Supplemental Biological Results

RE Rosamond One and Two
RE Barren Ridge 1

RE Distributed Solar
Biological Resources Assessment
Kern County, California

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SECTION 1 – INTRODUCTION

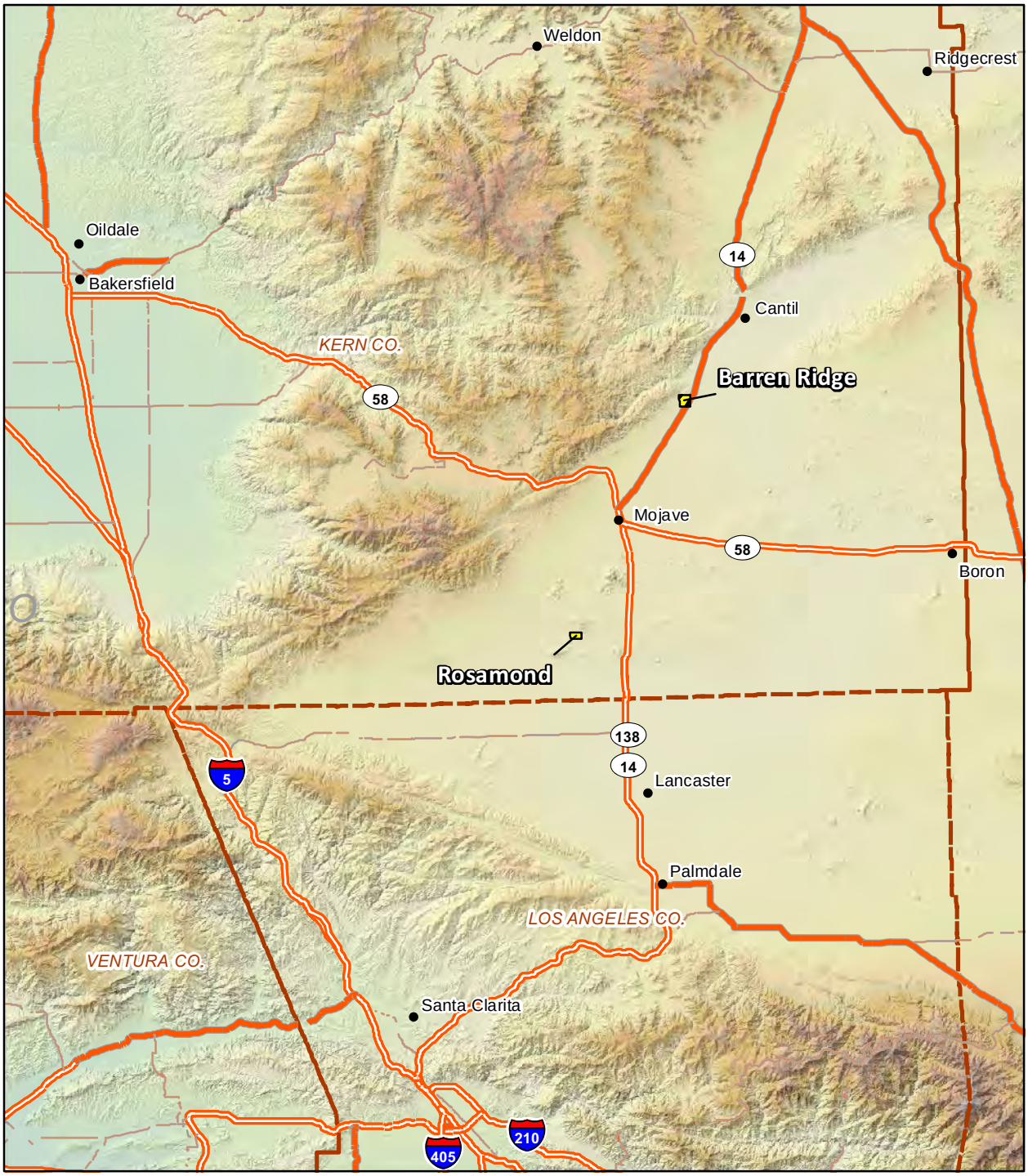
Rincon Consultants, Inc. (Rincon) has prepared supplemental results for the Biological Resources Assessment for the Recurrent Energy (RE) Distributed Solar project. A comprehensive biological resource assessment, including vegetative mapping, protocol surveys and jurisdictional delineations, was conducted for seven Kern Desert sites (RE Rosamond One and Two, RE Rio Grande, RE Columbia, Columbia Two, and Columbia 3, RE Great Lakes, RE Barren Ridge 1, RE Tehachapi Solar, and RE Tehachapi 2). Results were presented in *RE Distributed Solar Biological Resources Assessment, Kern County, California* (Rincon Consultants, Inc. 2011). However, the RE Rosamond One and Two (Rosamond) generation tie-line route and the RE Barren Ridge 1 (Barren Ridge) project site and associated generation tie-line route were added after the survey window for most protocol surveys. Therefore, this report presents the results of additional surveys conducted at the Barren Ridge and Rosamond sites. These include: protocol surveys for special status species and a jurisdictional evaluation along a proposed generation tie-line route at the Rosamond site; protocol surveys at the Barren ridge main site; and protocol surveys and a jurisdictional evaluation of a proposed generation tie-line route at the Barren Ridge project. This report also includes updated mitigation measures for the two sites based on the survey findings, which are intended to supersede those outlined for the two sites in the comprehensive biological resources assessment.

This report is organized as follows: *Section 1 – Introduction* provides location information, project description, and significance criteria for evaluation of biological effects; *Section 2 – Methodology* details the study methods employed at each site; *Section 3 – Site-Specific Biological Resources and Effects Analysis* presents the biological survey results and evaluates potential environmental effects at each site; *Section 4 – Mitigation Measures* lists proposed mitigation measures for the projects, and *Section 5 – Summary and Conclusions* provides a summary of potential effects and recommended mitigations measures for each site. References are included in Section 6, a List of Preparers is in Section 7, and summary tables of focused survey results, site photographs, botanical compendia, and a summary of mitigation measures applicable to each site are included in Appendices A-D.

This report has been prepared for RE Rosamond One, RE Rosamond Two, and RE Barren Ridge 1 ("Clients"). This report may be used and relied upon by Clients, any entity that has an ownership interest in any of these Clients, any of Clients' subsidiaries and/or affiliates, and any successor in interest to Clients' interest in the project.

1.1 PROJECT LOCATIONS

The two RE Distributed Solar project sites addressed in this report are located in the Antelope Valley (Rosamond) and Fremont Valley (Barren Ridge) along State Route (SR) 14, in eastern Kern County, California. The sites range in size from approximately 320 to 594 acres. Note that RE Rosamond One and RE Rosamond Two are two project sites that adjoin one another, and are treated as one project site (Rosamond) in this report. Site locations are listed in Table 1, and shown on Figure 1.



Basemap Source: ESRI Data, 2004, and USGS/CDFG, 2002. Additional map data from Kern County Assessor's Office, Assessment Standards Division, Mapping Section, 2010.

Project Sites

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Miles

N

Regional Location **Figure 1**

Table 1. Location Information for the RE Distributed Solar Sites

Project Name	Community	Location	APN	Elevation	Size
RE Rosamond One and RE Rosamond Two	Rosamond	6500-7514 Favorito Avenue	252-031-01	2560-2632 ft	320 acres
RE Barren Ridge 1	Mojave	State Route 14 at Phillips Road	461-15-10	2390-2675 ft	594 acres

1.2 PROJECT DESCRIPTION

The proposed projects consist of the development of a photovoltaic (PV) solar electrical generation facilities. The facilities would include PV panels mounted on steel and aluminum structures, solar substations, equipment pads, and associated infrastructure such as access roads, fencing, and tie-ins to adjacent power lines.

1.3 REGULATORY OVERVIEW

For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- Kern County General Plan

The sites are within the Western Mojave Recovery Unit of the West Mojave Plan Habitat Conservation Plan (HCP) and the Desert Renewable Energy Conservation Plan (DRECP), neither of which have been formally adopted. Neither of the sites occur within a Desert Tortoise Critical Habitat area or a Desert Wildlife Management Area (DWMA).

1.3.1 SIGNIFICANCE CRITERIA

The following threshold criteria from the Kern County CEQA Environmental Checklist Form were used to evaluate potential environmental effects. Based on these criteria, the proposed project would have a significant effect on biological resources if it would:

I. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

II. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

III. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interrup-tion, or other means.

IV. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

V. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

VI. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

SECTION 2 – METHODOLOGY

Extensive biological surveys were conducted at the RE Distributed Solar Kern Desert sites (RE Rosamond One and Two, RE Rio Grande, RE Columbia, Columbia Two, and Columbia 3, RE Great Lakes, RE Barren Ridge 1, RE Tehachapi Solar, and RE Tehachapi 2) in 2010, as detailed in *RE Distributed Solar Biological Resources Assessment, Kern County, California* (Rincon Consultants, Inc. 2011). This section details the methods utilized during additional surveys conducted in Spring 2011 at the Rosamond and Barren Ridge sites only.

Rosamond surveys: Prior surveys at the Rosamond main project site included a field reconnaissance, literature review, focused surveys for special-status plant species, desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*) and other special status raptors, Mohave ground squirrel (*Xerospermophilus mohavensis*), and a jurisdictional evaluation. Protocol surveys along the generation tie-line were not conducted, as the preferred route alternative had not been identified as of the spring 2010 survey period. Therefore, this Biological Resources Addendum covers the following surveys along the generation tie-line route from the Rosamond project site to a substation located at the intersection of Rosamond Boulevard and 60th Street:

- Special-status plant species surveys along the generation tie-line
- Focused surveys for the desert tortoise along the generation tie-line
- Focused surveys for burrowing owl along the generation tie-line

Barren Ridge surveys: The biological review for the Barren Ridge project began after the 2010 spring survey window. Therefore, surveys at the Barren Ridge site were limited to a field reconnaissance, a literature review, vegetative mapping, general wildlife surveys (included desert tortoise surveys), and a jurisdictional evaluation. The RE Distributed Solar Kern Desert BRA (2011) included recommendations for follow-on protocol surveys for special-status plant species, desert tortoise, burrowing owl, and special status raptors. In addition, a preferred route alternative for a generation tie-line to a substation located north of Pine Tree Canyon Road has since been identified for the Barren Ridge project. Therefore, this Biological Resource Addendum addresses the following surveys at the Barren Ridge project site and along the generation tie-line route to a substation located north of Pine Tree Canyon Road:

- Special-status plant species surveys at the main project site and along the generation tie-line
- Focused surveys for the desert tortoise along the generation tie-line
- Focused surveys for burrowing owl and other raptors at the main project site and along the generation tie-line
- Jurisdictional evaluation of the generation tie-line, focused on Pine Tree Wash

The methods used are described below, and survey dates for each site are listed in Table 2. For the purpose of this report, sensitive biological resources include special-status plant and wildlife species, sensitive plant communities, jurisdictional drainages and wetlands, wildlife movement corridors, locally protected resources such as Joshua trees, and other regulated resources or areas, such as those subject to adopted Habitat Conservation Plans (HCPs).

Table 2. 2011 Field Survey Dates for the RE Distributed Solar Sites

Project Site	Field Recon	Special Status Plants	Desert Tortoise	Burrowing Owl	Raptors	Jurisdictional Evaluation (Gen-tie line)
Rosamond	Mar 2011	4/25/11 5/17/11 5/19/11	4/11/11 4/17 - 4/19/11	4/11/11 4/17 - 4/19/11	4/11/11 4/17 - 4/19/11	3/23/11
Barren Ridge	Mar 2011	4/11 - 4/14/11 5/17 - 5/19/11	4/23 - 4/25/11 5/1 - 5/5/11	*Main Site:* 5/10 - 5/11/11 5/30 - 5/31/11 *Gen-Tie:* 4/23 - 4/25/11 5/1 - 5/5/11	5/10 - 5/11/11 5/30 - 5/31/11	4/14/11

2.1 LITERATURE REVIEW

Rincon reviewed literature on biological resources potentially occurring at the project sites and in the surrounding areas. The literature review included information available in peer-reviewed journals, standard reference materials (e.g. e.g. Bowers, Bowers, & Kaufman 2004, Burt and Grossenheider 1980, Holland 1986, Hickman 1993, Sawyer, Keeler-Wolf, and Evens 2009, Stebbins 2003, American Ornithologists Union 2010, USACE 2008), and relevant databases on sensitive resource occurrences from the California Department of Fish and Game (CDFG) *California Natural Diversity Data Base* (CNDDB), *Biogeographic Information and Observation System* (BIOS – www.bios.dfg.ca.gov), and U.S. Fish and Wildlife Service (USFWS) *Critical Habitat Portal* (http://criticalhabitat.fws.gov), and the California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2011). A list of special-status species potentially occurring in the project area is included in Table 3. Other sources of information about the sites included aerial photographs, topographic maps, soil survey maps, geologic maps, climatic data, previous biological studies, and project plans.

Table 3. Special Status Species Potentially Occurring in the Project Region

Scientific Name	Common Name	Status [1] Fed/State/CNPS	Habitat Preference/ Requirements
PLANTS			
Androstephium breviflorum	Small-flowered androstephium	CNPS 2.2	Found in mid-elevation open desert scrub. Blooms March-April.
Astragalus hornii var. *hornii*	Horn's milk-vetch	CNPS 1B.1	Found in meadows and seeps, playas or lake margins. Prefers alkaline soils. Blooms May-October.
Erodium macrophylla	Round-leaved filaree	CNPS 1B.1	Found in loamy soils open sites, grassland and scrub habitats below 1,200m. Blooms March-May.
Calochortus striatus	Alkali mariposa lily	CNPS 1B.2	Inhabits alkaline meadows and ephemeral washes within chaparral, chenopod scrub, Mojavean desert scrub, and meadows. Blooms April-June.

Table 3. Special Status Species Potentially Occurring in the Project Region

Scientific Name	Common Name	Status [1] Fed/State/CNPS	Habitat Preference/ Requirements
Canbya candida	White pygmy-poppy	CNPS 1B.2	Found in open sandy soils in the western Mojave and adjacent Sierra Nevada. Blooms April-May.
Eschscholzia minutiflora ssp. *twisselmannii*	Red Rock poppy	CNPS 1B.2	Found in creosote bush scrub in the Mojave Desert, specifically on volcanic tuff soils.
Layia heterotricha	Pale yellow layia	CNPS 1B.1	Alkaline or clay soils in grasslands, coastal scrub, cismontane woodland, pinyon-juniper woodland. Blooms March-June.
Loeflingia squarrosa var. *artemisiarum*	Sagebrush loeflingia	CNPS 2.2	Found in desert dunes, Great Basin scrub and sandy Sonoran desert scrub. Blooms April-May.
Mimulus pictus	Calico monkeyflower	CNPS 1B.2	Found in foothill woodlands, often on granitic soils. Blooms March – May.
Phacelia nashiana	Charlotte's phacelia	CNPS 1B.2	Found in creosote bush scrub, Joshua tree woodland, pinyon-juniper woodland. Blooms March – June.
Phacelia parishii	Parish's phacelia	CNPS 1B.1	Clay or alkaline soils, dry lake margins in the western Mojave. Blooms April-July.
Plagiobothrys parishii	Parish's popcorn-flower	CNPS 1B.1	Wet, alkaline soils around desert springs in the Mojave and eastern Sierra Nevada. Blooms April-June.
Puccinellia parishii	Parish's alkali grass	CNPS 1B.1	Inhabits higher elevation mineral springs in the Mojave Desert. Blooms April-May.
Saltugilia latimeri	Latimer's woodland-gilia	CNPS 1B.2	Chaparral, Mojavean desert scrub, pinyon and juniper woodland, rocky or sandy, often granitic, sometimes washes. Blooms March-June.
Sidalcea neomexicana	Salt spring checkerbloom	CNPS 1B.2	Inhabits alkaline springs and marshes in the South Coast, San Gabriel Mountains, San Bernardino Mountains, Peninsular Ranges, southwest Mojave Desert. Blooms April-June.
Viola aurea	Golden violet	CNPS 2.2	Found in sagebrush scrub and pinyon-juniper woodland, sandy soils. Blooms April-June.
REPTILES			
Gopherus agassizii	Desert tortoise	FT / ST	Prefers creosote bush habitat with annual wildflower blooms. Inhabits friable soil for burrow and nest construction, occurs in most desert habitats.
BIRDS			
Athene cunicularia	Burrowing owl	SSC	Inhabits open, dry, annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.
Aquila chrysaetos	Golden eagle	FP	Nests in canyons on cliffs and large trees in open habitats. Forages chiefly for mammalian prey in grasslands and over open areas.

Table 3. Special Status Species Potentially Occurring in the Project Region

Scientific Name	Common Name	Status [1] Fed/State/CNPS	Habitat Preference/ Requirements
Buteo swainsoni	Swainson's hawk	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural areas or ranches; requires adjacent suitable foraging areas such as grasslands, alfalfa or grain fields supporting rodent populations.
Lanius ludovicianus	Loggerhead shrike	SSC	Occurs in open habitats utilizing shrubs, trees, posts, fences, and low utility lines for perches. Specifically prefers open foothill and valley woodlands with some canopy cover and adequate roosting and foraging perches. Forages in edge habitats, and in particular prefers shrubs adjacent to grasslands.
Toxostoma lecontei	Le Conte's thrasher	SSC	Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.
MAMMALS			
Xerospermophilus mohavensis	Mohave ground squirrel	ST	Inhabits open desert scrub, alkali scrub, and Joshua tree woodland; feeds in annual grasslands; restricted to Mojave desert. Prefers sandy to gravelly soils, avoids rocky areas. Uses burrows at base of shrubs for cover. Nests are in burrows.
Taxidea taxus	American badger	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Needs sufficient food and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.

[1] FT = Federally threatened; FE = Federally endangered; • SE = State endangered; ST = State threatened; SR = State rare; FP = CA Fully Protected; SSC = CA Species of Special Concern; SA = CDFG Special Animal; • California Native Plant Society (CNPS): 1B = Rare or endangered in California and elsewhere; 2 = Rare or endangered in California, more common elsewhere; 3 = Plants for which more information is needed (Review list); 4 = Plants with limited distribution (Watch list); .1 = Seriously endangered in California; .2 = Fairly endangered in California; .3 = Not very endangered in California

2.2 FOCUSED SURVEYS

Focused surveys were conducted for four sensitive biological resources at Barren Ridge and Rosamond in 2011: special-status plant species, desert tortoise, burrowing owl, and special status raptors. Observations of other sensitive species potentially occurring on-site were made concurrent with the focused surveys. Mohave ground squirrel surveys were not conducted at the Barren Ridge project site or generation tie-line, or along the Rosamond generation tie-line. The methods employed in each of the focused surveys are described below, and specific survey dates for each site are included in Table 2.

2.2.1 SPECIAL STATUS PLANT SPECIES

Prior to conducting field surveys, a CNDDB search was conducted for recorded occurrences of special status plant taxa within a five-mile radius of the study area. A search range of this extent was used to encompass a sufficient distance to accommodate for regional habitat diversity and to overcome

limitations of the CNDDB. A search was also conducted using the California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2010) for the *Soledad Mountain* and *Willow Springs* USGS 7.5-minute quadrangles and the ten surrounding quadrangles at the Rosamond project site, and for the *Mojave NE* USGS 7.5-minute quadrangle and the eight surrounding quadrangles at the Barren Ridge project site. Additionally, the U.S. Fish and Wildlife Service (USFWS) website was queried for federally listed plants occurring in Kern County.

