Biological Constraints Analysis

Four Aces

Movie Locations Property

APN# 3029-010-009

Los Angeles County

Big Rock Wash Significant Ecological Area #48

PREPARED FOR:

Four Aces
Movie Location
14499 E. Avenue Q,
Palmdale, CA 93591
Attn: Jan Peter Flack
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PREPARED BY:

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March 10, 2014

BIOLOGICAL CONSTRAINTS ANALYSIS
FOUR ACES MOVIE LOCATION PROPERTY

Located East of the City of Palmdale at East Avenue Q and 145th Street East
Los Angeles County

Prepared for:

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I. INTRODUCTION

This report has been prepared pursuant to the County of Los Angeles' Department of Regional Planning Biological Constraints Analysis Report Guidelines. It provides an inventory of biological resources and identifies biological constraints to development at the Four Aces Movie Locations property (site). The site is a 6.15-acre Parcel of Record (APN# 3029-010-009) at 14499 E. Avenue Q in the County of Los Angeles. It is located adjacent to the northwest intersection of 145th Street East and East Avenue Q, east of the City of Palmdale, as shown on **Figure 1**. The USGS topographic map location is on the Lovejoy Buttes quadrangle T.6N, R9W, SE1/4 of the SW1/4 of Section 19, at elevations ranging from approximately 2,730 and 2,740 feet msl., as shown on **Figure 2**. Examination of the latter figure shows the location of the site on the southwestern flank of Lovejoy Buttes, and within the (combined) floodzone of Big Rock Wash and Rock Creek. It is largely or entirely within the designated boundary of Big Rock Wash Significant Ecological Area (SEA 48), and bordering immediately on Lovejoy Butte Significant Ecological Area (SEA 53). Alpine Butte Significant Ecological Area (SEA 52) is approximately 1.5 miles northwest of the site. A permanent movie set consisting of a motel, diner, and gas station was constructed at the southeast corner of the property in the late 1990s. The remainder of the site is predominately undisturbed, supporting natural vegetation and wildlife habitat. The Applicant seeks to obtain a Conditional Use Permit for the existing movie set and is not proposing any additional improvements to the property.

Applicant:
Mr. Jan Peter Flack
14499 E. Avenue Q
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This report has been prepared directly by Mr. Jim Anderson, Senior Biologist of Envicom Corporation. The report updates a Los Angeles County biological constraints analysis prepared in February 4, 1999 by Mr. Carl Wishner, former Principal Biologist of Envicom Corporation. Mr. Anderson has been a consulting biologist for more than five years, has worked in the environmental field for more than ten years, and holds a master degree in environmental science with an emphasis in ecology and conservation planning from the University of California, Santa Barbara. Mr. Wishner has been a consulting biologist for more than 30 years and previously served on SEATAC for the County of Los Angeles for over ten years. Mr. Wishner holds baccalaureate and master's degrees in botany and biology from Humboldt State University, 1977 and 1985.

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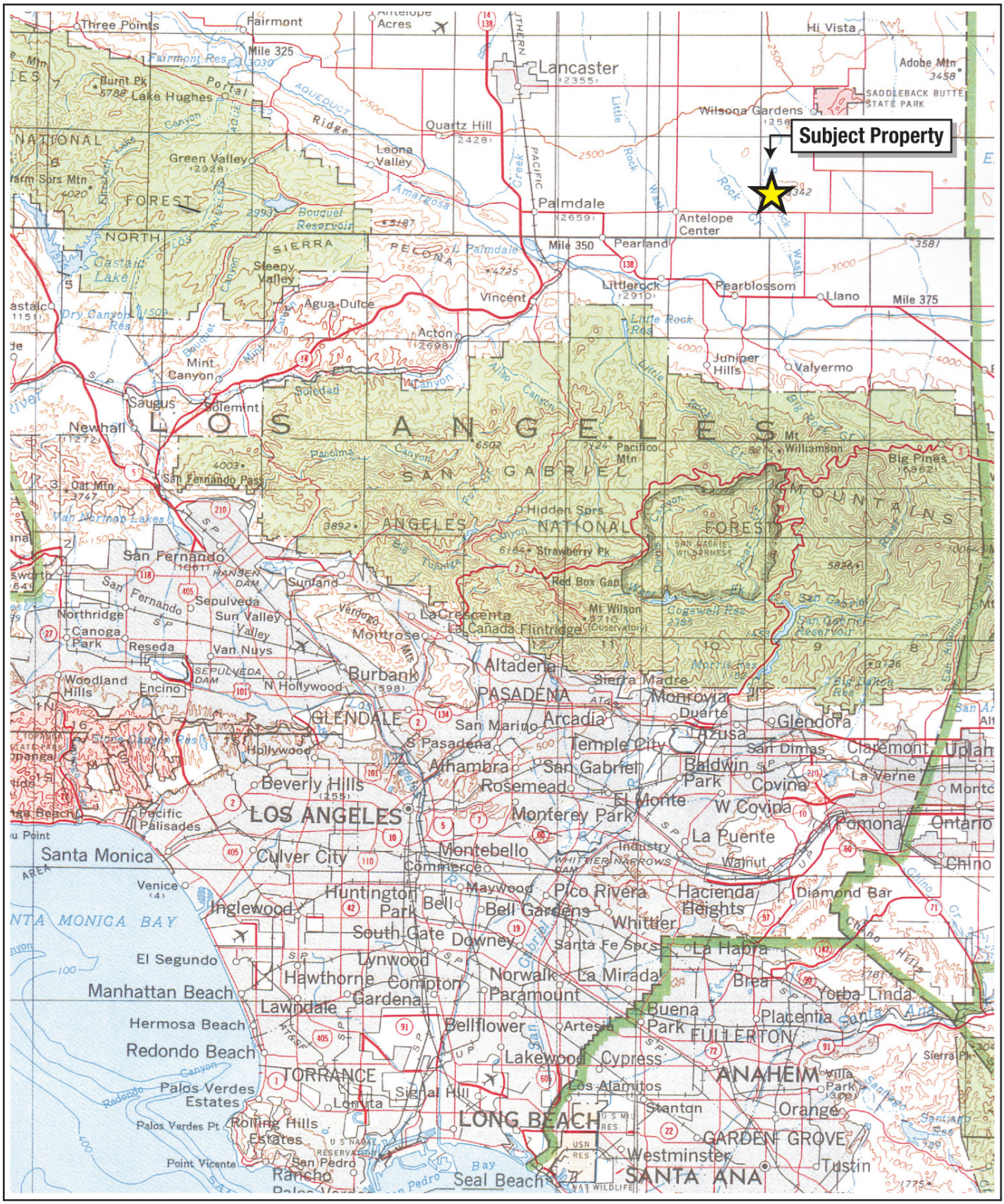
II. METHODOLOGY

Literature Review

To prepare this report, a literature review was performed that included information available in standard biological references and relevant lists and databases pertaining to the status and known occurrences of sensitive and special-status biological resources. Other sources of information included aerial photographs, topographic maps, soil survey maps, climatic data, relevant policy and planning documents,



1981 Edition, U.S.G.S., State of California-South Half, 1:500,000)

FOUR ACES MOVIE LOCATION – BIOLOGICAL CONSTRAINTS ANALYSIS

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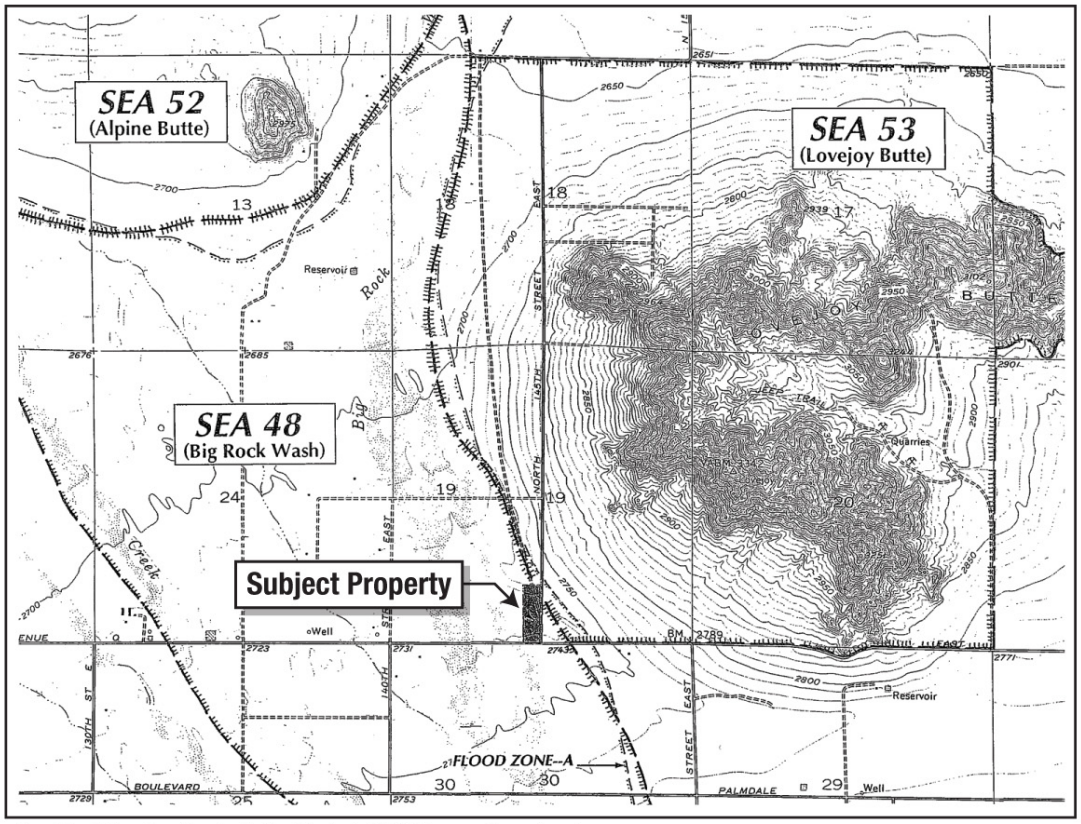
Regional Location

FEET 0 50,000 100,000

FIGURE 1



Base Map: Littlerock and Lovejoy Buttes 7.5 minute U.S.G.S. topographic quadrangle map.

Aerial Source: GoogleEarth Pro, May 24, 2013.

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Topographic Map and Aerial Image of Site Vicinity

FEET 0 1,750 3,500

FIGURE 2

and previous biological studies of the site. The following sources were among those reviewed in preparation for field surveys, or that were consulted during preparation of this report (for a complete list see the references section):

- *Biogeographic Information and Observation System (BIOS),* California Department of Fish and Wildlife (CDFW), formerly the California Department of Fish and Game (CDFG), data as of February 24, 2014;
- *California Natural Diversity Database (CNDDB) Rarefind 5* report for the 7.5' United States Geological Survey (USGS) Lovejoy Buttes quadrangle and eight surrounding quadrangles, CDFW, data as of February 24, 2014;
- *California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants* (online edition, v8-02) report for the 7.5' USGS Lovejoy Buttes quadrangle and eight surrounding quadrangles, CNPS, data as of February 24, 2014;
- *FWS Critical Habitat Mapper for Threatened and Endangered Species*, U.S. Fish and Wildlife Service (USFWS), data as of February 24, 2014;
- *List of Special Vascular Plants, Bryophytes, and Lichens,* CDFW, January 2014;
- *Special Animals,* CDFW, January 2011; and
- *List of Vegetation Alliances and Associations (Natural Communities List),* CDFW, September 2010.

