

***Appendix D***  
***Comprehensive Biological Resources***  
***Assessment***

---

**COMPREHENSIVE  
BIOLOGICAL RESOURCES ASSESSMENT  
FOR THE CHEVRON SOLAR PROJECT SITE  
COMMUNITY OF LUCERNE VALLEY, CALIFORNIA**

*Prepared for:*

**Mr. Christopher Otahal  
BUREAU OF LAND MANAGEMENT  
Barstow Field Office  
2601 Barstow Road  
Barstow, CA 92311  
(760) 252-6033**

*Prepared by:*

**CHAMBERS GROUP, INC.  
17671 Cowan Avenue, Suite 100  
Irvine, California 92614  
(949) 261-5414**

**July 2009**

**TABLE OF CONTENTS**

	<b>Page</b>
<b>SECTION 1.0 – INTRODUCTION .....</b>	<b>2</b>
1.1. PROJECT LOCATION .....	2
1.2. PROJECT DESCRIPTION .....	2
<b>SECTION 2.0 – METHODOLOGY.....</b>	<b>7</b>
2.1. LITERATURE REVIEW.....	7
2.2. SOILS.....	8
2.3. VEGETATION .....	8
2.3.1 Non-Native Invasive Weed Mapping.....	12
2.4. WILDLIFE.....	15
2.4.1 Desert Tortoise Surveys .....	15
2.4.2 Burrowing Owl Surveys .....	15
2.4.3 Avian Point Count Survey.....	16
2.5. WETLAND AND JURISDICTIONAL DELINEATION .....	16
2.5.1 Jurisdictional Criteria Review .....	16
2.5.2 Field Survey .....	20
2.5.3 Vegetation.....	21
2.5.4 Soils .....	22
2.5.5 Hydrology .....	22
<b>SECTION 3.0 – RESULTS .....</b>	<b>23</b>
3.1. SOILS.....	23
3.2. VEGETATION.....	23
3.2.1 Vegetation Communities Descriptions.....	23
3.2.2 Special Status Plant Species .....	25
3.2.3 Succulent Species Inventory.....	31
3.2.4 Location of Non-Native Invasive Weed Species.....	31
3.3. WILDLIFE.....	33
3.3.1 Birds.....	34
3.3.2 Mammals.....	35
3.3.3 Special Status Wildlife Species .....	35
3.4. WETLAND AND JURISDICTIONAL DELINEATION .....	45
3.4.1 Hydric Soils .....	45
3.4.2 Drainage Features and Connectivity .....	45
3.4.3 Wetlands .....	49
3.4.4 USACE Jurisdiction.....	50
3.4.5 RWQCB Jurisdiction.....	51
3.4.6 CDFG Jurisdiction.....	51

**TABLE OF CONTENTS (continued)**

	<b>Page</b>
<b>SECTION 4.0 – CONCLUSIONS AND RECOMMENDATIONS</b> .....	<b>53</b>
4.1. SPECIAL STATUS PLANT SPECIES.....	53
4.2. SUCCULENT SPECIES INVENTORY .....	53
4.3. MINIMIZATION OF NON-NATIVE INVASIVE WEED SPREAD .....	53
4.4. SPECIAL STATUS WILDLIFE.....	53
4.4.1 Desert Tortoise.....	53
4.4.2 Burrowing Owl.....	54
4.5. MITIGATION AND MONITORING .....	54
4.5.1 Desert Tortoise.....	54
4.5.2 Burrowing Owl.....	58
4.6. WETLAND AND JURISDICTIONAL DELINEATION .....	58
<b>SECTION 5.0 – REFERENCES</b> .....	<b>61</b>

**APPENDICES**

**APPENDIX A – PLANT SPECIES OBSERVED ONSITE**

**APPENDIX B – BIOLOGIST RESUMES**

**APPENDIX C – WILDLIFE SPECIES OBSERVED/DETECTED ONSITE**

**APPENDIX D – FIELD DATA SHEETS**

**APPENDIX E – DESERT TORTOISE PHOTOGRAPHS**

**APPENDIX F – REPRESENTATIVE SITE PHOTOGRAPHS**

**APPENDIX G – REFERENCE PHOTOS OF JURISDICTIONAL DELINEATION**

**APPENDIX H – JURISDICTIONAL DETERMINATION – ARID WEST REGION DATA SHEETS AND RAPANOS  
FORMS**

**APPENDIX I – AVIAN POINT COUNT SURVEY TRANSECTS**

**APPENDIX J – POTENTIAL FOR OCCURRENCE TABLE**

**APPENDIX K – LIVE TORTOISE ENCOUNTER FORMS**

**APPENDIX L – DESERT TORTOISE SHELL AND SKELETAL REMAINS FORMS**

**LIST OF FIGURES**

<b>Figure</b>	<b>Page</b>
Figure 1 Vicinity Map .....	4
Figure 2 Location Map .....	5
Figure 3 Vegetation Communities Map .....	11
Figure 4 Transect and Non-Native Invasive Weed Location Map.....	14
Figure 5 Desert Tortoise and Burrowing Owl Transect and Sign Map.....	39
Figure 6 Jurisdictional Delineation Drainages Map .....	47
Figure 7 Jurisdictional Delineation Maps.....	60

**LIST OF TABLES**

<b>Table</b>	<b>Page</b>
Table 1 Criteria for Evaluating Special Status Plant Species Occurrences .....	9
Table 2 Non-Native Invasive Weeds Potentially Occurring Onsite.....	13
Table 3 Lucerne Valley Precipitation.....	27
Table 4 Succulents Likely Requiring Mitigation Based on Habitat Assessment.....	31
Table 5 Locations of Non-Native Invasive Weeds Onsite .....	32
Table 6 Avian Point Counts .....	34
Table 7 Burrowing Owl Sign Observed During Protocol Level Focused Burrow Surveys .....	40
Table 8 Desert Tortoise Encounters During Presence/Absence Surveys.....	41
Table 9 Desert Tortoise Skeletal and Shell Remains Observed During Presence/Absence Surveys.....	43
Table 10 Desert Tortoise Sign Observed During Presence/Absence Surveys.....	45
Table 11 Jurisdictional Acreage Matrix .....	52

## **SECTION 1.0 – INTRODUCTION**

Chambers Group, Inc. (Chambers Group) was retained by Chevron Energy Solutions (CES) to conduct a variety of biological surveys and a literature review for the proposed 49 megawatt (MW) solar photovoltaic generating station (Project). The Plan of Development has been submitted to the Bureau of Land Management (BLM) Barstow Field Office in connection with BLM right of way application #CACA 49516, per guidance from the BLM's solar energy development policy, Instruction Memorandum No. 2007-097 (IM 2007-097). This report provides the results of field surveys and literature research conducted to describe the environmental setting of the project site. These results will provide the basis for the analysis of the potential for project impacts to biological resources, which is conducted to satisfy the National Environmental Policy Act (NEPA).

### **1.1. PROJECT LOCATION**

The Project site, comprising approximately 516 acres, is located just south of CA-247, approximately 8 miles east of the junction of Barstow Road and Old Woman Springs Road, east of the community of Lucerne Valley in San Bernardino County, California (Figure 1). The site is located south of Foothill Road and is bordered by Donaldson Road on the west and a drainage that runs approximately 1,300 feet east of Santa Fe Fire Road on the east. The site is within the U.S. Geological Survey (USGS) Cougar Buttes, California 7.5-minute topographic quadrangle in Sections 19, 20, 29, and 30 of Township 4 North, Range 2 East and in Section 24 of Township 4 North, Range 1 East (Figure 2). The elevation range at the site is between approximately 3,000 and 3,120 feet above mean sea level (amsl).

### **1.2. PROJECT DESCRIPTION**

The development plan describes a preference for a one-year permitting period using the process detailed in the NEPA, with the U.S. Department of Interior BLM as the designated lead agency coordinating all federal permitting activities, and State and local permits coordinated through the appropriate agencies. The Project will comply with the requirements of the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), Sections 401, 402, and 404 of the Clean Water Act (CWA), Section 106 of the National Historic Preservation Act, and the American Indian Religious Freedom Act. The build phase of construction is scheduled to begin in 2010. California utilities will need in excess of 50,000 MW/yr of new renewable energy generation capability over the next 10 years to meet the state's clean energy needs. It is expected that at least 5,000 MW of new solar power will be required to meet this need, and that this amount could grow to nearly 10,000 MW. The proposed Project will supply renewable energy to meet these important mid- and long-term needs. In an effort to meet this need, CES and its development partners propose to design, construct, operate, and maintain a photovoltaic generating station, interconnecting to Southern California Edison's (SCE) 33 kV distribution system. CES selected this BLM site for its excellent solar radiation, proximity to potential customers, and access to existing electric transmission. The ROW encompasses the solar field, control and maintenance building, and the substation, for a total of approximately 516 acres.

The general facility dimensions of the Project include: substation/switchyard, 50 feet by 200 feet (0.2 acre); warehouse/control building, 150 feet by 30 feet by 12 feet (0.1 acre); power line within site area, connecting to the existing power lines along Foothill Road, 20 feet by 3 miles (5 acres); access road within site area, 20 feet by 3 miles (7 acres); solar array for Phase 1 (210 acres); solar array for Phase 2,

## **SECTION 1.0 – INTRODUCTION**

Chambers Group, Inc. (Chambers Group) was retained by Chevron Energy Solutions (CES) to conduct a variety of biological surveys and a literature review for the proposed 49 megawatt (MW) solar photovoltaic generating station (Project). The Plan of Development has been submitted to the Bureau of Land Management (BLM) Barstow Field Office in connection with BLM right of way application #CACA 49516, per guidance from the BLM's solar energy development policy, Instruction Memorandum No. 2007-097 (IM 2007-097). This report provides the results of field surveys and literature research conducted to describe the environmental setting of the project site. These results will provide the basis for the analysis of the potential for project impacts to biological resources, which is conducted to satisfy the National Environmental Policy Act (NEPA).

### **1.1. PROJECT LOCATION**

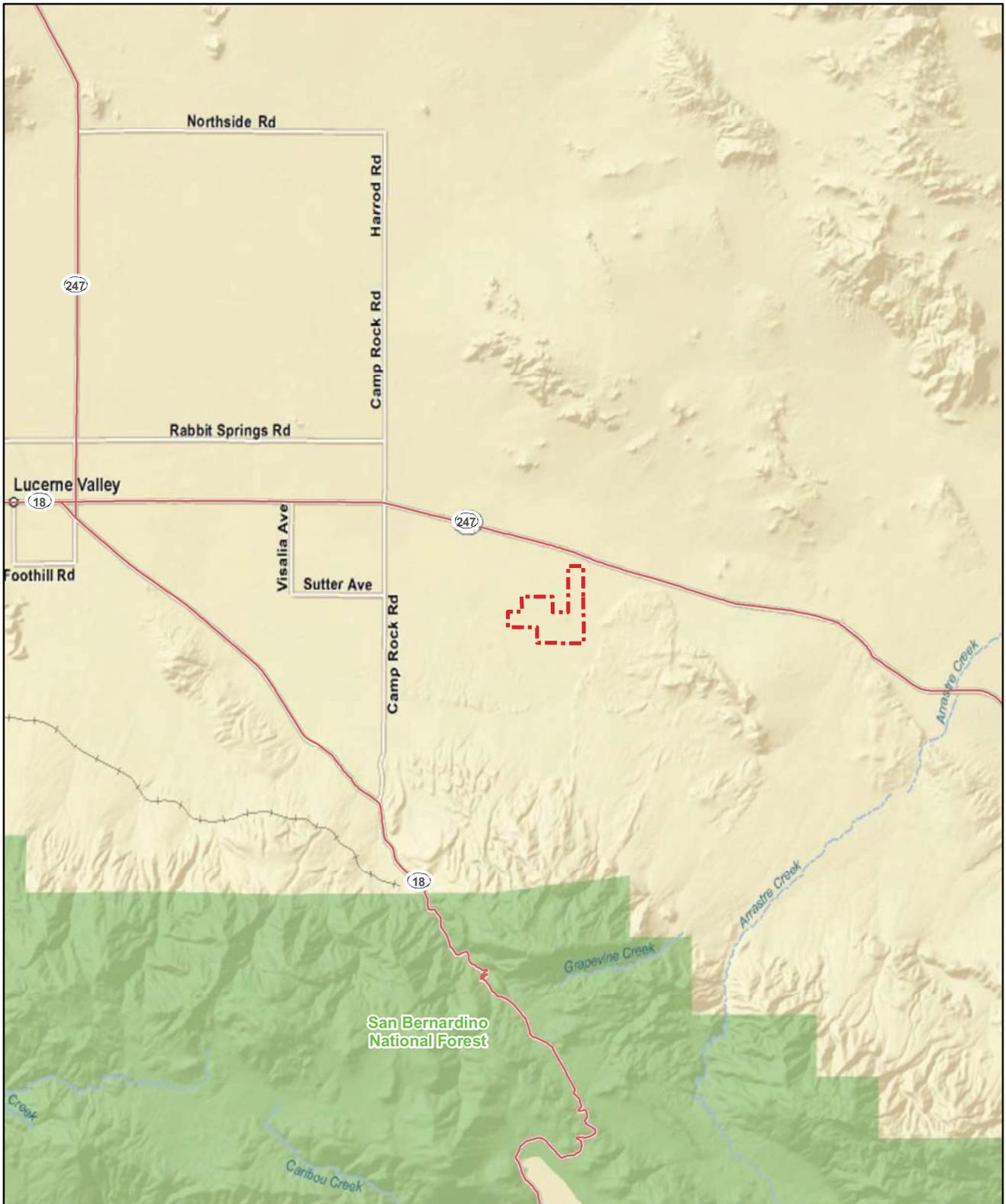
The Project site, comprising approximately 516 acres, is located just south of CA-247, approximately 8 miles east of the junction of Barstow Road and Old Woman Springs Road, east of the community of Lucerne Valley in San Bernardino County, California (Figure 1). The site is located south of Foothill Road and is bordered by Donaldson Road on the west and a drainage that runs approximately 1,300 feet east of Santa Fe Fire Road on the east. The site is within the U.S. Geological Survey (USGS) Cougar Buttes, California 7.5-minute topographic quadrangle in Sections 19, 20, 29, and 30 of Township 4 North, Range 2 East and in Section 24 of Township 4 North, Range 1 East (Figure 2). The elevation range at the site is between approximately 3,000 and 3,120 feet above mean sea level (amsl).

### **1.2. PROJECT DESCRIPTION**

The development plan describes a preference for a one-year permitting period using the process detailed in the NEPA, with the U.S. Department of Interior BLM as the designated lead agency coordinating all federal permitting activities, and State and local permits coordinated through the appropriate agencies. The Project will comply with the requirements of the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), Sections 401, 402, and 404 of the Clean Water Act (CWA), Section 106 of the National Historic Preservation Act, and the American Indian Religious Freedom Act. The build phase of construction is scheduled to begin in 2010. California utilities will need in excess of 50,000 MW/yr of new renewable energy generation capability over the next 10 years to meet the state's clean energy needs. It is expected that at least 5,000 MW of new solar power will be required to meet this need, and that this amount could grow to nearly 10,000 MW. The proposed Project will supply renewable energy to meet these important mid- and long-term needs. In an effort to meet this need, CES and its development partners propose to design, construct, operate, and maintain a photovoltaic generating station, interconnecting to Southern California Edison's (SCE) 33 kV distribution system. CES selected this BLM site for its excellent solar radiation, proximity to potential customers, and access to existing electric transmission. The ROW encompasses the solar field, control and maintenance building, and the substation, for a total of approximately 516 acres.

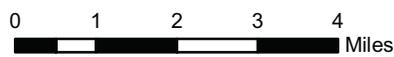
The general facility dimensions of the Project include: substation/switchyard, 50 feet by 200 feet (0.2 acre); warehouse/control building, 150 feet by 30 feet by 12 feet (0.1 acre); power line within site area, connecting to the existing power lines along Foothill Road, 20 feet by 3 miles (5 acres); access road within site area, 20 feet by 3 miles (7 acres); solar array for Phase 1 (210 acres); solar array for Phase 2,

(210 acres); and parking/laydown area, approximately 250 feet by 50 feet, (0.5 acre). An 8-foot high fence runs along the perimeter of the Project site.



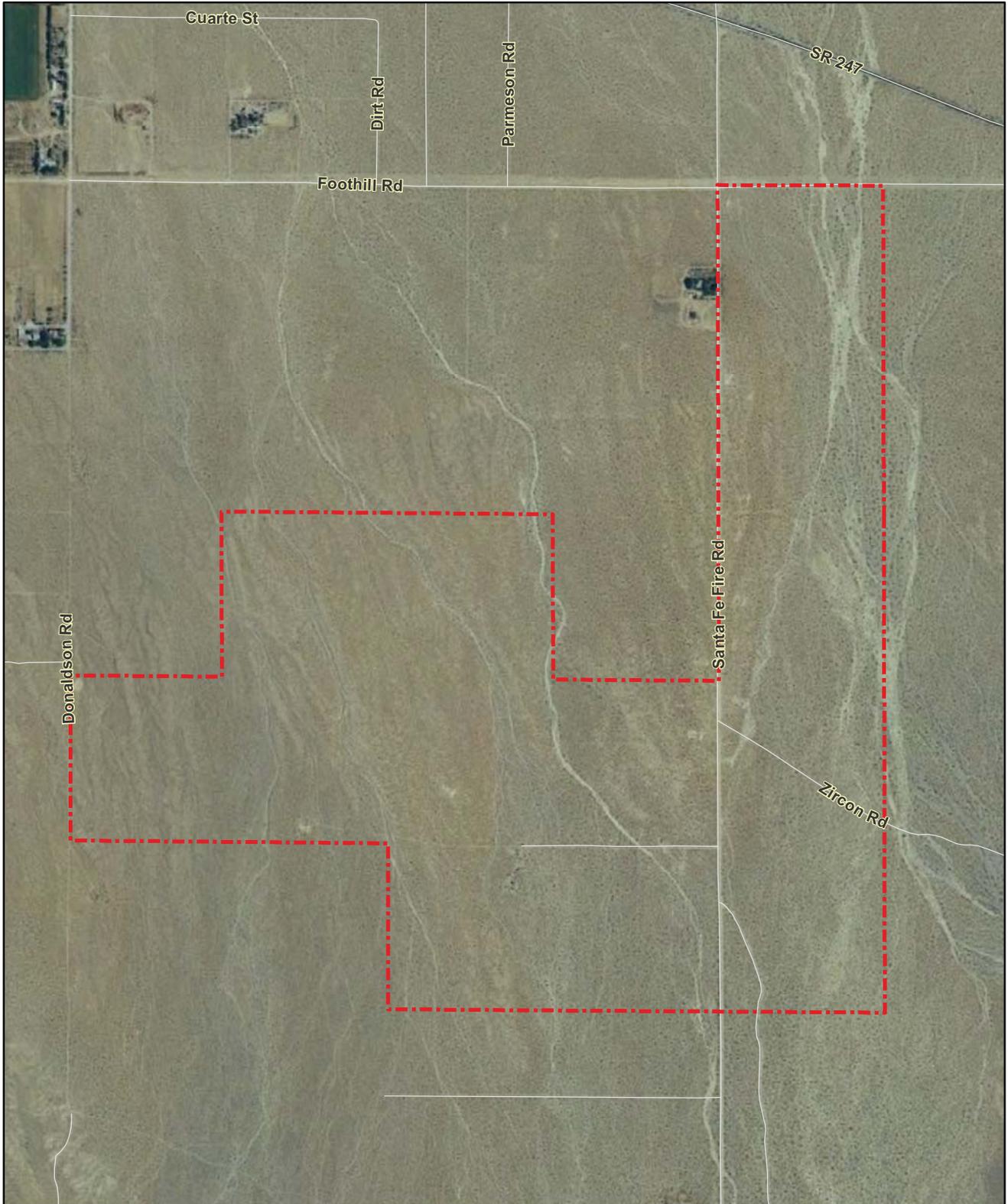
**Legend**

 Project Boundary



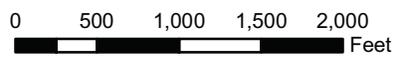
Chevron Solar Project  
Project Vicinity Map  
**Figure 1**





**Legend**

 Project Boundary



**Chevron Solar Project  
Project Location Map  
Figure 2**



## **Biological Resources**

Chambers Group conducted a literature review, reconnaissance-level habitat assessment, protocol-level focused plant survey, weed mapping, presence/absence survey for desert tortoise and Phase II burrow and burrowing owl survey, and breeding season avian point count survey for the proposed Project. The reconnaissance-level survey occurred in March 2009; a subsequent protocol-level focused plant survey was conducted by qualified botanists during the appropriate blooming periods for special status plant species in May 2009, a Mohave ground squirrel site assessment was conducted in May 2009, and a subsequent protocol-level focused desert tortoise and burrowing owl survey was conducted in June 2009.

## SECTION 2.0 – METHODOLOGY

### 2.1. LITERATURE REVIEW

Prior to performing the field surveys, available documentation, reports, and literature relevant to the Project site were reviewed. The most recent records of the California Natural Diversity Database (CNDDDB) managed by the California Department of Fish and Game (CDFG) (CDFG 2009) and the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2009) were reviewed for the relevant quadrangles containing and surrounding the Project site, excluding those quadrangles to the south of the project quadrangle where elevation changes result in different vegetation communities, habitats, and microhabitats than found on the project site (i.e., *Cougar Buttes*, *Fry Mountains*, *Grand View Mine*, *Lucerne Valley*, *Old Woman Springs*, and *White Horse Mountain*, California USGS 7.5 minute quadrangles). These databases contain records of reported occurrences of federal- or state-listed as endangered or threatened or proposed endangered or threatened species, California Species of Special Concern (CSC), CNPS-listed species, or otherwise sensitive species, vegetation community, or habitat that may occur within or in the immediate vicinity of the Project site. Species designated as sensitive by the BLM (BLM 2006) also were included in the review.

For the purposes of this report, plant and animal species of elevated conservation concern were emphasized in field and literature research. These species include those listed by either the state of California (i.e., the CDFG) or the federal government (i.e., the USFWS) as either threatened or endangered; those considered "sensitive" by the BLM; and those listed as "Species of Special Concern" by the CDFG. Additionally, some non-government organizations maintain "watch" lists that are considered by the reviewing agencies and the public when evaluating a project's potential impacts to natural resources. Accordingly, species included on these lists also were considered and collectively referred to herein as "special status species."

#### Status Codes

The following information is a list of abbreviations used to help determine the significance of biological resources potentially occurring on the Project site.

#### Federal

- FE = Federally-listed; Endangered
- FT = Federally-listed; Threatened

#### State

- ST = State listed; Threatened
- SE = State listed; Endangered
- RARE = State-listed; Rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)

CSC = State Species of Special Concern

### **California Native Plant Society (CNPS)**

List 1A = Plants presumed extinct in California.

List 1B = Plants rare and endangered in California and throughout their range.

List 2 = Plants rare, threatened or endangered in California but more common elsewhere in their range.

List 3 = Plants about which we need more information; a review list.

List 4 = Plants of limited distribution; a watch list.

#### **CNPS Extensions**

0.1 = Seriously endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat).

0.2 = Fairly endangered in California (20-80 percent occurrences threatened).

0.3 = Not very endangered in California (less than 20 percent of occurrences threatened).

### **Bureau of Land Management (BLM)**

BLM S = Species designated as sensitive by the BLM California State Office.

## **2.2. SOILS**

Before conducting the surveys, soil maps were referenced online for San Bernardino County to determine the types of soil found on the site. Soils were determined in accordance with categories set forth by the U.S. Department of Agriculture (USDA) Soil Conservation Service and by referencing the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2008), and the 1970 General Soil Map for the SW Desert Area, San Bernardino County.

## **2.3. VEGETATION**

A reconnaissance level field survey was conducted by Chambers Group biologists Heather Clayton and Paul Morrissey on the Project site in order to identify any potential for occurrence of special status plant species, vegetation communities, or habitats to support sensitive wildlife species. This survey was conducted between 0830 and 1612 hours on March 16, 2009 on foot throughout the Project site as well as by car along dirt roads, such as Santa Fe Fire Road, Zircon Road, Foothill Road, Donaldson Road, and other unnamed dirt roads within and adjacent to the Project site. Photographs of the Project site were recorded to document existing conditions.

Plant communities on the Project site were identified, qualitatively described, and mapped onto a 1:600 aerial photograph. Plant communities were determined in accordance with the categories set forth in

authorities on vegetation types. The Desert Wash community onsite resembles the Mojave Wash Scrub community described in Holland (1986), while the more densely vegetated portions of the Project site have been described according to Sawyer and Keeler-Wolf (1995). These two authorities on vegetation types sometimes overlap in their community descriptions, however, often one authority will better describe a community than a second authority. Plants of uncertain identity were collected and subsequently identified from keys, descriptions, and illustrations in Abrams (1923, 1944, and 1951), Abrams and Ferris (1960), Baldwin et al. (2002), Ingram (2008), MacKay (2003), and Munz (1974). Plant nomenclature follows that of *The Jepson Desert Manual; Vascular Plants of Southeastern California* (Baldwin et al. 2002). A list of the plant species observed during the reconnaissance-level and protocol-level focused surveys is presented in Appendix A.

A special status species was considered to potentially occur in a project area if its known geographic range includes part of the project area or an adjacent USGS 7.5-minute quadrangle and/or if the general habitat or environmental conditions (e.g., soil type, etc.) required for the species were present. The criteria for evaluating a species potential for occurrence (PFO) on a site is presented in Table 1. Based on the literature search and results of the reconnaissance survey, sensitive species were determined to have a potential to occur onsite; protocol-level focused plant surveys were recommended within the Project boundary. Chambers Group botanists Rebecca Alvidrez, Nichole Cervin, Heather Clayton, Jenny McGee, and Maya Mazon conducted the protocol-level focused plant survey between May 4 and 14, 2009 (see Appendix B for resumes). This survey was conducted in accordance with Botanical Survey Guidelines of the California Native Plant Society (CNPS 2001). The following guidelines were in adhered to during the survey:

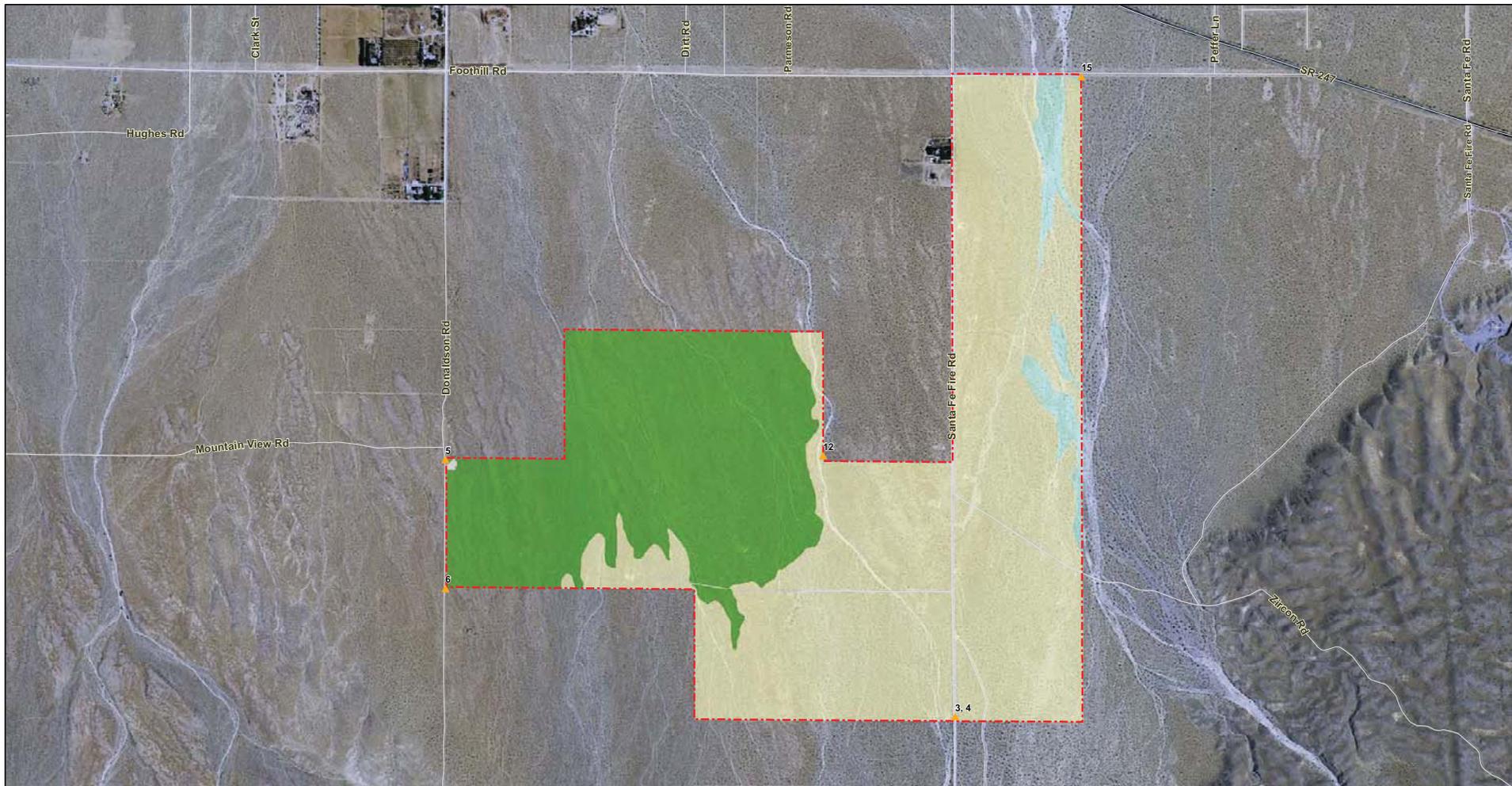
- Professional botanists with knowledge of plant taxonomy and plant community ecology and classification conducted the survey;
- Botanists were familiar with the plant species in the area and had previous experience conducting surveys for rare plants;
- Survey was conducted at the appropriate time when plants were both evident and identifiable (i.e., blooming periods);
- Botanists walked narrow transects using sub-meter technology to ensure 100 percent coverage of the Project area was attained; and
- Local reference sites were visited when available to confirm habitat suitability for special status plant species.

**Table 1 Criteria for Evaluating Special Status Plant Species Occurrences**

PFO	CRITERIA
<b>Absent:</b>	Species was not observed during protocol level focused surveys conducted at an appropriate time for identification of the species or species is restricted to habitats or environmental conditions that do not occur within the site.
<b>Low:</b>	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the site and/or habitats or environmental conditions

PFO	CRITERIA
	needed to support the species are of poor quality.
<b>Moderate:</b>	Either a historical record exists of the species within the immediate vicinity of the site (approximately 5 miles) and marginal habitat exists on the site, or the habitat requirements or environmental conditions associated with the species occur within the site, but no historical records exist within 5 miles of the site.
<b>High:</b>	Both a historical record exists of the species within the site or its immediate vicinity (approximately 5 miles) and the habitat requirements and environmental conditions associated with the species occur within the site.
<b>Present:</b>	Species was detected within the site at the time of the survey.

The protocol level focused plant survey consisted of walking the entire Project site and recording all plant species observed. To ensure the detection of rare plants, the botanists were organized into a single horizontal line and formed adjacent belt transects by having each botanist spaced apart from the next at a distance to survey 15 feet on each side of their own transect. The edge of each transect abutted the adjacent transect, leaving no gaps between each belt for 100 percent coverage. A Thales Mobile Mapper sub-meter GPS unit was used to ensure the lead botanist maintained an accurate position along the transect line. Each botanist walked in the direction toward the agreed upon endpoint within their respective belt transect in a slightly meandering pattern for maximum and overlapping coverage. When suitable microhabitats were encountered or where small plants resembling special status plant species were present, the botanists would stop and carefully scan the microhabitat to positively identify each plant. Transect lines were overlaid onto an aerial photograph showing the line walked by the lead botanist (Figure 3).



**Legend**

- Vegetation Communities**
- Creosote Bush-White Bursage Series
  - Desert Wash
  - White Bursage Series
  - Disturbed (Sparsely Vegetated)
- Project Site Boundary
- ▲ Photo Locations



1:12,000



Chevron Solar Project  
Vegetation Communities Map  
**Figure 3**



*This page intentionally left blank*

### 2.3.1 Non-Native Invasive Weed Mapping

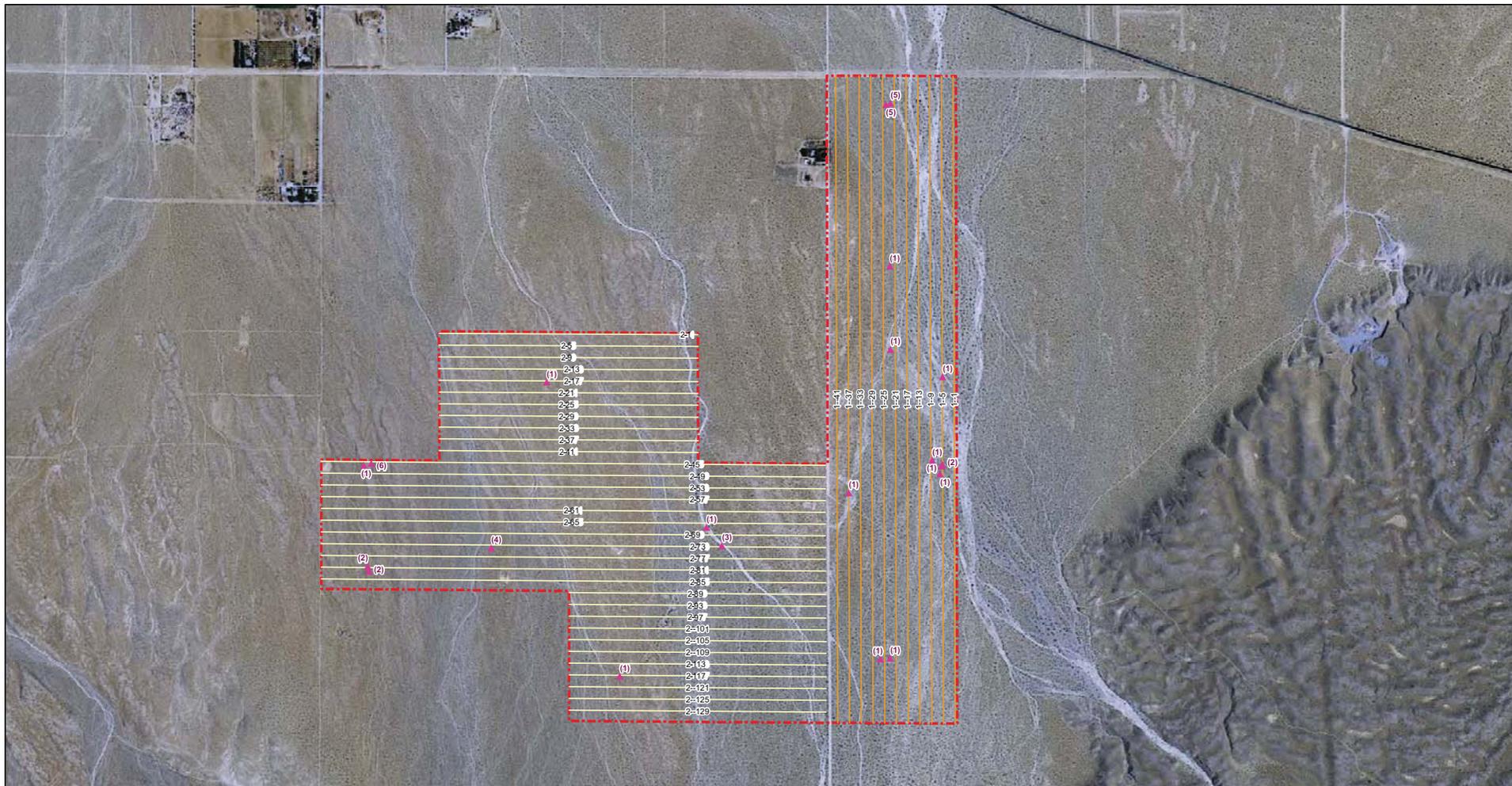
Non-native invasive weeds are opportunistic plants that readily colonize disturbed areas and that can adversely affect the habitats they invade economically, environmentally, or ecologically. These plant species are able to exclude or out-compete desired native species and lead to a decrease in overall species diversity. Non-native invasive weeds are plant species arbitrarily defined by law as being especially undesirable, troublesome, and difficult to control. The definition will vary according to legal interpretation (Ogle et al. 2001). The BLM and other federal, state, and local agencies recognize that there are species, such as cheat grass (*Bromus tectorum*) and other grass species (*Schismus* sp.), that because of their widespread distribution are not considered feasible for general control in the Mojave desert.

Under California Food and Agriculture Code, Sections 7270-7224, the California Commissioner of Agriculture is granted the authority to investigate and control non-native invasive weeds. Currently, California has 246 listed non-native invasive weeds, 38 of which are problematic within the desert provinces of southern California. Those weeds deemed non-native invasive in the desert provinces by the California Invasive Plant Council (Cal-IPC 2006), which are of most concern to the BLM and have a potential to occur onsite, are included in [Table 2](#).

A field inventory for non-native invasive weed species was conducted in conjunction with the protocol-level focused plant survey to identify existing non-native invasive weed infestations within the Project boundary. While botanists walked transects looking for special status plant species, populations of those non-native invasive weed species listed in [Table 2](#) were recorded between the transect lines. Because Sahara mustard (*Brassica tournefortii*) is particularly invasive, BLM requested that GPS points of this species be taken to document relative population densities on federal lands. The botanists recorded the locations of Sahara mustard onsite. Species in [Table 2](#) that were observed onsite have been recorded according to occurrences along the individual transect lines shown on Figure 4.

**Table 2 Non-Native Invasive Weeds Potentially Occurring Onsite**

Scientific Name	Common Name
<b>ANGIOSPERMS (DICOTYLEDONS)</b>	
<b>BRASSICACEAE</b> <i>Brassica tournefortii</i> <i>Sisymbrium irio</i>	<b>MUSTARD FAMILY</b> Sahara mustard London rocket
<b>CHENOPODIACEAE</b> <i>Salsola tragus</i>	<b>GOOSEFOOT FAMILY</b> Russian thistle
<b>GERANIACEAE</b> <i>Erodium cicutarium</i>	<b>GERANIUM FAMILY</b> red-stemmed filaree
<b>TAMARICACEAE</b> <i>Tamarix ramosissima</i>	<b>TAMARISK FAMILY</b> Mediterranean tamarisk, salt cedar
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>	
<b>POACEAE</b> <i>Bromus madritensis ssp. rubens</i> <i>Bromus tectorum</i> * <i>Schismus barbatus</i> *	<b>GRASS FAMILY</b> foxtail chess cheat grass Mediterranean schismus
* Populations were not mapped onsite as these species are not feasible for general control.	



**Legend**

- Project Site Boundary
- ▲ wild turnip (*Brassica tournefortii*)
- # Number of Occurrences

**Survey Transects**

- Zone 1
- Zone 2



1:12,000



Chevron Solar Project  
Transect & Noxious Weed Location Map  
**Figure 4**



## **2.4. WILDLIFE**

A reconnaissance-level wildlife survey was conducted by Chambers Group biologists Heather Clayton and Paul Morrissey on the Project site on March 16, 2009 (see resumes in Appendix B). All wildlife and wildlife sign observed (e.g., tracks, scat, carcasses, burrows, and excavations) and detected (e.g., vocalizations) were recorded. Additional survey time was spent in those habitats most likely to be utilized by wildlife (e.g., undisturbed native habitat, wildlife trails, etc.) or in habitats with the potential to support special-status species. Notes were made on the general habitat types, species observed, and the conditions of the site. A list of the wildlife species observed during the reconnaissance-level and protocol-level focused surveys is included as Appendix C.

### **2.4.1 Desert Tortoise Surveys**

The desert tortoise is federal- and state-listed as threatened, and the proposed Project site is within the known range of the desert tortoise; however, the proposed Project site is not within federally designated critical habitat for desert tortoise. Desert tortoise surveys were conducted by qualified biologists (see resumes in Appendix B) in accordance with protocols set forth by the U.S. Fish and Wildlife Service (USFWS) for any non-federal action that may occur within the range of the desert tortoise (USFWS 1992). Chambers Group conducted protocol level focused surveys for the desert tortoise on March 24 to 27, March 31 to April 3, and April 7 to 10, 2009.

The survey was conducted on foot over the entire Project site utilizing 30-foot (approximately 10-meter) belt transects to provide 100 percent coverage on the site and within a 500 foot buffer, due to burrowing owl surveys that were conducted concurrently. In areas with a high density of tortoise sign or where tortoises were encountered, buffer transects were extended up to 1,200 feet from the edge of the Project site, particularly in the southeast and southwest areas of the Project site. The zone of influence (ZOI) survey was conducted in the areas directly adjacent to and surrounding the Project site where suitable desert tortoise habitat exists and may potentially be directly or indirectly affected by Project operations. The ZOI survey included single line transects at 600 feet, 1,200 feet, and 2,400 feet parallel to the edge of the Project boundaries in accordance with protocol. Habitat conditions for each transect were documented, including vegetation communities, soil types, landscape usage, topography, weather conditions, and the amount of existing human-caused disturbance. All sign of desert tortoises, including live tortoises, shell, bones, scutes, limbs, scat, burrows, pellets, tracks, egg shell fragments, courtship rings, drinking sites, and mineral licks were recorded on standardized data sheets (Appendix D). If a burrow was observed, a mirror was used to reflect sunlight into the burrow to visually determine if desert tortoise were present. Locations of all sign were recorded using GPS units. Photographs were taken of transect habitat characteristics, desert tortoise encounters, and desert tortoise sign (Appendix E).

### **2.4.2 Burrowing Owl Surveys**

The burrowing owl is a BLM sensitive species and CSC, and habitat for the burrowing owl exists on the Project site. A Phase II Burrow and Burrowing Owl Survey was conducted in accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines set forth by the California Burrowing Owl Consortium (1993) and the CDFG Staff Report (1995) concurrently with the desert tortoise survey.

Belt transects spaced at 30 feet (approximately 10 meters) were utilized to achieve 100 percent coverage on the site and within a 500 foot buffer (approximately 150 meters) around the site. Surveys protocol level focused on burrowing owl sign throughout the Project area and the entire ZOI survey areas for desert tortoise. All sign of burrowing owl activity (i.e., whitewash, prey remains, pellets, burrows, scratch marks, or feathers) were recorded on data sheets (Appendix D). Any suitable or potential burrow sites also were recorded. The location of any burrowing owls and/or sign was recorded using GPS units. Photographs of detected sign are included as Appendix E.

A second protocol level focused survey for burrowing owl was conducted on June 26, 2009 at six locations that exhibited burrowing owl sign from the previous March/April surveys. The biologists visited the six locations in the early morning hours when temperatures were favorable for this species.

### **2.4.3 Avian Point Count Survey**

The avian point count surveys consisted of four point count “transects” conducted one week apart for four consecutive weeks in spring 2009 (a second set of point counts will be conducted in the winter between November and January). Chambers Group biologists Paul Morrissey, Kris Alberts, and Laura Gorman conducted the avian point count survey transects on March 26 and 27 (Transect #1), April 1 and 2 (Transect #2), April 9 (Transect #3), and April 17 (Transect #4), 2009. All point counts were conducted between the hours of 0645 and 0930. One avian point count transect was conducted per square mile, with a total of eight point count stations per transect (please see Appendix F). The point count station locations were linearly spaced at least 250 meters apart in areas where birds were expected to occur, including densely vegetated areas such as washes. Parameter constraints for the surveys included temperatures over 85 degrees Fahrenheit and winds above 20 miles per hour.

