEC shall make all arrangements necessary to effectuate such easements.

8.6. IEEC shall acquire all permits and other approvals in addition to completing all environmental impact studies necessary for the construction, operation, and maintenance of the Inland Empire Energy Center Project. IEEC shall include the Interconnection Facilities and Reliability Upgrades in all such environmental impact studies. IEEC shall provide the results of such studies and approvals to SCE for use in SCE's application(s) to obtain any regulatory approvals required to be obtained by SCE for the construction of SCE's facilities.

8.7. At SCE's request, IEEC shall provide to SCE those electrical specifications and design drawings pertaining to the Inland Empire Energy Center Project which may potentially have an impact on the SCE transmission and distribution system, as determined by SCE, for SCE's review prior to finalizing the design and before beginning construction work based on such specifications and drawings. IEEC shall provide to SCE reasonable advance written notice of any changes in the Inland Empire Energy Center Project and provide to SCE specifications and design drawings of any such changes for SCE review and approval. Such approval shall not be unreasonably withheld. SCE may require modifications to such specifications and design drawings as it deems necessary to allow SCE to operate its electric system in accordance with Good Utility Practice.

8.8. SCE shall have the right to review and consult with IEEC regarding IEEC's construction schedule for the Inland Empire Energy Center Project.

8.9. SCE shall have the right to inspect the Inland Empire Energy Center Project prior to initial operation upon advance notice to IEEC. IEEC, at its option, may be present at such inspection.

8.10. SCE shall use commercially reasonable efforts to construct, successfully test and declare ready for service the Interconnection Facilities and Reliability Upgrades on or before twenty four (24) months following the Effective Date. However, IEEC understands and acknowledges that such date is only an estimate and that equipment and material lead times, labor availability, outage coordination, regulatory approvals, or other unforeseen events could delay the actual in-service date beyond that specified.

8.11. The maximum capacity of the Interconnection Facilities made available by SCE to IEEC for the purpose of the interconnection of the Inland Empire Energy Center Project to the ISO Controlled Grid under this Agreement shall be 790 MW. IEEC acknowledges that if IEEC wishes to increase the amount of Interconnection capacity provided pursuant to this Agreement, IEEC shall be required to submit a new application in accordance with the terms and conditions of the TO Tariff.

8.12. After the Inland Empire Energy Center Project is synchronized to the transmission system, IEEC shall provide SCE advance notice prior to making any changes (other than maintenance) to the generation, power transformation,

or transmission facilities and equipment which comprise the Inland Empire Energy Center Project. IEEC shall notify SCE within a reasonable time prior to the date when any such changes are planned to be placed in service so that SCE and the ISO can evaluate any potential system impacts which may occur as a result of such changes and whether such changes will require a new application pursuant to the ISO Tariff. If IEEC fails to provide SCE advance notice of changes to the generation, power transformation, or transmission equipment and facilities comprising the Inland Empire Energy Center Project and any such change does or may cause material system impacts or is or may be materially inconsistent with the service provided pursuant to this Agreement, SCE shall have the right to terminate this Agreement subject to FERC acceptance or approval.

8.13. The costs associated with any mitigation measures required to third party transmission systems resulting from the interconnection of the Inland Empire Energy Center Project to SCE's electrical system are not reflected in this Agreement. SCE shall have no responsibility to pay costs associated with any such mitigation measures.

8.14. In the event the Interconnection Facilities are utilized to provide retail service to IEEC in addition to the wholesale Interconnection service provided herein, and IEEC fails to make payment for such retail service in accordance with SCE's applicable retail tariffs, the Interconnection Facilities may be removed from service to IEEC, subject to the notice and cure provisions of such retail tariffs, until payment is made by IEEC pursuant to such retail tariffs.

9. **Interconnected Operations**:

9.1. SCE shall operate and maintain the Interconnection Facilities in accordance with the applicable ISO Tariff provisions and protocols, TO Tariff provisions, WECC and NERC reliability criteria, established operating procedures and Good Utility Practice as they may change from time to time.

9.2. IEEC shall operate and maintain the Inland Empire Energy Center Project in accordance with the applicable ISO Tariff provisions and protocols, TO Tariff provisions, WECC and NERC reliability criteria, established operating procedures and Good Utility Practice as they may change from time to time.

9.3. The operating power factor at the point of interconnection to the ISO Controlled Grid at Valley Substation shall be at unity unless IEEC is otherwise notified by SCE or the ISO to maintain a specified voltage schedule while operating within the power factor range of 0.90 boost to 0.95 buck.

9.4. The Inland Empire Energy Center Project shall be operated so as to prevent or

protect against the following adverse conditions on SCE's electric system: inadvertent and unwanted re-energizing of a utility dead line or bus; interconnection while out of synchronization; overcurrent; voltage imbalance; ground faults; generated alternating current frequency outside permitted safe limits; poor power factor or reactive power outside permitted limits; and abnormal waveforms.

9.5. The Inland Empire Energy Center Project shall be operated with all of IEEC's protective apparatus in service whenever the Inland Empire Energy Center Project is connected to, or is operated in parallel with, SCE's electric system. Any deviation for brief periods of emergency or maintenance shall only be by agreement of the Authorized Representatives.

9.6. IEEC shall cause the Inland Empire Energy Center Project to participate in ISO congestion management. IEEC is aware that the Inland Empire Energy Center Project will compete with other market generation for available transmission capacity in accordance with ISO protocols.

9.7. IEEC shall cause the Inland Empire Energy Center Project to participate in any SPS required to prevent thermal overloads and unstable conditions resulting from outages. Such participation shall be in accordance with applicable FERC regulations, and ISO Tariff provisions and protocols. IEEC will not be entitled to any compensation from SCE, pursuant to this Agreement, for loss of generation output if (i) Inland Empire Energy Center Project generation is reduced or tripped off-line due to implementation of the SPS; or (ii) such generation output is restricted in the event the SPS becomes inoperable.

9.8. IEEC shall maintain operating communications with SCE's designated switching center. The operating communications shall include, but not be limited to, system parallel operation or separation, scheduled and unscheduled outages, equipment clearances, protective relay operations, and levels of operating voltage and reactive power.

9.9. IEEC shall not commence initial parallel operation of the Inland Empire Energy Center Project with SCE's electric system until written approval for operation of the Inland Empire Energy Center Project has been given by SCE. Such approval shall not be unreasonably withheld. Following outages of the Interconnection Facilities or the Inland Empire Energy Center Project, IEEC shall not energize the Inland Empire Energy Center Project for any reason without specific permission from SCE operations. Such permission shall not be unreasonably withheld.

9.10. IEEC shall provide written notice to SCE at least fourteen (14) calendar days prior to the initial and subsequent testing of IEEC's protective apparatus. IEEC's protective apparatus shall be tested at intervals not to exceed four (4) years. All such tests shall be performed using qualified personnel. SCE shall have the right to have a representative present at the initial and subsequent testing of IEEC's protective apparatus and to receive copies of the test results.

9.11. SCE shall not have any responsibility for protection of the Inland Empire Energy Center Project. IEEC shall be responsible for protecting the Inland Empire Energy Center Project in such a manner that faults or other

disturbances on SCE's electric system do not cause damage to the Inland Empire Energy Center Project.

9.12. SCE may require IEEC, at IEEC's expense, to demonstrate to SCE's satisfaction the correct calibration and operation of IEEC's protective apparatus at any time SCE has reason to believe that said protective apparatus may impair SCE's electric system integrity.

9.13. The Parties shall cooperate with one another in scheduling maintenance to the Interconnection Facilities or the Inland Empire Energy Center Project or in taking the Interconnection Facilities or the Inland Empire Energy Center Project out of service, provided that in an emergency SCE may take the Interconnection Facilities out of service without notice to IEEC. The Parties shall use commercially reasonable efforts to avoid performing regularly scheduled maintenance during system peak conditions.

9.14. Subsequent to the Interconnection Facilities In-Service Date, IEEC shall notify SCE by January 1, May 1, and September 1 of each year, of the estimated scheduled maintenance for the succeeding four months.

9.15. Review by SCE of the electrical specifications, design, construction, operation, or maintenance of the Inland Empire Energy Center Project shall not constitute any representation as to the economic or technical feasibility, operational capability, or reliability of such facilities. IEEC shall in no way represent to any third party that any such review by SCE of such facilities, including, but not limited to, any review of the design, construction, operation, or maintenance of such facilities by SCE, is a representation by SCE as to the economic or technical feasibility, operational capability, or reliability of the Inland Empire Energy Center Project.

9.16. This Agreement governs the Interconnection of the Inland Empire Energy Center Project to the ISO Controlled Grid pursuant to the TO Tariff and as described herein. IEEC shall be responsible for making all necessary operational arrangements with the ISO, including, without limitation, arrangements for obtaining transmission service from the ISO, and for scheduling delivery of energy and other services to the ISO Controlled Grid.

10. **Metering**:

10.1. The ISO meters shall be located on IEEC's side of the point of interconnection.

10.2. IEEC shall be responsible for the installation, maintenance and certification of ISO quality metering for the Inland Empire Energy Center Project in accordance with applicable ISO Tariff provisions and metering protocol.

10.3. IEEC shall own all ISO metering infrastructure and be responsible for all costs of such infrastructure including, without limitation, testing and certification of ISO metering.

10.4. IEEC shall be responsible for obtaining ISO approval for the installation of ISO metering at the Inland Empire Energy Center Project prior to operation.

10.5. IEEC shall be responsible for any loss correction factor applicable to IEEC's metering in accordance with applicable ISO Tariff provisions and metering

protocol.

10.6. Metering of IEEC generation and load shall be in accordance with applicable ISO Tariff provisions and metering protocol and applicable SCE retail tariffs, respectively. Any ISO meters shall be capable of measuring energy flow to and from the point of interconnection and shall satisfy the technical requirements for participation in the wholesale market and for taking retail service.

10.7. IEEC shall deliver to SCE real-time telemetry generator unit data, which shall include, for each generator unit, MW, MVAR, generator status, generator circuit breaker status and generator output voltage.

11. **Capital Additions**:

11.1. SCE shall engineer, design, construct, install, own, operate and maintain all Capital Additions pursuant to Good Utility Practice.

11.2. Except as otherwise provided in Section 11.3, whenever Capital Additions are required by SCE pursuant to Good Utility Practice (which may include compliance with system or regulatory requirements), IEEC shall pay all charges associated with such Capital Additions in accordance with Section 15.

11.3. In the event that Capital Additions are required in order to benefit SCE, or because of damage caused by negligence or willful misconduct of SCE, IEEC shall not bear cost responsibility for such Capital Additions. No adjustment will be made to the Interconnection Facilities Cost and no Capital Additions Cost, or One-Time Cost will be charged to IEEC for such Capital Additions.

12. **Removal Of Interconnection Facilities**:

12.1. Following termination of this Agreement, SCE will remove the Interconnection Facilities from service to IEEC.

12.2. On or before the date one year following termination of this Agreement, SCE shall notify IEEC, in writing, whether SCE intends to physically remove the Interconnection Facilities or any part thereof. If SCE intends to physically remove the Interconnection Facilities or any part thereof, then SCE shall physically remove such facilities within two years from the date of notification of intent, and IEEC shall pay the Removal Cost in accordance with Sections 14.1 and 15.2. If SCE does not intend to physically remove the Interconnection Facilities or any part thereof, then IEEC shall have no obligation to pay such Removal Cost.

13. **Other Taxes**:

13.1. **IEEC Payments Not Taxable**. The Parties intend that all payments or property transfers made by IEEC to SCE for the installation of Interconnection Facilities, Capital Additions and Reliability Upgrades shall be non-taxable, either as contributions to capital, or as a refundable advance, in accordance with the Internal Revenue Code and any applicable state income tax laws and shall not be taxable as contributions in aid of construction or otherwise under

the Internal Revenue Code and any applicable state income tax laws.

13.2. **Representations And Covenants**. In accordance with IRS Notice 2001-82 and IRS Notice 88-129, IEEC represents and covenants that (i) ownership of the electricity generated at the Inland Empire Energy Center Project will pass to another party prior to the transmission of the electricity on the ISO Controlled Grid, (ii) for income tax purposes, the amount of any payments and the cost of any property transferred to SCE for SCE's Interconnection Facilities and Capital Additions will be capitalized by IEEC as an intangible asset and recovered using the straight-line method over a useful life of twenty (20) years, and (iii) any portion of SCE's Interconnection Facilities or Capital Additions that is a "dual-use intertie," within the meaning of IRS Notice 88-129, is reasonably expected to carry only a de minimis amount of electricity in the direction of the Inland Empire Energy Center Project. For this purpose, "de minimis amount" means no more than 5 percent of the total power flows in both directions, calculated in accordance with the "5 percent test" set forth in IRS Notice 88-129. This is not intended to be an exclusive list of the relevant conditions that must be met to conform to IRS requirements for non-taxable treatment.

At SCE's request, IEEC shall provide SCE with a report from an independent engineer confirming its representation in clause (iii), above. SCE represents and covenants that the cost of SCE's Interconnection Facilities and Capital Additions paid for by IEEC without possibility of refund or credit will have no net effect on the base upon which rates are determined.

13.3. **Indemnification for the Cost Consequences of Current Tax Liability Imposed Upon SCE**. Notwithstanding Section 13.1, IEEC shall protect, indemnify and hold harmless SCE from the cost consequences of any current tax liability imposed against SCE as the result of payments or property transfers made by IEEC to SCE under this Agreement for Interconnection Facilities or Capital Additions, as well as any interest and penalties, other than interest and penalties attributable to any delay caused by SCE. IEEC shall reimburse SCE for such costs on a fully grossed-up basis, in accordance with Section 13.4, within thirty (30) calendar days of receiving written notification from SCE of the amount due, including detail about how the amount was calculated.

SCE shall not include a gross-up for the cost consequences of any current tax liability in the amounts it charges IEEC under this Agreement unless (i) SCE has determined, in good faith, that the payments or property transfers made by IEEC to SCE should be reported as income subject to taxation or (ii) any Governmental Authority directs SCE to report payments or property as income subject to taxation; provided, however, that IEEC shall, within thirty (30) days of the Effective Date, provide security in the form of an unconditional and irrevocable letter of credit ("Letter of Credit") for Interconnection Facilities and Capital Additions, in a form reasonably acceptable to SCE, in the amount of

$240,000.00 which equal to the cost consequences of any current tax liability under this Section 13. Such Letter of Credit shall be issued from a Creditworthy entity. "Creditworthy" means that the outstanding debt securities of the relevant entity shall have an unsecured long-term debt rating of A2 or higher from Moody's Investor Service, Inc. ("Moody's") or A or higher from Standard and Poor's Corporation ("S&P") or if such entity does not have an unsecured debt rating, it shall have an issuer rating of A2 or higher from Moody's or A or higher from S&P.

The indemnification obligation shall terminate at the later of (1) the expiration of the ten year testing period and the applicable statute of limitation, as it may be extended by SCE upon request of the IRS, to keep these years open for audit or adjustment, or (2) the date the risk of subsequent taxability as described in Section 13.6 no longer exists, as reasonably determined by SCE.

13.4. **Tax Gross-Up Amount**. IEEC's liability for the cost consequences of any current tax liability under this Section 13 shall be calculated on a fully grossed-up basis. Except as may otherwise be agreed to by the Parties, this means that IEEC will pay SCE, in addition to the amount paid for the Interconnection Facilities, Capital Additions and Reliability Upgrades an amount equal to (1) the current taxes imposed on SCE ("Current Taxes") on the excess of (a) the gross income realized by SCE as a result of payments or property transfers made by IEEC to SCE under this Agreement (without regard to any payments under this Section 13) (the "Gross Income Amount") over (b) the present value of future tax deductions for depreciation that will be available as a result of such payments or property transfers (the "Present Value Depreciation Amount"), plus (2) an additional amount sufficient to permit SCE to receive and retain, after the payment of all Current Taxes, an amount equal to the net amount described in clause (1).

For this purpose, (i) Current Taxes shall be computed based on SCE's composite federal and state tax rates at the time the payments or property transfers are received and SCE will be treated as being subject to tax at the highest marginal rates in effect at that time (the "Current Tax Rate"), and (ii) the Present Value Depreciation Amount shall be computed by discounting SCE's anticipated tax depreciation deductions as a result of such payments or property transfers by SCE's current weighted average cost of capital. Thus, the formula for calculating IEEC's liability to SCE pursuant to this Section 13.4 can be expressed as follows: (Current Tax Rate x (Gross Income Amount – Present Value of Tax Depreciation))/(1-Current Tax Rate). IEEC's estimated tax liability in the event taxes are imposed is stated in Section 13.3.

13.5. **Private Letter Ruling or Change or Clarification of Law**. At IEEC's request and expense, SCE shall file with the IRS a request for a private letter ruling as to whether any property transferred or sums paid, or to be paid, by IEEC to SCE under this Agreement are subject to federal income taxation. IEEC will prepare the initial draft of the request for a private letter ruling, and

will certify under penalties of perjury that all facts represented in such request are true and accurate to the best of IEEC's knowledge. SCE and IEEC shall cooperate in good faith with respect to the submission of such request; provided, however, IEEC and SCE explicitly acknowledge (and nothing herein is intended to alter) SCE's obligation under law to certify that the facts presented in the ruling request are true, correct and complete.

SCE shall keep IEEC fully informed of the status of such request for a private letter ruling and shall execute either a privacy act waiver or a limited power of attorney, in a form acceptable to the IRS, that authorizes IEEC to participate in all discussions with the IRS regarding such request for a private letter ruling. SCE shall allow IEEC to attend all meetings with IRS officials about the request and shall permit IEEC to prepare the initial drafts of any follow-up letters in connection with the request.

13.6. **Subsequent Taxable Events**. If (i) IEEC breaches the covenants contained in Section 13.2, (ii) a "disqualification event" occurs within the meaning of IRS Notice 88-129, or (iii) this Agreement terminates and SCE retains ownership of the Interconnection Facilities, Capital Additions and Reliability Upgrades, IEEC shall pay a tax gross-up for the cost consequences of any current tax liability imposed on SCE, calculated using the methodology described in Section 13.4 and in accordance with IRS Notice 90-60.

13.7. **Contests**. In the event any Governmental Authority determines that SCE's receipt of payments or property constitutes income that is subject to taxation, SCE shall notify IEEC, in writing, within thirty (30) Calendar Days of receiving notification of such determination by a Governmental Authority. Upon the timely written request by IEEC and at IEEC's sole expense, SCE may appeal, protest, seek abatement of, or otherwise oppose such determination. Upon IEEC's written request and sole expense, SCE may file a claim for refund with respect to any taxes paid under this Section 13, whether or not it has received such a determination. SCE reserves the right to make all decisions with regard to the prosecution of such appeal, protest, abatement or other contest, including the selection of counsel and compromise or settlement of the claim, but SCE shall keep IEEC informed, shall consider in good faith suggestions from IEEC about the conduct of the contest, and shall reasonably permit IEEC or a IEEC representative to attend contest proceedings.

IEEC shall pay to SCE on a periodic basis, as invoiced by SCE, SCE's documented reasonable costs of prosecuting such appeal, protest, abatement or other contest, including any costs associated with obtaining the opinion of independent tax counsel described in this Section 13.7. SCE may abandon any contest if IEEC fails to provide payment to SCE within 30 calendar days of receiving such invoice.

At any time during the contest, SCE may agree to a settlement either with IEEC's consent or, if such consent is refused, after obtaining written advice

from independent nationally-recognized tax counsel, selected by SCE, but reasonably acceptable to IEEC, that the proposed settlement represents a reasonable settlement given the hazards of litigation. IEEC's obligation shall be based on the amount of the settlement agreed to by IEEC, or if a higher amount, so much of the settlement that is supported by the written advice from nationally-recognized tax counsel selected under the terms of the preceding paragraph. The settlement amount shall be calculated on a fully grossed-up basis to cover any related cost consequences of the current tax liability. SCE may also settle any tax controversy without receiving IEEC's consent or any such written advice; however, any such settlement will relieve IEEC from any obligation to indemnify SCE for the tax at issue in the contest (unless the failure to obtain written advice is attributable to IEEC's unreasonable refusal to the appointment of independent tax counsel.

13.8. **Refund**. In the event that (a) a private letter ruling is issued to SCE which holds that any amount paid or the value of any property transferred by IEEC to SCE under the terms of this Agreement is not subject to federal income taxation, (b) any legislative change or administrative announcement, notice, ruling or other determination makes it reasonably clear to SCE in good faith that any amount paid or the value of any property transferred by IEEC to SCE under the terms of this Agreement is not taxable to SCE, (c) any abatement, appeal, protest, or other contest results in a determination that any payments or transfers made by IEEC to SCE are not subject to federal income tax, or (d) if SCE receives a refund from any taxing authority for any overpayment of tax attributable to any payment or property transfer made by IEEC to SCE pursuant to this Agreement, SCE shall promptly refund to IEEC the following:

(i) any payment made by IEEC under this Section 13 for taxes that is attributable to the amount determined to be non-taxable, together with interest thereon,

(ii) interest on any amounts paid by IEEC to SCE for such taxes which IEEC did not submit to the taxing authority, calculated in accordance with the methodology set forth in FERC's regulations at 18 C.F.R. §35.19a(a)(2)(iii) from the date payment was made by IEEC to the date SCE refunds such payment to IEEC, and

(iii) with respect to any such taxes paid by SCE, any refund or credit SCE receives or to which it may be entitled from any Governmental Authority, interest (or that portion thereof attributable to the payment described in clause (i), above) owed to SCE for such overpayment of taxes (including any reduction in interest otherwise payable by SCE to any Governmental Authority resulting from an offset or credit); provided, however, that SCE will remit such amount promptly to IEEC only after and to the extent that SCE has received a tax refund, credit or offset from any Governmental Authority for any applicable overpayment of income tax related to IEEC's Interconnection Facilities or Capital Additions.

The intent of this provision is to leave the Parties, to the extent practicable, in the event that no taxes are due with respect to any payment for Interconnection Facilities, Capital Additions and Reliability Upgrades hereunder, in the same position they would have been in had no such tax payments been made.

13.9. **Taxes Other Than Income Taxes.** Upon the timely request by IEEC, and at IEEC's sole expense, SCE may appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against SCE for which IEEC may be required to reimburse SCE under the terms of this Agreement. IEEC shall pay to SCE on a periodic basis, as invoiced by SCE, SCE's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. IEEC and SCE shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by IEEC to SCE for such taxes until they are assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, IEEC will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by SCE.

14. **Charges**:

14.1. IEEC shall pay to SCE the following charges in accordance with this Agreement: (a) Interconnection Facilities Payment; (b) Reliability Upgrades Payment; (c) Interconnection Facilities Charge; (d) Capital Additions Payment; (e) any reimbursable FERC fees pursuant to Section 19.4; (f) Removal Cost pursuant to Section 12; (g) other taxes pursuant to Section 13; and (h) termination charges pursuant to Section 5.5.

14.2. The Interconnection Facilities Cost, Reliability Upgrades Cost, Capital Additions Cost, One-Time Cost and Removal Cost shall be compiled in accordance with Accounting Practice.

14.3. If, during the term of this Agreement, SCE executes an agreement to provide service to another entity (other than retail load) which contributes to the need for the Interconnection Facilities, the charges due hereunder may be adjusted to appropriately reflect such service based on SCE's cost allocation principles in effect at such time and shall be subject to FERC approval.

14.4. SCE will provide transmission credits, with interest, in the amount of Reliability Upgrades Cost, and any applicable One-Time Cost associated with the Reliability Upgrades paid by IEEC. Such transmission credits shall be in the form of twenty (20) cash payments, including interest, paid to IEEC on the last business day of each quarter over five (5) year period. Payment of such transmission credits to IEEC will commence not earlier than sixty (60) days after the later of the following events: (i) the Reliability Upgrades In-Service Date; (ii) acceptance of operational control of the Reliability Upgrades by the ISO; or (iii) the commercial operation date of the Inland Empire Energy Center Project. Interest will be calculated in accordance with the methodology

specified for interest on refunds in FERC's regulations at 18 CFR section 35.19a(a)(2)(iii) from the date SCE received payment of the Reliability Upgrades Costs and applicable One-Time Costs from IEEC. Credit payments will be adjusted to reflect actual recorded Reliability Upgrades Costs pursuant to Section 15.1.8. All payments made to IEEC pursuant to this Section 14.4 shall be made in immediately available funds payable by wire transfer to a bank designated by IEEC. Nothing herein shall prejudice or affect SCE's or IEEC's ability to seek any modification or review of the FERC's final order in Docket No. RM02-1-000.