Biological Surveys

Mr. Anderson conducted a biological survey to inventory the resources at the site on February 25, 2014 between the hours of 9:30 a.m. and 6:00 p.m. in warm and clear to partly cloudy conditions (low 60s to low 70s °F) with winds of 5 to 20 m.p.h. The survey involved a search for protected biological resources, including rare, threatened, and endangered plant and wildlife species, special habitats, and sensitive natural communities, as well as to evaluate the importance of the site for wildlife movement. The entire survey area was accessible. Mr. Anderson also performed vegetation and landcover mapping using high-resolution aerial imagery of the site from May 24, 2013. The survey area encompassed the developed and disturbed areas of the permanent movie set as well as the native habitats at the site. The surrounding area was not surveyed. The survey was performed by slowly walking transects across the site and by investigating particular areas thoroughly as necessary. The survey methodology resulted in a thorough investigation of all plant communities and habitat types within the survey area. An inventory of the vascular plants and wildlife observed was recorded, with to the extent possible all species identified to the taxonomic level necessary to determine their status. Vascular plant species determinations were made using *The Jepson Manual: Vascular Plants of California, 2nd edition* (Baldwin B. et al. 2012). Vertebrate wildlife species were identified during the survey by direct observation, sign (e.g., tracks, scat, or burrows), or vocalization. Wildlife species identification relied upon Reid (2006), Sibley (2009), and Stebbins (2003). Several photographs were taken as a record of site conditions at the time of the survey.

Surveys conducted by Envicom Corporation during preparation of *Biological Constraints Analysis Four Acres Film Location Property* (February 4, 1999) included a botanical survey and site investigation by Mr. Wishner and wildlife observations by Mr. Jack Selig Stone. The results of these surveys, which were conducted in January 1999, are also included herein.

III. DESCRIPTION OF NATURAL GEOGRAPHIC FEATURES

Landforms, Soils, and Geologic Features

Subject Property

The site itself is nearly flat with no notable topographic relief except for a sand berm (levee) constructed for flood control purposes along the eastern boundary of Big Rock Wash as well as some small roadside berms. Soils are well-drained loamy fine sands drived from granitic alluvium. A National Resources Conservation Service (NRCS) map of the site is provided as **Appendix 1**. At some locations, cracks in slight depressions showed evidence of temporary pooling or soil saturation, although the site lacked any standing water at the time of the February 2014 survey. The site is not rocky or gravelly. The most significant landform at the site is Big Rock Wash itself, which has scoured only a small portion on the southwest corner of the site, but which may historically have included the entire site. The site is situated on the eastern terrace of Big Rock Wash.

Surrounding Area

Alpine and Lovejoy Buttes are igneous intrusions of granite and amadellite formed in the mesozoic. A quaternary lake deposit forms a crescent surrounding the southern base of Lovejoy Butte, and whose western margin closely approaches the site. Big Rock Wash and Rock Creek is the source of recent alluvium, which underlies the valley floor and the site.

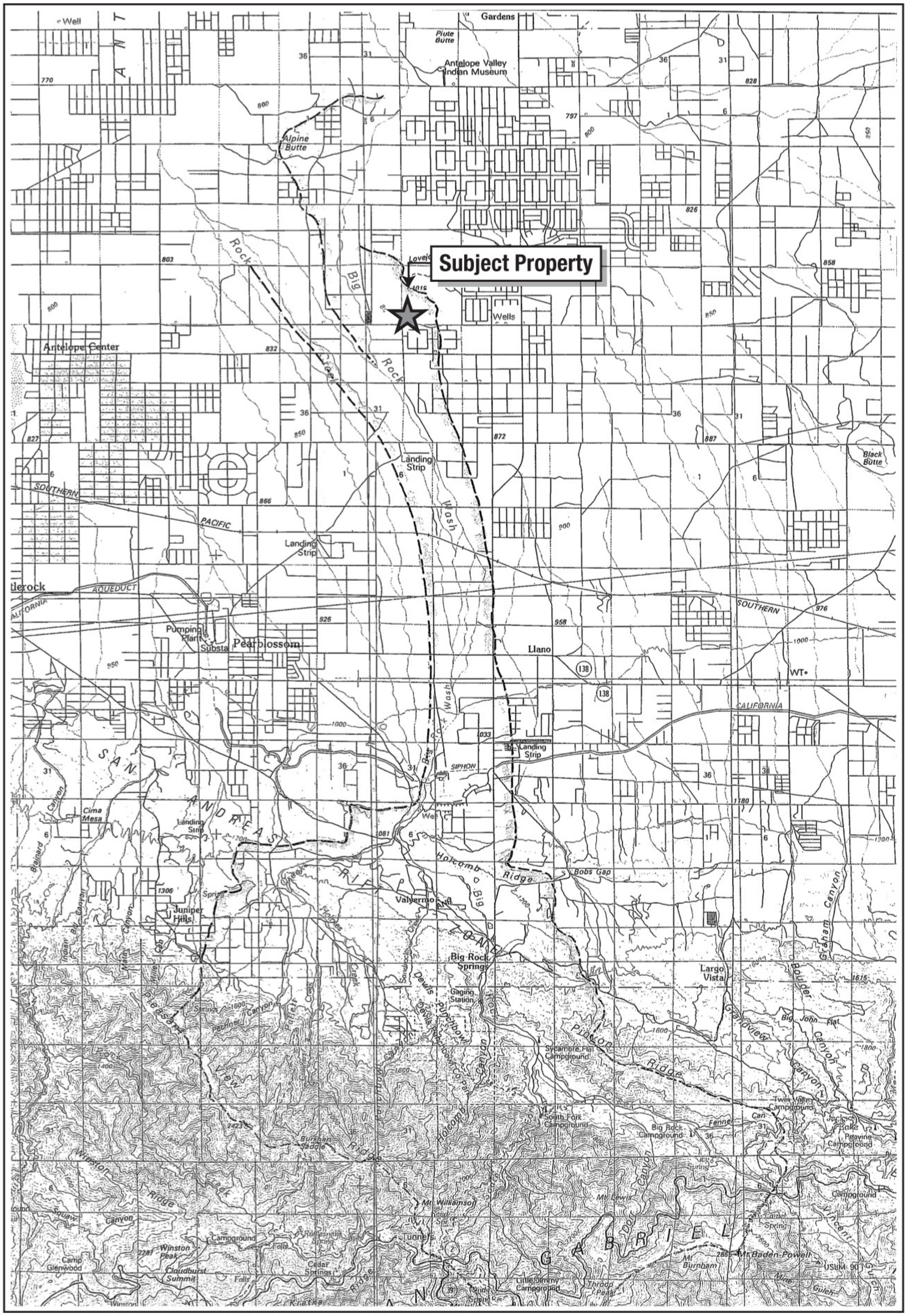
Watershed Boundaries and Drainage Patterns

Site Drainage

Natural sheet flows and small rivulets originating from the slopes of Lovejoy Butte trend southwesterly toward Big Rock Wash, and across the site, as shown on **Figure 4** and **Figure 5,** which show the condition of the site in 1997 prior to development of the permanent movie set and the current condition of the site, respectively. These flows are largely intercepted and diverted southward along V-shaped drainages paralleling 145th Street East, and westward along East Avenue Q. A culvert under 145th Street East diverts part of the flows from the north to an earthen channel crossing the property, and joined by flows originating from the east along East Avenue Q. Water accumulating at the roadway intersection flows westward directly to the wash, or northward along ill-defined channels to converge with the aforementioned channel originating at the culvert. The site is protected from moderate flows in Big Rock Wash by a levee in the southwest corner. Recent scour in the wash has affected only the corner, although, the site is perhaps entirely within the flood zone of the wash.

Entire Watershed

The upper watershed of Big Rock Creek includes approximately 35 square miles in the Devil's Punchbowl area on the north side of the San Gabriel Mountains. As shown on **Figure 3**, the drainage is bounded by Pinyon Ridge, Mt. Baden Powell (2866m) to Throop Peak and Mt. Hawkins, Windy Gap, Mt Islip (2515m), Islip Saddle to Mt. Williamson, Burkhardt Saddle, and along Pleasant View Ridge. The main stem of Big Rock Creek collects from tributaries in Dorr Canyon, South Fork, and Holcomb and Punchbowl Canyons, all the while paralleling the San Andreas Rift Zone east of the Punchbowl, and south of Pinyon Ridge. Pallett and Holmes Creeks converge to the west and form another major tributary joining the mainstem of Big Rock Creek in the Rift Zone, where it passes through a narrow gap in Holcomb Ridge. At that point, it becomes an extensive alluvial fan leading to Rogers Dry Lake, braiding its way down the foothill slope toward Rogers Dry Lake. Big Rock Wash is the eastern-most branch of the fan's channels, which carries the mainstern flows



Base Map: Lancaster and San Bernardino 30x60 minute U.S.G.S. topographic quadrangle map.

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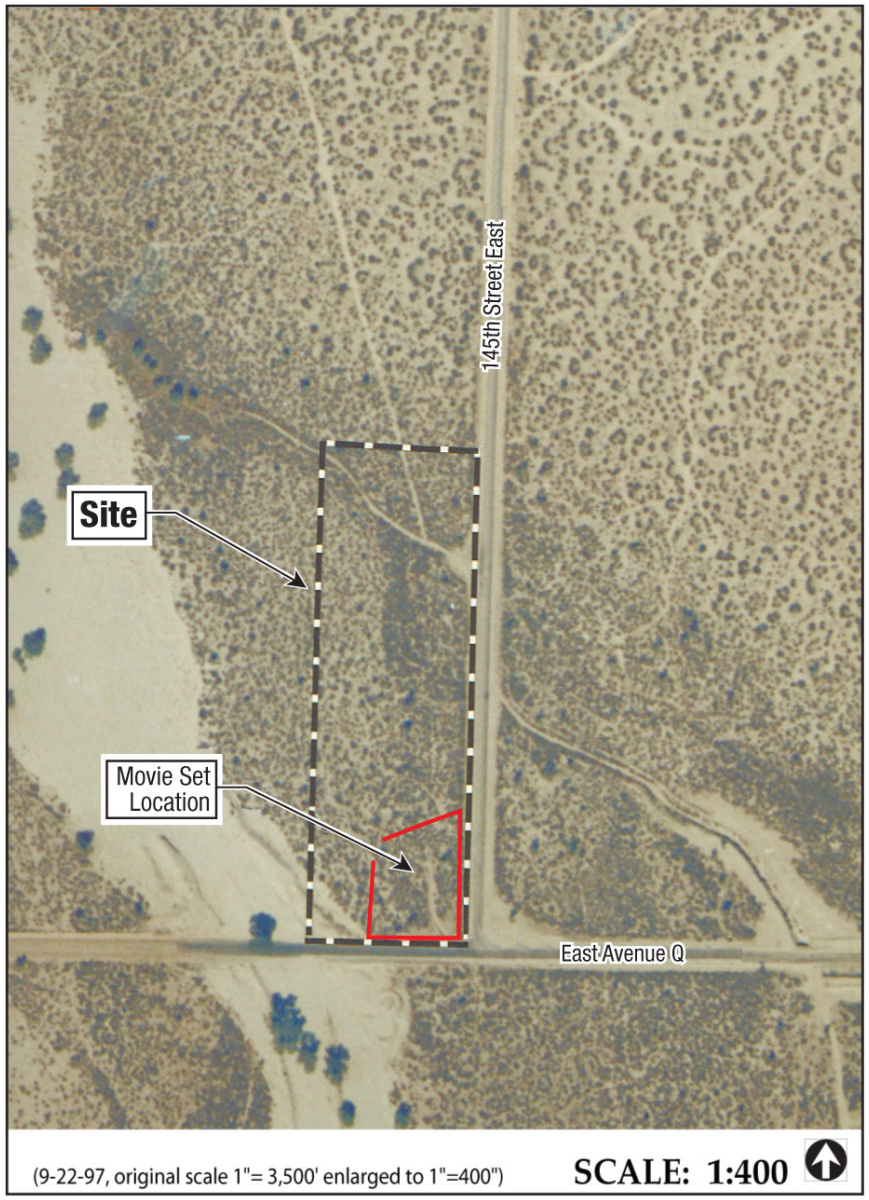
FOUR ACES MOVIE LOCATION – BIOLOGICAL CONSTRAINTS ANALYSIS