Each point count was conducted over a period of 10 minutes within a 100-meter radius. When conducting each point count transect, the biologists proceeded to a station and remained quiet for approximately five to ten minutes to allow birds to adjust to the presence of the biologist. During this time period, the temperature, wind, cloud cover, location, and habitat type was recorded. After equilibration, the biologist surveyed the species of birds present within the 100-meter area. The biologist moved around within each sampling station to enhance the possibility of identifying birds. In addition, sounds such as “pishing” were used in an attempt to draw birds into view. The species and number of birds observed at each station were recorded on standardized data sheets. All incidental bird observations were also recorded to acquire a complete inventory of birds present in the Project area. Incidental observations included birds observed or detected outside of the 10-minute point count survey period and/or outside the 100-meter survey radius.

## **2.5. WETLAND AND JURISDICTIONAL DELINEATION**

### **2.5.1 Jurisdictional Criteria Review**

Prior to beginning the field delineation, high-resolution aerial photographs, National Wetlands Inventory (NWI) maps, USGS topographic maps, and Google Earth images were examined to determine the potential areas of USACE/RWQCB/CDFG jurisdiction on the Proposed Project.

As prescribed by the 1987 Wetland Manual and Arid West Supplement, all available lists of hydric soils were referenced to identify any occurrence of hydric soils listed within the Project site. The national, state, and local hydric soils lists were used.

Soil maps were referenced online for San Bernardino County to determine the types of soil found on the site. Soils were determined in accordance with categories set forth by the USDA Soil Conservation Service and by referencing the USDA NRCS Web Soil Survey (USDA 2008), and the 1970 General Soil Map for the SW Desert Area, San Bernardino County.

### **United States Army Corps of Engineers Jurisdictional Criteria**

The U.S. Army Corps of Engineers (USACE) asserts jurisdiction over traditional navigable waters (TNW), wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and wetlands that directly abut such tributaries. Pursuant to Section 404 of the CWA, the USACE regulates the discharge of dredged and/or fill material into waters of the United States. Waters of the United States include navigable waterways and wetlands adjacent to navigable waterways, and non-navigable waterways and wetlands adjacent to non-navigable waters that are contiguous with navigable waterways. The term “waters of the United States” is defined by 33 CFR Part 328 and currently includes (1) all navigable waters (including all waters subject to the ebb and flow of the tide), (2) all interstate waters and wetlands, (3) all other waters (e.g., lakes, rivers, intermittent streams) that could affect interstate or foreign commerce, (4) all impoundments of waters mentioned above, (5) all tributaries to waters mentioned above, (6) the territorial seas, and (7) all wetlands adjacent to waters mentioned above.

Wetlands are defined by 33 CFR 328.3(b) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions.” In 1987 the USACE published a manual to guide its field personnel in determining jurisdictional wetland boundaries. This manual was amended in 2006 by the Arid West Supplement. Currently, the 1987 Wetland Manual and the 2006 Arid West Supplement provide the legally accepted methodology for identification and delineation of USACE-jurisdictional wetlands in southern California.

The methodology set forth in the 1987 Wetland Manual and updated by the Arid West Supplement generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area must exhibit at least minimal hydric characteristics. While the manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

- More than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the 1988 National List of Plant Species that Occur in Wetlands [Reed 1988]). These plants are known as “hydrophytic vegetation.”
- Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions). Such soils, known as “hydric

soils,” have characteristics that indicate they are developed in conditions where soil oxygen is limited by the presence of saturated soil for long periods during the growing season.

- Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5 percent of the growing season during a normal rainfall year. For most of low-lying southern California, 5 percent of the growing season is equivalent to 18 days.

Although the most reliable evidence of wetland hydrology may be provided by a gauging station or groundwater well data, such information is often limited for most areas. Thus, most hydrologic indicators are those that can be observed during field inspection. The following indicators provide some evidence of hydrology: (1) standing or flowing water; (2) water-logged soils during the growing season; (3) water marks present on trees or other objects associated with a drainage; (4) drift lines, or small piles of debris oriented in the direction of water movement through an area; (5) shelving; (6) destruction of terrestrial vegetation; and (7) thin layers of sediments deposited on leaves or other objects. The Arid West Supplement of 2006 includes all of these indicators as well as surface soil cracks, inundation visible on aerial imagery, salt and biotic crusts, aquatic invertebrates, hydrogen sulfide odor, evidence of oxidation/reduction reactions within the soil profile, and several others. In general, a combination of hydrologic indicators indicates a more defined hydrological system.

In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, including intermittent Relatively Permanent Water (RPW) streams, extend to the OHWM which is defined by 33 CFR 328.3(e) as:

*...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

On January 9, 2001, the U.S. Supreme Court ruled that the USACE jurisdiction does not extend to previously regulated isolated waters (in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* - SWANCC), including but not limited to isolated ponds, reservoirs, and wetlands. Examples of isolated waters that are affected by this ruling include vernal pools, stock ponds, lakes (without outlets), playa lakes, and desert washes that are not tributary to navigable or interstate waters or to other jurisdictional waters.

A joint guidance by the U.S. Environmental Protection Agency (EPA) and the USACE was issued on June 5, 2007, to clarify circumstances where a CWA Section 404 permit would be required before conducting activities in wetlands, tributaries, and other waters. This guidance is consistent with the Supreme Court’s decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208 (2006)) (“Rapanos”), which address the jurisdiction over waters of the United States under the Clean Water Act (33 U.S.C. §1251 et seq.). This Rapanos guidance does not supersede the 2003 guidance interpreting SWANCC, and the agencies will continue to evaluate jurisdiction over isolated waters on a case-by-case basis.

The USACE will continue to assert jurisdiction over TNWs, wetlands adjacent to TNWs, non-navigable tributaries of TNW that are (RPW) where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and wetlands that directly abut such tributaries.

The USACE will use fact-specific analysis to determine whether waters have a significant nexus with traditional navigable water for non-navigable tributaries that are not relatively permanent (non-RPW), wetlands adjacent to non-navigable tributaries that are not relatively permanent, and wetlands adjacent to, but that does not directly abut, a relatively permanent non-navigable tributary. According to USACE, “a significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters,” including consideration of hydrologic and ecologic factors. A primary component of this determination lies in establishing the connectivity or non-connectivity of the subject drainages to a TNW; therefore, the drainages of the project site must be analyzed from their origins to their terminus for any USACE jurisdictional determination.

In May 2007, the USACE and EPA jointly published and authorized the use of the *Jurisdictional Determination Form Instructional Guidebook* (USACE 2007). The form and guidebook define how to determine if an area is USACE jurisdictional, and if there is a significant nexus per the Rapanos decision. A nexus is defined as some property of a drainage that has an effect on the physical, chemical, or biological integrity of a downstream TNW. A nexus must have more than insubstantial and speculative effects on the downstream TNW to be considered a significant nexus.

### Regional Water Quality Control Board Jurisdictional Criteria

The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 and 402 of the CWA and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Porter-Cologne reserves the right for the State of California to regulate activities that could affect the quantity and/or quality of surface and/or ground waters, including isolated wetlands, within the State. Waters of the State determined to be jurisdictional for these purposes require, if impacted, waste discharge requirements and a 401 Certification (in the case of the required USACE permit). The State Water Resources Control Board (SWRCB) and the local RWQCB are the relevant permitting agencies. Limits of jurisdiction include wetland boundaries and the OHWMs of TNWs, RPWs, and non-RPWs.

### California Department of Fish and Game Jurisdictional Criteria

Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, the CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife. Potential CDFG jurisdictional riparian habitats were evaluated using the guidance described in *A Field Guide to Lake and Streambed Alteration Agreements Sections 1600-1607* (CDFG 1994).

CDFG defines a “stream” (including creeks and rivers) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation.” CDFG’s definition of “lake” includes “natural lakes or man-made reservoirs.” CDFG limits of jurisdiction include the maximum extents of the uppermost bank-to-bank distance or riparian vegetation dripline.

CDFG jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. CDFG Legal Advisor has prepared the following opinion:

- Natural waterways that have been subsequently modified and that have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways; and
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses should be treated as natural waterways.

Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

### **2.5.2 Field Survey**

Field surveys were conducted from March 9 to March 17, 2009, by Chambers Group biologists Paul Morrissey and Saraiah Skidmore. Drainages were mapped during protocol level focused desert tortoise surveys.

In the field, boundaries and dimensions of jurisdictional features were recorded on a GPS unit, topographic maps, aerial photographs, and/or field notes. Features within the Project site were investigated for the presence of drainages, water bodies, riparian habitats, potential wetlands, and connectivity. Connectivity was ground-truthed by walking the entire Project site (Figure 5) and following the drainages from their origins to their terminal points. Photos were also taken along the Project site to detail connectivity.

Regardless of whether the drainages exhibited the potential to be three-parameter wetlands (i.e., vegetation, soils, and hydrology), representative drainages were investigated and recorded onto standardized Jurisdictional Determination – Arid West Region Data Sheets and Rapanos forms. In order to formally determine the presence or absence of wetlands, site features were recorded onto the standardized data sheets. Recorded data included plant species with percent covers, soil profiles in dug soil pits, and evidence of hydrology.

Potential USACE / RWQCB / CDFG jurisdictional areas were field-checked for the presence of definable channels and/or wetland vegetation, riparian habitat, soils, and hydrology. The lateral extent of a jurisdictional drainage is measured in several ways, depending on the particular situation. In the absence of a defined wetland, the USACE and the RWQCB traditionally use the determination of the presence of a bed and bank to the upper limit of the OHWM. Under the Rapanos court decision, the USACE now requires a fact-specific significant nexus analysis to be performed for dry or ephemeral washes (non-RPWs) in southern California to determine the extent of USACE jurisdiction on a given project site.

Potential wetland habitats were evaluated using the methodology set forth in the 1987 Wetland Manual. The 2006 Arid West Supplement was in effect at the time this survey commenced and was therefore applied to this Project. Features with no evidence of wetland hydrology, and which supported only upland vegetation, were evaluated for the upward limits of jurisdiction and not exclusively for wetland parameters.

The RWQCB includes all USACE jurisdictional areas, OHWMs in non-RPWs, isolated wetlands, and any other feature that has an effect on surface or subsurface water quality within California. The CDFG takes jurisdiction to the top of the bank on either side of the drainage or to the outer edge of all riparian vegetation, whichever measurement is greater. This edge, as determined by the “dripline” of the riparian canopy, is used as the line of demarcation between riparian and upland habitats. On smaller streams or dry washes with little or no riparian habitat, the top of the bank is used to mark the lateral extent of CDFG jurisdictional drainage. Drainage widths were measured in feet for jurisdictional acreage calculations. Reference photographs were taken during this survey and are included as Appendix G.

Jurisdictional Determination – Arid West Region Data Sheets and Rapanos forms were used to record data and to assist in the determination of the wetland characteristics for each individually numbered soil pit (Appendix H). Data points and soil pits were recorded and used to delineate the wetland boundaries. Additional test pits were dug throughout the Subject Drainage to confirm the presence of hydric soils. All delineations were digitized for the precise mapping of jurisdictional areas. Where no wetlands were present, the lateral limits of USACE / RWQCB / CDFG jurisdiction were measured and recorded onto high-resolution aerial photographs and field notes. All data on jurisdictional and wetland delineations were reproduced using Geographic Information System (GIS) software and displayed on aerial maps for this report (Figure 6).

### 2.5.3 Vegetation

For the wetland delineation, plants were categorized according to their probabilities to occur in wetlands versus non-wetlands in accordance with the categories in the *National List of Species that Occur in Wetlands* (Reed 1988). More specifically, the California Land Resource Region (Region 0) wetlands plant list was used, which is a regional adaptation of the *National List*. The wetland species categories are:

- I. **Obligate Wetland (OBL)** – Occur almost always (estimated probability >99 %) under natural conditions in wetlands.
- II. **Facultative Wetland (FACW)** – Usually occur in wetlands (estimated probability 67 % to 99 %), but occasionally found in non-wetlands.
- III. **Facultative (FAC)** – Equally likely to occur in wetlands or non-wetlands (estimated probability 34 % to 66 %).
- IV. **Facultative Upland (FACU)** – Usually occur in non-wetlands (estimated probability 67 % to 99 %), but occasionally found in wetlands.
- V. **Obligate Upland (UPL)** – May occur in wetlands in another region, but occur almost always (estimated probability >99 %) under natural conditions in non-wetlands in southern California. All species not listed on the *National List of Species that Occur in Wetlands* (Reed 1988) are considered to be UPL.
- VI. **No Indicator (NI)** – NI is recorded for those species for which insufficient information was available to determine an indicator status.

Plant species and absolute percent covers were recorded by stratum (i.e., tree, sapling/shrub, herb, woody vine) and evaluated for dominance and prevalence according to guidelines in the 1987 Wetland

Manual and Arid West Supplement. Naming conventions followed *The Jepson Desert Manual; Vascular Plants of Southeastern California* (Baldwin et al. 2002).

#### 2.5.4 Soils

Soil pits were dug in representative delineated features on the Project site, and soils were evaluated according to guidelines in the 1987 Wetland Manual and Arid West Supplement. Soil layers were examined for the presence or absence of hydric soil indicators and oxidation/reduction features indicative of a history of saturated soil conditions.

#### 2.5.5 Hydrology

Typical hydrologic indicators were observed per the 1987 Wetland Manual and Arid West Supplement guidelines. Indicators include evidence of inundation, saturation, high water table, watermarks, drift lines, sediment deposits, surface soil cracks, water-stained leaves, biotic crust, aquatic invertebrates, hydrogen sulfide odor, and the presence or oxidation/reduction features in the soil, among several others.

Consideration of the climate and flow frequency is given when observing watermarks and drift lines. For the purpose of determining hydrologic connectivity to a TNW, aerial photos, NWI maps, and USGS quad maps were referenced; and all features were inspected in the field on and offsite for true connectivity.

## SECTION 3.0 – RESULTS

### 3.1. SOILS

The USDA Soil Conservation Service and USDA NRCS Web Soil Survey has not mapped soils within the Project site (USDA 2009). No Order III soil survey has been conducted on or in the vicinity of the proposed Project area. Data derived from the State's soil geographic database (STATSGO) has limitations. STATSGO (Order V) in particular was meant for regional planning purposes with large scale extrapolation from other sources. With very limited ground-truthing, these data have limited application. The 1970 General Soil Map for the SW Desert Area, San Bernardino County, has mapped and described the soils within the project area as the Arizo-Daggett Association (excessively drained and somewhat excessively drained, very deep, gravelly soils). The following includes a description of soils identified during the reconnaissance level survey.

The Project site consists primarily of sandy loam soils on the flat terraces, loamy sandy soils, and loamy sand within the drainages and washes. The loamy sandy soils were more prevalent in the northern portion of the Project site and in the eastern area along the washes. Overall, these are well drained soils typical of sandy environments. A layer of caliche rock was exposed in some areas of the washes and dirt roads, and desert pavement type soils were observed in patches throughout the western area of the site; these substrates were unvegetated. There were no limestone outcroppings or carbonate soils present, no blowsand or deep stabilized dunes observed, and no gypsum soils were present onsite. These soil types are known to support certain special status plant species in this area.

### 3.2. VEGETATION

Based on the reconnaissance-level and protocol-level focused plant surveys performed by Chambers Group, 103 plant species have been documented within the Project site (Appendix A). Although species richness (the number of species in given area) of perennial shrubs in the Mojave desert is typically low, the richness of annual desert wildflowers can be quite high during a good rainfall year. The number of species observed by Chambers Group botanists onsite during the focused plant survey is not a reflection of ecosystem health, but rather dependent upon the time of year in which the survey was conducted. Richness may be higher during early spring months or during above-average rainfall years, however the surveys were conducted in late spring to capture the blooming periods of special status plant species with a potential to occur onsite.

#### 3.2.1 Vegetation Communities Descriptions

At the time of the reconnaissance-level survey, the Project site was primarily composed of creosote and white bursage desert scrub, desert wash, and disturbed plant communities (Figure 3). Riparian Scrub was not identified on the site. Representative site photographs were taken to document site conditions during the survey (Appendix F). The following section summarizes the principal characteristics of the vegetation communities observed onsite in March 2009.

#### **Creosote Bush-White Bursage Series (319 acres)**

The Creosote Bush-White Bursage Series is an extremely xeromorphic (i.e., plants adapted for survival in dry conditions) mixed evergreen-deciduous shrubland that typically consists of well-drained secondary

soils with very low available water holding capacity. The community typically is found on slopes, fans, and in valleys at elevations up to 3,300 feet amsl (Sawyer and Keeler-Wolf 1995). This community type is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*), with creosote bush occupying 55 percent and white bursage occupying 45 percent of the total vegetative cover in this portion of the Project site. The total vegetative cover by perennials was approximately 45 percent. The substrate onsite consists of sandy loam and loamy sand. Often, many species of ephemeral herbs in this community will flower in late March and April if the winter rains are sufficient. Numerous annual species, still in the vegetative state prior to the onset of flowers, were observed in this community in March and bloomed in April and through the first part of May 2009.

Creosote Bush-White Bursage Series is present throughout the eastern portion of the Project site. In addition to creosote bush and white bursage, other common plant species found on the Project site typical of this vegetation community include: common fiddleneck (*Amsinckia menziesii*), blackbush (*Coleogyne ramosissima*), Nevada ephedra (*Ephedra nevadensis*), winter fat (*Krascheninnikovia lanata*), box-thorn (*Lycium* sp.), blazingstar species (*Mentzelia* spp.), golden cholla (*Opuntia echinocarpa*), big galleta grass (*Pleuraphis rigida*), and Joshua tree (*Yucca brevifolia*).

#### White Bursage Series (176 acres)

White Bursage Series, described by Sawyer and Keeler-Wolf (1995), is a mixed evergreen-deciduous shrubland dominated by white bursage with creosote bush also present in lower proportion. The shrub canopy, typically less than 10 feet in height, is two-tiered with few creosote bush shrubs in the upper tier over the lower tier consisting of white bursage. The ground layer is open with annual species seasonally present. The White Bursage Series typically occurs on alluvial fans, or at the base of a mountain where several alluvial fans have merged (bajadas), stabilized sand fields, and upland slopes with well-drained soils at elevations up to 4,000 feet amsl. The substrate onsite is gravelly sand with small patches of desert pavement scattered throughout this community. The ground appeared more compacted and with larger soil particles in this series than was observed in the Creosote Bush-White Bursage Series onsite.

White Bursage Series is present on the northwestern portion of the Project site. In contrast to the Creosote Bush-White Bursage Series where creosote bush and white bursage exhibited similar cover values, the White Bursage Series is comprised of 75 percent white bursage and only 25 percent creosote bush of the total vegetative cover (approximately 35 percent) within this portion of the site. In addition to these species, other common plant species found onsite typical of the White Bursage Series include: Nevada ephedra, Pima rhatany (*Krameria erecta*), and box-thorn. Less common species found within this community include: common fiddleneck, wingnut cryptantha (*Cryptantha pterocarya*), flat-topped buckwheat (*Eriogonum deflexum*), California buckwheat (*Eriogonum fasciculatum*), wishbone bush (*Mirabilis* sp.), phacelia (*Phacelia* sp.), big galleta grass, and Joshua tree. Joshua tree is less abundant in this portion of the site than within the Creosote Bush-White Bursage Series.

#### Desert Wash (18 acres)

Desert Wash habitats are characterized as sandy or gravelly drainages and arroyos of the lower Mojave and Colorado deserts. This community closely resembles the Mojave Wash Scrub as described by Holland (1986). These washes typically have braided channels that rearrange with every surface flow

event. The substrate of the Desert Wash area onsite consists of loose sandy soil with very little ground cover.

Desert Wash is present in the northeastern corner of the Project site and along the eastern edge of the site. The Desert Wash environments support a larger diversity of plant species than is found throughout other portions of the Project site. The Desert Wash community onsite is dominated by cheesebush (*Hymenoclea salsola*) and blunt tansymustard (*Descurainia pinnata* ssp. *glabra*), with white bursage, Nevada ephedra, creosote bush, desert alyssum (*Lepidium fremontii* var. *fremontii*), and sandpaper plant (*Petalonyx thurberi*) also common. Other less frequently occurring species in the Desert Wash include common fiddleneck, four-wing saltbush (*Atriplex canescens*), blackbush, wingnut cryptantha, bladderpod (*Isomeris arborea*), scalebroom (*Lepidospartum squamatum*), golden cholla, big galleta grass, London rocket (*Sisymbrium irio*), and occasional Joshua trees.

### Disturbed (Sparsely Vegetated, 5 acres)

Portions of the site that are classified as Disturbed are those areas that are either devoid of vegetation (cleared or graded) such as dirt roads or those heavily compacted areas that are dominated by a sparse cover of ruderal vegetation. Disturbed Areas are present within the Project along the major, named dirt roads, in portions of the dry washes where scouring has taken place, in large areas of desert pavement, and on sediment berms throughout the site. Only sparse vegetation is found growing in these areas. Species growing in Disturbed areas include stunted white bursage shrubs, red-stemmed filaree (*Erodium cicutarium*), sapphire eriastrum (*Eriastrum sapphirinum*), and Mediterranean schismus.

### 3.2.2 Special Status Plant Species

The literature review resulted in a list of 31 special status plant species that have been known to occur in the area of the Lucerne Valley. The following 19 special status plant species are considered **absent** from the Project site due to a lack of suitable habitat present, no species typically associated with these plants were observed onsite (e.g., *Cordylanthus tecopensis* per California Native Plant Link Exchange 2009), or because the species occurs outside the elevation range found on the Project site:

- Parish's rock cress (*Arabis parishii*) – CNPS List 1B.2;
- Shockley's rock cress (*Arabis shockleyi*) – CNPS List 2.2; limestone endemic;
- Cushenbury milk-vetch (*Astragalus albens*) – FE, CNPS List 1B.1; limestone endemic;
- black milk-vetch (*Astragalus funereus*) – BLM, CNPS List 1B.2;
- flat-seeded spurge (*Chamaesyce platysperma*) – CNPS List 1B.2;
- Tecopa bird's beak (*Cordylanthus tecopensis*) – BLM, CNPS List 1B.2;
- Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*) – FE, CNPS List 1B.1; limestone endemic;
- Kingston bedstraw (*Galium hilendiae* ssp. *kingstonense*) – BLM, CNPS List 1B.3;
- Kingston Mountains ivesia (*Ivesia patellifera*) – BLM, CNPS List 1B.3;
- Robison monardella (*Monardella robisonii*) – BLM, CNPS List 1B.3;
- little mousetail (*Myosurus minimus* ssp. *apus*) – CNPS List 3.1;
- white-margined beardtongue (*Penstemon albomarginatus*) – BLM, CNPS List 1B.2; stabilized dunes, sand, and in washes;
- Stephen's beardtongue (*Penstemon stephensii*) – BLM, CNPS List 1B.3; desert mountains;

- Parish's phacelia (*Phacelia parishii*) – BLM, CNPS List 1B.1; typically found on playas in clay or alkaline soils;
- Parish's popcorn-flower (*Plagiobothrys parishii*) – CNPS List 1B.1;
- Parish's alkali grass (*Puccinellia parishii*) – BLM, CNPS List 1B.1; wetland obligate; Rabbit Springs;
- salt spring checkerbloom (*Sidalcea neomexicana*) – CNPS List 2.2; wetland species;
- bird-foot checkerbloom (*Sidalcea pedata*) – **FE, SE**, CNPS List 1B.1; and
- white-margined oxytheca (*Sidotheca emarginata*) – CNPS List 1B.3.

After conducting the reconnaissance survey and determining that suitable habitats were present onsite, 12 of the 31 special status species were considered to have a potential to occur on the Project site. A protocol-level focused plant survey was recommended and subsequently conducted. The survey for these 12 species was completed in May 2009, when these species were in bloom and would be both evident and identifiable at the time of the survey. The protocol level focused plant survey for the 12 species was negative. No federal or state-listed as threatened or endangered or otherwise sensitive species were observed onsite. Many of the special status plant species with a potential to occur onsite require specific soil types that are not characteristic of the Project site. The information presented on these 12 species is summarized in a PFO table (Appendix J).

There were multiple seedlings of an *Astragalus* species present onsite at the time of the protocol-level focused plant survey in May, which possessed similar vegetative characters to the Cushenbury milk-vetch (a special status plant). However, these seedlings did not have any flowers or fruits present on the plant in May to positively identify the species. Botanists re-visited the site on June 26, 2009 and were able to confirm that the unknown seedlings were not the sensitive Cushenbury milk-vetch. The seedlings onsite had 13 to 17 leaflets per compound leaf; Cushenbury milk-vetch only has 5 to 9 leaflets per leaf. Botanists also visited the Box S Springs location where a reference population for the Cushenbury milk-vetch was recorded in 1989 less than 4 miles southwest of the Project site (CDFG 2009). The habitat at the reference site was rocky and very different from that found at the Project site, which suggests that suitable habitat for the Cushenbury milk-vetch is not present on the Project site.

Rainfall on the site was above the average monthly precipitation amount for November and only slightly below the average for December (Table 3). The amount of rainfall received in April 2009 allowed for a high diversity of annual plant species to germinate by May 2009 on the Project site; however, this rainfall amount may not have been sufficient to allow for early-blooming and short-lived special status plant species to germinate at all or persist into May.

**Table 3 Lucerne Valley Precipitation**

	Total Precipitation from November 2008 to April 2009 (inches) <sup>1</sup>	Average Precipitation (inches) <sup>2</sup>
November	0.65	0.36
December	0.70	0.81
January	none	1.11
February	0.84	1.18
March	none	1.14
April	0.16	0.31

<sup>1</sup> Data collected from the Lucerne Valley Station near corner of Visalia Ave. and Sutter Ave. (Weather Underground 2009).  
<sup>2</sup> Data collected from Lucerne Valley (The Weather Channel Interactive, Inc. 2009).

Based on the literature review and reconnaissance-level survey, the following three species had a **low** potential to occur on the Project site due to marginally suitable habitat present in the desert wash areas, or because the species typically occurs at elevations above those which were found onsite. However, the results of the protocol level focused plant survey for these species were negative. The following species, which would have been flowering or conspicuous at the time of the protocol level focused plant survey, are therefore considered **absent** from the Project site:

- desert cymopterus (*Cymopterus deserticola*) – BLM, CNPS List 1B.2; grows in blowsand;

Desert cymopterus is a BLM sensitive and CNPS List 1B.2 species. This perennial herb flowers between March and May in fine to coarse, well-drained sandy soils and flats of Joshua Tree Woodland and Mojavean Desert Scrub. Known ranges include: Kern, Los Angeles, and San Bernardino counties. Military activities, sheep grazing, vehicles, utility constructions, and urbanization are some of the threats to desert cymopterus.

Moderately suitable habitat is present throughout the site within the Creosote Bush-White Bursage Series, Desert Wash and White Bursage Series. No historical populations have been recorded within 10 miles of the site. This species was not observed onsite during the protocol-level focused plant survey and is considered absent.

- forked buckwheat (*Eriogonum bifurcatum*) – BLM, CNPS List 1B.2; typically grows in sandy saline soils; and

Forked buckwheat is a BLM sensitive, and CNPS List 1B.2 species. This annual herb flowers between April and June typically in sandy soils of Chenopod Scrub habitat. This species typically occurs at elevations between 2,290 to 2,660 feet amsl. Chambers Group has adopted the convention to not exclude a plant species solely based on elevation ranges unless that species has a range outside a buffer

of 800 feet of the reported elevation as well. The range for this species occurs within the 800-foot elevation buffer for the site. The known range of the forked buckwheat exists in Inyo and San Bernardino counties in California and into Nevada.

Marginally suitable habitat is present in the Desert Wash areas along the eastern edge of the Project site. No historical populations have been recorded within 10 miles of the Project site. This species was not observed onsite during the protocol-level focused plant survey and is considered absent.

- Barstow woolly-sunflower (*Eriophyllum mohavense*) – BLM, CNPS List 1B.2; found on caliche and shallow soils.

Barstow woolly sunflower is a BLM sensitive and CNPS List 1B.2 species. This annual herb flowers between April and May in open sandy or silty areas of Chenopod Scrub, Mojavean Desert Scrub, and playas at elevations between 1,600 and 3,200 feet amsl. Known ranges include: Fresno, Kern, Los Angeles, and San Bernardino counties. This species is threatened by energy development, road improvements, vehicles, and grazing.

Moderately suitable habitat is present throughout the site in the Creosote Bush-White Bursage Series, Desert Wash, and White Bursage Series. No historical populations have been recorded within 10 miles of the Project site. This species was not observed onsite during the protocol-level focused plant survey and is considered absent.

Based on the literature review, the following seven species had a **moderate** potential to occur onsite due to the presence of suitable habitat. However, the results of the protocol-level focused survey for these species were negative. The following species, which would have been flowering or conspicuous at the time of the protocol level focused plant survey, are therefore considered **absent** from the Project site:

- alkali mariposa lily (*Calochortus striatus*) – BLM, CNPS List 1B.2; grows in saline soils, typically in seeps;

Alkali mariposa lily is a BLM sensitive and CNPS List 1B.2 species. This bulbiferous herb flowers from April to June in alkaline meadows, spring areas, and ephemeral washes of Chaparral, Chenopod Scrub, and Mojavean Desert Scrub at elevations between 230 to 5,200 feet amsl. Known ranges include: Kern, Los Angeles, San Bernardino, and Tulare counties and Nevada. This species is threatened by urbanization, grazing, trampling, road construction, and lowering of water table.

Mojavean Desert Scrub and ephemeral wash habitat is present within the Desert Wash located onsite. Although the soil onsite did not appear to be alkaline, there were several four-wing saltbush shrubs (which are salt tolerant) within the wash that may suggest some level of alkalinity. In addition, two known occurrences of this species have been identified within 10 miles of the Project site at Cushenbury Springs and Rabbit Springs (CDFG 2009). However, this species was not observed onsite during the protocol-level focused plant survey and is considered absent.

- Parish's daisy (*Erigeron parishii*) – FT, CNPS List 1B.1; limestone endemic;

Parish's daisy is a federal-listed threatened and CNPS List 1B.1 species. This perennial herb flowers between May and June on dry rocky slopes, typically on limestone alluvium, in Mojavean Desert Scrub, and Pinyon-Juniper Woodland at elevations between 2,600 and 6,600 feet amsl. San Bernardino County is the only known county where Parish's daisy is found. This species is threatened by carbonate mining, vehicles, and residential development.

Potentially suitable habitat is present within the Creosote Bush-White Bursage Series or the White Bursage Series onsite. Two known occurrences of this species have been recorded within 5 miles of the Project site near Highway 18 at Camp Rock Road (CDFG 2009). However, this species was not observed onsite during the protocol-level focused plant survey and is considered absent.

- Mojave monkeyflower (*Mimulus mohavensis*) – BLM, CNPS List 1B.2;

The Mojave monkeyflower is a BLM sensitive and CNPS List 1B.2 species and is a California endemic. This annual herb flowers between April and June and is found in dry, sandy, and gravelly areas, washes, and between or against rocks. Habitat includes Mojavean Scrub and Joshua Tree Woodland at elevations between 2,000 and 4,000 feet amsl. The known range of this species exists in San Bernardino County. This species is threatened by development, mining, vehicles, and competition with non-native plants.

Suitable habitat is present throughout the Project site, but this species is most likely to be found within the Creosote Bush-White Bursage Series or the White Bursage Series. In addition, historical populations have been recorded along Old Woman Springs Road (CDFG 2009) slightly more than 5 miles from the Project site. However, this species was not observed onsite during the protocol-level focused plant survey and is considered absent.

- short-joint beavertail (*Opuntia basilaris* var. *brachyclada*) – BLM, CNPS List 1B.2;

Short-joint beavertail is a BLM sensitive and CNPS List 1B.2 species. This stem succulent flowers between April and June on dry slopes and washes. Habitat includes Chaparral, Joshua Tree Woodlands, Mojavean Desert Scrub, and Pinyon-Juniper Woodland at elevations between 1,400 to 7,500 feet amsl. The known range of this species exists in Los Angeles and San Bernardino counties. This species is threatened by urbanization, mining, horticultural collecting, grazing, and vehicles.

Suitable habitat is present within the Creosote Bush-White Bursage Series or the White Bursage Series onsite. No historical populations are recorded within 10 miles of the Project site. This species was not observed onsite during the protocol-level focused plant survey and is considered absent.

- Death Valley beardtongue (*Penstemon fruticiformis* var. *amargosae*) – BLM, CNPS List 1B.3;

Death Valley beardtongue is a BLM sensitive and CNPS List 1B.3 species. This perennial herb flowers between April and June on gravelly washes and canyon floors. Habitat includes Mojavean Desert Scrub at elevations between 2,800 feet to 4,600 feet amsl. The known range of this species exists in Inyo and San Bernardino counties and Nevada.

Suitable habitat is present throughout the site, but this species is most likely to be found within the Desert Wash present onsite. No historical populations are recorded within 10 miles the site. This

species was not observed onsite during the protocol-level focused plant survey and is considered absent.

- Death Valley sandpaper plant (*Petalonyx thurberi* ssp. *gilmanii*) – BLM, CNPS List 1B.3; and

Death Valley sandpaper-plant is a BLM sensitive and CNPS List 1B.3 species and is endemic to California. This evergreen shrub flowers between May and September and is found in sandy washes, canyons, dunes, and slopes. Habitat includes Desert Dunes and Mojave Desert Scrub at elevations between 850 and 4,700 feet amsl. The known range of this species exists in Inyo and San Bernardino counties.

Suitable habitat is present throughout the site, but this species is most likely to be found within the Desert Wash present onsite. No historical populations are recorded within 10 miles of the site. This species was not observed onsite during the protocol-level focused plant survey and is considered absent.

- Latimer's woodland-gilia (*Saltugilia latimeri*) – CNPS List 1B.2; typically grows at elevations above the Project site.

Latimer's woodland-gilia is a CNPS List 1B.2 species. This annual herb flowers between March and June and is found in rocky or sandy, often granitic soils and sometimes in washes in Chaparral, Mojavean Desert Scrub, and Pinyon-Juniper Woodland at elevations between 1,310 and 6,235 feet amsl. The known range of this species exists in Inyo, Kern, Riverside, and San Bernardino counties. This species is known from fewer than 20 occurrences (CDFG 2009).

Suitable habitat may be present within Desert Wash present on the Project site even though this species typically is found at elevations above the elevation of the site. No known occurrences of this species have been recorded within 10 miles of the Project site. This species was not observed onsite during the protocol-level focused plant survey and is considered absent.

Based on the literature review, the following two species had a **moderate** potential to occur onsite due to the presence of suitable habitat. Neither species was observed onsite during the protocol-level focused plant survey when they were reported to be flowering (CNPS 2009). Due to the below average rainfall received in Lucerne Valley during Spring 2009, because these two species can flower as early as March, and because these very short-lived annuals are also very small (less than 1 ¼-inches in height), the white-pygmy poppy and the Little San Bernardino Mountains linanthus may not have germinated or may not have persisted into May when the survey was conducted. These two species therefore cannot be confirmed absent from the Project site and continue to have a **moderate** potential to occur onsite:

- white pygmy-poppy (*Canbya candida*) – CNPS List 4.2; and

White pygmy poppy is a CNPS List 4.2 species. This annual herb flowers between March and June in gravelly, sandy, or granitic soils of Joshua Tree Woodland, Mojavean Desert Scrub, and Pinyon-Juniper Woodland. Known ranges include: Imperial, Inyo, Kern, Los Angeles, and San Bernardino counties. This species is threatened by development, vehicles, grazing, mining, and non-native plants.

Suitable habitat is present throughout much of the site in the Creosote Bush-White Bursage Series and the White Bursage Series. No historical populations have been recorded within 10 miles of the Project site. This has species a moderate potential to occur onsite.

- Little San Bernardino Mountains linanthus (*Linanthus maculatus*) – BLM, CNPS List 1B.2.

Little San Bernardino Mountains linanthus is a CNPS List 1B.2 species and is a California endemic. This annual herb flowers between March and May and is found in sandy soils of Mojavean Desert Scrub, Desert Dunes, Sonoran Desert Scrub, and Joshua Tree Woodland at elevations between 635 and 6,810 feet amsl. The known range of this species exists in Riverside, San Bernardino, and San Diego counties. This species is threatened by development, vehicles, and dumping.

Suitable habitat is present throughout the Project site, but this species is most likely to be found within the Creosote Bush-White Bursage Series. Historical populations have been found in Rattlesnake Canyon in Yucca Valley, but not within 10 miles of the Project site. This species has a moderate potential to occur onsite.

### 3.2.3 Succulent Species Inventory

Several succulent species have been identified within the Project boundary (Table 4). Many succulent species are considered important components to desert communities because they are long-lived and many wildlife species depend on these species for survival. Coordination with BLM will be required to determine the extent to which these succulent species will require mitigation or translocation. Recommendations are provided in Section 4.2.

**Table 4 Succulents Likely Requiring Mitigation Based on Habitat Assessment**

Common Name	Scientific Name	Approximate Density Onsite
cottontop cactus	<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	infrequent, less than 5 individuals
beavertail cactus	<i>Opuntia basilaris</i> var. <i>basilaris</i>	occasional, 30-50 individuals
Joshua trees	<i>Yucca brevifolia</i>	abundant, 100-200 individuals

### 3.2.4 Location of Non-Native Invasive Weed Species

The overall density of weed species throughout the Project site was very low. Populations of weeds were concentrated along dirt roads or adjacent to home sites. There were five non-native invasive weed species for which locations were recorded onsite (Table 5). These species include: Sahara mustard, London rocket, Russian thistle (*Salsola tragus*), red-stemmed filaree, and foxtail chess (*Bromus madritensis* ssp. *rubens*). Locations of these non-native invasive weeds identified onsite correspond to the transect lines drawn on Figure 4. In addition, cheat grass and Mediterranean schismus also were

observed onsite, but locations were not recorded as control of these species would not be feasible. The abundance of cheat grass and Mediterranean schismus was low throughout the Project site relative to the abundance of native species onsite. Small patches of cheat grass and Mediterranean schismus were concentrated beneath the creosote bush shrubs onsite and only scattered in low densities between the native shrubs. The density of these two grass species within the washes onsite was very minimal to non-existent.

**Table 5 Locations of Non-Native Invasive Weeds Onsite**

Transect Lines*		Sahara mustard ( <i>Brassica tourne ortii</i> )	foxtail chess ( <i>Bromus madritensis</i> )	red stemmed filaree ( <i>Erodium cicutarium</i> )	Russian thistle ( <i>Salsola tragus</i> )	London rocket ( <i>Sisymbrium irio</i> )
1-1	1-5	x	x	x	x	x
1-5	1-9	x	x	x		x
1-9	1-13		x	x		x
1-13	1-17		x	x	x	x
1-17	1-21		x	x	x	x
1-21	1-25	x	x	x	x	x
1-25	1-29	x	x	x	x	x
1-29	1-33		x	x	x	x
1-33	1-37	x	x	x	x	x
1-37	1-41		x	x	x	x
1-41	boundary		x	x	x	x
2-1	2-5		x	x		x
2-5	2-9		x	x		x
2-9	2-13		x	x		x
2-13	2-17		x	x	x	x
2-17	2-21	x	x	x	x	x
2-21	2-25		x	x	x	
2-25	2-29		x	x	x	
2-29	2-33		x	x	x	
2-33	2-37		x	x		
2-37	2-41		x	x		
2-41	2-49	x	x	x		
2-49	2-53		x	x		x
2-53	2-57		x	x		x

Transect Lines*		Sahara mustard ( <i>Brassica tournefortii</i> )	foxtail chess ( <i>Brom madritensis</i> )	red stemmed filaree ( <i>Erodium cicutarium</i> )	Russian thistle ( <i>Salsola tragus</i> )	London rocket ( <i>Sisymbrium irio</i> )
2-57	2-61		X	X		X
2-61	2-65		X	X	X	X
2-65	2-69	X	X	X	X	X
2-69	2-73		X	X	X	X
2-73	2-77	X	X	X	X	X
2-77	2-81		X	X		X
2-81	2-85	X	X	X		X
2-85	boundary		X	X	X	X
2-89	2-93		X	X		X
2-93	2-97		X	X		X
2-97	2-101		X	X		X
2-101	2-105		X	X		X
2-105	2-109		X	X		X
2-109	2-113		X	X		X
2-113	2-117		X	X		X
2-117	2-121	X	X	X		X
2-121	2-125		X	X		X
2-125	2-129		X	X		X
2-129	boundary		X	X		X

\* Transect Line numbers correspond to lines drawn on Figure 4.

### 3.3. WILDLIFE

Wildlife species observed or detected during the site survey were characteristic of the existing site conditions. A full list of the wildlife species detected within the Project area is included in Appendix C. Weather conditions during the reconnaissance-level survey included temperatures ranging from approximately 42 to 77 degrees Fahrenheit with clear skies and dry conditions. Weather conditions during the protocol level focused desert tortoise and burrowing owl surveys ranged from temperatures of 41 to 82 degrees Fahrenheit, with average winds from 0.8 to 18 miles per hour, and cloud cover from 0 to 100 percent. One rainfall event occurred on April 10, 2009; no surface water collected on the Project site during this event. Weather conditions during the avian point count surveys included temperatures of 40.5 to 61.5 degrees Fahrenheit, wind speeds of 0 to 20 miles per hour, and cloud cover of 0-35 percent.

### 3.3.1 Birds

Thirteen bird species were observed/detected on the Project site during the one-day reconnaissance level survey. Species included black-throated sparrow (*Amphispiza bilineata*), sage sparrow (*Amphispiza belli*), California quail (*Callipepla californica*), horned lark (*Eremophila alpestris*), mourning dove (*Zenaida macroura*), rock pigeon (*Columba livia*), black-tailed gnatcatcher (*Polioptila melanura*), ladder-backed woodpecker (*Picoides scalaris*), common raven (*Corvus corax*), European starling (*Sturnus vulgaris*), northern harrier (*Circus cyaneus*), and house finch (*Carpodacus mexicanus*). These thirteen species are commonly found in the region. In addition, one potential ostrich (*Struthio camelus*) or possibly an emu carcass was found scattered on the western area of the Project site, most likely an escaped or released pet.

BLM requires a series of avian point count transect surveys for all solar projects. The following table shows the results of the avian point count transects.

**Table 6 Avian Point Counts**

Species Name	Number of Detections			
	Transect #1	Transect #2	Transect #3	Transect #4
American kestrel ( <i>Falco sparverius</i> )		1		
mourning dove ( <i>Zenaida macroura</i> )	1	1	1	
black-chinned hummingbird ( <i>Archilochus alexandri</i> )		1		
Say's phoebe ( <i>Sayornis saya</i> )			2	1
California horned lark ( <i>Eremophila alpestris</i> )			5	4
barn swallow ( <i>Hirundo rustica</i> )		1		
common raven ( <i>Corvus corax</i> )		2	2	8
black-tailed gnatcatcher ( <i>Polioptila melanura</i> )		1		
Le Conte's thrasher ( <i>Toxostoma lecontei</i> )	1			
sage sparrow ( <i>Amphispiza belli</i> )		1	9	10
black-throated sparrow ( <i>Amphispiza bilineata</i> )	20	13	17	28
Brewer's sparrow ( <i>Spizella breweri</i> )			1	2
house finch ( <i>Carpodacus mexicanus</i> )			2	
<b>Total Number of Detections</b>	<b>22</b>	<b>21</b>	<b>39</b>	<b>53</b>
<b>Cumulative Species Richness*</b>	<b>3</b>	<b>8</b>	<b>8</b>	<b>6</b>

\*Defined as the number of native species observed during the avian point count survey for a specific transect.