For the purpose of this report, special status plant taxa consist of plants: 1) listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS under the federal Endangered Species Act; 2) listed or proposed for listing as rare, threatened, or endangered by the CDFG under the California Endangered Species Act; and 3) recognized on lists 1B and 2 of the CNPS *Inventory of Rare and Endangered Plants of California*. A list of special-status plant taxa likely to occur on-site (see Table 3) was developed from the CNDDB, CNPS, and USFWS search results, and cross-referenced with the CDFG *Special Vascular Plants, Bryophytes, and Lichens List* (April 2011) as well as known habitat requirements and flowering periods for each species (CNPS 2011, Baldwin et al. 2002, Hickman 1993). Furthermore, a field guide was prepared to assist in the identification of special-status plant taxa with potential to occur on-site, including photographs and/or illustrations of habitat and descriptions of morphological and ecological attributes for each plant taxon.

Focused surveys for the special-status plants identified as having potential to occur on-site were conducted, which consisted of seasonally timed botanical surveys to capture the flowering periods of potentially occurring species. The botanical surveys were conducted in general accordance with the guidelines set forth by the CDFG (2009) and CNPS (2001). To achieve sufficient visual coverage of the site, systematic surveys were employed through the incorporation of survey transects with 30 meters between each surveyor. In addition to focused surveys, a floristic inventory was conducted at each site, with all plant species observed identified to a sufficient level to determine rarity (e.g. genus, species, subspecies, or variety). Taxonomic nomenclature is based on Baldwin et al. (2002), Hickman (1993) and updates from the Jepson Online Interchange (UCB, 2011). As specified in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009), a CNDDB Field Survey Form was completed for each special-status plant occurrence detected on-site. Vegetation communities were classified in accordance with the classification system presented in Sawyer et al. (2009) and cross-referenced to Holland (1986). Modifications to the vegetation community classifications were made by Rincon as appropriate based on the floristic composition and plant taxa distribution and abundance observed on-site.

2.2.2 DESERT TORTOISE

Desert tortoise surveys were conducted for the generation tie-line routes at Rosamond and Barren Ridge in 2011. For clarity, results of the 2011 surveys are included with the fall 2010 survey results at the Barren Ridge project site.

The survey for desert tortoise was conducted in accordance with the *Pre-project Survey Protocol for Potential Desert Tortoise Habitats, 2010* (USFWS, 2010). The survey was managed by Stephen Boland of Sundance Biology, Inc., with field work by Stephen Boland and Mike Gallagher. A ground reconnaissance was conducted in April 2011, with survey dates shown in Table 2. The survey was conducted by walking a set of transects spaced ~10 meters (30 feet) between transect centerlines (the standard width for desert tortoise presence/absence surveys) that covered the entirety of the survey

area. Lowrance iFinder handheld global positioning system (GPS) units were used for transect navigation. Transects were established by calculating UTM coordinates for virtual north-south transects, as follows:

- Barren Ridge (main site, 2010): 191 transects, each 1.2 miles in length
- Barren Ridge (generation tie-line, 2011): 7 transects, each approximately 2.36 miles in length
- Rosamond (main site, 2010): 81 transects, each 1 mile in length
- Rosamond (generation tie-line, 2011): four transects each approximately 3 miles in length

In accordance with the desert tortoise pre-survey protocol (USFWS, 2010), Zone-of-Influence (ZOI) transects at three 200-meter (~650-foot) intervals from the project boundary were conducted in adjacent habitat at sites, as the action area was less than 81 hectares. Weather conditions were generally calm and clear at the time of survey, with winds up to 20 mph on occasion. Daily temperatures ranged from 55 ºF to 84 ºF.

2.2.3 BURROWING OWL

Burrowing owl surveys were conducted on the Barren Ridge main site by Rincon and along the Rosamond and Barren Ridge generation tie-lines by Sundance Biology, Inc. Burrowing owl surveys were conducted in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG, 1995). The preliminary (Phase II) burrow surveys on the Barren Ridge main site were conducted by Stephen Boland of Sundance Biology, Inc. These visits were conducted on September 29 - October 3, 2010. Phase III surveys conducted by Rincon Biologists Jennifer Turner and Christina Sulzman during the peak of breeding season from April 15 to July 15, 2011. These visits were conducted on May 10, 11, 30, and 31. Sundance Biology conducted both Phase II and Phase II surveys of the generation tie-line route on April 23 - 25, May 1 and May 5, 2011.

The Phase III surveys included an inspection of all burrows and burrow complexes found during previous surveys to visually inspect for burrowing owls or recent burrowing owl sign. Weather conditions, and timing of the surveys were followed per the Survey Protocol and Mitigation Guidelines from the Burrowing Owl Consortium (1993). Temperatures at the time of the surveys were between 50 ºF and 76 ºF under sunny or partly cloudy skies. No rain had fallen within the 5 days previous to any of the four surveys. Inspections of burrows previously identified as having burrowing owl sign were conducted within two hours prior to sunset and one hour after, or within two hours after sunrise and one hour prior. A site visit with wind conditions outside of the preferred survey conditions was conducted on May 9, 2011; therefore, an additional site visit was conducted. No winter surveys were performed.

2.2.4 SPECIAL STATUS RAPTORS

A survey for special status raptor species (e.g. Swainson's hawk, golden eagle, prairie falcon) was conducted at the Rosamond project site in 2010. In 2011, an additional raptor survey was conducted at the Barren Ridge main site, and incidental observations of raptor species were made along the Rosamond generation tie-line during protocol burrowing owl surveys. Rincon Biologists Jennifer Turner and Christina Sulzman conducted four surveys on and adjacent to the Barren Ridge site in May 2011 to look for special status raptors (e.g. golden eagle, prairie falcon) within or adjacent to the site. These visits were conducted on May 10, 11, 30, and 31, 2011. The surveys included inspection of all potential nesting areas (e.g. towers, cliffs, Joshua trees) and surveying for soaring individuals within the site and

out to at least a 1-mile buffer. Although the entire site and buffer area were searched each visit, focused time was spent in areas with the highest potential (e.g. cliffs, ridgelines, towers). Binoculars and spotting scopes were used to aid in the identification.

2.2.5 OTHER SENSITIVE SPECIES

Observations on other sensitive species with the potential to occur on-site were conducted concurrent with the focused surveys. All sensitive species observed were recorded, location information was recorded with a GPS where possible, and the results are presented in the site-specific biological resources section.

2.3 JURISDICTIONAL WATERS EVALUATION

Rincon conducted an evaluation of potential jurisdictional resources along the generation tie-lines for Rosamond and Barren Ridge, but formal delineations were not conducted for either of these lines. The evaluations consisted of a general characterization of the vegetative and hydrogeomorphic features of any observed drainages. Waters and wetlands potentially subject to agency jurisdiction were evaluated in accordance with:

- USACE *Wetlands Delineation Manual* (1987)
- USACE *Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest* (2001)
- USACE *Jurisdictional Determination Form Instructional Guidebook* (2007)
- USACE *Regional Supplement to the Corps Wetland Delineation Manual: Arid West Region* (2008)
- USACE *A Field Guide to the Identification of the Ordinary High Water mark (OHWM) in the Arid West Region of the Western United States* (2008)
- Section 1602(a) of the California Fish and Game Code
- Porter-Cologne Water Quality Control Act

SECTION 3 – SITE-SPECIFIC BIOLOGICAL RESOURCES AND EFFECTS ANALYSIS

This section describes the biological resources present at the two RE Distributed Solar project sites included in this Biological Resources Addendum (Rosamond and Barren Ridge), including project location, environmental setting, vegetation, focused survey results, and jurisdictional evaluation. An analysis of potential environmental effects is also presented for each site. For clarity, the results of the 2010 surveys were included with the results of the 2011 surveys where appropriate.

3.1 ROSAMOND GENERATION TIE-LINE

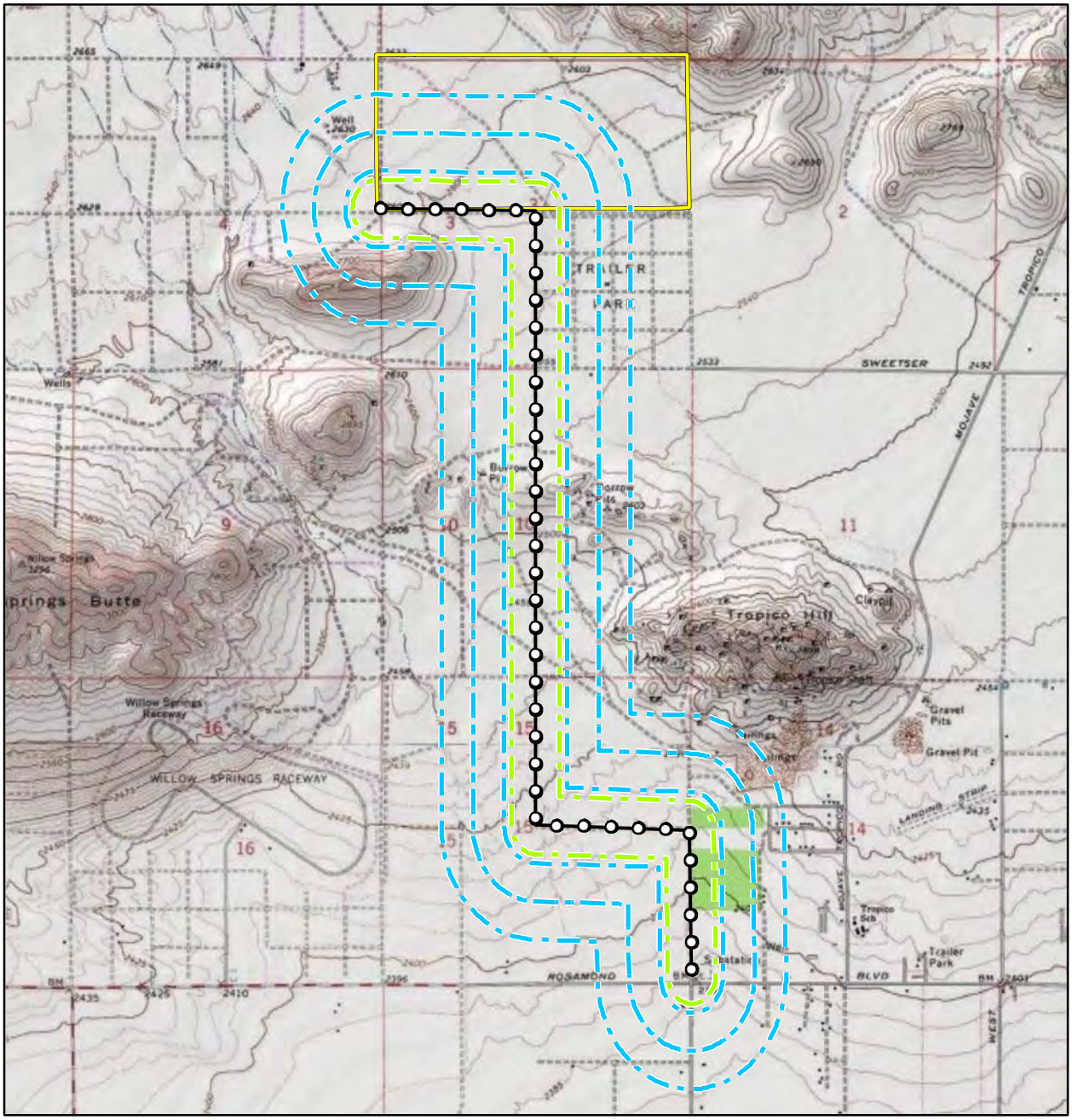
Summary of Results:

- Alkali mariposa lily, a CNPS List 1B.2 species, was detected along the generation tie-line.
- The generation tie-line is potential habitat for the desert tortoise, burrowing owl, special status raptors, and Mohave ground squirrel. However, these species were not observed in the survey corridor during focused surveys. One burrowing owl sign was detected during the 2011 surveys.
- Evidence of American badger, a special status species, was observed on the main site but not along the generation tie-line.
- Joshua tree woodland, a sensitive plant community, occurs along the generation tie-line.
- Drainages potentially subject to CDFG and RWQCB jurisdiction exist along the generation tie-line.

3.1.1 PROJECT LOCATION

The Rosamond project site contains both the RE Rosamond One and RE Rosamond Two facilities. It is located in an unincorporated area approximately 3.7 miles northwest of the community of Rosamond and 4.1 miles west of SR-14, in Kern County, California. The site consists of an approximate 320-acre rectangular shaped property located north of a rural residential development that includes addresses from 6500 – 7514 Favorito Avenue. The Rosamond project site is located in the Willow Springs and Soledad Mountain USGS 7.5-minute quadrangles (Figure 2).

The proposed Rosamond generation tie-line, where the 2011 focused surveys were conducted, would originate on-site and extend south for approximately 2 miles along 65th Street West, east for 0.5 mile along Felsite Avenue, and then south for 0.5 mile along 60th Street West to an existing electrical substation.



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Project Site

Gen-Tie Line (Special Status Plants, Desert Tortoise, Burrowing Owl, Raptors)

Burrowing Owl Survey Buffer Zone (500 Feet)

Desert Tortoise ZOI Transects (200-Meter (~655-Foot) Intervals)

N

0 1,400 2,800
Feet

Rosamond Survey Area **Figure 2**

3.1.2 ENVIRONMENTAL SETTING

The Rosamond project site occurs in the Rosamond Hills of the western Mojave Desert, characterized by low precipitation and atmospheric humidity, high summer temperatures, and relatively cool winter temperatures. Elevation at the project site and along the generation tie-line route ranges from 2391 – 2632 feet. Topography is mostly moderately sloping (2 - 10% slopes) and undulating, with water flowing generally northwest to southeast across the project site. Topography in the northeast portion of the project site is a steeply sloping rock outcrop.

Vegetation in the Mojave Desert is strongly influenced by climate, elevation and soils. A predominance of plants with morphological adaptations to endure extreme aridity (e.g., waxy or resinous leaf cuticles, drought deciduous or succulent plants, woolly leaf pubescence, deep tap root systems) and/or saline-alkali soils (e.g., salt excretion, active transport systems) exists in the Mojave Desert. The morphological structure of these plants is typically characterized by short stature, with shrubs and arborescent shrubs (i.e., tree-like) widely spaced due to competition for soil water resources (Hickman 1993, Moe and Twisselmann 1995). In addition, the Mojave Desert ecosystem has been subjected to a variety of human disturbances, including off-highway vehicle (OHV) use, mineral extraction (e.g., gold, borax), road building and other development, agriculture, historical sheep grazing and fire. Portions of the desert are currently in a degraded state, with cleared lands, non-native plants and altered vegetation structure.

Vegetation in the project area is dominated by creosote bush scrub and Joshua tree woodland, with grassland, developed, disturbed and ruderal areas as associated vegetation types. The project site and surrounding area have been altered and disturbed by construction of rural access roads and rural residential development. In particular, the network of dirt and gravel access roads at the site has contributed to alteration of drainage patterns. Trash and debris are evident at the project site, and adjacent areas to the north are heavily utilized by OHVs and for target practice.

Land uses within the vicinity of the Rosamond site include rural residential areas, with gold mining and commercial areas associated with the community of Rosamond to the southeast.

3.1.3 ROSAMOND GENERATION TIE-LINE VEGETATION

In accordance with the vegetation classification system presented in Sawyer et al. (2009), two vegetation communities occur adjacent to the Rosamond generation tie-line: creosote bush-white burr sage with Joshua tree (*Yucca brevifolia*) woodland inclusions, and broom snake weed scrub. While Joshua trees are present in some areas along the generation tie-line, most areas are dominated by creosote bush with little to no Joshua tree cover. In addition, vegetation grades into spinescale scrub (*Atriplex spinifera*) and grassland habitats between Irone Avenue and Felsite Avenue.

<u>Creosote Bush Scrub</u>

Creosote bush-white burr sage occurs along the generation tie-line route, and is dominated by creosote bush (*Larrea tridentata*). While Joshua trees are present in some areas along the generation tie-line route, most areas are dominated by creosote bush with little to no Joshua tree cover.

Associated shrubs and subshrubs include white burr sage (*Ambrosia dumosa*), goldenhead (*Acamptopappus sphaerocephalus*), budsage (*Artemisia spinescens*), allscale saltbush (*Atriplex polycarpa*), green ephedra (*Ephedra viridis*), Cooper's goldenbush (*Ericameria cooperi*), rubber

rabbitbrush (*E. nauseosa*), California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), hopsage (*Grayia spinosa*), cheesebush (*Hymenoclea salsola*), winterfat (*Krascheninnikovia lanata*), Anderson's desert thorn (*Lycium andersonii*), pale desert thorn (*L. pallidum* var. *oligospermum*), desert wishbone bush (*Mirabilis laevis*), distant phacelia (*Phacelia distans*), and Mohave cottonthorn (*Tetradymia stenolepis*). Cacti in the creosote bush-white burr sage community include Colorado buckhorn cholla (*Opuntia acanthocarpa* var. *coloradensis*) and beavertail cactus (*O. basilaris* var. *basilaris*). Common herbaceous plants include Bigelow's coreopsis (*Coreopsis bigelovii*), cushion cryptantha (*Cryptantha circumscissa*), Nevada cryptantha (*C. nevadensis*), slender stemmed buckwheat (*Eriogonum gracillimum*), redstem filaree (*Erodium cicutarium*), goldfields (*Lasthenia californica*), sandblossoms (*Linanthus parryae*), desert dandelion (*Malacothrix glabrata*), and slender combseed (*Pectocarya linearis* ssp. *ferocula*). Grass species occurring in this community consist of Indian ricegrass (*Achnatherum hymenoides*), desert needlegrass (*A. speciosum*), red brome (*Bromus madritensis* ssp. *rubens*), cheat grass (*B. tectorum*), one-sided bluegrass (*Poa secunda*), Mediterranean grass (*Schismus arabicus*), and rattail fescue (*Vulpia myuros*).

3.1.4 ROSAMOND GENERATION TIE-LINE SPECIAL STATUS SPECIES

This section presents the results of the 2011 focused biological surveys along the Rosamond generation tie-line route. Survey areas are shown in Figure 2. Locations of all sensitive species are shown in Figure 3, and a summary table of focused survey results is presented in Appendix A.

Special Status Plant Species

The only special-status plant species observed within the survey area during the focused botanical surveys is alkali mariposa lily (*Calochortus striatus*), a CNPS List 1B.2 species. This species was observed at six locations west of 60th Street, and north of the intersection of 60th Street and Rosamond Boulevard. Alkali mariposa lily observations ranged from individuals to groups of 2 – 6 individuals.

Desert Tortoise

The generation tie-line route for the Rosamond project provides suitable habitat for the desert tortoise. No desert tortoises or desert tortoise sign was detected along the generation tie-line route or in the buffer zone adjacent to the main survey corridor. However, in 2009 a desert tortoise was found approximately 6.5 miles north of the site (Sundance Biology, Inc., 2009) and scat was found approximately 4 miles west of the site (Sundance Biology, Inc., 2005). Though the site has suitable habitat for desert tortoises, human impacts from the adjacent housing development, OHVs and target shooters have probably contributed to the decline of any historical populations.