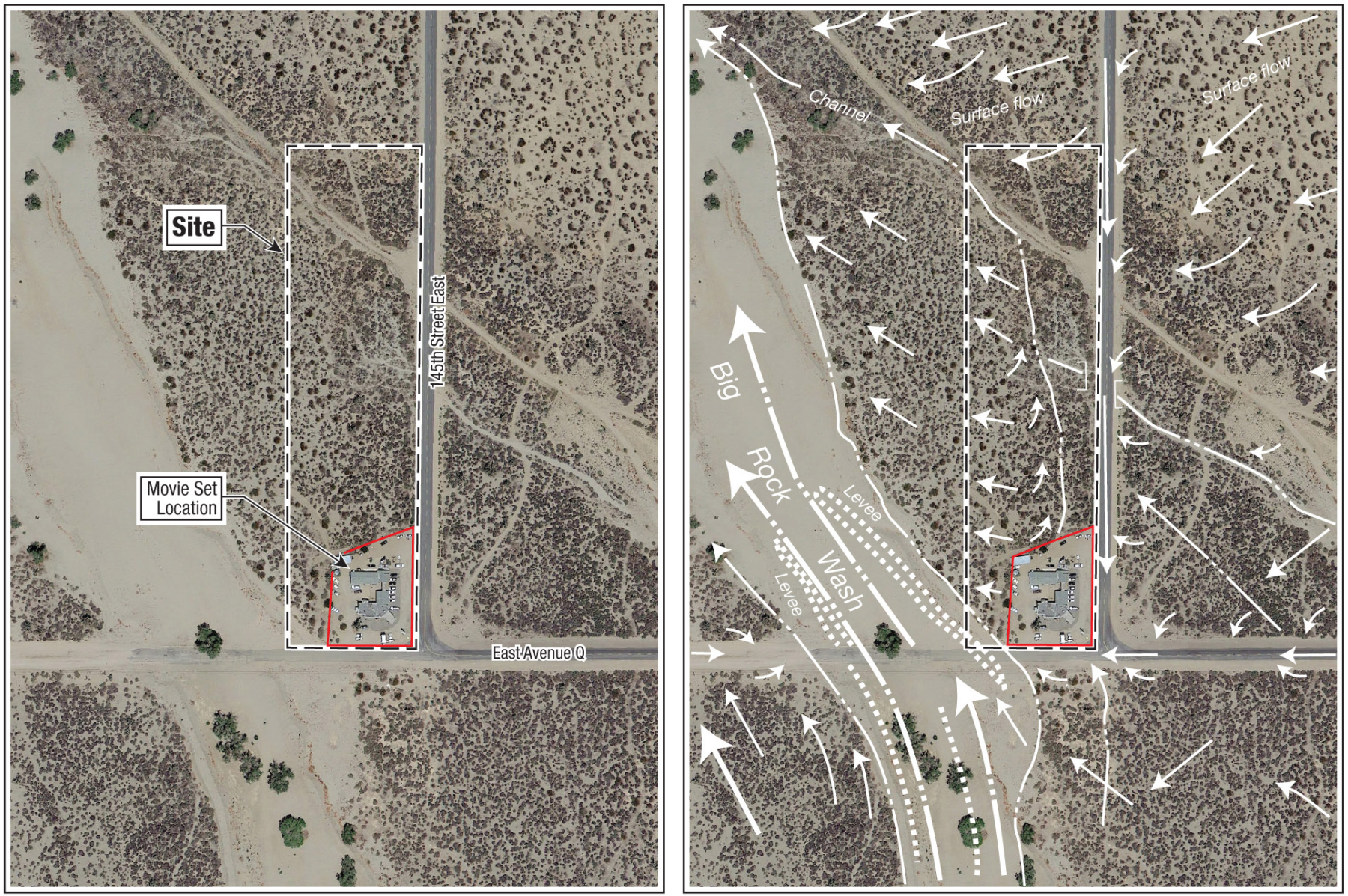
Big Rock Wash Drainage Basin

FEET 0 4,250 8,500

FIGURE 3



Historical Site Conditions and Drainage Pattern (1997)



Aerial Source: GoogleEarth Pro, May 24, 2013.

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Current Conditions and Drainage Pattern

FEET 0 1,500 3,000

FIGURE 5

beneath the California Aqueduct. The other channels of Rock Creek located to the west of the Big Rock Wash appear to be cut-off from historical upstream flows by the aqueduct. Rock Creek and Big Rock Wash converge somewhat to the immediate south of the site, but are forced to diverge around the obstacle of Alpine Butte. This, and the lessening gradient of the desert floor causes the flows to go underground before reaching Rogers Dry Lake.

IV. BIOLOGICAL CHARACTERISTICS OF THE SITE

Major Plant Communities, Plant Species Observed, and Population Sizes

The Four Acres movie set area is fenced along its northern and western boundaries and is barren of vegetation except for two Joshua trees and isolated patches of desert shrubs, some of which appear to have been retained as landscaping. The remainder of the property is naturally vegetated with Joshua trees and desert scrub, except for the property's southwestern corner, which contains a sand levee and a small section of Big Rock Wash. In addition to the movie set, disturbed areas include roadsides and an unpaved road in the northern part of the site. There is also evidence of off-road vehicle use. Representative photographs of the property including developed areas and native habitats taken on February 25, 2014 are provided on **Plate 1.**

Joshua trees (*Yucca brevifolia*) are a conspicuous component of the native vegetation at the site, as can be observed on the photos on Plate 1. The naturally vegetated portion of the site meets the minimum cover requirement (>=1% cover) for Joshua trees provided in *A Manual of California Vegetation, 2nd ed*. (Sawyer, J.O. et al., 2009) to be considered a Joshua Tree Woodland Alliance plant community. In this case, no currently recognized Joshua tree woodland associations provided in *A Manual of California Vegetation, 2nd ed.* and the *List of Vegetation Alliances and Associations (Natural Communities List)* (CDFW, September 2010) appear to be an appropriate fit with the assemblage of vegetation at the site. The most prevalent shrub species within the Joshua tree woodland include four-wing saltbush (*Atriplex canescens* ssp. *canescens*), rubber rabbitbush (*Ericameria nauseosa*), winter fat (*Krashenninikovia lanata*), creosote bush (*Larrea tridentata*), California ephedra (*Ephedra californica*), and desert thorn (*Lycium andersonii*). Some of the more prevalent herbs include Fremont's phacelia (*Phacelia fremontii*), fiddlenecks (*Amsinckia tessellata* var. *gloriosa, A. mensiezii*), tickseed (*Leptosyne* sp.), white eremalche (*Eremalche exilis*), northern pectocarya (*Pectocarya penicillata*), western tansy-mustard (*Descurainia pinnata* ssp. *glabra*), yellow peppergrass (*Lepidium flavum*), desert dandelion (*Malacothrix glabrata*), tall tumble mustard (*Sisymbrium altissimum*), red-stemmed filaree (*Erodium cicutarium*), Mediterranean grasses (*Schismus arabis, S. barbatus*), and cheatgrass (*Bromus tectorum*). Other notable herbs include Mohave suncup (*Camissonia campestris* ssp. *campestris*), Mohave desert parsley (*Lomatium mohavense*), tansy-leaved phacelia (*Phacelia tanacetifolia*), Mohave sand-verbena (*Abronia pogonantha*), and small-flowered California poppy (*Eschscholzia minutiflora*). Some unidentified biological soil crusts were also observed in some areas.

The *List of Vegetation Alliances and Associations (Natural Communities List)* (CDFW, September 2010) and *A Manual of California Vegetation, 2nd ed.,* assign a conservation status rank (also known as "rarity rank") to plant communities. Plant communities with global or state status ranks of G1 through G3, or S1 through S3, respectively, are considered to be sensitive, and are referred to as "natural communities of special concern." The Joshua Tree Woodland Alliance is given a conservation status rank of G4S3, and therefore is a natural community of special concern.

A vegetation and landcover map of the site is provided as **Figure 6.** The acreages and conservation status of the Joshua tree woodland and other landcover at the site are provided in **Table 1**.

Photo 1A – View of the permanent movie set at the southeastern corner of the property from the junction of East Avenue Q and 145th Street East.

Photo 1B – View of the southern part of the permanent movie set facing to the east. The Lovejoy Buttes are visible in the background on the left side of the photo.

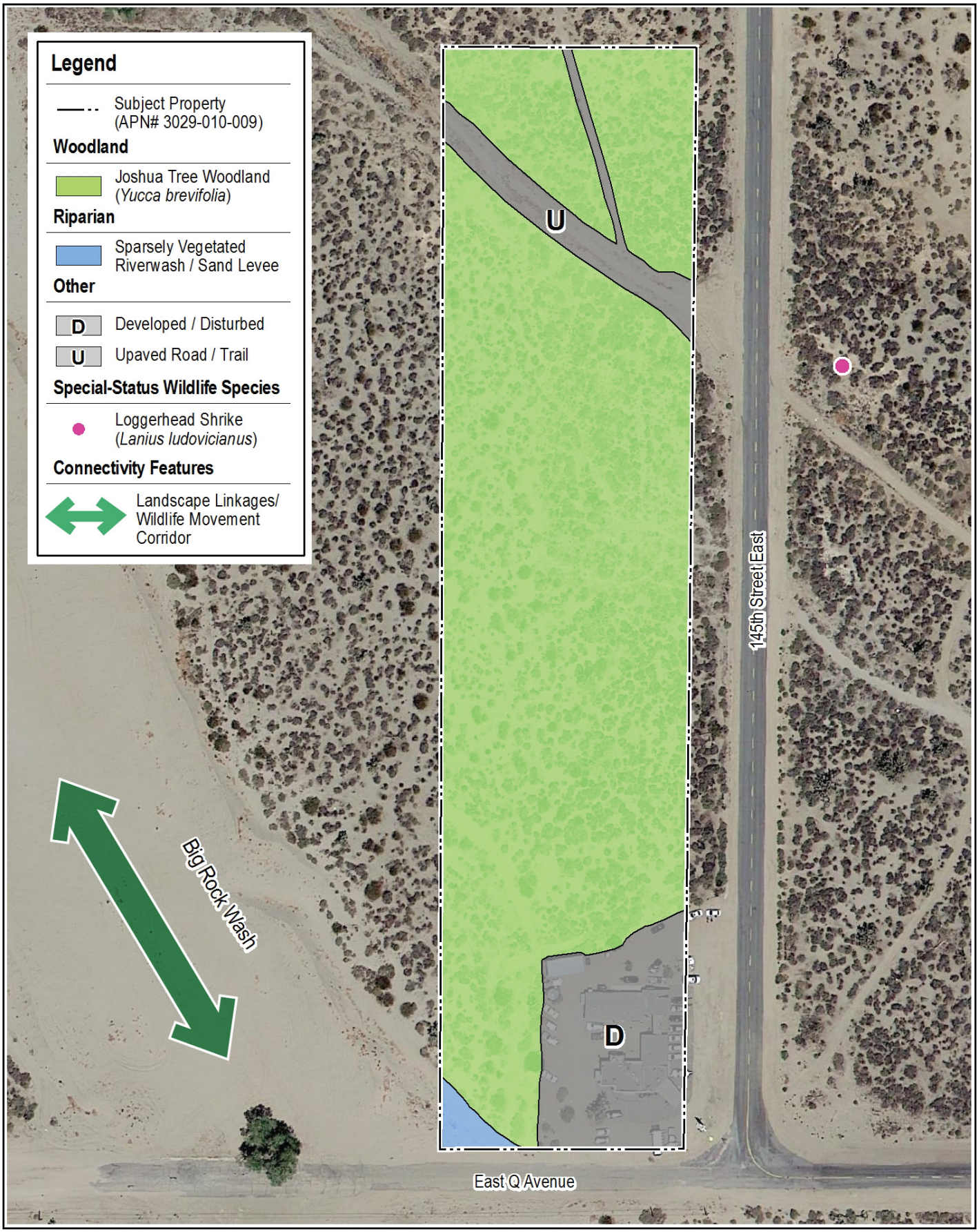
Photo 1C – Representative view of the natural habitats at the property directly north of the movie set. A trail that runs through a part of the property is also visible.