15. **Billing And Payment**:

15.1. **Billing Procedure**.

15.1.1. Except as otherwise specifically provided herein, commencing on or following the Effective Date, SCE will render bills to IEEC for charges and payments under this Agreement and IEEC shall pay such bills within twenty (20) calendar days of receipt of such bills. All payments shall be made in immediately available funds payable to SCE, or by wire transfer to a bank named by SCE.

15.1.2. IEEC shall make payments to SCE for the Interconnection Facilities Payment and Reliability Upgrades Payment according to the payment schedules shown in Exhibit C. The amounts of such Interconnection Facilities Payment and Reliability Upgrades Payment are based on SCE's cost estimates and shall be subject to later adjustment pursuant to Section 15.1.8.

15.1.3. Commencing on or following the Interconnection Facilities In-Service Date, each month SCE will render bills to IEEC for the Interconnection Facilities Charge. The Interconnection Facilities Charge payments shall initially be based on SCE's best estimate of the Interconnection Facilities Cost upon the Interconnection Facilities In-Service Date (such cost estimate may differ from the Interconnection Facilities Cost estimate set forth in Exhibit B), and such payments shall be subject to later adjustment pursuant to Sections 15.1.8.3 and 15.1.8.4. The Interconnection Facilities Charge for the first and last month of service hereunder shall be pro-rated based on the number of days in which service was provided during said months.

15.1.4. SCE will bill IEEC for the Capital Additions Payment prior to commencing any work on any Capital Additions in accordance with Section 11.2; provided that, at SCE's sole discretion, SCE may bill IEEC for the Capital Additions Payment after commencing such work if SCE determines that Capital Additions are required in accordance with safety or regulatory requirements or to preserve system integrity or reliability. Such

billing shall initially be based on SCE's cost estimates and shall be subject to later adjustment pursuant to Sections 15.1.8.1 and 15.1.8.2.

15.1.5. Except as otherwise provided in Section 11.3, if certain Interconnection Facilities are removed to accommodate such Capital Additions and such removal results in a change in the Interconnection Facilities Cost, the Interconnection Facilities Charge shall be adjusted as of the in-service date of such Capital Additions to reflect the change in the Interconnection Facilities Cost.

15.1.6. Except as otherwise provided in Section 11.3, if such Capital Additions result in an increase in the Interconnection Facilities Cost, then the Interconnection Facilities Charge shall be adjusted as of the in-service date of such Capital Additions to reflect the change in the Interconnection Facilities Cost.

15.1.7. Commencing on the Effective Date, SCE will render bills to IEEC for any reimbursable FERC fees in accordance with Section 19.4. Such billing shall be for any reimbursable FERC fees or costs incurred since the preceding billing.

15.1.8. Within twelve (12) months following the Interconnection Facilities In-Service Date, the Reliability Upgrades In-Service Date, or the in-service date of any Capital Additions, as the case may be, SCE shall determine the actual recorded Interconnection Facilities Cost, Reliability Upgrades Cost, or the Capital Additions Cost, including the associated One-Time Cost, and provide IEEC with a final invoice.

15.1.8.1. If the amounts paid for the estimated Interconnection Facilities Payment, Reliability Upgrades Payment, or the Capital Additions Payment are less than the amounts due for the Interconnection Facilities Payment, Reliability Upgrades Payment, or the Capital Additions Payment as determined from the actual recorded Interconnection Facilities Cost, Reliability Upgrades Cost, or the Capital Additions Cost, including the associated One-Time Cost, SCE will bill IEEC for the difference between the amounts previously paid by IEEC and the actual recorded costs, without interest, within twenty (20) calendar days of the date of such invoice

15.1.8.2. If the amounts paid for the estimated Interconnection Facilities Payment, Reliability Upgrades Payment, or the Capital Additions Payment are greater than the amounts due for the Interconnection Facilities Payment, Reliability Upgrades Payment, or the Capital Additions Payment as determined from the actual recorded Interconnection Facilities Cost, Reliability Upgrades Cost, or the Capital Additions Cost, including the associated One-Time Cost, SCE will refund IEEC the difference between the amounts previously paid by IEEC and the actual recorded costs, without interest, within twenty (20) calendar days of the date of such invoice.

15.1.8.3. If the amounts paid for the Interconnection Facilities Charge are less than the amounts due for the Interconnection Facilities Charge as determined from the actual recorded Interconnection Facilities Cost, SCE will bill IEEC for the difference between the amounts previously paid by IEEC and the amounts which would have been paid based on actual recorded costs, without interest, on the next regular billing.

15.1.8.4. If the amounts paid for the Interconnection Facilities Charge are greater than the amounts due for the Interconnection Facilities Charge as determined from the actual recorded Interconnection Facilities Cost, SCE will credit IEEC the difference between the amounts previously paid by IEEC and the amounts which would have been paid based on actual recorded costs, without interest, on the next regular billing.

15.1.9. Charges for payments upon termination shall be billed and paid as provided in Section 5.

15.2. **Removal Costs**.

15.2.1. If, in accordance with Section 12.2, SCE decides to physically remove the Interconnection Facilities, SCE shall render a bill to IEEC for the Removal Cost. IEEC shall pay the Removal Cost in accordance with Section 14.1. Such billing shall be initially based on SCE's estimate of the Removal Cost. Within 12 months following the removal of the Interconnection Facilities, SCE shall determine the recorded Removal Cost and provide IEEC with a final invoice.

15.2.2. If the amount paid for the Removal Cost is less than the amount due for the Removal Cost as determined from the actual recorded Removal Cost, SCE will bill IEEC for the difference between the amount previously paid by IEEC and the amount which would have been paid based on actual recorded costs, without interest, within twenty (20) calendar days of the date of such invoice.

15.2.3. If the amount paid for the Removal Cost is greater than the amount due for the Removal Cost as determined from the actual recorded Removal Cost, SCE will refund IEEC the difference between the amount previously paid by IEEC and the amount which would have been paid based on actual recorded costs, without interest, within twenty (20) calendar days of the date of such invoice.

15.3. **Interest On Unpaid Balances**.

Interest on any unpaid amounts shall be calculated in accordance with the methodology specified for interest on refunds in FERC's regulations at 18 C.F.R. Section 35.19a(a)(2)(iii). Interest on delinquent amounts shall be calculated from the due date of the bill to the date of payment. When payments

are made by mail, bills shall be considered as having been paid on the date of receipt by SCE.

15.4. **Default**.

In the event that IEEC fails for any reason to make payment to SCE on or before the due date as provided above, and such failure of payment is not corrected within thirty (30) calendar days after SCE notifies IEEC to cure such failure, a default by IEEC shall be deemed to exist. Upon the occurrence of a default, SCE shall have the right to terminate this Agreement subject to FERC acceptance or approval.

15.5. **Billing Dispute**.

In the event IEEC desires to dispute all or any part of any bill submitted by SCE, including, but not limited to, any bill submitted pursuant to Section 5.5 hereof, IEEC shall nevertheless pay the full amount of the bill when due and give written notification to SCE's Authorized Representative within one hundred eighty (180) calendar days from the date of the billing stating the grounds for the dispute and the amount in dispute. IEEC shall not be entitled to an adjustment on any bill not brought to the attention of SCE within the time and in the manner herein specified. For any payments to IEEC resulting from dispute resolutions, interest calculated in accordance with the methodology specified for interest on refunds in FERC's regulations at 18 C.F.R. Section 35.19a(a)(2)(iii) shall be added to the amount of any overpayment, and the entire amount refunded to IEEC.

15.6. **Addresses For Billing And Payment**.

15.6.1. All payments to be made by IEEC to SCE shall be sent to:

Southern California Edison Company
Accounts Receivable
Box 600
Rosemead, California 91770-0600
(626) 302-9448
(626) 302-9392

SCE may, at any time, by written notice to IEEC pursuant to Section 26, change the address to which payments will be sent.

15.6.2. All billings to be presented by SCE to IEEC shall be sent to:

Inland Empire Energy Center, LLC
Attn: Accounts Receivables

26226 Antelope Road
P. O. Box 1240
Romoland, California 92385
(951) 928-5908
(951) 928-5939 (Fax)

IEEC may, at any time, by written notice to SCE pursuant to Section 26, change the address to which billings will be sent.

16. **Disputes**:

With the exception of disputes referenced in Section 15.5 and except as otherwise limited by law, the ISO ADR Procedures set forth in Section 13 of the ISO Tariff shall apply to all disputes between IEEC and SCE which arise under this Agreement; provided, however, that the ISO ADR Procedures set forth in Section 13 of the ISO Tariff shall not be used to determine whether rates and charges set forth in this Agreement are just and reasonable under the Federal Power Act.

17. **Audits**:

17.1. SCE will maintain records and accounts of all costs incurred in sufficient detail to allow verification of all costs incurred, including, but not limited to, labor and associated labor burden, material and supplies, outside services, and administrative and general expenses.

17.2. IEEC shall have the right, upon reasonable notice, at a reasonable time at SCE's offices and at its own expense, to audit SCE's records and accounts as necessary and as appropriate in order to verify costs incurred by SCE. Any audit requested by IEEC shall be limited to the costs reflected in the final invoice as set forth in Sections 15.1.8 or 15.2.1, and shall be completed, and written notice of any audit dispute provided to SCE's Authorized Representative, within one hundred eighty (180) calendar days following receipt by IEEC of such final invoice.

18. **Authorized Representatives**:

18.1. In order to provide for the exchange of information and preparation of any necessary operating procedures or revisions to operating procedures regarding the activities required under this Agreement, each Party shall have an Authorized Representative as provided below.

18.2. Following execution of this Agreement and prior to the Interconnection Facilities In-Service Date, the Authorized Representatives shall be as follows:

Southern California Edison Company:
Mr. Frederick W. Salzmann
Project Manager
1321 South State College Boulevard

Fullerton, California 92831
(714) 626-4674
(714) 626-4710 (Fax)

Inland Empire Energy Center, LLC
Mr. John Gates
Commercial Manager, H System Asset Mgmt.
26226 Antelope Road
P. O. Box 1240
Romoland, California 92585
(951) 928-6905
(866) 210-6953 (Fax)

18.3. Upon and subsequent to the Interconnection Facilities In-Service Date, the Authorized Representatives shall be as follows:

Southern California Edison Company:
Mr. William Law
Manager of Grid Contracts
2244 Walnut Grove Avenue
Rosemead, California 91770
(626) 302-9640
(626) 302-1152 (Fax)

Inland Empire Energy Center, LLC
Mr. Francisco Escobedo
Director, Asset Management
26226 Antelope Road
P. O. Box 1240
Romoland, California 92585
(951) 928-5941
(951) 928-5939 (Fax)
frank.escobedo@ge.com

18.4. The Authorized Representatives are authorized to act on behalf of the Party they represent in the implementation of this Agreement. Any action taken or determination made by the Authorized Representatives in the implementation of this Agreement will be in writing.

18.5. The Authorized Representatives shall have no authority or power to modify, add, waive or eliminate any terms or conditions of this Agreement.

18.6. Either Party may at any time change the designation of its Authorized Representative by written notice to the other Party pursuant to Section 26.

19. **Regulatory Authority**:

19.1. No later than thirty (30) calendar days following the execution of this

Agreement, SCE shall tender this Agreement for filing with FERC with a request that it be made effective upon acceptance without suspension, and IEEC shall support SCE in obtaining all necessary authorizations and approvals

for this Agreement.

19.2. Upon issuance of the FERC's final and nonappealable order making effective the Large Generator Interconnection Procedures and Large Generator Interconnection Agreement ("LGIA") for SCE and the ISO, SCE agrees, at IEEC's sole option and after receiving a written request by IEEC, to file with FERC a request that this Agreement be terminated and replaced with the LGIA. If IEEC elects to execute an LGIA pursuant to this Section 19.2, the Parties agree to negotiate such LGIA in good faith.

19.3. Nothing contained herein shall be construed as affecting in any way: (i) the right of SCE to unilaterally make application to the FERC for a change in rates, charges, classification, or service, or any rule, regulation, or contract relating thereto, under Section 205 of the Federal Power Act and pursuant to the Rules and Regulations promulgated by FERC thereunder; (ii) the right of IEEC to oppose such changes under Section 205 of the Federal Power Act; (iii) the right of IEEC to file a complaint requesting a change in rates, charges, classification, or service, or any rule, regulation , or contract relating thereto, or rate methodology or design relating to services provided hereunder, under Section 206 of the Federal Power Act and pursuant to the rules and regulations promulgated by the FERC thereunder; or (iv) the right of SCE to oppose such complaint by IEEC under Section 206 of the Federal Power Act. Any change shall become effective pursuant to Section 205 of the Federal Power Act.

19.4. IEEC shall reimburse SCE for all fees and charges imposed on SCE by the FERC attributable to the service provided under this Agreement, or any amendments thereto.

20. **No Dedication Of Facilities**:

Any undertaking by one Party to the other Party under this Agreement shall not constitute the dedication of the electrical system or any portion thereof of the undertaking Party to the public or to the other Party, and it is understood and agreed that any such undertaking by a Party will cease upon the termination of its obligations hereunder.

21. **No Third Party Rights**:

Unless otherwise specifically provided in this Agreement, the Parties do not intend to create rights in or grant remedies to any third party as a beneficiary of this Agreement or of any duty, covenant, obligation, or undertaking established hereunder.

22. **Assignments**:

Neither Party shall assign or transfer any right, obligation, or privilege given to it under this Agreement without the prior written consent of the other Party. With respect to any request for a consent to an assignment in accordance with this Section 22, such consent shall not be unreasonably withheld. The assigning Party agrees that it shall remain liable for all obligations and liabilities of the assigning Party under this

Agreement up to the time of the Assignment. Moreover, any such assignment shall be void unless the assignee unconditionally agrees in writing to assume all of the assigning Party's obligations and liabilities under this Agreement, arising both prior to and after the assignment. Notwithstanding the above, either Party may, without the need for consent from the other Party, transfer, sell, pledge, encumber or assign the accounts, revenues, proceeds or savings realized or to be realized under this Agreement. IEEC may also transfer, lease, assign, mortgage, pledge, hypothecate or otherwise transfer its interest in this Agreement or any right, obligation or privilege hereunder in connection with any financing or other financial arrangements, as security for indebtedness incurred by IEEC; provided that as a condition precedent to the effectiveness of such assignment to a financing party, SCE shall consent to the assignment by executing the Consent to Assignment For Collateral Security in the form attached as Exhibit F hereto, and IEEC and the financing party shall also execute the Consent to Assignment For Collateral Security and agree to the terms set forth therein. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective permitted successors and assigns.

23. **Relationship Of Parties**:

The covenants, obligations, and liabilities of the Parties are intended to be several and not joint or collective, and nothing contained in this Agreement shall ever be construed to create an association, joint venture, trust, or partnership, or to impose a trust or partnership covenant, obligation, or liability on or with regard to either Party. Each Party will be individually responsible for its own covenants, obligations, and liabilities as provided in this Agreement. Neither Party shall be under the control of or will be deemed to control the other Party. Neither Party will be the agent of or have a right or power to bind the other Party without such other Party's express written consent.

24. **Waivers**:

Any waiver at any time by either Party of its rights with respect to a default under this Agreement, or with respect to any other matter arising in connection with this Agreement, will not be deemed a waiver with respect to any other or subsequent default or other matter arising in connection therewith. Any delay, short of any statutory period of limitation, in asserting or enforcing any right, will not be deemed a waiver of such right.

25. **Governing Law**:

Except as otherwise provided by federal law, this Agreement shall be governed by and construed in accordance with, the laws of the state of California.

26. **Notices**:

Any notice, demand, or request provided in this Agreement, or served, given, or made

in connection with it, will be in writing and deemed properly served, given, or made if delivered in person, transmitted by facsimile (followed by written confirmation) or sent by United States mail, postage prepaid, to the persons specified herein unless otherwise provided in this Agreement:

Southern California Edison Company
Mr. William Law
Manager of Grid Contracts
2244 Walnut Grove Avenue
Rosemead, California 91770
(626) 302-9640
(626) 302-1152 (Fax)
william.law@sce.com

Inland Empire Energy Center, LLC
Mr. Francisco Escobedo
Director, Asset Management
26226 Antelope Road
P. O. Box 1240
Romoland, California 92585
(951) 928-5941
(951) 928-5939 (Fax)
frank.escobedo@ge.com

Either Party may at any time, by notice to the other Party, change the designation or address of the person so specified as the one to receive notices pursuant to this Agreement.

27. **Severability**:

In the event that any term, provision, covenant, or condition of this Agreement or the application of any such term, covenant, or condition will be held invalid as to any person, entity, or circumstance by any court, arbitration, or regulatory authority having jurisdiction, the invalidity of such term, covenant or condition shall not affect the validity of any other term, provision, condition or covenant and such term, provision, covenant or condition shall remain in force and effect as applied to this Agreement to the maximum extent permitted by law. The Parties hereto further agree to negotiate in good faith to establish new and valid terms, conditions and covenants to replace any found invalid so as to place each Party as nearly as possible in the position contemplated by this Agreement.

28. **Entire Agreement**:

This Agreement constitutes the complete and final expression of the agreement between the Parties and is intended as a complete and exclusive statement of the terms of their agreement which supercede all prior and contemporaneous offers, promises, representations, negotiations, discussions, communications, and other agreements which may have been made in connection with the subject matter of this Agreement.

29. **Ambiguities**:

Ambiguities or uncertainties in the wording of this Agreement shall not be construed for or against any Party, but will be construed in the manner that most accurately reflects the Parties' intent as of the date they executed this Agreement.

30. **Signature Clause**:

The signatories hereto represent that they are authorized to enter into this Agreement on behalf of the Party for whom they sign. This Agreement is hereby executed as of the ____ day of _____, 2005.

SOUTHERN CALIFORNIA EDISON COMPANY

By: _____
Name: Ronald L. Litzinger
Title: Senior Vice President

INLAND EMPIRE ENERGY CENTER, LLC

By: _____
Name:
Title:

Exhibit A-1

Interconnection Facilities Description

I. Customer-Financed Interconnection Facilities

A. Valley Substation:

1. Engineer and install line protection relays and new Interconnection Facilities to terminate the new Inland Empire 500 kV transmission line at the existing 500 kV position 6X.

2. Telecommunications:

   a. Install two GE L90 channels, two RFL 9745 channels and one D60 channel, routed separately between the IEEC generating station and Valley Substation to provide redundant communication paths required to support the line protection relays.
   b. Install one 4-wire Power Management System ("PMS") circuit for the new RTU. This requires the installation of two new 1.5 mile runs of fiber optic cables on separate routes between the two facilities. An additional separate path will be provided by the Inland Empire 500 kV transmission line optical ground wire. Also install all related terminal equipment at the IEEC generating facility and Valley Substation.

3. Power System Controls:

   a. Install a new full size real-time RTU at the IEEC generating station to monitor the following elements:
      i. Gross and net MW
      ii. Gross and net MVAR
      iii. Inland-Valley 500 kV line loading
      iv. Status of each generation unit
      v. Status of each generation unit circuit breaker
      vi. Auxiliary load MW
      vii. Bus voltage
      viii. Circuit breaker status
      ix. Relays status-alarms
   b. Install additional points to the existing RTU at Valley Substation to monitor analog readings, circuit breaker controls, status and alarms and protection relay status and alarms for the new Inland Empire 500 kV transmission line.

4. Transmission:

   a. Inland Empire 500 kV Transmission Line

      Install three new 500-ft. spans of 2-2156 KCMIL ACSR conductors from the

first transmission structure outside Valley Substation perimeter fence to the existing substation dead-end rack at position 7X. This work requires the installation of six dead-end insulators/hardware assemblies and approximately 3,000 ft. of new 2156 KCMIL ACSR conductor and 500 ft. of fiber optic ground wire.

II. SCE-Financed Interconnection Facilities

A. Valley Substation:

1. Relocate the existing termination point of the Valley-Serrano 500kV line to Valley position 7X, resulting in the availability of an existing lattice tower which will be used to interconnect the IEEC generating site at position 6X

Exhibit A-2
Reliability Upgrades Facilities Description

A. Valley Substation:

1. Engineer and construct a new 4000A rated double breaker 500 kV line position 7X to upgrade the Serrano 500 kV transmission line termination to 4000A to support the line upgrade to 3960A. The position will include one line dead-end structure, two circuit breakers and four disconnect switches.

B. Serrano Substation:

1. Replace the 3000A rated GIS line drops on the Valley 500 kV line position with new 4000A rated equipment and all non-GIS conductors with new 4-in. Dia. E. H. IPS aluminum conductors to upgrade the position rating to 3950A.

C. Other Potential Facilities:

1. Pursuant to Paragraph 320 of FERC's Order on Rehearing, Issued March 5, 2004 Regarding Standardization of Generation Interconnection Agreements and Procedures, FERC directed the interconnection provider ("SCE") to provide an estimate of the interconnection customer's ("IEEC") maximum possible funding exposure. Therefore, the following description of work and table listed below provides the maximum possible funding exposure:
   a. IEEC understands and acknowledges that the Interconnection of the IEEC Project is dependent upon certain Reliability Upgrades which are currently the cost responsibility of projects ahead of the IEEC Project in SCE's interconnection application queue. In the event (i) a project in the queue ahead of the IEEC Project is withdrawn from the queue, or (ii) it is determined by SCE or the ISO that some or all of the Reliability Upgrades currently assigned to earlier-queued projects are no longer required by such projects, IEEC may be responsible for an amount up to the maximum cost exposure of the Reliability Upgrades identified in this Exhibit A-2.
   b. Furthermore, IEEC may also be responsible for the cost of any additional facilities or modifications to SCE's electric system required to interconnect the IEEC Project as a result of the termination or amendment of another project's interconnection agreement. IEEC's revised cost responsibility for the Reliability Upgrades, and for any such additional facilities or modifications, if any, would be reflected in an amendment to this Agreement. Such amendment shall be subject to FERC acceptance or approval.
   c. While IEEC is currently responsible for the Reliability Upgrades identified in Sections A, B, C and D of this Exhibit A-2, IEEC may be responsible for all or a portion of the following other Reliability Upgrades, under the conditions described above, and provided that both Parties shall retain their full respective rights under then applicable FERC policy to contest SCE's

allocation of any such additional costs; and further provided that with respect to any such additional costs for Reliability Upgrades for which IEEC may become responsible, SCE shall be obligated to provide IEEC transmission credits, with interest, in accordance with FERC policy and the provisions of Section 14.4 hereof.

i. Devers Substation:
   1. Replace nine existing 40 kA, 220 kV circuit breakers with new 50 kA rated units and upgrade two existing 40 kA circuit breakers to 50 kA rating by installing three sets of TRV line-to-ground capacitors with individual support pedestals and corresponding foundations. Total of nine units.

ii. Etiwanda Generating Station 220 kV Switchyard:
   1. Replace six existing 45.6 kA, 220 kV circuit breakers with new 63 kA rated units and upgrade seventeen existing 50 kA circuit breakers to 63 kA rating by installing twelve sets of TRV line-to-ground capacitors with individual support pedestals and corresponding foundations. Total of thirty six units.

iii. Lewis Substation:
   1. Replace two existing 45.6 kA, 220 kV circuit breakers with new 50 kA rated units.

iv. Vista Substation:
   1. Upgrade twenty two existing 50 kA circuit breakers to 63 kA rating by installing twelve sets of TRV line-to-ground capacitors with individual support pedestals and corresponding foundations. Total of thirty six units.