Burrowing Owl

The generation tie-line provides suitable habitat for the burrowing owl. The desert scrub within the survey corridor provides foraging habitat, and coyote and badger burrows suitable for occupation by burrowing owls were observed on-site. No burrowing owls were detected along the generation tie-line or within the survey buffer zone during focused surveys. However, pellets were observed at one of the burrows, at the location shown in Figure 3. No field indicators of current burrowing owl use were observed.

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Project Site

American Badger Burrow

Burrowing Owl Sign

Alkali Mariposa Lily Observation

N

0 1,050 2,100

Feet

Rosamond Biological Resources

Figure 3

Special Status Raptors

No Swainson's hawks, golden eagles, or nests of either species were observed on the project site or within a 1-mile radius of the site. The closest recorded Swainson's hawk nest is approximately 5 miles south of the main site (ICF 2010), and no golden eagle nests have been recorded within 5 miles. The generation tie-line contains marginal nesting habitat for Swainson's hawk, which nest rarely in Joshua trees, and the rocky outcrops northeast of the site could potentially be used by golden eagle for nesting. The generation tie-line provides potentially suitable foraging habitat for both species, although Swainson's hawks prefer irrigated alfalfa fields and occurrences in the Antelope Valley tend to be clustered around agricultural areas. A red-tailed hawk pair and one immature red-tailed hawk were observed flying above the cliffs to the north side of the site during the April 28, 2010 focused survey. A nest was discovered on the cliffs, but it was not confirmed if this was a red-tailed hawk nest as no birds were observed in or around the nest during the time of the survey. During the May 2011 surveys, one prairie falcon was seen flying over the east end of Willow Springs Butte approximately one mile west of the project corridor.

Mohave Ground Squirrel

The project site provides suitable habitat for the Mohave ground squirrel. No Mohave ground squirrels were observed or captured on-site during the 2010 protocol surveys conducted on the main project site. Protocol-level surveys were not conducted along the generation tie-line.

Other Sensitive Species and Species of Interest

One American badger den, with indicative badger scrapes on the sides of the den, was found in the eastern portion of the project site in 2010. No live animals were observed. The site also contains suitable nesting habitat for native birds protected by the MBTA and CFG Code 3503.

3.1.5 ROSAMOND GENERATION TIE-LINE JURISDICTIONAL EVALUATION

Mapped soils at the Rosamond site are dominated by Cajon loamy sand, 0 to 5 percent slopes and 5 to 15 percent slopes, which are somewhat excessively drained, moderately sloping loamy sands formed on alluvial fans and floodplains. Other soils include Arizo gravelly loamy sands, 2 to 9 percent slopes (excessively drained soils on alluvial fans and floodplains), DeStazo sandy loams, 5 to 9 percent slopes, eroded (well drained very slightly saline-alkali soils formed on alluvium derived from granite in basin floors and floodplains), and a small area of Rock Outcrop in the northeast portion of the site. None of the soils at the Rosamond site are listed as hydric by NRCS (National list of Hydric Soils, Feb. 2010; http://soils.usda.gov/use/hydric/lists/state.html).

AECOM conducted a formal field delineation for the Rosamond site on April 10, 2011, which was included as an appendix in the RE Distributed Solar BRA (Rincon 2011). They determined that the Rosamond site supports a small, underdeveloped and unvegetated ephemeral dry wash within the southwestern portion of the site, and an unvegetated swale in the central portion of the site. While these features were determined to be geographically isolated for the purposes of determining U.S. Army Corps of Engineers jurisdiction, these areas were determined to fall under state jurisdiction based on California Fish and Game Code Section 1600 *et seq*., California Water Code Section 13000 *et seq*., relevant California Code of Regulations definitions, and the latest CDFG and RWQCB regulatory practice.

The surveys for the generation tie-line route included an evaluation of potential jurisdictional resources.

A total of four drainage features were detected along the generation tie-line route, three of which generally convey flows in an easterly direction. These features are small vegetated swales to unvegetated drainages with an OHWM from 1- 3 feet wide. A formal jurisdictional delineation was not conducted, and is recommended prior to project initiation to determine the extent of jurisdictional resources, potential impacts to Waters of the State, and the need for permits from the regulatory agencies.

3.1.6 ROSAMOND POTENTIAL ENVIRONMENTAL EFFECTS

Implementation of the proposed project at the Rosamond site has the potential to affect special status wildlife species, Joshua trees, and jurisdictional waters. Recommended mitigation measures to avoid and/or minimize potential project effects to these sensitive resources are detailed in Section 5. The project is not expected to substantially interfere with wildlife movement in the project vicinity or region, or conflict with the provisions of an adopted HCP. Therefore, potential effects to these sensitive resource types are considered less than significant.

BIO I: POTENTIAL EFFECTS TO SPECIAL STATUS SPECIES

One special status plant species, alkali mariposa lily, was detected along the generation tie-line. Potential effects would be limited to the utility pole locations at intervals of 300 to 500 feet along an existing road. Although the exact pole locations for the tie-line have not been established, impacts to special status plant species are likely avoidable by adjusting specific pole locations. Therefore the potential for effects to alkali mariposa lily is considered low but nonetheless possible.

The Rosamond generation tie-line provides suitable habitat for desert tortoises and burrowing owls. These species were not detected on project site or within the survey buffers during the 2010 and 2011 protocol surveys, and each of these species is considered absent from the project site. However, the proposed project has the potential to result in adverse effects if a protected species were to unexpectedly occupy the site prior to construction. Based on the focused survey results the potential for occurrence is low.

No Swainson's hawks, golden eagles or special status raptors were observed on the project site or within the 1-mile survey buffer during the focused surveys, and there are no historic records for nest sites within the close vicinity of the site (within 1 mile). The closest recorded Swainson's hawk nest is approximately 5 miles south of the main site (ICF 2010). Therefore, the project is not expected to directly affect or result in incidental take of nesting Swainson's hawks or golden eagles. Other raptor species observed during the focused surveys include the red-tailed hawk and prairie falcon, both of which may use the cliffs to the north of the site as nesting habitat and the project site as part of a foraging territory. Given the existing levels of disturbance at the site and to the south (OHV use, target practice, housing development); the presence of higher quality habitat north and west of the project site; the ubiquitous nature of foraging habitat in the western Mojave (creosote bush scrub and Joshua tree woodland are the two most common vegetation types in the western Mojave; Davis et al. 1998); and the minimal footprint associated with utility pole locations at intervals of 300 to 500 feet along an existing road, the removal of potential foraging habitat along the generation tie-line is not expected to result in significant indirect effects to raptor species. However, potential indirect effects to nesting raptors in the immediate vicinity of the project site could occur if the proposed project is implemented during the nesting season. The project site also contains suitable nesting habitat for a variety of native

avian species common to the desert and protected by CFGC 3503 and the MBTA. The proposed project could result in direct impacts to protected nesting birds if implemented during the nesting season.

The proposed project may potentially affect Mohave ground squirrel along the generation tie line where suitable habitat is present. Based on the negative survey results for the main site and the location of the alignment on the far western fringe of the species' range, the potential for effects is low. Once the final alignment has been chosen, focused surveys for Mohave ground squirrel are recommended within potentially suitable habitat that would be affected by pole placement or any other ground disturbance to definitively determine the presence/absence of the species.

A den of one mammal species of special concern, the American badger, was observed on site; no live animals were observed during focused surveys. If present on-site at the time of construction, the proposed project has the potential to result in injury or mortality of the individuals present. No American badger sign was detected along the generation tie-line.

BIO II: POTENTIAL EFFECTS TO SENSITIVE PLANT COMMUNITIES/LOCALLY PROTECTED RESOURCES

The project site contains creosote bush-white burr sage with Joshua tree woodland inclusions. This community is dominated by white burr sage, creosote bush, and scattered Joshua trees. In some locations, the scattered Joshua trees present along the generation tie-line may form occasional groupings with greater than 10% coverage that could be mapped as Joshua tree woodlands and would be considered a sensitive plant community. Joshua trees are also a locally protected resource within the Willow Springs Specific Plan. Therefore, while potentially avoidable by adjusting the location of utility poles, construction to the generation tie-line has the potential to result in adverse effects to this sensitive plant community/locally protected resource.

BIO III: POTENTIAL EFFECTS TO JURISDICTIONAL WATERS

Four potentially jurisdictional drainage features occur along the generation tie-line. These drainages are not considered subject to USACE jurisdiction as the western Mojave is isolated from traditional navigable waters, but would potentially fall under CDFG jurisdictional streambed and RWQCB waters of the state. Alteration of any of these drainages would likely constitute an impact to jurisdictional waters and would require a formal delineation and acquisition of appropriate permits prior to alteration.

3.2 BARREN RIDGE

Summary of Results:

- The site is potential habitat for the desert tortoise, burrowing owl, and Mojave ground squirrel. Desert tortoises were observed on-site. Burrowing owl sign was observed on-site.
- Two other special status species, the American badger and desert kit fox, were observed on-site.
- Drainages potentially subject to CDFG and RWQCB jurisdiction exist on-site.

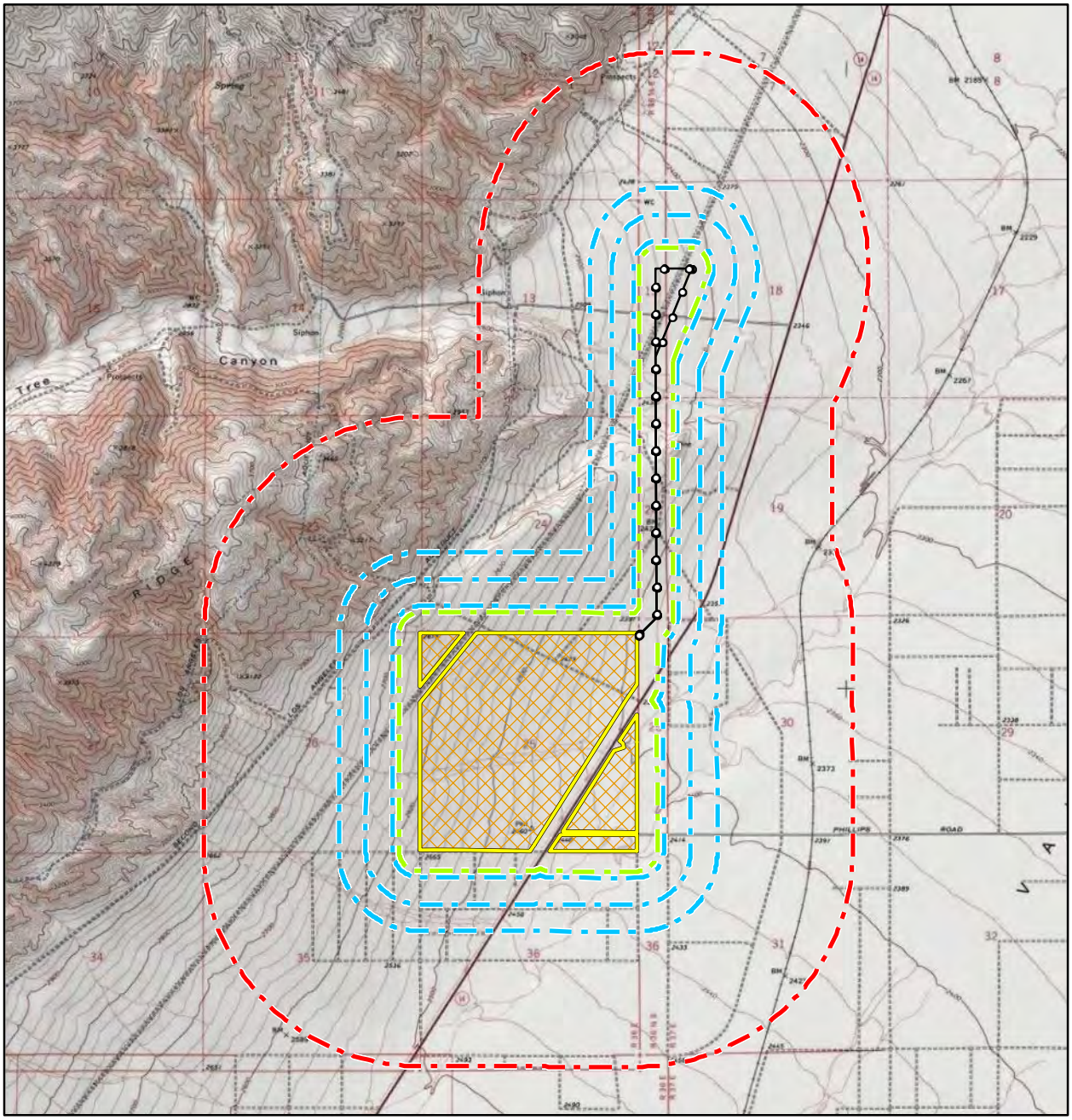
3.2.1 PROJECT LOCATION

The Barren Ridge project site consists of an approximate 594-acre rectangular shaped property located in an unincorporated area of Kern County. The site is located approximately 6.5 miles northwest of the community of California City, approximately 12 miles northeast of the community of Mojave, and approximately 0.8 mile south of the Los Angeles Aqueduct. It is bisected by SR-14, a transmission corridor easement extends through the northwest corner of the site, and Phillips Road extends through the southeast portion of the site. The site is bounded on all sides by undeveloped natural habitat. The Barren Ridge project site is located in the Mojave NE USGS 7.5-minute quadrangle (Figure 4). The generation tie-line route for the Barren Ridge project is a 1.85-mile line extending north and slightly east that is partially within BLM lands and mostly within private lands.

3.2.2 ENVIRONMENTAL SETTING

The Barren Ridge project site is located in the Fremont Valley portion of the western Mojave Desert, characterized by low precipitation and atmospheric humidity, high summer temperatures, and relatively cool winter temperatures. High desert climates are characterized by strong fluctuations in daily temperatures, hot summers and cold winters, strong seasonal winds, generally clear sky, and an arid environment (low humidity/rainfall). Winds can be strong, with dry winds in excess of 25 mph in the late winter and early spring. Average temperature in the project region ranges from 46.9 to 75.8 degrees Fahrenheit, with an average annual rainfall of 6.2 inches. Elevation at the project site ranges from 2420 – 2670 feet. Topography is generally moderately sloping (2 - 15% slopes) and undulating, with water flowing generally northwest to southeast across the site.

Vegetation in the Mojave Desert is strongly influenced by climate, elevation and soils. A predominance of plants with morphological adaptations to endure extreme aridity (e.g., waxy or resinous leaf cuticles, drought deciduous or succulent plants, woolly leaf pubescence, deep tap root systems) and/or saline-alkali soils (e.g., salt excretion, active transport systems) exists in this region. The morphological structure of these plants is typically characterized by short stature, with shrubs and arborescent shrubs (i.e., tree-like) widely spaced due to competition for soil water resources (Hickman 1993, Moe and Twisselmann 1995). In addition, the Mojave Desert ecosystem has been subjected to a variety of human



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Project Site

Gen-Tie Line (Special Status Plants, Desert Tortoise, Burrowing Owl, Raptors)

Special Status Plants, Desert Tortoise, Burrowing Owl, Raptors

Burrowing Owl Survey Buffer Zone (500 Feet)

Desert Tortoise ZOI Transects (200-Meter (~655-Foot) Intervals)

Raptor Survey Buffer (1-mile)

N

0 2,000 4,000
Feet

Barren Ridge Survey Area

Figure 4

disturbances, including off-highway vehicle (OHV) use, mineral extraction (e.g., gold, borax), road building and other development, agriculture, historical sheep grazing and fire. Portions of the desert are currently in a degraded state, with cleared lands, non-native plants and altered vegetation structure.

Vegetation in the project area is dominated by creosote bush – white burr sage scrub, with disturbed and ruderal areas as associated vegetation types along the highway, transmission corridor and dirt roads. Though human use of the site is evident throughout, the project site has been comparatively minimally disturbed by human activity. A few rural access roads exist on-site, a flood control channel has been constructed along the west side of SR-14 to capture storm-water flows, and scattered trash dump sites are present in relatively close proximity to SR-14. Evidence of grazing and recreational shooting (skeets and shotgun shells) are also present. Land uses in the regional vicinity of the Barren Ridge site include rural residential areas, recreational OHV areas, ecological reserves, grazing, and commercial and industrial areas.

3.2.3 BARREN RIDGE VEGETATION

In accordance with the vegetation classification system presented in Sawyer et al. (2009), one vegetation community is dominant at the proposed project site and along the generation tie-line: creosote bush-white burr sage scrub. Small inclusions of scale broom scrub (alluvial fan sage scrub) occur within limited portions of 2 drainage features on the main site (approximately 0.1% of the project site) and within Pine Tree Wash. For the purpose of this report these areas were not classified or mapped as a distinct plant community; however, this community is discussed in the context of jurisdictional drainages in Section 3.2.5.

<u>Creosote Bush-White Burr Sage Scrub</u>

This floristic association corresponds to Mojave creosote bush scrub (Holland 1986). Creosote bush-white burr sage occurs throughout the site, and is dominated by creosote bush and white burr sage. Associated shrubs and subshrubs include desert senna (*Senna armata*), Mojave indigo bush (*Psorothamnus arborescens*), allscale saltbush, Nevada ephedra (*Ephedra nevadensis*), scalebroom (*Lepidospartum squamatum*), Cooper's goldenbush, rubber rabbitbrush, California buckwheat, cheesebush, winterfat, and Anderson's desert thorn. Cacti present include Wiggins' cholla (*Cylindropuntia echinocarpa*). Common herbaceous plants include fiddleneck (*Amsinckia* sp.), filaree (*Erodium* sp.), chia (*Salvia columbariae*), and angled stem buckwheat. Grass species present in this community consist of red brome, cheat grass (*Bromus tectorum*), ripgut (*B. diandrus*), and rattail fescue.

3.2.4 BARREN RIDGE SPECIAL STATUS SPECIES

This section presents the results of the 2011 focused biological surveys for special status plants, desert tortoise, and burrowing owl on the Barren Ridge main project site and generation tie-line. For clarity, results of the 2010 survey results are included in the presentation of the 2011 survey results. Any areas that have been resurveyed are amended and updated as appropriate, and the survey results presented in this report supersede the 2010 survey results presented in *RE Distributed Solar Biological Resources Assessment, Kern County, California* (Rincon Consultants, Inc. 2011). Survey areas are shown in Figure 4. Locations of all sensitive species are shown in Figure 5, and a summary table of focused survey results is presented in Appendix A.

Special Status Plant Species

No special status plants were observed at the project site or along the generation tie-line during the 2010 vegetative surveys or the 2011 focused plant surveys. Therefore, special status plants are considered absent from the project site.