Photo 1D – This photo shows the flood control levee along the eastern boundary of Big Rock Wash as well as natural habitats near the southwestern corner of the property. Photo faces northwest.

Photo 1E – Another representative view of the natural habitats at the site. This photo was taken near the northwestern corner of the property and faces generally to the southeast.

Photo 1F – View facing to the south from the junction of 145th Street East and an unpaved road/trail in the northern portion of the property.

Representative Photographs of the Subject Property



Source: GoogleEarth Pro, May 24, 2013.

FOUR ACES MOVIE LOCATION

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Vegetation, Special-Status Species, and Wildlife Movement

0 125 Feet

FIGURE 6

Table 1
Vegetation and Landcover at Subject Property*

Plant Community / Landcover Class	Conservation Status Rank	Subject Property (Total Acres)
Joshua Tree Woodland Alliance (*Yucca brevifolia*) [33.170.00]**	G4S3	5.10
Unvegetated/Sparsely Vegetated Riverwash	n/a	0.07
Developed/Disturbed (Project Site)	n/a	0.70
Unpaved Roads/Trails	n/a	0.28
	TOTAL ACREAGE	**6.15**

* Numbers in brackets are unique codes for each plant community, as provided in *List of Vegetation Alliances and Associations* (*Natural Communities List*) (CDFW, September 2010). Conservation status ranks are also from the *Natural Communities List*.
** CDFW Natural Community of Special Concern (Sensitive Plant Community

Review of the CNDDB Rarefind 5 application reveals three sensitive plant communities/habitats have been reported by other observers in the Lovejoy Buttes quadrangle area, or within adjacent quadrangles, including Canyon Live Oak Ravine Forest, Mohave Riparian Forest, and Southern Sycamore Alder Riparian Woodland. None of these sensitive communties are present at the site.

A small portion of the southwestern corner of the site lies within the recent scour zone of Big Rock Wash proper. The portion of the wash occurring at the site contains very sparse herbaceous cover and consists of the levee and associated heavy-equipment disturbance adjacent to the levee. A distant view of the site in the photograph on **Plate 2**, Photo 2a, taken from a rock outcrop located on a slope to the northeast below the Lovejoy Buttes shows the wash and conspicuous cottonwoods, turning yellow in late November 1998. Photo 2b shows the movie set and the proximity and conditions of the wash at the southeast corner of the site from a vantage at the intersection of Avenue Q East and 145th Avenue East. Although the photographs shown on Photos 2a and 2b are now several years old, they are still representative of the general conditions of the area.

In all, 48 species of vascular plants were observed on the site during the February 2014 survey, including one (1) gymnosperm, 41 dicots, and six (6) monocots. Forty-one of the plants observed were naturally occurring native species and seven (7) were non-native, representing low-moderate diversity of native species and a low proportion of non-natives. The compilation of observed plants is included in **Appendix 2**. Species identified at the site during a survey conducted to prepare the February 5, 1999 Biological Constraints Analysis for the site are also included on this list. Due to the timing of the biological surveys, as well as general drought conditions at the time of the February 2014 survey, this list is not comprehensive. Additional species, native and non-native, are anticipated at the site. Also, the early growth of a few species of herbs could not be identified as they lacked flowers, fruits, or other vegetative parts necessary for identification.

A review of Google Earth historical aerial imagery dating back to March 1995 as well as inspection of the 1997 aerial image provided on Figure 4 shows that prior to development of the permanent movie set the southeastern corner of the site where the movie set was constructed was in part highly disturbed and in part naturally vegetated, presumably with the same vegetation type that currently occurs throughout the remainder of the site, i.e., with Joshua tree woodland with low density of Joshua trees and an understory of saltbush scrub.

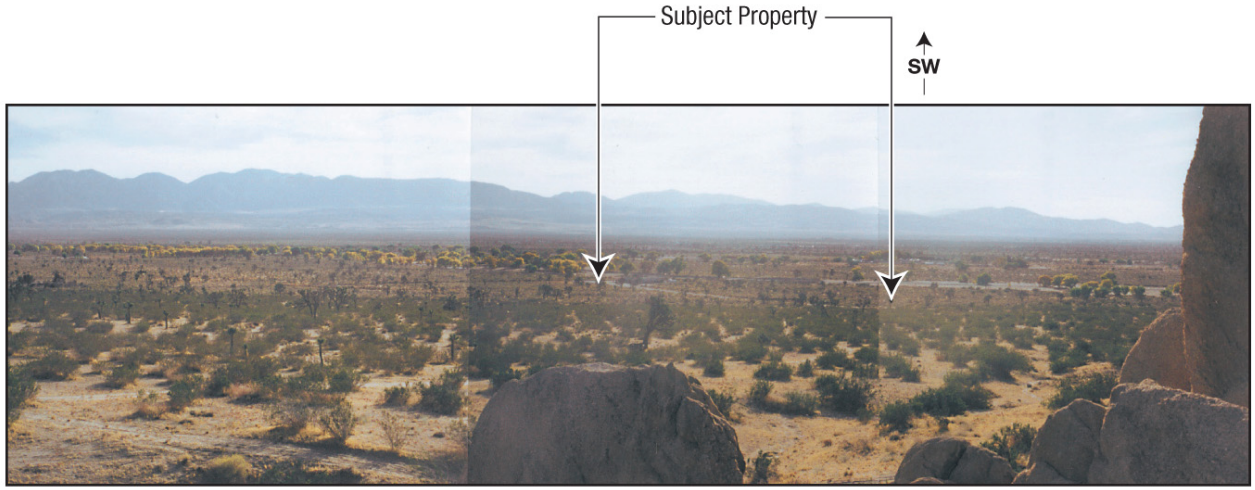


Photo 2A – Distant view of site from a rock outcrop of Lovejoy Butte.

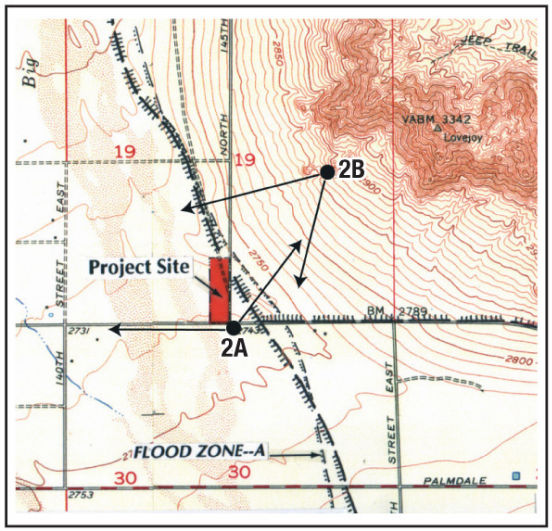


Photo Locations of 2A & 2B

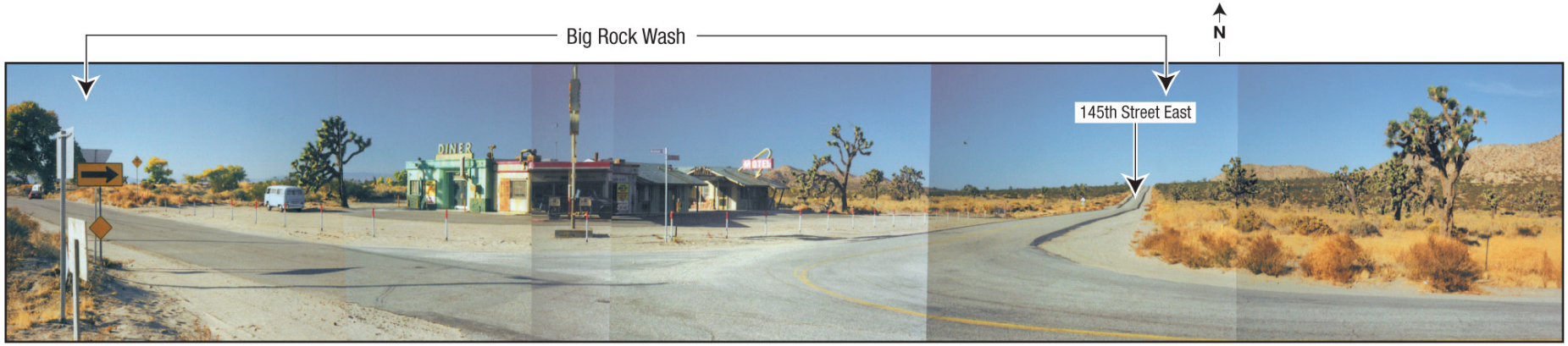


Photo 2B – View from southeast corner of the site.

Site Photos and Photo Locations

Special-Status Plant Species

Special-status plant species either have unique biological significance, limited distribution, restricted habitat requirements, particular susceptibility to human disturbance, or a combination of these factors. For the purposes of this report, special-status plant species are those plants listed, proposed for listing, or candidates for listing as Threatened or Endangered by the U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA); those listed or proposed for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act (CESA); and plants on the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants with a California Rare Plant Rank (CRPR) 1A (plants presumed extirpated in California and either rare or extinct elsewhere), 1B (which includes plants considered to be rare, threatened, or endangered species in California and elsewhere), 2A (plants presumed extirpated in California, but more common elsewhere), and 2B (plants rare, threatened, or endangered in California, but more common elsewhere).

The term "special-status" is also used herein to denote species that are considered locally sensitive by the County, and those plants on the CNPS Inventory with a CRPR 4 that meet criteria to be considered locally significant.

No special-status plant species are known to occur on the site, although a small white-flowered species was detected during the February 2014 field survey, which has potential to be the white pygmy-poppy (*Canbya candida*) [CRPR 4.2]. Pygmy poppy (*Canbya candida*) is a tiny, one-inch high annual reported from several locations in the Antelope Valley. It occurs in the western Mohave Desert on sandy substrates in Joshua tree woodland and Mohavean desert scrub. This species is considered potentially present with moderate probability.