No sensitive avian species were detected during the avian point count survey. Fairly even distribution of avian species was displayed within the three main vegetation habitats identified on the Project site (Creosote Bush – White Bursage Series, White Bursage Series, and Desert Wash). Transects 1 and 2 had nearly the same number of detections, Transect 3 had nearly twice as many as 1 and 2, and Transect 4 had the highest number of detections with a total of 53. Transects 2 and 3 had the highest Cumulative

Species Richness with eight species each. Although Transect 1 had the lowest Cumulative Species Richness with only three total species detected, one of the three species was a Le Conte's thrasher (*Toxostoma lecontei*), a secretive bird that is not observed often. The Le Conte's thrasher is sensitive only within the San Joaquin area (Shuford et al. 2008). The most abundant species onsite was black-throated sparrow (*Amphispiza bilineata*). Other species commonly detected were California horned lark (*Eremophila alpestris*), common raven (*Corvus corax*), and sage sparrow (*Amphispiza belli*).

Incidental avian observations onsite during the burrowing owl and desert tortoise protocol level focused surveys included northern harrier (*Circus cyaneus*), (CSC) – nesting; prairie falcon (*Falco mexicanus*), CDFG watch list – nesting; whimbrel (*Numenius phaeopus*), California gull (*Larus californicus*), short-eared owl (*Asio flammeus*) sign, Allen's or rufous hummingbird (*Selasphorus* sp.), and lesser nighthawk (*Chordeiles acutipennis*). All incidental species were observed foraging or migrating through the Project site.

### 3.3.2 Mammals

Seven common mammal species were observed on the Project site during the initial reconnaissance survey. Common species observed were the black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), domestic dog (*Canis familiaris*), and kit fox (*Vulpes macrotis*). A property within the project site hosts approximately 5 domestic dogs within a chain linked fence, one dead dog was found buried nearby. In addition, sheep (*Ovis aries*) carcasses were observed in the western portion of the site. Two species of ground squirrels were observed on site, the Antelope ground squirrel (*Ammospermophilus leucurus*) and the round-tailed ground squirrel (*Spermophilus tereticaudus*). A site assessment for Mohave ground squirrel was conducted in May 2009 (see Section 3.3.3) by Steve Montgomery (see resume in Appendix D).

### 3.3.3 Special Status Wildlife Species

After a literature review and an assessment of the various habitat types on the Project site, it was determined that six special status wildlife species have the potential to occur within the Project site. Factors used to determine potential for occurrence include quality of habitat, impact of surrounding residential development, and the date and location of prior CNDDDB records of occurrence. The following identifies these sensitive species and their potentials to occur. Current listing status for each species is provided after their scientific names. The information presented on these six species is summarized in a PFO table (Appendix J).

Due to the lack of recorded historical occurrences within 5 miles of the Project site, the following three species have a **low** potential for occurrence on the Project site:

- pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*) – CSC; coastal slope subspecies

The pallid San Diego pocket mouse is a California Species of Concern. It is found on the margins of the Mojave Desert in California, on the northern slopes of the San Bernardino Mountains, in high elevations of eastern San Diego County, and the edge of the Colorado Desert, south to the Mexican boundary. It is especially known to occur in arid desert border areas of San Diego County, in Riverside County southwest of Palm Springs, in San Bernardino County from Cactus Flat to Oro Grande, and east to Twentynine Palms. It prefers drier environments of the higher elevations and plateaus, and it is found

up to 6,000 feet in elevation at Cactus Flat, along the north slope of the San Bernardino Mountains. It tends to occur in sandy, herbaceous areas, usually in association with rocks or coarse gravel (Grinnell 1933, Miller and Stebbins 1964). This species is found in a wide variety of habitats, including dry alluvial fans, dry desert slopes, sparse scrublands and grasslands, grassland/chaparral/sage scrub ecotones, redshank chaparral, and Pinyon-Juniper Woodland. This species is similar in appearance to *C.f. fallax*, but is lighter in overall coloration. Population declines may be due to urban and agricultural development. The closest reported occurrence of this species within the project vicinity was 9.5 miles away in 1954. Habitat on the Project site is not of good quality for this species.

- western mastiff bat (*Eumops perotis californicus*) – CSC, BLM Sensitive

This species is a permanent resident throughout its range in southern California, southern Arizona, Texas, and south to South America. With a wingspan approaching two feet, the western mastiff bat is the largest bat species in North America. It is also unique in that its call can be readily identified with the unaided ear. It roosts in small colonies or singly in primarily natural substrates such as cliff faces, large boulders, and exfoliating rock surfaces (Jameson et al. 1988). It is less commonly found in artificial structures such as buildings and roof tiles. It is found in a wide variety of habitats, including desert scrub, chaparral, woodlands, floodplains, and grasslands. Reasons for observed population declines are unknown. Although this species may forage in the area, no roosting habitat occurs within the project site.

- summer tanager (*Piranga rubra*) – CSC.

The summer tanager (nesting) is a California Species of Concern. This species breeds in the southern U.S. from southwest California to the Atlantic coast as far north as New Jersey and throughout the southeast U.S. It winters from central Mexico to Brazil. It is an uncommon summer resident in riparian habitat along the lower Colorado River, and in riparian areas of southern California deserts and semi-arid lands. It is also a rare migrant in Los Angeles County, and some occurrences exist in northern California as well. In California, it breeds in riparian habitat dominated by tall willows and mature cottonwoods. In the rest of its breeding range, it is more associated with oaks. Summer tanagers feed on insects, especially bees and wasps, but feed on spiders and fruits as well. This species arrives in California in April to breed and leaves in September. Breeding season takes place from May to August with a clutch size of 3-5 eggs. Both parents care for young. Nests are built 10-40 feet above the ground on branches of willows, cottonwoods, or other riparian trees. Local population declines for this species are primarily due to the loss and fragmentation of mature willow and cottonwood stands, especially along the Colorado River. Another contributing factor includes brood parasitism by the brown-headed cowbird (*Molothrus ater*). This riparian obligate species has been observed at Cushenbury Spring, slightly more than 5 miles away. No riparian habitat occurs within the Project site.

Due to the presence of suitable habitat, but a lack of recorded historical occurrences within 5 miles of the Project site, the following species has a **low** potential for occurrence on the Project site; coordination with CDFG is recommended:

- Mohave Ground Squirrel (*Spermophilus mohavensis*) - ST

The Mohave ground squirrel is endemic, restricted to the Mohave Desert in San Bernardino, Los Angeles, Kern, and Inyo counties (CDFG 1990). The species range is from Palmdale in the southwest to Lucerne Valley in the southeast, from Olancho in the northwest to Avawatz Mountains in the northeast (Laabs 2003). They inhabit open desert scrub, alkali desert scrub, and Joshua tree communities with sandy to gravelly soils. They also will feed in annual grasslands (CDFG 1990). Mohave ground squirrels feed on green vegetation, seeds, and fruits. A study showed that most of their diet includes seeds from winter fat, spiny hopsage (*Grayia spinosa*), and saltbush (*Atriplex* sp.) (Laabs 2003). Mohave ground squirrels are active in spring and early summer (March to June) and take cover in burrows under large shrubs. Threats to this species include loss of habitat due to urbanization and agriculture and off-road vehicle use (CDFG 1990).

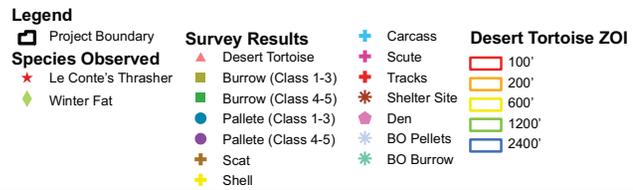
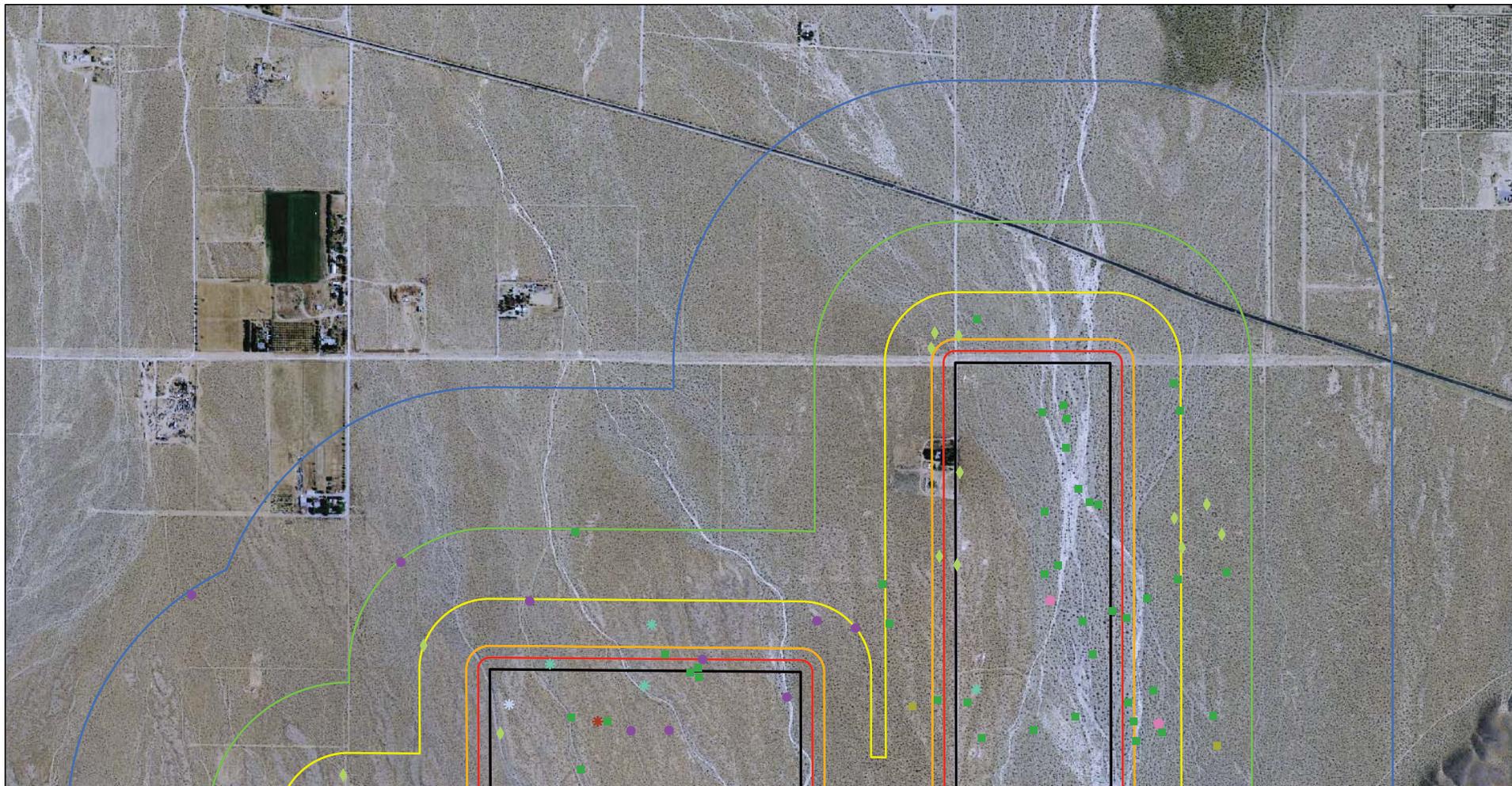
Habitat occurs on the Project site for the Mohave ground squirrel. The CNDDDB recorded a known occurrence 8.47 miles to the northwest of the site. A known occurrence, from a personal conversation with Becky Jones (CDFG 2007), exists over five miles west from the Project site (approximately 2 miles east of the 247/18 Hwy junction). A general habitat assessment was conducted for Mohave ground squirrel by Steve Montgomery (see resume in Appendix B) to determine if habitat on the Project site may be suitable. No Mohave ground squirrels were observed or heard during a site visit on May 28, 2009 by Steve Montgomery. He revisited the site twice in early July and identified round-tailed ground squirrels off of Zircon Road. Without trapping, the presence/absence of resident Mohave ground squirrels cannot be confirmed. Although suitable habitat exists throughout the project site, the closest known occurrence is over five miles away; therefore this species has a low potential to occur on site. Based on communication with CDFG regarding this species, several trapping efforts are being conducted over 5 miles to the west of the site. Therefore, coordination with CDFG regarding this species is recommended.

Based on the literature review, burrowing owl and desert tortoise have a **moderate to high** potential to occur on the Project site. Protocol level focused surveys for these two species were conducted on March 24 to 27, March 31 to April 3, and April 7 to 10, 2009, by biologists Paul Morrissey, Kris Alberts, Nichole Cervin, Laura Gorman, Rebecca Alvidrez, Lisa Wadley, and Saraiah Skidmore. A subsequent protocol level focused burrowing owl survey was conducted by Heather Clayton and Nichole Cervin on June 26, 2009, at six locations that exhibited burrowing owl sign from the March/April surveys. Both desert tortoise and burrowing owl sign were observed on and near the Project site. All encounters and observations were mapped using GPS coordinates (Figure 5).

- Burrowing Owl (*Athene cunicularia*) – CSC, BLM Sensitive

The burrowing owl is a small, ground-dwelling owl with a round, grey-brown, tuftless head, long and bare yellow legs, bright yellow iris, brown back, and buffy-white underparts with brown barring (Klute et al. 2003). Insects form the bulk of its diet in the summer, and small mammals, birds, and reptiles in the winter (Klute et al. 2003). It breeds in open plains from western Canada and the western United States, Mexico through Central America, and into South America to Argentina (Klute et al. 2003) from March through August, with peak periods in May and July. This species inhabits dry, open, native or non-native grasslands, deserts, and other arid environments with low-growing and low-density vegetation (Ehrlich and Wheye 1988). It may occupy golf courses, cemeteries, road rights-of way, airstrips, abandoned buildings, irrigation ditches, and vacant lots with holes or cracks suitable for use as burrows (TLMA 2006). It occupies mammal burrows, such as badger and prairie dog, and ground squirrel, for

subterranean shelter and nesting (Trulio 1997). When burrows are scarce, the burrowing owl may use man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes (TLMA 2006). One burrow is typically selected for use as the nest; however, satellite burrows are usually found in the immediate vicinity of the nest burrow within the defended territory of the owl. Burrowing owls are active day and night, with peak times at dawn and dusk (Klute et al. 2003). Threats to burrowing owl populations include the loss of and destruction of habitat by agriculture and urban development, the destruction of burrows, and indirect poisoning via rodent eradication efforts (Klute et al. 2003).

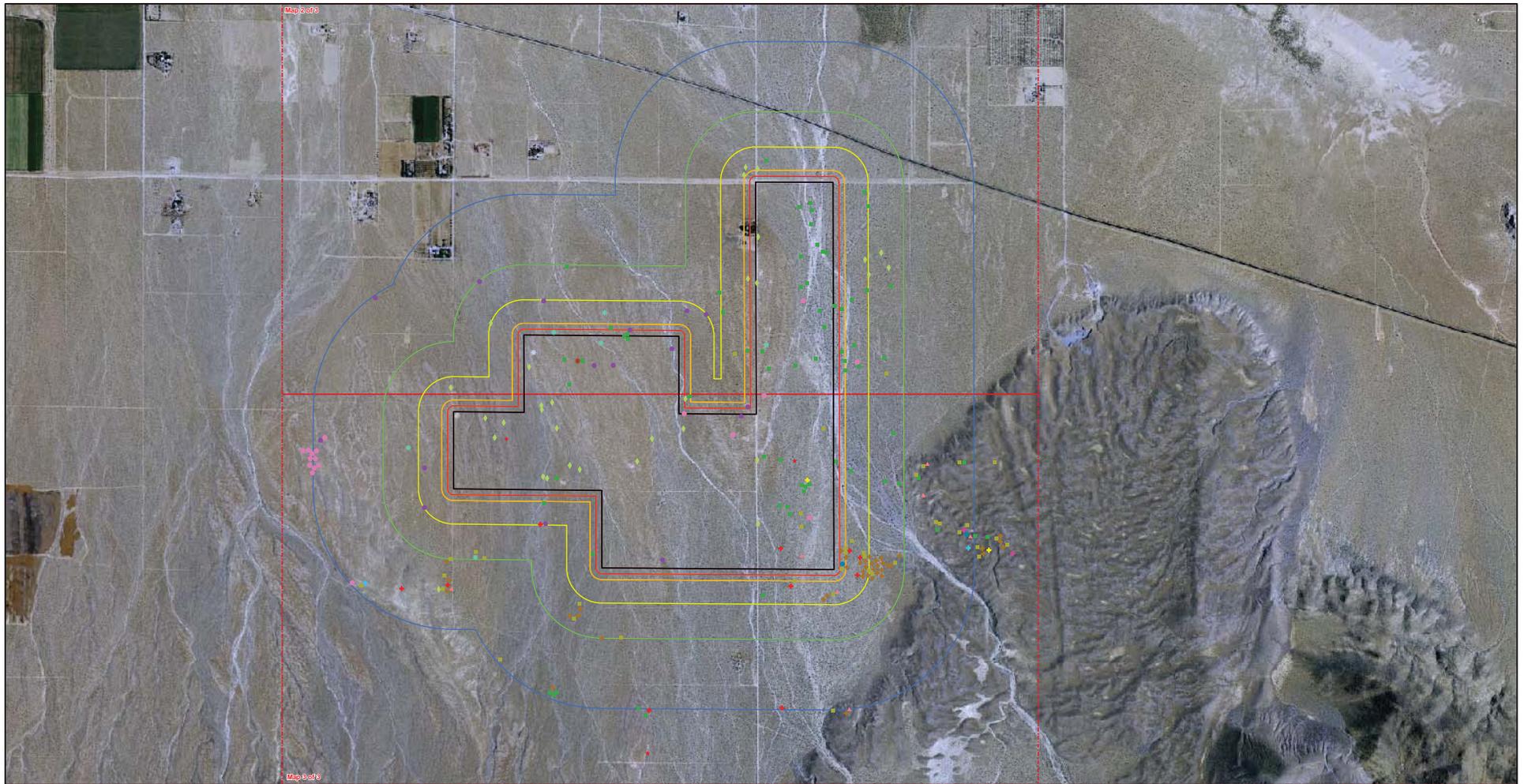


1:10,000



Chevron Solar Project  
 Desert Tortoise & Burrowing Owl Transect & Sign Map  
 Map 2 of 3  
**Figure 5**





- |                         |                       |              |                            |
|-------------------------|-----------------------|--------------|----------------------------|
| <b>Legend</b>           |                       |              |                            |
| Project Boundary        | <b>Survey Results</b> | Carcass      | <b>Desert Tortoise ZOI</b> |
| Mapbook Index           | Desert Tortoise       | Scute        | 100'                       |
| <b>Species Observed</b> | Burrow (Class 1-3)    | Tracks       | 200'                       |
| Le Conte's Thrasher     | Burrow (Class 4-5)    | Shelter Site | 600'                       |
| Winter Fat              | Pallette (Class 1-3)  | Den          | 1200'                      |
|                         | Pallette (Class 4-5)  | BO Pellets   | 2400'                      |
|                         | Scat                  | BO Burrow    |                            |
|                         | Shell                 |              |                            |

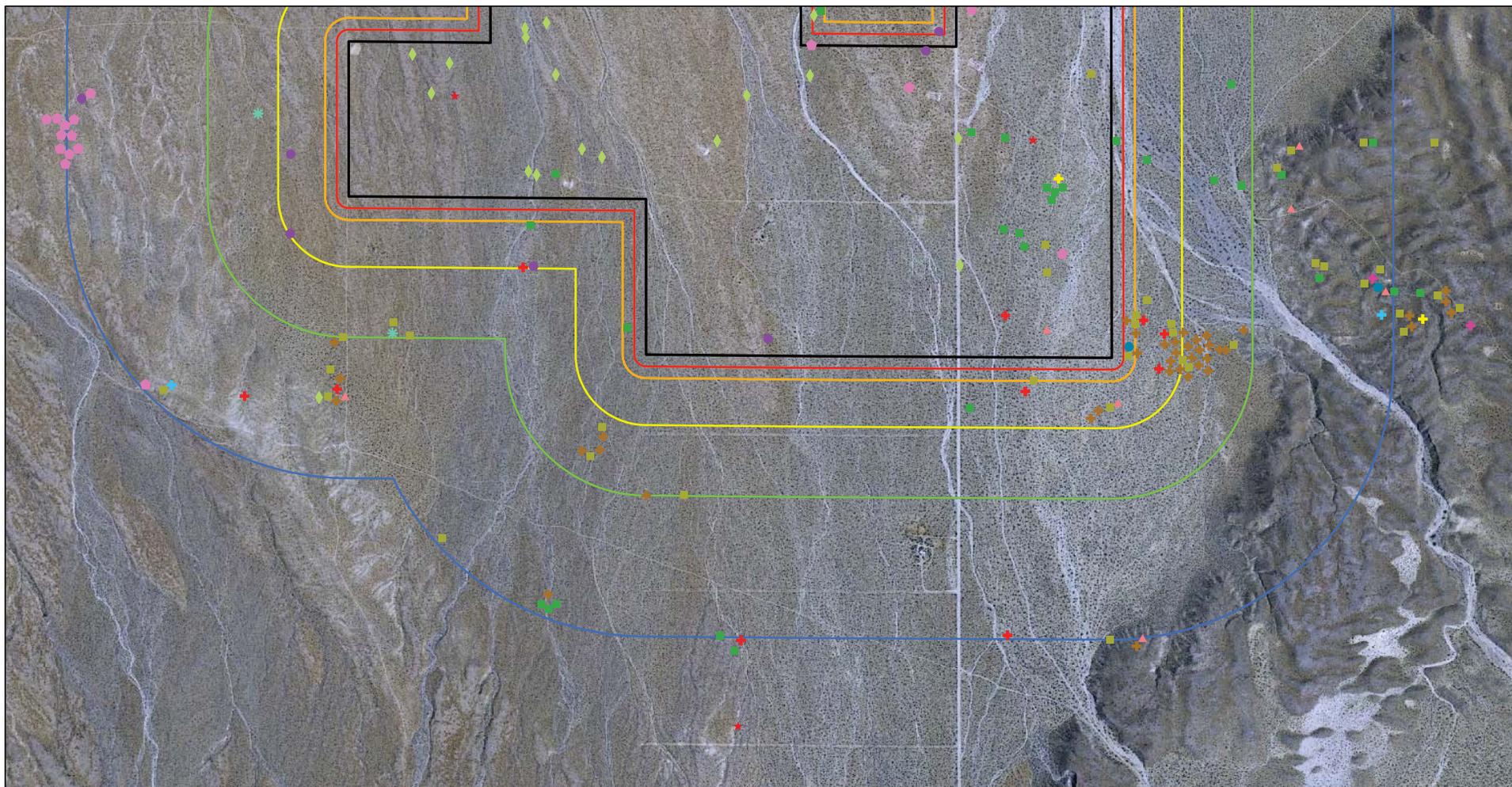


1:20,000



Chevron Solar Project  
 Desert Tortoise & Burrowing Owl Transect & Sign Map  
 Map 1 of 3  
**Figure 5**





1:10,000



Chevron Solar Project  
 Desert Tortoise & Burrowing Owl Transect & Sign Map  
 Map 3 of 3  
**Figure 5**



Habitat for the burrowing owl occurs on the Project site. Numerous ground squirrels and appropriate burrow sites were detected on the Project site, and slopes of the drainage features provide suitable burrow sites for the owl to use. Recent records report that burrowing owls have occurred historically within the vicinity of the Project site (i.e., within five miles of the Project site).

Burrowing owl burrows with white wash and regurgitated pellets were observed on and near the Project site during the Phase II Burrow and Burrowing Owl Survey. None of the burrowing owl sign appeared to be fresh. It is estimated that the sign is two to three years old due to fading white wash and bleached/loose regurgitated pellets. Table 7 contains information about the location and sign found at burrowing owl sites. As per conversation during a recent site visit (June 9, 2009), Christopher Otahal (BLM) requested Chambers Group re-survey the burrow locations in June 2009 due to sign of owls reported on the project site; June surveys would provide more information regarding the potential current occupancy of these burrows. No new sign was identified at the six burrow locations, and no burrowing owls were identified during the June 26, 2009 Burrowing Owl Survey. Since no new sign was identified during the survey, no additional surveys were recommended. No burrowing owls or recent sign were observed in 2009.

**Table 7 Burrowing Owl Sign Observed During Protocol Level Focused Burrow Surveys**

	Sign	Location	
		Easting	Northing
1	Burrow with white wash and pellets.	516778	3808916
2	Burrow with white wash and pellets.	517042	3809018
3	Burrow with white wash and pellets.	516369	3807745
4	Burrow with white wash and pellets.	517023	3808860
5	Burrow with white wash and pellets.	516020	3808315
6	Burrow with white wash and pellets.	517888	3808848

- Desert Tortoise (*Gopherus agassizii*) – FT, ST

The desert tortoise ranges from central Nevada and extreme southwestern Utah south through southeastern California and southwestern Arizona into northern Mexico (Berry et al. 2002). In California, the historic range of this species includes northeastern Los Angeles, eastern Kern, eastern San Diego, and southeastern Inyo counties, as well as most of San Bernardino, Riverside, and Imperial counties. The desert tortoise inhabits river washes, rocky hillsides, slopes, and flat deserts with sandy or gravelly soils. Soil conditions must be friable for burrow and nest construction. Creosote bush, white bursage, saltbush, Joshua tree, Mojave yucca (*Yucca schidigera*), and cacti are often present in the habitat along with other shrubs, grasses, and wildflowers. The desert tortoise is entirely herbivorous

and forages on a variety of plants, including cactus species and annual vegetation. The desert tortoise is a medium-sized tortoise with an adult carapace length of about 8 to 14 inches. Males, on average, are larger than females and are distinguished by a more concave plastron, longer gular horns, larger chin glands on each side of the lower jaw, and longer tails. Carapace color varies from light yellow-brown (horn color) to dark grey-brown. In addition to range, a composite of characteristics often is necessary to distinguish the desert tortoise from other species of gopher tortoise, but its most unique feature is its very large hind feet. Desert tortoise populations are declining due to habitat destruction/loss, predation, illegal collecting, grazing, and off-highway vehicle (OHV) use (Berry 1997).

Habitat for the desert tortoise occurs on the Project site. Soil conditions appropriate for burrow construction were present onsite. Recent records report that desert tortoises have occurred historically within the vicinity of the Project site. A total of seven desert tortoises were detected during the presence/absence surveys. One live tortoise was observed within the project boundaries, in the southeast corner of the site during the protocol level focused surveys. Five live tortoises were detected within the ZOI survey area during the protocol level focused surveys, southeast of the Project site; this area is an active tortoise area. One live tortoise was observed off site in the southwest ZOI survey area during the protocol level focused surveys. During the protocol level focused plant surveys, which were subsequent to these protocol level focused desert tortoise surveys, a tortoise was identified foraging within the southeast corner of the project site; however, based on photo-documentation, this individual already had been identified during the March/April protocol level focused surveys.

During all surveys, data were recorded for each tortoise, taking care not to get too close or harass the tortoises in any way. Measurements were estimated and photos were taken at a distance using a zoom lens. Live Tortoise Encounter Forms were filled out upon observation of each tortoise (Appendix K). Information pertaining to the live desert tortoises encountered is provided in [Table 6](#).

**Table 8 Desert Tortoise Encounters During Presence/Absence Surveys**

Tortoise (ID )	Date	Original Coordinates		Age Class	Sex	Habitat	Health
		Easting	Northing				
1	3/26/09	0518964	3807854	Adult	F	Creosote Bush Scrub near 2400' ZOI transect in SE	Shell had scratch marks and a couple chips, but tortoise appeared healthy. No URTD.
2	3/26/09	0518703	3808220	Adult	F	Creosote Bush Scrub near 1200' ZOI in SE	Had a bite mark, but tortoise appeared healthy. No URTD.

Tortoise (ID )	Date	Original Coordinates		Age Class	Sex	Habitat	Health
		Easting	Northing				
3	3/27/09	0518702	3808069	Adult	UNK	Creosote-White Bursage Series near 1200' ZOI in SE area	Old small gnaw mark above left hind leg, otherwise tortoise appeared healthy. No URTD.
4	4/1/09	0518232	3807553	Adult	UNK	Creosote-White Bursage Series in buffer in SE area	Tortoise appeared healthy. No URTD.
5	4/7/09	0518068	3807754	Adult	M	Creosote-White Bursage Series on site in SE area	Shell had small chips but tortoise appeared healthy. No URTD.
6	4/10/09	0518312	3806948	Adult	M	Creosote-White Bursage Series on 2400' ZOI in SE	Tortoise appeared healthy. No URTD.
7	4/17/09	0516223	3807569	Adult	M	Creosote-White Bursage Series near 1200' ZOI in SW	Shell had a small chip but tortoise appeared healthy. No URTD.

The seven tortoises identified during the focused presence/absence surveys all appeared healthy. No signs of upper respiratory tract disease (URTD) were observed on any of the desert tortoises identified. In addition, no major damage to the limbs or head area from predatory attacks was observed that may impair mobility or foraging capabilities.

Four skeletal remains and one carcass were observed on or near the Project site. Carcass classification is broken down into five categories, according to USFWS desert tortoise survey methodology and sign documentation protocol (USFWS 1992). Class 1 shell remains are still fresh or putrid. Class 2 shell

remains are normal in color and the scutes still adhere to the bone. Class 3 shell remains have scutes that are peeling off. In Class 4 shell remains, the shell bone is falling apart, and the growth rings on the scutes are peeling. If the remains are disarticulated and scattered, the remains are Class 5. Desert Tortoise Shell and Skeletal Remains Forms are included as Appendix L. Information pertaining to the carcass and skeletal remains is provided in [Table 9](#).

**Table 9  
Desert Tortoise Skeletal and Shell Remains Observed During Presence/Absence Surveys**

Tortoise Remains (ID)	Class	Location		MCL (mm)	Time Since Death	Cause of Death	Location Description
		Easting	Northing				
1	5	0518937	3807793	275	>4 YRS.	Unknown	In the open within the ZOI.
2	4	0519044	3807786	275	>4 YRS.	Possible gun shot and/or scavenged.	In the open within the ZOI, near a dead white bursage.
3	5	0518892	3807874	UNK	>4 YRS.	Unknown	In the open within the ZOI, near a tortoise shelter site.
4	3	0518101	3808140	120	2-4 YRS.	Unknown, evidence of scavenging.	In the open and under a dead Joshua tree within the project boundaries.
5	3	0515774	3807597	120	2-4 YRS.	Possible gun shot and/or scavenged.	Scattered over 20 feet in front of a burrow within the ZOI.

Other forms of desert tortoise sign were observed on and near the site. Sign included active and inactive burrows, fresh and old scat, and tracks. Tracks were generally found in sandy areas where fresh scat and active burrows were located.

In addition, two tortoises were observed on June 26, 2009 during a protocol level focused burrowing owl survey. These two individuals were observed foraging in the southwestern area, one within the Project site in the southwestern corner, one within the buffer survey area immediately off-site. These individuals were not photo-documented; therefore, it cannot be determined whether these individuals migrated from the southeastern area and were previously documented during the desert tortoise protocol level focused surveys. However, with this supplemental data, both the southeast and southwest area of the Project site are determined to support foraging adult tortoises. These two tortoises appeared healthy and did not show signs of an upper respiratory track disease or damage from predatory attacks.

Desert tortoises are solitary animals and travel long distances in order to mate during the breeding season. Tortoises and sign were found on the east and west sides of the Project site, which likely indicates that tortoises cross the site for mating during the breeding season. The two male tortoises and one female tortoise found on the southwestern area of the project site most likely utilize the burrows identified along the southern border, which allow for safe passage to the area of high density tortoise located to the southeast of the Project site. The Project site also serves as foraging grounds for desert tortoises, especially prevalent in the annual vegetation and the beavertail cacti (*Opuntia basilaris* var. *basilaris*), which showed signs of recent feedings in both the southeast and southwest corner of the Project site.

Burrow classification is broken down into five categories, according to USFWS desert tortoise survey methodology and sign documentation protocol (USFWS 1992). An active burrow with recent desert tortoise sign, such as scat, is categorized as Class 1. A Class 2 burrow is considered to be a definite desert tortoise burrow in good condition but has no evidence of recent use. Class 3 and 4 burrows are fairly deteriorated, but a Class 3 is still determined to be a desert tortoise burrow, while a Class 4 burrow is questionable. A Class 5 burrow is in somewhat good condition and could possibly be a desert tortoise burrow.

Desert tortoises utilize several different types of burrows, depending upon season and activity. These can be burrows that range from 2 to 10 meters deep or modified small mammal dens to shallow hollows less than one foot that are used temporarily during dispersal activities (Ernst et al. 1994). As desert tortoise will often utilize small mammal dens or hollows, it is not uncommon to classify these areas as potential desert tortoise burrows when in fact they initially belong to other wildlife in the area, such as kit fox and/or black-tailed jackrabbit.

A total of 107 burrows were observed on or near the Project site. Table 10 shows the breakdown of the number of burrows into separate class categories. Three Class 1-3 burrows and 31 Class 4-5 burrows were observed within the project site. Eight Class 1-3 burrows were observed within the 500-foot buffer and 27 Class 1-3 burrows were observed within the ZOI. Seventeen Class 4-5 burrows were observed within the 500-foot buffer and 21 Class 4-5 burrows were observed within the ZOI.

A total of 38 tortoise scats were observed within the buffer or within the ZOI. No desert tortoise scat was identified within the Project site. Five tortoise scats were observed within the 500-foot buffer and 33 scats were observed within the ZOI. Scat classification is also broken down into five categories, according to USFWS desert tortoise survey methodology and sign documentation protocol (USFWS 1992). A Class 1 scat is wet, not from rain or dew, or is freshly dried, and has an obvious odor. A Class 2 scat is dried with a glaze, has some odor, and is dark brown. Class 3 and 4 scats are dried with no glaze or odor, but a Class 3 scat is light brown showing little signs of bleaching, while Class 4 is light brown to pale yellow with loose material. A Class 5 scat is bleached or consists only of plant fiber. Table 10 shows the breakdown the number of scats into separate class categories.

**Table 10 Desert Tortoise Sign Observed During Presence/Absence Surveys**

	Burrows within Project Site	Burrows within Buffer Area	Burrows Within ZOI Area	Total Burrows Identified	Scat
Class 1					2
Class 2	3	9	26	38	16
Class 3					12
Class 4	30	21	18	69	0
Class 5					8
<b>Total</b>	<b>33</b>	<b>30</b>	<b>44</b>	<b>107</b>	<b>38</b>

### 3.4. WETLAND AND JURISDICTIONAL DELINEATION

#### 3.4.1 Hydric Soils

The USDA Soil Conservation Service and USDA NRCS Web Soil Survey have not mapped soils within the Project site (USDA 2009). No Order III soil survey has been conducted on or in the vicinity of the proposed Project area. Data derived from the STATSGO geographic database has limitations. STATSGO (Order V) in particular was meant for regional planning purposes with large scale extrapolation from other sources. With very limited ground truthing, this data has limited application. The 1970 General Soil Map for the SW Desert Area, San Bernardino County, has mapped and described the soils within the project area as the Arizo-Daggett Association (excessively drained and somewhat excessively drained, very deep, gravelly soils). The following includes a description of soils identified during the reconnaissance level survey.

The Project site consists primarily of sandy loam soils on the flat terraces, loamy sandy soils, and loamy sand within the drainages and washes. The loamy sandy soils were more prevalent in the northern portion of the Project site and in the eastern area along the washes. Overall, these are well drained soils typical of sandy environments. A layer of caliche rock was exposed in some areas of the washes and dirt roads, and desert pavement type soils were observed in patches throughout the western area of the site.

None of these soils are listed as hydric by the National Wetlands Inventory. In addition to these soils, soil pits confirmed the absence of hydric soils within the Project site.

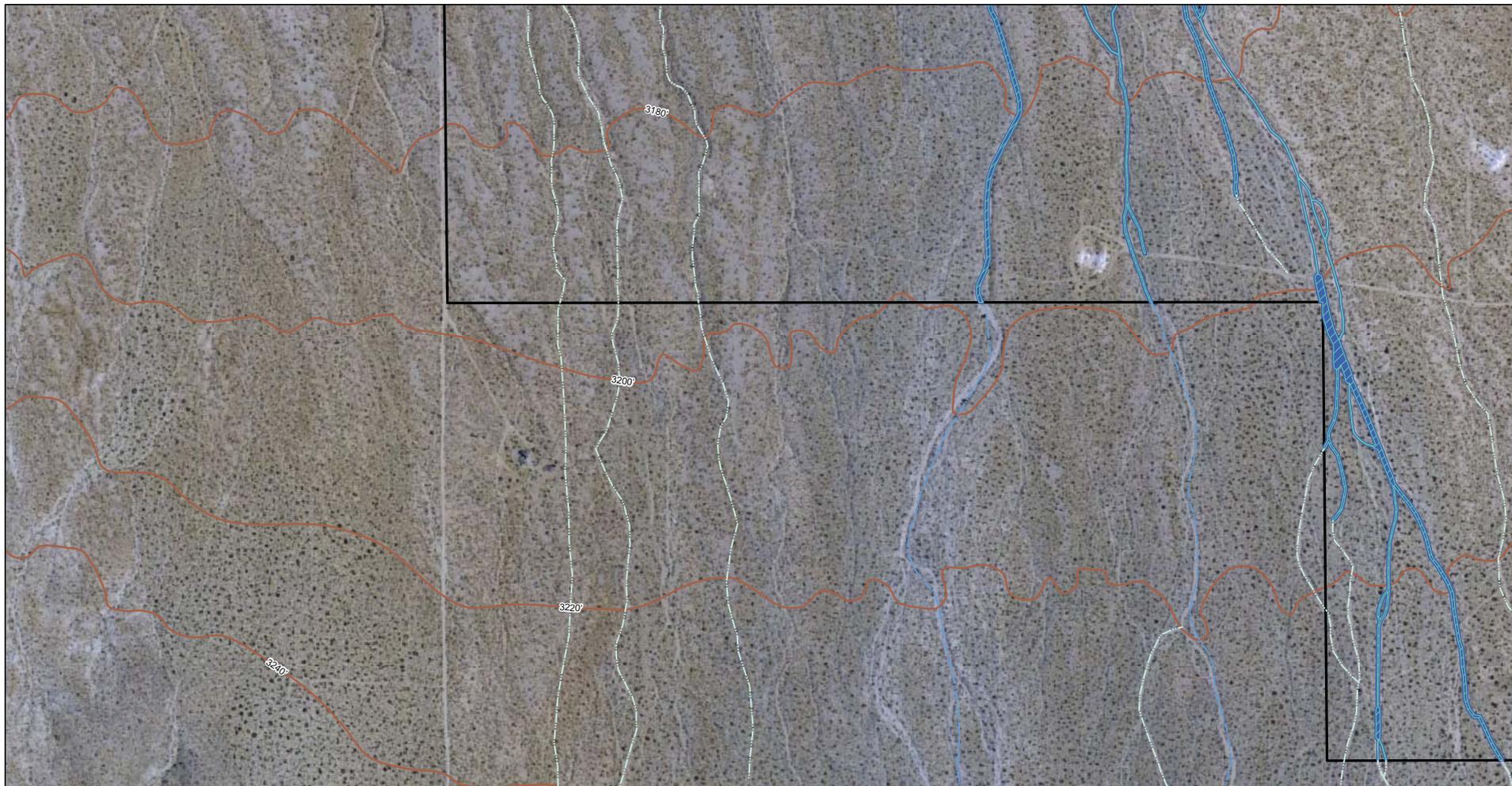
#### 3.4.2 Drainage Features and Connectivity

Many drainages were observed within the proposed Project footprint. For the purposes of this report, we have identified seven main drainages (Figure 6) within the Project site footprint to help organize the data in a more manageable manner. These seven major drainage systems are numbered 1 through 7

from west to east, flowing parallel in a northerly direction and terminating up at the dry Lucerne Lake area (Figure 6). Since the drainage systems branch off into braids that meander through the site and do not always display features that provide a visual connectivity to each other, these seven drainages are further grouped into Groups 1, 2, and 3. Reference soil pits and Rapanos forms are associated with Groups 1 through 3. These intermittent drainages are typical of desert habitat, with surface flow existing only directly after a heavy rain event. For example, on April 10, 2009, a rain event occurred on the Project site, and water collected in large pools along Hwy. 247 northwest of the Project site. No surface flow occurred within the Project site.

After an intense and steady rainfall event, the drainage systems on the Project site receive water from the San Bernardino Mountains located south and southeast of the Project site, as indicated by jurisdictional features such as OHWM and bank to bank characteristics. Flow from the San Bernardino Mountain Ranges continues through the Project site in a northerly direction, crossing Foothill Road and Old Woman Springs Road, into open desert, through scattered residences, and ultimately veers northwest through an unnamed drainage that concludes at Lucerne Lake. Lucerne Lake (a large dry lake throughout most of the year) is a non-Traditionally Navigable Water (non-TNW) located approximately 12 miles northwest of the Project site. The dry lake provides terrain for off-highway vehicles (OHV), and many tire tracks and tire impressions were observed. Many of the desert washes within the Project site also show evidence of OHV usage. Additionally, the site is disturbed by pedestrian traffic traversing the Project site using the dirt roads and/or drainage systems. Within the desert washes, very little vegetation was observed during the surveys, aside from scattered, emergent desert annual flowers. Vegetation along the banks is composed of desert scrub habitats including Creosote Bush and White-Bursage Series and disturbed habitats. No riparian scrub or wetland areas were found to be present in any of the drainage systems on the Project site.

Within the seven major drainage systems identified onsite, drainage features such as a definable OHWM, and bank to bank features were not always apparent. Two issues arose when determining jurisdictional water acreages. One, surface hydrology appears to braid, meander, and subside within the sandy soils without a definable OHWM. These areas on the Project site appear outside of washes in areas where subsurface hydrologic connectivity or slight erosion features occur along the drainage. Calculations of bank to bank or OHWM widths were not possible in these areas and were not included in the delineations of jurisdictional waters. Two, within the washes themselves, the last rain major event produced many small braided OHWM within each wash. Instead of measuring each of the small OHWM (many showed an OHWM of less than one inch in height), the entire width of the wash was used in calculations for determining jurisdictional waters. However, it should be noted that many of the desert washes found on the site exhibit OHV use (tire tracks and impressions), which widens the drainages beyond that which would have been created naturally by rain events. In addition, there are two hydrologic connectivity features that are present within the southwest corner and near the western boundary of the site. These erosion areas do not exhibit well-defined bank to bank or OHMs, and therefore were not used in calculating jurisdictional waters.