Exhibit B

Interconnection Facilities and Reliability Upgrades Cost

(1) Customer-Financed Interconnection Facilities

(a) Estimated Cost

Element	Interconnection Facilities Cost	Reliability Upgrades Cost	Tax Liability for Interconnection Facilities	One-Time Cost	Total Cost
Valley Substation IEEC 500 kV Interconnection	**$ 1,194,000**		**$ 418,000**		**$ 1,612,000**
Valley Substation-Serrano 500 kV Upgrade		**$ 4,619,000**			**$ 4,619,000**
Serrano Substation Upgrade		**$ 350,000**			**$ 350,000**
Inland Empire 500 kV transmission line w/in Valley Substation	**$ 150,000**		**$ 53,000**		**$ 203,000**
Telecommunications	**$ 704,000**		**$ 246,000**		**$ 950,000**
Power Systems Control RTU	**$ 45,000**		**$ 16,000**		**$ 61,000**
Power Systems Control-Upgrades		**$ 15,000**			**$ 15,000**
Total	**$ 2,093,000**	**$ 4,984,000**	**$ 733,000**		**$ 7,810,000**

Interconnection Facilities Payment = (Interconnection Facilities Costs + One-Time Cost*) = $1,194,000+$150,000+$704,000+$45,000) = $2,093,000

Reliability Upgrades Payment = (Reliability Upgrades Costs + One-Time Cost**) = ($4,619,000+$350,000+$15,000) = $4,984,000

Tax Liability for Interconnection Facilities pursuant to Section 13.3 = $733,000

* One-Time Cost associated with Interconnection Facilities Only
** One-Time Cost associated with Reliability Upgrades Only

(b) Actual Cost

Element	Interconnection Facilities Cost (1)	Reliability Upgrades Cost	Tax Liability for Interconnection Facilities***	One-Time Cost	Total Cost
Valley Substation IEEC 500 kV Interconnection	**$ 17,111.10**				**$ 17,111.10**
Valley Substation-Serrano 500 kV Upgrade		**$ 4,984,000.00**			**$ 4,984,000.00**
Serrano Substation Upgrade					
Inland Empire 500 kV transmission line w/in Valley Substation					
Telecommunications	**$ 668,700.93** (1)			**$ 828.98**	**$ 669,529.91**
Power Systems Control RTU	**TBD**				**TBD**
Power Systems Control-Upgrades					
Tax Liability for Interconnection Facilities* **			**$ 240,000.00**		**$ 240,000.00**
Total	**$ 685,812.03**	**$ 4,984,000.00**	**$ 240,000.00**	**$ 828.98**	**$5,910,641.01**

Exhibit B (Cont.)

(1) The SAP Service Order #800297688 in the Valley Substation 500 kV Interconnection Upgrade will remain open to capture RTU test and Synchronization labor. A True Up for this service order will be performed once construction of IEEC's Unit 2 is complete and fully tested and synchronized.

Interconnection Facilities Payment = (Interconnection Facilities Cost + One-Time Cost*) = $685,812.03+$828.98 = $686,641.01

Reliability Upgrades Payment = Reliability Upgrades Cost**+OneTime Cost**= $4,984,000.00

Estimated Tax Liability for Interconnection Facilities pursuant to Section 13.3*** = $240,000

* One-Time Cost associated with Interconnection Facilities Only
** One-Time Cost associated with Reliability Upgrades Only
*** SCE is currently holding a Letter of Credit for the Estimated Tax Liability in the amount of $733,000 through Fortis Bank S.A./N.V. to be adjusted to reflect the new Estimated Tax Liability of $240,000

(2) SCE-Financed Interconnection Facilities

Actual Cost

Element	Interconnection Facilities Cost***	One-Time Cost	Total Cost
Valley Substation 500 kV	**$ 43,717.82**	**$ 0.00**	**$ 43,717.82**
Valley Substation-Serrano 500 kV	**$ 0.00**	**$ 0.00**	**$ 0.00**
Total	**$ 43,717.82**	**$ 0.00**	**$ 43,717.82**

*** The facilities were prorated to IEEC's Interconnection Facilities based on net book value.

(3) Interconnection Facilities Monthly Charge:

Effective Date	SCE-Financed Interconnection Facilities Cost	Customer-Financed Interconnection Facilities Cost	Total Charge
06/26/07 thru 04/03/09	**$ 581.45**	**$ 2,263.18**	**$ 2,844.63**
04/04/09 and after	**$ 585.82**	**$ 2,606.09**	**$ 3,191.91**

Exhibit B (Cont.)

Where

(a) Customer-Financed Interconnection Facilities

Estimated Interconnection Facilities Charge = Customer-Financed Monthly Rate x Interconnection Facilities Costs:

Effective Date	Customer-Financed Monthly Rate	Estimated Interconnection Facilities Cost	Interconnection Facilities Charge Based on Estimated Cost	Actual Interconnection Facilities Cost	Interconnection Facilities Charge Based on Actual Cost
06/26/07 thru 04/03/09	**0.33%**	**$ 2,093,000**	**$ 6,906.90**	**$ 685,812.03**	**$ 2,263.18**
04/04/09 and after	**0.38%**	**$ 2,093,000**	**$ 7,953.40**	**$ 685,812.03**	**$ 2,606.09**

(b) SCE-Financed Interconnection Facilities

Effective Date	**SCE-Financed Monthly Rate**	**Estimated Interconnection Facilities Cost**	**Interconnection Facilities Charge Based on Estimated Cost**	**Actual Interconnection Facilities Cost**	**Interconnection Facilities Charge Based on Actual Cost**
06/26/07 thru 04/03/09	**1.33%**	**$ 0.00**	**$ 0.00**	**$ 43,717.82**	**$ 581.45**
04/04/09 and after	**1.34%**	**$ 0.00**	**$ 0.00**	**$ 43,717.82**	**$ 585.82**

* Actual Facilities In-Service Date is June 26, 2007.

(4) Maximum Cost Exposure for the Other Potential Facilities:

Element	**Costs**
Devers Substation:	**$ 4,557,000**
Vista Substation:	**$ 1,668,000**
Etiwanda Substation:	**$ 4,428,000**
Lewis Substation:	**$ 920,000**
Total	**$ 11,573,000**

Exhibit C

Engineering and Construction Payment Summary

Payment Period					Due Date
	Interconnection Facilities Cost	Reliability Upgrades Cost	One-Time Cost	Project Payment	
1	$55,000	$183,000		$238,000	Ten days after Effective Date
2	$113,000	$378,000		$491,000	September 15, 2005
3	$222,000	$685,000		$907,000	December 15, 2005
4	$216,000	$611,000		$827,000	March 15, 2006
5	$448,000	$1,397,000		$1,845,000	June 15, 2006
6	$402,000	$1,291,000		$1,693,000	September 15, 2006
7	$637,000	$439,000		$1,076,000	Thirty Days after the amendment is filed with FERC
Total	$2,093,000	$4,984,000		$7,077,000	Payment based on estimated cost
	($1,407,187.97)		$828.98	($1,406,358.99) * *$15,000.00 of the partial true up refund amount is being held for the remaining testing and synchronization labor.	Refund due pursuant to Section 15.1.8 of the Interconnection Facilities Agreement
Total	$ 685,812.03	$4,984,000	$ 828.98	$ 5,670,641.01	Actual Cost

Exhibit D

One-Line Diagram

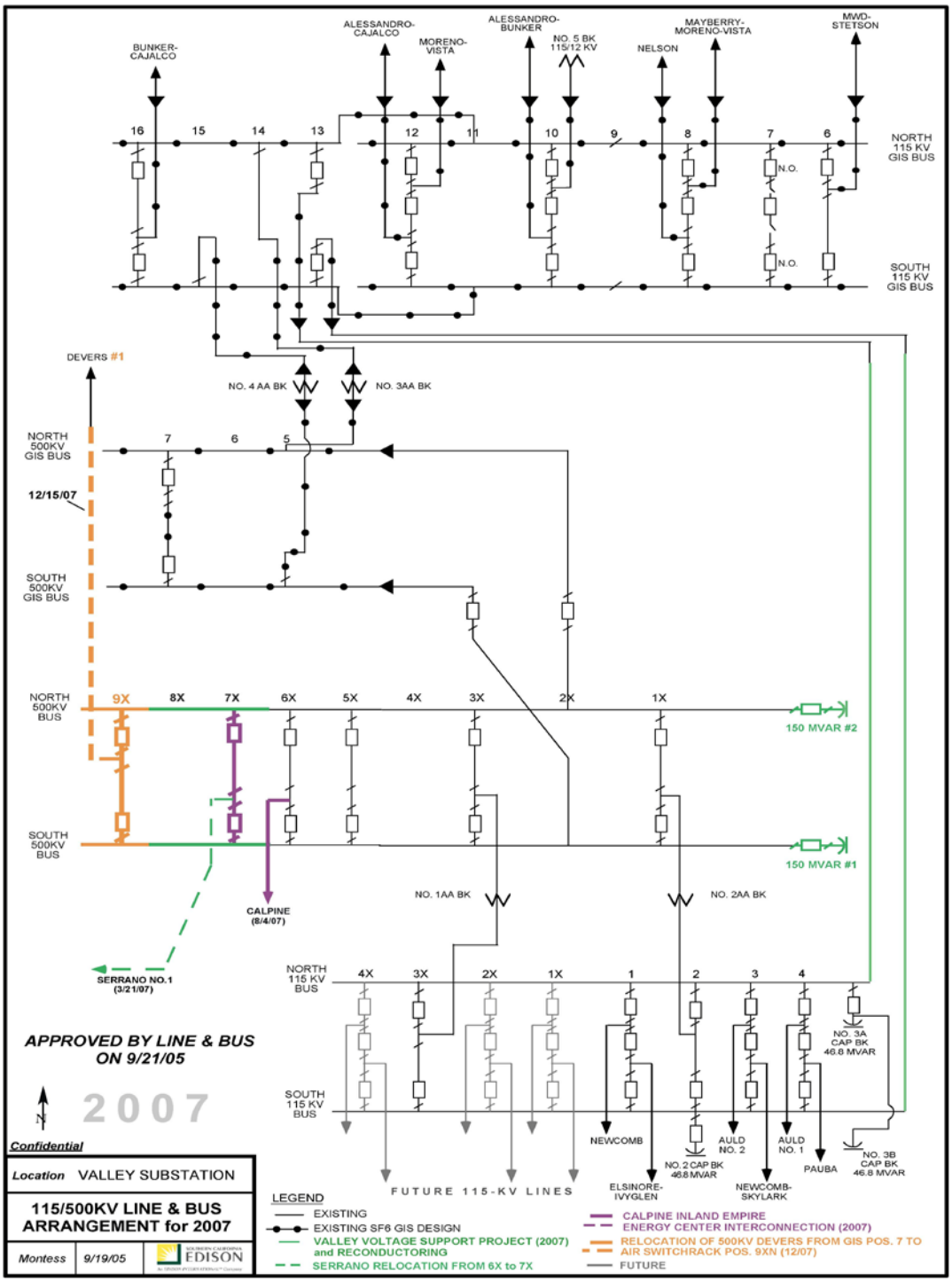


Exhibit E

RELIABILITY MANAGEMENT SYSTEM AGREEMENT

by and between

SOUTHERN CALIFORNIA EDISON COMPANY

and

INLAND EMPIRE ENERGY CENTER, LLC

THIS RELIABILITY MANAGEMENT SYSTEM AGREEMENT (the "Agreement"), is entered into this ____ day of _____, 2005, by and between Southern California Edison Company (the "Transmission Operator") and Inland Empire Energy Center, LLC (the "Generator").

WHEREAS, there is a need to maintain the reliability of the interconnected electric systems encompassed by the WECC in a restructured and competitive electric utility industry;

WHEREAS, with the transition of the electric industry to a more competitive structure, it is desirable to have a uniform set of electric system operating rules within the Western Interconnection, applicable in a fair, comparable and non-discriminatory manner, with which all market participants comply; and

WHEREAS, the members of the WECC, including the Transmission Operator, have determined that a contractual Reliability Management System provides a reasonable, currently available means of maintaining such reliability.

NOW, THEREFORE, in consideration of the mutual agreements contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Transmission Operator and the Generator agree as follows:

1. PURPOSE OF AGREEMENT

The purpose of this Agreement is to maintain the reliable operation of the Western Interconnection through the Generator's commitment to comply with certain reliability standards.

2. DEFINITIONS

In addition to terms defined in the beginning of this Agreement and in the Recitals hereto, for purposes of this Agreement the following terms shall have the meanings set forth beside them below.

Control Area means an electric system or systems, bounded by interconnection metering and telemetry, capable of controlling generation to maintain its interchange schedule with other Control Areas and contributing to frequency regulation of the Western Interconnection.

FERC means the Federal Energy Regulatory Commission or a successor agency.

Member means any party to the WECC Agreement.

Party means either the Generator or the Transmission Operator and **Parties** means both of the Generator and the Transmission Operator.

Reliability Management System or **RMS** means the contractual reliability management program implemented through the WECC Reliability Criteria Agreement, the WECC RMS Agreement, this Agreement, and any similar contractual arrangement.

Western Interconnection means the area comprising those states and provinces, or portions thereof, in Western Canada, Northern Mexico and the Western United States in which Members of the WECC operate synchronously connected transmission systems.

Working Day means Monday through Friday except for recognized legal holidays in the state in which any notice is received pursuant to Section 8.

WECC means the Western Electricity Coordinating Council or a successor entity.

WECC Agreement means the Western Electricity Coordinating Council Agreement dated March 20, 1967, as such may be amended from time to time.

WECC Reliability Criteria Agreement means the Western Electricity Coordinating Council Reliability Criteria Agreement dated June 18, 1999 among

the WECC and certain of its member transmission operators, as such may be amended from time to time.

WECC RMS Agreement means an agreement between the WECC and the Transmission Operator requiring the Transmission Operator to comply with the reliability criteria contained in the WECC Reliability Criteria Agreement.

WECC Staff means those employees of the WECC, including personnel hired by the WECC on a contract basis, designated as responsible for the administration of the RMS.

3. TERM AND TERMINATION

3.1 Term. This Agreement shall become effective thirty (30) days after the date of issuance of a final FERC order accepting this Agreement for filing without requiring any changes to this Agreement unacceptable to either Party. Required changes to this Agreement shall be deemed unacceptable to a Party only if that Party provides notice to the other Party within fifteen (15) days of issuance of the applicable FERC order that such order is unacceptable.

3.2 Notice of Termination of WECC RMS Agreement. The Transmission Operator shall give the Generator notice of any notice of termination of the WECC RMS Agreement by the WECC or by the Transmission Operator within fifteen (15) days of receipt by the WECC or the Transmission Operator of such notice of termination.

3.3 Termination by the Generator. The Generator may terminate this Agreement as follows:

(a) following the termination of the WECC RMS Agreement for any reason by the WECC or by the Transmission Operator, provided such notice is provided within forty-five (45) days of the termination of the WECC RMS Agreement;

(b) following the Effective Date of an amendment to the requirements of the WECC Reliability Criteria Agreement that adversely affects the Generator, provided notice of such termination is given within forty-five (45) days of the date of issuance of a FERC order accepting such amendment for filing, provided further that the forty-five (45) day period within which notice of termination is required may be extended by the Generator for an additional forty-five (45) days if the Generator gives written notice to the Transmission Operator of such requested extension within the initial forty-five (45) day period; or

(c) for any reason on one year's written notice to the Transmission Operator

and the WECC.

3.4 Termination by the Transmission Operator. The Transmission Operator may terminate this Agreement on thirty (30) days' written notice following the termination of the WECC RMS Agreement for any reason by the WECC or by the Transmission Operator, provided such notice is provided within thirty (30) days of the termination of the WECC RMS Agreement.

3.5 Mutual Agreement. This Agreement may be terminated at any time by the mutual agreement of the Transmission Operator and the Generator.

4. COMPLIANCE WITH AND AMENDMENT OF WECC RELIABILITY CRITERIA

4.1 Compliance with Reliability Criteria. The Generator agrees to comply with the requirements of the WECC Reliability Criteria Agreement, including the applicable WECC reliability criteria contained in Section IV of Annex A thereof, and, in the event of failure to comply, agrees to be subject to the sanctions applicable to such failure. Each and all of the provisions of the WECC Reliability Criteria Agreement are hereby incorporated by reference into this Agreement as though set forth fully herein, and the Generator shall for all purposes be considered a Participant, and shall be entitled to all of the rights and privileges and be subject to all of the obligations of a Participant, under and in connection with the WECC Reliability Criteria Agreement, including but not limited to the rights, privileges and obligations set forth in Sections 5, 6 and 10 of the WECC Reliability Criteria Agreement.

4.2 Modifications to WECC Reliability Criteria Agreement. The Transmission Operator shall notify the Generator within fifteen (15) days of the receipt of notice from the WECC of the initiation of any WECC process to modify the WECC Reliability Criteria Agreement. The WECC RMS Agreement specifies that such process shall comply with the procedures, rules, and regulations then applicable to the WECC for modifications to reliability criteria.

4.3 Notice of Modifications to WECC Reliability Criteria Agreement. If, following the process specified in Section 4.2, any modification to the WECC Reliability Criteria Agreement is to take effect, the Transmission Operator shall provide notice to the Generator at least forty-five (45) days before such modification is scheduled to take effect.

4.4 Effective Date. Any modification to the WECC Reliability Criteria Agreement shall take effect on the date specified by FERC in an order accepting such modification for filing.

4.5 Transfer of Control or Sale of Generation Facilities. In any sale or transfer of

control of any generation facilities subject to this Agreement, the Generator shall as a condition of such sale or transfer require the acquiring party or transferee with respect to the transferred facilities either to assume the obligations of the Generator with respect to this Agreement or to enter into an agreement with the Control Area Operator in substantially the form of this Agreement.

5. SANCTIONS

5.1 Payment of Monetary Sanctions. The Generator shall be responsible for payment directly to the WECC of any monetary sanction assessed against the Generator pursuant to this Agreement and the WECC Reliability Criteria Agreement. Any such payment shall be made pursuant to the procedures specified in the WECC Reliability Criteria Agreement.

5.2 Publication. The Generator consents to the release by the WECC of information related to the Generator's compliance with this Agreement only in accordance with the WECC Reliability Criteria Agreement.

5.3 Reserved Rights. Nothing in the RMS or the WECC Reliability Criteria Agreement shall affect the right of the Transmission Operator, subject to any necessary regulatory approval, to take such other measures to maintain reliability, including disconnection, which the Transmission Operator may otherwise be entitled to take.

6. THIRD PARTIES

Except for the rights and obligations between the WECC and Generator specified in Sections 4 and 5, this Agreement creates contractual rights and obligations solely between the Parties. Nothing in this Agreement shall create, as between the Parties or with respect to the WECC: (1) any obligation or liability whatsoever (other than as expressly provided in this Agreement), or (2) any duty or standard of care whatsoever. In addition, nothing in this Agreement shall create any duty, liability, or standard of care whatsoever as to any other party. Except for the rights, as a third-party beneficiary with respect to Sections 4 and 5, of the WECC against Generator, no third party shall have any rights whatsoever with respect to enforcement of any provision of this Agreement. Transmission Operator and Generator expressly intend that the WECC is a third-party beneficiary to this Agreement, and the WECC shall have the right to seek to enforce against Generator any provisions of Sections 4 and 5, provided that specific performance shall be the sole remedy available to the WECC pursuant to this Agreement, and Generator shall not be liable to the WECC pursuant to this Agreement for damages of any kind whatsoever (other than the payment of sanctions to the WECC, if so construed), whether direct, compensatory, special, indirect, consequential, or punitive.

7. REGULATORY APPROVALS

This Agreement shall be filed with FERC by the Transmission Operator under Section 205 of the Federal Power Act. In such filing, the Transmission Operator shall request that FERC accept this Agreement for filing without modification to become effective on the day after the date of a FERC order accepting this Agreement for filing.

8. NOTICES

Any notice, demand or request required or authorized by this Agreement to be given in writing to a Party shall be delivered by hand, courier or overnight delivery service, mailed by certified mail (return receipt requested) postage prepaid, faxed, or delivered by mutually agreed electronic means to such Party at the following address:

Transmission Operator:
Southern California Edison Company
Mr. William Law
Manager of Grid Contracts
2244 Walnut Grove Avenue
Rosemead, California 91770
Telephone No. (626) 302-9640
Telefax No. (626) 302-1152

Generator:
Inland Empire Energy Center, LLC
Mr. Francisco Escobedo
Director, Asset Management
26226 Antelope Road
P. O. Box 1240
Romoland, California 92585
(951) 928-5941
(951) 928-5939 (Fax)

The designation of such person and/or address may be changed at any time by either Party upon receipt by the other of written notice. Such a notice served by mail shall be effective upon receipt. Notice transmitted by facsimile shall be effective upon receipt if received prior to 5:00 p.m. on a Working Day, and if not received prior to 5:00 p.m. on a Working Day, receipt shall be effective on the next Working Day.

9. APPLICABILITY

This Agreement (including all appendices hereto and, by reference, the WECC Reliability Criteria Agreement) constitutes the entire understanding between the Parties hereto with respect to the subject matter hereof, supersedes any and all previous understandings between the Parties with respect to the subject matter hereof, and binds and inures to the benefit of the Parties and their successors.

10. AMENDMENT

No amendment of all or any part of this Agreement shall be valid unless it is reduced to writing and signed by both Parties hereto. The terms and conditions herein specified shall remain in effect throughout the term and shall not be subject to change through application to the FERC or other governmental body or authority, absent the agreement of the Parties.

11. INTERPRETATION

Interpretation and performance of this Agreement shall be in accordance with, and shall be controlled by, the laws of the State of California but without giving effect to the provisions thereof relating to conflicts of law. Article and section headings are for convenience only and shall not affect the interpretation of this Agreement. References to articles, sections and appendices are, unless the context otherwise requires, references to articles, sections and appendices of this Agreement.

12. PROHIBITION ON ASSIGNMENT

This Agreement may not be assigned by either Party without the consent of the other Party, which consent shall not be unreasonably withheld; provided that the Generator may without the consent of the WECC assign the obligations of the Generator pursuant to this Agreement to a transferee with respect to any obligations assumed by the transferee by virtue of Section 4.5 of this Agreement.

13. SEVERABILITY

If one or more provisions herein shall be invalid, illegal or unenforceable in any respect, it shall be given effect to the extent permitted by applicable law, and such invalidity, illegality or unenforceability shall not affect the validity of the other provisions of this Agreement.

14. COUNTERPARTS

This Agreement may be executed in counterparts and each shall have the same force and effect as an original.

IN WITNESS WHEREOF, the Transmission Operator and the Generator have each caused this Reliability Management System Agreement to be

executed by their respective duly authorized officers as of the date first above written.

SOUTHERN CALIFORNIA EDISON COMPANY

By:_____
Name: Ronald L. Litzinger
Title: Senior Vice President

INLAND EMPIRE ENERGY CENTER, LLC

By:_____
Name:
Title:

Exhibit F

Consent to Assignment For Collateral Security

CONSENT TO ASSIGNMENT FOR COLLATERAL SECURITY

Subject to the following conditions, Southern California Edison Company ("SCE"), a California corporation hereby consents to the assignment as collateral security of the Interconnection Facilities Agreement between it and Inland Empire Energy Center, LLC, a Delaware limited liability company ("Seller") dated [date], as amended, from Seller to _____, a _____ ("Collateral Assignee"). SCE, Seller and Collateral Assignee are sometimes referred to herein individually as a "Party" and jointly as the "Parties."

RECITALS

A. Pursuant to Section 22 of the Interconnection Facilities Agreement ("IFA"), Seller must obtain SCE's consent to any assignment of the IFA as collateral security.

B. Pursuant to the Security Agreement between Seller and Collateral Assignee, Seller wishes to assign the IFA to Collateral Assignee as collateral security.

C. SCE hereby consents to the "Assignment" of the IFA as collateral security by Seller to Collateral Assignee under the terms and conditions of this Consent to Assignment for Collateral Security ("Consent").

AGREEMENT

The Parties agree:

1. The Assignment is an assignment for security only and not a present assignment of Seller's rights, duties or obligations under the IFA.

2. If Collateral Assignee enforces the Assignment, it shall notify SCE pursuant to paragraph 9 of this Consent. Upon such notice, Collateral Assignee shall receive the rights and shall assume and be liable for each and every duty of obligation of the Seller (as such term is defined in the IFA) under the IFA. The duties and obligations include, but are not limited to, those duties and obligations that accrued prior to the Assignment. The obligations and liabilities of Collateral Assignee under the immediately preceding sentence shall be satisfied solely from the assets of Seller, including any assets

of Seller transferred to Collateral Assignee pursuant to enforcement of the assignment and which assets for the purposes of this Consent shall at a minimum include the IFA and the Inland Empire Energy Center Project (as defined in the IFA), and there shall be no separate recourse to any assets of Collateral Assignee.

3. Seller hereby acknowledges and agrees that it shall remain liable to SCE for the duties and obligations of Seller under the IFA if Collateral Assignee enforces the Assignment.

4. This Consent is neither a modification of, nor an amendment to, the IFA, which is, and shall remain, in full force and effect.

5. SCE's consent to the Assignment contained herein is also subject to the condition that the Assignment shall in no manner diminish SCE's rights or increase its obligations under the IFA.

6. Seller or, upon Collateral Assignee enforcement of this Assignment, Collateral Assignee, agrees to pay, and to hold SCE harmless from, any and all balance owed, loss, liability, damage, claim, cost or expense (including, without limitation, any direct, indirect or consequential loss, liability, damage, claim, cost or expense, including legal fees and expenses) in connection with or arising out of any of the transactions contemplated by the Assignment or this Consent. The obligations of Collateral Assignee under the immediately preceding sentence shall be satisfied solely from the assets of Seller, as described in Paragraph 2 of this Consent.