An evaluation of the potential for occurrence of special-status plant species at the site was undertaken through a search of the *CNPS Online Inventory of Rare and Endangered Plants, 8th ed.* (CNPS 2013) and the California Department of Fish and Wildlife's Natural Diversity Data Base Rarefind 5 application (CDFW 2013) for sensitive "elements" reported within the Lovejoy Buttes quadrangle, and eight others that surround it, namely Adobe Mountain, Hi Vista, Alpine Butte, Littlerock, Juniper Hills, Valyermo, Mescal Creek, and El Mirage. The potential for occurrence analysis is presented in **Appendix 3**. As discussed in the table in Appendix 3, most special-status plant species known to occur in the region are precluded from occurring at the site due to lack of suitable habitat or because they are species of foothill and montane habitats of the San Gabriel Mountains and other southern California ranges. In addition to the white pygmy-poppy discussed above, the following four special-status species were determined to have low to very low potential to occur within natural habitats at the site, but these species have no potential to occur within the developed and highly disturbed areas surrounding the permanent movie set. A botanical survey timed to coincide with the blooming period of these species would be necessary to determine if they are present at the site.

- Alkali mariposa lily (*Calochortus striatus*) [CRPR 1B.2]. Blooms April to June. Low probability of occurrence.
- Barstow woolly sunflower (*Eriophyllum mohavense*) [CRPR 1B.2]. Blooms March – May. Very low probability of occurrence.
- Parish's popcorn flower (*Plagiobothrys parishii*) [CRPR 1B.1]. Blooms March – November. Very low probability of occurrence.
- Rosamond eriastrum (*Eriastrum rosamondense*) [CRPR 1B.1]. Blooms April – July. Very low probability of occurrence.

- White pygmy-poppy (*Canbya candida*) [CRPR 4.2]. Blooms March – June. Moderate probability of occurrence.

See Appendix 3 for a description of each of these species, including their growth form, blooming period, conservation status, and primary habitat associations.

Wildlife Habitats, Species Observed and Expected, and Population Sizes

Observations of wildlife were made by Envicom Corporation biologists in February 2014 and in January 1999. These observations were supplemented with information on the expected occurrences of various species from the California Department of Fish and Wildlife Natural Diversity Data Base (CNDDB) and appropriate literature sources (see References section). Biota reports previously prepared for Significant Ecological Area (SEA) 48 (Big Rock Wash), which includes the site were reviewed as were similar reports for adjacent SEAs 49, 52 and 53. All animal species either observed or reasonably expected to occur on the site as suggested by the literature review are listed in the faunal inventory in **Appendix 4**. Estimates of the relative abundance for each species are provided based upon the observers' regional experience, personal database, the physiography and other characteristics of both the site and surrounding areas, and on a review of the literature.

This site is relatively small at 6.15 acres and is comprised of Joshua tree woodland with an understory of saltbush scrub and desert wash habitat lying immediately adjacent. This combination of habitats potentially supports numerous animal species, including several special-status species reported by the CNDDB. To the east of the site are the Lovejoy Buttes, which is a potential raptor roosting and breeding area. Raptors observed during in January 1999 survey include prairie falcon (*Falco mexicanus*), red-tailed hawk (*Buteo jamaicensis*), and barn owl (*Tyto alba*). Many other avian and terrestrial species would also use this habitat, including the common chuckwalla (*Sauromalus obesus*), which is unusual within the County, and potentially the Mohave ground squirrel, a State Threatened species.

Joshua trees are the most conspicuous trees in many areas of the Mojave Desert, and on the site. Animal associates of Joshua trees include the yucca moth (*Tegeticula maculata*), the yucca weevil (*Scyphophorus yuccae*), and termites. At least twenty-five bird species use Joshua trees for nesting, including two species of woodpeckers, northern flickers (*Colaptes auratus*), and ladder-backed woodpeckers (*Picoides scalaris*). These woodpeckers feed on the termites that are associated with Joshua trees. Desert night lizards (*Xantusia vigilis*) also feed on these termites, and are in turn consumed by night snakes (*Hypsiglena torquata*). Many of the bird species that nest in Joshua trees are preyed upon by prairie falcons (*Falco mexicanus*). During the winter months, flocks of visiting passerines use these trees as shelter, and they are generally accompanied by small raptors such as sharp-shinned hawks (*Accipiter striatus*) and merlins (*Falco columbarius*).

The Joshua tree woodland at the site also contains scattered creosote bush (*Larrea tridentata*), the dominant shrub of the Mojave Desert. Detritus from leaf fall accumulates at the base of these creosote bush scrubs where beetles, millipedes and other detritus feeders are found. Inorganic materials such as sand, and organic materials including seeds add to the material that collects below these shrubs. Rodents such as pocket mice and kangaroo rats make burrows in the sand and consume the seeds. Once disturbed, succession and recovery of desert communities occurs at a very slow rate.

Four-wing saltbush is the most common shrub in the Joshua tree woodland understory. This species prefers well-drained calcareous soils but does not tolerate continuous inundation for more than 48 hours or the presence of a water table. Fourwing saltbush provides palatable foliage for browsers and good source of food

and cover for a wide variety of birds. The leaves and seeds are eaten by mice and ground squirrels. It is preferential cover for larger mammals such as coyote, desert cottontail, and jackrabbits and small rodents.

Desert wash habitat, which is located adjacent to the site to the west, is usually characterized by a diverse flora that provides cover and a source of food for an equally diverse collection of fauna. In the vicinity of the site, however, large Fremont cottonwood trees are the only notable riparian habitat, and the sandy riverwash is mostly barren or only sparsely vegetated, which is presumably a result of scour, deposition, prior disturbance by heavy equipment, and regular off-road vehicle use. Nonetheless, the large cottonwoods support nesting and provide avenues of migration for numerous avian species. The banks of these desert washes contain extensive networks of small mammal burrows utilized by various terrestrial species. During periods of precipitation, these washes act as conduits for seed dispersal to other areas of the desert. These seeds also comprise an important food source for many avian and mammalian species.

Invertebrates

Focused surveys for invertebrates including butterflies were not performed, and few were observed. Numerous pieces of debris were overturned to look for secretive and semi-fossorial animals, but no conspicuous invertebrates were observed by this method. One beetle was observed in January 1999, in flight only, little bear (*Paracotalpa ursina*), a scarab that has been observed in the Antelope Valley. We conclude from both our field survey, and from a literature review that the site includes the habitats and individual plant species required to support numerous species of butterflies, as are listed in Appendix 4.

Amphibians

No amphibians were observed on the site during the survey and none are expected to occur at the site. Only one species is potentially occurring, namely, red-spotted toad (*Bufo punctatus*).

Reptiles

Only two species of reptiles were observed during surveys of the site. A few side-blotched lizards (*Uta stansburiana*) were observed during February 2014 survey, and a juvenile desert night lizard (*Xantusia vigilis*) was observed in a torpid state under trash debris on the site in January 1999. We attribute the low number of reptile observations to the season and especially to soil surface temperatures during the surveys. Due to the variety of habitats present both on and adjacent to the site, we expect that spring and summer surveys would reveal numerous reptile species.

Birds

Among the animal species observed, more species of birds were seen than any other group. This was expected, as birds are simply more conspicuous and readily observable than other classes of animals that are typically nocturnal, burrowing, or reclusive. Bird species observed during the February 2014 survey included Bell's sparrow (*Artemisiospiza belli*), Bewick's wren (*Thryomanes bewickii*), cactus wren (*Campylorhynchus brunneicapillus*), California quail (*Callipepla californica*), common raven (*Corvus corax*), European starling (*Sturnus vulgaris*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), loggerhead shrike (*Lanius ludovicianus*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), phainopepla (*Phainopepla nitens*), Say's phoebe (*Sayornis saya*), and white-crowned sparrow (*Zonotrichia leucophrys*).

Additional bird species observed during the January 1999 that were not observed in February 2014 included barn owl (*Tyto alba*), Gambel's quail (*Callipepla gambelii*), greater roadrunner (*Geococcyx californianus*), lark sparrow (*Chondestes grammacus*), lesser goldfinch (*Spinus psaltria*), northern flicker

(*Colaptes auratus*), prairie falcon (*Falco mexicanus*), red-tailed hawk (*Buteo jamaicensis*), and rock dove (*Columba livia*).

In addition to the bird species observed, many more are likely to use the site, but were not present due to the season.

Mammals

During the February 2014 survey, no mammals were directly observed at the site, although the tracks and/or scat of five (5) species were observed, including black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), domestic dog (*Canis lupus familiaris*), and domestic horse (*Equus ferus caballus*). Black-tailed jackrabbit and white-tailed antelope squirrel (*Ammospermophilus leucurus*) were observed on the adjacent property to the east of the site and can be expected to occur at the site as well.

During the January 1999 survey, no mammals were directly observed, although the tracks and/or scat of six species were observed, including Botta's pocket gopher (*Thomomys bottae*), coyote (*Canis latrans*), desert woodrat (*Neotoma lepida*), kit fox (*Vulpes macrotis*), kangaroo rat (*Dipodomys* sp.), and longtail weasel (*Mustela frenata*).

There are numerous animal trails and mammal burrows present on the site.

Special-Status Wildlife Species

For the purposes of this report, special-status wildlife species are those species that are listed, proposed for listing, or that meet the criteria for listing as endangered, threatened, or rare under the FESA or CESA; and those that are listed on the CDFW's Special Animals list with a designation of SSC (California Species of Special Concern) or CFP (California Fully Protected). The term special-status is also used herein to denote any species that is considered locally sensitive by the County of Los Angeles.

One special-status wildlife species was directly observed at the adjacent property to the east of the site in February 2014, the loggerhead shrike (*Lanius ludovicianus*) [SSC]. This species undoubtedly occurs at the site as well. The approximate location where the loggerhead shrike was observed is shown on Figure 6. Also, a very old desert tortoise (*Gopherus agassizii*) [FT, CT] burrow was found at the site in January 1999.

A number of additional special-status wildlife species that were not observed during the surveys may potentially occur at the site and in the vicinity of the site, even if in some cases only infrequently, in transit, or on a temporary basis. An analysis of the potential for occurrence of special-status wildlife at the site is presented in **Appendix 5**, which includes the species' protected status, primary habitat associations, and an assessment of their potential for occurrence (observed, expected, potentially present, or presumed absent). The potential for occurrence analysis was undertaken through research of the CDFW Natural Diversity Database (CDFW 2014) using the Rarefind 5 application for special-status "elements" on the USGS 7.5' Lovejoy Buttes quadrangle and eight adjacent quadrangles including Alpine Butte, Hi Vista, Valyermo, Littlerock, EI Mirage, Mescal Creek, Adobe Mountam and Juniper Hills. The potential for occurrence analysis provides a speculative assessment of the potential for the occurrence at the site of special-status animals on the basis of their known distribution and habitat requirements. A number of additional special-status species from CDFW's list of Special Animals that are not recorded by the CNDDB were also included in the assessment. These are species known to occur in the western Mojave Desert, and for which the site affords suitable habitat.

The following 18 special-status animals, including one reptile, eight birds, and nine mammals were determined to have potential to occur at the site with varying probabilities ranging from moderate to very low. As we can only demonstrate presence and not absence, we must presume presence of those wildlife species where the evidence indicates a reasonable likelihood of occurrence when analyzing the site's constraints.