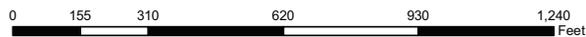


Legend

- Project Boundary
- Hydrologic Connectivity
- USACE/RWQCB OHWM
- Intermittent Stream
- CDFG Bank to Bank
- Topographic Contour
- Soil Test Pit



1:3,400



Chevron Solar Project  
Jurisdictional Delineation  
Map 5 of 6  
Figure 6



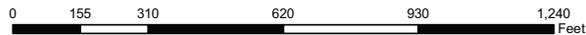


Legend

-  Project Boundary
-  Hydrologic Connectivity
-  USACE/RWQCB OHWM
-  Intermittent Stream
-  CDFG Bank to Bank
-  Topographic Contour
-  Soil Test Pit

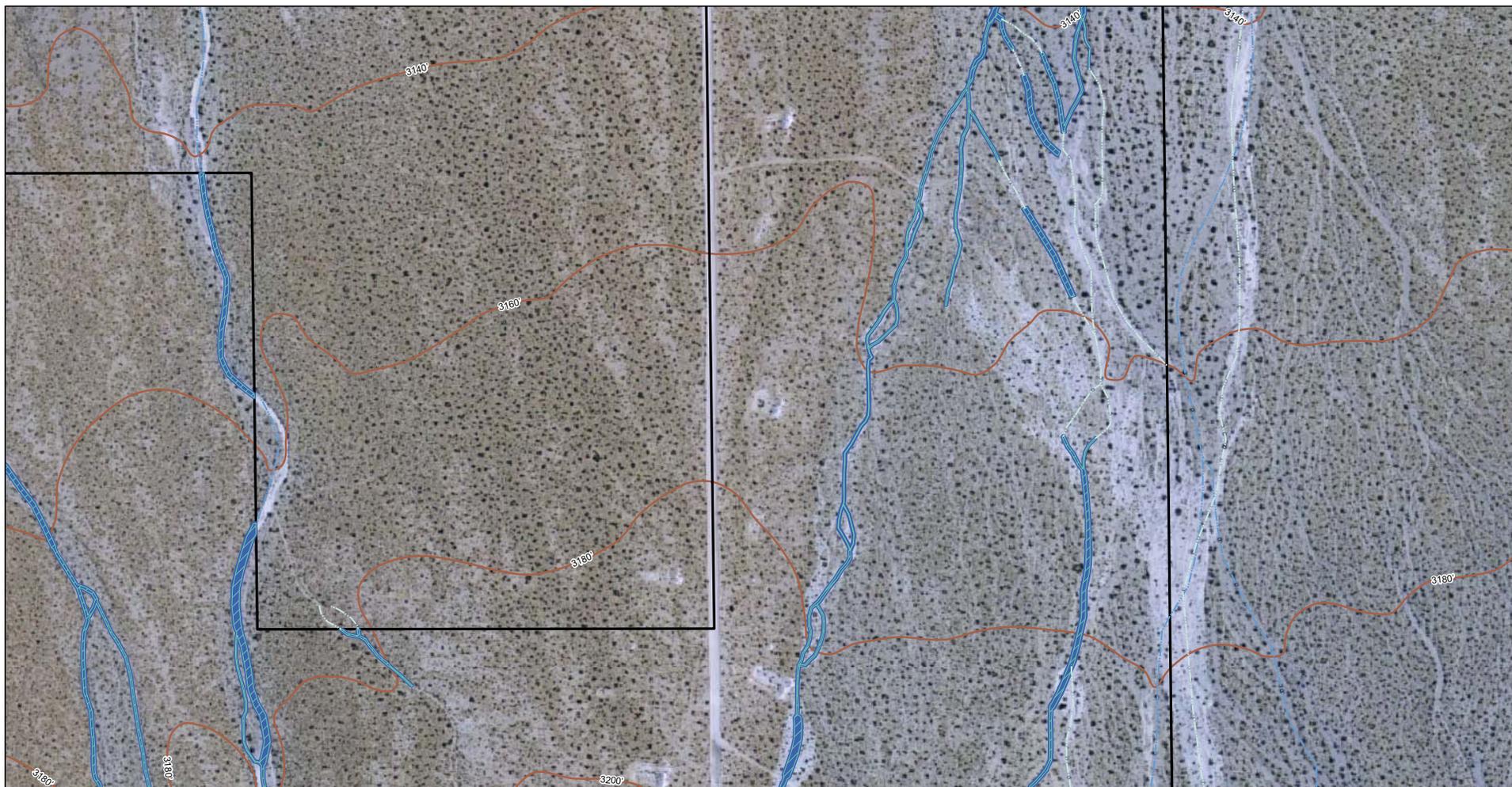


1:3,400



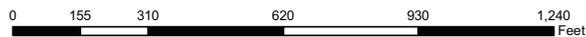
Chevron Solar Project  
Jurisdictional Delineation  
Map 4 of 6  
Figure 6





Legend

- Project Boundary
- USACE/RWQCB OHWM
- CDFG Bank to Bank
- Soil Test Pit
- Hydrologic Connectivity
- Intermittent Stream
- Topographic Contour



Chevron Solar Project  
Jurisdictional Delineation  
Map 3 of 6  
Figure 6



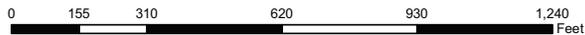


Legend

- Project Boundary
- USACE/RWQCB OHWM
- CDFG Bank to Bank
- Soil Test Pit
- Hydrologic Connectivity
- Intermittent Stream
- Topographic Contour

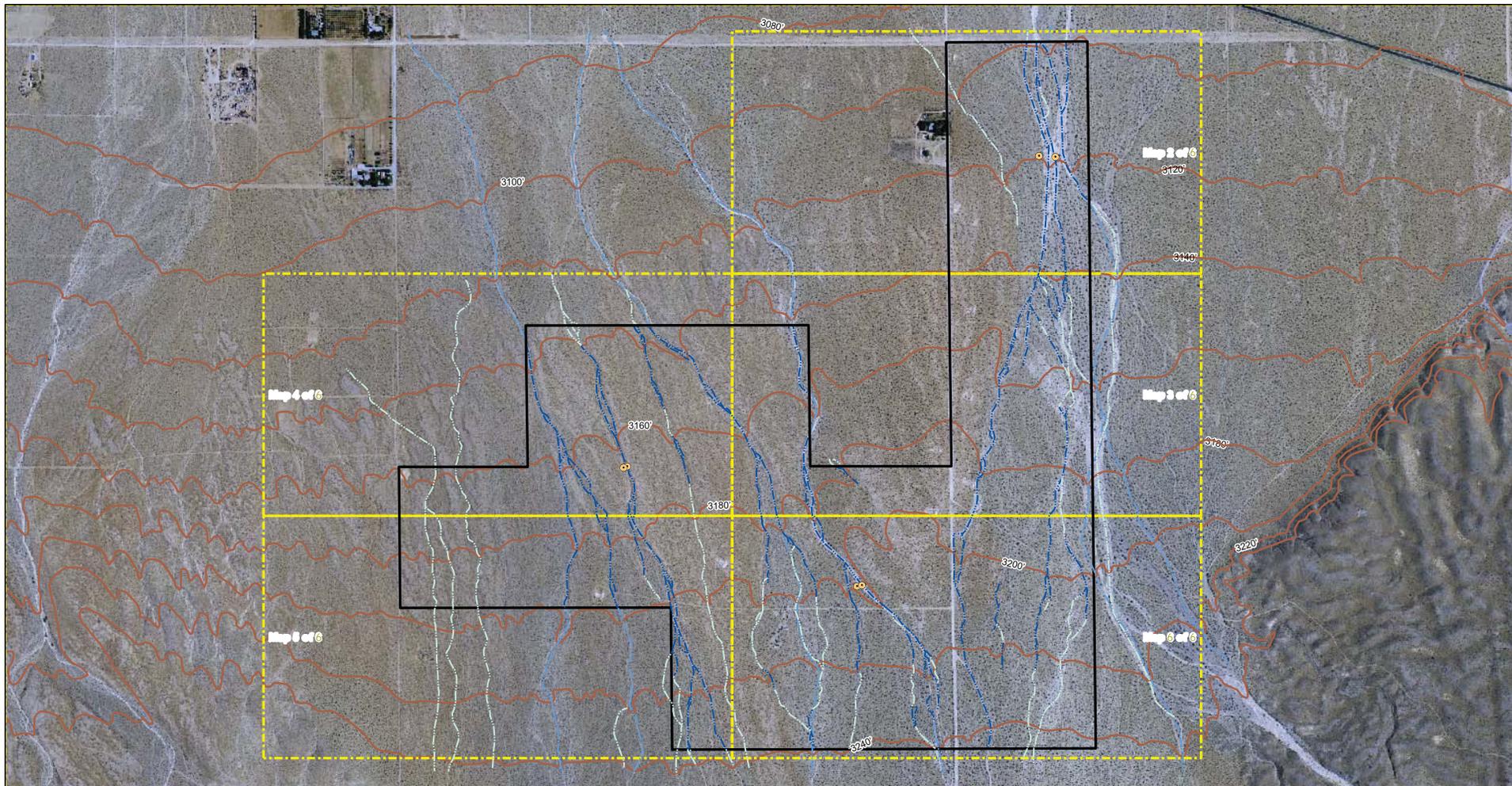


1:3,400



Chevron Solar Project  
Jurisdictional Delineation  
Map 2 of 6  
Figure 6





Legend

-  Project Boundary
-  Mapbook Index
-  Soil Test Pit
-  Hydrologic Connectivity
-  Intermittent Stream
-  Topographic Contour
-  USACE/CDFG/RWQCB Jurisdictional Drainage

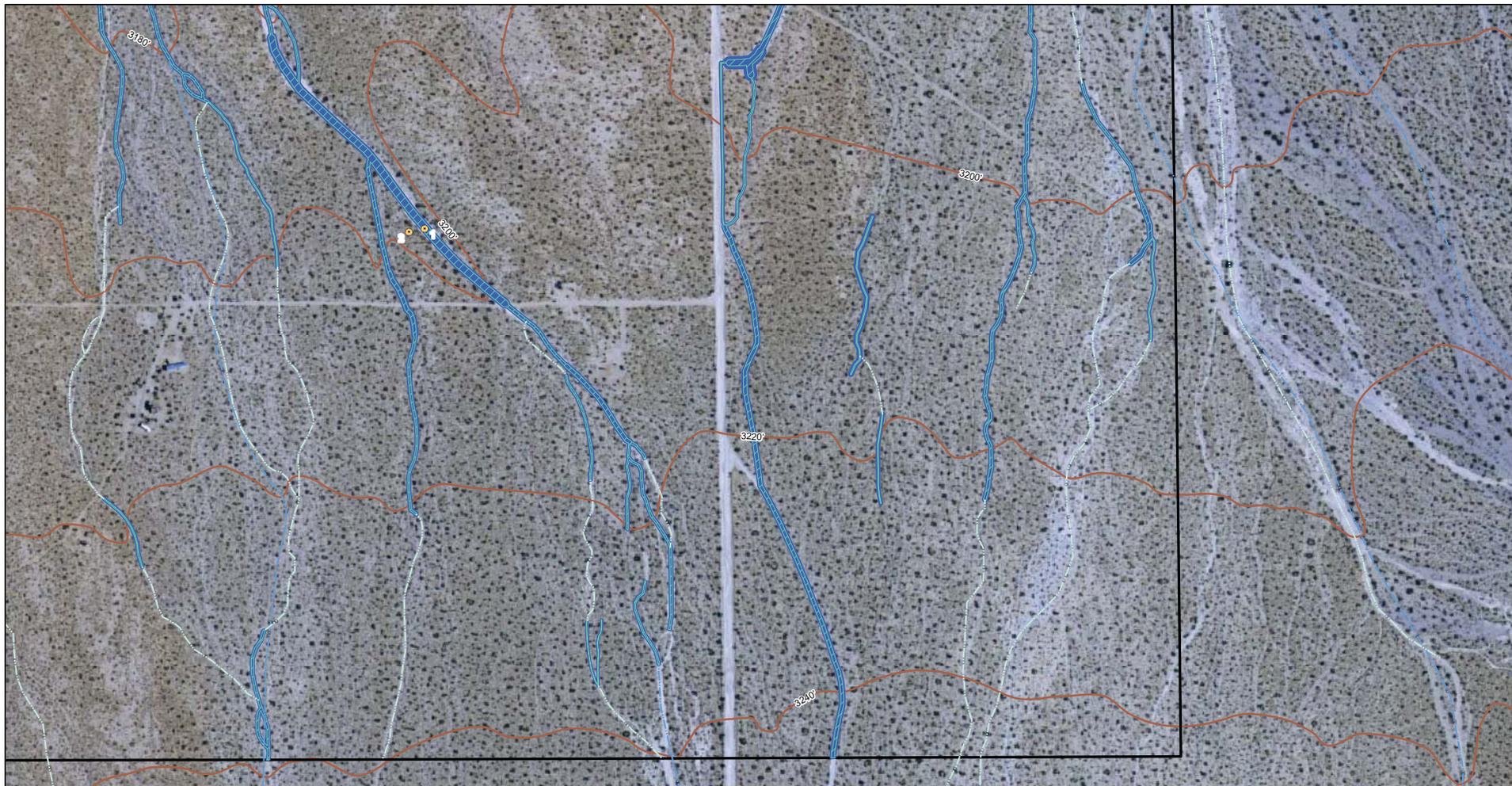


1:11,000



Chevron Solar Project  
 Jurisdictional Delineation  
 Map 1 of 6  
 Figure 6



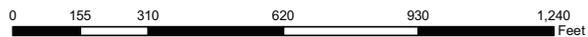


Legend

- Project Boundary
- USACE/RWQCB OHWM
- CDFG Bank to Bank
- Soil Test Pit
- Hydrologic Connectivity
- Intermittent Stream
- Topographic Contour



1:3,400



Chevron Solar Project  
Jurisdictional Delineation  
Map 6 of 6  
Figure 6



Drainages 1 and 2 (Group 1) are located just east of Donaldson Road and southwest of Santa Fe Fire Road near the west side of the Project site. This drainage system flows through the western area of the Project site and does not intersect with Group 2 (Drainages 3 and 4) or Group 3 (Drainages 5, 6, and 7). This drainage system is located in a sandy wash and is the smallest of the drainage systems found on the Project site. Upland vegetation is sparsely scattered within this drainage system. Evidence of hydrology (non-riverine water marks and non-riverine sediment deposits) was present; however neither hydrophytic vegetation nor hydric soils were found to be present within this drainage system. Thus, this drainage system did not exhibit three-parameter wetlands.

### **Group 1**

Group 1 drainage systems begin in the San Bernardino Mountains located south and southeast of the Project site. After an intense rain event, surface flow from the adjacent mountain range flows in a northerly and northwest direction through the Project site and flows subsurface just south of Foothill Road. Erosional features from this drainage system continue approximately 1.5 miles from Foothill Road northwest to Old Woman Springs Road through open desert and scattered residences. At this point flow veers in a slightly northwest direction and continues approximately 10 miles through open desert areas and subsurface through scattered residences. Group 1 ultimately concludes at the dry Lucerne Lake, approximately 12 miles northwest of the Project site. The drainage widths vary along its path, and at times the OHWM disappears through sandy substrate then reappears downstream to the north. Drainage 1 has an average bank to bank of 9.14 feet with an OHWM of 7.88 feet and a total length of 5,578.74 feet. Drainage 2 has an average bank to bank of 7.34 feet with an OHWM of 5.82 feet and a total length of 8,179.93 feet. Representative site photographs were taken to document site conditions during the survey (Appendix G). Due to the monotypic vegetation, lack of identifiable field markers, and a series of definable OHWM hidden by sandy soils, aerial photographs, USGS topographic maps, Google Earth images, NWI maps, GPS locations, and field observations were used to help assist in determining drainage characteristics and hydrologic connectivity.

### **Group 2**

Drainages 3 and 4 (Group 2) are located east of Donaldson Road and west of Santa Fe Fire Road. This drainage system spans the center of the Project site from the south and southwest to north boundary of the Project site and does not intersect with Group 1 (Drainages 1 and 2) or Group 3 (Drainages 5, 6, and 7) within the Project site. These drainages are located just east of Group 1 and exhibit more defined OHWM and bank formations. Vegetation is sparsely scattered within the drainage system of washes, and evidence of hydrology (surface soil cracks, non-riverine water marks, and non-riverine sediment deposits) was present; however neither hydrophytic vegetation nor hydric soils were found to be present within this drainage system. Thus, this drainage system did not exhibit three-parameter wetland characteristics.

Group 2 drainages also begin in the San Bernardino Mountains located south and southeast of the Project site. After a severe rain event, flow from the adjacent mountain range flows north and northwest through the Project site, through this drainage system to Foothill Road. Flow from these drainages converges into one flow approximately one-half mile from the north boundary of the Project site at Foothill Road. From Foothill Road this drainage system continues to flow northwesterly to Old Woman Springs Road and crosses into the open desert landscape. From this location, subsurface flows

continue approximately a half mile, where the flow connects to an unnamed drainage system north of the Project site (approximately 0.8 mile). At this point flow veers slightly northwest and continues approximately 10 miles through open desert areas and heads subsurface through scattered residences. Group 2 drainages ultimately conclude at the dry Lucerne Lake, approximately 12 miles northwest of the Project site. Drainage 3 has an average bank to bank of 9.02 feet with an OHWM of 7.08 feet and a total length of 7,978.99 feet. Drainage 4 has an average bank to bank of 11.13 feet with an OHWM of 8.95 feet and a total length of 7,049.88 feet. Representative site photographs were taken to document site conditions during the survey (Appendix G). Due to the monotypic vegetation, lack of identifiable field markers, and a series of definable OHWM hidden by sandy soils, aerial photographs, USGS topographic maps, Google Earth images, NWI maps, GPS locations, and field observations were used to assist in determining drainage characteristics and hydrologic connectivity.

### Group 3

Drainages 5, 6, and 7 (Group 3) span the eastern area of the Project site, meandering in and out of the eastern boundary (Figure 9). These drainages are composed of sandy washes and were the widest and most extensive series of desert washes found within the site. Vegetation is also very sparse within this drainage system. Evidence of hydrology (non-riverine water marks and non-riverine sediment deposits) was present; however neither hydrophytic vegetation nor hydric soil were found to be present within this drainage system within the Project boundaries. Thus, this drainage system did not exhibit any wetlands or riparian scrub habitats. It should be noted that a dead sand bar willow (*Salix exigua*) was observed within Drainage 6 east of the Project site. This native tree is commonly found in desert riparian scrub communities, especially in sandy soils that receive a fairly constant source of water.

Group 3 (Drainages 5, 6, and 7) drainage systems also begin in the San Bernardino Mountains located southeast of the Project site. After a heavy constant rain event, flow from the adjacent mountain range flows north and northwest through the Project site to Foothill Road. Flow from this drainage system continues off the Project site in a northerly direction, crossing Foothill Road through open desert approximately one mile, then veers slightly northwest and continues approximately ten miles through open desert areas and subsurface through scattered residences. Group 3 drainage systems ultimately conclude at the dry Lucerne Lake, approximately 12 miles northwest of the Project site. Drainage 5 has an average bank to bank of 13.89 feet with an OHWM of 11.25 feet and a total length of 9,618.12 feet. Drainage 6 has an average bank to bank of 16.97 feet with an OHWM of 14.36 feet and a total length of 7,723.84 feet. Drainage 7 has average bank to bank of 35.84 feet with an OHWM of 30.80 feet and a total length of 2,290.98 feet. Representative site photographs were taken to document site conditions during the survey (Appendix G). Due to the monotypic vegetation, lack of identifiable field markers, and a series of definable OHWM hidden by sandy soils, aerial photographs, USGS topographic maps, Google Earth images, NWI maps, GPS locations, and field observations were used to help assist in determining drainage characteristics and hydrologic connectivity.

### 3.4.3 Wetlands

No jurisdictional wetlands were found to be present within any of the drainage systems on the Project site. Jurisdictional Wetlands are defined by three parameters:

- More than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the 1988 National List of Plant Species that Occur in Wetlands [Reed 1988]). These plants are known as “hydrophytic vegetation.”
- Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions). Such soils, known as “hydric soils,” have characteristics that indicate they are developed in conditions where soil oxygen is limited by the presence of saturated soil for long periods during the growing season.
- Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5 percent of the growing season during a normal rainfall year. For most of low-lying Southern California, 5 percent of the growing season is equivalent to 18 days.

During the delineation survey, wetland hydrology indicators (non-riverine water marks, non-riverine sediment deposits, and surface soil cracks) were present in three (Soil pits 1, 3, and 5) of the six soil pits on the Project site. However, no hydrophytic vegetation such as riparian scrub vegetation or hydric soils were present within the area where the soil pit data was recorded or within any of the erosional features found on the Project site. The lack of three wetland parameters (hydric soil and hydrophytic vegetation and wetland hydrology) indicates that no jurisdictional wetlands are present within the Project site. Therefore, no additional mitigation for wetlands is required for this Project.

#### 3.4.4 USACE Jurisdiction

The drainage systems (Subject Drainages) flow in a northerly direction through the Project site from the San Bernardino Mountains to the south and ultimately connect and terminate at Lucerne Lake, a large dry lake used primarily for recreation by off-road enthusiasts and rocketry clubs. The lake does not support interstate commerce through fishing, boating, agricultural, or other uses.

The USACE asserts jurisdiction over TNW, wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are relatively RPW where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and wetlands that directly abut such tributaries. TNWs and RPWs are not associated with this Project.

A significant nexus was not determined to exist for all Subject Drainages on the Project site based on the following facts:

- All Subject Drainages within the site are ephemeral and intermittent non-RPWs and exhibit surface flow only directly following a heavy and constant rain event. Although the Subject Drainages are hydrologically connected in approximately 12 miles to the dry Lucerne Lake (an isolated water body), Lucerne Lake is dry throughout the year and should not be considered a TNW; and
- Although the Subject Drainages and erosional features (hydrologic connectivity) have the capacity to carry pollutants, nutrients, and organic carbon downstream to the dry Lucerne Lake, this terminal area for the Subject Drainages is an isolated water body and should not be considered a TNW.

Therefore, no USACE jurisdiction was identified on the Project site. If, after consultation with USACE, Lucerne Lake is considered a TNW, USACE jurisdiction would include up to 48,420.49-linear feet (9.97 acres). However, based on the data from the delineation and the information at the time, no USACE jurisdictional waters exist within the Project site.

### **3.4.5 RWQCB Jurisdiction**

The limits of RWQCB jurisdiction were defined by the OHWM within the Subject Drainages identified on the Project site. These drainages have the capacity to affect surface and subsurface water quality within California; and as a result of broad authority granted by the Porter-Cologne Act, the RWQCB has jurisdiction over the Subject Drainages.

Within the Subject Drainages identified onsite, drainage features such as a definable OHWM and bank to bank features were not always visibly discernable. Surface hydrology at times appears to braid, meander, and subside within the sandy soils without a definable OHWM. These erosional areas on the Project site appear outside of washes in areas where subsurface hydrologic connectivity or slight erosion features occur along the drainage. Calculations of bank to bank or OHWM widths were not possible in these areas and were therefore not included in the delineations of RWQCB jurisdictional waters. In addition, within the washes themselves, the last rain major event produced many small braided OHWM within each wash. To determine the widths of the OHWM within the drainages, the widest area possible was recorded. However, it should be noted that many of the desert washes found on the site exhibit OHV use which widens the drainages beyond what would have been created naturally by rain events. Additionally, there are two hydrologic connectivity features that are present within the southwest corner and near the western boundary of the site. These erosion areas do not exhibit well-defined bank to bank or ordinary high water marks, and therefore were not used in calculating RWQCB jurisdictional waters.

Total RWQCB jurisdiction would include up to 48,420.49-linear feet (9.97 acres). The Design Plan for this project has not been approved at this time. Permanent impacts and temporary impacts cannot be determined with accuracy. Therefore, the acreages listed above for RWQCB jurisdiction are based on a worst-case scenario in which all of the drainages on the entire project site will be impacted. After a Plan of Design has been approved and accepted, the actual impacts, both temporary and permanent will be re-calculated and this report will be revised appropriately.

### **3.4.6 CDFG Jurisdiction**

The limits of CDFG jurisdiction are normally larger than the other regulatory agencies because CDFG jurisdiction extends laterally from bank to bank of the stream rather than from the OHWM. Though the Subject Drainages were considered to be of poor or low quality to wildlife, primarily due to OHV usage and pedestrian traffic observed within the drainages at the time of the delineation, no aquatic wildlife or aquatic plant species were observed. The Subject Drainages within the Project site do exhibit defined bank to bank characteristics including 1 to 3-foot shelves on average, and exhibit drainage features including OHWM. Therefore, CDFG jurisdiction applies to the bed and bank formations of the seven Subject Drainages identified onsite.

Total CDFG jurisdiction includes up to 48,420.49-linear feet (12.32 acres). Permanent impacts and temporary impacts cannot be determined with accuracy. Therefore, the acreages listed above for CDFG

jurisdiction are based on a worst-case scenario in which all of the drainages on the entire project site will be impacted. After a Plan of Design has been approved and accepted, the actual impacts, both temporary and permanent will be re-calculated and this report will be revised appropriately.

Table 11 contains jurisdictional acreage breakdowns for the USACE, RWQCB, and the CDFG.

**Table 11 Jurisdictional Acreage Matrix**

Agency	Wetland	Non-Wetland	Total Jurisdiction	Impacts to Wetland	Impacts to Non-Wetlands	Total Permanent Impacts
USACE	0.00	0.00	0.00	0.00	0.00	0.00
RWQCB	0.00	9.97	9.97	0.00	9.97	9.97
CDFG	0.00	12.32	12.32	0.00	12.32	12.32

- Total USACE jurisdictional acreage is equal to zero. The USACE asserts jurisdiction over TNW, wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are relatively permanent (RPW) where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and wetlands that directly abut such tributaries. TNWs and RPWs do not exist for this Project. Impacts to USACE jurisdictional waters will not result from Project activities.
- Total RWQCB jurisdictional acreage, as defined by the OHWMs, amounts to 9.97 acres (48,420.49 linear feet). Impacts to RWQCB jurisdictional waters will result from Project activities.
- Total CDFG acreage, as defined by the bank to bank measurements, amounts to 12.84 acres (48,420.49 linear feet). Impacts to CDFG jurisdictional water will result from Project activities.

## SECTION 4.0 – CONCLUSIONS AND RECOMMENDATIONS

### 4.1. SPECIAL STATUS PLANT SPECIES

Because all special status plant species could not be confirmed absent from the Project site, Chambers Group recommends that a secondary protocol-level focused plant survey be conducted during March or April of 2010 (dependent upon rainfall) for the white pygmy-poppy and the Little San Bernardino Mountains linanthus.

### 4.2. SUCCULENT SPECIES INVENTORY

Coordination with BLM will be required to determine the extent to which succulent species identified within the Project boundary (Table 4) will require mitigation or translocation. A survey will be necessary to document the condition and map the location of each of these succulent species onsite. Each individual succulent to be salvaged will be assigned an ID number and will be permanently tagged. GPS coordinates will be taken at all removal locations and recorded for an accurate inventory. Typically, only Joshua trees between 2 and 10 feet in height are suitable for relocation. Upon completion of the succulent species inventory, a translocation plan will be prepared for the Project site.

### 4.3. MINIMIZATION OF NON-NATIVE INVASIVE WEED SPREAD

To prevent contamination of weed species into new habitats, Chambers Group recommends that all vehicles and heavy equipment used onsite be cleaned to remove any seeds that may have attached to construction vehicles. The vehicles must be washed with water or blown down using compressed air prior to entering the construction site. The wash/blow down will concentrate on tracks, feet, or tires and on the undercarriage, with special emphasis on axles, frame, cross members, motor mounts, and on underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out, and the refuse will be disposed of in waste receptacles. The Contractor, with oversight from a biologist, will ensure that vehicles and equipment are free of soil and debris capable of transporting non-native invasive weed seeds, roots, or rhizomes before the vehicles and equipment are allowed use of access roads. Seeds and plant parts will be collected, bagged, and deposited in dumpsters destined for local landfills, when practical.

### 4.4. SPECIAL STATUS WILDLIFE

Two special status wildlife species (i.e., desert tortoise and burrowing owl) were either present on the Project site during surveys conducted by Chambers Group biologists in March and April 2009, or have a moderate to high potential to occur on the Project site due to habitat onsite and/or historic occurrences. Although the Mohave ground squirrel has a low potential to occur on the project site, coordination with CDFG is recommended for trapping efforts to confirm presence/absence and/or mitigation for this species.

#### 4.4.1 Desert Tortoise

Desert tortoise sign was found throughout the site and the surrounding areas. A majority of the sign was observed in the southern portion of the site and particularly in the southeast corner. More sign and tortoises are present just outside the Project boundaries, especially on the southern end due to the hill

slopes on the south side of the San Bernardino Mountains and the washes they create. Tortoises were identified on site during the surveys and may require relocation off-site in an USFWS and BLM approved area, within 1,000 feet of the project site, within its home range. A plan to identify the relocation area, season and timing of movement of the tortoise, and monitoring may be required. The six other tortoises identified off site within the buffer or ZOI survey area during the desert tortoise surveys could be monitored and avoided during project construction. Coordination with USFWS, BLM, and CDFG is recommended regarding this species.

The proposed Project will effect but not likely to adversely affect the desert tortoise. The conservation and monitoring measures outlined in this report and in the USFWS Biological Opinion shall reduce the direct and indirect impacts to the desert tortoise and its habitat. Chambers Group proposes that authorized monitors be present onsite throughout all of CES' construction activities, and these monitors shall be responsible for the safety of all wildlife species encountered in the Project areas.

#### **4.4.2 Burrowing Owl**

Burrowing owl sign was detected during the protocol level focused surveys. Based on a subsequent survey conducted in June, no new sign or burrowing owls were observed. Due to the presence of habitat, and the proximity of occurrences in the immediate area, CDFG may require additional surveys prior to construction activities. Coordination with CDFG regarding this species is recommended.

### **4.5. MITIGATION AND MONITORING**

#### **4.5.1 Desert Tortoise**

Due to the presence of desert tortoises on the site and within close proximity of the site, mitigation and monitoring shall be required. CES would need to implement standard desert tortoise avoidance procedures during construction to minimize direct and indirect impacts. Also, consultation under ESA and CESA would be required. The following discussion outlines typical desert tortoise avoidance and minimization measures; however these measures may be modified during the consultation process.

- All construction personnel shall attend an agency approved Personnel Environmental Awareness Program for desert tortoise.
  
- Authorized Biologists (USFWS and BLM approved) would conduct preconstruction clearance surveys for desert tortoises within 48 hours of the start of ground disturbing construction activity. At a minimum, the clearance surveys would cover the entire project ROW and the area out to a 100-foot zone of influence (ZOI) around the BLM ROW project boundary, including all areas that might be subject to disturbance such as parking areas and lay down areas. Burrows that are found would be checked for desert tortoises; when desert tortoises are found, the burrows would be flagged so that equipment operators and drivers could clearly see the flagging and avoid the burrows. Unoccupied burrows would be flagged also, but in a manner that contrasts with occupied burrows. Prior to construction of the installation of exclusionary fencing, an Authorized Biologist would recheck the burrows and remove any desert tortoises that may be endangered by the construction activity following USFWS protocol. Construction within the ROW would not commence until the installation of the exclusionary fencing was complete, and all tortoises were relocated off site.

- A desert tortoise exclusion fence shall be established around the entire Project site following standard specifications. This fence shall be inspected at least monthly and maintained over the life of the Project. Special habitat features, such as burrows, identified by the authorized biologist shall be avoided. Staging areas shall be prohibited in sensitive biological areas such as within 100 feet of drainages, or known burrow locations. Staging areas shall be reviewed and approved by the Project biologist. If necessary, changes in location shall be incorporated into the construction contract. Within the authorized surface use areas, disturbances, such as temporary staging areas or parking areas for equipment, shall be confined to the smallest practical location, considering topography, placement of facilities, locations of burrows, public health, and safety. Such areas shall be marked to minimize surface disturbance associated with vehicle straying.
- All construction areas would be inspected for desert tortoises at least three times daily (start of shift, mid-day, and end of shift) until fence installation and relocation of any tortoises on site has been completed. Any hole or trench would be inspected for desert tortoises prior to its being closed. Trenches left open overnight or over a weekend would be covered with metal plates to prevent desert tortoises from entering.
- A construction monitoring team of at least one Authorized Biologist and one desert tortoise monitor would be assigned to each fence installation area. Since fence installation may have more than one construction crew working simultaneously, a desert tortoise monitor would be present with each construction crew to ensure compliance with desert tortoise protection measures. The assigned desert tortoise monitor would sweep in front of the each construction crew's equipment during its operation, and would have the authority to halt project activity as needed should danger to a desert tortoise arise. Project activity would be allowed to continue to proceed only after hazard to the desert tortoise has been removed, the desert tortoise is no longer at risk, or the desert tortoise has been moved from harm's way by the segment Authorized Biologist.
- If a Desert Tortoise Requires Relocation Offsite, the following procedure would be used: The Authorized Biologist would only handle each desert tortoise when necessary. New latex gloves would be used when handling each desert tortoise to avoid transfers of infectious diseases between animals. Desert tortoises would be moved the minimum distance possible within appropriate BLM and USFWS approved habitat offsite on public lands within its home range to ensure their safety; no adult desert tortoises would be moved in excess of 1,000 feet, or a juvenile or hatchling more than 300 feet. The Authorized Biologist would follow the protocols outlined in Desert Tortoise Council (1999). Desert tortoises found above ground that must be moved would be moved in the direction in which it was moving, and placed under the shade of a shrub.
- All desert tortoise burrows/pellets within the proposed Project areas and zone of influence (as defined in USFWS survey protocol) shall be marked so that the equipment operators can identify and avoid such shelter sites. Flagging of these locations shall be performed prior to initiation of the proposed Project.

- Heavy equipment operators shall be accompanied by a qualified biologist when working in desert tortoise habitat during construction activities. The biological monitor shall walk in front of the equipment during its operation and has the responsibility and authority to halt all Project activity should danger to a desert tortoise arise. Work shall proceed only after hazards to the desert tortoise are removed, the desert tortoise is no longer at risk, or the desert tortoise has been moved from harm's way by an authorized biologist. A desert tortoise could be found above ground during both their active and inactive seasons; therefore, a construction monitor shall be present to ensure compliance with construction best management practices (BMPs) and shall be present in the event a tortoise is found within the Project area.
- Vehicle speeds would not exceed 20 miles per hour during construction activities. The **speed limit** would be maintained within the project ROW and on unpaved access roads while driving in desert tortoise habitat.
- All leaks, spills, or releases of fuel or other hazardous materials off Project ROW would be reported immediately to BLM. All such material that leaks, spills, or is otherwise released into habitat of the desert tortoise along existing access roads or within the project ROW would be removed immediately. The Authorized Biologist would ensure that all appropriate measures, including those proposed by CES and the BO terms and conditions, are implemented during the removal of the hazardous materials.
- Water leaks will be prevented from pooling within the project area and access roads. Water tanks and/or water trucks will be inspected regularly for leaks and documented on a regular basis. If leaks are identified, corrective actions would be conducted immediately within the exclusionary fence.
- Pets and firearms shall be prohibited.
- **Trash and food items** would be disposed of promptly in predator-proof containers with re-sealable lids. Trash containers would be removed at the end of each work day.
- Off-road travel and temporary storage areas outside of the staging areas or construction zones shall be prohibited.
- BMPs shall be incorporated to prevent the soil from becoming airborne or being washed away as sediment.
- Fueling of equipment shall not occur adjacent to or in drainages.
- Stockpile areas shall be reviewed and approved by the Project biologist. If necessary, changes in location shall be incorporated into the construction contract.
- Any trenches temporarily created shall be sloped at the end of each workday to allow wildlife to escape. All trenches shall be inspected for desert tortoise occupancy before work begins the following day.

- The names of proposed authorized and qualified biologists shall be submitted by CES's environmental consultant (Chambers Group) to the BLM at least 30 days prior to the onset of construction activities. No activities shall begin until an authorized biologist is approved under the auspices of the Section 7 consultation. Project biologists, as authorized by both the USFWS and BLM, shall oversee all aspects of construction monitoring that pertain to biological resources protection and shall ensure compliance with avoidance and minimization measures. Typically, BLM requires the project proponent establish tortoise-proof enclosures for all work areas, and ultimately the Project shall need to be fenced with desert tortoise exclusion fencing for the life of the Project. The biologists shall monitor all construction activities, including the installation of desert tortoise exclusionary fencing. The biologists shall provide all maintenance personnel with an orientation and information pamphlet that discusses the biology of desert tortoise, potential hazards to tortoises from construction activities, how each construction worker can help to prevent direct and indirect harm to tortoises, the legal status of the tortoise, local adoption as alternative to poaching, and how to handle an injured tortoise.
- Encounters with desert tortoise shall be reported to an authorized or qualified biologist.
- Desert tortoises shall be handled only by the authorized biologists when necessary and in accordance with the "Guidelines for Handling Desert Tortoises During Construction Projects" (Desert Tortoise Council 1994, revised 1999). Workers shall inspect for desert tortoises resting in the shade under vehicles and equipment prior to moving. If a desert tortoise is present, the worker(s) shall allow the tortoise to move on its own accord, or notify the Authorized biologists to move the tortoise only when necessary. If this is not possible, the worker(s) shall wait for the desert tortoise to move out from under the vehicle before moving the vehicle, or the authorized biologist shall carefully move the desert tortoise using the previously mentioned protocol methods.
- The authorized biologist shall remove any desert tortoise that is threatened by Project activities to a nearby location in accordance with protocol (Desert Tortoise Council 1994, revised 1999). The proponent shall submit a post-Project report identifying all activities affecting the desert tortoise to USFWS Ventura Office and to the BLM Barstow Field Office.
- A record shall be maintained of all desert tortoises handled by the biologists. This information shall include for each desert tortoise:
  - A. The location(s) (narrative and maps) and dates of observations;
  - B. General condition and health, including injuries and state of healing and whether animals voided their bladders;
  - C. Location moved to and from;
  - D. Diagnostic markings (identification numbers or marked lateral scutes); and
  - E. Photographs of each handled desert tortoise.
- Upon locating a dead or injured desert tortoise resulting from Project activities, the BLM shall notify the USFWS by telephone within three days of the finding. Written notification shall be

made within five days of the finding. The information provided shall include the date and time of the finding or incident (if known), location of the carcass or injured animal, a photograph, cause of death, if known, and any other pertinent information.

- Any injured desert tortoise discovered within the Project area shall be transported by the authorized biologist to the nearest qualified veterinarian for treatment. Costs incurred for treatment shall be paid for by CES. If the animal recovers, the Ventura office of the USFWS shall be contacted for final disposition of the animal.
  
- If a death should occur, the BLM shall place the remains of intact desert tortoise carcasses with educational or research institutions holding the appropriate State and Federal permits. If the remains are in poor condition, the information noted above shall be obtained and the carcass left in place. If left in place, the authorized biologist or monitor shall mark the carcass to ensure that it is not reported again.

Mitigation as defined in the BLM's West Mojave Plan for loss of tortoise habitat shall be assessed at a 1:1 ratio (\$770 per acre plus a 15 percent acquisition fee plus a 17.1 percent indirect cost fee). This project will likely require a relocation plan approved by the BLM, USFWS and CDFG. The plan would identify relocation and translocation areas, season and timing of movement of tortoises and monitoring. Coordination with USFWS is recommended.

#### **4.5.2 Burrowing Owl**

Burrowing owls were not present on the site during the initial surveys; however, burrowing owl sign (i.e., burrows, pellets and white wash) were observed onsite. Although no burrowing owls or new burrowing owl sign was identified during the reconnaissance level and protocol level focused surveys, due to the occurrences in the immediate area, coordination with CDFG regarding this species is recommended for additional surveys and/or mitigation.

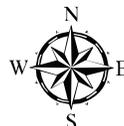
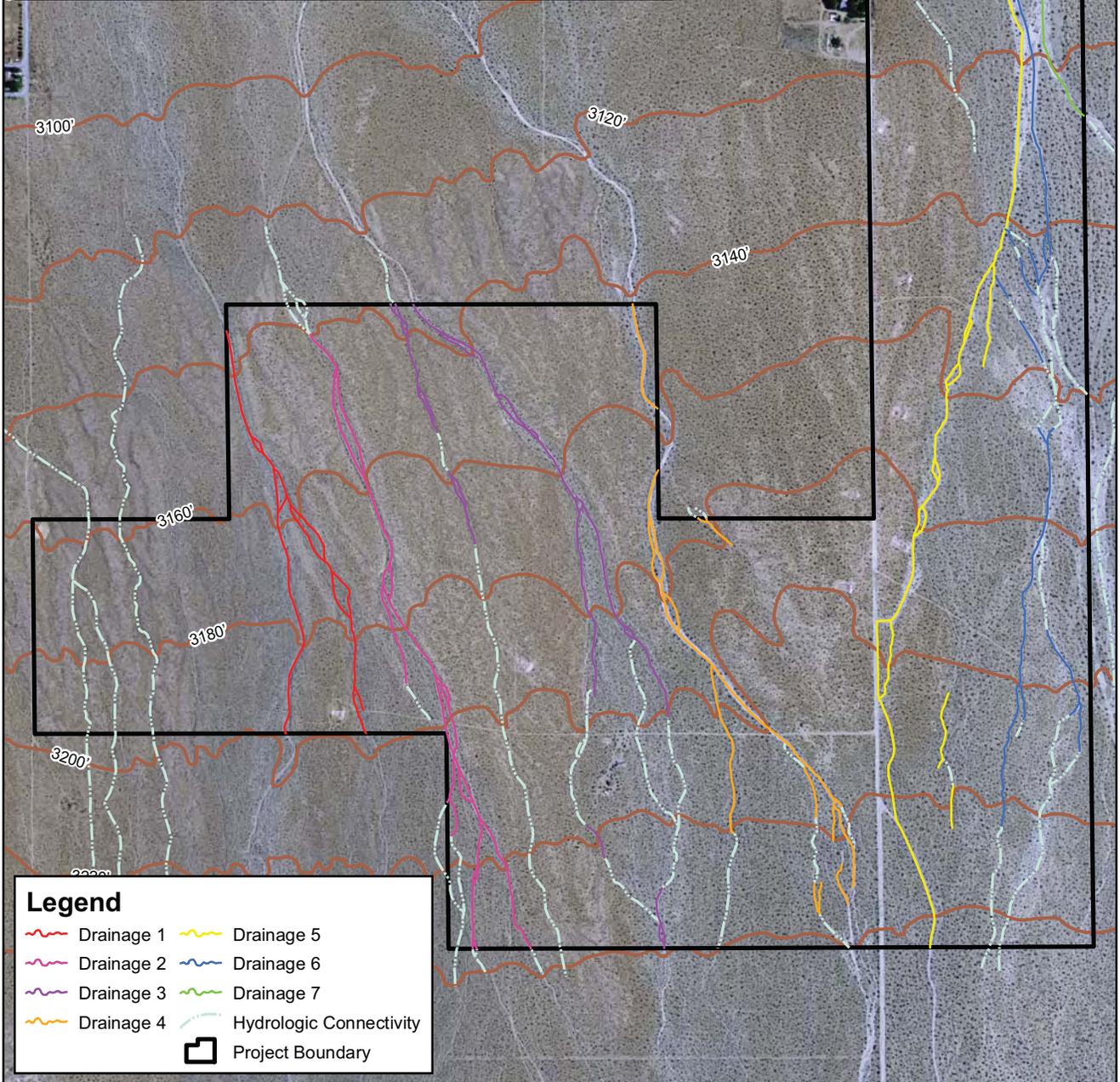
#### **4.6. WETLAND AND JURISDICTIONAL DELINEATION**

Based on the Formal Jurisdictional Delineation Surveys conducted in April 2009 by Chambers Group, the Chevron Solar Project (Project) site does not contain any wetlands or waters of the United States subject to the regulatory jurisdiction of the USACE pursuant to Section 404 of the Clean Water Act. Pursuant to the 2001 *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC) decision, isolated waters are not considered subject to the regulatory jurisdiction of the USACE. The Project site does not support riparian vegetation in the form of Disturbed Riparian Scrub habitat, and the area lacks the hydric soils parameters required for definition as USACE Wetlands. The drainages on site show the characteristics of an Ordinary High Water Mark (OHWM); however, the site does not contain TNWs or RPWs and would therefore not be considered USACE jurisdictional Waters of the United States. Although these features would not be subject to the regulatory jurisdiction of the USACE, they would likely be subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to recent directives of the Governor of California and additional State Water Quality Control Board (SWQCB) orders.