7. SCE is not a party to and has no obligation under any documents or agreements other than those it has signed. To the extent that this Consent is inconsistent with any other documents or agreement, as between the Parties, this Consent shall govern.

8. This Consent shall be binding upon, inure to the benefit of, and be enforceable by, SCE and its permitted successors and assigns and shall inure to the further benefit of, and be enforceable by, any assignee or transferee permitted hereby and by the IFA. No assignment of the IFA by Seller or Collateral Assignee, other than this Assignment, shall be valid without SCE's written consent, which consent shall not be unreasonably withheld.

9. All notices, requests, consents, approvals, elections, demands and other communications (all, "Notices") required or permitted to be given under this Consent shall be in writing and shall be given to a Party at the address set forth on the signature page hereof, or at such other address as such Party may hereafter specify for such purpose by Notice under this Paragraph 9. Such Notice shall be deemed to be made (i) on the fifth business day after deposit thereof in the United States mail, first class postage prepaid; (ii) when received if delivered by hand; (iii) when received in full if sent by facsimile transmission; or (iv) on the first business day following deposit in overnight mail, postage

prepaid.

10. This Consent shall be interpreted, governed and construed under the laws of the State of California (without giving effect to its conflict of laws provisions that could apply the law of another jurisdiction) as if executed in and to be performed wholly within the State of California.

11. Notwithstanding any right that they may otherwise have under law to venue in other counties or location, the Parties consent to jurisdiction and venue in Los Angeles County, California for any litigation or arbitration of any disputes of any nature arising out of or relating to this Consent, including without limitation, disputes sounding in contract, tort or based on statute or regulation, that the Parties are unable to settle between themselves.

12. This Consent may not be altered or modified by any of the Parties except by a written instrument executed by each of them.

13. The Parties acknowledge that they have read and understood this Consent. The Parties further acknowledge that, in entering into this Consent, they have been advised by attorneys of their choice. Further, all Parties have participated in the drafting and preparation of this Consent. Accordingly, no Party to this Consent shall be deemed to be the drafter of any part of it, and no ambiguity in its provisions shall be construed against any Party for that reason.

14. The Parties do not intend to create rights in, or grant remedies to, any third party as a beneficiary of this Consent or any duty, covenant, obligation or understanding established thereunder.

15. This Consent fully expresses the Parties' agreement concerning the subject matter hereof. It supersedes any prior agreement or understandings regarding the same subject matter.

16. This Consent may be executed in any number of counterparts, all of which together shall constitute a single instrument, and it shall not be necessary that any counterpart be signed by each Party.

17. The signatories hereto represent that they have been duly authorized to enter into this Consent on behalf of the Party for whom they sign.

18. This Consent shall be deemed dated on the date that the last Party executes it.

SOUTHERN CALIFORNIA EDISON COMPANY

By: _____
Name:
Title:
Date:

INLAND EMPIRE ENERGY CENTER, LLC

By: _____
Name:
Title:
Date:

[BANK]

By:_____
Name:
Title: Trust Officer
Date:_____

Address:

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-008

To: ENE
Prepared by: Lawren Minor
Title: Project Manager/Contracts
Dated: 05/14/2010

Question 8.2.1:

With respect to the IEEC generator, provide either a description of SCE's contract provisions pertaining to interconnection, wheeling, and power delivery to the SCE and CAISO systems, or provide a copy of the agreement.

Response to Question 8.2.1:

The attached document labeled, "TOT037-IEEC IFA(clean) 25May10.pdf", is is an Interconnection Facilities Agreement (IFA) between SCE and Inland Empire Energy Center, LLC. The CAISO is not a party to this agreement and there are no provisions for wheeling and delivery of energy to the CAISO grid in this agreement.

Sections 8 and 9 specifically deal with Interconnection Principles and Interconnection Operations and Section 9.16 as shown below specifically instructs IEEC that they must make separate arrangements with the CAISO for wheeling and delivery of their power over the CAISO grid.

9.16. This Agreement governs the Interconnection of the Inland Empire Energy Center Project to the ISO Controlled Grid pursuant to the TO Tariff and as described herein. IEEC shall be responsible for making all necessary operational arrangements with the ISO, including, without limitation, arrangements for obtaining transmission service from the ISO, and for scheduling delivery of energy and other services to the ISO Controlled Grid.

1 attachment

Alberhill-Energy Division-SCE-008 Q.8.2.1 - TOT037-IEEC IFA (CLEAN) 25MAY10.pdf

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-010

To: ENERGY DIVISION
Prepared by: Pamela Blue-Fraijo
Title: Transmission Planner 3
Dated: 08/20/2010

Question 12.18:

What is the maximum distance that could be spanned by each type of structure proposed for the 115-kV subtransmission lines (eg TSPs, LWS Poles, and LWS H-frames)? If the span distance varies depending on topography or structure type, use a map in your response to correspond span distances you are capable of accomplishing by locations along each route.

Response to Question 12.18:

There are no maximum span standards for any 115kv structures. Span lengths will be dictated by the engineering requirements and field circumstances such as the following: geographical loading districts (wind pressure/ice conditions), conductor diameter, weight, dead end tension, vertical loading, number of conductors, conductor points of attachment required to maintain G.O.95 phase to ground/structure/wire to wire clearances, topography, and elevation and width of object or obstruction to be spanned (freeway crossing, flood control crossing, wetland area, etc.).

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-012

To: ENERGY DIVISION
Prepared by: Alisa Krizek
Title: Environmental Coordinator
Dated: 05/18/2011

Question 12.09:

Provide revised air quality calculations (Appendix H) consistent with revised PEA.

Response to Question 12.09:

Since the April 2011 Submittal, it has been determined that 80,000 cubic yards of imported soil would be needed during construction of the Alberhill Substation. SCE is in the process of selecting one of the two following options to obtain the needed soil: a) import 80,000 cubic yards of soil from a nearby quarry, or; b) grade approximately 5.2 acres of the area just south west of the proposed substation. The calculations of criteria pollutant and greenhouse gas emissions during construction of the Alberhill System Project have been revised using updated construction information; both scenarios would increase project emissions. The emission estimation calculation spreadsheets are attached.

Revised estimations of peak daily criteria pollutant emissions during construction are as follows:

	Import 80,000 CY	**5.2 Acre Borrow Site**
VOC	82.26 lb/day	85.58 lb/day
CO	338.42 lb/day	325.33 lb/day
NOx	626.41 lb/day	639.36 lb/day
SOx	8.73 lb/day	8.73 lb/day
PM10	410.16 lb/day	423.17 lb/day
PM2.5	62.39 lb/day	68.86 lb/day

The peak daily VOC emissions increased slightly from 78.70 lb/day, NOx emissions increased from 557.39 lb/day, SOx emissions slightly increase from 8.64 lb/day, CO emissions increased slightly from 332.7 lb/day, PM10 emissions increased slightly from 400.5 lb/day, and PM2.5 emissions increased slightly from 60.0 lb/day.

Peak daily VOC, NOx, PM10 and PM2.5 emissions are estimated to exceed the respective South Coast Air Quality Management District (SCAQMD) daily emission thresholds.

The localized significance thresholds (LST) analyses are the same as the previous analyses, and

no significant localized adverse impacts are expected to occur during construction.

Operational criteria pollutant emissions have not changed.

Total greenhouse gas emissions during construction increased slightly from 3,673 metric tons carbon dioxide equivalent (MT CO2e) to 3,944 (CO2e) for the import and 3,938 (CO2e) for the borrow site. Construction greenhouse gas emissions amortized over 30 years are 132 MT CO2e per year for each scenario. Annual operational greenhouse gas emissions have not changed and are estimated to be 3,430 MT CO2e per year. The estimated sum of amortized construction and annual operational greenhouse gas emissions is 3,553 MT CO2e per year, which is below the SCAQMD greenhouse gas significance threshold of 10,000 MT CO2e per year.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-012

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 05/18/2011

Question 12.19:

a. SCE's July 2010 protest letter to Nevada Hydro's TE/VS LEAPS Project PEA stated that the PEA did not adequately study potential impacts on SCE, CAISO, and WECC systems posed by the 115-kV and 500-kV project elements. Explain what results may reasonably be anticipated from such study work and provide information about how the lack of adequate studies could impact SCE, CAISO, and WECC facilities. In your reply please address the potential impacts one may reasonably anticipate should Nevada Hydro's 115-kV and 500-kV project elements go forward as proposed.

b. During a conference call between SCE, E & E, and the CPUC on July 14, 2010, reliability issues associated with operating the 115-kV and 500-kV system in parallel via a 500/115-kV transformer located at the proposed Santa Rosa substation were briefly discussed. Explain in greater detail what issues (reliability and other) could reasonably be expected as a result of such interconnection.

Response to Question 12.19:

a. Transmission projects that act as interties between two or more PTOs or which connect electrically in parallel with the CAISO controlled bulk electric system require extensive planning studies which review such things as power flow analysis, dynamic system response, system stability, and short circuit duty capabilities, etc. Additionally, a WECC Path Rating study would also be required to ensure the entire bulk electric system would continue to meet reliability requirements and to ensure that existing WECC path ratings are preserved. In general, the following are reasonably anticipated impacts resulting from the addition of any new transmission project:

1. Potential for significant changes in power flow under normal and contingency cases at peak/off-peak periods, which may exceed equipment ratings.

2. Potential for changes in short circuit duty values, which could exceed ratings of equipment.

3. Potential for upgrades to system protection equipment and settings to provide

for proper fault clearing.

As a general rule, electrical systems are unique and have specific considerations to incorporate in any analyses performed. It is not sound engineering practice to *speculate* on how new transmission projects may affect the electrical system and detailed system studies are required to properly quantify the impacts.

b. Detailed studies would need to be performed to identify potential reliability issues. In general, the following could reasonably be expected as a result of such interconnection.

1. Violations to the NERC/WECC/CAISO Planning Standards under contingency conditions.

2. Increases in short circuit duty values may exceed equipment ratings.

3. Criteria violations may result in system instability or overload conditions that may cascade and could result in electrical service interruptions.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-014

To: ENERGY DIVISION
Prepared by: Thanos Trezos
Title: Project Engineer
Dated: 08/22/2011

Question 14.4:

If the proposed Alberhill Substation was modified to include an additional 500-kV bus position and a 230-kV switchyard consisting of one 500/230-kV transformer and one 230-kV line position, estimate how many additional acres would likely be required to construct the substation. The addition would be used to originate a 230-kV transmission line as part of the TE/VS Project. At present, the estimate for the
proposed substation is 34 acres. Provide the total amount of additional acreage under two scenarios: all GIS for the 500/230-kV equipment and all open-air switchgear for the 500/230-kV equipment. The other components of the substation would not change from what is proposed other than what would be essential to accommodate the addition of a 500/230-kV transformer and 230-kV line.

Response to Question 14.4:

The proposed substation has the provision of adding a future 500 kV line to support the interconnection of SCE with a third party. This provision is in the form of a position in the gas insulated switchyard (GIS) and the necessary land for a getaway structure. If a 500/230-kV transformation is required at the same substation, the position for the future 500 kV line could be used as the position of a future 500/230 kV transformer. No additional land would be required in the 500 kV GIS.

The total amount of additional acres that would likely be required to provide 500/230-kV transformation depends on the insulation media of the 230-kV switchyard. If the 230-kV switchyard is gas insulated, the additional required land is approximately six acres. If the 230-kV switchyard is open-air, the additional required land is approximately nine acres.

The proposed site cannot support an open air 500 kV switchyard. If an all open air 500/230 kV substation is desired to accommodate one 500 kV and one 230 kV line the approximate required land is twelve acres.

The above estimated land requirements are based on similar SCE substation configurations. SCE has not conducted any site-specific evaluations. SCE has not performed an engineering study for the connection of a 230kV line at Alberhill substation. Refer to Data Request Question 12.19 response regarding the potential impacts of a new transmission interconnections proposal.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-008

To: ENE
Prepared by: Milissa Marona
Title: Regulatory Representative
Dated: 05/14/2010

Question 8.3.2 (1):

1. Please confirm that the response date should have been 5/14/2011 instead of 5/14/2010. Otherwise, please explain the
reference to 5/10/11 in the first sentence of the response.

Response to Question 8.3.2 (1):

SCE confirms that the response to data request 8.3.2 should have been dated 05/14/2011.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-008

To: ENE
Prepared by: Milissa Marona
Title: Regulatory Representative
Dated: 05/14/2010

Question 8.3.2 (2):

2. Provide the most recent information relative to the licensing and permitting for the Sun Valley Project as well as the status
of any discussions regarding a Power Purchase Agreement. In particular please address the status of SCAQMD permitting
and CEC licensing.

Response to Question 8.3.2 (2):

In SCE's discussions with EME, it was noted that there is no near term resolution expected regarding a Power Purchase Agreement for the Sun Valley Project. The SCAQMD and CEC processes are both public and as such available from their respective websites. EME does not believe that there will be any activity to bring resolution to the Power Purchase Agreement until the Priority Reserve issue is resolved.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Roy Rojas
Title: Carrier Solutions Planner
Dated: 07/20/2011

Question 12.10.1:

Indicate on maps each location where trenching or boring would occur outside the footprint of the Alberhill (proposed), Newcomb, and Skylark substations for telecommunications installations, and indicate the approximate length, width, and depth of trenching or boring.

Response to Question 12.10.1:

Please see attached file data request response 12_10_1.pdf for telecom installations.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET Alberhill-Energy Division-SCE-013

To: ENERGY DIVISION
Prepared by: Alisa Krizek
Title: Environmental Coordinator
Dated: 07/20/2011

Question 7.12.3:

1) Confirm that water use for landscaping irrigation and other operational activities at the proposed Alberhill Substation would be less than what was used by the horse ranch at the proposed substation site.

2) Estimate the total amount of water required for landscaping and other operational uses annually at the proposed Alberhill Substation.

Response to Question 7.12.3:

1) Water use for landscaping irrigation and other operational activities at the proposed Alberhill Substation would be similar to or less than what was used by the horse ranch.

2) The "County of Riverside Guide to California Friendly Landscaping" contains a water budget used to verify compliance with the State and local requirements for water conservation. Estimating the amount of water required annually would depend on the landscaping chosen and on seasonal variations. Without the preparation of formal landscaping plans and consultation of the County it is not possible at this time to determine the total amount of water required for landscaping.

Proposed 500kV Project Elements Aerial Overview

March 11, 2011

Original Proposed Routes (PEA, 2009)

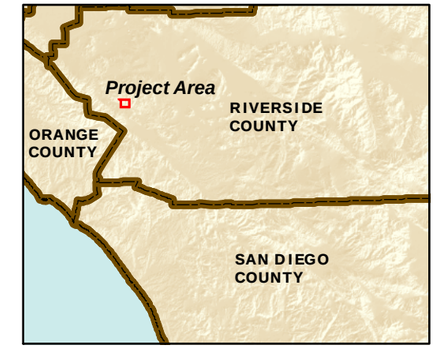
- N3
- C1
- Original Pulling Locations

Proposed Alternative Routes (2011)

- S1
- S2
- Proposed Pulling Locations
- Proposed Alberhill Substation
- Road Extents
- Road Land Disturbance
- Original Proposed Towers (PEA, 2009)
- Proposed Alternative Towers (2011)
- Parcels

N W E S

Feet
0 1,000



Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.

CONFIDENTIAL - Contains Critical Energy Infrastructure Information
Contact Corporate Security (27910) for handling/storage requirements, if any questions.

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

P:\GISData\Projects\MasterData\Major Transmission Projects\Alberhill 500 kV Sub Project_AHSP\Alberhill_2011\Alberhil_2011_Maps\AerialOverview500kV.mxd


Sep 22, 2008 7:52:25 pm
7 pm
9 pm
LEGEND
Potential construction set-up area on existing access road in RCHCA
Property Line
Tower-15
M13-T3
©2011 Google
©2009 Google
33°44'32.57" N 117°23'28.86" W elev 1595 ft
Eye alt 2303 ft

2140

FRAME NO.

CONTROL NO. 26507 | DATE 08-07-84 | ROLL NO. 84-R153

283478

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COMPT. ACCTS. PAY.		EXECUTIVE		PURCHASES		R/W DRAFTING/TITLE	
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CLAIMS		POWER SUPPLY		VALUATION			
CUSTOMER SERVICE		POWER SUPPLY JOINT POLE					

DOCUMENT TRANSMITTAL
- NOTICE -

DATE: March 28, 1969

TO: SUPERVISOR OF RECORDS, RECORD SECTION, EXECUTIVE DEPT.

DOCUMENT NO.: Attachment 283478

FROM: Title Section (B. Gray) RIGHT OF WAY AND LAND DEPARTMENT

SUBJECT: Mira Loma-Valley 500kv T/L
Nathaniel Norton et ux. property

INSTRUMENT DATED: Policy of Title Insurance No. 200367 Liability $5,600.00

FROM: Title Insurance and Trust Company

DATED	L. M. NO.	L. B. NO.
November 15, 1968		
SERIAL NO.	**F. B. NO.**	**M. B. NO.**
39253A	1911	9219-056-350,20
DATE OF RECORDATION	BOOK	PAGE
OFFICIAL RECORDS OF COUNTY	RECORDER'S INSTRUMENT NO.	

COVERS: Easement acquired across subject property.

LEASE:

CONSIDERATION:

PAID BY:

REMARKS:

RECORD DIV RECEIVED
MAR 31 1969

(NO CARBON REQUIRED)

2141

FRAME NO.

CONTROL NO.	DATE	ROLL NO.
26507	08-07-84	84-R153

Miss Lina Kelly
Nita 3453-4

TI

10 1013 FC (7-84)
California Land Title Association
Standard Coverage Policy Form
Copyright 1963

POLICY OF TITLE INSURANCE

ISSUED BY

Title Insurance and Trust Company

Title Insurance and Trust Company, a California corporation, herein called the Company, for a valuable consideration paid for this policy, the number, the effective date, and amount of which are shown in Schedule A, hereby insures the parties named as Insured in Schedule A, the heirs, devisees, personal representatives of such Insured, or if a corporation, its successors by dissolution, merger or consolidation, against loss or damage not exceeding the amount stated in Schedule A, together with costs, attorneys' fees and expenses which the Company may become obligated to pay as provided in the Conditions and Stipulations hereof, which the Insured shall sustain by reason of:

1. Any defect in or lien or encumbrance on the title to the estate or interest covered hereby in the land described or referred to in Schedule C, existing at the date hereof, not shown or referred to in Schedule B or excluded from coverage in Schedule B or in the Conditions and Stipulations, or
2. Unmarketability of such title, or
3. Any defect in the execution of any mortgage shown in Schedule B securing an indebtedness, the owner of which is named as an Insured in Schedule A, but only insofar as such defect affects the lien or charge of said mortgage upon the estate or interest referred to in this policy, or
4. Priority over said mortgage, at the date hereof, of any lien or encumbrance not shown or referred to in Schedule B, or excluded from coverage in the Conditions and Stipulations, said mortgage being shown in Schedule B in the order of its priority,

all subject, however, to the provisions of Schedules A, B and C and to the Conditions and Stipulations hereto annexed.

In Witness Whereof, Title Insurance and Trust Company has caused its corporate name and seal to be hereunto affixed by its duly authorized officers on the date shown in Schedule A.

TITLE INSURANCE AND TRUST COMPANY LOS ANGELES, CALIF.

Title Insurance and Trust Company

by _____
PRESIDENT

Attest: _____
SECRETARY

CONDITIONS AND STIPULATIONS

1. DEFINITION OF TERMS

The following terms when used in this policy mean:

(a) "land": the land described, specifically or by reference, in Schedule C and improvements affixed thereto which by law constitute real property;

(b) "public records": those records which impart constructive notice of matters relating to said land;

(c) "knowledge": actual knowledge, not constructive knowledge or notice which may be imputed to the Insured by reason of any public records;

(d) "date": the effective date;

(e) "mortgage": mortgage, deed of trust, trust deed, or other security instrument; and

(f) "insured": the party or parties named as Insured, and if the owner of the indebtedness secured by a mortgage shown in Schedule B is named as an Insured in Schedule A, the Insured shall include (1) each successive successor in interest in ownership of such indebtedness, (2) any such owner who acquires the estate or interest referred to in this policy by foreclosure, trustee's sale, or other legal manner in satisfaction of said indebtedness, and (3) any federal agency or instrumentality which is an insurer or guarantor under an insurance contract or guaranty insuring or guaranteeing said indebtedness, or any part thereof, whether named as an insured herein or not, subject otherwise to the provisions hereof.

2. BENEFITS AFTER ACQUISITION OF TITLE

If an insured owner of the indebtedness secured by a mortgage described in Schedule B acquires said estate or interest, or any part thereof, by foreclosure, trustee's sale, or other legal manner in satisfaction of said indebtedness, or any part thereof, or if a federal agency or instrumentality acquires said estate or interest, or any part thereof, as a consequence of an insurance contract or guaranty covering or guaranteeing the indebtedness secured by a mortgage covered by this policy, or any part thereof, this policy shall continue in force in favor of such Insured agency or instrumentality, subject to all of the conditions and stipulations hereof.

3. EXCLUSIONS FROM THE COVERAGE OF THIS POLICY

This policy does not insure against loss or damage by reason of the following:

(a) Any law, ordinance or governmental regulation (including but not limited to building and zoning ordinances) restricting or regulating or prohibiting the occupancy, use or enjoyment of the land, or regulating the character, dimensions or location of any improvement now or hereafter erected on said land, or prohibiting a separation in ownership or a reduction in the dimensions or area of any lot or parcel of land.

(b) Governmental rights of police power or exercise of eminent domain unless notice of the exercise of such rights appears in the public records at the date hereof.

(c) Title to any property beyond the lines of the land expressly described in Schedule C, or title to streets, roads, avenues, lanes, ways or waterways on which such land abuts, or the right to maintain therein vaults, tunnels, ramps or any other structure or improvement; or any rights or easements therein unless this policy specifically provides that such property, rights or easements are insured, except that if the land abuts upon one or more physically open streets or highways this policy insures the ordinary rights of abutting owners for access to one of such streets or highways, unless otherwise excepted or excluded herein.

(d) Defects, liens, encumbrances, adverse claims against the title as insured or other matters (1) created, suffered, assumed or agreed to by the Insured claiming loss or damage, or (2) known to the Insured Claimant either at the date of this policy or at the date such Insured Claimant acquired an estate or interest insured by this policy and not shown by the public records, unless disclosure thereof in writing by the Insured shall have been made to the Company prior to the date of this policy, or (3) resulting in no loss to the Insured Claimant, or (4) attaching or created subsequent to the date hereof.

(e) Loss or damage which would not have been sustained if the Insured were a purchaser or encumbrancer for value without knowledge.

4. DEFENSE AND PROSECUTION OF ACTIONS —NOTICE OF CLAIM TO BE GIVEN BY THE INSURED

(a) The Company, at its own cost and without undue delay, shall provide (1) for the defense of the Insured in all litigation consisting of actions or proceedings commenced against the Insured or defenses, restraining orders, or injunctions interposed against a foreclosure or sale of the mortgage and indebtedness covered by this policy or a sale of the estate or interest in said land, or (2) for such action as may be appropriate to establish the title of the estate or interest or the lien of the mortgage as insured, which litigation or action in any of such events is founded upon an alleged defect, lien or encumbrance insured against by this policy, and may pursue any litigation to final determination in the court of last resort.

(b) In case any such action or proceeding shall be begun, or defense interposed, or in case knowledge shall come to the Insured of any claim of title or interest which is adverse to the title of the estate or interest or lien of the mortgage as insured, or which might cause loss or damage for which the Company shall or may be liable by virtue of this policy, or if the Insured shall in good faith contract to sell the indebtedness secured by a mortgage covered by this policy, or, if an Insured in good faith leases or contracts to sell lease or mortgage the same, or if the successful bidder at a foreclosure sale under a mortgage covered by this policy refuses to purchase said at any such sale, title to said estate or interest is rejected as unmarketable, the Insured shall notify the Company thereof in writing. If such notice shall not be given to the Company within ten days of the receipt of process or pleadings or if the Insured shall not, in writing promptly notify the Company of any defect, lien or encumbrance insured against which shall come to the knowledge of the Insured, or if the Insured shall not, in writing, promptly notify the Company of any such rejection by reason of claimed unmarketability of title, then all liability of the Company in regard to the subject matter of such action, proceeding or matter shall cease and terminate; provided, however, that failure to notify shall in no case prejudice the claim of any Insured unless the Company shall be actually prejudiced by such failure and then only to the extent of such prejudice.