Reptiles

- Desert tortoise (*Gopherus agassizii*) [FT, CT]

Birds

- Burrowing owl (*Athene cunicularia*) [SSC] (burrow sites and some wintering sites)
- Golden eagle (*Aquila chrysaetos*) [CFP] (nesting and wintering)
- Le Conte's thrasher (*Toxostoma lecontei*) [SSC] (nesting)
- Long-eared owl (*Asio otus*) [SSC] (nesting)
- Loggerhead shrike (*Lanius ludovicianus*) [SSC]
- Northern harrier (*Circus cyaneus*) [SSC] (nesting)
- Swainson's hawk (*Buteo swainsoni*) [CT] (nesting)
- White-tailed kite (*Elanus leucurus*) [CFP] (nesting)

Mammals

- American badger (*Taxidea taxus*) [SSC]
- Big free-tailed bat (*Nyctinomops macrotis*) [SSC]
- Mohave ground squirrel (*Xerospermophilus mohavensis*) [CT]
- Pale big-eared bat (*Corynorhinus townsendii pallescens*) [SSC]
- Pallid bat (*Antrozous pallidus*) [SSC]
- Pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*) [SSC]
- Southern grasshopper mouse (*Onychomys torridus ramona*) [SSC]
- Townsend's big-eared bat (*Corynorhinus townsendii*) [SSC]
- Western mastiff bat (*Eumops perotis californicus*) [SSC]

Listed Special-Status Species

Three species listed under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA) has potential to occur at the site, including the desert tortoise (*Gopherus agassizii*), the Mohave ground squirrel (*Xerospermophilus mohavensis*), and Swainson's hawk (*Buteo swainsoni*).

Of significance was the discovery of a very old and weathered desert tortoise burrow at the site in January 1999. No other potential burrows were detected at the site in February 2014. The surrounding area was not searched for burrows. The site is within the historical range of this species, and is potentially within its current range. Desert tortoise populations have declined or have been extirpated throughout much of the Antelope Valley due to habitat degradation, habitat fragmentation, and adverse effects of urbanization (e.g., pets, collecting, off-road vehicles, etc.). The wild population has also been plagued by disease and from predation by common ravens (*Corvus corax*) on hatchling desert tortoises by common ravens. This predation is an unnatural occurrence, directly correlated with the human population growth of desert communities, and commensurate amounts of garbage and road killed animals available as a food resource

to common ravens. Given the presence of suitable habitat on-site and the extent of suitable habitat available in the surrounding area, the presence of this species at the site or the immediate vicinity of the site cannot be discounted. If present, low population numbers and densities are expected.

The site is within the historical and potentially the current range of the state-listed Threatened Mojave ground squirrel (*Xeropermophilus mohavensis*), but is not within an area that has been identified as a core area supporting relatively abundant populations. There are several historical records (prior to 1998) including one within one mile of the site but no recent records (post-1998) of the species within the southern Antelope Valley (CDFW BIOS datasets, downloaded March 5, 2014). Although this suggests potential extirpation from the southern Antelope Valley, recent surveys for the species have focused only on particular areas in the Antelope Valley. This species is potentially present, given the suitability of the on-site habitat and the amount of habitat available and relatively low levels of development in the surrounding area.

The third potentially occurring listed species is the Swainson's hawk (*Buteo swainsoni*), which occurs primarily as a migrant and summer resident in the Antelope Valley. Only a few summer in the Antelope Valley, with breeding pairs sometimes found at isolated stands of tall trees in agricultural areas. There are many reported observeations on eBird.org for the Palmdale area (data downloaded March 5, 2014), including one within three miles of the site. However, the site does not contain its preferred foraging habitat and therefore this species is only expected to forage rarely on a temporarily basis at the site. It would not nest at the site.

Non-listed Special-Status Species

Up to seven (7) special-status bird species that are Species of Special Concern or California Fully Protected species may potentially occur at the site. The loggerhead shrike was observed on the adjacent property to the east of the site during the February 2014 survey and undoubtedly utilizes the habitats at the site, and could potential nest at the site as well. The scrub habitats at the site are also highly suitable for the Le Conte's thrasher; this species could potentially nest at the site as well. There are several CNDDB records for the Le Conte's thrasher within the Lovejoy Butte quadrangle, including one within or very close to the site: CNDDB element occurrence #99 states the location of an observation of Le Conte's thrasher from 1998 as "Antelope Valley, W. of Lovejoy Buttes, NW of Jct of Avenue Q and North 145th St. East." Although the site does not contain the open habitat with low growing vegetation preferred by the burrowing owl, burrowing owls also occupy desert scrub. There are several occurrences of burrowing owls reported on eBird.org for the Antelope Valley, with the majority concentrated in agricultural areas several miles northwest of the site. There are no CNDDB records for the Lovejoy Buttes quadrangle, and the nearest reported occurrence is over 5 miles to the west of the site. There were numerous small rodent burrows observed but few larger, suitable ground squirrel burrows noted during the February 2014 survey. Although not expected, this species has low potential to occur while foraging and also could potentially winter or breed at the site depending on the time of year, if present. The remaining four bird species include the golden eagle, long-eared owl, northern harrier, and white-tailed kite, which would only forage occasionally or rarely on a temporary basis at the site, and they would not nest theron. The potential for occurrence of some of the species in this category is quite low, but they have not been excluded because their temporary presence at the site cannot be entirely discounted.

Up to eight (8) special-status mammals that are Species of Special Concern may potentially occur at the site with varying probabilites ranging from high to low, including the American badger, pallid San Diego pocket mouse, southern grasshopper mouse, and five species of special-status bats. No potential American badger burrows were observed during field surveys, but this species is expected to occur at the site at least

occasionally while foraging or moving through the area. The sandy herbaceous desert scrub habitats at the site may be suitable for the pallid San Diego pocket mouse, although the site lacks rocks/coarse gravel or significant cover of herbaceous vegetation. Based on CNDDB records and *The Mammals of North America* (Hall 1981), the site may be outside of or at least near the limits of the range of this species. The nearest reported occurrence is "2 miles east of Valyermo" which appears to be approximately 9 miles south of the site. Therefore, the potential for occurrence of this species is low. The southern grasshopper mouse is also potentially occurring as the site provides suitable habitat and numerous small rodent burrows were observed. Although Hall 1981 appears to show the distribution of this subspecies to be west of the deserts in California, CNDDB element occurrence #25 states the location of an observation from 1988 in the Lovejoy Buttes quadrangle as "about 1 mile north and 6 miles east of Pearblossom." The five potentially occurring special-status bats may forage aerially over the site but are not expected to roost at the site. The structures of the permanent movie set may provide temporary roosting habitat for some non special-status bat species, but special-status bats are not expected, either due to high sensitivity to disturbance while roosting or because they are not reported to roost on man-made structures.

V. CHARACTERISTICS OF THE SURROUNDING AREA

Existing Land Use and Public Lands

The prevalent land use in the immediate site area is undeveloped rural residential Parcels of Record on lots ranging roughly from one to ten acres. Developed rural-residential parcels are located along the south, east and north flanks of Lovejoy Buttes. Some alfalfa production is evident further south of Lovejoy Buttes. See **Figure 7** for an aerial image of general land use in the surrounding area.

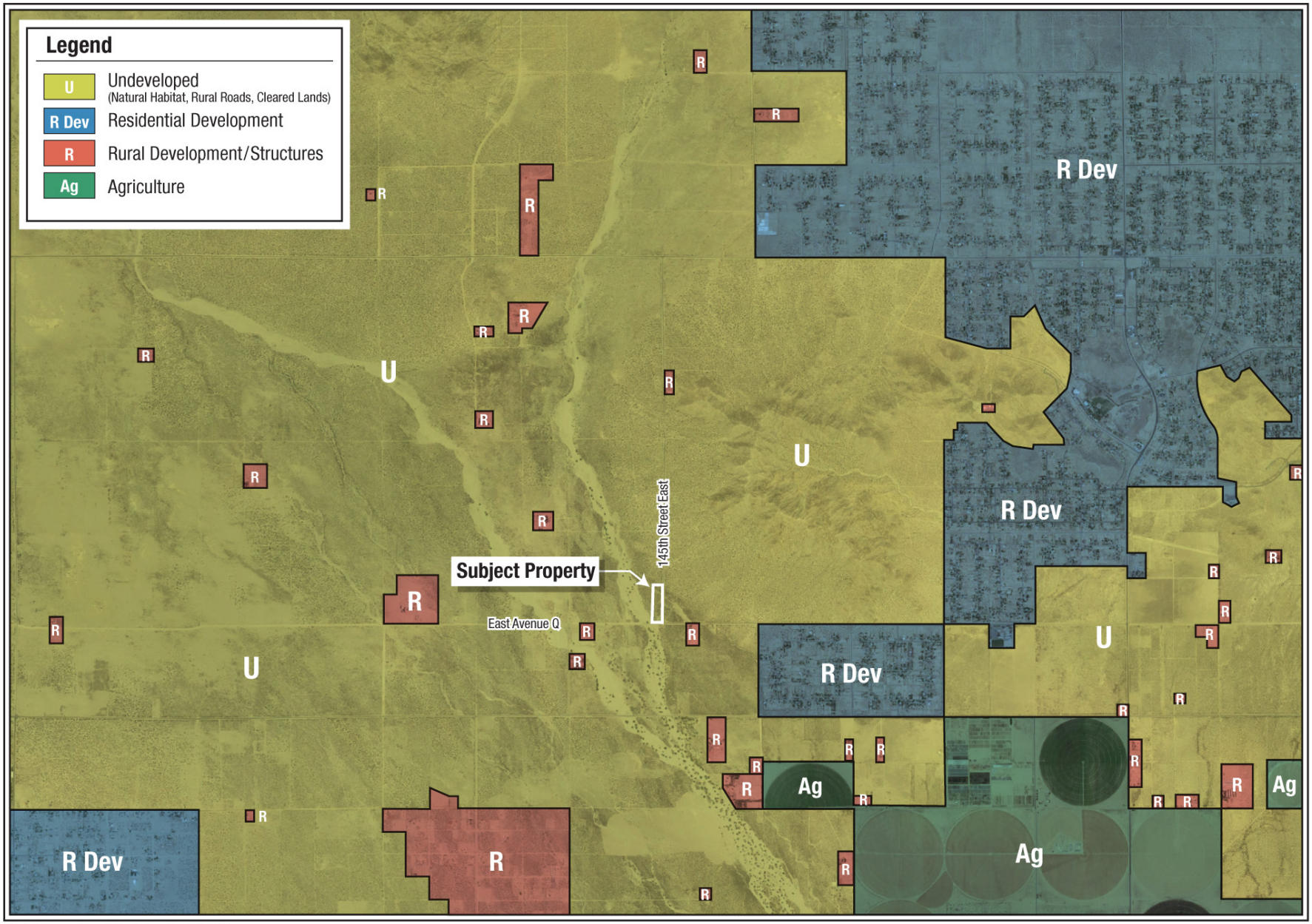
Surrounding Habitats and Associated Plant and Animal Resources

A *2013 California Vegetation Map* prepared by Aerial Information Systems, Inc. and the CDFW Vegetation Classification and Mapping Program in support of the Desert Renewable Energy Conservation Plan shows the natural habitats in the surrounding area as Joshua tree woodland, saltbush scrub including four-wing saltbush scrub (*Atriplex canescens*) [G5S4] and allscale scrub (*Atriplex polycarpa*) [G5S4], Fremont cottonwood woodland (*Populus fremontii*) [G4S3], and unvegetated riverwash. The following describes the major habitats of the area surrounding the site.