The limits of CDFG jurisdiction are normally larger than the other regulatory agencies because CDFG jurisdiction extends laterally from bank to bank of the stream rather than from the OHWM. Though the drainages were considered to be of poor or low quality to wildlife, primarily due to OHV usage and pedestrian traffic observed within the drainages at the time of the delineation, no aquatic wildlife or aquatic plant species were observed. The drainages within the project site do exhibit defined bank to bank characteristics including 1 to 3-foot shelves on average, and exhibit drainage features including OHWM. Therefore, the Project site would be subject to the jurisdiction of the CDFG pursuant to Section 1602 of the California Fish and Game Code.

Drainage systems on the Project site will be temporarily and permanently impacted by the proposed solar project. No Section 404 Permit will be required from the USACE per the Clean Water Act (CWA). A Section 401 certification and a Section 402 NPDES Permit with the associated Storm Water Pollution Prevention Plan will be required from the RWQCB per the CWA, as impacts to RWQCB jurisdictional waters will result from Project activities. In addition to the 401 and 402 permits, a Streambed Alteration Agreement (SAA) will be required from the CDFG per Fish and Game Code 1602. Mitigation is recommended in association with the Project, as bank to bank impacts will occur, and impacts to CDFG and RWQCB jurisdictional waters will result from Project activities.

Drainage #	Avg OHWM Width (ft)	Avg b2b Width (ft)	Length (ft)	OHWM (acres)	B2B (acres)
1	7.88	9.14	5578.74	0.99	1.15
2	5.82	7.34	8179.93	1.07	1.35
3	7.08	9.02	7978.99	1.27	1.62
4	8.95	11.13	7049.88	1.45	1.80
5	11.25	13.89	9618.12	1.90	2.48
6	14.36	16.97	7723.84	1.99	2.44
7	30.80	35.84	2290.98	1.28	1.48
<b>Total</b>	<b>10.35</b>	<b>12.56</b>	<b>48420.49</b>	<b>9.97</b>	<b>12.32</b>



Chevron Solar Project  
 Jurisdictional Delineation Drainages  
**Figure 7**

## SECTION 5.0 – REFERENCES

Abrams, L.

1923, 1944, 1951. *Illustrated Flora of the Pacific States*, Volumes I-III. Stanford University Press, Palo Alto, California.

Abrams, L., and R.S. Ferris

1960 *Illustrated Flora of the Pacific States*, Volume IV. Stanford University Press, Palo Alto, California.

Baldwin, B.G., S. Boyd, B.J. Ertter, R.W. Patterson, T.J. Rosatti, D.H. Wilken, and M. Wetherwax.

2002 *The Jepson Desert Manual; Vascular Plants of Southeastern California*. University of California Press, Berkeley, California.

Berry, K.H.

1997 *The Desert Tortoise Recovery Plan: An Ambitious Effort to Conserve Biodiversity in the Mojave and Colorado Deserts of the United States*. Conservation, Restoration, and Management of Tortoises and Turtles – An International Conference. New York, pp. 430-440.

Berry, K.H., D. J. Morafka and R.W. Murphy

2002 *Defining the Desert Tortoise(s): Our First Priority for a Coherent Conservation Strategy*. Chelonian Conservation and Biology. Chelonian Research Foundation. 4(2):249-262.

Bureau of Land Management (BLM)

2006 List of California-BLM Sensitive Plants. BLM Barstow Office.

California Burrowing Owl Consortium

1993 *Burrowing Owl Survey Protocol and Mitigation Guidelines*. April 1993.

California Department of Fish and Game (CDFG)

2009 California Natural Diversity Database (CNDDDB). RareFind Version 3.1.0. Database Query for the *Cougar Buttes, Fry Mountains, Grand View Mine, Lucerne Valley, Old Woman Springs, and White Horse Mountain*, California, USGS 7.5-minute quadrangles. Wildlife and Habitat Data Analysis Branch. Version Dated March 1, 2009.

2007 Personal Communication with Becky Jones Regarding Mohave Ground Squirrel Sited 2-Miles East of Hwy 247/18.

2002 Special Animals List. CNDDDB. Wildlife and Habitat Data Analysis Branch.

- 1995 *Staff Report on Burrowing Owl Mitigation*. September 1995. California's Wildlife, Volume II: Birds. California Statewide Wildlife Habitat Relationships System, Sacramento, California.
- 1990 Mohave Ground Squirrel (*Spermophilus mohavensis*) by W. Johnson, Interagency Wildlife Task Group, California Wildlife Habitat Relationships System.

#### California Invasive Plant Council

- 2006 *California Invasive Plant Inventory*. Accessed March 18, 2009 at <http://www.cal-ipc.org/ip/inventory/index.php#inventory>. California Invasive Plant Council, Berkeley, California.

#### California Native Plant Link Exchange (CNPLX)

- 2009 Local Native Plants, Local Sources. Accessed March 19, 2009 from <http://www.cnplx.info/index.html>. Version 2.43 dated January 29, 2009.

#### California Native Plant Society

- 2001 Botanical Survey Guidelines of the California Native Plant Society. *Fremontia* 29(3-4):64-65.
- 2009 Inventory of Rare and Endangered Plants (online edition, v7-09a). Rare Plant Scientific Advisory Committee, California Native Plant Society, Sacramento, California. Accessed on March 18, 2009 from <http://www.cnps.org/inventory> for *Cougar Buttes, Fry Mountains, Grand View Mine, Lucerne Valley, Old Woman Springs, and White Horse Mountain*, California, USGS 7.5-minute quadrangles.

#### Chambers Group, Inc.

- 2009 *Results of Presence/Absence and Phase II Burrow Survey for Desert Tortoise and Burrowing Owl, May 2009*. Chambers Group, Inc., Irvine, California. Prepared for Bureau of Land Management, Barstow Field Office.
- 2009 *Results of Formal Jurisdictional Delineation, May 2009*. Chambers Group, Inc., Irvine, California. Prepared for Bureau of Land Management, Barstow Field Office.
- 2009 *Results of the Avian Point Count Surveys, May 2009*. Chambers Group, Inc., Irvine, California. Prepared for Bureau of Land Management, Barstow Field Office.

#### Desert Tortoise Council

- 1994 Guidelines for Handling Desert Tortoise During Construction Projects. Edward L. LaRue, Jr., editor. Wrightwood, California. (Revised 1999).

Ehrlich, P., D. Dobkin, and D. Wheye

- 1988 *The Birder's Handbook: A Field Guide to the Natural History of North American Birds.* Simon & Schuster, Inc., New York, New York.

Ernst, C.H., Lovich, J.E. and Barbour, R.W.

- 1994 *Turtles of the United States and Canada.* Smithsonian Institution.

Grinnel, J.

- 1933 *Review of the recent mammal fauna of California.* University of California Publications in Zoology. 40:71-234.

Holland, R.F.

- 1986 *Preliminary Descriptions of the Terrestrial Natural Communities of California.* Unpublished report available from the CDFG, Sacramento, California.

Ingram, S.

- 2008 *Cacti, Agaves, and Yuccas of California and Nevada.* Cachuma Press, Los Olivos, California.

Jameson, E.W. Jr. and H.J. Peters

- 1988 *California Mammals.* University of California Press. Berkeley, California.

Klute, D.S., L.W. Ayers, M.T. Green, W.H. Howe, S.L. Jones, J.A. Shaffer, S.R. Sheffield, and T.S. Zimmerman

- 2003 *Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States.* U.S. Department of Interior, Fish and Wildlife Service, Biological Technical Publication FWS/BTP-R6001-2003, Washington, D.C.

Knecht, A.A.

- 1971 *Soil survey of western Riverside area, California.* United States Department of Agriculture Soil Conservation Service, United States Department of Interior Bureau of Indian Affairs, and University of California Agricultural Experiment Station, Washington, D.C.

Laabs, D.

- 2003 *Mohave Ground Squirrel (*Spermophilus mohavensis*),* Biosearch Wildlife Surveys, PO Box 8043, Santa Cruz, CA 95061.

MacKay, P.

- 2003 *Mojave Desert Wildflowers: A Field Guide to Wildflowers, Trees, and Shrubs of the Mojave Desert, Including the Mojave National Preserve, Death Valley National Park, and Joshua Tree National Park.* Falcon Press Publishing, Guilford, Connecticut.

Miller, A.H. and R.C. Stebbins

- 1964 *The lives of desert animals in Joshua Tree National Monument.* University of California Press, Berkeley, California.

Munz, P.A.

- 1974 *A Flora of Southern California.* University of California Press, Berkeley, California.

Ogle, D., J. Englert, and J. Gibbs

- 2001 *Glossary of Terms for Use in Plant Materials.* Technical Notes, Plant Materials, No. 28. USDA-NRCS, Boise, Idaho. Available at <http://plant-materials.nrcs.usda.gov/pubs/idpmctn280101.pdf>. Accessed May 2009.

Reed, P.B., Jr.

- 1988 *National List of Plant Species That Occur in Wetlands: Intermountain (Region 8).* U.S. Fish and Wildlife Service Biological Report 88 (26.8).

Sawyer, J. O., Jr., and T. Keeler-Wolf

- 1995 *A Manual of California Vegetation.* California Native Plant Society, Sacramento, California.

Sheppard, J.M.

- 1996 *Le Conte's Thrasher (Toxostoma lecontei), The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/230>.

Shuford, W.D. and T. Gardali.

- 2006 *California Bird Species of Special Concern.* Studies of Western Birds, No. 1. CDFG, Sacramento, California; and Western Field Ornithologists, Camarillo, California.

Steenhof, K.

- 1998 *Prairie Falcon (Falco mexicanus).* In *The Birds of North America*, No. 346 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, Pennsylvania.

Transportation and Land Management Agency (TLMA)

- 2006 Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area. Riverside, California.

Trulio, L.A.

- 1997 Strategies for Protecting Western Burrowing Owls (*Athene cunicularia hypugaea*) from Human Activities. In: Duncan, James R.; Johnson, David H.; Nicholls, Thomas H., eds. Biology and conservation of owls of the Northern Hemisphere: 2<sup>nd</sup> International symposium. Gen. Tech. Rep. NC-190. St. Paul, MN: U.S. Dept. of Agriculture, Forest Service, North Central Forest Experiment Station. 461-465.

U.S. Army Corps of Engineers (USACE)

- 1987 *USACE Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.
- 2006 *Arid West Supplement*. <http://www.nwk.usace.army.mil/regulatory/gp/LOJD.pdf>
- 2007 *Jurisdictional Determination Form Instructional Guidebook*. <http://www.nwk.usace.army.mil/regulatory/gp/LOJD.pdf>

U.S. Department of Agriculture (USDA)

- 2009 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions [Online WWW]. Available URL: "http://soils.usda.gov/technical/classification/osd/index.html" [Accessed March 2009].

U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)

- 1979 Web Soil Survey accessed on February 18, 2009.

United States Fish and Wildlife Service (USFWS)

- 1992 *Field Survey Protocol for any Federal Action that may Occur within the Range of the Desert Tortoise*. United States Fish and Wildlife Service.

U.S. Geological Service (USGS)

- 7.5 minute topographic quadrangle map for Cougar Buttes, California.

The Weather Channel Interactive, Inc.

- 2009 *Monthly Averages for Lucerne Valley, California*. Accessed June 29, 2009 from <http://www.weather.com/>.

#### Weather Underground

- 2009 *Daily Precipitation for APRSWXNET Station, Lucerne Valley CA US, Lucerne Valley, California.* Accessed June 29, 2009 from <http://www.wunderground.com/>.

#### Weigand, J. and S. Fitton.

- 2008 Le Conte's Thrasher (*Toxostoma lecontei*). In *The Draft Desert Bird Conservation Plan: a strategy for reversing the decline of desert-associated birds in California.* California Partners in Flight. <http://www.prbo.org/calpif/htmldocs/desert.html>



## APPENDIX A – PLANT SPECIES OBSERVED ONSITE

**Appendix A**  
**Plant Species Observed During the Habitat Assessment**  
**on the Chevron Solar Project (Lucerne Valley) Site**

Scientific Name	Common Name
<b>GYMNOSPERMS</b>	
<b>EPHEDRACEAE</b> <i>Ephedra nevadensis</i>	<b>EPHEDRA FAMILY</b> Nevada ephedra
<b>ANGIOSPERMS (DICOTYLEDONS)</b>	
<b>ASTERACEAE</b> <i>Ambrosia dumosa</i> <i>Chaenactis</i> sp. <i>Hymenoclea salsola</i> <i>Lepidospartum squamatum</i> <i>Machaeranthera</i> sp.	<b>SUNFLOWER FAMILY</b> burro bush pincushion burrobrush scale-broom tansyaster
<b>BORAGINACEAE</b> <i>Amsinckia tessellata</i> <i>Cryptantha pterocarya</i>	<b>BORAGE FAMILY</b> devil's lettuce wingnut cryptantha
<b>BRASSICACEAE</b> <i>Descurainia pinnata</i> ssp. <i>glabra</i> <i>Lepidium fremontii</i> var. <i>fremontii</i> <i>Sisymbrium irio</i> *	<b>MUSTARD FAMILY</b> blunt tansymustard desert peppergrass London rocket
<b>CACTACEAE</b> <i>Opuntia basilaris</i> var. <i>basilaris</i> <i>Opuntia echinocarpa</i> <i>Opuntia ramosissima</i>	<b>CACTUS FAMILY</b> beavertail cactus golden cholla pencil cholla
<b>CAPPARACEAE</b> <i>Isomeris arborea</i>	<b>CAPER FAMILY</b> bladderpod
<b>CHENOPODIACEAE</b> <i>Atriplex canescens</i> <i>Krascheninnikovia lanata</i>	<b>GOOSEFOOT FAMILY</b> four-wing saltbush winter fat
<b>FABACEAE</b> <i>Astragalus</i> sp.	<b>LEGUME FAMILY</b> astragalus
<b>GERANIACEAE</b> <i>Erodium cicutarium</i> *	<b>GERANIUM FAMILY</b> red-stemmed filaree
<b>HYDROPHYLLACEAE</b> <i>Phacelia</i> sp.	<b>WATERLEAF FAMILY</b> phacelia
<b>KRAMERIACEAE</b> <i>Krameria erecta</i>	<b>RHATANY FAMILY</b> littleleaf rhatany
<b>LOASACEAE</b> <i>Mentzelia obscura</i> <i>Petalonyx thurberi</i>	<b>LOASA FAMILY</b> Pacific blazingstar sandpaper plant
<b>MALVACEAE</b> <i>Sphaeralcea ambigua</i>	<b>MALLOW FAMILY</b> desert mallow
<b>NYCTAGINACEAE</b> <i>Mirabilis</i> sp.	<b>FOUR O'CLOCK FAMILY</b> wishbone bush
<b>ONAGRACEAE</b> <i>Camissonia</i> sp.	<b>EVENING PRIMROSE FAMILY</b> camissonia

**Appendix A (Continued)**  
**Plant Species Observed During the Habitat Assessment**  
**on the Chevron Solar Project (Lucerne Valley) Site**

Scientific Name	Common Name
<b>POLEMONIACEAE</b> <i>Eriastrum sapphirinum</i>	<b>PHLOX FAMILY</b> sapphire eriastrum
<b>POLYGONACEAE</b> <i>Eriogonum deflexum</i> <i>Eriogonum fasciculatum</i>	<b>BUCKWHEAT FAMILY</b> flat-topped buckwheat California buckwheat
<b>RANUNCULACEAE</b> <i>Delphinium</i> sp.	<b>BUTTERCUP FAMILY</b> larkspur
<b>ROSACEAE</b> <i>Coleogyne ramosissima</i>	<b>ROSE FAMILY</b> blackbush
<b>SCROPHULARIACEAE</b> <i>Castilleja</i> sp.	<b>FIGWORT FAMILY</b> Indian paintbrush
<b>SOLANACEAE</b> <i>Lycium</i> sp.	<b>NIGHTSHADE FAMILY</b> box-thorn
<b>ZYGOPHYLLACEAE</b> <i>Larrea tridentata</i>	<b>CALTROP FAMILY</b> creosote bush
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>	
<b>AGAVACEAE</b> <i>Yucca brevifolia</i>	<b>AGAVE FAMILY</b> Joshua tree
<b>POACEAE</b> <i>Pleuraphis rigida</i> <i>Schismus barbatus</i> *	<b>GRASS FAMILY</b> big galleta Mediterranean schismus
* Non-native species.	

**Appendix A**  
**Plant Species Observed During the Focused Plant Survey**  
**on the Chevron Solar Project (Lucerne Valley) Site**

Scientific Name	Common Name
<b>GYMNOSPERMS</b>	
<b>EPHEDRACEAE</b>	<b>EPHEDRA FAMILY</b>
<i>Ephedra nevadensis</i>	Nevada ephedra
<i>Ephedra viridis</i>	green ephedra
<b>ANGIOSPERMS (DICOTYLEDONS)</b>	
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>
<i>Acamptopappus sphaerocephalus</i>	rayless goldenhead
<i>Ambrosia dumosa</i>	burro bush
<i>Anisocoma acaulis</i>	scalebud
<i>Baileya pleniradiata</i>	wooly marigold
<i>Calycoseris parryi</i>	yellow tackstem
<i>Chaenactis fremontii</i>	desert pincushion
<i>Chaenactis macrantha</i>	bighead dustymaiden
<i>Chaenactis stevioides</i>	desert pincushion
<i>Chrysothamnus</i> sp.	rabbitbrush
<i>Encelia actoni</i>	Acton daisy
<i>Eriophyllum wallacei</i>	Wallace's woolly daisy
<i>Glyptopleura marginata</i>	crustleaf
<i>Gutierrezia microcephala</i>	sticky snakeweed
<i>Hymenoclea salsola</i>	burrobrush
<i>Lepidospartum squamatum</i>	scale-broom
<i>Machaeranthera</i> sp.	tansyaster
<i>Malacothrix glabrata</i>	desert dandelion
<i>Monoptilon</i> sp.	desert star
<i>Palafoxia arida</i> var. <i>arida</i>	Spanish needles
<i>Prenanthes</i> <i>exigua</i>	thorny skeleton plant
<i>Psathyrotes annua</i>	annual turtleback
<i>Rafinesquia neomexicana</i>	desert chicory
<i>Stephanomeria exigua</i> ssp. <i>exigua</i>	small wreathplant
<i>Stephanomeria parryi</i>	Parry rock pink
<i>Stephanomeria pauciflora</i> var. <i>pauciflora</i>	wire lettuce
<i>Xylorhiza tortifolia</i> var. <i>tortifolia</i>	Mojave aster
<b>BORAGINACEAE</b>	<b>BORAGE FAMILY</b>
<i>Amsinckia tessellata</i>	devil's lettuce
<i>Cryptantha circumscissa</i>	cushion catseye
<i>Cryptantha pterocarya</i> var. <i>pterocarya</i>	winged-nut forget-me-not
<i>Tiquilia plicata</i>	plicate tiquilia
<b>BRASSICACEAE</b>	<b>MUSTARD FAMILY</b>
<i>Brassica tournefortii</i>	wild turnip
<i>Descurainia pinnata</i> ssp. <i>glabra</i>	western tansymustard
<i>Dithyrea californica</i>	spectacle pod
<i>Lepidium densiflorum</i>	common pepperweed
<i>Lepidium fremontii</i>	desert peppergrass
<i>Sisymbrium irio</i> *	London rocket
<i>Stanleya pinnata</i> var. <i>pinnata</i>	prince's plume

**Appendix A (Continued)**  
**Plant Species Observed During the Focused Plant Survey**  
**on the Chevron Solar Project (Lucerne Valley) Site**

Scientific Name	Common Name
<b>CACTACEAE</b> <i>Echinocactus polycephalus</i> var. <i>polycephalus</i> <i>Opuntia basilaris</i> var. <i>basilaris</i> <i>Opuntia echinocarpa</i> <i>Opuntia ramosissima</i>	<b>CACTUS FAMILY</b>  cottontop cactus beavertail cactus golden cholla pencil cholla
<b>CAMPANULACEAE</b> <i>Nemacladus glanduliferus</i> var. <i>orientalis</i> <i>Parishella californica</i>	<b>BELLFLOWER FAMILY</b> glandular thread plant parishella
<b>CAPPARACEAE</b> <i>Isomeris arborea</i>	<b>CAPER FAMILY</b> bladderpod
<b>CHENOPODIACEAE</b> <i>Atriplex canescens</i> <i>Grayia spinosa</i> <i>Krascheninnikovia lanata</i> <i>Salsola tragus</i> *	<b>GOOSEFOOT FAMILY</b> four-wing saltbush spiny hopsage winter fat Russian thistle
<b>FABACEAE</b> <i>Astragalus didymocarpus</i> var. <i>dispermus</i> <i>Astragalus lentiginosus</i> var. <i>variabilis</i> <i>Astragalus</i> sp. <i>Psorothamnus fremontii</i>	<b>LEGUME FAMILY</b> dwarf white milk-vetch freckled milkvetch astragalus Fremont's dalea
<b>GERANIACEAE</b> <i>Erodium cicutarium</i> *	<b>GERANIUM FAMILY</b> red-stemmed filaree
<b>HYDROPHYLLACEAE</b> <i>Nama demissum</i> var. <i>demissum</i> <i>Phacelia crenulata</i> var. <i>crenulata</i> <i>Phacelia crenulata</i> var. <i>minutiflora</i> <i>Phacelia</i> sp.	<b>WATERLEAF FAMILY</b> purplemat cleftleaf wildheliotrope phacelia phacelia
<b>KRAMERIACEAE</b> <i>Krameria erecta</i>	<b>RHATANY FAMILY</b> littleleaf rhatany
<b>LAMIACEAE</b> <i>Salazaria mexicana</i> <i>Salvia columbariae</i>	<b>MINT FAMILY</b> bladder sage chia
<b>LOASACEAE</b> <i>Mentzelia albicaulis</i> <i>Mentzelia eremophila</i> <i>Petalonyx thurberi</i> ssp. <i>thurberi</i>	<b>LOASA FAMILY</b> whitestem blazingstar pinyon blazingstar Thurber's sandpaper plant
<b>MALVACEAE</b> <i>Sphaeralcea ambigua</i> var. <i>rugosa</i>	<b>MALLOW FAMILY</b> desert globemallow
<b>NYCTAGINACEAE</b> <i>Abronia pogonantha</i> <i>Abronia villosa</i> var. <i>villosa</i> <i>Mirabilis bigelovii</i> var. <i>bigelovii</i>	<b>FOUR O'CLOCK FAMILY</b> white sand verbena sand verbena wishbone bush

**Appendix A (Continued)**  
**Plant Species Observed During the Focused Plant Survey**  
**on the Chevron Solar Project (Lucerne Valley) Site**

Scientific Name	Common Name
<b>ONAGRACEAE</b> <i>Camissonia boothii</i> ssp. <i>desertorum</i> <i>Camissonia claviformis</i> ssp. <i>aurantiaca</i>	<b>EVENING PRIMROSE FAMILY</b> desert suncup brown-eyed evening primrose
<b>PAPAVERACEAE</b> <i>Argemone corymbosa</i> <i>Eschscholzia minutiflora</i>	<b>POPPY FAMILY</b> prickly poppy pygmy goldenpoppy
<b>POLEMONIACEAE</b> <i>Eriastrum diffusum</i> <i>Gilia latiflora</i> <i>Linanthus aureus</i> ssp. <i>decorus</i> <i>Loeseliastrum matthewsii</i> <i>Loeseliastrum schottii</i>	<b>PHLOX FAMILY</b> miniature woollystar hollyleaf gilia golden desert trumpets desert calico Schott's calico
<b>POLYGALACEAE</b> <i>Polygala acanthoclada</i>	<b>MILKWORT FAMILY</b> desert polygala
<b>POLYGONACEAE</b> <i>Chorizanthe brevicornu</i> <i>Chorizanthe rigida</i> <i>Eriogonum deflexum</i> ssp. <i>deflexum</i> <i>Eriogonum fasciculatum</i> var. <i>polifolium</i> <i>Eriogonum inflatum</i> <i>Eriogonum maculatum</i> <i>Eriogonum nidularium</i> <i>Eriogonum pusillum</i> <i>Oxytheca perfoliata</i>	<b>BUCKWHEAT FAMILY</b> brittle spineflower spiny chorizanthe flat-topped buckwheat California buckwheat desert trumpet buckwheat birdnest buckwheat buckwheat oxytheca
<b>RANUNCULACEAE</b> <i>Delphinium parishii</i> ssp. <i>parishii</i>	<b>BUTTERCUP FAMILY</b> Parish's larkspur
<b>ROSACEAE</b> <i>Coleogyne ramosissima</i> <i>Prunus fasciculata</i> <i>Prunus fremontii</i>	<b>ROSE FAMILY</b> blackbrush desert almond desert apricot
<b>SCROPHULARIACEAE</b> <i>Castilleja miniata</i> ssp. <i>miniata</i>	<b>FIGWORT FAMILY</b> giant red Indian paintbrush
<b>SOLANACEAE</b> <i>Lycium fremontii</i> <i>Lycium</i> sp.	<b>NIGHTSHADE FAMILY</b> Fremont desert thorn box-thorn
<b>ZYGOPHYLLACEAE</b> <i>Larrea tridentata</i>	<b>CALTROP FAMILY</b> creosote bush
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>	
<b>LILIACEAE</b> <i>Yucca brevifolia</i>	<b>LILY FAMILY</b> Joshua tree

**Appendix A (Continued)**  
**Plant Species Observed During the Focused Plant Survey**  
**on the Chevron Solar Project (Lucerne Valley) Site**

Scientific Name	Common Name
<b>POACEAE</b>	<b>GRASS FAMILY</b>
<i>Achnatherum hymenoides</i>	Indian rice-grass
<i>Bromus madritensis</i> ssp. <i>madritensis</i> *	compact brome
<i>Bromus tectorum</i> *	cheat grass
<i>Hordeum murinum</i> *	glaucous foxtail barley
<i>Pleuraphis rigida</i>	big galleta
<i>Schismus barbatus</i> *	Mediterranean schismus
<b>*Non-Native Species</b>	



## APPENDIX B – BIOLOGIST RESUMES



## KRIS ALBERTS

---

Senior Biologist

Mr. Alberts has 12 years of experience with a comprehensive background in conducting and managing biological surveys. As a senior wildlife biologist, he has conducted surveys for least Bell's vireo, coastal California gnatcatcher, burrowing owl, southwestern willow flycatcher, summer tanager, yellow warbler, nesting raptors, Stephen's kangaroo rat, Quino checkerspot butterfly, coast range newt, California red-legged frog, arroyo toad, Coachella Valley fringe-toed lizard, flat-tailed horned lizard, and desert tortoise. He has conducted nest monitoring for federally and state-listed species as well as baseline, reconnaissance-level, habitat assessment, and detailed wildlife surveys. He has also conducted diurnal and nocturnal bat surveys, bat exclusions, bat house installation and monitoring, in-stream assessments, and fish surveys. His experience also includes small mammal, reptile, and brown-headed cowbird trapping.

As a senior botanist, he has worked extensively in many southern California vegetation communities conducting line transect, point intercept, and stacked cube sampling, community mapping, species identification, and focused surveys (including spreading navarretia, Santa Ana River woollystar, slender-horned spineflower, Parry's spineflower, Plummer's mariposa lily, Algodones Dunes sunflower, Peirson's milk-vetch, Engelmann oak, Del Mar manzanita, and threadleaf brodiaea). He has performed vernal pool, riparian and coastal sage scrub restorations as well as exotic species removal programs. Combining his wildlife skills with his botany skills, he has conducted habitat assessments and focused wildlife surveys throughout San Diego, Orange, Los Angeles, San Bernardino, Riverside, and Imperial Counties. As a wetland scientist, he has performed wetland delineations and jurisdictional determinations in Mentone, Crafton, Diamond Bar, San Clemente, and the Salton Sea area of Riverside County and served as an assistant and project manager on numerous other delineation projects. Mr. Alberts has also investigated environmental impacts to existing or potential biological resources by construction activities, noise, and proposed developments. He has assisted with the implementation of mitigation programs for large-scale projects and mitigation compliance throughout southern California. He has authored and assisted with numerous biological documents, including reports on long-term federal projects and Biological Assessments for Section 7 consultation with USFWS. As a wildlife biologist, botanist, and group manager for previous federal projects, his responsibilities have included survey coordination, staff supervision, data collection, technical report writing, interacting effectively with resource/regulatory agency personnel, maintaining client communication, and meeting project deadlines.

## Relevant Experience (Continued)

---

### Key Strengths

12 years of Experience in Southern California

Focused/Protocol Plant and Wildlife Surveys

Biological Resource Analysis and Management

Field Crew Management

Wetland/Jurisdictional Delineations

San Diego County Multiple Species Conservation Plan (MSCP)

Multiple Methods of Vegetation Sampling

Vegetation Mapping

Extensive Knowledge of Flora and Fauna of Southern California

Biological Assessments (Section 7)

Habitat Restoration Programs

Construction Mitigation Monitoring

Extensive Working Knowledge of Regulations/Guidelines:

- Endangered Species Act
- Clean Water Act
- U.S. Fish and Wildlife Service
- California Dept. of Fish and Game
- U.S. Army Corps of Engineers

Section 1602/401/404 permitting

### Relevant Experience

**Chevron Solar Project, Lucerne Valley, San Bernardino, California. Senior Biologist.** Chevron proposes to develop a 516-acre solar photovoltaic power project in the Lucerne Valley. The plant will consist of crystalline silicon PV modules mounted upon single-axis trackers. Conducted Phase II: Burrow Survey for the burrowing owl, a California Species of Concern (CSC) and BLM sensitive species, according to the Burrowing Owl Survey Protocol and Mitigation Guidelines prepared by the California Burrowing Owl Consortium. Conducted Presence/Absence and Zone of Influence Surveys for the desert tortoise in accordance with protocols set forth by the U.S. Fish and Wildlife Service (USFWS 1992). Seven tortoises were identified during the surveys. Conducted avian point count surveys, and assisted with Mohave ground squirrel habitat assessment. Identified and delineated areas of the project site that fell under the regulatory jurisdiction of the USACE pursuant to Section 404 of the Federal Clean Water Act, CDFG jurisdiction pursuant to Section 1602. A Jurisdictional Delineation Report for the project site was completed after the field surveys describing the limits of jurisdiction pursuant to USACE, CDFG, and SWRCB (401). Permit applications for State Water Resources Control Board (SWRCB - 401), USACE (404) and CDFG (1600) will be submitted for project approval.

**Environmental Assessment/Initial Study/Mitigated Negative Declaration, Fiber Optic Cable Installation, Victorville, CA to Las Vegas, NV, San Bernardino and Clark County – AT&T, sub to Forkert Engineering & Surveying, Inc. Senior Biologist.** Conducted presence/absence surveys for the federal- and state-listed threatened desert tortoise in accordance with protocol set-forth by the USFWS. The project involves permitting applications, conducting biological surveys, vegetation mapping and jurisdictional delineations. Conducted general biological reconnaissance surveys to map the vegetation communities, to document the existing biological resources and to assess the habitat for its potential to support sensitive plant and wildlife species. Identified and delineated areas of the project site that fell under USACE, RWQCB, and CDFG jurisdiction. Monitored construction activities from Primm Nevada to Sloan.

**Regulatory Agency Coordination, Background Data Review, Biological Reconnaissance, Protocol Surveys for Mohave Ground Squirrel, Burrowing Owl, and Desert Tortoise, Rosamond, Kern County – Capital Pacific Homes Inc.** Chambers Group assisted Capital Pacific Homes with coordination and negotiations with regulatory and planning agencies with

jurisdiction over the proposed residential development. Chambers Group conducted protocol surveys for the Mohave ground squirrel, burrowing owl, and the desert tortoise on this Mojave Desert Site. The project required review of previous biological studies of the site and the region and review of information available from the regulatory agencies files. The previous studies were updated with the results of the protocol sampling program.

**Matthews Homes Development Project, San Bernardino County. Senior Biologist.** Conducted focused surveys for the 88-acre development project. Project required a CDFG 2081 permit for the take of Mohave ground squirrel and burrowing owl. Conducted focused burrowing owl surveys, Zone of Influence surveys for the state- and federal-listed threatened desert tortoise, construction monitoring, 2081 permit compliance, and

---

## Relevant Experience (Continued)

### Education

B.S., Natural Resources and Environmental Sciences, University of Illinois, Urbana-Champaign; 1996

### Registration

Authorized for coastal California gnatcatcher, Southwestern willow flycatcher, and least Bell's vireo, USFWS Permit #TE-039640-2

California Dept. of Fish & Game Scientific Collector's Permit #SC-009155

Flat-tailed Horned Lizard authorization to take, possess and transport, 2007

Desert Tortoise Council Survey Techniques Workshop, 2007

Southwestern Willow Flycatcher Survey Training, Southern Sierra Research Station, 2007

Wetland Training Institute certified, 2007

mitigation reports. Burrowing owl was identified during the surveys and the appropriate coordination with CDFG was initiated.

### **Construction Monitoring and Biological Surveys, Water Pipeline Installation Project, MCB Camp Pendleton, San Diego County – Orion.**

Provided construction monitoring for the installation of 5.5 miles of fiber optic backbone on MCB Camp Pendleton. Backbone installation involved Horizontal Directional Drilling (HDD) under the Santa Margarita River. The project passed through sensitive habitat including riparian vegetation that provide habitat for threatened or endangered species including the southwestern willow flycatcher, least Bell's vireo and arroyo southwestern toad; focused surveys were conducted in the project area for each of these sensitive species. Pre-construction nesting bird surveys were conducted prior to ground-breaking activities, and vegetation removal monitoring was provided concurrently with willow tree relocation.

### **Natural and Cultural Resources Management Plan, Rancho Las Flores Development, Hesperia, San Bernardino County – Rancho Las Flores, LLC.**

Senior Biologist. Assisted in revising outdated documents. Conducted field surveys on the project site prior to construction activities involving heavy equipment and/or windrow tree removal to determine if active nests of species protected by the Migratory Bird Treaty Act (MBTA) or by the California Department of Fish and Game (CDFG) were present in the construction zone or within a buffer of 500 feet. Pre-construction nesting/breeding surveys were

conducted in all CDFG jurisdictional areas and within windrow trees.

### **Pre-Construction Surveys, Cleveland Avenue, Ontario, San Bernardino County – Brookfield Homes.**

Senior Biologist. Conducted field surveys on the project site prior to construction activities involving heavy equipment and/or windrow tree removal to determine if active nests of species protected by the Migratory Bird Treaty Act (MBTA) or by the California Department of Fish and Game (CDFG) were present in the construction zone or within a buffer of 500 feet. Pre-construction nesting/breeding surveys were conducted in all CDFG jurisdictional areas and within windrow trees.

### **Biological Survey and Cultural Resources Construction Monitoring, Fairfax Interchange Improvement, Bakersfield, Kern County – City of Bakersfield Public Works, sub to Parsons.**

Perform pre-construction biological monitoring of San Joaquin Kit Fox, burrowing owls and raptor nests and cultural resource construction monitoring associated with the Thomas Road Improvement Fairfax Interchange Project.

### **Initial Study, Lasselle Street Widening from John F. Kennedy Drive to Alessandro Boulevard, Moreno Valley – City of Moreno Valley, sub to PSOMAS.**

Provided jurisdictional determination. Conducted a habitat assessment from John F. Kennedy Dr. to just past Alessandro Blvd. along Lasselle St. Habitat suitable for the burrowing owl was present on the project site and so a Focus Burrow Survey for the burrowing owl will be required according to the western Riverside MSHCP. Co-authored the biological report documenting the findings of the habitat assessment. A Focused Burrow Survey was conducted during the breeding season for the burrowing owl. Wrote the report of findings of the Focused Burrow Survey.



## LAURA GORMAN

Associate Biologist

Ms. Gorman's diverse background in wildlife biology includes experience in a variety of habitats including marine, coastal sage, salt marsh, and riparian. She follows current survey protocols to perform vegetation and wildlife inventories and functional analysis surveys. She is knowledgeable in field identification of avian, amphibian, and fish species. Her strengths include conducting reconnaissance-level biological surveys, pre-construction surveys, focused surveys, and constructing monitoring for threatened wildlife such as the western snowy plover and burrowing owl. She has conducted presence/absence surveys for the California red-legged frog, mountain yellow-legged frog, and arroyo toad, and has assisted permitted biologists with focused surveys and nest monitoring for the California gnatcatcher and least bell's vireo. In addition, she has extensive experience in sensitive species relocation, particularly relating to Santa Ana sucker, Santa Ana speckled dace, arroyo chub, and coast range newt.

---

### Relevant Experience

#### Key Strengths

Biological Resources Surveys  
Environmental documentation preparation  
Construction Monitoring  
Jurisdictional Delineations  
Vegetation Mapping

#### DESERT TORTOISE

**Chevron Solar Project, Lucerne Valley, San Bernardino, California. Associate Biologist.** Chevron proposes to develop a 516-acre solar photovoltaic power project in the Lucerne Valley. The plant will consist of crystalline silicon PV modules mounted upon single-axis trackers. Conducted Phase II: Burrow Survey for the burrowing owl, a California Species of Concern (CSC) and BLM sensitive species, according to the Burrowing Owl Survey Protocol and Mitigation Guidelines prepared by the California Burrowing Owl

Consortium. Conducted Presence/Absence and Zone of Influence Surveys for the desert tortoise in accordance with protocols set forth by the U.S. Fish and Wildlife Service (USFWS 1992). Seven tortoises were identified during the surveys. Conducted avian point count surveys, and assisted with Mohave ground squirrel habitat assessment. Identified and delineated areas of the project site that fell under the regulatory jurisdiction of the USACE pursuant to Section 404 of the Federal Clean Water Act, CDFG jurisdiction pursuant to Section 1602. A Jurisdictional Delineation Report for the project site was completed after the field surveys describing the limits of jurisdiction pursuant to USACE, CDFG, and SWRCB (401). Permit applications for State Water Resources Control Board (SWRCB - 401), USACE (404) and CDFG (1600) will be submitted for project approval.

**Surveys for the Environmental Assessment/Initial Study/Mitigated Negative Declaration, Fiber Optic Cable Installation, Victorville, CA to Las Vegas, NV, San Bernardino and Clark County – AT&T, sub to Forkert Engineering & Surveying, Inc.** The project involves permitting applications, conducting biological surveys, vegetation mapping and jurisdictional delineations from the City of Victorville to Las Vegas. Conducted general biological reconnaissance surveys to map the vegetation communities, to document the existing biological resources and to assess the habitat for its potential to support sensitive plant and wildlife species. Conducted presence/absence surveys for the federal- and state-listed threatened desert tortoise (*Gopherus agassizii*) in accordance with protocol set-forth by the U.S. Fish and Wildlife Service (USFWS, 1992). Sign of desert tortoises including live tortoises, shell, bones, scutes, limbs, scat, burrows, pellets, tracks, egg shell fragments, courtship rings, drinking sites, and mineral licks were recorded.

**AT&T Fiber Optic Cable – Las Vegas to Victorville Project, Multiple County – AT&T, sub to Forkert Engineering & Surveying, Inc.** Conducted general biological reconnaissance surveys to: map the vegetation communities; document the existing biological resources; and assess the habitat's potential to support sensitive plant and wildlife species. Coordinated with BLM to prepared and compose a Noxious

## Relevant Experience (Continued)

Weed Management Plan and a Habitat Restoration Plan. Provided construction monitoring in accordance with project permits for the protection of the desert tortoise. Prepared post-construction desert tortoise monitoring and environmental compliance reports. Provided environmental awareness training for all individuals involved with the project. Presence/absence desert tortoise surveys were conducted in California from Stoddard Wells Rd. in Victorville to Slash X Ranch, from Halloran Summti Rd. to Cima Rd. in Baker, and From Nipton Rd, to State Line (Primm, Nevada). Surveyed the project area and the 100 ft. and 300 ft. ZOI transect lines. Tortoise burrows, scat, and a scute were observed in various places along the route. Surveys followed protocol set out by USFWS. Detailed notes and GPS points were recorded when any desert tortoise sign was observed or detected. Conducted construction monitoring from Los Vegas, Nevada to Primm, Nevada. Conducted nesting bird surveys, and assisted with clearance surveys for the desert tortoise. Monitoring included trenching, pipe installation, backfilling, restoration, compaction, vault installation, proofing, cable pulling, splicing, and post installation/replacement. Eighteen tortoises were found along the project site in Nevada and only three had to be handled, in order to be moved away from the approaching construction equipment.

**Biological and Cultural Resources Surveys, Jurisdictional Delineations, Pre-Construction and Construction Monitoring, Track Upgrade Project, Thermal, CA to Yuma, AZ, San Bernardino and Imperial County – Union Pacific Railroad, Yuma Subdivision, sub to Parsons Water & Infrastructure.** Associate Biologist. The project involves conducting biological surveys, vegetation mapping and wetland delineations along 100-mile-long corridor. Services include a reconnaissance surveys, focused sensitive species surveys (Yuma clapper rail surveys, California black rail surveys, least Bell's vireo, southwestern willow flycatcher, Coachella Valley fringe-toed lizard surveys, desert tortoise presence/ absent surveys, desert pupfish, Peirson's milk vetch surveys, and Algodones Dunes sunflower surveys), and vegetation communities surveys and mapping within the 200-foot right-of-way. The field survey focuses primarily on determining the potential habitat for federal- and state-listed plant and wildlife species. Performed construction monitoring services over many sections of the route.

**Regulatory Agency Coordination, Background Data Review, Biological Reconnaissance, Protocol surveys for Mohave Ground Squirrel, Burrowing Owl, and Desert Tortoise, Rosamond, Kern County – Capital Pacific Homes Inc.** Conducted a focused survey for the desert tortoise and burrowing owl. Walked transects by foot in order to cover 100% of the project site. Conducted transects for the zone of influence (ZOI) at 100, 300, 600, 1200, and 2400ft.