(c) The Company shall have the right at its own cost to institute and prosecute any action or proceeding or do any other act which in its opinion may be necessary or desirable to establish the title of the estate or interest or the lien of the mortgage as insured, and the Company may take any appropriate action under the terms of this policy whether or not it shall be liable thereunder and shall not thereby concede liability or waive any provision of this policy.

(d) In all cases where this policy permits or requires the Company to prosecute or provide for the defense of any action or proceeding, the Insured shall secure to it the right to so prosecute or provide defense in such action or proceeding, and all appeals therein, and permit it to use, at its option, the name of the Insured for such purpose. Whenever requested by the Company the Insured shall give the Company all reasonable aid in any such action or proceeding, in effecting settlement, securing evidence, obtaining witnesses, or prosecuting or defending such action or proceeding, and the Company shall reimburse the Insured for any expense so incurred.

5. NOTICE OF LOSS — LIMITATION OF ACTION

In addition to the notices required under paragraph 4(b), a statement in writing of any loss or damage for which it is claimed the Company is liable under this policy shall be furnished to the Company within sixty days after such loss or damage shall have been determined and no right of action shall accrue to the Insured under this policy until thirty days after such statement shall have been furnished and no recovery shall be had by the Insured under this policy unless action shall be commenced thereon within five years after expiration of said thirty day period. Failure to furnish such statement of loss or damage, or to commence such action within the time hereinbefore specified, shall be a complete bar against enforcement by the Insured of any action under this policy.

6. OPTION TO PAY, SETTLE OR COMPROMISE CLAIMS

The Company shall have the option to pay or settle or compromise for or in the name of the Insured any claim insured against or to pay the full amount of this policy, or in case loss is claimed under this policy by the owner of the indebtedness secured by a mortgage covered by this policy, the Company shall have the option to purchase said indebtedness, such purchase payment or tender of payment of

(Conditions and Stipulations Continued and Concluded on Last Page of This Policy)

2 1 4 3

FRAME NO.

CONTROL NO. 26507 | DATE 08-07-84 | ROLL NO. 84-R153

TO 1012-1 AA C
California Land Title Association
Standard Coverage Policy—1962

SCHEDULE A

Premium $ 70.00

Amount $ 5,600.00 Effective Date NOVEMBER 15, 1968 AT 9:00 A.M. Policy No. 280367

INSURED

SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION

1. Title to the estate or interest covered by this policy at the date hereof is vested in:

SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION

2. The estate or interest in the land described or referred to in Schedule C covered by this policy is a fee.

SEE EXHIBIT "A"

SCHEDULE B

This policy does not insure against loss or damage by reason of the following:

Part I

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims of easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

APPROVED BY R.E. [illegible] RIGHT OF WAY & LAND DEPT
BY 5G DATE 3-25-69
SER. 392397 I.O. 1911 FUNC. 2414

2144

FRAME NO.

CONTROL NO.	DATE	ROLL NO.
26507	08-07-84	84-R153

EXHIBIT "A"

ALL THOSE CERTAIN PERMANENT AND EXCLUSIVE EASEMENTS AND RIGHTS OF WAY TO CONSTRUCT, OPERATE, USE, MAINTAIN, INSPECT, REPAIR, RENEW, REPLACE, RECONSTRUCT, ENLARGE, ALTER, ADD TO, IMPROVE, RELOCATE AND/OR REMOVE, AT ANY TIME AND FROM TIME TO TIME, ELECTRIC LINES, CONSISTING OF ONE OR MORE LINES OF METAL TOWERS, POLES, AND/OR OTHER STRUCTURES, WIRES, CABLES, INCLUDING GROUND WIRES, BOTH OVERHEAD AND UNDERGROUND, AND COMMUNICATION CIRCUITS WITH NECESSARY AND CONVENIENT FOUNDATIONS, GUY WIRES AND ANCHORS, INSULATORS AND CROSSARMS, PLACED ON SAID STRUCTURES, AND OTHER FIXTURES, APPLIANCES AND APPURTENANCES CONNECTED THEREWITH, NECESSARY OR CONVENIENT FOR THE CONSTRUCTION, OPERATION, REGULATION, CONTROL, GROUNDING AND MAINTENANCE OF ELECTRIC LINES, FOR THE PURPOSE OF TRANSMITTING, DISTRIBUTING, REGULATING AND CONTROLLING ELECTRIC ENERGY TO BE USED FOR LIGHT, HEAT, POWER, COMMUNICATION AND/OR OTHER PURPOSES, TOGETHER WITH THE EASEMENT AND RIGHT OF WAY FOR ROADS, INGRESS, EGRESS AND OTHER CONVENIENT PURPOSES NEEDED OR DESIRED AT ANY TIME AND FROM TIME TO TIME, AND THE RIGHT TO CLEAR AND TO KEEP CLEAR SAID EASEMENTS AND RIGHTS OF WAY AND THE REAL PROPERTY AFFECTED THEREBY, FREE FROM EXPLOSIVES, BUILDINGS, STRUCTURES EQUIPMENT, BRUSH, COMBUSTIBLE MATERIALS AND ANY AND ALL OTHER OBSTRUCTIONS OF ANY KIND, INCLUDING, BUT NOT IN ANY WAY IN LIMITATION OF THE GENERALITY OF THE FOREGOING, SWIMMING POOLS AND APPURTENANCES, FENCES (OTHER THAN FARM, GRAZING OR PASTURE FENCES), AND THE PARKING OF AUTOMOBILES, TRUCKS OR OTHER MECHANICAL EQUIPMENT FOR PROTECTION FROM FIRE AND OTHER HAZARDS AND FROM INTERFERENCE WITH INGRESS AND EGRESS AND WITH THE UNOBSTRUCTED USE OF SAID EASEMENTS AND RIGHTS OF WAY AND EVERY PART THEREOF, FOR ANY AND ALL OF SAID PURPOSES, IN, UNDER, ON, OVER, ALONG AND ACROSS SAID LAND, TOGETHER WITH THOSE CERTAIN OTHER RIGHTS AND EASEMENTS GRANTED BY DEED FROM NATHANIEL NORTON AND MARGARET E. NORTON, HUSBAND AND WIFE, RECORDED NOVEMBER 15, 1968 AS INSTRUMENT NO. 199954

2195

FRAME NO.

CONTROL NO.	DATE	ROLL NO.
26507	08-07-84	84-R153

SCHEDULE B — *(Continued)*

PART II

1. GENERAL AND SPECIAL COUNTY TAXES FOR THE FISCAL YEAR 1968-1969, INCLUDING PERSONAL PROPERTY TAX, IF ANY,
TOTAL AMOUNT : $147.26
FIRST INSTALLMENT : $73.63
PERSONAL PROPERTY OF : NONE
SECOND INSTALLMENT : $73.63

2. SUCH LIENS OR ENCUMBRANCES AS MAY HAVE BEEN SUFFERED OR CREATED BY SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, (THE COMPANY HAS BEEN REQUESTED TO OMIT SPECIFIC MENTION THEREOF IN THIS POLICY).

3. COVENANTS, CONDITIONS, PROVISIONS AND RESERVATIONS CONTAINED IN THE DEED FROM NATHANIEL NORTON AND MARGARET E. NORTON, HUSBAND AND WIFE, RECORDED NOVEMBER 15, 1968 AS INSTRUMENT NO. 109954 WHICH PROVIDE IN PART AS FOLLOWS:

IT IS UNDERSTOOD AND AGREED THAT THE GRANT OF THIS EASEMENT DOES NOT CONVEY TO GRANTEE ANY RIGHT, TITLE OR INTEREST IN OR TO ANY OIL, GAS, PETROLEUM OR OTHER MINERAL OR HYDROCARBON SUBSTANCES WITHIN THE LIMITS OF THE SAID RIGHT OF WAY OR OTHERWISE, BUT THAT GRANTOR AND GRANTOR'S HEIRS AND ASSIGNS, IN PROSPECTING FOR OR DEVELOPING OIL, GAS, PETROLEUM OR OTHER MINERAL OR HYDROCARBON SUBSTANCES, WILL DO SO FROM ADJACENT LAND AND IN SUCH A MANNER AS WILL NOT ENDANGER OR INTERFERE WITH THE STRUCTURES ERECTED BY GRANTEE OR WITH THE OPERATION OR MAINTENANCE OF THE ELECTRIC LINES OF GRANTEE, AND WILL NOT CONSTRUCT, PLACE OR MAINTAIN, OR PERMIT TO BE CONSTRUCTED, PLACED OR MAINTAINED ANY OIL OR MUD SUMP, DERRICK, DRILLING RIG, OIL STORAGE TANK OR OTHER STRUCTURES OF ANY KIND WHATSOEVER, ON ANY PORTION OF SAID RIGHT OF WAY STRIP.

TO 1012.1—1056.1 CCC
American Land Title Association Loan Policy
Additional Coverage—1962
or
California Land Title Association
Standard Coverage Policy—1963

SCHEDULE C

The land referred to in this policy is described as follows:

A STRIP OF LAND TWO HUNDRED (200) FEET WIDE, BEING IN THE SOUTHWEST ONE-QUARTER OF SECTION 10, TOWNSHIP 5 SOUTH, RANGE 5 WEST, SAN BERNARDINO MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF;

THE CENTER LINE OF SAID STRIP OF LAND TWO HUNDRED (200) FEET WIDE IS DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE WESTERLY LINE OF SAID SECTION 10, SAID POINT BEING SOUTH 00° 41' 40" WEST 452.51 FEET, MEASURED ALONG SAID WESTERLY LINE FROM A FOUND 6" X 14" X 14" CENTER STONE IN ROCK MOUND SET AT THE WEST ONE-QUARTER CORNER OF SAID SECTION 10; THENCE SOUTH 44° 21' 28" EAST 3035.67 FEET, MORE OR LESS, TO A POINT IN THE SOUTHERLY LINE OF SAID SECTION 10, SAID POINT BEING SOUTH 89° 40' 25" EAST 2198.55 FEET, MEASURED ALONG SAID SOUTHERLY LINE, FROM A FOUND ROCK MOUND SET AT THE SOUTHWEST CORNER OF SAID SECTION 10.

THE SIDE LINES OF SAID STRIP OF LAND TWO HUNDRED (200) FEET WIDE SHALL BE PROLONGED OR SHORTENED SO AS TO TERMINATE IN THE WESTERLY AND SOUTHERLY LINES OF SAID SECTION 10.

CONDITIONS AND STIPULATIONS (Continued and Concluded From Reverse Side of Policy Face)

the full amount of this policy, together with all costs, attorneys' fees and expenses which the Company is obligated hereunder to pay, shall terminate all liability of the Company hereunder. In the event, after notice of claim has been given to the Company by the Insured, the Company offers to purchase said indebtedness, the owner of such indebtedness shall transfer and assign said indebtedness and the mortgage securing the same to the Company upon payment of the purchase price.

7. PAYMENT OF LOSS

(a) The liability of the Company under this policy shall in no case exceed in all the actual loss of the Insured and costs and attorneys' fees which the Company may be obligated hereunder to pay.

(b) The Company will pay, in addition to any loss insured against by this policy, all costs imposed upon the Insured in litigation carried on by the Company for the Insured, and all costs and attorneys' fees in litigation carried on by the Insured with the written authorization of the Company.

(c) No claim for damages shall arise or be maintainable under this policy (1) if the Company, after having received notice of an alleged defect, lien or encumbrance not excepted or excluded herein (except such defect, lien or encumbrance within a reasonable time after receipt of such notice or (2) for liability voluntarily assumed by the Insured in settling any claim or suit without written consent of the Company or (3) in the event the title is rejected as unmarketable because of a defect, lien or encumbrance not excepted or excluded in this policy, until there has been a final determination by a court of competent jurisdiction sustaining such rejection.

(d) All payments under this policy, except payments made for costs, attorneys' fees and expenses, shall reduce the amount of the insurance pro tanto and no payment shall be made without producing this policy for endorsement of such payment unless the policy be lost or destroyed, in which case proof of such loss or destruction shall be furnished to the satisfaction of the Company, provided however, if the owner of an indebtedness secured by a mortgage shown in Schedule B is an Insured herein then such payments shall not reduce pro tanto the amount of the insurance afforded hereunder as to such Insured, except to the extent that such payments reduce the amount of the indebtedness secured by such mortgage. Payment in full by any person or voluntary satisfaction or release by the Insured of a mortgage covered by this policy shall terminate all liability of the Company as the insured owner of the indebtedness secured by such mortgage, except as provided in paragraph 2 hereof.

(e) When liability has been definitely fixed in accordance with the conditions of this policy the loss or damage shall be payable within thirty days thereafter.

8. LIABILITY NONCUMULATIVE

It is expressly understood that the amount of this policy is reduced by any amount the Company may pay under any policy insuring the validity or priority of any mortgage shown or referred to in Schedule B hereof or any mortgage hereafter executed by the Insured which is a charge or lien on the estate or interest described or referred to in Schedule A, and the amount so paid shall be deemed a payment to the Insured under this policy. The provisions of this paragraph numbered 8 shall not apply to an Insured owner of an indebtedness secured by a mortgage shown in Schedule B unless such Insured acquires title to said estate or interest in satisfaction of said indebtedness or any part thereof.

9. SUBROGATION UPON PAYMENT OR SETTLEMENT

Whenever the Company shall have settled a claim under this policy, all right of subrogation shall vest in the Company unaffected by any act of the Insured, and it shall be subrogated to and be entitled to all rights and remedies which the Insured would have had against any person or property in respect to such claim had this policy not been issued. If the payment does not cover the loss of the Insured, the Company shall be subrogated to such rights and remedies in the proportion which said payment bears to the amount of said loss. If loss should result from any act of the Insured, such act shall not void this policy, but the Company, in that event, shall be required to pay only that part of any losses insured against hereunder which shall exceed the amount, if any, lost to the Company by reason of the impairment of the right of subrogation. The Insured, if requested by the Company, shall transfer to the Company all rights and remedies against any person or property necessary in order to perfect such right of subrogation, and shall permit the Company to use the name of the Insured in any transaction or litigation involving such rights or remedies.

If the Insured is the owner of the indebtedness secured by a mortgage covered by this policy, such Insured may release or substitute the personal liability of any debtor or guarantor, or extend or otherwise modify the terms of payment, or release a portion of the estate or interest from the lien of the mortgage or release any collateral security, for the indebtedness, provided such act does not result in any loss of priority of the lien of the mortgage.

10. POLICY ENTIRE CONTRACT

Any action or actions or rights of action that the Insured may have or may bring against the Company arising out of the status of the lien of the mortgage covered by this policy or the title of the estate or interest insured herein must be based on the provisions of this policy.

No provision or condition of this policy can be waived or changed except by writing endorsed hereon or attached hereto signed by the President, a Vice President, the Secretary, an Assistant Secretary or other validating officer of the Company.

11. NOTICES, WHERE SENT

All notices required to be given the Company and any statement in writing required to be furnished the Company shall be addressed to it at its office which issued this policy or to its Home Office, 433 South Spring Street, Los Angeles 90, California.

12. THE PREMIUM SPECIFIED IN SCHEDULE A IS THE ENTIRE CHARGE FOR TITLE SEARCH, TITLE EXAMINATION AND TITLE INSURANCE.

Title Insurance and Trust Company

2 1 9 A

FRAME NO.

CONTROL NO.	DATE	ROLL NO.
26507	08-07-84	84-R153

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A.E.&C.	ENGINEERING	POWER SUPPLY MARPING	R/W, ADMIN. SERVICES
COMPT. ACCTS. PAY.	EXECUTIVE	PURCHASES	X R/W DRAFTING/R/W
COMPT. GEN. ACCT.	LAW	TREASURER, INSUR.	X R/W FILES E.D.O.
X COMPT. PLANT ACCT.	OIL AND GAS	TREASURER, TAX	X R/W PROG. MGMT.
CLAIMS	POWER SUPPLY	VALUATION	X R/W Title
CUSTOMER SERVICE	POWER SUPPLY JOINT POLES		

DOCUMENT TRANSMITTAL
- NOTICE -

DATE: November 22, 1968

TO: SUPERVISOR OF RECORDS, RECORD SECTION, EXECUTIVE DEPT.

DOCUMENT NO.: 283478

FROM: D. L. Woodward Escrow Section RIGHT OF WAY AND LAND DEPARTMENT

SUBJECT: Mira Loma-Valley 500 KV T/L

INSTRUMENT TITLE: Right of Way Easement Acquisition No. 8083

FROM: Nathaniel Norton, et ux

DATED	L. P. NO.	L. C. NO.
September 14, 1968		
SERIAL NO.	J. O. NO.	R. O. NO.
3925J-A	1911	92:9-0561-350.20
DATE OF RECORDATION	BOOK	PAGE
November 15, 1968	None	None
OFFICIAL RECORDS OF COUNTY	RECORDERS INSTRUMENT NO.	
Riverside	109954	

COVERS: A portion of Section 10, Township 5 South, Range 5 West.

TERM: Indefinite

CONSIDERATION: $5,600.00

PAID BY: C/V No. 10-138-68

REMARKS: Escrow No. 280367, Title Insurance and Trust Co., Riverside

Policy to follow.

(NO CARBON REQUIRED)

2149

FRAME NO.

CONTROL NO.	DATE	ROLL NO.
26507	08-07-84	84-R153

RECORDING REQUESTED BY

SOUTHERN CALIFORNIA EDISON COMPANY

WHEN RECORDED MAIL TO
SOUTHERN CALIFORNIA EDISON COMPANY
P. O. BOX 351
LOS ANGELES, CALIFORNIA 90053

109954

ATTN: R/W & LAND DEPT.- ESCROW

PAID
Doc. Transfer Tax
W. O. BALCOM
RIV. CO. RECORDER

RECEIVED FOR RECORD
NOV 15 1968
AT 9:00 O'CLOCK A.M.
At Request of
TITLE INS. & TRUST CO.
Recorded in Official Records
of Riverside County, California

W. O. Balcom
County Recorder

FEE $ 3.00

INDEXED Book and page

360

SPACE ABOVE THIS LINE FOR RECORDER'S USE

RIGHT-OF-WAY EASEMENT
(INDIVIDUAL)

TAX DUE $ _____

LOCATION: UNINCORPORATED AREA

THE UNDERSIGNED, NATHANIEL NORTON and MARGARET E. NORTON, husband and wife,

hereinafter called "Grantor", for a valuable consideration, paid by SOUTHERN CALIFORNIA EDISON COMPANY, a corporation, receipt of which is hereby acknowledged, hereby grants, bargains, sells and conveys unto said SOUTHERN CALIFORNIA EDISON COMPANY, a corporation, its successors and assigns, hereinafter called "Grantee", all those certain permanent and exclusive easements and rights of way to construct, operate, use, maintain, inspect, repair, renew, replace, reconstruct, enlarge, alter, add to, improve, relocate and/or remove, at any time and from time to time, electric lines, consisting of one or more lines of metal towers, poles and/or other structures, wires, cables, including ground wires and communication circuits, both overhead and underground, with necessary and convenient foundations, conduits, pullboxes, guy wires and anchors, insulators and crossarms placed on said structures, and other fixtures, appliances and appurtenances connected therewith, necessary or convenient for the construction, operation, regulation, control, grounding and maintenance of electric lines and communication circuits for the purpose of transmitting, distributing, regulating and controlling electric energy to be used for light, heat, power, communication and/or other purposes, together with the easement and right of way for roads, ingress, egress and other convenient purposes needed or desired at any time and from time to time by Grantee, and the right to clear and to keep clear said easements and rights of way and the real property affected thereby, free from explosives, buildings, structures, equipment, brush, combustible materials and any and all other obstructions of any kind, including, but not in any way in limitation of the generality of the foregoing, swimming pools and appurtenances, fences (other than farm, grazing or pasture fences), and the parking of automobiles, trucks or other mechanical equipment, for protection from fire and other hazards and from interference with ingress and egress and with the unobstructed use of said easements and rights of way and every part thereof, and for any and all purposes herein mentioned in, under, on, over, along and across a strip of land TWO HUNDRED (200) feet wide, hereinafter referred to as "right of way strip", lying within the real property of the Grantor, situated in the County of Riverside, State of California, described as follows:

DOCUMENTARY TRANSFER TAX $ 0.00
EXEMPT

The Southwest one-quarter of Section 10, Township 5 South, Range 5 West, San Bernardino Base and Meridian.

The center line of said strip of land TWO HUNDRED (200) feet wide is described as follows:

Beginning at a point in the Westerly line of said Section 10, said point being South 00° 41' 40" West 452.51 feet, measured along said Westerly line from a found 6" x 14" x 14" center stone in rock mound set at the West one-quarter corner of said Section 10; thence South 44° 21' 26" East 3035.67 feet, more or less, to a point in the Southerly line of said Section 10, said point being South 89° 40' 25" East 2148.55 feet, measured along said Southerly line, from a found rock mound set at the Southwest corner of said Section 10.

The side lines of said strip of land TWO HUNDRED (200) feet wide shall be prolonged or shortened so as to terminate in the Westerly and Southerly lines of said Section 10.

109954

Grantee shall have the right to construct roads, use existing roads and make such additions thereto, on lands of Grantor within and/or adjoining said right of way strip, as shall be necessary or convenient to Grantee's access to and use of said right of way strip, or any extension of said right of way strip on the lands of others, and the right to use all necessary and convenient means of ingress to and egress from said right of way strip, or said extension thereof, from the public highway most convenient thereto, for the uses and purposes and the exercising of the rights herein granted. In the event alternate public roads are constructed which, in the opinion of Grantee, will provide Grantee with access to said right of way strip, or said extension thereof, as convenient and adequate as that which Grantee may then be using, Grantee agrees to quitclaim any such portion or portions of the access roads no longer required hereunder as may be determined by Grantee.

Grantor reserves for Grantor and Grantor's heirs and assigns, across (but not longitudinally along) said right of way strip, rights for (1) underground water pipelines, (2) farm, grazing or pasture fences, and (3) roads, provided, however, that the exercise of such rights does not interfere with or endanger, in the opinion of Grantee, the operation or maintenance of the electric lines and/or communication circuits of Grantee, or Grantee's ready access to its said electric lines and/or communication circuits, or the exercise of any of the rights herein granted to Grantee. In addition to said reserved rights for water pipelines, farm fences and roads, Grantor and Grantor's heirs and assigns shall have only the additional right to cultivate the land within said right of way strip for any and all field or orchard crops which may be grown thereon or to use such land for grazing and pasturage, provided such uses shall not interfere with the rights herein granted to Grantee, its successors and assigns. Grantor expressly agrees for Grantor and Grantor's heirs and assigns that said right of way strip will never be used for cemetery purposes.

Where said right of way strip is under cultivation, said underground cables, wires and conduits shall be laid so that the tops thereof shall be at least _____ inches below the surface of the ground.

Grantee shall have the right to install and use gates in any and all fences which are now or may hereafter be constructed on said lands of Grantor, for the purpose of permitting at all times convenient entry to and along said right of way strip. Any gates which are installed by Grantee on said lands, shall be locked with Grantee's locks, and also, if Grantor so desires, may be locked with Grantor's locks, in such a manner that either can lock or unlock the gates. Any gates which are installed and locked by Grantor and used by Grantee shall be locked also by Grantee's locks so that either can lock or unlock the gates.

Grantee shall have the right to make such surface cuts within said right of way strip as may be necessary to maintain the clearance between the wires and cables and the surface of the ground that may be required by the orders of the Public Utilities Commission of the State of California, or other governmental body having jurisdiction thereof, or that may be necessary for the economical construction maintenance or operation of said electric lines, communication circuits and appurtenances.

Grantee shall have the right to trim or top and to keep trimmed or topped any and all trees on the lands of Grantor within said right of way strip, and any and all trees on the lands of the Grantor adjacent to said right of way strip for a distance of 75 feet from the exterior lines of said right of way strip, to such heights as in the judgment of Grantee, its successors or assigns, shall be reasonably necessary for the proper construction, operation and maintenance of said electric lines and communication circuits, but at no point outside of said right of way strip to a height of less than 50 feet.

Grantor or Grantor's heirs or assigns, shall not deposit or permit or allow to be deposited, earth, rubbish, debris or any other substance or material, whether combustible or noncombustible, on said right of way strip, or so near thereto as to constitute, in the opinion of Grantee, its successors or assigns, a menace or danger to said electric lines and communication circuits or which may in the opinion of Grantee, interfere with Grantee's ready access to said electric lines and communication circuits.