Joshua Tree Woodland

Joshua trees (*Yucca brevifolia*) are the most conspicuous trees in higher elevations of the Mojave Desert where snow is a common form of precipitation. Joshua trees are typically found on well-drained sand and loose gravel, on the upper portion of gentle slopes. As mentioned earlier in this report, there are many animal associates of Joshua trees. These associations comprise a complex and fragile ecological web.

Joshua trees provide a valuable resource as nesting sites for at least twenty-five species of birds. Insects that are found in living and downed limbs and whole trees provide a valuable resource for many of the birds that nest within, and some of the reptiles such as desert night lizards (*Xantusia vigilis*) that are also found there. Rodents that build burrows and nests at the base of the Joshua trees such as desert woodrats (*Neotoma lepida*) provide a food resource for other reptiles and birds of prey, such as red-tailed hawks (*Buteo jamaicensis*), prairie falcons (*Falco mexicanus*), American kestrels (*F. sparverius*), barn owls (*Tyto alba*), and great horned owls (*Bubo virginianus*).



Aerial Source: GoogleEarth Pro, May 24, 2013.

ENVICOM CORPORATION

Surrounding Land Use

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FIGURE 7

Saltbush Scrub

Saltbush scrub is common in the Antelope Valley and is typically found in basins and lower bajadas and alluvial fans throughout the Mohave Desert within a range of ecological conditions. As stated, stands of four-wing saltbush (*Atriplex canescens*) and allscale (*Atriplex polycarpa*) have been identified and mapped in the vicinity of the site. Stands of four-wing saltbush are typically indicative of deep sand, either washes or dunes while *A. polycarpa* stands typically occur around moderately saline playas and in and around sandy washes on lower bajadas.

Creosote Bush Scrub

Creosote bush scrub is typically found in flats and bajadas (areas where alluvial fans coalesce). It occurs as the understory in the ecotone between Joshua tree woodland and creosote bush scrub plant communities, but creosote bush (*Larrea tridentata*) is typically found at lower elevations than Joshua trees. Creosote Bushes are a valuable resource for desert fauna, providing an abundant source of cover for numerous insect, reptile, bird and mammalian species. Desert tortoises (*Gopherus agassizii*) construct many of their burrows at the base of creosote bushes. Numerous lizards are found here, typically zebra-tailed lizards (*Callisaurus draconoides*), desert iguanas (*Dipsosaurus dorsalis*), common leopard lizards (*Gambelia wislizenii*), and side-blotched lizards (*Uta stansburiana*). These lizards variously consume insects, and each other, and they are in turn preyed upon by snakes such as sidewinders (*Crotalus cerastes),* and birds such as greater roadrunners (*Geococcyx californianus*), and American kestrels (*Falco sparverius*). Various rodents that construct nests and excavate burrows here are also incorporated into the diet of the above predators, as well as several species of birds-of-prey including red-tailed hawks (*Buteo jamaicensis*), burrowing owls (*Athene cunicularia*), prairie falcons (*Falco mexicanus*), American kestrels (*F. sparverius*), barn owls (*Tyto alba*), and great horned owls (*Bubo virginianus*).

Desert Wash

Deep-rooted plants that can withstand the flash floods common to these washes characterize this type of habitat. Fremont Cottonwood (*Populus fremontii*), though usually associated with Desert Riparian Woodland, is present adjacent to the site as the dominant tree species in Big Rock Wash.

Fremont cottonwoods provide suitable habitat for numerous avian species such as the barn owl (*Tyto alba)* observed here. The shrubs that line the banks of the wash provide excellent nesting and burrowing habitat for numerous rodent species including desert woodrats (*Neotoma lepida*), various pocket mice (*Perognathus* sp.), and kangaroo rats (*Dipodomys* sp.). These rodents provide a prey base for numerous reptilian and avian species previously mentioned. Banded gecko (*Coleonyx variegatus*) is most typically found in the sandy areas of desert washes.

Mohave Riparian Forest

Flowing water from seasonal precipitation enters the desert via Big Rock Wash. Fremont cottonwoods are the dominant native tree in the Mojave Riparian Forest in the area adjacent to the site. Flash floods can alter the topography and cause substantial streambank erosion.

Mojave Riparian Forest supports a diverse collection of flora and fauna. This plant community appears to support the greatest species diversity of any regional habitat type. Many of the species of animals previously mentioned in relation to other habitat types are expected to occur in Mojave Riparian Forest.

Special-Status Wildlife Resources and the CNDDB Search Results

The special-status biological resources for the region are discussed in the potential for occurrence analyses provided in Appendix 3 and Appendix 5. As discussed earlier, the potential for occurrence analyses were based on a review of the CNDDB (2014) report for the Lovejoy Buttes quadrangle where the site is located, as well as the eight surrounding quadrangles, with consideration of additional special-status species known to occur in the region that the CNDDB does not track or for which the CNDDB contains no reported occurrences. The results of the CNDDB database run are provided in Appendix 6.

Open Space Reserves

Several public open spaces and one military reserve are located within a three mile radius of the site as follows: Alpine Butte Wildlife Sanctuary (0.4 mi. nw); Big Rock Creek Wildlife Sanctuary (0.7 mi nw); Antelope Valley Indian Museum State Park (0.9 mi. n); Saddleback Butte State Park (1.3 mi. nne); Butte Valley Wildflower Sanctuary (1.8 mi. nne); Phacelia Wildlife Sanctuary (3 mi. nne); Gerhardy Wildlife Sanctuary (2 mi. ne); Edwards AFB (2.5 mi. n); El Mirage OHV Recreational Park (2.8 mi. ne); Jackrabbit Flats Wildlife Sanctuary 0.7 mi. sw); and Devil's Punchbowl Park/Angeles National Forest (2.1 mi. s). None of these reserves are contiguous to the site, and although providing valuable habitat, they do not form any sort of protected connected system of habitats that could facilitate the continued movements of terrestrial wildlife in the greater Big Rock/Rock Creek/Lovejoy-Alpine Buttes region.

Actual or Potential Wildlife Movement/Gene Flow

As urbanization continues to fragment natural habitat, the biological importance of maintaining habitat linkages has grown dramatically. In the Antelope Valley, large areas of natural open space that historically maintained ecological continuity have become fragmented through the construction of roads, and residential and commercial developments. In order to salvage optimum levels of interaction between the remnants of natural populations in the region, it is necessary to plan for, and to protect undisturbed habitat parcels that link core habitat. These connecting strips are generally referred to as habitat linkages.

While habitat linkages imply an existing continuity of natural vegetation, 'wildlife corridors' are generally artifacts of development. Corridors are often narrow strips of undeveloped land that are intended to maintain continuity between otherwise disconnected natural areas or fragments. Ideally, corridors provide opportunities for animal populations to interact, reducing the risk of genetic isolation and increasing species community and ecological stability.

The study of habitat linkages for the site has involved a review of pertinent literature, field investigations by Envicom Corporation biologists, and most significant were interpretations of aerial photographs. The site is adjacent to two significant areas of wildlife movement: Big Rock Wash and Lovejoy Buttes. Big Rock Wash, which passes through the southwest corner of the site, is a significant habitat linkage/wildlife corridor that extends from its origins in the San Gabriel Mountains out into the western Mojave Desert. This large desert wash is an important linkage for many classes of animals, most significantly for the movement of many species of migratory birds and larger mammals. Many mountain species have extended their range into the desert along this wash. This wash also provides a linkage whereby desert species can extend their range into riparian habitats in the foothills of the San Gabriels. The biological integrity of Big Rock Wash is already threatened by the negative impacts of numerous paved and dirt roads that cross the wash, and by extensive off road vehicle (ORV) use both in and near the wash. Furthermore, there has been a significant amount of movement of the wash substrate by the use of heavy construction equipment. This damage to the wash affects not only the movement of wildlife through this

corridor, it has severe impacts on the plant species that line the banks of the wash which provide cover and burrowing and nesting habitat for numerous wildlife species.

Lovejoy Buttes is adjacent to the eastern boundary of the site. These buttes provide potentially ideal nesting habitat for several species of raptors such as prairie falcons *(Falco mexicanus),* golden eagles *(Aquila chrysaetos),* American kestrels *(Falco sparverius),* barn owls *(Tyto alba),* and great horned owls *(Bubo virginianus).* There is an extensive housing development to the east of the buttes. There is also development, to a lesser degree, to the north and south of the buttes, also from housing developments and the extensive use of barbed wire fences. This human development ensures that there is very little to no movement of terrestrial wildlife species between the buttes and the areas to the north, east, and south. These developments would also affect the movement of most avian species that would nest in the buttes and use the surrounding areas for associated activities, as part of their horne range. The existing housing developments near the buttes also support the very large common raven (*Corvus corax*) population that was observed in the area in year 1999. This species is in direct competition with bird species that historically used these buttes as nesting sites, especially prairie falcons. The loss of habitat in the surrounding area is significant. The area to the west, northwest and southwest is still undeveloped enough so that it could support nesting activities on the cliffs of Lovejoy Buttes. The only way to ensure that Lovejoy Buttes continues to support such activity is to leave enough of the area to the west of the buttes, where the site is located, undeveloped. This will allow continued use of the area by wildlife between the Lovejoy Buttes and Big Rock Wash. Allowing the undeveloped areas around the buttes to become extensively developed would effectively isolate the buttes and prevent or impede wildlife movement to and from this area, resulting in a loss of valuable habitat.

As mentioned, none of the public or military reserves constitute a large protected core habitat area, nor do they form a connected system of protected habitats that would facilitate the movement of wildlife between the mountains and the desert. Big Rock Wash (SEA 48) is touted in its official description as serving an important function as a wildlife migration corridor and as a means of plant dispersal. Furthermore, since Big Rock Wash "terminates in a group of buttes, dispersal of organisms into and from the buttes is critical to their functioning as a reservoir of biotic diversity". The potential for wildlife movement and gene flow of plants and wildlife between the mountain and desert ecosystems, via the major washes would appear to be substantial. If this is the case, then the movement/gene flow/biotic reservoir of diversity functions of the Wash and Butte system would be impacted by future rural and suburban growth in the area.

Overall Biological Value

The overall biological value of the surrounding area has already been recognized by designation of three contiguous SEAs, namely Big Rock Wash, Alpine Butte, and Lovejoy Butte. According to the official SEA descriptions, "desert wash areas are important because they provide critical wildlife habitat and migration corridors, and a means of seed dispersal for many desert plants. In addition, they commonly possess a much greater diversity than surrounding areas, and are important to the stability of many desert ecosystems." Furthermore, "to many wide-ranging animals, buttes are critical habitat,'…"used by many birds-of-prey for roosting and nesting, and by large mammals for denning sites and for cover."

Observed and Expected Species, and Population Sizes

Observed species of vascular plants and wildlife are listed in Appendices 2 and 4, with a subjective estimate of the population sizes for both the site, and for the surrounding area. Expected wildlife of the site and surrounding area, and corresponding population size estimates are also given in Appendix 4.

Listing of the expected plant species in the surrounding area, and population size estimates would not be a practical endeavor, and was not undertaken, although, population size estimates of plants of the surrounding area that were observed on the site are included on Appendix 2.