**Desert Tortoise Clearance Surveys, Palmdale Water Reclamation Plant Stage 5 Effluent Management Facilities, Palmdale, Los Angeles County – Los Angeles County Sanitation District.** The Palmdale Water Reclamation Plant Stage Five Effluent Management Facilities project involves construction of storage reservoirs. As part of USFWS approval, the Districts have committed to install a fence around the storage reservoirs to keep tortoises out. Clearance surveys will be performed within the area upon completion of the fence to ensure desert tortoises have not been trapped inside the fenced area. This desert tortoise clearance survey within the fenced area will follow the appropriate USFWS protocol.

### BURROWING OWL

**Protocol-level MSHCP Burrowing Owl Survey, Calimesa, Riverside County – Sunlite Development.** Task Manager. Conducted a four-day protocol-level survey for burrowing owl. Recorded GPS locations of potential burrow sites and examined all suitable habitat for sign of live owls. Reported all results in an updated habitat assessment of the project site.

**Phase II Burrowing Owl Survey, Etiwanda Housing Development, Rancho Cucamonga, San Bernardino County – Sierra Pacific Enterprises.** Conducted a Phase II Burrowing Owl survey over a 115-acre site proposed for development in the City of Etiwanda, CA. Active burrowing owl burrows were identified and their locations were recorded using GPS technology. Prepared a report of findings.

## Relevant Experience (Continued)

**Medical Real Estate Development, Riverside County.** Project Manager. Conducted Phase III burrowing owl surveys for the Medical Real Estate Development located in Sun City (APNs: 333-050-012-9, 333-050-009-7, 333-050-010-7, & 333-050-011-8), Riverside County, California. The 10-acre site was surveyed for burrowing owl and nesting birds, and consisted of 4 separate site visits one-hour before sunrise to two-hours after sunrise for four non-consecutive days. No owls were identified using the burrows. A memo report was sent to local Agencies and DFG.

---

### Education

B.S., Biology, University of California, Los Angeles; 2004

### Registration

California Dept. of Fish and Game Scientific Collector's Permit # SC 008778

United States Fish and Wildlife Service Office, Carlsbad Branch, Passed Quino Checkerspot Butterfly (QCB) Exam to Conduct Surveys under Permitted QCB Biologist, February 11, 2009.

Rancho Santa Ana Botanical Garden Botany Course, February 2009

Rancho Santa Ana Botanical Garden Plant Survey Techniques Course, February 2009

BLM Flat-Tailed Horned Lizard Training, May 2007

Desert Tortoise Council Surveys Techniques and Handling Workshop, November 2006

Earth Skills Tracking Skills Workshop, Fall 2006

Sea and Sage Audubon Society Advanced Bird Observation Class, Spring 2007

Sea and Sage Audubon Society Bird Identification Class, Spring 2006

Sea and Sage Audubon Society Bird Sound Identification Class, Fall 2006

Southern Sierra Research Station Southwestern Willow Flycatcher Workshop, May 2005

---

**Nesting Bird and Burrowing Owl Survey, Lancaster, Los Angeles County – Matthews Homes.** Conducted a focused survey for nesting birds and burrowing owls throughout the project site utilizing approximately 30- or 100-foot belt transects, depending on the density of vegetation. Potential habitat for nesting birds and burrowing owl within the project site and within a 150-meter buffer around the site was surveyed according to protocol approved by the CDFG (Burrowing Owl Consortium, 1993). Evidence of nesting birds and/or burrowing owl within the project site was documented with digital photographs, Global Positioning System (GPS) coordinates, and markings on a topographic map.

**Phase III Burrowing Owl Survey, Village Park, San Jacinto, Riverside County – Distinguished Homes.** Conducted a Phase III Burrowing Owl survey for a proposed residential development project known as Village Park in the City of San Jacinto (Tract No. 31806), Riverside County, California. The three-day protocol-level survey consisted of belt transects to allow for 100% visual coverage of the project site. The City of San Jacinto required CEQA compliance documents for this project. Chambers Group's analysis of the project resulted in the preparation of an Initial Study/Mitigated Negative Declaration (IS/MND) which included biological and air quality technical studies and reports.

### NESTING BIRDS

**Nesting Bird Survey, Cooks Canyon Crib Dam Reconstruction, Glendale, Los Angeles County – Los Angeles County Department of Public Works, Environmental Planning.** Conducted a survey for nesting birds protected by the Migratory Bird Treaty Act of 1918. The surveys were required in support of services for removal of sediment buildup within the Cooks Canyon Crib Dam Debris Basin. Sediment buildup has impaired the drainage of waters from the debris basin, resulting in year-round ponding. Recorded all observations in the field on standardized datasheets. The results of the survey were summarized in a memorandum report, which included recommendations to minimize potential impacts to nest sites.

**Construction Monitoring, Arroyo Trabuco Creek Railroad Bridge Replacement, San Juan Capistrano, Orange County – Southern California Regional Rail Authority.** Monitored compliance of activities with the 1600 Streambed Alteration Agreement during the replacement of the railroad bridge above Arroyo Trabuco Creek. Conducted preconstruction surveys for nesting birds and bats. Monitored vegetation removal and protection of the creek during construction.

**Environmental Compliance Services, Pacific Street Bridge, Oceanside, San Diego County – City of Oceanside, sub to Harris & Associates.** Conducted periodic nesting bird surveys, fish seining, and construction monitoring for the Pacific Street Bridge construction site in the City of Oceanside. Provided results in detailed monitoring

## Relevant Experience (Continued)

reports to the client. Chambers Group was a member of the construction management team (Harris & Associates) for the construction of the Pacific Street bridge. This bridge replaces an earthen crossing near the mouth of the San Luis Rey River adjacent to the Oceanside Harbor. Chambers Group is responsible for environmental aspects during the bidding process for the construction contractor. Chambers Group staff conducted monitor services during construction to assure compliance with the Environmental Impact Report (EIR) and all environmental permits. These permits addressed the U.S. Army Corps of Engineers (USACE) concerns in the waters of the United States and also the San Luis Rey River is a flood control channel. California Department of Fish and Game (CDFG) 1602 permit and a U.S. Fish and Wildlife (USFWS) Section 7 addressed the protected species in the project area. The San Diego Regional Water Quality Control Board (RWQCB) has issued a 401 permit. Chambers Group prepared a Mitigation Monitoring Implementation Plan, Environmental Awareness Program and conducted environmental compliance monitoring during the two year construction period for the bridge.

**Least Bells' Vireo and Southwestern Willow Flycatcher Biological Surveys, SR-60 and Grand Avenue Interchange Improvement Project, Diamond Bar, Los Angeles County – EIP Associates, a Division of PBS&J, sub to Sage Environmental Group.** Chambers Group biologists conducted presence/absence focused surveys for southwestern willow flycatcher and least Bell's vireo at a section of Diamond Bar Creek known as Brea Wash and three tributaries that flow into the wash from under the freeway. All potential habitats within the project site were surveyed and nesting status of each pair was documented. Maps included project location and observed species locations and individual nest sites where found.

**Cantu-Gallaeno at I-15 Exchange Project, Corona, Riverside County – Riverside County Transportation Department, sub to Harris & Associates.** Conducted Habitat Assessment for the burrowing owl on a 38-acre project site prior to grading for road extension. Upon locating a burrowing owl on site, conducted phase III focused surveys to determine if the bird was nesting or wintering on site. The surveys were done in accordance with the California Burrowing Owl Consortium guidelines (1993). A biological technical report of findings was prepared.

**Biological and Cultural Resources Surveys, Jurisdictional Delineations, Pre-Construction and Construction Monitoring, Track Upgrade Project, Thermal, CA to Yuma, AZ, San Bernardino and Imperial County – Union Pacific Railroad, Yuma Subdivision, sub to Parsons Water & Infrastructure.** Conducted least bell's vireo, burrowing owl, and desert tortoise focused surveys, a southwestern willow flycatcher habitat assessment, and wetland delineation along a 100-mile-long stretch of railway. Located and documented possible desert tortoise burrow and sign as well as burrowing owl sign including burrow sites, pellets, scat, and live owl sightings. Identified areas of suitable habitat along the 100-mile stretch for southwestern willow flycatcher focused surveys.

**Scoping of CEQA Compliance and Permitting Issues for the Dana Point Desalination Facility, Dana Point, Orange County – Municipal Water District of Orange County.** Conducted construction monitoring for the western snowy plover during the installation of a test slant well drill adjacent to the San Juan Creek mouth. Construction was halted if the western snowy plover approached the drilling site. Wildlife presence/absence and nesting location surveys of other avian species were also performed.



## LISA WADLEY

Staff Wildlife Biologist

---

Ms. Wadley has over six years of experience and a comprehensive background in conducting biological surveys, implementing surveys for regional habitat conservation plans such as the Western Riverside MSHCP, and mitigation monitoring. She has a comprehensive background in biological resources assessment, habitat conservation planning, and raptor management. As a wildlife biologist, she has conducted surveys for nesting raptors, western burrowing owl, coastal California gnatcatcher, kit fox, desert tortoise, and sensitive plant and habitat communities. She has also conducted reconnaissance-level and detailed wildlife surveys, investigated environmental impacts in terms of biological resources, and assisted with the implementation of mitigation programs for various-sized projects, and performed restoration and mitigation compliance throughout San Bernardino, Riverside, and Los Angeles counties.

### Relevant Experience

---

#### Key Strengths

Determined species potentials to occur on project sites and make recommendations accordingly.

Conducted background research and data collection (i.e. literature and aerial photographs) in order to make appropriate evaluations.

Created raptor data dictionary for GPS for use in conducting raptor nest surveys and burrowing owl focused surveys.

Regular attendant at the Burrowing Owl Consortium symposium and meetings, the Wildlife Society conferences and courses, Advanced Raptor Identification workshops, and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) workshops and meetings.

Have written reports and associated documents in an accurate and thorough manner.

---

**AT&T Fiber Optic Cable – Las Vegas to Victorville Project, Multiple County – AT&T, sub to Forkert Engineering & Surveying, Inc.** Chambers Group conducted general biological reconnaissance surveys to: map the vegetation communities; document the existing biological resources; and assess the habitat's potential to support sensitive plant and wildlife species. Provided construction monitoring services in accordance with project permits for the protection of the desert tortoise. Prepared post-construction desert tortoise monitoring and environmental compliance reports.

**Biological Construction Monitoring, Track Upgrade Project, Thermal, CA to Yuma, AZ, San Bernardino and Imperial County – Union Pacific Railroad, Yuma Subdivision, sub to Parsons Water & Infrastructure.** Assisted in presence/absence surveys prior to construction activities. Monitoring and BMP compliance reports were submitted daily during the project.

**MSHCP Habitat Assessment, Cactus Avenue Widening Project, Moreno Valley, Riverside County.** Chambers Group, Inc., was retained by the City of Moreno Valley to conduct a habitat assessment for burrowing owl (*Athene cunicularia*), Stephen's kangaroo rat (*Dipodomys stephensi*) and sensitive plant species. Chambers Group biologists also assessed the site for vernal pools and potential jurisdictional waters. Authored report summarizing results of the habitat assessment; purpose of the report was to document the results of the habitat assessment, sensitive habitat evaluation, and provide recommendations for MSHCP required focused surveys and was written in accordance with MSHCP guidelines.

**Cactus Avenue Widening Project, Focused Western Burrowing Owl Survey, City of Moreno Valley, Riverside County – City of Moreno Valley.**

Conducted a MSHCP Protocol Burrowing Owl Survey for approximate two mile road widening project from the 215 freeway north on Cactus Avenue to Heacock Street in the City of Moreno Valley. The objective of the surveys was to identify areas where burrowing owls were occupying and/or nesting within or adjacent to the project area. Surveys were conducted throughout the project site utilizing approximately 30- or 100-foot belt transects, depending on the density of vegetation, in order to maintain 100 percent coverage, which is required by the Department of Fish and Game. Any active and inactive nests and/or burrows on site as well as within the 150 foot buffer were recorded on data sheets. A single burrowing owl was observed within the

---

## Education

B.A., Biology, California State University, San Bernardino; 2002

A.S., Agricultural Technology, Mt. San Antonio College, Walnut, California; 1996

## Memberships

Association of Environmental Professionals (AEP)

Audubon Society

Burrowing Owl Consortium

Cornell Lab of Ornithology

Cougar Fund

Raptor Research Organization

Western Field Ornithologist

Western Section; Wildlife Society

The Wildlife Society

## Relevant Experience (Continued)

150 meter buffer zone. It was determined that the individual did not have a mate and was not, at the time of the survey actively nesting. After completing the field surveys, methodology and findings were summarized and incorporated into a memo report.

**Burrowing Owl Pre-Construction Survey, Lasselle Street Widening Project, Moreno Valley, Riverside County –City of Moreno Valley.** Walked transects according to The Burrowing Owl Consortium guidelines (1993), on appropriate habitat in search for the presence of burrowing owls or any sign of burrowing owls within or adjacent to Lasselle Street Widening project area prior to grading for the widening of the road. No burrowing owls were found and a letter report was written to document the survey.

**MSHCP Habitat Assessment, Ironwood Avenue Widening Project, Moreno Valley, Riverside County.** Chambers Group, Inc., was retained by the City of

Moreno Valley to conduct a habitat assessment for burrowing owl (*Athene cunicularia*), Stephen's kangaroo rat (*Dipodomys stephensi*) and sensitive plant species. Assessed the site for vernal pools and potential jurisdictional waters. Authored report summarizing results of the habitat assessment; purpose of the report was to document the results of the habitat assessment, sensitive habitat evaluation, and provide recommendations for MSHCP required focused surveys and was written in accordance with MSHCP guidelines.

**Ironwood Avenue Widening Project, Focused Western Burrowing Owl Survey, City of Moreno Valley, Riverside County – City of Moreno Valley.** Conducted a MSHCP Protocol Burrowing Owl Survey for approximate two mile road widening project from Perris Boulevard east on Ironwood Avenue to Nanson Street in the City of Moreno Valley. The objective of the surveys was to identify areas where burrowing owls were occupying and/or nesting within or adjacent to the project area. Surveys were conducted throughout the project site utilizing approximately 30- or 100-foot belt transects, depending on the density of vegetation, in order to maintain 100 percent coverage, which is required by the Department of Fish and Game. Any active and inactive nests and/or burrows on site as well as within the 150 foot buffer were recorded on data sheets. No burrowing owl and/or burrows or sign were observed on the project site. No owls were observed in the adjacent buffer zone during the focused survey. After completing the field surveys, methodology and findings were summarized and incorporated into a memo report.

**Reche Vista Road Realignment Natural Environmental Study, Moreno Valley, Riverside County.** Chambers Group, Inc., was retained by the City of Moreno Valley to conduct a general biological assessment for the realignment of Reche Vista Road in the City of Moreno Valley, Riverside County. The California Department of Transportation (Caltrans - NEPA lead agency) and the City of Moreno Valley (City - CEQA lead agency), County of Riverside, CA, proposed to "fill in" a highway gap by realigning Reche Vista Drive between the Perris Boulevard/Heacock Street Intersection and the northerly Moreno Valley City limits. Authored Natural Environmental Study document summarizing results of the habitat assessments; purpose of the report was to document the results of the habitat assessments, sensitive habitat evaluation, potential for jurisdictional waters, permitting requirements, and provide recommendations for MSHCP required focused surveys and was written in accordance with MSHCP guidelines and Caltrans Natural Environmental Study guidelines.

**Nesting Bird Survey, City of Santa Clarita, Los Angeles County – LADPW.** Conducting nesting bird surveys for Vasquez Canyon Bouquet Creek Bridge Project. Nesting birds were located and mitigation measures will be monitored during construction activities.

## Relevant Experience (Continued)

**Nesting Bird Survey and Monitoring, City of Sierra Madre, Los Angeles County – LADPW.** Conducting nesting bird surveys along North Sierra Madre Road for two days and conducted construction monitoring.

**Nesting Bird Survey, City of Glendale, Los Angeles County – LADPW.** Conducting nesting bird surveys in the Cooks Canyon debris basin crib dam M1-A Dewatering system for two weeks, three days each week for a total of six surveys.

**LSA Associates, Inc. (LSA).** Assistant Wildlife Biologist. Conducted general biological surveys and wildlife habitat assessments, and majority of the western burrowing owl (*Athene cucularia hypugaea*) surveys, raptor nesting surveys and monitoring for the LSA Riverside office. Biological monitoring for construction projects; including writing and implementing contractor awareness programs for the burrowing owl, nesting raptors, kangaroo rat, California gnatcatcher, and Least's bell's vireo. Writing biological assessments, biological constraints reports for CEQA compliance, WRCMSHCP compliance, and Caltrans biological reports. Assignments included writing memoranda to clients regarding compliance and recommendations of actions to take on projects. Writing Burrowing Owl Mitigation Plans for compliance with CDFG permits.

## Research Experience

Institute for Bird Populations, Statewide Survey of Western Burrowing Owls, Point Reyes Station, California. Volunteer surveyor for San Bernardino County. Surveyed a block in San Bernardino County to aid the Institute in regional and statewide population estimates. Information gathered has and will be important resource for Burrowing Owl conservation efforts in California and has been widely used and cited by government agencies and conservation-oriented non-governmental organizations

San Jacinto Wildlife Area, San Jacinto, California — Western Burrowing Owl Study. Volunteer. Purpose of research: To gain knowledge of the burrowing owl populations on the San Jacinto Wildlife Area. Conducted owl surveys within the wildlife area.

Biological Surveys and Focused Western Burrowing Owl Surveys — Southern California Edison. Conducted general biological assessments and focused burrowing owl surveys for the Southern California Edison's substations in Menifee, Riverside County. Responsible for coordinating, attending meetings, and conducting surveys for expansions of the substations.

Biological Surveys and Monitoring — Southern California Gas Company. Conducted biological assessments and focused avian and mammal surveys for pipeline projects for the Southern California Gas Company in Riverside County. Responsible for conducting pre-construction surveys on the pipeline projects in the City of Riverside. Executed contractor education programs for the listed and sensitive species and nesting birds. Monitored the removal and replacement of pipeline in the streambeds and the placement of revetment pads to reduce flow.

## Specialized Training

Federal Fish and Wildlife Permit (MB-119560-0), Special Purpose: Salvage Birds

Festival of Owls Research Workshop, Houston Nature Center, Houston, Minnesota, March 2008

Master Desert Naturalist Certificate, the Living Desert University. The Master Desert Naturalist certificate program offers in-depth instructions in our local desert environment. Feature class content on native flora and fauna, ecology, geology and natural history with an emphasis on direct experience. The classes are a

## **Relevant Experience (Continued)**

blend of informative classroom lectures and discussions, as well as 'real world' experiences; including tracking, and interpretive hikes and walks led by LDU instructors.]

Festival of Owls Research Workshop, Houston Nature Center, Houston, Minnesota, March 2006

Mohave Ground Squirrel Workshop, Western Section of the Wildlife Society, Ridgecrest, April 2005

Habitat Conservation Planning and the Endangered Species Act, University of Riverside Extension Center, January – March 2005

Endangered Species Regulation, Conservation Planning and Permits for Development, UCLA Extension Center, Los Angeles, March 2004

California Environmental Quality Act (CEQA) Workshop, AEP, Fall 2003

California Burrowing Owl Symposium, the Western Section of the Wildlife Society, Sacramento, November 2003

Desert Tortoise Surveying, Monitoring, Workshop, and Handling Techniques Workshop, The Desert Tortoise Council, Ridgecrest, 2003

## NICHOLE CERVIN

Associate Biologist

Ms. Cervin is familiar with the plant communities throughout California and she specializes in the identification and analysis of California vegetation. She has more than four years of experience conducting reconnaissance-level, focused, and quantitative vegetation surveys; mapping vegetation; performing restoration compliance inspections. Ms. Cervin has also authored environmental and biological sections for a variety of documents. In addition, Ms. Cervin has experience with plant ecology and physiology techniques, and statistical analysis.

---

### Key Strengths

- Vegetation Surveys
  - Focused Plant Surveys
  - Identification of sensitive plant and wildlife species
  - Habitat Restoration
  - Weed Identification and Management
- 

### Relevant Rare Plant Survey Experience

**Focused Plant Surveys For The Federal Bureau of Reclamation within the Upper San Joaquin River, Fresno County, California.** Associate Botanist. Conducted protocol focused plant surveys and habitat assessments on a 6,000-acre site in the upper San Joaquin River watershed within the Sierra National Forest, California. The surveys were performed in an effort to determine the presence / absence of sensitive plant species within the project site. The project also involved working with a team of biologists with different backgrounds to determine any possible biological issues and solutions to possible issues for this controversial water storage basin project.

**Functional Analysis Comparison Along the San Gabriel River, Los Angeles County -- LACDPW.** Assistant Botanist. Collected data for a complete functional analysis, based on the USACE Hydrogeomorphic Analysis and Habitat Evaluation Procedures, within the Angeles National Forest, California. The functional analysis was conducted to assess and compare the biological resources along the length of the San Gabriel River, from the West Fork downstream to the Santa Fe Reservoir Spreading Grounds. Data related to the biological and physical function were collected at each permanent data collection transect location in the upland and riparian habitats of the site.

**Focused Plant Survey, Crafton Hills Reservoir Expansion and Pipeline Project, Crafton, San Bernardino County – Department of Water Resources, sub to Environmental Science Associates.** Associate Botanist. Conducted a protocol focused plant survey within and adjacent to the project footprint to determine the presence / absence of several sensitive plant species including Santa Ana River woollystar, slender-horned spineflower, Nevin's barberry, Parish's checkerbloom, Parry's spineflower, Plummer's mariposa lily, and other sensitive plant species. A general biological reconnaissance survey was also conducted and included mapping of vegetation communities and a habitat assessment to determine the potential of the site to support sensitive plant species. Following all surveys a Biotechnical Report was prepared that was incorporated into the EIR for this project.

**Focused Plant Survey East Branch Extension Phase II Project, San Bernardino, Riverside, Los Angeles County – Department of Water Resources, sub to Environmental Science Associates.** Associate Botanist. Conducted a protocol focused survey for sensitive plant species including Santa Ana River woollystar, slender-horned spineflower, Nevin's barberry, Parish's

## Relevant Experience (Continued)

---

### Education

M.S., Biology, California State University, Fullerton; 2006

B.S., Biology, California State University, Fullerton; 2002

### Registrations, Certifications, and Affiliations:

California Dept. of Fish and Game Scientific Collector's Permit, #SC-009906

Ecological Society Of America Member, Current

Southern California Botanists Member, Current

Desert Tortoise Surveying Techniques Workshop, Desert Tortoise Council, 2007: qualified desert tortoise monitor

---

checkerbloom, Parry's spineflower, Plummer's mariposa lily, and other sensitive plant species and documented the population size and locations for these species throughout the property. A general biological reconnaissance survey was conducted on four separate alternative proposed pipeline line sites and at two potential reservoir sites. The surveys included vegetation communities mapping and an assessment of the site for its potential to support sensitive plant species. Prepared reports documenting the findings for the alternative project sites.

**Biological and Botanical Surveys and Monitoring, Big Dalton Dam Sediment Removal, Glendora, Los Angeles County – Los Angeles County Department of Public Works, Water Resources Division.** Associate Biologist. Coordinated and conducted field surveys including vegetation mapping, focused plant surveys, amphibian, reptile, fish, avian, and mammal surveys, stream assessments and macroinvertebrate collections from above the reservoir to 2 miles downstream of the Big Dalton Dam. Data and analysis of the project is provided in the Pre- and Post-Dewatering Biological Technical Report for the Big Dalton Dam Reservoir Cleanout Project.

**Biological and Botanical Resources Surveys, Pre-Construction and Construction Monitoring, Track Upgrade Project, Thermal, CA to Yuma, AZ, San Bernardino and Imperial County – Union Pacific Railroad, Yuma Subdivision, sub to Parsons Water & Infrastructure.** Associate Botanist. Conducted a protocol focused survey for sensitive plant species including Peirson's milk-vetch and Algodones Dunes sunflower in many sections of the 100-mile-long project corridor. Also performed a protocol desert tortoise presence/absents survey along several sections of the corridor. Performed a biological reconnaissance survey and created vegetation communities maps along sections of. The biological reconnaissance focused primarily on determining the potential habitat for federal- and state-listed plant and wildlife species.

**Botanical Surveys and Monitoring, Live Oak Reservoir Cleanout Project, La Verne, Los Angeles County – Los Angeles County Department of Public Works, Water Resources Division.** Coordinated and conducted field surveys including vegetation mapping and pre-dewatering and post-dewatering vegetation surveys from above the reservoir to 0.5 miles downstream of the Live Oak Dam, which is located within the Angeles National Forest. The two-striped garter snake, a California Species of Concern, was found on the project site, which triggered daily monitoring during construction. No mortalities of sensitive species were observed during construction.

**Sierra Conservation Center Jamestown Effluent Disposal Pipeline Project, Jamestown, Tuolumne County – Department of General Services, Real Estate Services Division.** Assistant Botanist. Provided biological resources services for the project which included an Oak Tree resources field survey, report, and mitigation and monitoring plan, as well as pre-construction surveys for special status plant species such as Chinese Camp brodiaea, Merced clarkia, Congdon's woolly sunflower, Hatweg's pseudobahia, Layne's ragwort, and California vervain. Habitat assessment surveys were conducted for Valley elderberry longhorn beetle, the hirsute sierra sideband snail, and the California tiger salamander.

**Phase II Big Tujunga Wash Mitigation Bank Master Mitigation Plan Implementation, Sunland, Los Angeles County – Los Angeles County**

## **Relevant Experience (Continued)**

**Department of Public Works.** Associate Botanist. Monitored the revegetation enhancement of upland and riparian habitat in the mitigation bank. The revegetation components of the master plan included the restoration of existing riparian habitat by removing exotic plant species and revegetating with native plant species. The plan provided for the creation of coastal sage scrub and oak woodland habitats, and programs were designed to reduce the impact of exotic wildlife species on the native communities. A comprehensive monitoring program was developed for the site, including the use of functional analysis to assess the progress of the restoration efforts. A report summarizing the survey results was submitted after each inspection or combined with larger annual reports.

**Habitat Restoration Plan and Monitoring, Newell Road at Fairside Road Project, Malibu, Los Angeles County – Los Angeles County Department of Public Works.** Associate Botanist. Performed preliminary soil analyses and determined the types of vegetation that were impacted by a landslide. Assisted the Project Manager with preparing a Planting Plan that included a plant palette and a planting diagram. Co-authored a final Habitat Restoration and Monitoring Plan (HRMP). The HRMP provided site preparation and planting details, nursery and maintenance contractor coordination guidelines, performance standards for the plantings, and reporting requirements. These comprehensive Plans were submitted to the agencies for review and served as the framework for future onsite mitigation efforts.

**Environmental Assessment/Initial Study/Mitigated Negative Declaration, Fiber Optic Cable Installation, Victorville, CA to Las Vegas, NV, San Bernardino and Clark County – AT&T, sub to Forkert Engineering & Surveying, Inc.** Conducted general biological reconnaissance surveys to: map the vegetation communities; document the existing biological resources; and assess the habitat's potential to support sensitive plant and wildlife species. Coordinated with CDFG to identify mitigation measures and monitoring requirements for the desert tortoise and other sensitive species based on the Biological Evaluation in order to streamline the Consistency Determination process. Coordinated with BLM to prepare and compose a Noxious Weed Management Plan and a Habitat Restoration Plan. Provided construction monitoring in accordance with project permits for the protection of the desert tortoise. Prepared post-construction desert tortoise monitoring and environmental compliance reports.

## **Relevant Rare Plant Species Experience**

**Fiber Optic Line Installation from the City of Victorville, California to the City of Primm, Nevada – AT&T, sub to Forkert Engineering.** Associate Biologist. Conducted general biological reconnaissance surveys to: map the vegetation communities; document the existing biological resources; and assess the habitat's potential to support sensitive plant and wildlife species. Coordinated with CDFG to identify mitigation measures and monitoring requirements for the desert tortoise and other sensitive species based on the Biological Evaluation in order to streamline the Consistency Determination process. Coordinated with BLM to prepared and compose a Noxious Weed Management Plan and a Habitat Restoration Plan. Provided construction monitoring in accordance with project permits for the protection of the desert tortoise. Prepared post-construction desert tortoise monitoring and environmental compliance reports.

## Relevant Experience (Continued)

**AT&T - Environmental Assessment/Initial Study/Mitigated Negative Declaration Studies, Fiber Optic Cable Installation Monitoring, Victorville, CA to Las Vegas, NV, San Bernardino and Clark County – AT&T, sub to Forkert Engineering & Surveying, Inc.** Conducted general biological reconnaissance surveys to: map the vegetation communities; document the existing biological resources; and assess the habitat's potential to support sensitive plant and wildlife species. Coordinated with BLM to prepare and compose a Noxious Weed Management Plan and a Habitat Restoration Plan. Provided construction monitoring in accordance with project permits for the protection of the desert tortoise. Prepared post-construction desert tortoise monitoring and environmental compliance reports. Provided monitoring services during the construction activities over a 4 month period. 18 tortoises were identified and avoided during construction activities. Lead for succulent translocations during construction.

**Biological and Cultural Resources Surveys, Jurisdictional Delineations, Pre-Construction and Construction Monitoring, Track Upgrade Project, Thermal, CA to Yuma, AZ, San Bernardino and Imperial County – Union Pacific Railroad, Yuma Subdivision, sub to Parsons Water & Infrastructure.** Associate Botanist. Performed biological reconnaissance surveys and vegetation mapping along sections of a 100-mile-long corridor within the 200-foot right-of-way (ROW). The field survey focused primarily on determining the potential habitat for federal- and state-listed plant and wildlife species. Performed a focused plant survey and desert tortoise presence/absence surveys along several sections of the ROW.

**Regulatory Agency Coordination, Background Data Review, Biological Reconnaissance, Protocol surveys for Mohave Ground Squirrel, Burrowing Owl, and Desert Tortoise, Rosamond, Kern County – Capital Pacific Homes Inc.** Assisted Capital Pacific Homes with coordination and negotiations with regulatory and planning agencies with jurisdiction over the proposed residential development. Assisted with protocol surveys for the Mohave ground squirrel, burrowing owl, and the desert tortoise on this Mojave Desert Site. The project required review of previous biological studies of the site and the region and review of information available from the regulatory agencies files. The previous studies were updated with the results of the protocol sampling program.

**Environmental Compliance Services, Pacific Street Bridge, Oceanside, San Diego County – City of Oceanside, sub to Harris & Associates.** Construction activities involved the installation of a bridge over the San Luis Rey River, replacing an earthen crossing near the mouth of the San Luis Rey River adjacent to the Oceanside Harbor. Suitable habitat for sensitive species including California gnatcatcher, light-footed clapper rail, and nesting bird existed adjacent to the project footprint; steelhead trout were identified upstream of the project site. Chambers Group provided construction and noise monitoring to ensure permit compliance and prevent negative impacts to the environment. An environmentally sensitive area (ESA) was outlined with silt fencing directly adjacent to the project area, and fish seining as well as periodic nesting bird surveys were conducted within this ESA. Chambers Group implemented an off-site mitigation and exotic removal program, prepared a Mitigation Monitoring Implementation Plan, and provided restoration monitoring. Results of services were provided in detailed monitoring reports to the client.

## **Relevant Experience (Continued)**

**Desert Tortoise Clearance Surveys, Palmdale Water Reclamation Plant Stage 5 Effluent Management Facilities, Palmdale, Los Angeles County – Los Angeles County Sanitation District.** The Palmdale Water Reclamation Plant Stage Five Effluent Management Facilities project involves construction of storage reservoirs. As part of USFWS approval, the Districts have committed to install a fence around the storage reservoirs to keep tortoises out. Clearance surveys will be performed within the area upon completion of the fence to ensure desert tortoises have not been trapped inside the fenced area. This desert tortoise clearance survey within the fenced area will follow the appropriate USFWS protocol.

**Rancho Las Flores Natural and Cultural Resources Management Plan, Hesperia, San Bernardino County – Rancho Las Flores, LLC.** Conducted reconnaissance surveys, suitability evaluations, and focused surveys for special-status species. A Habitat Suitability Evaluation (HSE) was conducted for southwestern willow flycatcher, least Bell's vireo, burrowing owl, California red-legged frog, Mohave ground squirrel, long-eared owl, bald eagle, prairie falcon, and two-striped garter snake. The HSE was necessary to identify, in specific detail, the portions of the total project site that should be subject to focused (protocol-level) surveys. The HSE identified what portions of the 641 acres of riparian habitat on the site will be subject to focused surveys for least Bell's vireo and southwestern willow flycatcher. The condition of the existing riparian habitat (i.e. amount of suitable understory vegetation) was evaluated to determine the specific areas where focused surveys are warranted; and identified what portions of the 771 acres of grassland habitat will be subject of focused surveys for burrowing owl. It also identified what portions of the entire site will be subject to focused sensitive plant surveys. The HSE utilized the updated vegetation community map (Chambers Group, 2004) to identify general habitat distribution on the site. The focused survey areas were plotted onto sensitive resource maps to be used in the field. Focused surveys were performed in 2005.



## PAUL MORRISSEY

Staff Biologist

Mr. Morrissey has more than 9 years experience participating in and conducting terrestrial and aquatic/marine studies, with a comprehensive background in both collecting data and performing biological monitoring surveys. He is an experienced biologist, field manager and project manager. He has coordinated with state and federal agencies to develop and implement effective mitigation and monitoring plans for listed and sensitive species and to ensure compliance with state and federal laws. He has conducted focused surveys for amphibians, desert tortoise, burrowing owl, small mammals, and protected avian species. He has worked extensively with protected and sensitive fish species such as the Santa Ana sucker, Santa Ana speckled dace, arroyo chub, and rainbow trout. He has also conducted stream and sediment sampling for macro-invertebrates, radio telemetry tracking, electro-fishing surveys, and environmental compliance monitoring. Working on complex linear projects such as the PG&E and SDG&E power transmission line projects has made him familiar with the flora and wildlife species within Riverside, San Diego, and Imperial Counties. He has conducted wetlands delineations pursuant to Section 404 of the CWA and riparian delineations pursuant to Section 1601/1603 of the CDFG Code. He has also prepared jurisdictional delineation reports that were used in the preparation of permit applications for the USACE, CDFG, and RWQCB.

---

### Relevant Experience

#### Key Strengths

- 9 Years of Experience in Southern California
- Biological resource analysis and management
- Jurisdictional Delineations
- Wetlands Delineations
- Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), Riparian/Riverine
- Habitat restoration enhancement programs
- Construction mitigation monitoring
- Extensive working knowledge of regulations/guidelines:
- Endangered Species Act
- Clean Water Act
- U.S. Fish and Wildlife Service
- California Dept. of Fish and Game
- U.S. Army Corps of Engineers
- Section 1602/401/404 permitting

**Chevron Solar Project, Lucerne Valley, San Bernardino, California. Field Manager.** Chevron proposes to develop a 516-acre solar photovoltaic power project in the Lucerne Valley. The plant will consist of crystalline silicon PV modules mounted upon single-axis trackers. Conducted Phase II: Burrow Survey for the burrowing owl, a California Species of Concern (CSC) and BLM sensitive species, according to the Burrowing Owl Survey Protocol and Mitigation Guidelines prepared by the California Burrowing Owl Consortium. Conducted Presence/Absence and Zone of Influence Surveys for the desert tortoise in accordance with protocols set forth by the U.S. Fish and Wildlife Service (USFWS 1992). Seven tortoises, five carcasses, and many burrows and tortoise sign such as tracks and scat were identified during the surveys. Conducted avian point count surveys, and assisted with Mohave ground squirrel habitat assessment. Identified and delineated areas of the project site that fell under the regulatory jurisdiction of the USACE pursuant to Section 404 of the Federal Clean Water Act, CDFG jurisdiction pursuant to Section 1602. A Jurisdictional Delineation Report for the project site was completed after the field surveys describing the limits of jurisdiction pursuant to USACE, CDFG, and SWRCB (401). Permit applications for State Water Resources Control Board (SWRCB - 401), USACE (404) and CDFG (1600) will be submitted for project approval.

**Environmental Assessment/Initial Study/Mitigated Negative Declaration, Fiber Optic Cable Installation, Victorville, CA to Las Vegas, NV, San Bernardino and Clark County – AT&T, sub to Forkert Engineering & Surveying, Inc.** Field Manager. The project involves permitting applications, conducting biological surveys, vegetation mapping and jurisdictional delineations from the City of Victorville to Las Vegas. Conducted general biological reconnaissance surveys to map the vegetation communities, to document the

existing biological resources and to assess the habitat for its potential to support sensitive plant and wildlife

## Relevant Experience (Continued)

---

### Education

M.S., Biology, California State University, Dominguez Hills; 2005

B.S., Biology California State University, Dominguez Hills; 2001

### Registrations, Certifications, and Affiliations

U.S. Fish & Wildlife Service Permit, #TE182550-0

California Dept. of Fish and Game Scientific Collector's Permit, #SC-008151

U.S. Army Corps of Engineers, Wetland Training Institute, Wetland Delineator Certification, 2007

Desert Tortoise Surveying Techniques Workshop, Desert Tortoise Council, 2007; qualified desert tortoise biologist

CDFG authorized to take, possess, and transport flat-tailed horned lizards, 2007

2007 Marvin M. Black Excellence in Partnering Award for the San Gabriel River Project

Southwestern Willow Flycatcher Workshop, Southern Sierra Research Station; 2006

Basic Tracking, Earth Skills, 2006

Electrofishing and Fish Handling Techniques, 2008

---

species. Identified and delineated areas of the project site that fell under the regulatory jurisdiction of the USACE pursuant to Section 404 of the Federal Clean Water Act, CDFG jurisdiction pursuant to Section 1602. A Jurisdictional Delineation Report for the project site was completed after the field surveys describing the limits of jurisdiction pursuant to USACE, CDFG, and SWRCB (401). Permit applications for State Water Resources Control Board (SWRCB - 401), USACE (404) and CDFG (1600) were submitted for project approval. Conducted presence/absence surveys for the federal- and state-listed threatened desert tortoise (*Gopherus agassizii*) in accordance with protocol set-forth by the U.S. Fish and Wildlife Service (USFWS, 1992). Sign of desert tortoises including live tortoises, shell, bones, scutes, limbs, scat, burrows, pellets, tracks, egg shell fragments, courtship rings, drinking sites, and mineral licks were recorded.

**AT&T Fiber Optic Cable – Las Vegas to Victorville Project, Multiple County – AT&T, sub to Forkert Engineering & Surveying, Inc.** Conducted general biological reconnaissance surveys to: map the vegetation communities; document the existing biological resources; and assess the habitat's potential to support sensitive plant and wildlife species. Coordinated with BLM to prepared and compose a Noxious Weed Management Plan and a Habitat Restoration Plan. Provided construction monitoring in accordance with project permits for the protection of the desert tortoise. Prepared post-construction desert tortoise monitoring and environmental compliance reports. Provided environmental awareness training for all individuals involved with the project. Conducted jurisdictional delineations fro California Department of Fish and Game along the linear fiber optic line for AT&T. Presence/absence desert tortoise surveys were conducted in California from Stoddard Wells Rd. in Victorville to Slash X Ranch, from Halloran Summti Rd. to Cima Rd. in Baker, and From Nipton Rd, to State Line (Primm, Nevada). Surveyed the project area and the 100 ft. and 300 ft. ZOI transect lines. Tortoise burrows, scat, and a scute were observed in various places along the route. Surveys followed protocol set out by USFWS. Detailed notes and GPS points were recorded when any desert tortoise sign was observed or detected. Conducted construction monitoring from Los Vegas, Nevada to Primm, Nevada. Conducted nesting bird surveys, and assisted with clearance surveys for the desert tortoise. Monitoring included trenching, pipe installation, backfilling, restoration, compaction, vault installation, proofing, cable pulling, splicing, and post installation/replacement. Eighteen tortoises were found along the project site in Nevada and only three had to be handled, in order to be moved away from the approaching construction equipment.

**Biological and Cultural Resources Surveys, Jurisdictional Delineations, Pre-Construction and Construction Monitoring, Track Upgrade Project, Thermal, CA to Yuma, AZ, San Bernardino and Imperial County – Union Pacific Railroad, Yuma Subdivision, sub to Parsons Water & Infrastructure.** Staff Biologist. The project involves conducting biological surveys, vegetation mapping and wetland delineations along 100-mile-long corridor. Services include a reconnaissance surveys, focused sensitive species surveys (Yuma clapper rail surveys, California black rail surveys, least Bell's vireo, southwestern willow flycatcher, Coachella Valley fringe-toed lizard surveys, desert tortoise presence/ absent surveys, desert pupfish, Peirson's milk vetch surveys, and Algodones Dunes sunflower surveys), and vegetation communities surveys and mapping within the 200-foot right-of-way. The field survey focuses primarily on determining the potential habitat for federal- and state-listed plant and wildlife species. Conducted burrowing owl surveys, general reconnaissance surveys, pre-construction sweeps, and personnel environmental awareness trainings for all construction personnel.

## Relevant Experience (Continued)

**Regulatory Agency Coordination, Background Data Review, Biological Reconnaissance, Protocol surveys for Mohave Ground Squirrel, Burrowing Owl, and Desert Tortoise, Rosamond, Kern County – Capital Pacific Homes Inc.** Chambers Group assisted Capital Pacific Homes with coordination and negotiations with regulatory and planning agencies with jurisdiction over the proposed residential development. Chambers Group conducted protocol surveys for the Mohave ground squirrel, burrowing owl, and the desert tortoise on this Mojave Desert Site. The project required review of previous biological studies of the site and the region and review of information available from the regulatory agencies files. The previous studies were updated with the results of the protocol sampling program.

**Barstow Desert Tortoise Surveys, Cellular Tower Project, Barstow, San Bernardino County – Terracon.** Conducted a presence/absence survey on the site for the federal- and state-listed threatened desert tortoise (*Gopherus agassizii*) in accordance with protocol set-forth by the U.S. Fish and Wildlife Service (USFWS, 1992). The survey was conducted on foot over all areas of suitable habitat utilizing 30-foot belt transects to provide 100 percent coverage. A Zone of Influence (ZOI) survey was conducted in the areas directly adjacent to and surrounding the project site where suitable desert tortoise habitat existed and in which tortoises may directly or indirectly be affected by project operations. The ZOI survey was conducted within a buffer of 100, 300, 600, 1,200, and 2,400 feet parallel to the edge of the project boundaries in accordance with USFWS protocol. Sign of desert tortoises including live tortoises, shell, bones, scutes, limbs, scat, burrows, pellets, tracks, egg shell fragments, courtship rings, drinking sites, and mineral licks were recorded. After completing the field surveys, findings were summarized in a letter report.

### BURROWING OWL SURVEYS

**Matthews Homes Development Project, San Bernardino County.** Project Manager for the 88-acre development project. Project required a CDFG 2081 permit for the take of Mohave ground squirrel and burrowing owl. Tasks include scheduling surveys, supervising staff, ensuring complete data collection, providing quality and control report preparation, interacting effectively with agency personnel, maintaining client communication, maintaining budget parameters, and meeting project deadlines. Conducted Mohave ground squirrel habitat assessment, focused burrowing owl surveys, Zone of Influence surveys for the state- and federal-listed threatened desert tortoise, construction monitoring, 2081 permit compliance, and mitigation reports. Burrowing owl were identified during the surveys, authored a Passive Relocation Plan for CDFG, and assisted Jeff Kidd with the passive relocation. Coordinated with Tonya Moore (CDFG) regarding the mitigation for this project site.