It is understood and agreed that the grant of this easement does not convey to Grantee any right, title or interest in or to any oil, gas, petroleum or other mineral or hydrocarbon substances within the limits of the said right of way strip or otherwise, but that Grantor and Grantor's heirs and assigns, in prospecting for or developing oil, gas, petroleum or other mineral or hydrocarbon substances will do so from adjacent land and in such a manner as will not endanger or interfere with the structures and facilities erected and installed by Grantee or with the operation or maintenance of the electric lines and communication circuits of Grantee, and will not construct, place or maintain, or permit to be constructed, placed or maintained, any oil or mud sump, derrick, drilling rig, oil storage tank or other structure of any kind whatsoever, on any portion of said right of way strip

It is further understood and agreed that no other easement or easements shall be granted on, under or over said right of way strip by Grantor to any person, firm or corporation without the previous written consent of Grantee.

The terms, covenants and conditions of this Right-of-Way Easement shall bind and inure to the benefit of the heirs, executors, administrators and assigns of Grantor and the successors and assigns of Grantee.

2211

FRAME NO.

CONTROL NO.	DATE	ROLL NO.
26507	08-07-84	84-R153

109954

IN WITNESS WHEREOF, Grantor has executed this instrument this 14 day of September, 1965.

Witness:

Nathaniel Norton
Nathaniel Norton

Margaret E. Norton
Margaret E. Norton

Grantor

INDIVIDUAL ACKNOWLEDGMENT

STATE OF CALIFORNIA,
COUNTY OF [illegible] } ss.

On this 14 day of September 1965 before me, a Notary Public in and for said State, personally appeared Nathaniel Norton and Margaret Norton

known to me to be the person(s) whose name(s) is (are) subscribed to the foregoing instrument, and acknowledged to me that he/she/they executed the same.

WITNESS my hand and official seal.

Edith May Macdonald
Comm Expires Oct 14 1968

WITNESS ACKNOWLEDGMENT

STATE OF CALIFORNIA,
COUNTY OF _____ } ss.

On this _____ day of _____ 19____ before me, a Notary Public in and for said State, personally appeared _____

personally known to me to be the same person whose name is subscribed to the within instrument as a subscribing witness thereto, who, being by me duly sworn, deposed and said that he resides in the County of _____ State of California, that he was present and saw _____

personally known to him to be the same person(s) described in and whose name(s) is (are) subscribed to the foregoing instrument as a party thereto, sign, execute and deliver the same, and that such person(s) acknowledged to said affiant that he (she) (they) executed the same, and that he, the affiant, then and there subscribed his name to said instrument as a witness.

WITNESS my hand and official seal.

_____

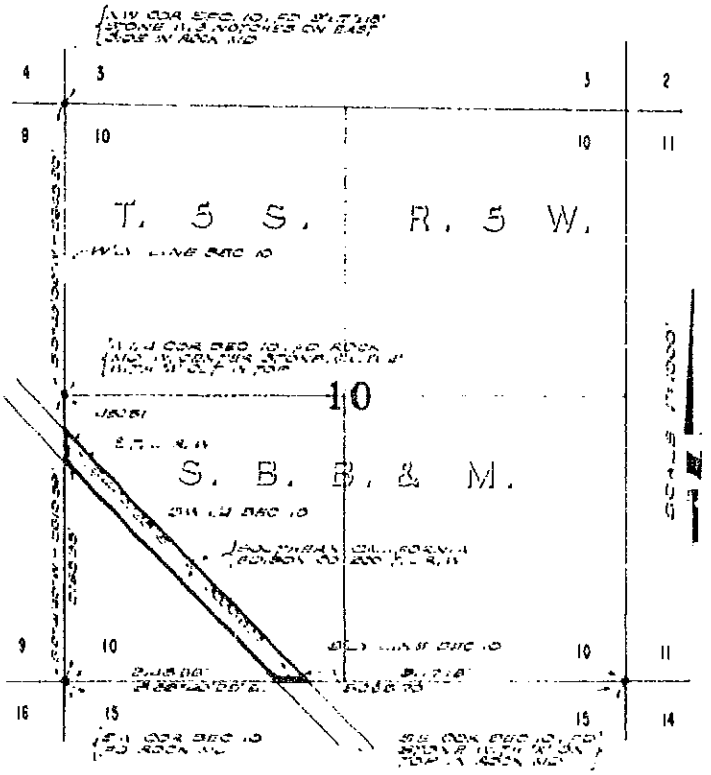
2 2 11 2

FRAME NO.

CONTROL NO.	DATE	ROLL NO.
26507	08-07-84	84-R153

THE POOR QUALITY OF THE ATTACHED ORIGINAL DOCUMENT HAS ADVERSELY AFFECTED REPRODUCTION. THIS IS THE MOST LEGIBLE IMAGE OBTAINABLE.

283478



LEGEND.

LANDS OF NATHANIEL NORTON ET AL

SOUTHERN CALIFORNIA EDISON CO

MAP SHOWING ALLEY BOUNDARY LOCATION OF TRANSMISSION LINE R/W WITHIN LANDS OF NATHANIEL NORTON ET AL RIVERSIDE COUNTY CALIFORNIA

SOUTHERN CALIFORNIA EDISON CO

AUG 6

RIGHT OF WAY DOCUMENT INFORMATION SYSTEM
ROWDIS / TIMS

SUPPLEMENTAL INPUT/CHANGE SHEET

DOCUMENT CONTROL NUMBER: RZ /

TRANSACTION CODE: !mTC

IPC | READ | DATA ENTRY

CONTENT CONTINUED: !mCI!mDT

RETURN ADDRESS OR DOCUMENT TITLE

DOCUMENT NUMBER: DOC 83479

EXECUTION DATE: EXECDATE

TFC

DATE RECORDED: RECDATE

RECORDER'S INSTRUMENT NUMBER: RIN

BOOK: BK

PAGE: PG

COUNTY: CO

CONTENT (CONTINUED) NAMES (GRANTOR) (GRANTEE) (PREVIOUS OWNER) (GRANTEE, PURCHASER) (TO) (FROM) (BETWEEN) (BY) INCLUDES COMMENTS

GRANTOR

GRANTEE

LEGAL DESCRIPTION

LEGDES

INPUT IN FOLLOWING ORDER: BOOK; BOOK; OR; SERIAL; DOC; CEP; MB; TMP; ** BOOK HELD LIST ** ACRES; DOLLARS; REMARK

XNUMS

MAP SIZE NUMBERS

MSN	MSN	MSN
MSN	MSN	MSN
MSN	MSN	MSN
MSN	MSN	MSN

CONTROL NO. 25507
DATE 08-07-84
ROLL NO. 84-R153
FRAME NO. 2211

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET DRA-SCE-001-Supplement

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 08/02/2010

Question 2D-1:

d. With reference to the Valley Substation one-line diagram and the Plot Plan provided:
(1) A connection to the 500 kV switchrack, position 6x, is shown from the Inland Empire Energy Center. The Inland Empire Energy Center appears to be local generation at the 500 kV level available to meet peak and normal load requirements. What power is available from this energy center and has a purchase power agreement been signed?

Response to Question 2D-1:

The IEEC generation interconnection is an 800 MW generation project that connects to the CAISO controlled 500 kV transmission system at Valley Substation through one 500 kV transmission line. The IEEC project is a "market generator" project and SCE System Planning has no involvement with the contractual details of the purchase and delivery of the power produced as SCE's Valley 500 kV bus only serves as the point-of-interconnection for the generation project.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET DRA-SCE-001-Supplement

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 08/02/2010

Question 2D-2:

d. With reference to the Valley Substation one-line diagram and the Plot Plan provided: (2) Connections to the 115 kV C-section Open Air Switchrack positions 1 and 1x are shown from Edison Mission Energy (EME) #1 Generator Tie and #2 Generator Tie, respectively. These generators at the 115 kV level appear to be local generation that would be available to meet peak and normal load requirements. What power is available or will be available from these generators and has a purchase power agreement been signed?

Response to Question 2D-2:

The EME generation interconnection is a proposed 500 MW generation project whose application for interconnection was filed in 2005. Six years later there is still no interconnection agreement in place. The project, as proposed, would ultimately connect to the CAISO controlled 500 kV transmission system at Valley Substation through the SCE controlled Valley South 115 kV bus. The EME generation project would be a “market generator” project and SCE System Planning has no involvement with the contractual details of the purchase and delivery of the power produced and SCE’s Valley 500 kV bus only serves as the point-of-interconnection of the generation project.

Southern California Edison
Alberhill PTC & CPCN A.09-09-022

DATA REQUEST SET DRA-SCE-001-Supplement

To: ENERGY DIVISION
Prepared by: Paul McCabe
Title: Senior Engineer
Dated: 08/02/2010

Question 5E:

a. SCE further states, "it appears that it is possible for a sixth transformer to be installed from the perspective of physical space requirements." Based on our evaluation, DRA agrees. SCE continued with six elements of an analysis to determine feasibility of operating with a sixth transformer. DRA addresses these elements in turn as follows:

(1) Physical space to locate all required equipment. Based on a review of SCE provided documentation, DRA believes that there is physical space to locate all required equipment.

(2) Connection to the 500 kV switchrack is feasible. SCE states that connection is feasible.

(3) Connection to the 115 kV switchrack is feasible. SCE states that connection is feasible.

(4) Impact to reliability of serving 1,680 MVA of electrical demand from one system. SCE states that they do not consider serving up to 1,680 MVA of electrical demand from one system [versus 1,120 MVA as at present] to be a reliable system configuration. Please provide detailed power flow analyses that specifically indicate reliability criteria violations under the 1,620 MVA configuration versus the 1,120 MVA configuration.

(5) Impact to reliability of system stability under abnormal condition such as faults. Similar to (4), above, please provide detailed system stability analyses that specifically indicate that system stability criteria are violated as a result of the 1,620 MVA configuration versus the 1,120 MVA configuration. In SCE's response substantial material was presented regarding a new nationwide reliability issue known as Fault Induced Delayed Voltage Recovery (FIDVR). In DRA's opinion, this issue is not a result of SCE's current configuration nor will it be solved by changes in SCE's configuration. Since the basic phenomenon causing the reliability issue is the stalling of residential air conditioning system induction motors following system faults and normal clearing, the problem will be solved, in DRA's opinion, by the addition of appropriate protective devices in the standard design of residential air conditioning units.

(6) Impact of increased short circuit duty on utility and customer equipment and personal safety. SCE states that if a third load serving transformer were added to the Valley South 115 kV System, there would be an increase in the short circuit current that is produced during faulted conditions. SCE also states that equipment at all voltage levels must be reviewed to determine whether existing ratings would be adequate for the increased value of short circuit current. DRA certainly agrees that such a review is necessary. In this regard, please provide the nameplate rated short circuit current value for the 500/125 kV transformers.

Response to Question 5E:

(4)
SCE's position that serving 1,680 MVA of electrical demand from one system is not a reliable means to provide electrical service is primarily based on several principals.

The Alberhill System Project objectives include creating an additional 500/115 kV system to provide additional transformer capacity to serve existing and future long-term electrical demand in the area as well as to create 115 kV system tie-lines for which the Valley South 115 kV System currently has none. These two primary objectives would result in a more reliable electrical system network within the San Jacinto Valley region. Through the creation of a second 500/115 kV system and the corresponding transfer of electrical demand, the two systems together would provide for the long-term electrical needs of the area from the standpoint of both a capacity and reliability.

The proposal to add a third transformer to the Valley South 115 kV System would result in an extremely large radial distribution system (serving up to 1,680 MVA of customer demand) versus that of several smaller radial distribution systems and exposes a great number of customers to electrical system interruptions due to certain events such as faults within the system. Increasing the capacity of the Valley South 115 kV System in turn, increases the number of customers served and exposed to service interruptions. Typical SCE design of similar type systems (e.g., the more common 220/66 kV systems throughout the SCE territory) generally limits the amount of transformation to 560 MVA (two 280 MVA transformers) per bus section. This is a design consideration which incorporates such things as limiting the number of customers exposed to electrical service interruptions resulting from faulted conditions and also that of limiting the available short-circuit duty, which if excessive could result in such things as equipment failure and safety hazards.

Without the creation of another 500/115 kV system and only giving consideration to the need to provide additional transformer capacity (as suggested by adding a third 560 MVA transformer to the existing Valley South 115 kV System), only one of the project’s primary objectives would be addressed. This configuration would result in greater potential for reduced reliability resulting from outages to equipment during faulted conditions and would without the creation of system tie-lines, provide no enhancement to the operational flexibility of the system.

By continuing to allow more electrical demand to be added to the existing Valley South 115 kV System, the number of customers exposed to the issues addressed above increases.

(5)
SCE is not proposing the Alberhill System Project as a solution to address FIDVR events. As previously stated in the Alberhill System Project PEA and in CPUC Energy Division and DRA data requests, the purpose of the Alberhill System Project is to create a new 500/115 kV system which would provide additional electrical infrastructure capacity to reliably serve existing and future electrical demand in the Electrical Needs Area. SCE is simply noting that another benefit of the Alberhill System Project would be the positive impact the project would have on FIDVR events in the area.

It is important to note that SCE has been, and continues to be, a key leader in ongoing

industry-wide research efforts related to FIDVR. It is SCE's opinion that the industry has not reached any consensus on a solution for FIDVR problems; in fact, the industry has recognized that a “one-size-fits-all” solution may not be possible. The industry continues to investigate a wide variety of possible FIDVR solutions. While one long-term solution may eventually involve implementation of changes in nationwide or statewide residential A/C design and manufacturing standards, another much more immediate solution - also recognized by the industry - is location-specific implementation of strategies to limit the amount of electrical demand subjected to low voltages during FIDVR events. This would be a clear and immediate benefit of the Alberhill System Project which would result in a reduction in the amount of induction motor load served in the Valley South 115 kV System.

(6)
The existing transformers at Valley Substation have nameplate ratings of 560 MVA 525/120 kV and impedance values (%X) of 12.3% on a 300 MVA base. This translates into approximately 2,439 MVA of maximum short circuit duty. At 120 kV rated voltage this is approximately 11,735 amps each.

500 kV Alternatives and SKR Core Reserve Lands

LAKE MATHEWS/ESTELLE MOUNTAIN RESERVE OWNER: USA

LAKE MATHEWS/ESTELLE MOUNTAIN RESERVE OWNER: RCHCA

LAKE MATHEWS/ESTELLE MOUNTAIN RESERVE OWNER: RCHCA

LAKE MATHEWS/ESTELLE MOUNTAIN RESERVE OWNER: RCHCA

LAKE MATHEWS/ESTELLE MOUNTAIN RESERVE OWNER: USA

Serrano Valley

N1

N2

N3

SA

VA

C1

C2

C3

C4

Love Ln

Temescal Canyon Rd

Corona Fwy

Concordia Ranch Rd

Lake St

Lake Elsinore

Desperado Dr

Alberhill

500kV Transmission Alternatives

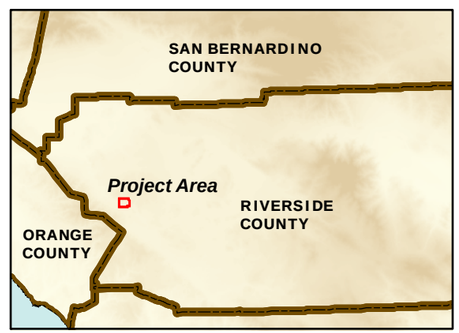
- Segment C1
- Segment C2
- Segment C3
- Segment C4
- Segment N1
- Segment N2
- Segment N3
- Segment SA
- Segment VA
- Existing 500 kV (SCE, 2006)
- Proposed Alberhill Substation
- RCHCA

N

W E

S

0 0.2 Miles



Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON

An EDISON INTERNATIONAL℠ Company

SECTION 2.0

Project Description

The Sun Valley Energy Project (SVEP) will be a nominal 500-megawatt (MW) peaking facility consisting of five GE Energy LMS100 natural gas-fired turbine-generators and associated equipment. The facility will be located near Romoland in unincorporated Riverside County on an approximately 20-acre parcel. Although the project site is currently in agricultural use, the land is zoned Manufacturing-Service Commercial. The legal description of the project site is provided in Appendix 1A. Mailing address labels for all property owners within 1,000 feet of the site boundaries are provided in Appendix 1B. The project site is located at 29500 Rouse Road, Romoland, California. The Assessor's Parcel Numbers are 331-250-019 and -020. The site is located in Township 5S, Range 3W, Section 14 (San Bernardino Base and Meridian).

Figure 2.1-1 shows the project site plan, and appurtenant facilities, including the electric transmission line, natural gas supply line, reclaimed water supply line, potable water supply line, and waste water disposal line. Three of these appurtenant facilities will connect to utility lines located on easements immediately adjacent to the project parcel (reclaimed water, potable water, sanitary sewer). The project will require a 750-foot-long natural gas pipeline between the project boundary and Menifee Road that will be entirely located within one of the project parcels. It will also require a 0.75-mile-long non-reclaimable water pipeline.

SVEP will connect to Southern California Edison's (SCE) electrical transmission system at the Valley Substation, which is approximately 600 feet north of the project site. This connection will require approximately 600 feet of 115-kV transmission line connecting to the south end of the Valley Substation and one off-site transmission tower in an existing SCE transmission easement. Interconnection at this specific substation minimizes downstream impacts to the SCE's transmission system, as well as reducing transformation losses from the 500-kV transmission supply to the Valley Substation, while providing efficient peaking power for use during peak demand as projected by SCE.

Reclaimed water for cooling tower and evaporative cooler makeup, site landscape irrigation, and demineralized water makeup will be supplied via a 12-inch-diameter direct connection to a reclaimed water pipeline in a utility easement immediately north of the project site. The Eastern Municipal Water District will supply, on average, approximately 851 acre-feet per year (ac-ft/yr) of reclaimed water for the project. Appendix 7A contains a "will-serve" letter from the District.

Potable water will be supplied from through a 4-inch-diameter pipeline, fire water will be supplied through a 10-inch-diameter connection, and domestic sewage will discharge to an existing line located in the same utility easement adjacent to and north of the project site. Non-reclaimable wastewater will be discharged through an 8-inch-diameter pipeline that will run west from the project along Matthews Road to McLaughlin Road for 0.75 mile and will connect with the Inland Empire Energy Center's non-reclaimable waste water line located at McLaughlin and Antelope Roads.

The project will connect with Southern California Gas Company's (SoCalGas's) natural gas pipeline via a 12-inch-diameter and 750-foot-long connection to the existing pipeline that runs along Menifee Road east of the project site.

2.1 Generating Facility Description, Design, and Operation

This section describes the facility's conceptual design and proposed operation.

2.1.1 Site Arrangement and Layout

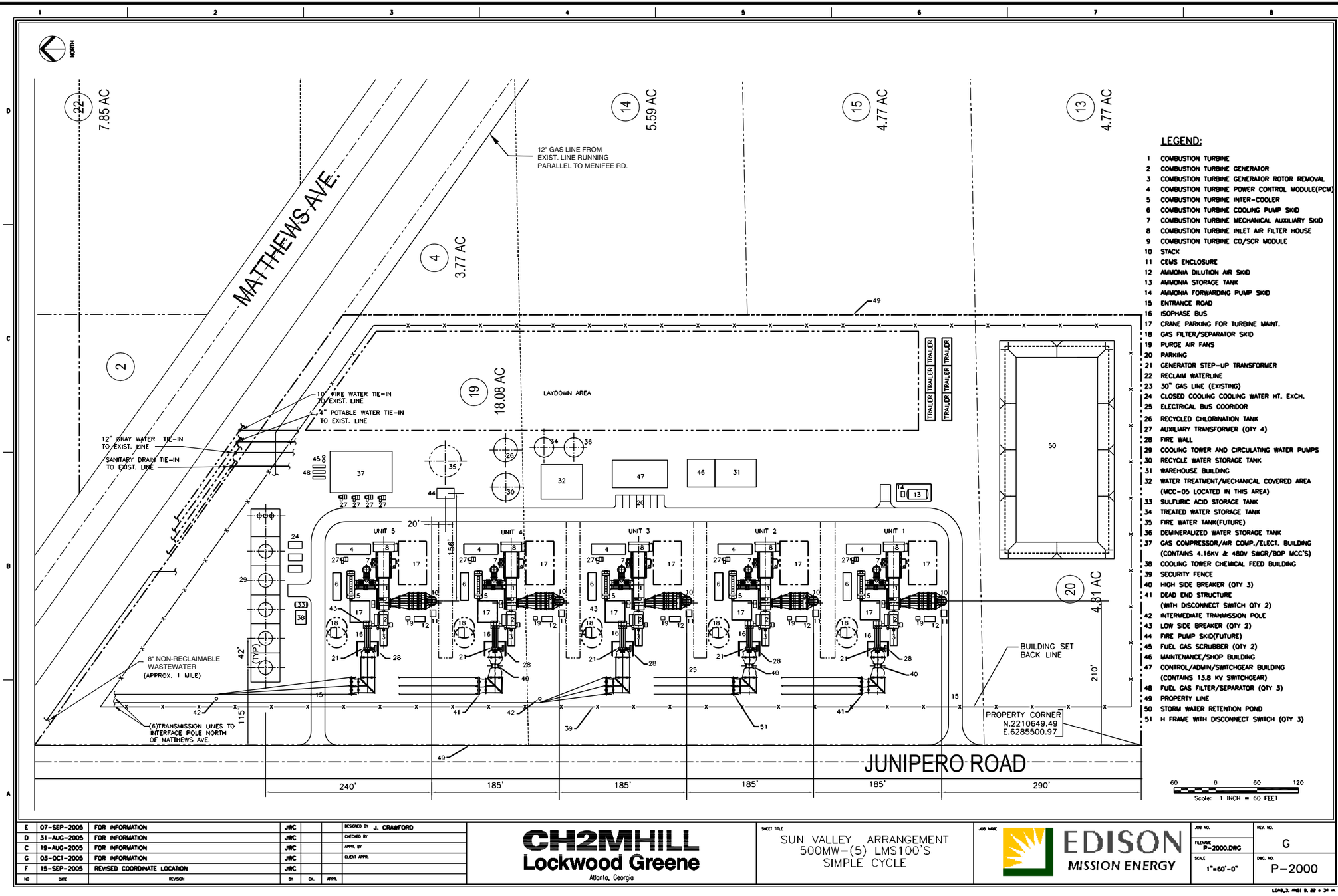
Figure 2.1-1 shows the general arrangement and layout of the facility, and Figures 2.1-2a and 2.1-2b are typical elevation views. Primary access to the site will be provided from the south via Rouse (Russell) Road. Access during operation will be via Rouse Road and Junipero Road, from the south. The project site is located in an area that is designated for industrial land use, zoned manufacturing-service commercial, and that is currently in agricultural use. It is surrounded to the south, east, and west, by industrial and agricultural uses. To the north are the Burlington Northern and Santa Fe (BNSF) railroad and SCE Valley Substation. To the northwest are areas zoned industrial that are in agricultural use or industrial use, including the Inland Empire Energy Center, which is under construction. To the east is an open agricultural field planned for Light Industrial uses and, east of Menifee Road, the Menifee Valley Ranch residential development, which has recently begun construction. To the south are agricultural and residential uses.

2.1.2 Process Description

The generating facility will consist of five GE Energy LMS100 natural gas-fired combustion turbine-generators (CTGs), each equipped with water injection capability to reduce oxides of nitrogen (NO_x) emissions, selective catalytic reduction (SCR) equipment containing catalysts to further reduce NO_x emissions, and an oxidation catalyst to reduce carbon monoxide (CO) emissions. The total nominal generating capacity will be 500 MW. Auxiliary equipment will include an inlet air filter house with evaporative cooler, turbine inter-cooler, 5-cell mechanical-draft cooling tower and circulating water pumps, natural gas compressors, generator step-up and auxiliary transformers, and water storage tanks.

Each CTG will generate approximately 100 MW at the summer design ambient conditions. The project is expected to have an annual capacity factor of approximately 20 to 40 percent, depending on dispatch to meet customer loads. The generating facility base case heat balance is shown on Figure 2.1-3. This balance is based on an ambient dry bulb temperature of 90 degrees Fahrenheit (°F) (the summer average condition) with evaporative cooling of the inlet combustion air.

Associated equipment will include emission control systems necessary to meet the proposed emission limits. NO_x emissions will be controlled to 2.5 parts per million by volume, dry basis (ppmvd) corrected to 15 percent oxygen with the combination of water injection in the CTGs and SCR systems in the catalyst housing. A CO catalyst will also be installed in the catalyst housing to limit CO emissions from the CTGs to 6 ppmvd at 15 percent oxygen.