Desert Tortoise

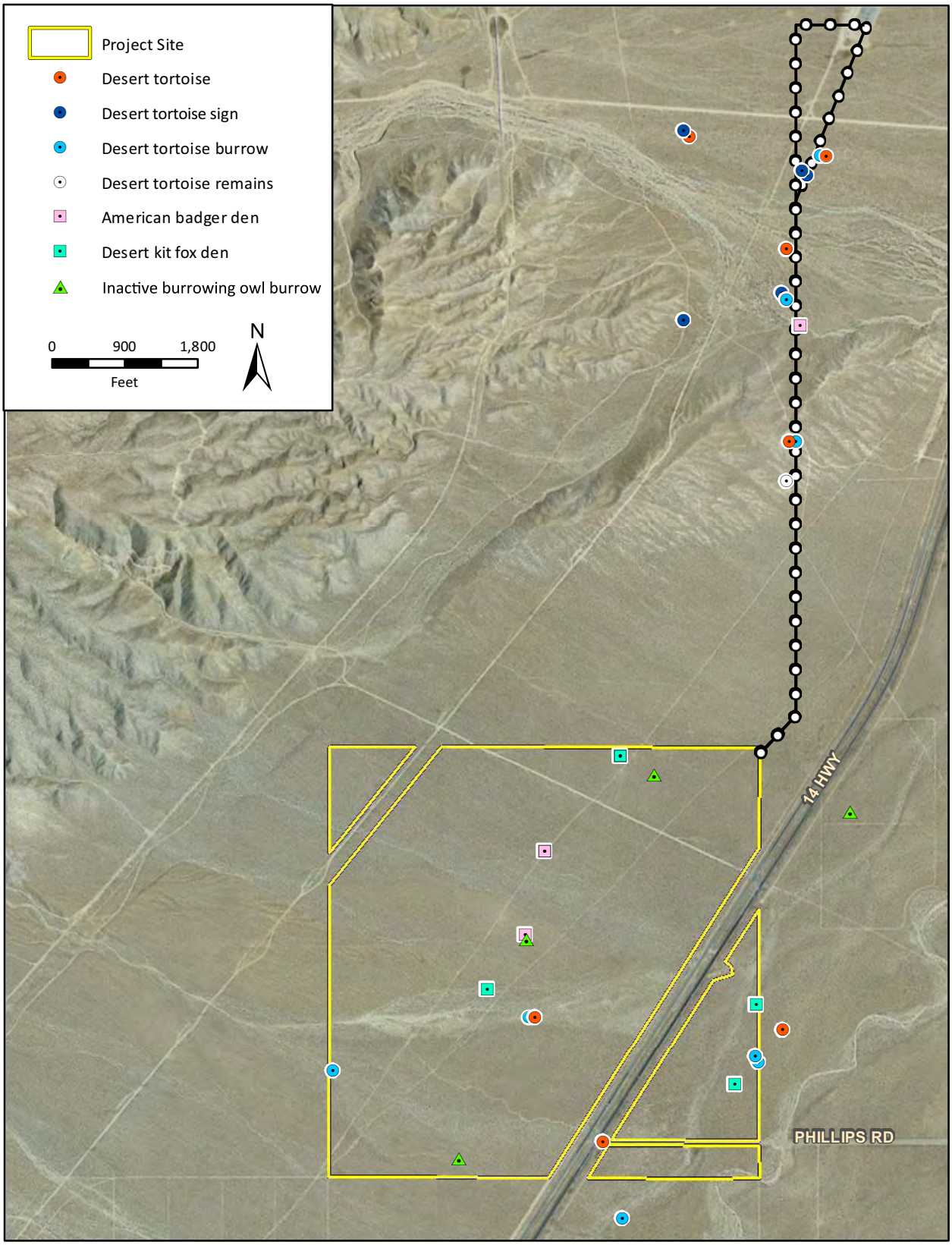
The project site provides suitable habitat for the desert tortoise. During the 2010 and 2011 surveys, a total of seven desert tortoise observations were made on the main project site and along the generation tie-line. Of these, three tortoises were observed on the main project site during the 2010 protocol surveys, and three were observed along the generation tie-line during the 2011 protocol surveys. A fourth desert tortoise was incidentally observed along the northern portion of the tie-line during the 2011 botanical surveys. Three of these individuals were detected at burrows, all along the generation tie-line. One tortoise-shell skeletal remain was also found in the tie-line survey corridor. In addition to these sightings, a total of five additional suitable burrows (some with desert tortoise sign) were detected on-site and in the off-site buffers. Desert tortoise sign (scat or tracks) was also detected in open foraging areas not adjacent to burrows at several locations.

Burrowing Owl

The project site and generation tie-line route provides suitable habitat for the burrowing owl. The site is adjacent to natural areas that provide foraging habitat, and burrows suitable for occupation by burrowing owls were observed both on the project site and along the generation tie-line route. During the 2010 reconnaissance surveys and 2011 focused surveys for burrowing owls, a total of four burrows or burrow complexes were observed on the main project site and associated survey buffer areas. Fresh burrowing owl sign was detected at one of the burrows in 2011; however, no owls were observed at this burrow. Three of the burrows appear inactive, with evidence of old whitewash and/or pellets with small mammal bones/remains present. Seven other burrows were located with no recent sign of large mammal or burrowing owl activity (these burrows were not mapped). The burrow entrances were either partially or completely collapsed by unknown causes, or the entrances were covered with cobwebs, vegetation, or other debris. Any recent activity at these burrows and/or burrow complexes was due to small mammals or lizards. No burrowing owls were detected during the 2011 Phase III surveys.

Special Status Raptors

The Barren Ridge site provides potential foraging habitat for raptors. Common raptors, such as the red-tailed hawk, could nest in the transmission towers adjacent to the site. No special status raptors were observed within the site or buffer area, and no Swainson's hawk or golden eagle nests are tracked in the vicinity of the project site (within 5 miles, CNDDB 2011). A red-tailed hawk nest and several common raven nests were located along the utility towers northwest of the site. An adult red-tailed hawk was observed soaring along the ridgeline west of the site on May 31. A ferruginous hawk (a migratory species that does not breed in Antelope Valley) was briefly observed in April 2011 soaring over the ridgeline northwest of the site, outside the survey area.



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Barren Ridge Biological Resources

Figure 5

Other Sensitive Species and Species of Interest

The project site provides suitable habitat for American badger, and a total of three American badger dens were observed in the project area. One American badger was observed in a burrow west of SR-14 during the 2011 surveys. Four desert kit fox dens were detected, and four pups were observed at one of the burrows in the 2011 surveys. The site also contains suitable nesting habitat for native birds protected by the MBTA and CFG Code 3503.

3.2.5 BARREN RIDGE JURISDICTIONAL EVALUATION

The soils at the Barren Ridge site include Cajon loamy sand, 0 to 5 percent slopes, and Arizo gravelly loamy sand, 2 to 9 percent slopes. Cajon soils, which dominate the site, are somewhat excessively drained, moderately sloping loamy sands formed on alluvial fans and floodplains. Arizo soils are excessively drained soils on alluvial fans and floodplains. None of the soils at the Barren Ridge site are listed as hydric by NRCS (National list of Hydric Soils, Feb. 2010; http://soils.usda.gov/use/hydric/lists/state.html).

The approximate 4,200-foot-high mountain feature called "Barren Ridge" located to the west of the project site and generation tie-line route creates an acute topographical divide. This divide supports semi-developed ephemeral dry washes that sustain a limited expanse of alluvial fan scrub and several swale complexes occurring within the Barren Ridge site. A formal delineation was conducted for the Barren Ridge project site by AECOM on April 8 and 9, 2011. This delineation did not include Pine Tree Wash, located along the generation tie-line route north of the main site.

Pine Tree Wash consists of a broad wash approximately 1,550 feet wide, that traverses the generation tie-line approximately 1 mile north of the main project site. Vegetation within Pine Tree Wash consists of southern alluvial fan scrub dominated by allscale saltbush, scale-broom (*Lepidospartum squamatum*), desert allysum (*Lepidium fremontii*), and green rabbitbrush (*Ericameria teretifolia*), with associated species from the neighboring creosote scrub. Southern alluvial fan scrub is considered a sensitive habitat. A formal jurisdictional delineation was not conducted at Pine Tree Wash, and is recommended prior to project initiation to determine the extent of jurisdictional resources, potential impacts to Water of the State, and the need for permits from the regulatory agencies.

3.2.6 BARREN RIDGE POTENTIAL ENVIRONMENTAL EFFECTS

Implementation of the proposed project at the Barren Ridge site has the potential to affect special-status species and jurisdictional waters. Recommended mitigation measures to avoid and/or minimize potential project effects to these sensitive resources are detailed in Section 5. The project is not expected to substantially interfere with wildlife movement in the project vicinity or region, or conflict with the provisions of an adopted HCP. Therefore, potential effects to these sensitive resource types are considered less than significant.

BIO I: POTENTIAL EFFECTS TO SPECIAL-STATUS SPECIES

No special status plants were observed on the Barren Ridge project site during the 2011 botanical surveys. Therefore, special status plant species are considered absent from the site and potential effects are not anticipated.

The Barren Ridge site provides suitable habitat for desert tortoises, and desert tortoises were observed onsite. Additionally, burrows suitable for use by desert tortoises were observed on and offsite and other sign (e.g., tracks, skeletal remains) were also observed. Completion of the proposed project may result in direct impacts to desert tortoise individuals during construction and would result in loss of suitable habitat.

The Barren Ridge site provides suitable habitat for burrowing owl. A total of four burrows with evidence of recent occupation (whitewash and pellets) were detected during the 2010 and 2011 focused surveys; however, no burrowing owls were observed. The proposed project could potentially result in adverse impacts to this species if these burrows become re-occupied prior to project construction.
No trapping efforts have been conducted for Mohave ground squirrels onsite. Based on the presence of suitable habitat, the project location within the historic range of the species and recorded occurrences in the project region, the proposed project has the potential to result in adverse effects if Mohave ground squirrels were to occur on the site prior to construction. The project would also result in loss of suitable habitat for the species.

The Barren Ridge site provides potential foraging habitat for raptors. The red-tailed hawk, a common raptor, was found nesting in the transmission towers adjacent to the site. No special status raptors, such as Swainson's hawk or the golden eagle, were observed on the project site or within survey buffers during the field surveys. Furthermore, no golden eagle nests are tracked in the vicinity of the project site (within 5 miles, CNDDB 2011). Therefore, the project is not expected to directly affect or result in incidental take of special status raptors. The site contains suitable nesting habitat for a variety of native avian species common to the desert and protected by CFGC §3503 and the MBTA. The proposed project could result in direct impacts to protected nesting birds if implemented during the nesting season.

Two additional mammal species of special concern, the American badger and the desert kit fox, were observed on site, and dens suitable for this species were also observed. The proposed project has the potential to directly impact this species during project construction.

BIO II: POTENTIAL EFFECTS TO SENSITIVE PLANT COMMUNITIES/LOCALLY PROTECTED RESOURCES

No locally protected resources occur on or adjacent to the Barren Ridge project site; therefore, implementation of the proposed project is not expected to affect locally protected resources. Southern alluvial fan scrub, a community generally considered sensitive by the regulatory agencies, occurs within limited portions of 2 drainage features onsite and within Pine Tree Wash to the north of the site. Potential effects are addressed in the context of jurisdictional waters, below.

BIO III: POTENTIAL EFFECTS TO JURISDICTIONAL WATERS

Based on AECOM's field delineation, three types of potentially jurisdictional drainage features occur on the Barren Ridge project site: southern alluvial fan scrub, unvegetated ephemeral dry wash, and unvegetated swale. These features comprise CDFG jurisdictional streambed and RWQCB waters of the state. In addition, the northern portions of the generation tie-line alternatives bisect Pine Tree Canyon wash, and several minor but potentially jurisdictional drainages occur within the alignments. Alteration of drainages within the site would likely constitute an impact to jurisdictional waters and require the acquisition of appropriate permits prior to alteration. These drainages are not considered subject to USACE jurisdiction as the western Mojave is isolated from traditional navigable waters; however, this requires USACE verification.

SECTION 4 – RECOMMENDED MITIGATION MEASURES

The following measures are recommended to ensure adverse effects to sensitive biological resources are avoided and/or minimized. With implementation of these measures, potential effects to sensitive biological resources are anticipated to be less than significant.

MM BIO I-A: MITIGATION MEASURES FOR SPECIAL STATUS PLANT SPECIES ALONG THE ROSAMOND GENERATION TIE-LINE

The following recommended measures apply to special-status plant species encountered along the Rosamond generation tie-line, and are intended to reduce the impacts to regional conservation objectives for alkali mariposa lily.

1. The project shall be designed to avoid alkali mariposa lily to the extent feasible. On-site avoidance measures, such as adjusting the specific pole location of the generation tie-line, and flagging individuals for avoidance by construction vehicles as necessary, would preserve the alkali mariposa lily detected within the Rosamond project area.
2. If impacts to the alkali mariposa lily along the Rosamond generation tie-line are unavoidable and the proposed project would impact greater than 10 percent of the alkali mariposa lily population, a Mitigation and Monitoring Plan shall be prepared that provides for compensatory mitigation. This plan shall include the following:
    - the number of specimens affected;
    - onsite or offsite preservation location (preferably within an area containing an existing alkali mariposa lily population);
    - methods for restoration, enhancement, and/or transplanting of alkali mariposa lily;
    - a performance standard replacement ratio of 1:1 per impacted specimen to be achieved within three years; and
    - adaptive management and remedial measures in the event that the performance standard is not achieved.

A 1:1 ratio is considered sufficient because alkali mariposa is not federally or state listed as threatened or endangered and is relatively common in the project region. If feasible, offsite mitigation could be incorporated into the Mitigation and Monitoring Plan for impacts to jurisdictional resources as described in MM BIO III.

MM BIO I-B: GENERAL MITIGATION MEASURES FOR SPECIAL STATUS WILDLIFE SPECIES

The following recommended measures are based on standard mitigation policies and guidelines currently practiced and are intended to reduce the potential for direct take of special status wildlife species, specifically the desert tortoise, Mohave ground squirrel, American badger and desert kit fox. No desert tortoises or Mohave ground squirrels were observed during the focused surveys on the Rosamond main site. However, these sites contain suitable habitat for the species and adverse effects could occur if individuals were to occupy the sites prior during construction, although the potential for such effect is low. The measures discussed below are recommended to ensure that adverse effects to these species are avoided and/or minimized at the Rosamond and Barren ridge sites and their associated generation tie-lines. Specific measures for desert tortoise and Mohave ground squirrel at the

Barren Ridge site and along the Rosamond generation tie-line are outlined in the sections that follow.

1. Qualified biologists shall conduct preconstruction clearance surveys for special status wildlife species within 2 weeks of the start of any ground disturbing construction activity and during all grading/ground disturbing activities. All burrows that could provide shelter for special status species shall be excavated during the first clearance survey. A biologist shall remain on-call throughout construction in the event a tortoise or badger wanders onto the site.
2. If a permanent tortoise proof exclusion fence is practicable, a fence shall be installed around all construction areas prior to the initiation of earth disturbing activities, in coordination with a qualified biologist. The fence shall be constructed of ½-inch mesh hardware cloth and extend 18 inches above ground and 12 inches below ground. Where burial of the fence is not possible, the lower 12 inches shall be folded outward against the ground and fastened to the ground so as to prevent desert tortoise entry. The fence shall be supported sufficiently to maintain its integrity, be checked at least monthly during construction and operations, and maintained when necessary by site operator to ensure its integrity. Provisions shall be made for closing off the fence at the point of vehicle entry. Raven perching deterrents shall be installed as part of the fence construction.
3. After fence installation, the qualified biologist shall conduct a clearance survey for special status wildlife species within the construction site.
4. A raven management plan shall be developed that includes language stipulating that all trash that could attract predators of the desert tortoise, such as common ravens, be removed from work sites or completely secured at the end of each work day.
5. Construction and operations personnel shall undergo environmental awareness training provided by the qualified biologist immediately prior to commencement of ground disturbing activities, with specific discussion of desert tortoise, Mohave ground squirrel, and American badger natural history and protective measures. New construction personnel shall be similarly trained prior to their start of work onsite.
6. If any American badger or desert kit fox burrows are determined to be active, an on-site passive relocation program shall be implemented. This program shall consist of excluding badgers or kit foxes from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for one week to confirm badger and kit fox usage has been discontinued, and excavation and collapse of the burrow to prevent reoccupation. Relocation should occur during the non-breeding season.
7. If a desert tortoise or Mohave ground squirrel is found onsite during subsequent surveys or biological monitoring activities, construction activities shall cease to avoid the potential for take. Consultation with CDFG and the USFWS shall then be initiated to obtain the necessary incidental take permit authorizations pursuant to the federal ESA and CESA.

MM BIO I-C: MITIGATION MEASURES FOR DESERT TORTOISE AT BARREN RIDGE

The following measures are recommended for the Barren Ridge project site to reduce potentially significant effects to a less than significant level under CEQA. Although not listed herein as a specific mitigation measure, incidental take authorization from the USFWS and CDFG is expected to be necessary for ESA and CESA compliance. Any activities that result in take of the species, such as translocation, would also require take authorization from USFWS and CDFG.

1. Develop a plan for desert tortoise translocation and monitoring prior to project construction. The plan shall include but not be limited to the following components:
    - Biologist qualifications/authorizations
    - Preconstruction clearance surveys and construction monitoring
    - Burrow excavation
    - Desert tortoise handling and transport
    - Relocation site characteristics, preparation, and management
    - Relocation monitoring and reporting
2. Compensatory mitigation for the loss of desert tortoise habitat shall be provided through purchase of credit from an existing mitigation bank, such as the Desert Tortoise Natural Area (DTNA), private purchase of mitigation lands, or onsite preservation, as approved by the resource agencies. Compensatory mitigation shall be provided at a 0.5:1 ratio to reduce potential effects to less than significant under CEQA.

The compensatory mitigation ratio of 0.5:1 is considered adequate under CEQA based on the fact that the site is not located within designated critical habitat for desert tortoise or a DWMA. It is noted that the final mitigation ratio required by the USFWS for incidental take authorization is subject to negotiation.

MM BIO I-D: MITIGATION MEASURES FOR BURROWING OWL

Mitigation measures for potential project impacts to burrowing owls typically follow the guidelines developed by the California Burrowing Owl Consortium (1993) and CDFG (1995). However, mitigation requirements under CEQA are established at the discretion of the lead agency. No burrowing owls were observed on any of the sites during the focused surveys. However, each of the sites contain suitable habitat for the species and burrowing owl sign was observed on the Barren Ridge site. Therefore, adverse effects to burrowing owls could occur if individuals were to occupy the sites in the future and the following measures are recommended for all project sites.

1. Conduct preconstruction clearance surveys of the sites and within 250 feet of the sites to confirm burrowing owls remain absent. Clearance surveys are typically conducted 30 days prior to construction activities. If no burrowing owls are observed, no further actions are recommended.
2. If burrowing owls are found during the clearance surveys, develop a burrowing owl Mitigation and Monitoring Plan. The plan shall provide the framework for implementing the following tasks:
    a. Unless otherwise authorized by CDFG, avoid disturbance within 50 meters (164 feet) of occupied burrows during the non-breeding season (September 1 through January 31) or within 75 meters (246 feet) during the breeding season (February 1 through August 31).
    b. Passively relocate burrowing owls to a suitable offsite location. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 meters (164 feet) from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Relocation of owls can only occur during the non-breeding season.

c. At minimum one, and potentially two, alternate natural or artificial burrows shall be provided/identified for each active burrow that will be excavated in the project impact zone.

d. The project area shall be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone.

e. Burrows shall be excavated using hand tools and refilled to prevent reoccupation.

f. If the project will reduce the amount of suitable foraging habitat contiguous to occupied burrows on or adjacent to the site below the 6.5-acre threshold (per pair or individual owl), provide compensatory mitigation for direct impacts to occupied burrowing owl habitat based on the ratios outlined by the Burrowing Owl Consortium (1993).