**Medical Real Estate Development, Riverside County.** Project Manager. Conducted Phase III burrowing owl surveys for the Medical Real Estate Development located in Sun City (APNs: 333-050-012-9, 333-050-009-7, 333-050-010-7, & 333-050-011-8), Riverside County, California. The 10-acre site was surveyed for burrowing owl and nesting birds, and consisted of 4 separate site visits one-hour before sunrise to two-hours after sunrise for four non-consecutive days. No owls were identified using the burrows. A memo report was sent to local Agencies and DFG.

**Biological Reconnaissance Survey, 80-Acre Residential Development, Apple Valley, San Bernardino County – KJAJ Development.** Task Manager. Conducted a biological reconnaissance survey of 80 acres. Conducted habitat assessment for Mohave ground squirrel and burrowing owl. Identified a pair of burrowing owls onsite. Studies were conducted in order to comply with CEQA and with local regulations.

**Biological and Cultural Resources Inventory, 20-Acre Development Project, Hesperia, San Bernardino County – D.A. Development.** Task Manager for housing development project in Hesperia. Conducted a biological reconnaissance survey of 20 acres. Conducted habitat assessment for Mohave ground squirrel and burrowing owl. These studies were conducted in order to comply with CEQA and with local regulations.

## Relevant Experience (Continued)

**MSHCP Habitat Assessment, 3.07-Acre Site, Sun City, Riverside County – Hollander Management, LLC.** Conducted a Multiple Species Habitat Conservation Plan (MSHCP) habitat assessment for burrowing owl and sensitive plants on the 3.07 acre site according to Riverside County guidelines. A report will be prepared based on these findings and submitted to the County.

**Cantu-Gallaeno at I-15 Exchange Project, Corona, Riverside County – Riverside County Transportation Department, sub to Harris & Associates.** Performed presence/absence surveys for burrowing owl in Delhi-Sand Loving Fly known population. No burrowing owl were identified.

## REBECCA ALVIDREZ

Associate Biologist

Ms. Alvidrez has five years of experience working on research for federal and state-listed plant species of California's central coast including Monterey gilia and Monterey spineflower. She has experience with live-trapping, banding, blood sampling of common passerines including species such as yellow-headed blackbirds. She has experience in conducting biological reconnaissance-level vegetation surveys, plant transects, and restoration monitoring. She has co-authored environmental and biological sections for a variety of reports, including official habitat restoration plans.

### Key Strengths

Vegetation surveys  
Restoration monitoring  
Habitat Restoration plans  
Focus wildlife/vegetation surveys  
Construction Mitigation Monitoring  
Archeological surveys  
Archeological Phase II testing

### Relevant Rare Plant Species Experience

**Crafton Hills Reservoir Expansion and Pipeline Project, Crafton, San Bernardino County – Department of Water Resources, sub to Environmental Science Associates.** Associate Botanist participating in conducting a focused plant survey for the entire project area for the presence/absence of Santa Ana River woollystar, slender-horned spineflower, Nevin's barberry, Parish's checkerbloom, Parry's spineflower, Plummer's mariposa lily, and other sensitive plant species. Prepared a Biotechnical Report following all surveys that was incorporated into the EIR for this project.

### **Biological and Cultural Resources Surveys, Jurisdictional Delineations, Pre-Construction and Construction Monitoring, Track Upgrade Project, Thermal, CA to Yuma, AZ, San Bernardino and Imperial County – Union Pacific Railroad, Yuma Subdivision, sub to Parsons Water & Infrastructure.**

Associate biologist. Conducted biological reconnaissance surveys focusing primarily on vegetation communities surveys and mapping along a 100-mile corridor within the 200-foot right-of-way. The field survey focused primarily on determining the potential habitat for federal- and state-listed plant and wildlife species. Performed focus surveys determine the presence or absence onsite of 2 federal- and state-listed sensitive species for Peirson's milk vetch (*Astragalus magdalenae* var. *peirsonii*) and Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*). Surveyed from mile post 698 to 715 by walking transects on both sides of the railroad tracks and recording the plant species found. Reconnaissance surveys involved surveys for sensitive species (Yuma clapper rail surveys, California black rail surveys, least Bell's vireo, southwestern willow flycatcher, Coachella Valley fringe-toed lizard surveys, desert pupfish). Conducted a focused survey for the desert tortoise covering 100% of the project site for 43 miles from mile post 679 to mile post 722. Assisted with the determination of the jurisdictional limits of the various governmental agencies that regulate wetlands and waterways. The effort involved the evaluation and documentation of over 250 drainage features, including nearly 100 separate wetland delineations.

### **Aerial Mapping and Survey of Endangered Plant Population – Santa Barbara County.**

Associate Botanist, assisted in conducting a comprehensive field survey mapping the distribution of a protected plant species population throughout the 2,000 acre property. Chambers Group was retained to advise this client in the resolution of land use challenges relevant to managing the protection of a federally-listed endangered and state-listed rare plant species with oil and gas exploration on private land. The sensitive plant species was encroaching into operational areas and impeding normal facility operations and maintenance, generating a unique challenge to the property owner. Following the survey, Chambers Group facilitated discussions with the U.S. Fish and Wildlife Service and the California Department of Fish and Game and obtained authorization for the client to conduct limited maintenance activities in specified facility locations to control encroachment of the sensitive plant species. In addition, Chambers Group evaluated long-term control measures to restrict the encroachment of the sensitive plant species into operational areas. A

## Relevant Experience (Continued)

---

### Education

B.S., Ecology and Evolution,  
University of California, Santa  
Cruz; 2003

### Specialized Training

Plant Identification for Coastal  
Southern California (Wetland  
Training Institute, Inc.) –  
San Diego, California 2007  
The Grass Family: Identification  
and Ecology, Rancho Santa  
Ana Botanic Garden, 2007  
Surveying, Monitoring, and  
Handling Techniques  
Workshop, Desert Tortoise  
Council, 2008

Elkhorn Slough Coastal  
Training Program Workshop for  
California Red-legged frog  
Elkhorn Slough Coastal  
Training Program Workshop for  
California Tiger Salamander  
Elkhorn Slough Coastal  
Training Program Workshop for  
Western Pond Turtle

### Registration and Certification

Scientific Collector's Permit #  
009931, California Department  
of Fish and Game  
Permit to take, possess, and  
transport Flat-tailed Horned  
Lizards as a biological monitor  
and during surveys for public  
agencies, California  
Department of Fish and Game

### Memberships

Member of Member or  
California Native Grasslands  
Association (CNGA)  
Member of California Society  
for Ecological Restoration  
(SERCAL)  
California Invasive Plant  
Council (Cal IPC)

---

summary report of recommended control measures was subsequently provided. This project is ongoing. We have been asked to maintain confidentiality on behalf of the client with regards to this project.

**Riparian Restoration, Enhancement Plan and Monitoring, Santa Margarita River Flood Plain, Marine Corps Air Station, Camp Pendleton, Oceanside, San Diego County – U.S. Navy, MCAS Camp Pendleton, sub to Insight Environmental, Engineering & Construction, Inc.** Associate Botanist responsible for the monitoring restoration activities occurring on 55 acres of fragmented river floodplain adjacent to the Santa Margarita River and monitoring the ground water. Additional tasks included the sampling of the stacked cube method within the existing least Bell's vireo habitat and riparian vegetation adjacent to the helicopter landing area on Camp Pendleton as well as the restored areas. Success criteria will be primarily a function of how suitable the habitat is for vireo. Chambers Group designed and oversaw installation of nearly 50 acres of riparian woodland at the Marine Corps Air Station, Camp Pendleton. The comprehensive design included resource protection, weeding, plant and seed lists, planting methods and care after planting, including irrigation. The vegetation grew with exceptional speed; many plants that had been in liner containers in early 2006 were nearly indistinguishable from mature native-grown plants of the same species by early 2007. Chambers Group provided monitoring, instructions and advice to the landscape contractor, and assistance with topics including weed control throughout the growing period. Chambers Group also carried out technical functions apart from restoration, including monitoring of ground water, tree height related to aircraft safety, and various wildlife monitoring functions.

**Environmental Compliance Services, Pacific Street Bridge, Oceanside, San Diego County – City of Oceanside, sub to Harris & Associates.** Associate Botanist co-authored the Mitigation Monitoring Plan of an off-site mitigation and exotic removal program. Chambers Group implemented the off-site mitigation and exotic removal program, and provided restoration monitoring. Results of services were provided in detailed monitoring reports to the client. Construction activities involved the installation of a bridge over the San Luis Rey River, replacing an earthen crossing near the mouth of the San Luis Rey River adjacent to the Oceanside Harbor.

**Biological Resources Surveys, Revegetation and Mitigation Monitoring for the Marblehead Coastal Project, San Clemente, Orange County – SunCal Properties.** Associate Botanist, participated in conducting preliminary soil experiments for soil productivity from previously collected soil to determine the soil amendments needed prior to planting. Chambers Group is providing environmental consulting services, which include supplying the technical assistance needed to acquire a Coastal Development Permit and ensure compliance with all other applicable permits, as well as conduct focused gnatcatcher surveys, construction monitoring, ecological restoration and performance monitoring for 5 years. Chambers Group will ensure compliance with all conditions of the Habitat Management Plan (HMP) during initial vegetation clearing/grubbing, erosion control and project construction phases. Chambers Group prepared the upland portion of the HMP to protect, restore, and manage native grasslands, coastal bluff scrub, the Blochman's Dudleya Reserve, and approximately 70 acres of coastal sage scrub located within the Marblehead property. The mitigation plan describes site preparation methods, plant and seed lists, plant installation techniques, and maintenance procedures for restoration of the upland habitats to be installed as required in the

## Relevant Experience (Continued)

Biological Opinion. Chambers Group developed performance standards and an onsite production nursery to accommodate several thousand plants and store over four tons of seed. Restoration efforts include enhancement of native grasslands and coastal bluff scrub. The HMP was designed to maximize the habitat value for coastal California gnatcatcher and other species dependent on sage scrub as well as to enhance the functional value of the preserved/restored wetlands within the canyons by improving connectivity and allowing for wildlife movement between each area.

**Conceptual Mitigation and Monitoring Plan, 256.9-acre Proposed Development Site, Yorba Linda, Orange County – Pulte Homes.** Designed mitigation programs, both on-site and off-site. Located suitable mitigation areas and made necessary arrangements with state park. Extensive biological resources surveys were conducted to document the biological conditions on several large restoration sites on behalf of a private developer. Tract #s 15566, 16320 & 16321. The purpose of the surveys was to identify the species of plants and wildlife present and to map the vegetation communities and wildlife habitat on the site. The habitats were assessed for the potential to support listed and/or sensitive species of plants and wildlife.

**Tree Assessment Survey, Biological Services for South Region Landfills, Santa Ana, Orange County – County of Orange Integrated Waste Management Department.** Measured the diameter at breast height, tree height, and tree canopy of all California Sycamore (*Platanus racemosa*) trees in a specific canyon. Took photos and GPS points of each tree as well. All trees were in good health and most were very large. Conducting preliminary soil experiments for soil productivity using previously collected soil to determine the possible soil ammendment needed for planting. Provided biological consulting services to IWMD for South County landfills. The project involved surveys and monitoring of endangered species, mitigation monitoring, brown-headed cowbird trapping, state and federal regulatory planning, CEQA documents, as-needed biological services, contractor coordination, biological services at closed landfills project management, and a restoration training course.

**Biological Surveys, San Juan Capistrano Lower Landslide, San Juan Capistrano, Orange County – City of San Juan Capistrano Public Works.** Associate Biologist. Assisted with mitigation monitoring and reporting. The project involved grading and removal of debris from a landslide area, and stabilizing an existing water pipeline. Chambers Group conducted a biological reconnaissance survey of the site, vegetation mapping, construction monitoring, and restoration of approximately three acres of coastal sage and one acre of disturbed coastal sage scrub. Prepared monitoring reports which documented construction and restoration activities as well as species observed onsite.

**Biological Surveys and Monitoring, Big Dalton Dam Sediment Removal, Glendora, Los Angeles County – Los Angeles County Department of Public Works, Water Resources Division.** Participated in field surveys including vegetation mapping, focused plant surveys, amphibian, reptile, fish, avian, and mammal surveys, stream assessments and macroinvertebrate collections from above the reservoir to 2 miles downstream of the Big Dalton Dam. Data and analysis of the project is provided in the Pre- and Post-Dewatering Biological Technical Report for the Big Dalton Dam Reservoir Cleanout Project.

**San Gabriel River Sediment Management Plan, Biological Surveys & Monitoring, Azusa, Los Angeles County – Los Angeles County Department of Public Works.** Associate Botanist participated in conducting vegetation mapping and performance monitoring. Chambers Group performed a determination of jurisdictional wetlands, the study area includes from Morris Dam downstream to Foothill Boulevard and Brown's Gulch. A functional analysis methodology was formulated to assess and compare the biological resources of the two sites. Data related to the biological, physical, and biogeochemical functions at each site were collected on transects in upland, riparian, and aquatic habitats to complete the functional analysis. A biological resources assessment report was written which included the methodology used for field survey

## Relevant Experience (Continued)

and functional analysis techniques, a discussion of existing conditions at both sites, and the functional analysis comparing the sites.

### RELEVANT WILDLIFE EXPERIENCE

**AT&T – Surveys for Environmental Assessment/Initial Study/Mitigated Negative Declaration, Fiber Optic Cable Installation, Victorville, CA to Las Vegas, NV, San Bernardino and Clark County – AT&T, sub to Forkert Engineering & Surveying, Inc.** The project involves permitting applications (Section 7, Section 404, 401, 1600 and WDR), conducting general and focused biological surveys, construction monitoring, GIS mapping and jurisdictional delineations along the linear project area. Conducted general biological reconnaissance surveys to: map the vegetation communities; document the existing biological resources and; assess the habitat's potential to support sensitive plant and wildlife species. Conducted presence/absence surveys for the federal- and state-listed threatened desert tortoise (*Gopherus agassizii*) in accordance with protocol set-forth by the U.S. Fish and Wildlife Service (USFWS, 1992). Signs of desert tortoises including live tortoises, shell, bones, scutes, limbs, scat, burrows, pellets, tracks, egg shell fragments, courtship rings, drinking sites, and mineral licks were recorded. Phase II involves construction monitoring for cable installation activities. Phase I involved conducting general biological reconnaissance surveys to map the vegetation communities, to document the existing biological resources and to assess the habitat for its potential to support sensitive plant and wildlife species. Performed biological monitoring services over a 4 month period, including pre-construction sweeps, construction monitoring, and report submittals.

**AT&T – Surveys for Environmental Assessment/Initial Study/Mitigated Negative Declaration, Fiber Optic Cable Installation, Victorville, CA to Las Vegas, NV, San Bernardino and Clark County – AT&T, sub to Forkert Engineering & Surveying, Inc.** The project involves permitting applications (Section 7, Section 404, 401, 1600 and WDR), conducting general and focused biological surveys, construction monitoring, GIS mapping and jurisdictional delineations along the linear project area. Conducted general biological reconnaissance surveys to: map the vegetation communities; document the existing biological resources and; assess the habitat's potential to support sensitive plant and wildlife species. Conducted presence/absence surveys for the federal- and state-listed threatened desert tortoise (*Gopherus agassizii*) in accordance with protocol set-forth by the U.S. Fish and Wildlife Service (USFWS, 1992). Signs of desert tortoises including live tortoises, shell, bones, scutes, limbs, scat, burrows, pellets, tracks, egg shell fragments, courtship rings, drinking sites, and mineral licks were recorded. Phase II involves construction monitoring for cable installation activities. Phase I involved conducting general biological reconnaissance surveys to map the vegetation communities, to document the existing biological resources and to assess the habitat for its potential to support sensitive plant and wildlife species. Performed biological monitoring services over a 4 month period, including pre-construction sweeps, construction monitoring, and report submittals.

**Biological and Cultural Resources Surveys, Jurisdictional Delineations, Pre-Construction and Construction Monitoring, Track Upgrade Project, Thermal, CA to Yuma, AZ, San Bernardino and Imperial County – Union Pacific Railroad, Yuma Subdivision, sub to Parsons Water & Infrastructure.** Assistant biologist. Conducted biological reconnaissance surveys focusing primarily on vegetation communities surveys and mapping along a 100-mile corridor within the 200-foot right-of-way. The field survey focused primarily on determining the potential habitat for federal- and state-listed plant and wildlife species. Performed focus surveys to determine the presence or absence onsite of 2 federal- and state-listed sensitive species for Peirson's milk vetch (*Astragalus magdalenae* var. *peirsonii*) and Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*). Surveyed from mile post 698 to 715 by walking transects on both sides of the railroad tracks and recording the plant species found. Reconnaissance surveys involved surveys for sensitive species (Yuma clapper rail surveys, California black rail surveys, least Bell's vireo,

## Relevant Experience (Continued)

southwestern willow flycatcher, Coachella Valley fringe-toed lizard surveys, desert pupfish). Conducted a focused survey for the desert tortoise covering 100% of the project site for 43 miles from mile post 679 to

---

### Education

B.S., Ecology and Evolution,  
University of California, Santa  
Cruz; 2003

### Specialized Training

Plant Identification for Coastal  
Southern California (Wetland  
Training Institute, Inc.) –  
San Diego, California 2007  
The Grass Family: Identification  
and Ecology, Rancho Santa  
Ana Botanic Garden, 2007  
Surveying, Monitoring, and  
Handling Techniques  
Workshop, Desert Tortoise  
Council, 2008

Elkhorn Slough Coastal  
Training Program Workshop for  
California Red-legged frog  
Elkhorn Slough Coastal  
Training Program Workshop for  
California Tiger Salamander  
Elkhorn Slough Coastal  
Training Program Workshop for  
Western Pond Turtle

### Registration and Certification

Scientific Collector's Permit #  
009931, California Department  
of Fish and Game  
Permit to take, possess, and  
transport Flat-tailed Horned  
Lizards as a biological monitor  
and during surveys for public  
agencies, California  
Department of Fish and Game

### Memberships

Member of Member or  
California Native Grasslands  
Association (CNGA)  
Member of California Society  
for Ecological Restoration  
(SERCAL)  
California Invasive Plant  
Council (Cal IPC)

mile post 722. Surveys were conducted following Fish and Wildlife Service protocols of 1992. Old desert tortoise burrows and possible old scat were detected on site. GPS locations, photos, and detailed notes were taken upon detection of all sign. No desert tortoise or desert tortoise carcasses were detected on site. Assisted with the determination of the jurisdictional limits of the various governmental agencies that regulate wetlands and waterways. The effort involved the evaluation and documentation of over 250 drainage features, including nearly 100 separate wetland delineations. Conducted pre-construction surveys for desert tortoise and construction monitoring from Sidewinder Road to HWY 78 in Glamis.

**Rancho Las Flores Natural and Cultural Resources Management Plan, Hesperia, San Bernardino County – Rancho Las Flores, LLC.** Chambers Group biologists conducted reconnaissance surveys, suitability evaluations, and focused surveys for special-status species. A Habitat Suitability Evaluation (HSE) was conducted for southwestern willow flycatcher, least Bell's vireo, burrowing owl, California red-legged frog, Mohave ground squirrel, long-eared owl, bald eagle, prairie falcon, and two-striped garter snake. The HSE was necessary to identify, in specific detail, the portions of the total project site that should be subject to focused (protocol-level) surveys. Conducted focused surveys for plants and fire damage on site during 2008.

**Regulatory Agency Coordination, Background Data Review, Biological Reconnaissance, Protocol surveys for Mohave Ground Squirrel, Burrowing Owl, and Desert Tortoise, Rosamond, Kern County – Capital Pacific Homes Inc.** Chambers Group assisted Capital Pacific Homes with coordination and negotiations with regulatory and planning agencies with jurisdiction over the proposed residential development. Conducted protocol surveys for the burrowing owl and the desert tortoise on this Mojave Desert Site. The project required review of previous biological studies of the site and the region and review of information available from the regulatory agencies files. The previous studies were updated with the results of the protocol sampling program.

**Nesting Bird Survey, City of Glendale, Los Angeles County – LADPW.** Conducting nesting bird surveys in the Cooks Canyon debris basin crib dam M1-A Dewatering system for two weeks, three days each week for a total of six surveys.

---

**Environmental Compliance Services, Pacific Street Bridge, Oceanside, San Diego County – City of Oceanside, sub to Harris & Associates.** Construction activities involved the installation of a bridge over the San Luis Rey River, replacing an earthen crossing near the mouth of the San Luis Rey River adjacent to the Oceanside Harbor. Suitable habitat for sensitive species including California gnatcatcher, light-footed clapper rail, and nesting bird existed adjacent to the project footprint; steelhead trout were identified upstream of the project site. Chambers Group provided construction and noise monitoring to ensure permit compliance and prevent negative impacts to the environment. An environmentally sensitive area (ESA) was outlined with silt fencing directly adjacent to the project area, and fish seining as well as periodic nesting bird surveys were conducted within this ESA. Chambers Group implemented an off-site mitigation and exotic removal program,

## Relevant Experience (Continued)

prepared a Mitigation Monitoring Implementation Plan, and provided restoration monitoring. Results of services were provided in detailed monitoring reports to the client.

**Desert Tortoise Clearance Surveys, Palmdale Water Reclamation Plant Stage 5 Effluent Management Facilities, Palmdale, Los Angeles County – Los Angeles County Sanitation District.** The Palmdale Water Reclamation Plant Stage Five Effluent Management Facilities project involves construction of storage reservoirs. As part of USFWS approval, the Districts have committed to install a fence around the storage reservoirs to keep tortoises out. Clearance surveys will be performed within the area upon completion of the fence to ensure desert tortoises have not been trapped inside the fenced area. This desert tortoise clearance survey within the fenced area will follow the appropriate USFWS protocol.

**Water Reclamation Project in Palmdale, Los Angeles, California - Los Angeles Sanitation District.** Monitored all construction activities which included; the installation of a pipeline, vaults, pump station, and reservoirs. No tortoises were detected/observed on the project site; however, old desert tortoise burrows without recent sign were observed.



## SARAI AH SKIDMORE

Associate Biologist/Botanist

Ms. Skidmore has four years of experience in identification of vertebrate species as well as major plant communities and vegetation in southern California. Ms. Skidmore has experience conducting biological reconnaissance-level surveys, habitat assessments, mapping vegetation, plant transects, construction monitoring, and jurisdictional delineations. Following current protocols, she has conducted focused surveys for federal- and state-listed species and California special concern species including desert tortoise, burrowing owl, snowy plover, least Bell's vireo, coastal California gnatcatcher, Plummer's mariposa lily, and thread-leaved brodiaea. Ms. Skidmore has authored and co-authored environmental and biological sections of reports. In addition, Ms. Skidmore has experience with GIS analysis.

### Relevant Experience

---

#### Key Strengths

Focus Surveys for Sensitive Species

Biological Resources Surveys

Habitat Assessments

Construction Mitigation Monitoring

---

**CEQA Services, IS/MND, Smith Correctional Facility Expansion, Banning, Riverside County – County of Riverside Department of Facilities Management, Real Estate Division, sub to ICF International.** Conducted a habitat assessment on the project site following a literature review (including searching the latest editions of the California Natural Diversity Data Base and California Native Plant Society Electronic Inventory). A cultural resources records search was conducted with the South Central Coastal Archaeological Information Center located at the University of California, Riverside to determine the extent and results of previous cultural resources studies that have been conducted in and near the project area. Co-authored the results of the survey. The area of the project site was 139,000 square feet. The county of Riverside required CEQA compliance documents for this project. The project required an Initial Study (IS) and Mitigated Negative Declaration (MND). Chambers reviewed all available project-related data presented to us by the County and ICF to determine if there was sufficient data for use to prepare the IS. The biological investigation of the project areas consisted of a literature review (including searching the latest editions of the California Natural Diversity Data Base and California Native Plant Society Electronic Inventory) and a reconnaissance-level site visit. A cultural resources records search was performed with the South Central Coastal Archaeological Information Center located at the University of California, Riverside to determine the extent and results of previous cultural resources studies that have been conducted in and near the project area. A site visit conducted by a qualified archaeologist. An air and noise study was completed. A response to all written and oral comments received on the Draft IS/MND was prepared according to City Staff direction.

**Rancho Las Flores Natural and Cultural Resources Management Plan, Hesperia, San Bernardino County – Rancho Las Flores, LLC.** Chambers Group biologists conducted reconnaissance surveys, suitability evaluations, and focused surveys for special-status species. A Habitat Suitability Evaluation (HSE) was conducted for southwestern willow flycatcher, least Bell's vireo, burrowing owl, California red-legged frog, Mohave ground squirrel, long-eared owl, bald eagle, prairie falcon, and two-striped garter snake. The HSE was necessary to identify, in specific detail, the portions of the total project site that should be subject to focused (protocol-level) surveys. The HSE identified what portions of the 641 acres of riparian habitat on the site will be subject to focused

## Relevant Experience (Continued)

---

### Education

B.S. Biology, California State University, Fullerton; 2006

Emphasis in Biodiversity, Ecology, and Conservation

### Memberships

Desert Tortoise Council

Defenders of Wildlife

The Society for Conservation Biology

Specialized Training, Certifications

Surveying, Monitoring, and Handling Techniques Workshop, Desert Tortoise Council, 2006

BLM Flat-tailed Horned Lizard Training, May 2007

Intro to Birding Workshop – Sea and Sage Audubon Society, 2006

Scientific Collector's Permit # 009105, California Department of Fish and Game

Permit to take, possess, and transport Flat-tailed Horned Lizards as a biological monitor and during surveys for public agencies, California Department of Fish and Game

---

surveys for least Bell's vireo and southwestern willow flycatcher. The condition of the existing riparian habitat (i.e. amount of suitable understory vegetation) was evaluated to determine the specific areas where focused surveys are warranted; and identified what portions of the 771 acres of grassland habitat will be subject of focused surveys for burrowing owl. It also identified what portions of the entire site will be subject to focused sensitive plant surveys. The HSE utilized the updated vegetation community map (Chambers Group, 2004) to identify general habitat distribution on the site. The focused survey areas were plotted onto sensitive resource maps to be used in the field. Focused surveys were performed in 2005.

**MSHCP Habitat Assessment, 4.04-Acre Site, Murietta, Riverside County – Angel Rodriguez.** Chambers Group conducted a Multiple Species Habitat Conservation Plan (MSHCP) habitat assessment for burrowing owl 4.04-acre site according to Riverside County guidelines. A report was prepared based on these findings and submitted to the County.

**Biological Resources Surveys, Lancaster, Los Angeles County – Nancy Chou.** Chambers Group conducted a literature review to determine if there are any existing records of listed and/or sensitive plant and wildlife species occurring on or in the vicinity of the site. This task will included a review of the California Natural Diversity Database (CNDDDB) and the California Native Plant Society's Electronic Inventory (CNPSEI) for relevant information. In addition, biological information included in reports previously prepared for this project or adjacent projects (if available) will be reviewed. After conducting the literature search, biologists familiar with the resources known or expected to occur in the project's vicinity conducted a reconnaissance-level survey of the biological resources on the site. All plant communities on the project site were surveyed, mapped, and qualitatively described and all habitats on the site were characterized. Chambers Group biologists documented the presence of common and sensitive biological resources on the project site. Chambers Group biologists also conducted a preliminary assessment of the Project site to identify potential U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act and California Department of Fish and Game (CDFG) jurisdiction pursuant to Section 1602 of the State of California Fish and Game Code. Suspected jurisdictional areas will be field checked for the presence of definable channels and/or wetland vegetation. Suspected USACE/CDFG jurisdictional areas were field checked for the presence of riparian vegetation, definable channels, and Ordinary High Water Marks (OHWMs). The proposed project site is potentially within the range of desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), and Mojave ground squirrel (*Spermophilus mohavensis*). All data was presented in a biological technical report.

**Nesting Bird and Burrowing Owl Preconstruction Survey, Lancaster, Los Angeles County – Matthews Homes.** Conducted a Nesting Bird Survey for two 10-acre sites. The objective of the surveys was to identify any nesting birds in the site at a maximum of 30 days prior to ground disturbing activities throughout the project site utilizing approximately 30- or 100-foot belt transects, depending on the density of vegetation, in order to maintain 100 percent coverage, which is

## Relevant Experience (Continued)

required by the Department of Fish and Game. Any active and inactive nests on site as well as within the 150 foot buffer were recorded on data sheets.

**Regulatory Agency Coordination, Background Data Review, Biological Reconnaissance, Protocol surveys for Mohave Ground Squirrel, Burrowing Owl, and Desert Tortoise, Rosamond, Kern County – Capital Pacific Homes Inc.** Conducted a focused survey for the desert tortoise. Transects were walked by foot in order to cover 100% of the project site. Conducted transects for the zone of influence (ZOI) at 100, 300, 600, 1200, and 2400ft. Desert tortoise or desert tortoise sign were not detected on site or in the ZOI.

**MSHCP Habitat Assessment, Normandale Holdings, Sun City, Riverside County – Jack Van Norman.** Chambers Group, Inc., was retained by Normandale Holdings, Ltd. to conduct a habitat assessment for burrowing owl (*Athene cucularia*), Stephen's kangaroo rat (*Dipodomys stephensi*), and six narrow endemic plant species: Munz's onion (*Allium munzii*), San Diego ambrosia (*Ambrosia pumila*), many-stemmed dudleya (*Dudleya multicaulis*), spreading navarretia (*Navarretia fossalis*), California Orcutt grass (*Orcuttia californica*), and Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*) on September 20, 2005. Chambers Group biologists also assessed the site for vernal pools and potential jurisdictional waters. In addition, botanists conducted focused surveys for San Diego ambrosia and Many-stemmed dudleya on April 16, 2007. An Urban/Wildlands Interface Guidelines (UWIG) analysis was performed to address indirect effects associated with locating development in proximity to a Multiple Species Habitat Conservation Plan (MSHCP) Conservation Area. Sources of edge effects analyzed in the UWIG analysis include runoff from the project site into the Conservation Area, potential for generation of toxics and potential for night lights adversely affecting wildlife with the Conservation Area, potential for noise generation from proposed land use within the project site, potential for invasive plant species from proposed project site landscaping, incorporation of barriers to minimize unauthorized public access, domestic animal predation, illegal trespass or dumping in the Conservation Area, and manufactured slopes from proposed development extending into the Conservation Area. The purpose of the report was to document the results of the habitat assessment, sensitive habitat evaluation, and focused surveys and was written in accordance with MSHCP guidelines (Riverside County, 2007).

**Burrowing Owl Survey, Redlands, San Bernardino County – Brentwood Communities.** Chambers Group biologists conducted a focused survey for burrowing owl throughout the project site and within a 150-meter buffer around the site, utilizing approximately 30- or 100-foot belt transects. The results of this survey are valid for a maximum of 30 days from the last active day of the focused survey (August 2, 2007) according to the California Department of Fish and Game (CDFG). No burrowing owl and/or burrows or sign were observed on the project site. No owls were observed in the adjacent buffer zone during the focused survey. After completing the field surveys, methodology and findings were summarized and incorporated into a memo report.

## Relevant Experience (Continued)

**Phase II Burrowing Owl Survey, Riverside, Riverside County – LA-Magnolia Spectrum, LLC.** Conducted a focused Phase II Burrowing owl survey on a 16-acre parcel according to The Burrowing Owl Consortium guidelines (1993). Assisted with the preparation of the biological technical report in order to document the results of the survey.

**Burrowing Owl Pre-Construction Survey, 66-Acre Granite Homes Site, Redlands, San Bernardino County – Granite Homes.** Walked transects according to The Burrowing Owl Consortium guidelines (1993), on appropriate habitat in search for the presence of burrowing owls or any sign of burrowing owls on the 66 acre site prior to grading for the development of homes. No burrowing owls were found and a letter report was written to document the survey.

**Matthews Homes Development Properties, City of Victorville, Los Angeles County, California.** Conducted presence/absence survey for the desert tortoise (*Gopherus agassizii*) on the project site as well as a zone of influence survey. No desert tortoise or desert tortoise sign was detected on the project site or in the vicinity of the project site.

**Matthews Homes Development Properties, City of Victorville, Los Angeles County, California.** Conducted a Phase II burrowing owl survey on the project site located on Bear Valley Road just east of Highway 395. A burrowing owl was detected on site and was re-located following the protocol by the California Department of Fish and Game. Conducted construction monitoring for the site in order to prevent “take” of the burrowing owl and/or the Mojave ground squirrel as well as to be sure all other BMPs were taking place.

**Tracy Development Project, City of Etiwanda, San Bernardino County, California.** Conducted a Phase II burrowing owl survey on 107 acres and within a 150 ft buffer around the project site. Transects varied, because of topography differences, in order to cover 100% of the site. Burrowing owl sign was detected, however, sign was determined to be old and no burrowing owls were detected on site.

**Normandale Holdings Project, City of Sun City, Riverside County, California.** Conducted a Phase II burrowing owl survey following the burrowing owl survey instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area. No burrowing owls or burrowing owl sign was detected. Because of the proximity of the project site to MSHCP conservation areas, a Urban/Wildlands Interface Analysis was included in the report of the survey results and followed guidelines by the MSHCP.

**Capital Pacific Homes Project, City of Rosamond, Kern County, California.** Conducted a Phase II/Phase III burrowing owl survey on approximately 88 acres and within the 250ft. buffer. Upon detection of a burrowing owl and an active burrowing owl burrow on the first day, a Phase III survey was continued for the following three days. All behavior, foraging areas, and territorial boundaries were noted. The burrow was found to be occupied by a breeding pair of burrowing owls.

## Relevant Experience (Continued)

**PSOMAS Street Widening Project, Moreno Valley, Riverside County, California.** Conducted a habitat assessment for the burrowing owl. Suitable burrowing owl habitat exists on the project site; therefore, a Focused Burrow Survey and Pre-Construction Burrowing Owl Survey will be required. Conducted a Focused Burrow Survey during the breeding season for the burrowing owl covering 100% of the project site including a 150-meter buffer around the site according to guidelines set by the MSHCP. Wrote the report of findings of the Focused Burrow Survey.

**Brentwood Communities in the City of Redlands, San Bernardino County, California.** Conducted a pre-construction survey for the Burrowing Owl (*Athene cunicularia*) on the project site (tract 17962) located on the northwest corner of Nevada St. and Orange Ave. No burrowing owl or sign was detected on the site. Wrote a memo report of the findings.

**Burrowing Owl Habitat Assessment and Focused Burrow Survey, Lurin Avenue Preschool Development Site, Riverside, Riverside County – KoriLain, LLC.** Due to the presence of suitable burrowing owl habitat, i.e. ruderal vegetation, a field survey was conducted during the non-breeding season to determine the presence of burrowing owl within 100 percent of suitable habitat onsite, and within a 150-meter buffer around the project site, utilizing approximately 30 meter parallel pedestrian belt transects in ruderal areas according to protocol approved by the California Department of Fish and Game (CDFG) (Burrowing Owl Consortium 1993) and modifications to said protocol by RCIP (2006). No burrowing owls or burrowing owl sign were observed/detected during the survey.

**Santa Ana Sucker Monitoring, San Gabriel River Sediment Management Plan, Biological Surveys & Monitoring, Azusa, Los Angeles County – Los Angeles County Department of Public Works.** Helped re-locate thirty Santa Ana sucker fish under permitted biologists. Assisted with the collection and relocation of two species of fish; the Santa Ana Sucker (*Catostomus santaanae*) and the Santa Ana Speckled Dace (*Rhinichthys osculus*) in 2006. Fish were collected using an electro fisher, seine nets, and dip nets. The fish were identified, measured, counted, and released upstream in the river at the completion of the survey. Activities were in support of the 2006 sediment removal activities at the San Gabriel Reservoir. The Santa Ana Sucker fish were caught/discovered in the stream system during fish surveys conducted by Chambers Group biologists. Due to the low quality habitat conditions and the chance of water drying up where the fish were found, it was decided to move the fish upstream to better conditions. Conducted pre-construction surveys for nesting birds and any wildlife within the stream before the diversion took place. Any frogs, toads, snakes were re-located upstream where they would not be harmed due to construction activities. Conducted construction monitoring during stream diversions and sediment removal in the reservoir.

**San Dimas Reservoir Cleanout Project, San Dimas, Los Angeles County – LADPW, Programs Development Division.** Helped re-locate thirty Santa Ana sucker fish under permitted biologists, John O'Brian and Paul Morrissey, following approval by agencies. The Santa Ana Sucker fish were

## Relevant Experience (Continued)

caught/discovered in the stream system during fish surveys conducted by Chambers Group biologists. Due to the low quality habitat conditions and the chance of water drying up where the fish were found, it was decided to move the fish upstream to better conditions. Conducted pre-construction surveys for nesting birds and any wildlife within the stream before the diversion took place. Any frogs, toads, snakes were re-located upstream where they would not be harmed due to construction activities. Conducted construction monitoring during stream diversions and sediment removal in the reservoir. Conducted construction monitoring during stream diversions and sediment removal in the reservoir. Conducted vegetation mapping, focused plant surveys, amphibian, reptile, fish, avian, and mammal surveys, stream assessments and macroinvertebrate collections onsite and within the project vicinity. During wildlife surveys, a federally threatened species was found onsite. Through careful coordination with CDFG, USFWS, and USFS, Chambers submitted a biological assessment of potential project impacts on the species, and received an informal consultation letter to proceed with the schedule over a span of 48 hours. Conducted pre-construction surveys for nesting birds and any wildlife within the stream before the diversion took place. Any frogs, toads, snakes were re-located upstream where they would not be harmed due to construction activities.

**Barstow Desert Tortoise Surveys, Cellular Tower Project, Barstow, San Bernardino County – Terracon.** Chambers Group conducted a literature review to determine if there were any existing records of listed and/or sensitive plant and wildlife species occurring on or in the vicinity of the site. Chambers Group conducted a presence/absence survey on the site for the federal- and state-listed threatened desert tortoise (*Gopherus agassizii*) in accordance with protocol set-forth by the U.S. Fish and Wildlife Service (USFWS, 1992). The survey was conducted on foot over all areas of suitable habitat utilizing 30-foot belt transects to provide 100 percent coverage. A Zone of Influence (ZOI) survey was conducted in the areas directly adjacent to and surrounding the project site where suitable desert tortoise habitat existed and in which tortoises may directly or indirectly be affected by project operations. The ZOI survey will be conducted within a buffer of 100, 300, 600, 1,200, and 2,400 feet parallel to the edge of the project boundaries in accordance with USFWS protocol. Sign of desert tortoises including live tortoises, shell, bones, scutes, limbs, scat, burrows, pallets, tracks, egg shell fragments, courtship rings, drinking sites, and mineral licks were recorded. After completing the field surveys, findings were summarized in a letter report.

**Environmental Assessment/Initial Study/Mitigated Negative Declaration, Fiber Optic Cable Installation, Victorville, CA to Las Vegas, NV, San Bernardino and Clark County – AT&T, sub to Forkert Engineering & Surveying, Inc.** The project involves permitting applications (Section 7, Section 404, 401, 1600 and WDR), conducting general and focused biological surveys, construction monitoring, GIS mapping and jurisdictional delineations along the linear project area. Conducted general biological reconnaissance surveys to: map the vegetation communities; document the existing biological resources and; assess the habitat's potential to support sensitive plant and wildlife species. Identified and delineated areas of the project site that fell under the regulatory

## Relevant Experience (Continued)

jurisdiction of the USACE pursuant to Section 404/401 of the Federal Clean Water Act, CDFG jurisdiction pursuant to Section 1602. Permit applications for State Water Resources Control Board (SWRCB - 401) and WDR, USACE (404) and CDFG (1600) were submitted for project approval. Conducted presence/absence surveys for the federal- and state-listed threatened desert tortoise (*Gopherus agassizii*) in accordance with protocol set-forth by the U.S. Fish and Wildlife Service (USFWS, 1992). Sign of desert tortoises including live tortoises, shell, bones, scutes, limbs, scat, burrows, pellets, tracks, egg shell fragments, courtship rings, drinking sites, and mineral licks were recorded. Coordinated with CDFG to identify mitigation measures and monitoring requirements for the desert tortoise and other sensitive species based on the Biological Evaluation in order to streamline the Consistency Determination process.

**AT&T Fiber Optic Cable – Las Vegas to Victorville Project, Multiple County – AT&T, sub to Forkert Engineering & Surveying, Inc.** Chambers Group conducted general biological reconnaissance surveys to: map the vegetation communities; document the existing biological resources; and assess the habitat's potential to support sensitive plant and wildlife species. Coordinated with BLM to prepare and compose a Noxious Weed Management Plan and a Habitat Restoration Plan. Provided construction monitoring in accordance with project permits for the protection of the desert tortoise. Prepared post-construction desert tortoise monitoring and environmental compliance reports. Provided environmental awareness training for all individuals involved with the project. Conducted jurisdictional delineations for California Department of Fish and Game along the linear fiber optic line for AT&T.

**Jurisdictional Delineation, Construction Monitoring, AT&T Fiber Optic Line from the City of Victorville, California to the City of Primm, Nevada.** Conducted presence/absence surveys for the desert tortoise along the linear fiber optic line for AT&T. Presence/absence surveys were conducted in California from Stoddard Wells Rd. in Victorville to Slash X Ranch, from Halloran Summit Rd. to Cima Rd. in Baker, and From Nipton Rd. to State Line (Primm, Nevada). Surveyed the project area and the 100 ft. and 300 ft. ZOI transect lines. Tortoise burrows, scat, and a scute were observed in various places along the route. Surveys followed protocol set out by USFWS. Detailed notes and GPS points were recorded when any desert tortoise sign was observed or detected. Conducted construction monitoring as the assistant lead on the project from Los Vegas, Nevada to Primm, Nevada and in California from Primm, Nevada to Nipton Rd. and from Cima Rd. to Halloran Summit Rd. Monitoring included trenching, pipe installation, backfilling, restoration, compaction, vault installation, proofing, cable pulling, splicing, and post installation/replacement. Eighteen tortoises were found along the project site in Nevada and only three had to be handled, in order to be moved away from the approaching construction equipment. One tortoise was found in California between Primm and Nipton Rd., this tortoise was not handled. No tortoises were harmed as a result of any of the project activities in California or Nevada.

**Construction Monitoring, Arroyo Trabuco Creek Railroad Bridge Replacement, San Juan Capistrano, Orange County – Southern California**

## Relevant Experience (Continued)

**Regional Rail Authority.** Monitored compliance of activities with the 1600 Streambed Alteration Agreement during the replacement of the railroad bridge above Arroyo Trabuco Creek. Conducted preconstruction surveys for nesting birds and bats. Monitored vegetation removal and protection of the creek during construction.

**MSHCP Habitat Assessment, Focused Plant Surveys, Day Street Extension, Moreno Valley, Riverside County – City of Moreno Valley, sub to AEI-CASC Engineering.** Walked pedestrian transects according to the Burrowing Owl Consortium guidelines (1993). Covered 100% of the project sites as well as a 150 meter buffer. Any burrowing owls or sign (white wash, pellets, etc.) were recorded on standardized data sheets. No burrowing owls or burrowing owl sign were observed or detected. Conducted a focused plant survey for the potential of the occurrence of three state- or federally-listed threatened or endangered plant species, Munz's onion (*Allium munzii*), San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*), and thread-leaved brodiaea (*Brodiaea filifolia*), on the project site. Covered 100% of the project sites as well as a 150-meter buffer around the project sites boundaries.