LEGEND:

1 COMBUSTION TURBINE
2 COMBUSTION TURBINE GENERATOR
3 COMBUSTION TURBINE GENERATOR ROTOR REMOVAL
4 COMBUSTION TURBINE POWER CONTROL MODULE(PCM)
5 COMBUSTION TURBINE INTER-COOLER
6 COMBUSTION TURBINE COOLING PUMP SKID
7 COMBUSTION TURBINE MECHANICAL AUXILIARY SKID
8 COMBUSTION TURBINE INLET AIR FILTER HOUSE
9 COMBUSTION TURBINE CO/SCR MODULE
10 STACK
11 CEMS ENCLOSURE
12 AMMONIA DILUTION AIR SKID
13 AMMONIA STORAGE TANK
14 AMMONIA FORWARDING PUMP SKID
15 ENTRANCE ROAD
16 ISOPHASE BUS
17 CRANE PARKING FOR TURBINE MAINT.
18 GAS FILTER/SEPARATOR SKID
19 PURGE AIR FANS
20 PARKING
21 GENERATOR STEP-UP TRANSFORMER
22 RECLAIM WATERLINE
23 30" GAS LINE (EXISTING)
24 CLOSED COOLING COOLING WATER HT. EXCH.
25 ELECTRICAL BUS COORIDOR
26 RECYCLED CHLORINATION TANK
27 AUXILIARY TRANSFORMER (QTY 4)
28 FIRE WALL
29 COOLING TOWER AND CIRCULATING WATER PUMPS
30 RECYCLE WATER STORAGE TANK
31 WAREHOUSE BUILDING
32 WATER TREATMENT/MECHANICAL COVERED AREA (MCC-05 LOCATED IN THIS AREA)
33 SULFURIC ACID STORAGE TANK
34 TREATED WATER STORAGE TANK
35 FIRE WATER TANK(FUTURE)
36 DEMINERALIZED WATER STORAGE TANK
37 GAS COMPRESSOR/AIR COMP./ELECT. BUILDING (CONTAINS 4.16KV & 480V SWGR/BOP MCC'S)
38 COOLING TOWER CHEMICAL FEED BUILDING
39 SECURITY FENCE
40 HIGH SIDE BREAKER (QTY 3)
41 DEAD END STRUCTURE (WITH DISCONNECT SWITCH QTY 2)
42 INTERMEDIATE TRANMISSION POLE
43 LOW SIDE BREAKER (QTY 2)
44 FIRE PUMP SKID(FUTURE)
45 FUEL GAS SCRUBBER (QTY 2)
46 MAINTENANCE/SHOP BUILDING
47 CONTROL/ADMIN/SWITCHGEAR BUILDING (CONTAINS 13.8 KV SWITCHGEAR)
48 FUEL GAS FILTER/SEPARATOR (QTY 3)
49 PROPERTY LINE
50 STORM WATER RETENTION POND
51 H FRAME WITH DISCONNECT SWITCH (QTY 3)

NO	DATE	REVISION	BY	CK.	APPR.
E	07-SEP-2005	FOR INFORMATION	JWC		
D	31-AUG-2005	FOR INFORMATION	JWC		
C	19-AUG-2005	FOR INFORMATION	JWC		
G	03-OCT-2005	FOR INFORMATION	JWC		
F	15-SEP-2005	REVISED COORDINATE LOCATION	JWC		

DESIGNED BY J. CRAWFORD
CHECKED BY
APPR. BY
CLIENT APPR.

CH2MHILL
Lockwood Greene
Atlanta, Georgia

SHEET TITLE
SUN VALLEY ARRANGEMENT
500MW-(5) LMS100'S
SIMPLE CYCLE

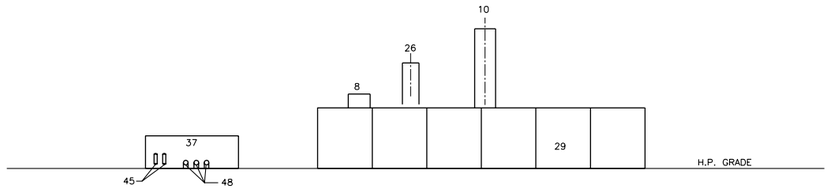
JOB NAME
EDISON MISSION ENERGY

JOB NO.
FILENAME P-2000.DWG
REV. NO. G
SCALE 1"=60'-0"
DWG. NO. P-2000

LOAD_3, ANSI B, 22 x 34 in.

FIGURE 2.1-1
SITE PLAN
SUN VALLEY ENERGY PROJECT
ROMOLAND, CALIFORNIA

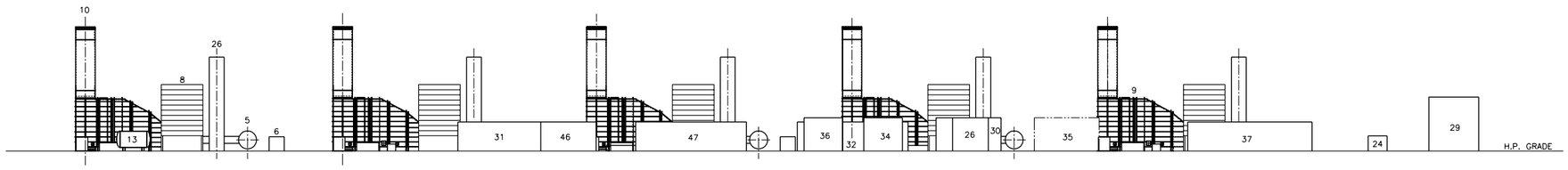
CH2MHILL



NORTH ELEVATION

LEGEND:

5 COMBUSTION TURBINE INTER-COOLER
6 COMBUSTION TURBINE COOLING PUMP SKID
8 COMBUSTION TURBINE INLET AIR FILTER HOUSE
9 COMBUSTION TURBINE CO/SCR MODULE
10 STACK
13 AMMONIA STORAGE TANK
24 CLOSED COOLING COOLING WATER HT. EXCH.
25 ELECTRICAL BUS COORIDOR
26 VBV STACK
29 COOLING TOWER AND CIRCULATING WATER PUMPS
30 RECYCLE WATER STORAGE TANK
31 WAREHOUSE BUILDING
32 WATER TREATMENT/MECHANICAL EQUIPMENT BUILDING
34 TREATED WATER STORAGE TANK
35 FIRE WATER TANK (FUTURE)
36 DEMINERALIZED WATER STORAGE TANK
37 GAS COMPRESSOR/AIR COMP./ELECT. BUILDING
46 MAINTENANCE/SHOP BUILDING
47 CONTROL/ADMIN/SWITCHGEAR BUILDING



EAST ELEVATION

40 0 40 80
Scale: 1 INCH = 40 FEET

NO	DATE	REVISION	BY	CK.	APPR.
A	09-SEP-2005	FOR COMMENTS	DWS		

DESIGNED BY D.STREET
CHECKED BY
APPR. BY
CLIENT APPR.

CH2MHILL Lockwood Greene
Atlanta, Georgia

SHEET TITLE
SUN VALLEY ARRANGEMENT
500MW-(5) LMS100'S
SIMPLE CYCLE

JOB NAME
EDISON MISSION ENERGY

JOB NO. 023482.00
FILENAME P-2000.DWG
SCALE 1"=40'-0"
REV. NO. A
DWG. NO. P-2001

LGAD_3, ANSI D, 22 x 34 in.

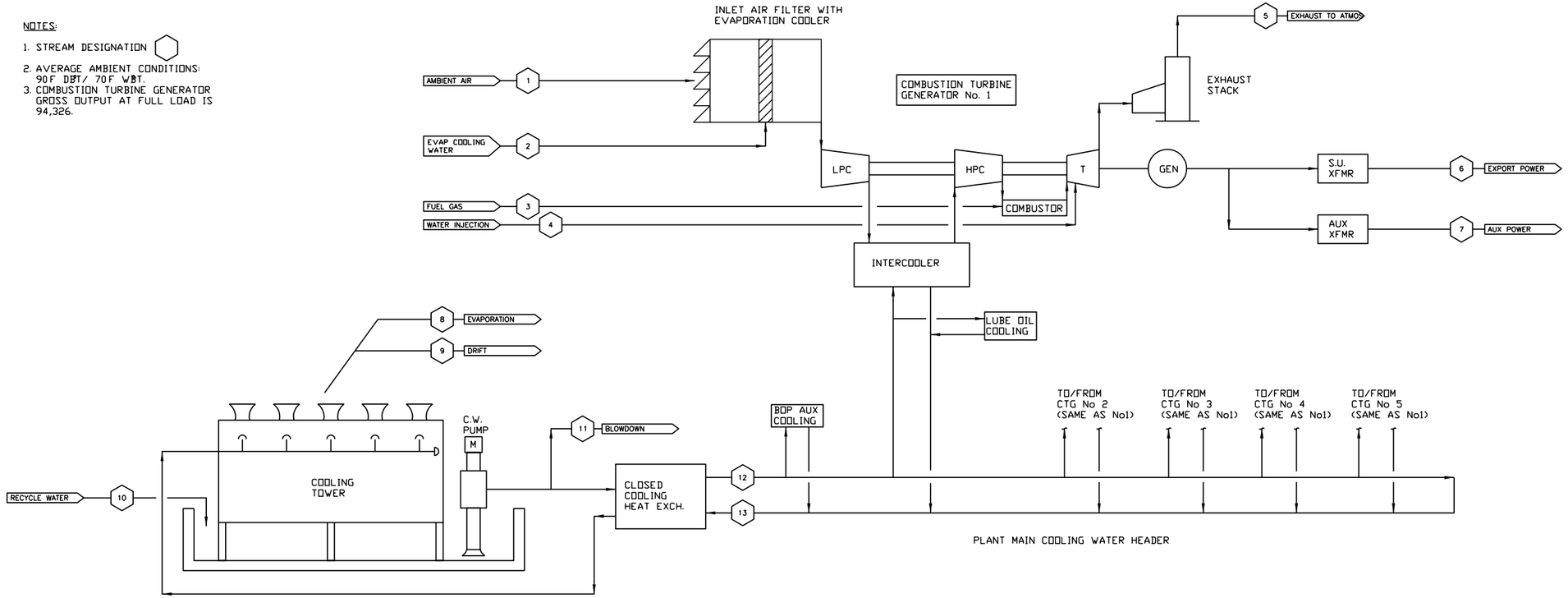
FIGURE 2.1-2
PROJECT PLANT ELEVATIONS
SUN VALLEY ENERGY PROJECT
ROMOLAND, CALIFORNIA

CH2MHILL

E092005018SAC_Sun_Valley_AFC sv_figure_2_1_2.ai 11-08-2005 tdaus

NOTES:

1. STREAM DESIGNATION ⬡
2. AVERAGE AMBIENT CONDITIONS: 90F DBT/ 70F WBT.
3. COMBUSTION TURBINE GENERATOR GROSS OUTPUT AT FULL LOAD IS 94,326.



PLANT HEAT BALANCE AT AMBIENT CONDITION STATED (2)

		ONE COMBUSTION TURBINE GENERATOR							FIVE (5) COMBUSTION TURBINE GENERATORS												
	UNITS	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	10	11	12	13
FLOW	Lb/HR	1,494,335	11,680	36,398	28,353	1,553,686	-	-	7,471,675	58,400	181,990	141,765	7,768,430	-	-	488,155	-	610,194	122,039	17,675,000	17,675,000
FLOW	GPM	-	23.4	-	56.7	-	-	-	-	116.8	-	283.5	-	-	-	976	0.2	1,220	244	35,350	35,350
TEMPERATURE	°F	90	60	100	100	796	-	-	90	60	100	100	796	-	-	-	-	60	85	85	119
HEAT INPUT	MM BTU/ HR-LHV			748.8							3,744										
POWER	KW						91,618	2,708						458,088	13,542						
HEAT RATE	BTU/KWH						8,173							8,173							

NO	DATE	REVISION	BY	CK.	APPR.

DESIGNED BY
CHECKED BY
APPR. BY
CLIENT APPR.

CH2MHILL Lockwood Greene

SHEET TITLE: PLANT HEAT BALANCE SUN VALLEY

JOB NAME: EDISON MISSION ENERGY 5 x LMS 100 CTG IN SIMPLE CYCLE

JOB NO.
FILENAME: M0001011.DWG
SCALE
DATE
REV. NO.: B
DWG. NO.: M-1011

FIGURE 2.1-3
PROJECT HEAT AND MASS BALANCE DIAGRAM
SUN VALLEY ENERGY PROJECT
ROMOLAND, CALIFORNIA

CH2MHILL

E092005018SAC_Sun_Valley_AFC sv_figure_2_1_3.ai 11-08-2005 tdaus

2.1.3 Generating Facility Cycle

CTG combustion air flows through the inlet air filter and evaporative cooler and associated air inlet ductwork. The air is then compressed in the gas turbine low-pressure compressor section and cooled through the intercooler before it enters the high-pressure compressor. The compressed air then flows to the CTG combustor. Natural gas fuel is injected into the compressed air in the combustor and ignited. The hot combustion gases expand through the power turbine sections of the CTGs, causing them to rotate, driving the electric generators and CTG compressors. Integrating an intercooler between compressor stages in the LMS100, together with higher combustor firing temperatures, results in gross turbine generator efficiencies of approximately 44 percent. The hot combustion gases exit the turbine sections at approximately 770 °F and then pass through the catalyst housing for exposure to NO_x and CO emissions catalysts, and then exit the exhaust stacks.

2.1.4 Combustion Turbine Generators

Electricity is produced by the five CTGs. The following paragraphs describe the major components of the generating facility.

2.1.4.1 Combustion Turbine Generators

Thermal energy is produced in the CTGs through the combustion of natural gas, which is converted into mechanical energy required to drive the combustion turbine compressors and electric generators. Five GE Energy LMS100 CTGs have been selected for SVEP. The LMS100 integrates features of GE Energy's frame and aeroderivative CTG design systems. The low-pressure compressor is derived from the heavy-duty frame engine system and the high pressure compressor, combustor, and power turbine are derived from the aeroderivative system. Each CTG consists of a stationary combustion turbine-generator, and associated auxiliary equipment. The CTGs will be equipped with water injection capability to control NO_x emissions formed in the combustion process. While GE Energy anticipates future units will be capable of using steam injection and Dry Low Emissions (DLE) combustors, these design options are not as suitable for peaking operation. Each CTG will also have a variable bleed valve vent that allows the venting of compressed air to the atmosphere under certain transient compressor operating conditions.

The CTGs will be equipped with the following required accessories to provide safe and reliable operation:

- Evaporative coolers
- Inlet air filters
- Metal acoustical enclosure
- Duplex shell and tube lube oil coolers for the turbine and generator
- Annular combustor combustion system
- Compressor wash system
- Fire detection and protection system
- Compressor intercooler
- Hydraulic starting system
- Water injection system
- Compressor variable bleed valve vent

The metal acoustical enclosure, which contains the CTGs and accessory equipment, will be located outdoors.

2.1.4.2 Catalyst Housing

The catalyst housings, one for each CTG, are equipped with catalyst modules to further reduce emissions. The SCR emission control system will use ammonia vapor in the presence of a catalyst to reduce CTG exhaust gas NO_x. Diluted ammonia (NH_3) vapor will be injected into the exhaust gas stream via a grid of nozzles located upstream of the catalyst module. The subsequent chemical reaction will reduce NO_x to nitrogen and water, resulting in a NO_x concentration in the exhaust gas no greater than 2.5 ppmvd at 15 percent oxygen (on a 3-hour average basis).

An oxidation catalyst will also be installed within the housing to reduce the concentration of CO in the exhaust gas emitted to atmosphere to no greater than 6 ppmvd at 15 percent oxygen. The exhaust from each catalyst housing will be discharged from individual 90-foot-tall, 13.5-foot diameter exhaust stacks.

2.1.5 Major Electrical Equipment and Systems

The bulk of the electric power produced by the facility will be transmitted to the power grid through the 115-kV connection with the SCE Valley Substation. A small amount of electric power will be used onsite to power auxiliaries such as pumps, natural gas compressors, cooling tower fans, control systems, and general facility loads including lighting, heating, and air conditioning. Some will also be converted from alternating current (AC) to direct current (DC), and will be used as backup power for control systems and other uses.

Power will be generated by the five CTGs at 13.8 kV and stepped up by five fan-cooled generator step-up transformers to 115 kV for transmission to the grid. Auxiliary power will be back-fed through two of the step-up transformers. Once the units are running, they will supply their own auxiliary power. Surge arresters will be provided at the high-voltage bushings to protect the transformers from surges on the 115-kV system caused by lightning strikes or other system disturbances. The transformers will be set on concrete pads within berms designed to contain the non-PCB transformer oil in the event of a leak or spill. Fire protection systems will be provided. The high-voltage side of the step-up transformers will be connected to gas insulated (SF6) circuit breakers then to overhead cables to SCE's Valley substation. From the substation, power will be transmitted to the grid via transmission lines owned by SCE. The transmission connect to the SCE Valley Substation is approximately 600 feet long and will require one conductor support tower, to be located adjacent to the Valley Substation. Section 5.0, Electrical Transmission contains additional information regarding the electrical transmission system as well as a summary of the System Impact Study.

2.1.6 Fuel System

The CTGs will be designed to burn natural gas. Natural gas requirements at the summer average condition of 78ºF are approximately 850 million British thermal units per hour (MMBtu/hr), per unit, on a higher heating value basis.

Natural gas will be delivered to the site via a connection to one or more of the three existing 30-inch pipelines located in a utility easement within the project parcel along Menifee Road. The natural gas will flow through gas scrubber/filtering equipment, gas compressors, a gas pressure control station, and a flow-metering station prior to entering the combustion turbines. Historical data indicates that gas pressure in SoCalGas's Line distribution pipeline varies between 400 and 800 psig. Due to a high compressor pressure ratio, the GE Energy LMS100 unit requires a pressure at the turbine connection of 960 psig, plus or minus 20 psig. Three, 50-percent-capacity on-site electric motor-driven gas compressors will be used to boost the pipeline pressure to the level required by the gas turbine. Additional information about natural gas supply can be found in Section 6.0 Natural Gas Supply.

2.1.7 Water Supply and Use

This section describes the quantity of water required, the source of the water supply, and water treatment requirements. Additional information on water supply and use is found in Section 7.0, Water Supply.

2.1.7.1 Water Requirements

The estimated water usage for the plant is provided in Table 2.1-1.

TABLE 2.1-1
Raw Water Usage

Condition	Expected Usage	
Peak Usage (Maximum Summer Condition)	1,704 gpm	1003 ac-ft/yr[a]
Average Annual Usage	1,510 gpm	851 ac-ft/yr[b]

[a] At a 40 percent capacity factor

[b] At a 34 percent capacity factor

gpm = gallons per minute

ac-ft/yr = acre-feet per year

2.1.7.2 Water Supply

Reclaimed water for CTG evaporative cooling, landscape irrigation, process system makeup, and cooling will be provided by the Eastern Municipal Water District via the existing 12-inch diameter reclaimed water supply line. Water supply reliability is ensured by the fact that EMWD can draw recycled water from several treatment plants.

2.1.7.3 Water Quality and Treatment

Process water includes the demineralized water used for NO_x injection into the CTG and for evaporative cooling. Potable water will be furnished from the city's water system for drinking and sanitary use and makeup to the plant hose stations.

Water treatment will be provided onsite prior to use for water injection. Demineralized water will be used for NO_x injection water. The demineralized water will be produced by a reverse osmosis (RO) and Ion Exchange system and will be stored in a 100,000-gallon demineralized water storage tank. Water quality is described further in Sections 7.0 Water Supply, and 8.15 Water Resources.

SVEP water use can be divided into the following three levels based on the quality required: (1) cooling water; (2) demineralized water for NO_x injection water, and (3) potable water.

2.1.7.4 Cooling Tower System

Makeup water will be pumped from the reclaimed water storage tank to the cooling tower basins as required to replace water lost from evaporation, drift, and blowdown. A chemical feed system will supply water conditioning chemicals to the circulating water to minimize corrosion and control the formation of mineral scale and biofouling. Sulfuric acid will be fed into the circulating water system in proportion to makeup water flow for alkalinity reduction to control the scaling tendency of the circulating water. The acid feed equipment will consist of a bulk sulfuric acid storage tank and two full-capacity sulfuric acid metering pumps.

To further inhibit scale formation, a polyacrylate solution will be fed into the circulating water system as a sequestering agent in an amount proportional to the circulating water blowdown flow. The scale inhibitor feed equipment will consist of a chemical solution bulk storage tank and two full-capacity scale inhibitor metering pumps.

To prevent biofouling in the circulating water system, sodium hypochlorite will be fed into the system. The hypochlorite feed equipment will consist of a bulk storage tank and 2 full-capacity hypochlorite metering pumps. A small storage tank, or 100- to 400-gallon totes, and 2 full-capacity metering pumps will be provided for the feeding of either stabilized bromine or sodium bromide as alternate biocides.

2.1.8 Plant Cooling Systems

A cooling tower will be provided for the gas turbine auxiliary cooling requirements. Two 50-percent-capacity circulating water pumps will provide water to cool three closed-cooling water heat exchangers; rated at approximately 33 percent capacity each. The closed-cooling water heat exchangers will provide high quality cooling water to a GE-provided pump skid for each combustion turbine. The pump skid provides cooling water to the CT compressor intercooler and to the lubrication systems.

2.1.9 Waste Management

Waste management is the process whereby all wastes produced at SVEP are properly collected, treated if necessary, and disposed of. Wastes include wastewater, solid nonhazardous waste, and both liquid and solid hazardous waste. Waste management is discussed in more detail in Section 8.14.

2.1.9.1 Wastewater Collection, Treatment, and Disposal

The primary wastewater collection system will collect process wastewater from all of the plant equipment, including the cooling tower and water treatment equipment. The second wastewater collection system will collect sanitary wastewater from sinks, toilets, showers, and other sanitary facilities, and discharge to the city sanitary sewer system. The two wastewater systems are described below.

2.1.9.1.1 Circulating Water System Blowdown

Circulating water system blowdown will consist of the reclaimed makeup water and other recovered process wastewater streams that have been concentrated by evaporative losses in

the cooling towers, and residues of the chemicals added to the circulating water. The cooling tower concentrates these streams near the mineral solubility limit for the constituents of concern (calcium, silica and total dissolved solids), based on EMWD discharge limits. This concentrated water must then be removed from the cooling tower via blowdown to prevent the formation of mineral scale in heat transfer equipment. The chemicals added to the circulating water control scaling and biofouling of the cooling tower and control corrosion of the circulating water piping and intercooler. Cooling tower blowdown will be discharged to the non-reclaimable waste water line. This pipeline will return the non-reclaimable waste water through EMWD's system including the Temescal Valley Regional Interceptor (TVRI) and Santa Ana Regional Interceptor (SARI) pipeline system to the (Orange County Sanitation District (OCSD) wastewater treatment plant, which discharges to an ocean outfall.

2.1.9.1.2 Plant Drains and Oil/Water Separator

General plant drains will collect area washdown, sample drains, and drainage from facility equipment areas. Water from these areas will be collected in a system of floor drains, hub drains, sumps, and piping and routed to the wastewater collection system. Drains that potentially could contain oil or grease will first be routed through an oil/water separator. Wastewater from combustion turbine water washes will be collected in a holding tank. If cleaning chemicals were not used during the water wash procedure, the wastewater will be discharged to the oil/water separator and then recycled as makeup to the cooling tower. Wastewater containing cleaning chemicals will be trucked offsite for disposal at an approved wastewater disposal facility.

2.1.9.1.3 Solid Wastes

SVEP will produce maintenance and plant wastes typical of natural gas-fueled power generation operations. Generation plant wastes include oily rags, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, and other solid wastes, including the typical refuse generated by workers. Recyclable materials will be taken offsite. Waste collection and disposal will be in accordance with applicable regulatory requirements to minimize health and safety effects.

2.1.9.1.4 Hazardous Wastes

Several methods will be used to properly manage and dispose of hazardous wastes generated by SVEP. Waste lubricating oil will be recovered and reclaimed by a waste oil recycling contractor. Spent lubrication oil filters will be disposed of in a Class I landfill. Spent SCR and oxidation catalysts will be reclaimed by the supplier or disposed of in accordance with regulatory requirements. Workers will be trained to handle hazardous wastes generated at the site.

Chemical cleaning wastes will consist of detergent solutions used during turbine washing. These wastes, which are subject to high metal concentrations, will be temporarily stored onsite in portable tanks and disposed of offsite by the chemical cleaning contractor in accordance with applicable regulatory requirements.