MM BIO I-E: MITIGATION MEASURES FOR SPECIAL STATUS RAPTORS AND NESTING BIRDS

The following measures are recommended for all projects to ensure that potential direct or indirect effects to nesting raptors and other avian species are avoided and/or minimized:

1. If construction activities occur during the breeding season (February – August), a qualified biologist shall conduct a nesting bird/raptor survey to determine the presence/absence, location, and status of any active nests on or adjacent to the project site. The extent of the survey buffer area surrounding the site shall be established by the qualified biologist to ensure that indirect effects to nesting birds are avoided. Nesting bird surveys are typically conducted 3-30 days prior to construction activities (last survey conducted within 3 days of the start of construction). A suitable buffer (e.g. 0.25 mile for Swainson's hawk, 200-300 feet for common raptors; 30-50 feet for passerines) shall be established around active nests and no construction within the buffer allowed until a qualified biologist has determined that the nest is no longer active (e.g. the nestlings have fledged and are no longer reliant on the nest). Encroachment into the buffer may occur at the discretion of a qualified biologist.

MM BIO I-F: MITIGATION MEASURES FOR MOHAVE GROUND SQUIRREL

The following measures specific to Mohave ground squirrel are recommended for the Rosamond generation tie line:

1. Conduct focused surveys for Mohave ground squirrel within potentially suitable habitat that would be affected by any ground disturbing activities to determine the presence/absence of the species. The surveys must be conducted by a qualified biologist with a CDFG MOU to survey for Mohave ground squirrels, in accordance with the CDFG protocol (2003). If Mohave ground squirrels are determined present during focused surveys, implement MM BIO I-F, 2 and 3.

The following measures are recommended for the Barren Ridge project site and generation tie line. Although not listed herein as a specific mitigation measure, incidental take authorization from the CDFG is likely to be necessary for CESA compliance. Any activities that result in take of the species, such as translocation, would also require take authorization from CDFG.

2. If Mohave ground squirrels are determined present on the project site based on protocol trapping surveys, or Mohave ground squirrels are assumed present as an alternative to surveys, develop a Mohave ground squirrel translocation and monitoring plan. The plan shall include but

not be limited to the following components:

- Biologist qualifications/authorizations
- Preconstruction clearance surveys and construction monitoring
- Burrow excavation
- Mohave ground squirrel handling and transport
- Relocation site characteristics, preparation, and management
- Relocation monitoring and reporting

3. Develop a mitigation plan to provide adequate compensatory mitigation for the loss of Mohave ground squirrel habitat. Providing compensatory mitigation to offset species/habitat impacts can be accomplished through purchase of credit from an existing mitigation bank, such as the DTNA, or private purchase of mitigation lands. Compensatory mitigation shall be provided at a minimum 0.5:1 ratio to reduce potential effects to less than significant under CEQA.

This ratio is considered adequate based on the fact that the site is not located within any Mohave ground squirrel core areas or known population areas (Leitner 2008). It is noted that the final mitigation ratio required by CDFG for acquisition of a 2081 incidental take permit is subject to negotiation. Given that Mohave ground squirrel and desert tortoise occupy the same habitat types, compensatory mitigation for both species can be combined into one mitigation program.

MM BIO II: MITIGATION MEASURES FOR JOSHUA TREES/WOODLANDS

The following measures are recommended for the Rosamond project to ensure that potential direct effects to Joshua trees/woodlands (sensitive plant communities/locally protected resources) are minimized:

1. Conduct a Joshua tree survey to inventory Joshua trees within the project sites. The survey shall include an assessment of the height, diameter at breast height (dbh), and health status of all trees. Joshua tree woodlands shall be mapped based on groupings of trees with greater than 10% areal coverage in accordance with the *California Wildlife Habitat Relationships System Classification Rules*. Such mapping shall be conducted based on aerial photography and other remote sensing techniques, and shall be determined based on a census count and a spatial analysis technique such as “nearest neighbor” and associated statistical analysis.
2. Prepare a Joshua Tree Impact and Mitigation Plan that details Joshua trees/woodlands to be removed and mitigation measures to compensate for impacts. The plan shall outline a compensatory mitigation approach consisting either of relocation of trees to an approved preserve, payment of an in-lieu fee or purchase of mitigation credit, or the purchase of preserved mitigation lands at a minimum 1:1 ratio of impacted Joshua tree woodlands.

A 1:1 ratio per specimen tree is considered sufficient to reduce potential effects to less than significant because Joshua trees/woodlands are relatively abundant in the vicinity of the project sites and comprise one of the more common communities in the region (Davis et al. 1998). Equivalent habitat means the same general number of trees since mitigation lands to be preserved may contain a higher density of trees than that at the site, and consequentially proportionately less acreage would be necessary to meet the mitigation requirement, and vice versa.

MM BIO III: MITIGATION MEASURES FOR JURISDICTIONAL WATERS

The following measures are recommended for the Rosamond, and Barren Ridge projects to ensure that direct or indirect effects to jurisdictional waters are minimized:

1. To the extent practicable, the project shall be designed to avoid impacts to the jurisdictional waters within the Rosamond and Barren Ridge project sites, and the following avoidance/minimization measures are recommended:
    a. Any material/spoils from project activities shall be located away from jurisdictional areas or sensitive habitat and protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.
    b. Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and generally at least 50 feet from the top of bank.
    c. Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned and any contaminated materials properly disposed of. For all spills the project foreman or designated environmental representative will be notified.
2. If jurisdictional waters cannot be avoided, minimization measures shall be applied and all necessary resource agency permits shall be obtained. This includes Individual or General Waste Discharge Requirements (WDRs) from the RWQCB and a Streambed Alteration Agreement from CDFG. Verification from the USACE is recommended to confirm the drainages do not constitute waters of U.S.
3. Minimization measures for impacts to jurisdictional waters shall include routing on-site drainage and placing the water discharge point at the location of existing or historic ephemeral drainages, if feasible.
4. Compensatory mitigation may occur either onsite or offsite, and would occur at a ratio no less than 1:1 for the impact to jurisdictional waters. A Habitat Mitigation and Monitoring Plan shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFG. If onsite mitigation is proposed, the Habitat Mitigation and Monitoring Plan shall identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration of alluvial desert scrub habitat. Determination of mitigation adequacy shall be based on comparison of the restored habitat with similar, undisturbed habitat in the site vicinity (such as up or downstream of the site). The Plan shall include remedial measures in the event that this performance criteria is not met. If mitigation is implemented offsite, mitigation lands shall be comprised of similar or more well-developed alluvial desert scrub and preferably be located in the vicinity of the site or watershed. Off-site land shall be preserved through a conservation easement and the Plan shall identify an approach for funding assurance for the long-term management of the conserved land.

The proposed 1:1 acreage ratio is considered sufficient to reduce project effects to less than significant under CEQA because the type of affected jurisdictional feature (i.e. non-riparian desert wash/scrub and swales) are relatively common in the context of desert region drainage features. Furthermore, most effects would likely be temporary because jurisdictional features are anticipated to be relocated on-site to maintain hydrology in the project area for flood control purposes. It is noted that the final mitigation ratio required by the RWQCB and CDFG for acquisition of regulatory permits may differ.

SECTION 5 – SUMMARY AND CONCLUSIONS

The following discussion summarizes the potential project effects to sensitive biological resources at each project site and recommended mitigation measures to reduce effects to a less than significant level under CEQA. Appendix D provides a summary table of the recommended mitigation measures for the individual sites, with an "X" indicating an applicable mitigation measure for a particular site.

5.1 ROSAMOND

No special status plants were observed on the project site; therefore, special status plants are considered absent from the site and potential adverse effects are not anticipated. However, the proposed project may potentially affect special status plant species, specifically alkali mariposa lily, along the generation tie-line where suitable habitat is present. Mitigation measure BIO I-A is recommended to ensure potential effects to special status plants along the generation tie-line are avoided or minimized.

No desert tortoises, burrowing owls, or Mohave ground squirrels were observed during the focused surveys. Therefore, the proposed project is not expected to result in direct adverse effects to these special status wildlife species on the project site. Nonetheless, the site contains suitable habitat for these species, and an inactive American badger burrow was observed onsite. Adverse effects could occur if individuals were to wander on to the site during construction, although the potential for effects is relatively low. The proposed project may also affect special status wildlife species along the generation tie-line where potentially suitable habitat is present. Mitigation measures BIO I-B, I-C, I-D, and I-F are recommended to ensure that adverse effects to special status wildlife species are avoided and/or minimized.

No Swainson's hawks, golden eagles, or other special status raptors were observed on the Rosamond site or within 1 mile of the site during the focused surveys. Therefore, the project is not expected to result in direct effects to or incidental take of these species. However, the project site contains suitable foraging habitat for raptor species and nesting habitat for a variety of native avian species common to the desert and protected by CFGC 3503 and the MBTA. Mitigation measure BIO I-E is recommended to ensure that adverse effects to nesting birds/raptors are avoided and/or minimized.

The project site contains a sensitive plant community and locally protected resource, Joshua trees/woodland, and potentially jurisdictional waters. Therefore, mitigation measures BIO II and III are recommended to ensure impacts to these sensitive resources are avoided and/or minimized.

With implementation of the mitigation measures described above, potential effects to sensitive biological resources associated with the proposed project at the Rosamond site would be less than significant.

5.2 BARREN RIDGE

No special status plant species were observed on the project site during focused surveys. Therefore, potential adverse effects to special status plant species not expected and no further actions are recommended.

Seven desert tortoises were observed on the Barren Ridge project site during the focused surveys. Project implementation would likely result in direct adverse effects to this species. Therefore MM BIO I-C is recommended to ensure potential effects to desert tortoise are avoided or minimized. It is noted that incidental take authorization from the USFWS and CDFG is expected to be necessary for ESA and CESA compliance.

No burrowing owl individuals were observed on the project site during focused surveys; however, potential burrows and owl sign were detected. Therefore, MM BIO I-D is recommended to ensure potential adverse effects to burrowing owl are avoided or minimized.

No golden eagles or other special status raptors were observed on the Barren Ridge site or in the survey buffer or adjacent areas during focused surveys. Therefore, the project is not expected to result in direct effects to or incidental take of these species. However, the project site contains suitable foraging habitat for raptor species and nesting habitat for a variety of native avian species common to the desert and protected by CFGC 3503 and the MBTA. Mitigation measure BIO I-E is recommended to ensure that adverse effects to nesting birds/raptors are avoided or minimized.

Mohave ground squirrel surveys were not conducted on the Barren Ridge project site. The site is not located within any core areas or known population areas (Leitner 2009). Nonetheless, the site contains suitable habitat for Mohave ground squirrel and project implementation could result in adverse effects. Therefore, MM BIO I-F is recommended to ensure potential effects to Mohave ground squirrel are avoided or minimized. It is noted that incidental take authorization from the CDFG is likely to be necessary for CESA compliance.

A total of three American badger burrows (individual observed in one burrow) and four desert kit fox burrows (pups observed at one burrow) were observed on the project site. Project implementation could result in direct adverse effects to these species, including mortality or injury. Therefore, MM BIO I-B is recommended to ensure potential effects are avoided or minimized.

The Barren Ridge project site contains potentially jurisdictional waters. Therefore, MM BIO III is recommended to ensure impacts to this sensitive resource are avoided or minimized.

With implementation of the mitigation measures described above, potential effects to sensitive biological resources associated with the proposed project at the Barren Ridge project site would be less than significant.

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SUNDANCE BIOLOGY, INC.

- Barren Ridge and Rosamond Generation Tie-Line Desert Tortoise and Burrowing Owl Surveys

Appendix A

Summary of Focused Survey Results for the Rosamond and Barren Ridge Sites

Appendix A-1. Summary of Rosamond Focused Survey Results

Observation	Location (NAD 83, Zone 11)		Comments
1. Burrowing owl sign	E 385658	N 3860209	Pellets at burrow, detected in 2011
2. Alkali mariposa lily	E 386812	N 3858680	Four individuals observed west of 60th Street, associated with alkali saltbush, cheatgrass, and filaree.
3. Alkali mariposa lily	E 386821	N 3858684	Six individuals observed west of 60th Street, associated with alkali saltbush, cheatgrass, and filaree.
4. Alkali mariposa lily	E 386811	N 3858667	One individual observed west of 60th Street, associated with alkali saltbush, cheatgrass, and filaree.
5. Alkali mariposa lily	E 386815	N 3858914	Five individuals observed northwest of intersection between west of 60th Street and Rosamond Blvd., in ruderal vegetation.
6. Alkali mariposa lily	E 386814	N 3858935	One individual observed northwest of intersection between west of 60th Street and Rosamond Blvd., in ruderal vegetation.
7. Alkali mariposa lily	E 386829	N 3858849	One individual observed northwest of intersection between west of 60th Street and Rosamond Blvd., in ruderal vegetation.
8. Inactive American badger den	E 386122	N 3862768	Inactive, indicative scrapes on side of den, detected in 2010
9. Red-tailed hawk pair	N/A	N/A	Observed above cliffs in 2010
10. Red-tailed hawk pair	E 385563	N 3862663	Observed near southwest corner of the site; potentially the same pair as #2
11. Immature red-tailed hawk	E 385200	N 3862664	Near pair, seen immediately after pair sighting in 2010
12. Raptor nest	E 386756	N 3863528	In cliffs north of site, observed in 2010
13. Prairie falcon	N/A	N/A	One individual seen flying over Willow Springs Butte in 2011

Appendix A-2: Summary of Barren Ridge Focused Survey Results

Observation	Location (NAD 83, Zone 11)		Comments
1. Desert tortoise	E 403316	N 3899374	Adult desert tortoise observed west of gen-tie corridor in 2011
2. Desert tortoise	E 403680	N 3898939	Sub-adult desert tortoise observed along gen-tie corridor in 2011
3. Desert tortoise	E 403636	N 3895996	Adult female desert tortoise observed east of project site in 2010
4. Desert tortoise	E 402940	N 3895537	Adult male desert tortoise observed at SR-14 and Phillips Rd intersection in 2010
5. Desert tortoise and burrow	E 403683	N 3898214	Adult desert tortoise observed at burrow along gen-tie corridor in 2011
6. Desert tortoise and burrow	E 403813	N 3899289	Adult desert tortoise observed foraging adjacent to burrow along gen-tie corridor in 2011
7. Desert tortoise and burrow	E 402704	N 3896055	Juvenile desert tortoise observed inside burrow in 2011; juvenile tortoise also observed in 2010
8. Desert tortoise burrow	E 403026	N 3895891	Desert tortoise burrow identified in 2010; coyote sign observed in 2011
9. Desert tortoise burrow	E 403545	N 3895876	Desert tortoise burrow identified in 2010; sign of desert tortoise activity in 2011
10. Desert tortoise burrow	E 403543	N 3895889	Desert tortoise tracks observed at burrow in 2011
11. Desert tortoise burrow	E 403680	N 3898749	Desert tortoise burrow observed along gen-tie corridor in 2011
12. Desert tortoise burrow	E 401941	N 3895861	Desert tortoise burrow identified in 2010; no sign of recent activity/use in 2011
13. Desert tortoise remains	E 403673	N 3898062	Desert tortoise shell-skeletal remains observed along the gen-tie corridor in 2011
14. Desert tortoise sign	E 403672	N 3898761	Desert tortoise scat (from 2011) observed along gen-tie corridor in 2011
15. Desert tortoise sign	E 403762	N 3899214	Desert tortoise scat (from 2011) observed along gen-tie corridor in 2011
16. Desert tortoise sign	E 403744	N 3899233	Desert tortoise scat (from 2011) observed along gen-tie corridor in 2011
17. Desert tortoise sign	E 403307	N 3899382	Desert tortoise scat (from 2010) observed west of gen-tie corridor in 2011
18. Desert tortoise sign	E 403290	N 3898676	Desert tortoise scat (from 2010) observed west of gen-tie corridor in 2011
19. Inactive burrowing owl burrow	E 403896	N 3896818	Burrowing owl sign (pellets, whitewash) observed at burrow in 2011, but no owls observed
20. Inactive burrowing owl burrow	E 402408	N 3895525	Burrowing owl sign (pellets, whitewash) observed from 2010; no sign of recent activity/use in 2011
21. Inactive burrowing owl burrow	E 402668	N 3896365	Burrowing owl sign (pellets, whitewash) observed in 2010; no sign of recent activity/use in 2011
22. Inactive burrowing owl burrow	E 403158	N 3896962	Burrowing owl sign (pellets, whitewash) observed in 2010; no sign of recent activity/use in 2011
23. American badger den	E 402670	N 3896365	American badger den. American badger individual observed in 2010; badger tracks observed in 2011
24. American badger den	E 402748	N 3896677	American badger tracks and scat observed in 2011

Appendix A-2: Summary of Barren Ridge Focused Survey Results

Observation	Location (NAD 83, Zone 11)		Comments
25. American badger den	E 403728	N 3898647	American badger den observed along gen-tie corridor in 2011
26. Desert kit fox den	E 403456	N 3895793	9 burrow/den entrances; old kit fox scat observed in 2011
27. Desert kit fox den	E 403537	N 3896091	7 burrow/den entrances; kit fox scat and tracks observed in 2011
28. Desert kit fox den	E 402509	N 3896168	5 burrow/den entrances; kit fox scat observed in 2011; desert tortoise tracks observed in 2010
29. Desert kit fox den	E 403035	N 3897036	14 burrow/den entrances; 4 fox pups observed in 2011; burrowing owl sign (pellets, whitewash) observed in 2010
30. Red-tailed hawk	E 399512	N 3895916	Red-tailed hawk adult observed in 2011 soaring far overhead along ridgeline and within surrounding canyons 1.5 mi west of project site (not shown on map)
31. Red-tailed hawk	E 403268	N 3898348	Two adult red-tailed hawks observed in 2011 near active nest located on tower 73/3 west of gen-tie corridor (not shown on map)
32. Ferruginous hawk	E 402741	N 3898594	Ferruginous hawk observed in 2011 soaring over ridgeline west of gen-tie corridor (not shown on map)

Appendix B

Site Photographs

Photo 1 - View from northeast corner of project site facing southwest. Vegetation at this point consists of Broom Snake Weed Scrub that transitions to Creosote Bush-White Burr Sage Scrub to the south and west.

Photo 2 - View of drainage facing northeast. Feature exits natural channel and enters road at this location.

Photo 3 - View of drainage facing northwest. Note active channel within dirt access road.

Photo 4 - View from western portion of project site facing south. Vegetation dominated by Creosote Bush and lacking Joshua Trees at this location

Rosamond Site Photographs

Photo 1 - View of Creosote Bush - White Burr Sage Scrub characteristic of the entire site.

Photo 2 - View of man-made ditch along the western side of SR-14, looking south.

Photo 3 - View of alluvial fan facing west. Drainage system is made up of numerous discontinuous channels and areas of sheet flow.

Photo 4 - Desert tortoise observed at the intersection of SR-14 and Phillips Road.