**Habitat Assessment, Oakmont Ramona Expressway Project, Perris, Riverside County – Golder Associates.** Conducted a habitat assessment on old agricultural fields with ruderal, a small strip of riparian vegetation, and tiny section of ornamental landscaping. Burrowing owl sign was detected on site during the habitat assessment, therefore, a focused burrow survey during non-breeding season was conducted. No burrowing owls were observed, but a focused burrow survey will be required by WR-MSHCP during breeding season in order to avoid take of the species. Wrote the report documenting the findings of the assessment and focused burrow survey.

**Least Bells' Vireo and Southwestern Willow Flycatcher Biological Surveys, SR-60 and Grand Avenue Interchange Improvement Project, Diamond Bar, Los Angeles County – EIP Associates, a Division of PBS&J, sub to Sage Environmental Group.** Chambers Group biologists conducted presence/absence focused surveys for southwestern willow flycatcher and least Bell's vireo at a section of Diamond Bar Creek known as Brea Wash and three tributaries that flow into the wash from under the freeway. All potential habitats within the project site were surveyed and nesting status of each pair was documented. Maps included project location and observed species locations and individual nest sites where found.

**Habitat Assessment, Lasselle Street Widening from John F. Kennedy Drive to Alessandro Boulevard, Moreno Valley, Riverside County – City of Moreno Valley, sub to PSOMAS.** Conducted a habitat assessment from John F. Kennedy Dr. to just past Alessandro Blvd. along Lasselle St for the burrowing owl. Habitat suitable for the burrowing owl was present on the project site, thus a Focus Burrow Survey for the burrowing owl will be required according to the western Riverside MSHCP. Co-authored the biological report documenting the findings of the habitat assessment. A Focused Burrow Survey was conducted during the breeding season for the burrowing owl. Wrote the report of findings of the Focused Burrow Survey.

## Relevant Experience (Continued)

### **Biological and Cultural Resources Surveys, Jurisdictional Delineations, Pre-Construction and Construction Monitoring, Track Upgrade Project, Thermal, CA to Yuma, AZ, San Bernardino and Imperial County – Union Pacific Railroad, Yuma Subdivision, sub to Parsons Water & Infrastructure.**

Conducted a focused survey for the desert tortoise, covering 100% of the project site for 43 miles from mile post 679 to mile post 722, in 2007. In 2008, presence/absence surveys were extended from mile post 722 to 725.8, which occurred on the Quechan Indian Reservation. Surveys were conducted following Fish and Wildlife Service protocols of 1992. Old desert tortoise burrows and possible old scat were detected on site. GPS locations, photos, and detailed notes were taken upon detection of all sign. No desert tortoise or desert tortoise carcasses were detected on site. Also, conducted the pre-construction surveys, clearance surveys and monitoring for the desert tortoise. Assisted with focused surveys for Peirson's milk-vetch and Algodones Dunes sunflower and other rare species with a potential to occur on the project site. During surveys conducted in 2008, one sensitive plant species, Harwood's milk-vetch, was detected within the project site during the Chambers Group focused plant survey. This CNPS list 2.2 species is an annual herb that occurs in dune and Mojave Desert scrub habitats at elevations up to 3,330 feet amsl. The flowering period for this species is between January and May. This species was observed at 19 locations between MP 722.38 and 723.77 with a total of 182 individuals present in this area. A map of populations and the GPS data for each location were mapped.

### **Habitat Assessment, Wetland Delineation and Jurisdictional Determination, Kitching Street Improvements Project, Moreno Valley, Riverside County – City of Moreno Valley, sub to Proactive Engineering Consultants, Inc.**

Habitat for the burrowing owl does exist on the project site; therefore, according to the Burrowing Owl Survey Instructions for the Western Riverside County MSHCP, a Focused Burrow Survey will be required as well as a pre-construction survey within 30 days prior to ground disturbance to avoid direct take of burrowing owls (TLMA 2006). Wrote the report documenting the findings of the survey. Assisted with the wetland delineation in the drainage ditch on the southeast corner of Kitching St. and Alessandro Blvd. Results indicated that the drainage is a wetland and that the waters are jurisdictional due to the fact that they flow into the San Jacinto River, which flows into Canyon Lake.

### **Habitat Assessment, Biological and Regulatory Permitting Services for Reclaimed Water System Pipeline, Norco, Riverside County – City of Norco, sub to RGP Planning & Development Services.**

Conducted a survey for habitat potentially suitable for burrowing owl (*Athene cunicularia*) and Narrow Endemic Plant Species. Habitat suitable for the burrowing owl was present on a portion of the project site and so a Focus Burrowing Owl survey was recommended. Co-authored the biological report documenting the findings of the focused surveys.

### **Desert Tortoise Clearance Surveys, Palmdale Water Reclamation Plant Stage 5 Effluent Management Facilities, Palmdale, Los Angeles County – Los Angeles County Sanitation District.**

The Palmdale Water Reclamation Plant Stage Five Effluent Management Facilities project involves construction of storage reservoirs. As part of USFWS approval, the Districts have committed to

## Relevant Experience (Continued)

install a fence around the storage reservoirs to keep tortoises out. Clearance surveys will be performed within the area upon completion of the fence to ensure desert tortoises have not been trapped inside the fenced area. This desert tortoise clearance survey within the fenced area will follow the appropriate USFWS protocol.

### **Biological and Cultural Resources Surveys, Jurisdictional Delineations, Pre-Construction and Construction Monitoring, Track Upgrade Project, Thermal, CA to Yuma, AZ, San Bernardino and Imperial County – Union Pacific Railroad, Yuma Subdivision, sub to Parsons Water & Infrastructure.**

Associate Biologist. Performed the reconnaissance surveys. The project involved conducting biological surveys, vegetation mapping and wetland delineations along 100-mile-long corridor. The field survey focused primarily on determining the potential habitat for federal- and state-listed plant and wildlife species. Conducted focused plant surveys for the Algodones Dunes sunflower (*Helianthus niveus ssp. tephrodes*) and Peirson's milkvetch (*Astragalus magdalenae var. peirsonii*) covering 100% of the project site for 17 miles from mile post 698 to mile post 715. No plants were found on site at the time of the survey. Conducted presence/absence surveys for the desert tortoise, following the protocol set out by the USFWS. I conducted focused surveys for burrowing owl. When an active burrow was located in the footprint of the project construction, I and another Chamber's Group biologist, placed one way doors and collapsed the burrow when we knew the owl was no longer inside (Burrowing Owl Consortium 1993). Chambers Group biologists conducted focused surveys for the following five wildlife species during months of activity; desert pupfish, California black rail, Yuma clapper rail, least Bell's vireo, and southwestern willow flycatcher. I conducted pre-construction surveys and performed construction monitoring for the desert tortoise.

### **Construction Monitoring, Water Reclamation Project in Palmdale, Los Angeles, California - Los Angeles Sanitation District.**

Monitored all construction activities which included; the installation of a pipeline, vaults, pump station, and reservoirs. No tortoises were detected/observed on the project site; however, old desert tortoise burrows without recent sign were observed. I wrote daily monitoring reports of each day's activities and findings.

## JENNY MCGEE

Staff Biologist/ Botanist

---

Ms. McGee has a strong background in natural resource management with five years of experience working in central and southern California as well as northwestern Nevada. Her project management experience includes functioning as project manager and lead biologist responsible for drafting and implementing restoration and management plans. She specializes in invasive species management, success monitoring of sensitive plant species and communities, focused plant and reconnaissance surveys, vegetation community mapping, annual success monitoring, compensatory mitigation negotiation, agency coordination, habitat restoration implementation, and native plant propagation. As project manager, Ms. McGee managed project teams and schedules and maintained budgets and contracts. She has been central to accomplishing project goals through working closely with native landscaping, nursery, and native seed collection contractors, establishing contacts, maintaining communications, and providing QA/QC. Ms. McGee has experience coordinating across disciplines with various regional, state, and federal agencies; schools; special interest; and community groups. Her experience also includes designing erosion control retrofits, water quality monitoring, permit compliance, construction monitoring, and the preparation and technical review of restoration plans and various other technical reports.

---

### Relevant Experience

#### Key Strengths

Compensatory Mitigation  
Negotiation

Habitat Restoration Plans

Botanical Surveys

Agency Coordination

Permit Compliance

Managed projects related to  
restoration, restoration  
monitoring, and botanical  
surveys

Habitat Assessments

Erosion Control Retrofits and  
Inspection

---

**Biological Surveys & Monitoring, East Fork Bridge Seismic Retrofit, Azusa, Los Angeles County – Los Angeles County Department of Public Works.** Staff Biologist/ Botanist. Conducted literature review and general reconnaissance survey, completed vegetation classifications and mapping and prepared Biological Assessment / Biological Evaluation Report. Survey findings determined the existence of designated critical habitat and presence of federally-endangered Santa Ana Sucker as well as California Species of Concern speckled dace, and the arroyo chub within the project boundary.

**Biological Reconnaissance Surveys, Sawpit Dam, Morris Dam, San Dimas Spreading Grounds, San Gabriel River, and San Gabriel Bypass Road, Los Angeles County – Los Angeles County Department of Public Works.** Staff Biologist / Botanist. The project involved biological reconnaissance surveys for various sites damaged by flood waters. Identified and mapped vegetation communities, conducted CNPS rapid assessment surveys to evaluate streamside conditions and pre- and post- dewatering of the dam, conducted vegetation mapping and community classification, conducted focused plant surveys, and performed functional analysis surveys to assess habitat function and value. Assisted in conducting avian point count surveys and fish surveys.

**San Dimas Reservoir Cleanout Project, San Dimas, Los Angeles County – LADPW, Programs Development Division.** Staff Biologist/ Botanist. Conducted CNPS rapid assessment surveys, vegetation mapping and focused plant surveys for the San Gabriel bedstraw, San Gabriel Mountains dudleya, Nevin's barberry and Plummer's mariposa lily. to evaluate streamside conditions pre and post de-watering of the dam.

## Relevant Experience (Continued)

---

### Education

B.A., Environmental Studies,  
UC Santa Cruz, California;  
2001

### Registration

California Department of Fish  
and Game, Scientific Collector's  
Permit # SC-10194

### Memberships

Society of Ecological  
Restoration, California,  
member, current

California Invasive Plant  
Council, member, current

Southern California Botanists,  
member, current

### Trainings and Certifications

Rancho Santa Ana Botanic  
Garden, Native Grasses of  
California

Wetland Training Institute,  
USACE permits

Project Management training

Leadership Training

First Aid/ CPR

---

**Biological Surveys and Monitoring, Big Dalton Dam Sediment Removal, Glendora, Los Angeles County – Los Angeles County Department of Public Works, Water Resources Division.** Staff Biologist/ Botanist. Conducted vegetation mapping and assessments to evaluate project impacts, pre- and post-dewatering. Surveys conducted included vegetation mapping, plant assessments using the CNPS Rapid Assessment Protocol, focused plant surveys, amphibian, reptile, fish, avian, and mammal tracking surveys, stream assessments and macroinvertebrate collections from above the reservoir to 2 miles downstream of the Big Dalton Dam. In addition, coast range newts were identified on site, and a Newt Monitoring and Relocation Plan was developed and approved by CDFG. Biological monitoring and newt relocation during construction activities took place daily over a period of 5 months. Data and analysis of the project is provided in the Pre- and Post-Dewatering Biological Technical Report for the Big Dalton Dam Reservoir Cleanout Project.

**Functional Analysis and Focused Biological Surveys, San Gabriel River Sediment Management Plan, Azusa, Los Angeles County -- Los Angeles County Department of Public Works.** Staff Biologist/Botanist. Conducted vegetation mapping and functional analysis surveys. A functional analysis methodology was formulated based on the USACE of Engineer's Hydro Geomorphic Analysis and Habitat Evaluation Procedures to assess and compare the biological resources of the two sites. Data related to the biological, physical, and biogeochemical functions at each site were collected on transects in upland, riparian, and aquatic habitats to complete the functional analysis. Geographic Information System mapping techniques were used to create vegetation maps for use in the functional analysis. A biological resources assessment report was written which included the methodology used for field survey and functional analysis techniques, a discussion of existing conditions at both sites, and the functional analysis comparing the sites.

**Natural and Cultural Resources Management Plan, Rancho Las Flores Development, Hesperia, San Bernardino County – Rancho Las Flores, LLC.** Staff Botanist. Conducted a focused plant survey in the entire project area on portions of the 9,867-acre site for the presence/absence of Santa Ana River woollystar, slender-horned spineflower, Nevin's barberry, Parish's checkerbloom, Parry's spineflower, Plummer's mariposa lily, and other sensitive plant species in order to update the biological resources studies for the project site.

**Biological Surveys Including Focused Plant Surveys for Hampton Heights Development Project, San Bernardino County – House Land Development Co.** Staff Botanist. Identified and mapped the vegetation communities, documented the existing biological resources and assessed the habitat for its potential to support sensitive plant and wildlife species on the parcel located near the city of Yucaipa, California. Conducted focused plant surveys for sensitive plant species over the 463-acre project site.

**Aerial mapping and Survey of Endangered Plant Population – Santa Barbara County.** Lead Botanist. Chambers Group was retained to advise this client in the resolution of land use challenges relevant to managing protection of a with oil and gas exploration on private land. The federally-listed endangered and state-listed rare plant species is encroaching into operational areas generating a unique challenge to the property owner. Chambers Group

## Relevant Experience (Continued)

conducted a comprehensive field survey mapping the distribution of the protected plant species population throughout the 2,000 acre property. Following the survey, Chambers Group facilitated discussions with the U.S. Fish and Wildlife Service and the California Department of Fish and Game and obtained authorization for the client to conduct limited maintenance activities in specified facility locations to control encroachment of the sensitive plant species.

**Environmental Assessment, International Border Fuel Break Project, Tecate, San Diego County – BLM: Palm Springs-South Coast Field Office, sub to Labat Environmental, Inc.** Staff Biologist. Conducted literature review, biological reconnaissance survey, vegetation community map, and assisted in preparation of Environmental Assessment report. The project area consists of 639 acres of BLM-managed lands within the International Border Fuel Break project site between Otay Mountain and the community of Campo, located east and west of the City of Tecate, east of State Highway 805 and south of State Highway 94 in San Diego County, California. The project has 5 segments, covers 35 total miles and includes habitat for several sensitive species, such as Quino checkerspot butterfly, California gnatcatcher, Tecate cypress, least Bell's vireo, and arroyo toad. Overall habitat was evaluated, flora and fauna species observed or detected were recorded and vegetation community associations were mapped on aerial photographs and transferred into a GIS graphic image.

**Environmental Assessment of Monument Fuels Management Project, Pinyon and Snow Creek, Palm Desert, Riverside County – Bureau of Land Management, Palm Springs-South Coast Field Office, sub to Labat Environmental.** Staff Biologist and Botanist. This project was located in the Santa Rosa and San Jacinto Mountains National Monument Management Plan area on BLM-managed public lands, USFS-managed lands. Conducted literature review, general reconnaissance survey and prepared vegetation community classification/ distribution map. Preparation of Environmental Assessment Report including recommendations for avoidance and minimization strategies for sensitive species identified within the project boundary. The project area intersects habitat for Pennisular bighorn sheep, desert tortoise, grey vireo, and triple-ribbed milk-vetch.

**Clearance Surveys, Restoration Planning and Implementation, Biological Monitoring, Marblehead Coastal Project, SunCal Properties, San Clemente.** Project Manager and Project Biologist. Project included restoration of coastal habitats on master planned commercial and residential development. Directed and conducted 34 acres of habitat restoration. Conducted plant health assessments, annual performance monitoring and associated reporting. Provided oversight for all restoration activities, and completed a constraints analysis to avoid impacts to the Blochman's dudleya, Coastal Bluff Scrub and California Needlegrass Grassland habitats on site. Directed and conducted the collection of baseline vegetation data and annual performance monitoring of vegetation communities that have become rare along the coast.

## MAYA MAZON

### Assistant Biologist

---

Ms. Mazon recently led a field team to survey post-fire areas in San Diego County. This required a working knowledge of San Diego flora and the ability to work in harsh conditions. As the crew leader, she had to be organized, learn quickly, and be able to communicate and work with the field team effectively. In addition, Ms. Mazon has 4 years experience in plant physiological ecology research. She is confident with her skills in the following relevant areas: plant identification (esp. San Diego and Orange County); plant propagation; GPS technology; insect trapping, identification and preservation; and small mammal trapping. She is also very familiar with ArcGIS and the acquisition of primary scientific literature for presenting research findings in oral and poster presentations and technical reports.

---

#### Key Strengths

Biological Resource Surveys  
Southern California Native  
Plant Identification  
Plant Physiological Ecology  
Field Crew Supervision  
Expert Use of GPS  
Technology/Software

#### Specialized Training

Quino Checkerspot Butterfly  
Service-approved practical  
exam (Pass) – Carlsbad,  
California, 2009  
Field Botany and Plant  
Taxonomy Coursework,  
CSUF 2001-2005

---

#### Relevant Experience

##### **United States Geological Survey, San Diego, San Diego County. California.**

Field Crew Lead/Technician /Botanist. Led a team that conducted vegetation surveys to determine post-fire recovery of native flora. Surveys were conducted at 6 different sites containing numerous plots per site where 100 percent coverage was attained . Sites included areas with rare plants such as the Tecate cypress (*Cupressus forbesii*) and the chocolate lily (*Fritillaria affinis*). Plant density and fire severity measurements were taken. A complete plant species inventory was created, which totaled more than 350 species. Duties also included the teaching plant identification of San Diego flora to on-site team members and identifying unknown plant species using vegetative keys. In addition, complete species composition and vegetation community typing was conducted at separate herpetological and entomological post-fire recovery project sites. These surveys were conducted at 5 different sites with multiple plots per site.

**United States Geological Survey, Sequoia and Kings Canyon Office.** Field Crew Leader. Led a team conducting vegetation surveys in San Diego County for post-fire recovery of native flora. Coordinated orders remotely between the USGS office and field crew. Completed administrative tasks (i.e., tracked and completed crew's timesheets, booked camping accommodations, tracked finances, etc.). Collected and digitized data in Microsoft Access. Scouted and established new sites for future surveys.

##### **Functional Analysis Comparison Along the San Gabriel River, Los Angeles County -- LACDPW.**

Assistant Biologist. Collected data for a complete functional analysis, based on the USACE Hydrogeomorphic Analysis and Habitat Evaluation Procedures. The functional analysis was conducted to assess and compare the biological resources along the length of the San Gabriel River, from the West Fork downstream to the Santa Fe Reservoir Spreading Grounds. Data related to the biological and physical function were collected at each permanent data collection transect location in the upland and riparian habitats of the site.

---

**Education**

MS, Biology, California State University, Fullerton, exp. 2009

BS, Biology California State University, Fullerton, May 2002

---

**Relevant Experience (Continued)**

**AT&T Fiber Optic Cable – Las Vegas to Victorville Project, Multiple County – AT&T, sub to Forkert Engineering & Surveying, Inc.** Ms. Mazon monitored construction activities to ensure equipment was in compliance with all associated permits for the project. She performed pre-construction surveys for desert tortoise and for noxious weeds. In addition, Ms. Mazon assisted with the relocation of cacti and other succulents in accordance with the Succulent Relocation Plan for the project.

**San Marcos Landfill Restoration Project, San Marcos, San Diego County – County of San Diego Department of Public Works, sub to Kleinfelder.** Ms. Mazon performed annual vegetation monitoring on the 103-acre landfill. Vegetation transects were run through the landfill to assess the cover and species composition of the restored habitat. Data were analyzed to determine whether the site met the fifth year performance standards and reports were submitted.

**California State University, Fullerton.** Teaching Associate. Direct and instruct undergraduate non-biology college students in experiment driven environment. Created power point presentations to aid in teaching complex biological concepts. Monitor student progress and managed activities to ensure completion within time constraints. Interacted with students of diverse ethnic and socioeconomic backgrounds. Accomplishments: Introduced and implemented new department curriculum. Developed successful methods for teaching inexperienced students.

Field Assistant. Setup and baited Sherman traps for small mammals in burned and unburned areas of the Mohave Desert. Setup and collected seed trays.

Graduate Student Researcher. Investigated tree rings in a tropical tree species. Conducted stable isotope (<sup>50</sup>S and <sup>8</sup>Cb) measurements of wood cellulose from a fountain grass invaded and non-invaded site to assess water source differences of a tropical tree species. Transcribed research efforts into a thesis. Researched and trouble-shot methods from different disciplines. Mentored and trained undergraduate researcher. Accomplishments: Conducted novel research on a tree species from an endangered area, the tropical dry forest. Utilized creative problem solving to successfully alter established protocols.

Field Assistant. Emergence study of native and invasive plant species in disturbed and non-disturbed biological soil crust areas in the coastal sage scrub of Limestone canyon. Scouted plot sites and setup plots. Recorded UTM's and relevant site data. Accomplishments: Advanced implementation of experiment by altering project design. Designed solutions to trouble shoot logistical problems.



## APPENDIX C – WILDLIFE SPECIES OBSERVED/DETECTED ONSITE

**Appendix C**  
**Wildlife Species Observed/Detected During Habitat Assessment**  
**on the Chevron Solar Project (Lucerne Valley) Site**

Scientific Name	Common Name
<b>CLASS AVES</b>	<b>BIRDS</b>
<b>ODONTOPHORIDAE</b>	<b>NEW WORLD QUAIL</b>
<i>Callipepla californica</i>	California quail
<b>COLUMBIDAE</b>	<b>PIGEONS &amp; DOVES</b>
<i>Columba livia</i>	rock pigeon
<i>Zenaida macroura</i>	mourning dove
<b>ALAUDIDAE</b>	<b>LARKS</b>
<i>Eremophila alpestris</i>	horned lark
<b>CORVIDAE</b>	<b>JAYS &amp; CROWS</b>
<i>Corvus corax</i>	common raven
<b>STRUTHIONIDAE</b>	<b>EMUS, KIWIS, and other RATITES</b>
<i>Struthio camelus</i>	ostrich
<b>STURNIDAE</b>	<b>STARLINGS</b>
<i>Sturnus vulgaris</i>	European starling
<b>EMBERIZIDAE</b>	<b>EMBERIZIDS</b>
<i>Amphispiza bilineata</i>	black-throated sparrow
<b>FRINGILLIDAE</b>	<b>FINCHES</b>
<i>Carpodacus mexicanus</i>	house finch
<b>CLASS MAMMALIA</b>	<b>MAMMALS</b>
<b>SCIURIDAE</b>	<b>SQUIRRELS</b>
<i>Ammospermophilus leucurus</i>	Antelope ground squirrel
<i>Spermophilus tereticaudus</i>	Round-tailed ground squirrel
<b>LEPORIDAE</b>	<b>HARES &amp; RABBITS</b>
<i>Lepus californicus</i>	black-tailed jackrabbit
<i>Sylvilagus audubonii</i>	desert cottontail
<b>CANIDAE</b>	<b>WOLVES &amp; FOXES</b>
<i>Canis familiaris</i>	domestic dog
<i>Vulpes velox</i>	kit fox

**APPENDIX C**  
**Wildlife Species Observed/Detected**  
**During DT/BO Surveys on the Chevron Solar Project (Lucerne Valley) Site**

Scientific Name	Common Name
<b>CLASS INSECTA</b>	<b>INSECTS</b>
<b>PIERIDAE</b>	<b>WHITES &amp; SULPHURS</b>
<i>Pontia protodice</i>	Common white
<b>NYMPHALIDAE</b>	<b>BRUSH-FOOTED BUTTERFLIES</b>
<i>Vanessa cardui</i>	Painted lady
<b>SPHINGIDAE</b>	<b>SPHINX MOTHS</b>
<i>Hyles lineata</i>	White-lined sphinx moth
<b>CLASS REPTILIA</b>	<b>REPTILES</b>
<b>TESTUDINIDAE</b>	<b>LAND TORTOISES</b>
<i>Gopherus agassizii</i>	desert tortoise
<b>CROTOPHYTIDAE</b>	<b>COLLARED AND LEOPARD LIZARDS</b>
<i>Gambelia sila</i>	blunt-nosed leopard lizard
<b>PHRYNOSOMATIDAE</b>	<b>ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNY LIZARDS</b>
<i>Callisaurus draconoides draconoides</i>	common zebra-tailed lizard
<i>Dipsosaurus dorsalis</i>	desert iguana
<i>Phrynosoma platyrhinos</i>	desert horned lizard
<i>Uta stansburiana</i>	common side-blotched lizard
<b>TEIIDAE</b>	<b>WHIPTAIL LIZARDS</b>
<i>Cnemidophorus tigris tigris</i>	Great Basin whiptail
<b>VIPERIDAE</b>	<b>VIPERS</b>
<i>Crotalus scutulatus</i>	Mojave green rattlesnake
<i>Crotalus cerastes</i>	sidewinder rattlesnake
<b>CLASS AVES</b>	<b>BIRDS</b>
<b>CATHARTIDAE</b>	<b>NEW WORLD VULTURES</b>
<i>Cathartes aura</i>	turkey vulture
<b>ACCIPITRIDAE</b>	<b>HAWKS, KITES, EAGLES</b>
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Circus cyaneus</i>	Northern Harrier
<b>FALCONIDAE</b>	<b>FALCONS</b>
<i>Falco mexicanus</i>	prairie falcon
<b>SCOLOPACIDAE</b>	<b>SANDPIPERS</b>
<b>COLUMBIDAE</b>	<b>PIGEONS &amp; DOVES</b>
<i>Zenaida macroura</i>	mourning dove
<b>STRIGIDAE</b>	<b>TRUE OWLS</b>
<i>Asio flammeus</i>	short-eared owl
<i>Athene cunicularia</i>	burrowing owl

**APPENDIX C**  
**Wildlife Species Observed/Detected**  
**During DT/BO Surveys on the Chevron Solar Project (Lucerne Valley) Site**

Scientific Name	Common Name
<b>CLASS AVES</b>	<b>BIRDS</b>
<b>CAPRIMULGIDAE</b>	<b>NIGHTHAWKS</b>
<i>Chordeiles acutipennis</i>	lesser nighthawk
<b>ALAUDIDAE</b>	<b>LARKS</b>
<i>Eremophila alpestris</i>	horned lark
<b>HIRUNDINIDAE</b>	<b>SWALLOWS</b>
<i>Petrochelidon pyrrhonota</i>	cliff swallow
<i>Hirundo rustica</i>	barn swallow
<b>CORVIDAE</b>	<b>JAYS &amp; CROWS</b>
<i>Corvus corax</i>	common raven
<b>SYLVIIDAE</b>	<b>OLD WORLD WARBLERS, GNATCATCHERS</b>
<i>Polioptila melanura</i>	black-tailed gnatcatcher
<b>MIMIDAE</b>	<b>MOCKINGBIRDS, THRASHERS</b>
<i>Toxostoma lecontei</i>	Le Conte's thrasher
<b>EMBERIZIDAE</b>	<b>EMBERIZIDS</b>
<i>Amphispiza belli</i>	sage sparrow
<i>Amphispiza bilineata</i>	black-throated sparrow
<i>Zonotrichia leucophrys</i>	white-crowned sparrow
<b>FRINGILLIDAE</b>	<b>FINCHES</b>
<i>Carduelis psaltria</i>	lesser goldfinch
<i>Carpodacus mexicanus</i>	house finch
<b>CLASS MAMMALIA</b>	<b>MAMMALS</b>
<b>LEPORIDAE</b>	<b>HARES &amp; RABBITS</b>
<i>Lepus californicus</i>	black-tailed jackrabbit
<i>Sylvilagus audubonii</i>	desert cottontail
<b>SCIURIDAE</b>	<b>SQUIRRELS</b>
<i>Ammospermophilus leucurus</i>	white-tailed antelope squirrel
<b>HETEROMYIDAE</b>	<b>POCKET MICE &amp; KANGAROO RATS</b>
<i>Dipodomys sp.</i>	kangaroo rat
<b>CANIDAE</b>	<b>WOLVES &amp; FOXES</b>
<i>Canis familiaris</i>	domestic dog
<i>Canis latrans</i>	coyote
<i>Vulpes macrotis</i>	kit fox
<i>Urocyon cinereoargenteus</i>	gray fox

---

**APPENDIX C**  
**Wildlife Species Observed/Detected**  
**During DT/BO Surveys on the Chevron Solar Project (Lucerne Valley) Site**

Scientific Name	Common Name
<b>CLASS MAMMALIA</b>	<b>MAMMALS</b>
<b>PROCYONIDAE</b>	<b>RACCOONS</b>
<i>Procyon lotor</i>	raccoon
<b>EQUIDAE</b>	<b>HORSES &amp; BURROS</b>
<i>Equus caballus</i>	horse
<i>Equus asinus</i>	wild burro
<b>BOVIDAE</b>	<b>BISON, GOATS &amp; SHEEP</b>
<i>Bos bovis</i>	domestic cow
<i>Ovis aries</i>	domestic sheep



## APPENDIX D – FIELD DATA SHEETS



**Chambers Group Inc.  
Desert Tortoise**

**PRESENCE-OR-ABSENCE AND CLEARANCE SURVEYS**

BIOLOGIST(S) S. Skidmore, P. Morrissey, R. Alvarez, L. Wadley DAY & DATE Tuesday 3/31/09  
 PROJECT NAME & NUMBER Chevron Solar, 20047  
 City: Lucerne Valley County: San Bernardino State: CA  
 Transect# \_\_\_\_\_ MP to MP (mileposts): southeast portion of the site Length: \_\_\_\_\_ ft. Width: 30 ft. OR \_\_\_\_\_ ft.

Project Site/ROW  Zone of Influence (ZOI)  ± 500 Ft. from Project ROW  
 Time (start): 0845 Cloud % 0 Temp: 51.4 Wind: 1.7<sup>avg</sup> Elevation: 3209 ft.  
 Time (end): 1545 Cloud % 5 Temp: 80 Wind: 1.0<sup>avg</sup> Elevation: 3223 ft.  
 Aspect North facing % Slope 0-20 Adjacent Land Use scattered residential & open space  
 Vegetation Community Cresote-white bursage series  
 Soil (rock, sand, caliche etc.) sandy, gravelly Land Form(s)- mesa, bajada, wash etc. mesa/bajada

**SIGNS OF HUMAN DISTURBANCE - NUMBER AND TYPES SEEN**

TIRE TRACKS  SHOTGUN/RIFLE SHELLS  BLADING  RAVENS  TRASH  
 DUMP SITES  HUMAN FOOTPRINTS  DOG SIGN  OTHER \_\_\_\_\_

**INFORMATION ON TORTOISE SIGN**

SIGN #	TYPE	CLASS# For scat burrows, shell remains	W x H x L or SIZE Width x Height x Length	Burrow Direction (aspect)	Nearest Plant Species	Elev. (feet)	GPS location (NAD 83)
1	burrow	4	11 x 6 x ?	W	Ambrosia dumosa	3186	0518089 3808111
2	↓	5	9 x 9 x ?	W	↓	↓	↓
3	↓	↓	8 x 6 x ?	W	↓	↓	↓
4	↓	↓	8 x 8 x ?	W	↓	↓	↓
5	burrow	5	10 x 5 x 8	W	Ambrosia dumosa	3195	0518009 3807970
6	plant	—	—	—	Winter Fat	3206	0517842 3807421
7	tracks	—	2"	—	—	3220	0518297 3807165
8	burrow	1	12 x 8 x ?	W	Ambrosia dumosa	↓	↓
9	scat	2	1-2"	—	—	↓	↓

Sign #	Comments on Conditions of shelter sites (active/inactive-why?), scat, shell remains, human disturbances. (continue on page 2 if necessary)
1-4	burrows turn & go in Far - may be Fox photos #1-4 of burrows 1-4 from N→S on the banks of a sandy wash - definitely Fox - more entrance/exits east
5	old DT looks like the opening originally began at the ambrosia but is almost completely collapsed now - photo #6
7	photo #7 & 8 - tracks - DT - found around Lauries burrow & my sign #8 - scat located along tracks, tracks all around burrows ± 200 ft out
8	burrow looks used, tracks go into it - class 2 scat in & around - photo #9 & 10
9	scat dark brown with odor - photo #11

photo #5 wash  
photo #10 wash





**Chambers Group Inc.  
Desert Tortoise**

**PRESENCE-OR-ABSENCE AND CLEARANCE SURVEYS**

BIOLOGIST(S) S.S. Kidmore, R. Alvidrez, L. Wadley, P. Morrissey, L. Gorman DAY & DATE Wednesday 4/1/09  
 PROJECT NAME & NUMBER Chevron Solar - 20047  
 City: Lucerne Valley County: San Bernardino State: Ca  
 Transect# 4-1 to 4-40 MP to MP (mileposts): portion of the site Length: \_\_\_\_\_ ft. Width: 30 ft. OR \_\_\_\_\_ ft.

Project Site/ROW  Zone of Influence (ZOI)  500 Ft. from Project ROW  
 Time (start): 0700 Cloud % 80 Temp: 52° Wind: 5.3 avg Elevation: 3244 ft.  
 Time (end): @ 1600 Cloud % 2 Temp: 78° Wind: 3.5 avg Elevation: 3150 ft.  
 Aspect: North facing slopes % Slope 0-20 Adjacent Land Use: open space & scattered residential  
 Vegetation Community Creosote-white Bursage Series  
 Soil (rock, sand, caliche etc.) sandy loam Land Form(s) - mesa, bajada, wash etc. mesquite bajada

**SIGNS OF HUMAN DISTURBANCE - NUMBER AND TYPES SEEN**

TIRE TRACKS  SHOTGUN/RIFLE SHELLS  BLADING  RAVENS  TRASH  
 DUMP SITES  HUMAN FOOTPRINTS  DOG SIGN  OTHER

**INFORMATION ON TORTOISE SIGN**

SIGN #	TYPE	CLASS#	W x H x L or SIZE	Burrow Direction (aspect)	Nearest Plant Species	Elev. (feet)	GPS location (NAD 83)
1	DT	—	7" W x 8" L	←	Ambrosia dumosa	3247	0518232 3807563
2	burrow	1		W	Larrea tridentata		
3	burrow & pellet & white wash	—	10 x 5 x 3	NE	Larrea tridentata	3123	0517042 3809018
4	plant	—	—	—	Winter Fat (2 inds.)	3137	0516450 3808964
5	pellet	5	6 x 5 x 6	N	Larrea tridentata	3128	0517174 3808928
6	owl pellets & white wash	—	pellets 1-2"	←	Big galleta grass	3145	0516672 3808811

Sign #	Comments on Conditions of shelter sites (active/inactive-why?), scat, shell remains, human disturbances. (continue on page 2 if necessary)
3	old fox dens - recently used by BO - pellets & white wash around opening - also possible nighthawk pellets in same area - photos 1-3 * burrows next to point 4-1-2
5	possible DT pellet - most likely rabbit - photo # 4
6	possible short-eared owl - photo # 5 & 6



**Chambers Group Inc.  
Desert Tortoise  
PRESENCE-OR-ABSENCE AND CLEARANCE SURVEYS**

BIOLOGIST(S) S. Skidmore, L. Wadley, R. Alvarez, P. Morrissey, L. Gorman DAY & DATE Thursday 4/2/08  
 PROJECT NAME & NUMBER Chevron Solar - 20047  
 City: Lucerne Valley County: San Bernardino State: Ca  
 Transect# 4-40 to 4-64 MP to MP (mileposts): \_\_\_\_\_ Length: \_\_\_\_\_ ft. Width: 30 ft. OR \_\_\_\_\_ ft.

Project Site/ROW  Zone of Influence (ZOI)  ± 500 Ft. from Project ROW  
 Time (start): 0730 Cloud % 0 Temp: 55 Wind: 0.5 avg Elevation: 3126 ft.  
 Time (end): 1500 Cloud % 0-1 Temp: 80 Wind: 100 avg Elevation: 3160 ft.  
 Aspect of <sup>in a valley, south</sup> ~~north~~ Facing slopes 0-15 % Slope 0-15 Adjacent Land Use Open Space & scattered residential  
 Vegetation Community ~~White~~ Passage-creosote Series  
 Soil (rock, sand, caliche etc.) sandy loam Land Form(s)- mesa, bajada, wash etc. bajada

**SIGNS OF HUMAN DISTURBANCE - NUMBER AND TYPES SEEN**

TIRE TRACKS  SHOTGUN/RIFLE SHELLS  BLADING  RAVENS  TRASH  
 DUMP SITES  HUMAN FOOTPRINTS  DOG SIGN  OTHER

**INFORMATION ON TORTOISE SIGN**

SIGN #	TYPE scat, bone, burrow, etc.	CLASS# For scat burrows, shell remains	W x H x L or SIZE Width x Height x Length	Burrow Direction (aspect)	Nearest Plant Species	Elev. (feet)	GPS location (NAD 83)
1	pallet	5	7 x 5 x 8	W	Ephedra fascicula	3145	0517087 3808744
2	plant	—	—	—	Winter fat (4 inds)	3166	0516649 3808736
3	plant	—	—	—	Winter fat (2 inds)	3158	0516769 3808551
4	plant	—	—	—	Winter fat (1 ind)	3155	0516793 3808416
5	plant	—	—	—	Winter fat (3 inds)	3153	0516517 3808446

Sign #	Comments on Conditions of shelter sites (active/inactive-why?), scat, shell remains, human disturbances. (continue on page 2 if necessary)
1	photo #1 - most likely jackrabbit but possibly DT due to shape
2	4 inds. w/in 100 Ft along the edge of the wash





**Chambers Group Inc.  
Desert Tortoise  
PRESENCE-OR-ABSENCE AND CLEARANCE SURVEYS**

BIOLOGIST(S) R. Alvidrez, S. Skidmore, L. Gorman, L. Walley DAY & DATE FRI 4-3-09  
 PROJECT NAME & NUMBER 20047 - Chevron Solar  
 City: Lucerne Valley County: San Bernardino State: CA  
 Transect# 4-64 to 4-88 MP to MP (mileposts): \_\_\_\_\_ Length: \_\_\_\_\_ ft. Width: 30 ft. OR \_\_\_\_\_ ft.

Project Site/ROW  Zone of Influence (ZOI)  \_\_\_\_\_ Ft. from Project ROW  
 Time (start): 715 Cloud % 0 Temp: 53.4 F Wind: 13.2 Elevation: 3185 ft.  
 Time (end): 1030 Cloud % 0 Temp: 61.2 F Wind: 10 gusts of 30 mph Elevation: 3189 ft.  
 Aspect \_\_\_\_\_ % Slope 0.75 Adjacent Land Use Residential / open space  
 Vegetation Community white burrage / creosote  
 Soil (rock, sand, caliche etc.) \_\_\_\_\_ Land Form(s) mesa, bajada, wash etc.

**SIGNS OF HUMAN DISTURBANCE - NUMBER AND TYPES SEEN**

TIRE TRACKS  SHOTGUN/RIFLE SHELLS  BLADING  RAVENS  TRASH  
 DUMP SITES  HUMAN FOOTPRINTS  DOG SIGN  OTHER

**INFORMATION ON TORTOISE SIGN**

SIGN #	TYPE scat, bone, burrow, etc.	CLASS# For scat burrows, shell remains	W x H x L or SIZE Width x Height x Length	Burrow Direction (aspect)	Nearest Plant Species	Elev. (feet)	GPS location (NAD 83)
1	2	winter fat			in Ephedra; Ambrosia	3188	115 0517289 3808360
2	1	small winter fat			Larrea tridentata	3188	115 0517212 3808244
3	2	winter fat			Ambrosia	3145	115 0516861 3808223
4	1	winter fat			Ambrosia dumosa	3155	115 0516743 3808156
5	4	burrow	12 x 11 x 12	NW	Larrea tridentata	3180	115 0516792 3808159

Sign #	Comments on Conditions of shelter sites (active/inactive-why?), scat, shell remains, human disturbances. (continue on page 2 if necessary)
1	2 winter fat in wash, sandy/gravelly soil in Ephedra sp; Ambrosia dumosa
2	1 small winter fat under Larrea tridentata - evidence of herbivory in sandy loamy soil (fine)
3	2 in sandy loamy wash - rocky - 1 growing in between Ambrosia dumosa and Lycium brevipes - 1 growing in adjacent Ambrosia dumosa
4	1 winter fat just east on riparian bank of wash sandy loamy and rocky on surface - evidence of herbivory (stunted branches) adjacent to Ambrosia dumosa





**Chambers Group Inc.  
Desert Tortoise  
PRESENCE-OR-ABSENCE AND CLEARANCE SURVEYS**

BIOLOGIST(S) P.M. S.S. N.C. DAY & DATE 3/24/09

PROJECT NAME & NUMBER CHEVRON SOLAR

City: LUCERNE VALLEY County: Eldorado Co. State: CA  
from NE (Santa Fe pre-2000 and post-2001 plus buffer)

Transect# \_\_\_\_\_ MP to MP (mileposts): to 500' s. of private res. Length: \_\_\_\_\_ ft. Width: 30 ft OR \_\_\_\_\_ ft.

Project Site/ROW  Zone of Influence (ZOI)  50' Ft. from Project ROW

Time (start): 8:30 Cloud % 0 Temp: 47°F Wind: 0-3 Elevation: 3108 ft.

Time (end): 10:30 hrs Cloud % 0 Temp: 74°F Wind: 0,6 Elevation: 3126 ft.

Aspect \_\_\_\_\_ %Slope \_\_\_\_\_ Adjacent Land Use Open space, blm, private res, ag, field miles to west

Vegetation Community creosote-scrub/bursage scrub

Soil (rock, sand, caliche etc.) \_\_\_\_\_ Land Form(s)- mesa, bajada, wash etc., terrace.

**SIGNS OF HUMAN DISTURBANCE – NUMBER AND TYPES SEEN**

- TIRE TRACKS   
  SHOTGUN/RIFLE SHELLS   
  BLADING   
  RAVENS   
  TRASH  
 DUMP SITES   
 HUMAN FOOTPRINTS   
 DOG SIGN   
 OTHER

**INFORMATION ON TORTOISE SIGN**

SIGN #	TYPE scat, bone, burrow, etc.	CLASS# For scat burrows, shell remains	W x H x L or SIZE Width x Height x Length	Burrow Direction (aspect)	Nearest Plant Species	Elev. (feet)	GPS location (NAD 83)
1	burrow	—	10" x 4" x 6"	North	creosote, bursage	<del>3076</del>	518414 3809573
2	burrow	—	12" x 12" x 24"	NE	Creosote bursage	3121	518120 3809552
3	burrow	—	14" x 7" x 1'	N	Creosote, bursage	3114	518151 3809371
4	burrow	—	8" x 8" x 6"	W	Creosote, bursage	3135	518182 3809332
5	burrow	—	12" x 4" x 6"	W	" "	3104	518063 3809311
6	burrow						

Sign #	Comments on Conditions of shelter sites (active/inactive-why?), scat, shell remains, human disturbances. (continue on page 2 if necessary)
1	old class 5 burrow or blk-tailed junco rabbit burrow. photo #1
2	blk tailed junco rabbit burrow but deep - good for refuge/cover photo #2
3	2 burrows in wash photo #3 (lower but gets in 2') - no scat.
4	old blk-tailed junco rabbit burrow. (no scat)
5	blk-t. jr burrow - deep .5-1', no scat

raven, ladder-backed woodpecker, 11 TOVA, mads, desert horned lizard, long-nosed leopard lizard, round-tailed ground sloth.