2.1.10 Management of Hazardous Materials

There will be a variety of chemicals stored and used during the construction and operation of SVEP. The storage, handling, and use of all chemicals will be conducted in accordance with applicable laws, ordinances, regulations, and standards (LORS). Chemicals will be

stored in appropriate chemical storage facilities. Bulk chemicals will be stored in storage tanks, and other chemicals will be stored in returnable delivery containers. Chemical storage and chemical feed areas will be designed to contain leaks and spills. Berm and drain piping design will allow a full-tank capacity spill without overflowing the berms. For multiple tanks located within the same bermed area, the capacity of the largest single tank will determine the volume of the bermed area and drain piping. Drain piping for volatile chemicals will be trapped and isolated from other drains to eliminate noxious or toxic vapors. After neutralization, if required, water collected from the chemical storage areas will be directed to the cooling tower basin, or trucked offsite for disposal at an approved wastewater disposal facility.

The aqueous ammonia storage area will have spill containment and ammonia vapor detection equipment. Aqueous ammonia will be transported, and stored on site, in a 19 percent solution, by weight.

Safety showers and eyewashes will be provided in the vicinity of all chemical storage and use areas. Hose connections will be provided near the chemical storage and feed areas to flush spills and leaks to the plant wastewater collection system. Approved personal protective equipment will be used by plant personnel during chemical spill containment and cleanup activities. Personnel will be properly trained in the handling of these chemicals and instructed in the procedures to follow in case of a chemical spill or accidental release. Adequate supplies of absorbent material will be stored onsite for spill cleanup.

A list of the chemicals anticipated to be used at the generating facility and their locations is provided in the Hazardous Materials Handling section (Section 8.5). This list identifies each chemical by type, intended use, and estimated quantity to be stored onsite.

2.1.11 Emission Control and Monitoring

Air emissions from the combustion of natural gas in the CTGs will be controlled using state-of-the-art systems. Emissions that will be controlled include NO_x, volatile organic compounds (VOCs), CO, and particulate matter. Section 8.1, Air Quality, includes additional information on emission control and monitoring.

2.1.11.1 NO_x Emission Control

Selective catalytic reduction will be used to control NO_x concentrations in the exhaust gas emitted to the atmosphere to 2.5 ppmvd at 15 percent oxygen from the gas turbines/SCRs. The SCR process will use aqueous ammonia. Ammonia slip, or the concentration of unreacted ammonia in the exiting exhaust gas, will be limited to 5 ppmvd at 15 percent oxygen from the catalyst housing. The SCR equipment will include a reactor chamber, catalyst modules, ammonia storage system, ammonia vaporization and injection system, and monitoring equipment and sensors.

2.1.11.2 Carbon Monoxide

An oxidizing catalytic converter will be used to reduce the CO concentration in the exhaust gas emitted to the atmosphere to 6 ppmvd at 15 percent oxygen from the gas turbines.

2.1.11.3 Particulate Emission Control

Particulate emissions will be controlled by the use of natural gas, which is low in particulates, as the sole fuel for the CTGs.

2.1.11.4 Continuous Emission Monitoring

Continuous emission monitors (CEMs) will sample, analyze, and record fuel gas flow rate, NO_x and CO concentration levels, and percentage of O_2 in the exhaust gas from the three catalyst housing stacks. This system will generate reports of emissions data in accordance with permit requirements and will send alarm signals to the plant distributed control system (DCS) when emissions approach or exceed pre-selected limits.

2.1.12 Fire Protection

The fire protection system will be designed to protect personnel and limit property loss and plant downtime in the event of a fire. Fire water will be supplied via a 10-inch-diameter connection with an existing water line in a utility easement immediately adjacent to and north of the SVEP site. This connection will be sized in accordance with National Fire Protection Association (NFPA) guidelines to provide 2 hours of protection from the onsite worst-case single fire (2,000 gpm).

Fire water from the fire water main will be provided to a dedicated underground fire loop piping system. Both the fire hydrants and the fixed suppression systems will be supplied from the fire water loop. Fixed fire suppression systems will be installed at determined fire risk areas. Sprinkler systems will also be installed in the Administration/Maintenance Building as required by NFPA and local code requirements. The CTG units will be protected by a CO_2 fire protection system. Hand-held fire extinguishers of the appropriate size and rating will be located in accordance with NFPA 10 throughout the facility. The cooling tower will be constructed of wood and will include a fire protection sprinkler system and a wetting pump to keep the wood wet during periods of inactivity. The project will include a diesel fire pump if the Los Angeles County Fire Department determines this to be necessary.

Section 8.5, Hazardous Materials Handling, includes additional information for fire and explosion risk, and Section 8.10, Socioeconomics, provides information on local fire protection capability.

2.1.13 Plant Auxiliaries

The following systems will support, protect, and control the generating facility.

2.1.13.1 Lighting

The lighting system provides personnel with illumination for operation under normal conditions and for egress under emergency conditions, and includes emergency lighting to perform manual operations during an outage of the normal power source. The system also provides 120-volt convenience outlets for portable lamps and tools.

2.1.13.2 Grounding

The electrical system is susceptible to ground faults, lightning, and switching surges that result in high voltage that constitute a hazard to site personnel and electrical equipment. The station grounding system provides an adequate path to permit the dissipation of current created by these events.

The station grounding grid will be designed for adequate capacity to dissipate heat from ground current under the most severe conditions in areas of high ground fault current concentration. The grid spacing will maintain safe step voltage gradients.

Bare conductors will be installed below-grade in a grid pattern. Each junction of the grid will be bonded together by an exothermic weld or compression connection.

Ground resistivity readings will be used to determine the necessary numbers of ground rods and grid spacing to ensure safe step and touch potentials under severe fault conditions.

Grounding stingers will be brought from the ground grid to connect to building steel and non-energized metallic parts of electrical equipment.

2.1.13.3 Distributed Control System

The DCS provides modulating control, digital control, monitoring, and indicating functions for the plant power block systems.

The following functions will be provided:

- Controlling the CTGs and other systems in a coordinated manner
- Controlling the balance-of-plant systems in response to plant demands
- Monitoring controlled plant equipment and process parameters and delivery of this information to plant operators
- Monitoring the CTG CEMs units for critical alarms, and collecting data for historical log-in
- Providing control displays (printed logs, operator interface) for signals generated within the system or received from input/output (I/O)
- Providing consolidated plant process status information through displays presented in a timely and meaningful manner
- Providing alarms for out-of-limit parameters or parameter trends, displaying on operator interface units and recording on an alarm log printer
- Providing storage and retrieval of historical data

The DCS will be a redundant microprocessor-based system and will consist of the following major components:

- LCD flat screen operator displays
- Engineer work station
- Distributed processing units
- I/O cabinets
- Historical data unit
- Printers
- Data links to the combustion turbine

The DCS will have a functionally-distributed architecture comprising a group of similar redundant processing units linked to a group of operator consoles and the engineer work station by redundant data highways. Each processor will be programmed to perform specific dedicated tasks for control information, data acquisition, annunciation, and historical purposes. By being redundant, no single processor failure can cause or prevent a unit trip.

The DCS will interface with the control systems furnished by the CTG supplier to provide remote control capabilities, as well as data acquisition, annunciation, and historical storage of turbine and generator operating information.

The system will be designed with sufficient redundancy to preclude a single device failure from significantly affecting overall plant control and operation. This also will allow critical control and safety systems to have redundancy of controls, as well as an uninterruptible power source.

2.1.13.4 Cathodic Protection

The cathodic protection system will be designed to control the electrochemical corrosion of designated metal piping buried in the soil. Depending upon the corrosion potential and the site soils, either passive or impressed current cathodic protection will be provided.

2.1.13.5 Freeze Protection

Not required.

2.1.13.6 Service Air

The service air system will supply compressed air to hose connections for general plant use. Service air headers will be routed to hose connections located at various points throughout the facility.

2.1.13.7 Instrument Air

The instrument air system provides dry air to pneumatic operators and devices. An instrument air header will be routed to locations within the facility equipment areas and within the water treatment facility where pneumatic operators and devices will be located.

2.1.14 Interconnect to Electrical Grid

The five CTGs will connect with an approximately 600-foot-long 115 kV transmission line to SCE's Valley Substation.

2.1.15 Project Construction

Construction of the generating facility, from site preparation and grading to commercial operation, is expected to take place from March 2007 to August 2008. Major milestones are listed in Table 2.1-2.

TABLE 2.1-2
Project Schedule Major Milestones

Activity	Date
Begin Construction	Spring 2007
Startup and Test	Spring 2008
Commercial Operation	August 2008

There will be an average monthly and peak monthly workforce of approximately 220 and 408, respectively, of construction craft people, supervisory, support, and construction management personnel onsite during construction (see Table 8.10-8 in the Socioeconomics section).

Construction will be scheduled to occur between 7 a.m. and 7 p.m., Monday through Saturday. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. During some construction periods and during the startup phase of the project, some activities will continue 24 hours per day, 7 days per week.

The peak construction site workforce level is expected to last from Month 6 through Month 9 of the construction period.

Table 2.1-3 provides an estimate of the average and peak construction traffic during the 12-month construction period.

TABLE 2.1-3
Average and Peak Construction Traffic

Vehicle Type	Average Daily Trips	Peak Daily Trips
Construction Workers	220	408
Delivery	5	8
Heavy Trucks	5	10
Total	**230**	**426**

Construction laydown and parking areas will be within existing site boundaries, east of the power block area. Construction access will be from Matthews Road, as shown on Figure 2.1-1. Materials and equipment will be delivered by truck.

2.1.16 Generating Facility Operation

SVEP will be operated by two operators per shift, plus two relief operators and one maintenance technician, for a total staff of nine. The facility will be capable of being dispatched throughout the year, but is expected to operate primarily during the utility-defined on-peak and mid-peak periods.

SVEP is designed as a peaking facility to serve load during periods of high demand, which generally occur during daytime hours, and more frequently during the summer than other portions of the year. However, because the LMS100 CTGs are more efficient than any

previous peaking generators, and more efficient that any of the aging gas-fired steam generation facilities in Southern California, SVEP will be economical to operate more than is typical for peaking generators, and will operate on the order of approximately a 20 to 40 percent annual capacity factor. The actual capacity factor in any month or year will depend on weather-related customer demand, load growth, hydroelectric supplies, generating unit retirements and replacements, the level of generating unit and transmission outages, and other factors. All of the electricity produced by the plant will be sold under contract or on a merchant basis to the power market. The exact operational profile of the plant will be dependent on weather conditions and the power purchaser's economic dispatch decisions.

Because the capacity will be sold through contract and the prices that will be offered for spot purchases are unknown at this time, the exact mode of operation cannot be described. It is conceivable, however, that the facility could be operated in one or all of the following modes:

- **Summer Design Load**. The facility would be operated at maximum continuous output for as many hours per year as dispatched by the power purchaser. As the facility is designed to be a peaking facility, it is expected to operate only during high ambient temperature periods and/or periods of peak demand.
- **Load Following**. The facility would be available at contractual load but operated at less than maximum available output at high load times of the day. The output of each unit would therefore be adjusted periodically, either by schedule or automatic generation control, to meet whatever load proved profitable to the power purchaser or necessary by CAISO.
- **Partial Shutdown**. Less than all five CTGs would be operating at full load or in load following mode, and the remaining units would be shut down. If the shutdown units are not undergoing maintenance, they will in most cases be available to the power purchaser and the CAISO as non-spinning reserve units. This mode of operation can be expected to occur during average- to low-load hours (off-peak hours, weekends, and shoulder months).
- **Full Shutdown**. This would occur if forced by equipment malfunction, fuel supply interruption, transmission line disconnect, or scheduled maintenance of equipment common to all units. Because SVEP is a peaker, full shutdown for economic reasons would be expected for a majority of the off-peak hours of the year, although non-spinning reserve capability would still be available.

In the unlikely event of a situation that causes a longer-term cessation of operations, security of the facilities will be maintained on a 24-hour basis, and the California Energy Commission (CEC) will be notified. Depending on the length of shutdown, a contingency plan for the temporary cessation of operations may be implemented. Such contingency plan will be in conformance with all applicable LORS and protection of public health, safety, and the environment. The plan, depending on the expected duration of the shutdown, could include the draining of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment. All wastes will be disposed of according to applicable LORS. If the cessation of operations becomes permanent, the plant will be decommissioned (see Section 4.0, Facility Closure).

2.2 Facility Safety Design

SVEP will be designed for safe operation. Potential hazards that could affect the facility include earthquake, flood, and fire. Facility operators will be trained in safe operation, maintenance, and emergency response procedures to minimize the risk of personal injury and damage to the plant.

2.2.1 Natural Hazards

The principal natural hazard associated with the SVEP site is earthquakes. The site is located in Seismic Risk Zone 4. Structures will be designed to meet the seismic requirements of CCR Title 24 and the latest edition of the California Building Code (CBC). (See Section 8.4, Geologic Hazards and Resources.) This section includes a review of potential geologic hazards, seismic ground motion, and potential for soil liquefaction due to ground-shaking. Potential seismic hazards would be mitigated by implementing the CBC construction guidelines. Appendix 10B, Structural Engineering, includes the structural seismic design criteria for the buildings and equipment.

Flooding is not a hazard of concern. According to the Federal Emergency Management Agency (FEMA), the site is not within either the 100- or 500-year flood plain. Section 8.15, Water Resources, includes additional information on the potential for flooding.

2.2.2 Emergency Systems and Safety Precautions

This section discusses the fire protection systems, emergency medical services, and safety precautions to be used by project personnel. Section 8.10, Socioeconomics, includes additional information on area medical services, and Section 8.16, Worker Safety, includes additional information on safety for workers. Appendices 10A through 10G contain the design practices and codes applicable to safety design for the project. Compliance with these requirements will minimize project effects on public and employee safety.

2.2.2.1 Fire Protection Systems

The project will rely on both onsite fire protection systems and local fire protection services.

2.2.2.1.1 Onsite Fire Protection Systems

The fire protection systems are designed to protect personnel and limit property loss and plant downtime from fire or explosion. The project will have the following fire protection systems.

CO_2 Fire Protection System

This system protects the combustion turbine, generator, and accessory equipment compartments from fire. The system will have fire detection sensors in all compartments. Actuating one sensor will provide a high-temperature alarm on the combustion turbine control panel. Actuating a second sensor will trip the combustion turbine, turn off ventilation, close ventilation openings, and automatically release the CO_2. The CO_2 will be discharged at a design concentration adequate to extinguish the fire.

Transformer Protection

A concrete fire wall is planned for each step-up transformer to limit a potential transformer fire to its concrete basin area.

Fire Hydrants/Hose Stations

This system will supplement the plant fire protection system. Water will be supplied from the plant underground fire water/domestic water system. The project will include a diesel fire pump if the Los Angeles County Fire Department determines this to be necessary.

Fire Extinguisher

The plant Administrative/Maintenance Building, water treatment facility, and other structures will be equipped with portable fire extinguishers as required by the local fire department.

2.2.2.1.2 Local Fire Protection Services

In the event of a major fire, the plant personnel will be able to call upon the local Fire Department for assistance. The Hazardous Materials Risk Management Plan (see Section 8.5, Hazardous Materials Handling) for the plant will include all information necessary to permit all fire-fighting and other emergency response agencies to plan and implement safe responses to fires, spills, and other emergencies.

2.2.2.2 Personnel Safety Program

SVEP will operate in compliance with federal and state occupational safety and health program requirements. Compliance with these programs will minimize project effects on employee safety. These programs are described in Section 8.16, Worker Safety.

2.3 Facility Reliability

This section discusses the expected facility availability, equipment redundancy, fuel availability, water availability, and project quality control measures.

2.3.1 Facility Availability

Because of SVEP's predicted high efficiency relative to other units traditionally used for peaking service, it is anticipated that the facility will normally be called upon to operate at annual capacity factors between 20 and 40 percent. Each combustion turbine will be designed to operate between 50 and 100 percent of base load to support dispatch service and automatic generation control in response to customer demands for electricity.

SVEP will be designed for an operating life of 30 years. Reliability and availability projections are based on this operating life. Operation and maintenance procedures will be consistent with industry standard practices to maintain the useful life status of plant components.

The percent of time that the power plant is projected to be operated is defined as the "service factor." The service factor considers the amount of time that a unit is operating and generating power, whether at full or partial load. CAISO market data available to the public is not sufficient to predict a difference between capacity factor and service factor. The projected service factor, which considers the projected percent of time of operation, differs from the equivalent availability factor (EAF), which considers the projected percent of energy production capacity achievable.

The EAF may be defined as a weighted average of the percent of full energy production capacity achievable. The projected EAF for SVEP is estimated to be approximately 92 to 98 percent.

The EAF, which is a weighted average of the percent of energy production capacity achievable, differs from the "availability of a unit," which is the percent of time that a unit is available for operation, whether at full load, partial load, or standby.

2.3.2 Redundancy of Critical Components

The following subsections identify equipment redundancy as it applies to project availability. A summary of equipment redundancy is shown in Table 2.3-1.

2.3.2.1 Simple-cycle Power Block

Five separate combustion turbine power generation trains will operate in parallel within the simple-cycle power block. Each CTG will provide approximately 20 percent of the total power block output. The major components of the simple-cycle power block consist of the following subsystems.

TABLE 2.3-1
Major Equipment Redundancy

Description	Number	Note
CTGs	Five trains	
Circulating water pumps	Two, 50 percent capacity	
Cooling tower	One, multi-cell tower	Cooling tower is multi-cell mechanical draft design
Demineralizer—RO Systems	Two, 60 percent trains	Rental ion exchange units, off-site regeneration.
Natural Gas Compressors	Three, 50 percent capacity	

2.3.2.1.1 Combustion Turbine Generator Subsystems

The combustion turbine subsystems include the combustion turbine, inlet air filtration and evaporative inlet cooling system, generator and excitation systems, and turbine control and instrumentation. The combustion turbine is comprised of a compressor section, a combustion section, and a turbine section. Air compressed in the compressor section of the combustion turbine is heated by the combustion of natural gas in the combustion section, and then allowed to expand in the turbine section, where the expansion turns the rotor to produce mechanical energy to drive the compressor and generator. Exhaust gas from the combustion turbine will be directed into an SCR to control NO_x emissions and an oxidation catalyst to control CO emissions. The generator will be air cooled. The generator excitation system will be a solid-state static system. Combustion turbine control and instrumentation (interfaced with the DCS) will cover the turbine governing system, and the protective system.

2.3.2.2 Distributed Control System

The DCS will be a redundant microprocessor-based system that will provide the following functions:

- Control the CTG, and other systems in response to unit load demands (coordinated control)
- Provide control room operator interface
- Monitor plant equipment and process parameters and provide this information to the plant operators in a meaningful format
- Provide visual and audible alarms for abnormal events based on field signals or software-generated signals from plant systems, processes, or equipment

The DCS will have functionally-distributed architecture comprising a group of similar redundant processing units linked to a group of operator consoles and an engineer workstation by redundant data highways. Each processor will be programmed to perform specific dedicated tasks for control information, data acquisition, annunciation, and historical purposes.

Plant operation will be controlled from the operator panel located in the control room. The operator panel will consist of two individual CRT/keyboard consoles and one engineering workstation. Each CRT/keyboard console will be an independent electronic package so that failure of a single package does not disable more than one CRT/keyboard. The engineering workstation will allow the control system operator interface to be revised by authorized personnel.

2.3.2.3 Demineralized Water System

Makeup to the demineralized water system will be from the reclaimed water storage tank. The demineralized water system will consist of two 60 percent capacity makeup RO and mixed-bed demineralizer trains. Demineralized water will be stored in one 100,000-gallon demineralized water storage tank.

2.3.2.4 Water Injection Makeup and Storage

The water injection makeup and storage subsystem will provide demineralized water storage and pumping capabilities to supply high-purity water for water injection. Major components of the system are the demineralized water storage tank, providing approximately a four-hour supply of demineralized water at peak load and two full-capacity, horizontal, centrifugal, cycle makeup water pumps.

2.3.2.5 Circulating Water System

The circulating water system will provide cooling water to three closed-cooling water heat exchangers, rated at 33 percent capacity each. Three closed-cooling water heat exchangers will supply water to cool the combustion turbine intercooler and lube oil systems. There will be two 50-percent-capacity circulating water pumps supplying water to the closed cooling water heat exchangers.

2.3.2.6 Compressed Air

The compressed air system comprises the instrument air and service air subsystems. The service air system supplies compressed air to the instrument air dryers and to hose connections for general plant use. The service air system will include three 50 percent capacity air motor-driven compressors, service air headers, distribution piping, and hose connections. The instrument air system supplies dry compressed air at the required pressure and capacity for all control air demands, including pneumatic controls, transmitters, instruments, and valve operators. The instrument air system will include two 100 percent capacity air dryers with prefilters and after filters, an air receiver, instrument air headers, and distribution piping.

2.3.3 Fuel Availability

Fuel for the facility will be supplied by SoCalGas. The project will connect with one or more of the three existing 30-inch natural gas pipelines owned by SoCalGas adjacent to the site. There is sufficient capacity in the transmission gas lines to supply SVEP under most demand conditions. Under conditions of extreme peak gas demand on San Diego Gas & Electric's (SDGE's) distribution system, full requirements firm gas supply to SVEP may be dependent on the delivery of gas to the south end of SDGE's distribution system at the Otay Mesa receipt point. The Otay Mesa receipt point is where re-gasified LNG deliveries from Sempra's Costa Azul LNG facility in Baja Mexico will be made. The Costa Azul facility is currently under construction and is projected to be in commercial operation on or before January 2008, well before SVEP will require natural gas. See Section 6.0, Natural Gas Supply, for a more detailed description.

2.3.4 Water Availability

Reclaimed water and potable water for SVEP will be provided by the Eastern Municipal Water District. The availability of water to meet the needs of SVEP is discussed in more detail in Section 7.0, Water Supply.

2.3.5 Project Quality Control

The Quality Control Program that will be applied to SVEP is summarized in this section. The objective of the Quality Control Program is to ensure that all systems and components have the appropriate quality measures applied during all project phases, including design, procurement, fabrication, construction, or operation. The goal of the Quality Control Program is to achieve the desired levels of safety, reliability, availability, operability, constructability, and maintainability for the generation of electricity.

The required quality assurance for a system is obtained by applying controls to various activities, according to the activity being performed. For example, the appropriate controls for design work are checking and review, and the appropriate controls for manufacturing and construction are inspection and testing. Appropriate controls will be applied to each of the various activities for the project.

2.3.5.1 Project Stages

For quality assurance planning purposes, the project activities have been divided into the following eight stages that apply to specific periods of time during the project.

1. **Conceptual Design Criteria**—Define the requirements and engineering analyses.
2. **Detail Design**—Prepare calculations, drawings, and lists needed to describe, illustrate, or define systems, structures, or components.
3. **Procurement Specification Preparation**—Compile and document the contractual, technical and quality provisions for procurement specifications for plant systems, components, or services.
4. **Manufacturer's Control and Surveillance**—Ensure that the manufacturers conform to the provisions of the procurement specifications.
5. **Manufacturer Data Review**—Review manufacturers' drawings, data, instructions, procedures, plans, and other documents to ensure coordination of plant systems and components, and conformance to procurement specifications.
6. **Receipt Inspection**—Inspect and review of product at the time of delivery to the construction site.
7. **Construction/Installation**—Inspect and review of storage, installation, cleaning, and initial testing of systems or components at the facility.
8. **System/Component Testing**—Controlled operation of generating facility components in a system to ensure that the performance of systems and components conform to specified requirements.

The design, procurement, fabrication, erection, and checkout of each generating facility system will progress through the eight stages defined above.

2.3.5.2 Quality Control Records

The following quality control records will be maintained:

- Project instructions manual
- Design calculations
- Project design manual
- Quality assurance audit reports
- Conformance to construction records drawings
- Procurement specifications (contract issue and change orders)
- Purchase orders and change orders
- Project correspondence

For procured component purchase orders, a list of qualified suppliers and subcontractors will be developed. Before contracts are awarded, the subcontractors' capabilities will be evaluated. The evaluation will consider suppliers' and subcontractors' personnel, production capability, past performance, financial strength, and quality assurance program.

During construction, field activities are accomplished during the last four stages of the project: receipt inspection, construction/installation, system/component testing, and plant operations. The construction contractor will be contractually responsible for performing the work in accordance with the quality requirements specified by contract.

The subcontractors' quality compliance will be surveyed through inspections, audits, and administration of independent testing contracts.

A plant operation and maintenance program, typical of a project this size, will be implemented by SVEP to control operation and maintenance quality. A specific program for this project will be defined and implemented during initial plant startup.

2.4 Laws, Ordinances, Regulations, and Standards

The applicable LORS for each engineering discipline are included as part of the Engineering Appendixes 10A through 10G.