Barren Ridge Site Photographs

Appendix C

Botanical Compendia

Rosamond Plant Species Compendium	
Scientific Name	**Common Name**
Yucca brevifolia	Joshua tree
Allium sp.	onion
Acamptopappus sphaerocephalus	goldenhead
*Ambrosia artemisiifolia**	common ragweed
Ambrosia dumosa	white bursage
Ambrosia (Hymenoclea) salsola	cheesebush
Coreopsis bigelovii	tickseed
Ericameria cooperi var. *cooperi*	goldenbush
Ericameria (Chrysothamnus) nauseosa	rubber rabbitbrush
Glyptopleura marginata	glyptopleura
Gutierrezia microcephala	sticky snakeweed
*Lactuca serriola**	prickly lettuce
Lasthenia gracilis (californica)	common goldfields
Leptosyne (Coreopsis) calliopsidea	tickseed
Psathyrotes annua	psathyrotes
Uropappus lindleyi	silverpuffs
Lomatium mohavense	Mojave lomatium
Malacothrix sp.	malacothrix
Stephanomeria exigua	stephanomaria
Stephanomeria pauciflora	wire-lettuce
Stylocline gnaphaloides	everlasting neststraw
Tetradymia stenolepis	striped horsebrush
Xylorhiza tortifolia var. *tortifolia*	desert-aster
Amsinckia tessellata	devil's lettuce
Cryptantha circumscissa	cryptantha
Pectocarya linearis ssp. *ferocula*	pectocarya
Pectocarya recurvata	pectocarya
Pectocarya setosa	round-nut pectocarya
Phacelia distans	distant phacelia
Phacelia fremontii	Fremont's phacelia
Plagiobothrys nothofulvus	rusty popcornflower
Descurainia pinnata	tansy mustard
*Sisymbrium altissimum**	tumble mustard
*Hirschfeldia incana**	mustard
Cylindropuntia (Opuntia) echinocarpa	silver cholla
Atriplex polycarpa	allscale saltbush
Atriplex spinifera	spiny saltbush
Grayia spinosa	hop-sage
Krasheninnikovia lanata	winter fat
Ephedra nevadensis	Nevada ephedra
Ephedra viridis	green ephedra
Chamaesyce albomarginata	rattlesnake weed
Croton setigerus	dove weed
Astragalus didymocarpus	two-seeded milkvetch
Astragalus lentiginosus	freckled milkvetch

Rosamond Plant Species Compendium	
Scientific Name	**Common Name**
*Pisum sativum**	common pea
*Erodium cicutarium**	storksbill
*Marrubium vulgare**	horehound
Salvia columbariae	chia
Calochortus kennedyi	desert calochortus
Calochortus striatus	alkali mariposa lily
Mirabilis bigelovii	four o'clock
Camissonia campestris ssp. *campestris*	Mohave sun cup
Camissonia pallida	sun cup
Castilleja exserta	purple owl's-clover
Orobanche cooperi	broomrape
*Avena fatua**	common wild oats
*Bromus diandrus**	ripgut brome
Bromus madritensis ssp. *rubens**	foxtail chess
*Bromus tectorum**	cheat grass
Elymus elymoides	squirreltail
Festuca (Vulpia) microstachys	fescue
*Festuca (Vulpia) myuros**	rattail fescue
*Hordeum murinum**	barley
Poa secunda	one-sided bluegrass
*Schismus arabicus**	Mediterranean grass
Stipa (Achnatherum) hymenoides	sand grass
Stipa (Achnatherum) speciosa (speciosum)	desert needlegrass
Eriastrum densifolium ssp. *mojavense*	Mojave eriastrum
Eriastrum sapphirinum	eriastrum
Centrostegia thurberi	Thurber's spineflower
Chorizanthe brevicornu ssp. *brevicornu*	brittle spineflower
Eriogonum fasciculatum var. *polifolium*	California buckwheat
Eriogonum gracillimum	slender buckwheat
Eriogonum trichopes	little desert trumpet
Mucronea perfoliata	perfoliate spineflower
Lycium andersonii	Anderson's desert thorn
Lycium cooperi	Cooper's box thorn
Tamarix sp.	tamarisk
Larrea tridentata	creosote bush

**Indicates a non-native species.*

Barren Ridge Plant Species Compendium	
Scientific Name	**Common Name**
Hesperoyucca (Yucca) whipplei	our Lord's candle
Yucca brevifolia	Joshua tree
Lomatium mohavense	Mojave lomatium
Acamptopappus sphaerocephalus	goldenhead
*Ambrosia artemisiifolia**	common ragweed
Ambrosia dumosa	white bursage
Ambrosia (Hymenoclea) salsola	cheesebush
Brickellia incana	woolly brickellbush
Chaenactis fremontii	desert pincushion
Coreopsis bigelovii	tickseed
Encelia actoni	encelia
Ericameria cooperi var. *cooperi*	goldenbush
Ericameria linearifolia	interior goldenbush
Ericameria (Chrysothamnus) teretifolia	green rabbitbrush
Eriophyllum pringlei	Pringle's woolly sunflower
Eriophyllum wallacei	Wallace's woolly daisy
Lasthenia gracilis (californica)	common goldfields
Lepidospartum squamatum	scale-broom
Malacothrix californica	malacothrix
Malacothrix coulteri	snake's-head
Monolopia lanceolata	monolopia
Rafinesquia neomexicana	desert chicory
Stephanomeria exigua	stephanomeria
Stephanomeria pauciflora	wire-lettuce
Stylocline gnaphaloides	everlasting nest straw
Syntrichopappus fremontii	syntrichopappus
Uropappus lindleyi	silver puffs
Xylorhiza tortifolia var. *tortifolia*	desert-aster
Amsinckia menziesii	fiddleneck
Amsinckia tessellata	devil's lettuce
Cryptantha barbigera	cryptantha
Cryptantha circumscissa	cryptantha
Emmananthe penduliflora	whispering bells
Pectocarya linearis ssp. *ferocula*	pectocarya
Pectocarya recurvata	pectocarya
Phacelia distans	distant phacelia
Phacelia fremontii	Fremont's phacelia
Pholisma arenarium	sand food
Pholistoma membranaceum	pholistoma
Plagiobothrys arizonicus	Arizona popcornflower
Plagiobothrys nothofulvus	rusty popcornflower
*Brassica rapa**	field mustard
*Brassica tournefortii**	Asian mustard
Descurainia pinnata	tansy mustard
Guillenia lasiophylla	California mustard

Barren Ridge Plant Species Compendium	
Scientific Name	**Common Name**
*Hirschfeldia incana**	hirschfeldia
Lepidium flavum var. *flavum*	yellow pepperweed
Lepidium fremontii	desert pepperweed
Lepidium nitidum var. *howellii*	peppergrass
*Sisymbrium altissimum**	tumble mustard
*Sisymbrium irio**	London rocket
Tropidocarpum gracile	tropidocarpum
Cylindropuntia (Opuntia) echinocarpa	silver cholla
Peritoma (Isomeris) arborea	bladderpod
Atriplex canescens	fourwing saltbush
Atriplex lentiformis	big saltbush
Atriplex polycarpa	allscale saltbush
Grayia spinosa	hop-sage
Krasheninnikovia lanata	winter fat
*Salsola tragus**	Russian thistle
Cuscuta californica	California dodder
Ephedra viridis	green ephedra
Astragalus acutirostris	sharpkeel milkvetch
Astragalus didymocarpus	two-seeded milkvetch
Astragalus lentiginosus	freckled milkvetch
Lotus humistratus	foothill deervetch
Psorothamnus arborescens var. *minutifolius*	Mojave indigobush
Senna armata	spiny senna
*Erodium cicutarium**	storksbill
Scutellaria (Salazaria) mexicana	bladder sage
Salvia columbariae	chia
Mentzelia albicaulis	blazing star
Mirabilis bigelovii	four o'clock
Camissonia boothii ssp. *condensata*	clustered Booth's desert primrose
Camissonia campestris ssp. *campestris*	Mohave sun cup
Camissonia claviformis	browneyed primrose
Camissonia palmeri	Palmer's sun cup
*Oenothera laciniata**	evening-primrose
Eschscholzia californica	California poppy
Eschscholzia minutiflora ssp. *covillei*	Coville's poppy
Plantago ovata	plantain
*Bromus diandrus**	ripgut grass
Bromus madritensis ssp. *rubens**	foxtail chess
*Bromus tectorum**	cheat grass
*Bromus trinii**	Chilean chess
Elymus elymoides	squirreltail
*Festuca (Vulpia) microstachys**	fescue
*Festuca (Vulpia) myuros**	rattail fescue
*Hordeum murinum**	barley
Poa secunda	one-sided bluegrass

Barren Ridge Plant Species Compendium	
Scientific Name	**Common Name**
*Schismus arabicus**	Mediterranean grass
Stipa (Achnatherum) speciosa (speciosum)	desert needlegrass
Stipa (Achnatherum) hymenoides	sand grass
Eriastrum densifolium ssp. *mojavense*	Mojave eriastrum
Eriastrum diffusum	miniature eriastrum
Eriastrum sparsiflorum	Great Basin eriastrum
Gilia latiflora ssp. *latiflora*	broad-leaved gilia
Gilia sinuata	rosy gilia
Linanthus dichotomus	evening snow
Linanthus parryae	Parry's linanthus
Loeseliastrum matthewsii	desert calico
Centrostegia thurberi	Thurber's spineflower
Chorizanthe brevicornu ssp. *brevicornu*	brittle spineflower
Chorizanthe watsonii	Watson's spineflower
Eriogonum angulosum	angled buckwheat
Eriogonum fasciculatum var. *polifolium*	California buckwheat
Eriogonum gracillimum	slender buckwheat
Eriogonum inflatum	desert trumpet
Eriogonum mohavense	Mojave buckwheat
Eriogonum nudum var. *westonii*	Weston's wild buckwheat
Mucronea perfoliata	perfoliate spineflower
Delphinium parishii ssp. *parishii*	Parish's or desert larkspur
Lycium andersonii	Anderson's desert thorn
Lycium cooperi	Cooper's box thorn
Dichelostemma capitatum	blue dicks
Larrea tridentata	creosote bush

**Indicates a non-native species.*

Appendix D

Summary of Mitigation Measures Applicable to Each Site

SUMMARY OF MITIGATION MEASURES APPLICABLE TO EACH SITE	Site		
	RE Rosamond One & Two (Main Site)	RE Rosamond (Generation Tie-Line)	RE Barren Ridge 1
	1	2	3
MM BIO I-A: MITIGATION MEASURES FOR SPECIAL STATUS PLANT SPECIES ALONG THE ROSAMOND GENERATION TIE-LINE			
1. The project shall be designed to avoid alkali mariposa lily to the extent feasible. On-site avoidance, such as adjusting the specific pole location of the generation tie-line, and flagging individuals for avoidance by construction vehicles as necessary, would preserve the alkali mariposa lily detected within the Rosamond project area, and preserve several alkali mariposa lily locations. If avoidance or minimization measures are implemented on-site, a Habitat Management Plan should be developed to ensure adequate management and conservation of botanical resources over the long term.		X	
2. If the proposed project would impact greater than 10 percent of the alkali mariposa lily population, a Mitigation and Monitoring Plan shall be prepared that provides for compensatory mitigation. This plan shall include the following • the number of specimens affected; • onsite or offsite preservation location (preferably within an area containing an existing alkali mariposa lily population); • methods for restoration, enhancement, and/or transplanting of alkali mariposa lily; • a performance standard replacement ratio of 1:1 per impacted specimen to be achieved within three years; and • adaptive management and remedial measures in the event that the performance standard is not achieved.		X	
MM BIO I-B: GENERAL MITIGATION MEASURES FOR SPECIAL STATUS WILDLIFE SPECIES			
1. Qualified biologists shall conduct preconstruction clearance surveys for special status wildlife species within 2 weeks of the start of any ground disturbing construction activity and during all grading/ground disturbing activities. All burrows that could provide shelter for special status species shall be excavated during the first clearance survey. A biologist shall remain on-call throughout construction in the event a tortoise, badger or desert kit fox wanders onto the site.	X	X	X
2. If a permanent tortoise proof exclusion fence is practicable, a fence shall be installed around all construction areas prior to the initiation of earth disturbing activities, in coordination with a qualified biologist. The fence shall be constructed of ½-inch mesh hardware cloth and extend 18 inches above ground and 12 inches below ground. Where burial of the fence is not possible, the lower 12 inches shall be folded outward against the ground and fastened to the ground so as to prevent desert tortoise entry. The fence shall be supported sufficiently to maintain its integrity, be checked at least monthly during construction and operations, and maintained when necessary by site operator to ensure its integrity. Provisions shall be made for closing off the fence at the point of vehicle entry. Raven perching deterrents shall be installed as part of the fence construction.	X	X	X
3. After fence installation, the qualified biologist shall conduct a clearance survey for special status wildlife species within the construction site.	X	X	X

SUMMARY OF MITIGATION MEASURES APPLICABLE TO EACH SITE	Site		
	RE Rosamond One & Two (Main Site)	RE Rosamond (Generation Tie-Line)	RE Barren Ridge 1
	1	2	3
4. A raven management plan shall be developed that includes language stipulating that all trash that could attract predators of the desert tortoise, such as common ravens, be removed from work sites or completely secured at the end of each work day.	X	X	X
5. Construction and operations personnel shall undergo environmental awareness training provided by the qualified biologist immediately prior to commencement of ground disturbing activities, with specific discussion of desert tortoise, Mohave ground squirrel, American badger and desert kit fox natural history and protective measures. New construction personnel shall be similarly trained prior to their start of work onsite.	X	X	X
6. If any American badger or desert kit fox burrow is determined to be active, an on-site passive relocation program shall be implemented. This program shall consist of excluding badgers from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for one week to confirm badger usage has been discontinued, and excavation and collapse of the burrow to prevent reoccupation. Relocation should occur during the non-breeding season.	X	X	X
7. If a desert tortoise or Mohave ground squirrel is found onsite during subsequent surveys or biological monitoring activities, construction activities shall cease to avoid the potential for take. Consultation with CDFG and the USFWS shall then be initiated to obtain the necessary incidental take permit authorizations pursuant to the federal ESA and CESA.	X	X	X
MM BIO I-C: MITIGATION MEASURES FOR DESERT TORTOISE AT BARREN RIDGE			
1. Develop a plan for desert tortoise translocation and monitoring prior to project construction. The plan shall include but not be limited to the following components: • Biologist qualifications/authorizations • Preconstruction clearance surveys and construction monitoring • Burrow excavation • Desert tortoise handling and transport • Relocation site characteristics, preparation, and management • Relocation monitoring and reporting			X
2. Compensatory mitigation for the loss of desert tortoise habitat shall be provided through purchase of credit from an existing mitigation bank, such as the Desert Tortoise Natural Area (DTNA), private purchase of mitigation lands, or onsite preservation, as approved by the resource agencies. Compensatory mitigation shall be provided at a 0.5:1 ratio to reduce potential effects to less than significant under CEQA.			X

SUMMARY OF MITIGATION MEASURES APPLICABLE TO EACH SITE	Site		
	RE Rosamond One & Two (Main Site)	RE Rosamond (Generation Tie-Line)	RE Barren Ridge 1
	1	2	3
MM BIO I-D: MITIGATION MEASURES FOR BURROWING OWL			
1. Conduct preconstruction clearance surveys of the sites and within 250 feet of the sites to confirm burrowing owls remain absent. Clearance surveys are typically conducted 30 days prior to construction activities. If no burrowing owls are observed, no further actions are recommended.	X	X	X
2. If burrowing owls are found during the clearance surveys, develop a burrowing owl Mitigation and Monitoring Plan. The plan should provide the framework for implementing the following tasks: a. Unless otherwise authorized by CDFG, avoid disturbance within 50 meters (164 feet) of occupied burrows during the non-breeding season (September 1 through January 31) or within 75 meters (246 feet) during the breeding season (February 1 through August 31). b. Passively relocate burrowing owls to a suitable offsite location. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 meters (164 feet) from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Relocation of owls can only occur during the non-breeding season. c. At minimum one, and potentially two, alternate natural or artificial burrows shall be provided/identified for each active burrow that will be excavated in the project impact zone. d. The project area shall be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. e. Burrows shall be excavated using hand tools and refilled to prevent reoccupation. f. If the project will reduce the amount of suitable foraging habitat contiguous to occupied burrows on or adjacent to the site below the 6.5-acre threshold (per pair or individual owl), provide compensatory mitigation for direct impacts to occupied burrowing owl habitat based on the ratios outlined by the Burrowing Owl Consortium (1993).	X	X	X
MM BIO I-E: MITIGATION MEASURES FOR SPECIAL STATUS RAPTORS AND NESTING BIRDS			
1. If construction activities occur during the breeding season, a qualified biologist shall conduct a nesting bird/raptor survey to determine the presence/absence, location, and status of any active nests on or adjacent to the project site. The extent of the survey buffer area surrounding the site shall be established by the qualified biologist to ensure that indirect effects to nesting birds are avoided. Nesting bird surveys are typically conducted 3-30 days prior to construction activities (last survey conducted within 3 days of the start of construction). A suitable buffer (e.g. 0.25 mile for Swainson's hawk, 200-300 feet for common raptors; 30-50 feet for passerines) shall be established around active nests and no construction within the buffer allowed until a qualified biologist has determined that the nest is no longer active (e.g. the nestlings have fledged and are no longer reliant on the nest). Encroachment into the buffer may occur at the discretion of a qualified biologist.	X	X	X

SUMMARY OF MITIGATION MEASURES APPLICABLE TO EACH SITE	Site		
	RE Rosamond One & Two (Main Site)	RE Rosamond (Generation Tie-Line)	RE Barren Ridge 1
	1	2	3
MM BIO I-F: MITIGATION MEASURES FOR MOHAVE GROUND SQUIRREL			
1. Conduct focused surveys for Mohave ground squirrel within potentially suitable habitat that would be affected by any ground disturbing activities to determine the presence/absence of the species. The surveys must be conducted by a qualified biologist with a CDFG MOU to survey for Mohave ground squirrels, in accordance with the CDFG protocol (2003). If Mohave ground squirrels are determined present during focused surveys, implement MM BIO I-F, 2 and 3.		X	
2. If Mohave ground squirrels are determined present on the project site based on protocol trapping surveys, or Mohave ground squirrels are assumed present as an alternative to surveys, develop a Mohave ground squirrel translocation and monitoring plan. The plan shall include but not be limited to the following components: • Biologist qualifications/authorizations • Preconstruction clearance surveys and construction monitoring • Burrow excavation • Mohave ground squirrel handling and transport • Relocation site characteristics, preparation, and management • Relocation monitoring and reporting		X	X
3. Develop a mitigation plan to provide adequate compensatory mitigation for the loss of Mohave ground squirrel habitat. Providing compensatory mitigation to offset species/habitat impacts can be accomplished through purchase of credit from an existing mitigation bank, such as the DTNA, or private purchase of mitigation lands. Compensatory mitigation shall be provided at a minimum 0.5:1 ratio to reduce potential effects to less than significant under CEQA.			X
MM BIO II: MITIGATION MEASURES FOR JOSHUA TREES/WOODLANDS			
1. Conduct a Joshua tree survey to inventory Joshua trees within the project sites. The survey shall include an assessment of the height, diameter at breast height (dbh), and health status of all trees. Joshua tree woodlands shall be mapped based on groupings of trees with greater than 10% areal coverage in accordance with the California Wildlife Habitat Relationships System Classification Rules. Such mapping shall be conducted based on aerial photography and other remote sensing techniques, and shall be determined based on a census count and a spatial analysis technique such as “nearest neighbor” and associated statistical analysis.	X	X	

SUMMARY OF MITIGATION MEASURES APPLICABLE TO EACH SITE	Site		
	RE Rosamond One & Two (Main Site)	RE Rosamond (Generation Tie-Line)	RE Barren Ridge 1
	1	2	3
2. Prepare a Joshua Tree Impact and Mitigation Plan that details the Joshua trees/woodlands to be removed and mitigation measures to compensate for impacts. The plan shall outline a compensatory mitigation approach consisting either of relocation of trees to an approved preserve, payment of an in-lieu fee or purchase of mitigation credit, or the purchase of preserved mitigation lands at a minimum 1:1 ratio of impacted Joshua tree woodlands.	X	X	
MM BIO III: MITIGATION MEASURES FOR JURISDICTIONAL WATERS			
1. To the extent practicable, the project shall be designed to avoid impacts to the jurisdictional waters within the Rosamond and Barren Ridge project sites, and the following avoidance/minimization measures are recommended: a. Any material/spoils from project activities shall be located away from jurisdictional areas or sensitive habitat and protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate. b. Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and generally at least 50 feet from the top of bank. c. Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned and any contaminated materials properly disposed of. For all spills the project foreman or designated environmental representative will be notified.	X	X	X
2. If jurisdictional waters cannot be avoided, minimization measures shall be applied and all necessary resource agency permits shall be obtained. This includes Individual or General Waste Discharge Requirements (WDRs) from the RWQCB and a Streambed Alteration Agreement from CDFG. Verification from the USACE is recommended to confirm the drainages do not constitute waters of U.S.	X	X	X
3. Minimization measures for impacts to jurisdictional waters shall include routing on-site drainage and placing the water discharge point at the location of existing or historic ephemeral drainages, if feasible.	X	X	X
4. Compensatory mitigation may occur either onsite or offsite, and would occur at a ratio no less than 1:1 for the impact to jurisdictional waters. A Habitat Mitigation and Monitoring Plan shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFG. If onsite mitigation is proposed, the Habitat Mitigation and Monitoring Plan shall identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration of alluvial desert scrub habitat. Determination of mitigation adequacy shall be based on comparison of the restored habitat with similar, undisturbed habitat in the site vicinity (such as up or downstream of the site). The Plan shall include remedial measures in the event that this performance criteria is not met. If mitigation is implemented offsite, mitigation lands shall be comprised of similar or more well-developed alluvial desert scrub and preferably be located in the vicinity of the site or watershed. Off-site land shall be preserved through a conservation easement and the Plan shall identify an approach for funding assurance for the long-term management of the conserved land.	X	X	X

Appendix E

Sub-consultant Technical Reports

SENSITVE SPECIES SURVEYS ON THE PROPOSED ROSAMOND RE SOLAR ENERGY PROJECT GEN-TIE LINE, KERN COUNTY, CALIFORNIA

June 5, 2011

Prepared for:

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INTRODUCTION

This report addresses the results of focused presence/absence surveys for the desert tortoise and western burrowing owl on the proposed Rosamond RE Energy Solar Project site Gen-Tie Line, Kern County, California as well as other sensitive species encountered during the focused surveys. Potential habitat for these species was delineated considering vegetation, elevation, and topography.

The proposed project site is located approximately 4 miles west of the city of Rosamond, CA Kern County (Figure 1). The project survey corridor is three miles long and 100 feet wide. The project corridor leaves the proposed Rosamond Solar Facility at the intersection of Favorito Avenue and 65th St W, follows the centerline of 65th St W south two miles to Felsite Avenue, then follows the centerline of Felsite Avenue ½ mile east to 60th St W, and then follows the centerline of 60th St W south ½ mile to Rosamond Boulevard. The project corridor traverses through Sections 3, 10, 14, and 15 of Township 9 N, Range 13 W, SBBM. The site lies within the Western Mojave Recovery Unit which is managed under the guidelines set out in the West Mojave Plan and Final Environmental Impact Statement. However, the site is not contained within a Desert Tortoise Critical Habitat area or a Desert Wildlife Management Area (DWMA).

METHODOLOGY

Habitat Delineation

Delineation of potential desert tortoise and burrowing owl habitat was done prior to commencing the survey during a ground reconnaissance in April 2011. Vegetation communities on the site were suitable for use by desert tortoises and burrowing owls.

Field Survey

Focused surveys were completed for the desert tortoise (*Gopherus agassizii*), western burrowing owl (*Athene cunicularia*), and other sensitive species on the entire site. Additionally, zone-of-influence transects were conducted at 200, 400, and 600 meters east and west of the project corridor. Common and other uncommon animal species were sought as these focused surveys were performed. All animal species identified during the surveys were recorded in field notes and are listed in Tables 1-4.

Desert Tortoise

The survey for desert tortoise was conducted in accordance with the *Pre-project Survey Protocol for Potential Desert Tortoise Habitats, 2010* (US Fish and Wildlife Service, 2010). A team consisting of two experienced desert tortoise biologists conducted the survey by walking a set of four transects that covered the project site. Transect spacing was at 30 feet between transect centerlines, the standard width for desert tortoise presence/absence surveys.

A set of UTM coordinates for transect turning points and endpoints paralleling the project corridor centerline were calculated for the site. This resulted in four transects each approximately 3 miles in length. For navigation of transects Garmin handheld global positioning system (GPS) units were used.

The proposed corridor was surveyed for desert tortoises and burrowing owls on 11 and 17-19 May, 2011. Weather conditions were generally calm and clear with winds up to 20 mph on occasion. Temperatures ranged from 13-29 degrees Celsius throughout the daylight hours.

Western Burrowing Owl

Burrowing owl surveys were conducted in accordance with the *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game, 1995). Due to lower visibility through the vegetation, transects were conducted at 30 foot intervals rather than 100 foot intervals. These were done simultaneously with desert tortoise transects.

Data Recorded

All wildlife species encountered were recorded. Sensitive species and/or their sign encountered were recorded along with GPS coordinates for each incidence. Only definitive sign was recorded.

Biological Field Team

The survey was managed by Stephen Boland. The biological team for the surveys was as follows:

Stephen Boland
Mike Gallagher

RESULTS

Survey Area Description

The survey area ranges in elevation from 2390 to 2600 feet and is characterized by a creosote desert bush scrub vegetation community north of Irone Road and predominantly saltbush scrub south of Irone Road (Figures 2-3). The geomorphology of the survey area is isolated hills and middle to lower bajada with predominantly sandy loam soils. Most common human impacts within the survey area were multiple dirt roads running through this site, wooden pole transmission line and sub-station, and housing/mobile home tracks and ranches. There was moderate litter with some trash dumping and OHV activity in the area. Additionally portions of the site were moderately grazed by sheep. The overall habitat condition is fair. The entire site is suitable for desert tortoise and western burrowing owl.

Desert Tortoise

Desert tortoise is listed as a threatened species by both State and federal governments (California Department of Fish and Game, 2006b). No tortoise sign was found along the project corridor or on the ZOI transects.

Burrowing Owl

The Burrowing owl is designated as a Bird of Conservation Concern (U.S. Fish and Wildlife Service, 2002) and a Bird Species of Special Concern (California Department of Fish and Game, 2006a). Burrowing owls rely on existing burrows of other animals, which they modify for their own use. The presence of coyotes and kit fox on the site provide suitable burrows for burrowing owls. All sign observed was recorded. Types of sign include burrows with droppings, feathers, or diagnostic pellets. One burrow with pellets was found on the 400 meter ZOI west of the project corridor. The burrowing owl sign is listed in Table 1 and location shown in Figure 2.

Prairie Falcon

The Prairie falcon is designated as a Bird of Conservation Concern (U.S. Fish and Wildlife Service, 2002). This species nests on cliff ledges, so breeding adults are local during the breeding season. One bird was seen flying offsite over the east end of Willow Springs Butte approximately one mile west of the project corridor.

Other Sensitive Species

No other species of wildlife were identified on the project site listed as either a Species of Special Concern (SSC), Bird of Conservation Concern (BCC), or both (California Department of Fish and Game 2006a, USFWS 2002).

DISCUSSION

Desert Tortoise

The proposed Rosamond RE Solar Project Gen-Tie Line lies within the geographic range of the desert tortoise. The habitat within the survey area as well as adjacent habitat is typical and suitable for desert tortoises.

No tortoises were observed on site while surveying the project corridor or while conducting the ZOI transects. The presence of varying human impacts has probably contributed to the decline of any populations that may have occurred historically.

The proposed Rosamond RE Solar Project Gen-Tie Line may have direct impacts on desert tortoises in the area as well as indirect impacts occurring through loss of habitat. Direct impacts could occur during construction of the solar facility if resident tortoises are not moved off site or if a tortoise wanders onto the site from an adjacent area not surveyed in this study.

Western Burrowing Owl

The proposed project may have indirect impacts on any burrowing owls potentially in the area however, no burrowing owl sign was observed on site. One burrow with sign was found on the 400 meter ZOI west of the site. In addition to native desert scrub they seem to be attracted to disturbed areas and are often found in fallow agricultural fields and other moderately disturbed lands such as are found in the area, particularly since California ground squirrels are present to provide burrows. Burrowing owls rely on existing burrows of other animals, which they modify for their own use. This area contains at least one burrow appropriate for occupation by burrowing owls; these factors increase the possibility of burrowing owls occurring on site or close by after the time of the surveys.

MITIGATION RECOMMENDATIONS

Desert Tortoise

In order to mitigate potential direct impacts, the following recommendations will help minimize the potential for “take” of tortoises during and after construction.

1). Develop a biological monitoring plan in consultation with the CEC, USFWS and the CDFG. This plan would delineate all measures to be implemented prior to, during and post-construction, which would include but are not limited to the following measures:

a). All land surveying personnel prior to construction should be accompanied by an authorized desert tortoise biologist.

b). Temporary tortoise-proof fencing (1”x 2” mesh hardware cloth) may need to be erected and maintained along the boundary of the project corridor prior to initiating construction and clearance surveys for desert tortoises on site. The fence will prevent tortoises from wandering onto the site during construction. Ongoing maintenance of the fencing would be recommended with oversight by an authorized biologist. Fence installation should be monitored by a qualified tortoise biologist.

c). It is recommended that tortoise clearance surveys be conducted at 15-foot intervals and that two coverages without finding any tortoises or new tortoise sign be conducted prior to declaring the site clear of tortoises. All burrows that could provide shelter for a desert tortoise should be excavated during the first clearance survey.

d). All construction and operations personnel should undergo desert tortoise awareness training.

e). After the tortoise-proof fence is erected, a qualified biologist(s) should remain onsite until all vegetation is cleared and, at a minimum, conduct site and fence inspections on a bi-weekly basis throughout construction in order to maintain compliance with mitigation measures.

f). A qualified biologist(s) should be on site to survey for tortoises immediately in front of vegetation clearance activities in the event a tortoise was inadvertently missed during clearance surveys.

g). A biologist should remain on-call throughout construction in the event a tortoise wanders onto the site.

h). A raven management plan should be developed for the project site.

i). Post-construction reporting should be provided to all agencies within 90 days of completion of construction.

Western Burrowing Owl

Two alternatives exist for mitigation of this species.

- Avoidance: No disturbance should occur within 50 meters of occupied burrows during non-breeding season of September 1 through January 31 or within 75 meters during the breeding season (February 1 through August 31). A minimum of 6.5 acres of foraging habitat be preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls. (CBOC, 1993)

- Mitigation for Impacts

On-site Mitigation

Passive relocation of burrowing owls is permitted on-site if impact to area is unavoidable. Passive relocation involves encouraging burrowing owls to relocate to natural or artificial burrows that are farther than 50 meters from the impact zone and are contiguous to a preserved 6.5 acre parcel of foraging habitat for each pair of relocated owls. Relocation of owls should be implemented during non-breeding season (September 1 through January 31).

Off-site Mitigation

If on-site mitigation is not feasible, the habitat should be replaced off-site. Off-site habitat must be suitable burrowing owl habitat and the site approved. Land should be purchased and/or placed in a conservation easement in perpetuity and managed to maintain suitable habitat. Off-site mitigation should use one of the following ratios.

- Replacement of occupied habitat with occupied habitat: 1.5 times 6.5 (9.75) acres per pair or single bird.

- Replacement of occupied habitat with habitat contiguous to currently occupied habitat: 2 times 6.5 (13.0) acres per pair or single bird.

- Replacement of occupied habitat with suitable unoccupied habitat: 3 times 6.5

(19.5) acres per pair or single bird.

Avoidance, passive relocation or active relocation should be considered to fulfill mitigation requirements. In order to mitigate direct impacts to burrowing owls it is recommended that construction activities not occur during the breeding season if any nests are in the area. Otherwise, nests should be avoided and construction activities approach no closer than 300 feet. If a passive relocation plan is preferred, it is recommended that the client repeat surveys 30 days prior to construction activities.

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Table 1. Sensitive Species and Sign Locations (Datum NAD 83 CONUS)

SIGN	PROJECT SITE	ZOI	EASTING	NORTHING
Owl Burrow/Pellet		x	385658	3860209
Prairie Falcon (Offsite, flying. Location approximate)	-	-	384400	3861000

Table 2. Mammal Species List

LATIN NAME	COMMON NAME
Ammospermophilus leucurus	White-tailed antelope squirrel
Canis latrans	Coyote (scat only)
Lepus californicus	Black-tailed jackrabbit
Lynx rufus	Bobcat
Otospermophilus beecheyi	California ground squirrel
Ovis aries	Domestic sheep (scat)
Vulpes macrotis	Kit fox (dens and scat)

Table 3. Reptile Species List

SCIENTIFIC NAME	COMMON NAME
Aspidoscelis tigris	Tiger whiptail
Crotalus cerastes	Sidewinder rattlesnake
Gambelia wislizenii	Long-nosed leopard lizard
Pituophis catenifer	Gopher snake
Uta stansburiana	Common side-blotched lizard

Table 4. Bird Species List

COMMON NAME	COMMON NAME

Black-throated sparrow	Northern mocking bird
Brewer's blackbird	**Prairie falcon (BCC)**
Burrowing owl-sign only (SSC, BCC)	Red-tailed hawk
California quail	Rock wren
Common raven	Sage sparrow
Horned lark	White-crowned sparrow
House finch	Western kingbird
Mourning dove	Western tanager

Figure 1. Rosamond RE Solar Project Gen-Tie Line site location, Kern County, California.

Figure 2. Burrowing owl sign found on the Rosamond RE Solar Project Gen-Tie Line, Kern County, California.

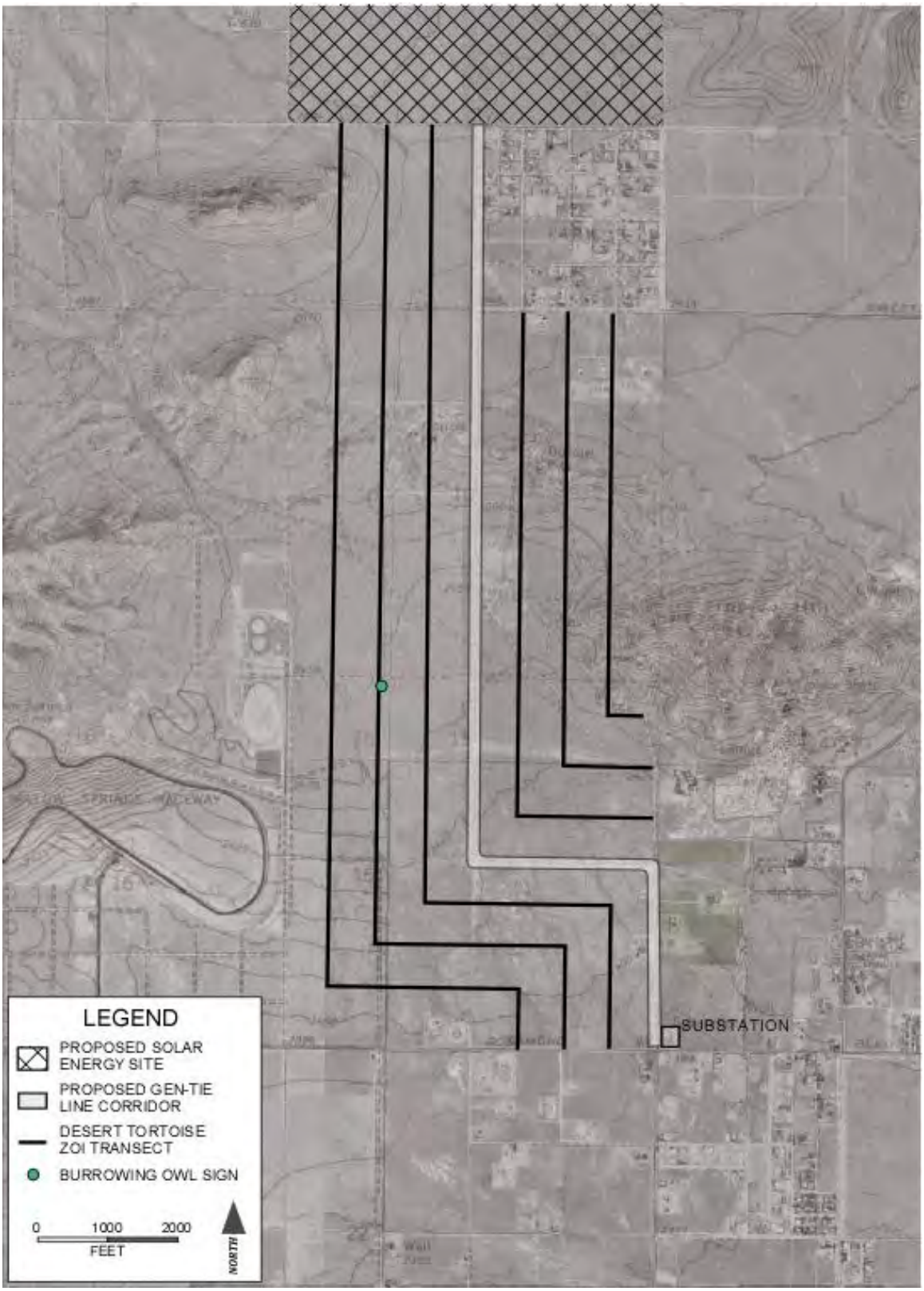

Figure 3. Habitat photos, Rosamond RE Solar Project Gen-Tie Line, Kern County, California. (Datum NAD 83 CONUS)

View north from Rosamond Blvd along 60th St. W, UTM 386838 E, 3858645 N

View east from 65th St. W along Felsite Ave., UTM 386024 E, 3859460 N

View north from Felsite Ave along 65th St. W., UTM 386024 E, 3859460 N

View south from Favorito Ave. along 65th St. W., UTM 386066 E, 3862676 N

SENSITVE SPECIES SURVEYS ON THE PROPOSED BARREN RIDGE RE SOLAR ENERGY PROJECT GEN-TIE LINE, KERN COUNTY, CALIFORNIA

June 5, 2011

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Figure 4. Sensitive species sign photos, Barren Ridge RE Solar Project proposed site, Kern County, California. (Datum NAD 83 CONUS) 14

INTRODUCTION

This report addresses the results of focused presence/absence surveys for the desert tortoise and western burrowing owl on the proposed Barren Ridge RE Energy Solar Project site Gen-Tie Line, Kern County, California as well as other sensitive species encountered during the focused surveys. Potential habitat for these species was delineated considering vegetation, elevation, and topography.

The proposed project site is located approximately 11 miles north of the city of Mojave, CA Kern County on Highway 14 (Figure 1). The project corridor is 2.36 miles long and 200 feet wide. The site is located in the Mojave Desert immediately west of Highway 14 and traverses through Sections 13, 24, and 25 of Township 31S, Range 36 ½ E and Section 18 of Township 31S, Range 37 E, SBBM. The site lies within the Western Mojave Recovery Unit which is managed under the guidelines set out in the West Mojave Plan and Final Environmental Impact Statement. However, the site is not contained within a Desert Tortoise Critical Habitat area or a Desert Wildlife Management Area (DWMA).

METHODOLOGY

Habitat Delineation

Delineation of potential desert tortoise and burrowing owl habitat was done prior to commencing the survey during a ground reconnaissance in April 2011. Vegetation communities on the site were suitable for use by desert tortoises and burrowing owls.

Field Survey

Focused surveys were completed for the desert tortoise (*Gopherus agassizii*), western burrowing owl (*Athene cunicularia*), and other sensitive species on the entire site. Additionally, zone-of-influence transects were conducted at 200, 400, and 600 meters east, west and north of the project corridor. Common and other uncommon animal species were sought as these focused surveys were performed. All animal species identified during the surveys were recorded in field notes and are listed in Tables 1-4.

Desert Tortoise

The survey for desert tortoise was conducted in accordance with the *Pre-project Survey Protocol for Potential Desert Tortoise Habitats, 2010* (US Fish and Wildlife Service, 2010). A team consisting of two experienced desert tortoise biologists conducted the survey by walking a set of seven transects that covered the project site. Transect spacing was at 30 feet between transect centerlines, the standard width for desert tortoise presence/absence surveys.

A set of UTM coordinates for transect turning points and endpoints paralleling the project corridor centerline were calculated for the site. This resulted in seven transects

each approximately 2.36 miles in length. For navigation of transects Garmin handheld global positioning system (GPS) units were used.

The proposed corridor was surveyed for desert tortoises and burrowing owls from 23-25 April, 2011. ZOI transects were conducted on 01 and 05 May 2011. Weather conditions were generally calm and clear. Temperatures ranged from 15-29 degrees Celsius throughout the daylight hours.

Western Burrowing Owl

Burrowing owl surveys were conducted in accordance with the *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game, 1995). Due to lower visibility through the vegetation, transects were conducted at 30 foot intervals rather than 100 foot intervals. These were done simultaneously with desert tortoise transects.

Data Recorded

All wildlife species encountered were recorded. Sensitive species and/or their sign encountered were recorded along with GPS coordinates for each incidence. Only definitive sign was recorded.

Biological Field Team

The survey was managed by Stephen Boland. The biological team for the surveys was as follows:

Stephen Boland
Mike Gallagher

RESULTS

Survey Area Description

The survey area ranges in elevation from 2350 to 2440 feet and is characterized by a creosote desert bush scrub vegetation community (Figures 2-4). The geomorphology of the survey area is middle bajada with predominantly sandy loam soils. Most common human impacts within the survey area were multiple dirt roads running through this site as well as a high voltage transmission line and sub-station. There was minimal litter with some trash dumping and OHV activity in the area. Additionally portions of the site were moderately grazed by sheep. The overall habitat condition is good. The entire site is suitable for desert tortoise and western burrowing owl.

Desert Tortoise

Desert tortoise is listed as a threatened species by both State and federal governments (California Department of Fish and Game, 2006b). On the main project corridor, there was one adult and one subadult tortoise found, one of which was at a burrow. On the

ZOI transect, 400 west, another adult tortoise was found in the open. Three tortoise burrows were found along the project corridor. One burrow in the project corridor was active (with tortoise mentioned above). One adult tortoise carcass was found in the project corridor. Five tortoise scat events were found. The three in the project corridor were laid down this year; and two on the 400 meter west ZOI were laid down last year. All sign found is listed in Table 1. Locations are shown in Figure 2.

Burrowing Owl

The Burrowing owl is designated as a Bird of Conservation Concern (U.S. Fish and Wildlife Service, 2002) and a Bird Species of Special Concern (California Department of Fish and Game, 2006a). Burrowing owls rely on existing burrows of other animals, which they modify for their own use. The presence of coyotes and kit fox on the site provide suitable burrows for burrowing owls. All sign observed was recorded which included burrows with droppings, feathers, or diagnostic pellets. One burrow with whitewash and pellets was found on the 400 meter ZOI southeast of the project corridor. All burrowing owl sign is listed in Table 1 and location shown in Figure 2.

Other Sensitive Species

No other species of wildlife were identified on the project site listed as either a Species of Special Concern (SSC), Bird of Conservation Concern (BCC), or both (California Department of Fish and Game 2006a, USFWS 2002).

DISCUSSION

Desert Tortoise

The proposed Barren Ridge RE Solar Project Gen-Tie Line lies within the geographic range of the desert tortoise. The habitat within the survey area as well as adjacent habitat is typical and suitable for desert tortoises.

Two tortoises were observed on site while surveying the project corridor and one was observed 400 meters west the site while conducting the ZOI transects. The presence of varying human impacts has probably contributed to the decline of any populations that may have occurred historically.

The proposed Barren Ridge RE Solar Project Gen-Tie Line may have direct impacts on desert tortoises in the area as well as indirect impacts occurring through loss of habitat. Direct impacts could occur during construction of the solar facility if resident tortoises are not moved off site or if a tortoise wanders onto the site from an adjacent area not surveyed in this study.

Western Burrowing Owl

The proposed project may have indirect impacts on any burrowing owls potentially in the area between the project corridor and the 200 meter ZOI transect, however, no

burrowing owl sign was observed on site. They seem to be attracted to disturbed areas and are often found in fallow agricultural fields as well as native desert scrub. Burrowing owls rely on existing burrows of other animals, which they modify for their own use. This area contains appropriate burrows for occupation by burrowing owls; these factors increase the possibility of burrowing owls coming on site after the time of the surveys.

MITIGATION RECOMMENDATIONS

Desert Tortoise

In order to mitigate potential direct impacts, the following recommendations will help minimize the potential for "take" of tortoises during and after construction.

1). Develop a biological monitoring plan in consultation with the CEC, USFWS and the CDFG. This plan would delineate all measures to be implemented prior to, during and post-construction, which would include but are not limited to the following measures:

a). All land surveying personnel prior to construction should be accompanied by an authorized desert tortoise biologist.

b). Temporary tortoise-proof fencing (1"x 2" mesh hardware cloth) may need to be erected and maintained along the boundary of the project corridor prior to initiating construction and clearance surveys for desert tortoises on site. The fence will prevent tortoises from wandering onto the site during construction. Ongoing maintenance of the fencing would be recommended with oversight by an authorized biologist. Fence installation should be monitored by a qualified tortoise biologist.

c). It is recommended that tortoise clearance surveys be conducted at 15-foot intervals and that two coverages without finding any tortoises or new tortoise sign be conducted prior to declaring the site clear of tortoises. All burrows that could provide shelter for a desert tortoise should be excavated during the first clearance survey.

d). All construction and operations personnel should undergo desert tortoise awareness training.

e). After the tortoise-proof fence is erected, a qualified biologist(s) should remain onsite until all vegetation is cleared and, at a minimum, conduct site and fence inspections on a bi-weekly basis throughout construction in order to maintain compliance with mitigation measures.

f). A qualified biologist(s) should be on site to survey for tortoises immediately in front of vegetation clearance activities in the event a tortoise was inadvertently missed during clearance surveys.

g). A biologist should remain on-call throughout construction in the event a tortoise wanders onto the site.

h). A raven management plan should be developed for the project site.

i). Post-construction reporting should be provided to all agencies within 90 days of completion of construction.

Western Burrowing Owl

Two alternatives exist for mitigation of this species.

- Avoidance: No disturbance should occur within 50 meters of occupied burrows during non-breeding season of September 1 through January 31 or within 75 meters during the breeding season (February 1 through August 31). A minimum of 6.5 acres of foraging habitat be preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls. (CBOC, 1993)

- Mitigation for Impacts

On-site Mitigation

Passive relocation of burrowing owls is permitted on-site if impact to area is unavoidable. Passive relocation involves encouraging burrowing owls to relocate to natural or artificial burrows that are farther than 50 meters from the impact zone and are contiguous to a preserved 6.5 acre parcel of foraging habitat for each pair of relocated owls. Relocation of owls should be implemented during non-breeding season (September 1 through January 31).

Off-site Mitigation

If on-site mitigation is not feasible, the habitat should be replaced off-site. Off-site habitat must be suitable burrowing owl habitat and the site approved. Land should be purchased and/or placed in a conservation easement in perpetuity and managed to maintain suitable habitat. Off-site mitigation should use one of the following ratios.

- Replacement of occupied habitat with occupied habitat: 1.5 times 6.5 (9.75) acres per pair or single bird.

- Replacement of occupied habitat with habitat contiguous to currently occupied habitat: 2 times 6.5 (13.0) acres per pair or single bird.

- Replacement of occupied habitat with suitable unoccupied habitat: 3 times 6.5 (19.5) acres per pair or single bird.

Avoidance, passive relocation or active relocation should be considered to fulfill mitigation requirements. In order to mitigate direct impacts to burrowing owls it is

recommended that construction activities not occur during the breeding season if any nests are in the area. Otherwise, nests should be avoided and construction activities approach no closer than 300 feet. If a passive relocation plan is preferred, it is recommended that the client repeat surveys 30 days prior to construction activities.

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Table 1. Sensitive Species and Sign Locations (Datum NAD 83 CONUS)

SIGN	PROJECT SITE	ZOI	EASTING	NORTHING
Tortoise (adult-at burrow)	x		403683	3898214
Tortoise (subadult)	x		403680	3898939
Tortoise (adult)		x	403316	3899374
Tortoise burrow	x		403813	3899290
Tortoise burrow (active)	x		403683	3898214
Tortoise burrow	x		403680	3898749
Tortoise shell-skeletal remains	x		403673	3898062
Tortoise scat		x	403307	3899382
Tortoise scat		x	403290	3898676
Tortoise scat	x		403672	3898761
Tortoise scat	x		403762	3899214
Tortoise scat	*x*		403744	3899233
Owl Burrow/Pellet/White Wash		x	403896	3896818

Table 2. Mammal Species List

LATIN NAME	COMMON NAME
Ammospermophilus leucurus	White-tailed antelope squirrel
Canis latrans	Coyote (scat only)
Lepus californicus	Black-tailed jackrabbit
Ovis aries	Domestic sheep (scat)
Vulpes macrotis	Kit fox (dens and scat)

Table 3. Reptile Species List

SCIENTIFIC NAME	COMMON NAME
Aspidoscelis tigris	Tiger whiptail
Callisaurus draconoides	Zebra-tailed lizard
Gambelia wislizenii	Long-nosed leopard lizard
Gopherus agassizii	Desert tortoise
Uta stansburiana	Common side-blotched lizard

Table 4. Bird Species List

COMMON NAME	
Black-throated sparrow	House finch
Burrowing owl	Red-tailed hawk
Common raven	Rock wren
Horned lark	White-crowned sparrow

Figure 1. Barren Ridge RE Solar Project Gen-Tie Line site location, Kern County, California.

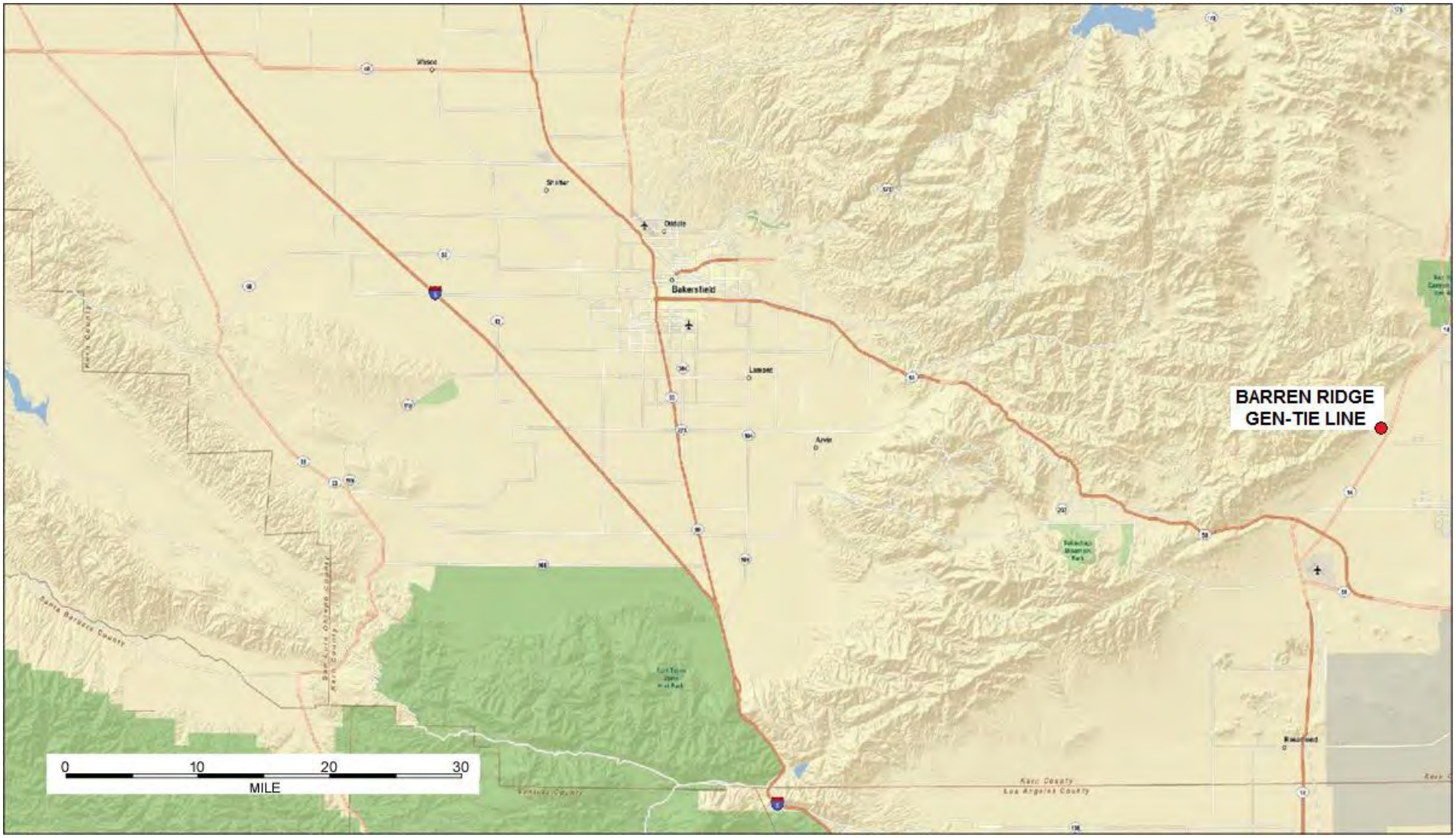

Figure 2. Desert tortoise and burrowing owl sign found on the Barren Ridge RE Solar Project Gen-Tie Line, Kern County, California.

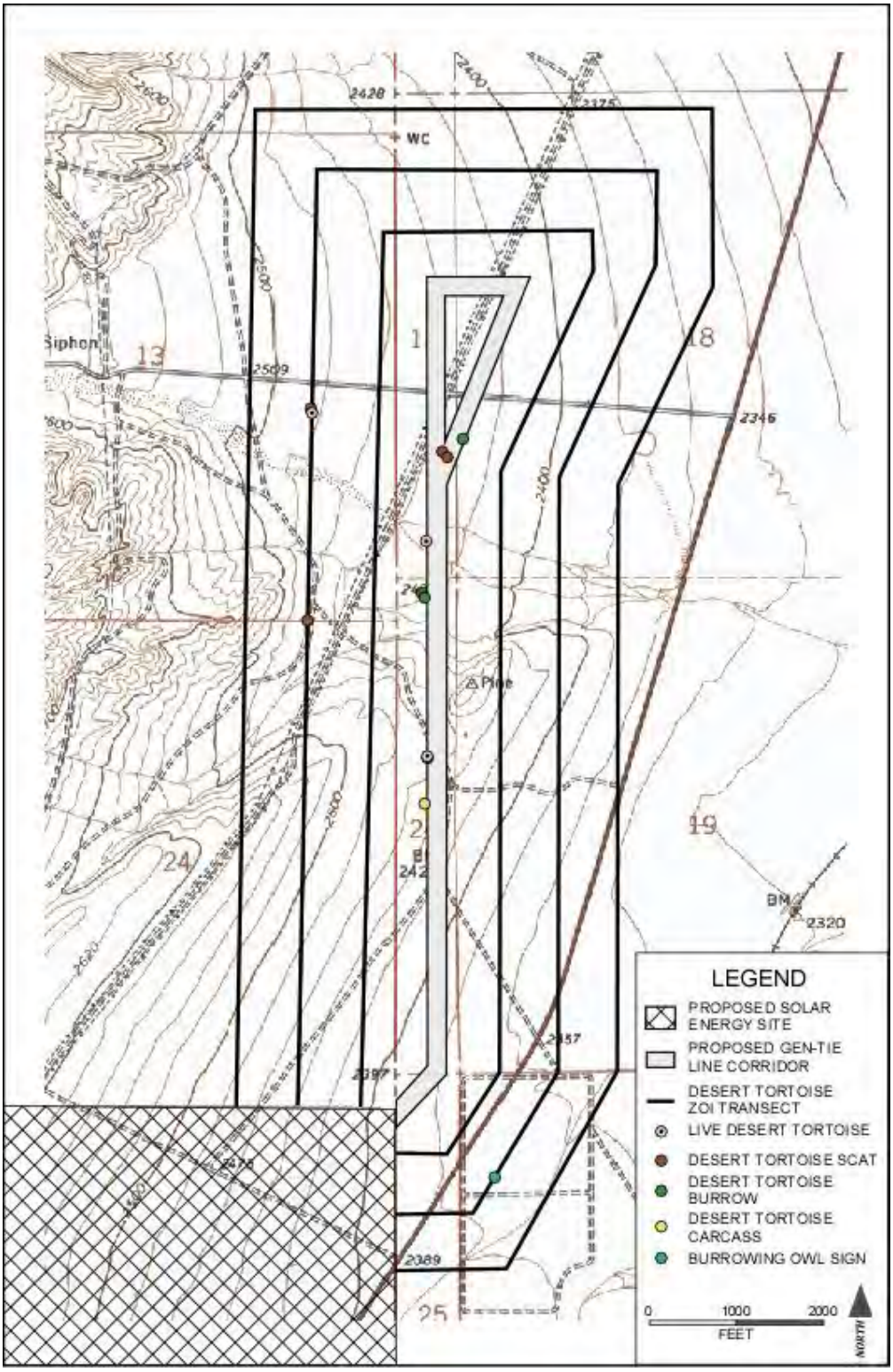

Figure 3. Habitat photos, Barren Ridge RE Solar Project Gen-Tie Line, Kern County, California. (Datum NAD 83 CONUS)

Main site-view south from north end, UTM 403680 E, 3898937 N

Main site-view north from south end, UTM 403701 E, 3897179 N

Figure 4. Sensitive species sign photos, Barren Ridge RE Solar Project proposed site, Kern County, California. (Datum NAD 83 CONUS)

Burrow occupied by a desert tortoise, UTM 403683 E, 3898214 N

Desert tortoise in open, UTM 403680 E, 3838939 N