Relationship of the Site to the Surrounding Area

The relationship of the site to the surrounding area is that it supports some types of biological habitats and potentially some species for which the local SEAs were designated, which were deemed significant by the County of Los Angeles. The site lies entirely within the Big Rock Wash SEA, and currently provides an open avenue (although not the only one) for migration of wildlife between the Wash and Lovejoy Butte. Rural and suburban development in the immediate vicinity of the site is still sparse, but evidently increasing. The site provides important sensitive habitats and contributes incrementally to the value and function of the Wash/Butte ecosystem, and the integrity of the Big Rock Wash SEA.

VI. CONCLUSION

The purpose of the Biological Constraints Analysis is to assess the biological resources on the site and in the surrounding area, and to identify and map constraints to development posed by valuable, protected, and regulated biological resources. The biological constraints analysis informs the planning and design phase of a project with the objective of avoiding and minimizing impacts to valuable biological resources and costly mitigation. In this case, the project (the permanent movie set) has already been constructed and no additional improvements to the property are proposed. Based on a review of historical aerial images and a recent site investigation, the permanent movie set was developed in an area that was in part highly disturbed and in part naturally vegetated with Joshua tree woodland with low density of Joshua trees and an understory of saltbush scrub. The constraints discussed below that are currently applicable to the naturally vegetated portion of the site are also applicable in retrospect to the formerly naturally vegetated portion of the southeastern corner of the site that was impacted by development of the movie set.

The site contains areas of high biological value and an area of low biological value, as shown on **Figure 8**, Biological Constraints Map. The area of low biological value includes the existing permanent movie set and the cleared/highly disturbed area surrounding it. This area does not contain and does not have any reasonable potential to support a special-status plant or wildlife species. The routine use of the permanent movie set by wildlife is expected to be limited to a few common species adapted to built structures and developed areas, such as common rodents, birds, and perhaps bats, a few of which may inhabit, roost, or nest in the structures and/or potentially in the vegetation and disturbed areas surrounding the movie set. Nearly all bird species including common native species are protected from harm when nesting by the federal Migratory Bird Treaty Act and relevant state Fish and Game Codes.

Areas of high biological value include the remainder of the undeveloped portion of the property (see Figure 7), including the Joshua tree woodland plant community as well as the section of sparsely vegetated riverwash (Big Rock Wash) that passes through its southwestern corner. The portion of Big Rock Wash within the property boundary is regulated by the CDFW (and potentially the USACE) and is also of notable value for wildlife movement. The CDFW considers Joshua tree woodland to be a sensitive plant community and special consideration and protection of CDFW sensitive plant communities is required during environmental review of development projects pursuant to the California Environmental Quality Act (CEQA). The high-value natural habitats at the site have potential to contain the pygmy poppy (*Canbya candida*) [CRPR 4.2], which is on a "watch list" for species of limited distribution. CRPR 4 species do not receive mandatory protection pursuant to CEQA, but the California Native Plant Society (CNPS) strongly recommends consideration of project impacts to CRPR 4

Source: GoogleEarth Pro, May 24, 2013.

FOUR ACES MOVIE LOCATION

ENVICOM CORPORATION

Biological Constraints Map

0 125 Feet

FIGURE 8

species during environmental review of proposed projects. Four other special-status plant species that would require mandatory consideration and protection pursuant to CEQA also have potential to occur, including alkali mariposa lily (*Calochortus striatus*), Barstow woolly sunflower (*Eriophyllum mohavense*), Parish's popcorn flower (*Plagiobothrys parishii*), and Rosamond eriastrum (*Eriastrum rosamondense*), as discussed in the potential for occurrence analysis in Appendix 3. These species are not listed under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA) but are considered to be rare, threatened, or endangered in California (and elsewhere) by the CNPS. However, these species have low to very low probability of occurrence and are therefore very unlikely to actually be contraints to development at this particular site. A botanical survey timed to coincide with the blooming period of these special-status species would be necessary to determine their presence at the site.

The high-value natural habitats at the site also provide important cover, food, and habitat for a variety of wildlife species. These habitats have potential to support special-status wildlife species, which could inhabit the site and/or nest within the property boundaries, or which would only use the site infrequently, occasionally, or rarely as a temporary foraging resource. Two species listed as Threatened under the FESA and/or CESA, including the desert tortoise and the Mohave ground squirrel are potentially occurring residents. Although populations of these two species have declined and may be extirpated from the southern Antelope Valley, their potential for occurrence cannot be discounted especially when considering the suitability of the habitats at the site and the significant amount of undeveloped natural habitat available in the surrounding area. The presence of either the desert tortoise or the Mohave ground squirrel would represent a significant constraint to development. The site does not contain the preferred foraging habitat for the State listed Threatened Swainson's hawk. This species is therefore only expected to forage rarely and temporarily at the site. Up to seven (7) special-status bird species and up to eight (8) special-status mammals considered Species of Special Concern or California Fully Protected species also have potential to occur at the site. The highest probabilities of occurrence among these include the loggerhead shrike, Le Conte's thrasher, and the American badger, which can be anticipated to occur, at least occasionally. Some of these species such as the special-status mice are possible residents while others such as the special-status birds and bats would only utilize the site as a temporary foraging resource and would not inhabit the site or nest at the site. The potential for occurrence of some of the species in this category is quite low, but they have not been excluded because their temporary presence at the site cannot be entirely discounted. The presence of a resident or nesting Species of Special Concern or California Fully Protected Species would be a significant constraint.

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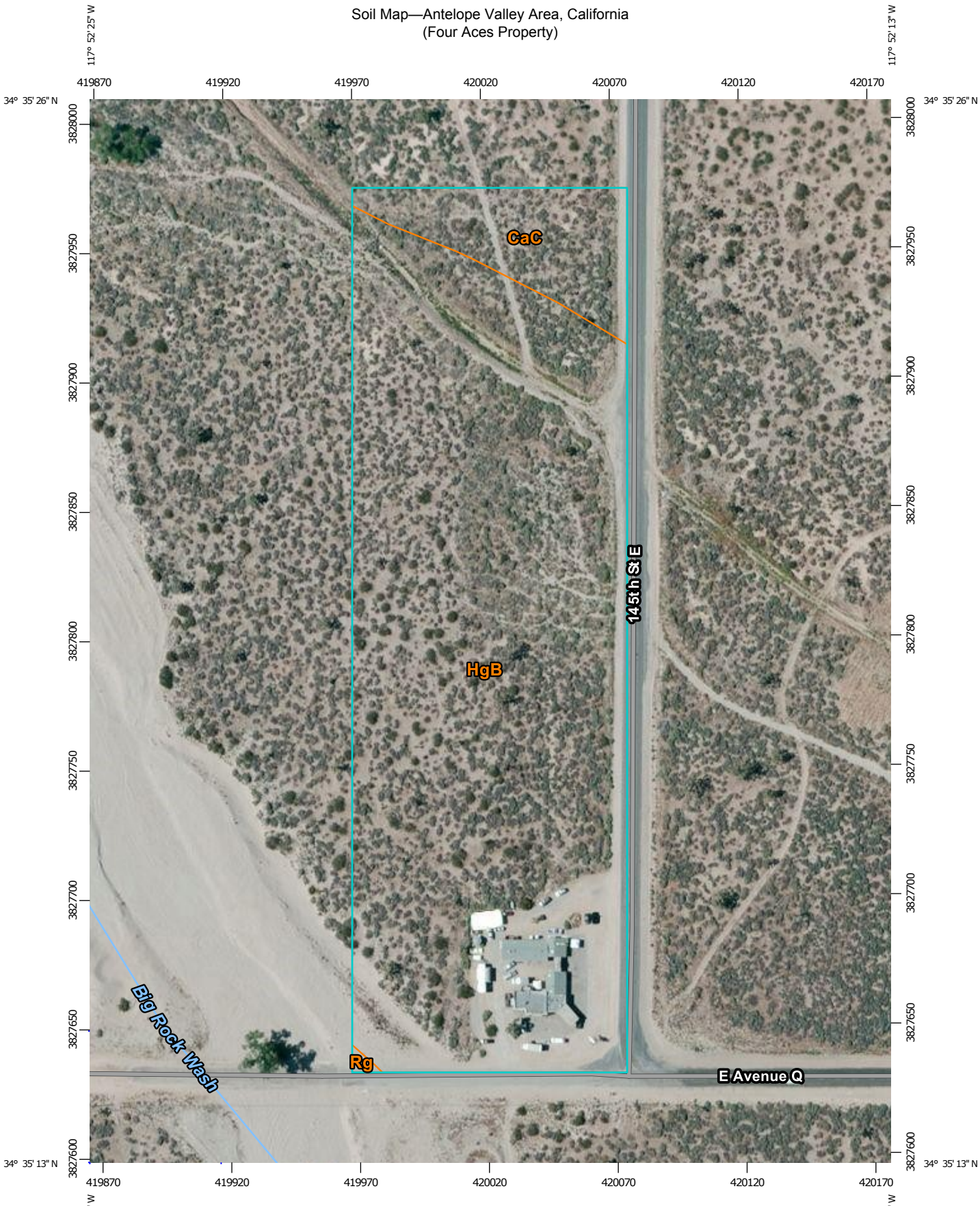
Appendix 1
National Resources Conservation Service Soil Map
Four Aces Movie Location Property

Soil Map—Antelope Valley Area, California
(Four Aces Property)



Map Scale: 1:2,010 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Antelope Valley Area, California
Survey Area Data: Version 6, Dec 17, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 5, 2010—Oct 29, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Antelope Valley Area, California (CA675)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CaC	Cajon loamy sand, 2 to 9 percent slopes	0.8	9.4%
HgB	Hesperia loamy fine sand, 2 to 5 percent slopes	8.2	90.5%
Rg	Riverwash	0.0	0.2%
Totals for Area of Interest		**9.1**	**100.0%**

Appendix 2
Vascular Plants Observed, January 1999 and February 2014

GROUP **Family** ***Scientific Name***	**Common Name**	**January 1999**	**February 2014**	**Estimated Abundance (Surrounding Area)**[1]
GYMNOSPERMS				
Ephedraceae				
Ephedra californica	desert tea	✓	✓	o
FLOWERING PLANTS-DICOTS				
Apiaceae				
Lomatium mohavense	Mojave wild parsley		✓	f
Asteraceae				
Acamptopappus sphaerocephalus var. *sphaerocephalus*	goldenhead	✓		c
Ambrosia acanthicarpa	annual bur-sage	✓	✓	c
Ambrosia dumosa	burro-weed	✓		c
Ambrosia salsola	burrobush	✓		u
Artemisia tridentata	sagebrush	✓	✓	u
Dicoria canescens	desert dicoria	✓		s
Ericameria nauseosa	rubber rabbit-brush	✓	✓	c
Gutierrezia microcephala	sticky snakeweed	✓	✓	c
**Lactuca serriola*	prickly lettuce	✓		c
Lasthenia californica	California goldfields		✓	c
Leptosyne sp.	tickseed		✓	?
Lessingia glandulifera var. *glandulifera*	sticky lessingia	✓		o
Malacothrix sp.	desert dandelion		✓	?
Malacothrix glabrata	desert dandelion	✓		c
Stephanomeria exigua	whiteplume wirelettuce	✓		o
Tetradymia axillaris var. *longispina*	cotton catclaw		✓	u
Tetradymia spinosa	spiny horsebrush	✓		u
Boraginaceae				
Amsinckia menziesii	common fiddleneck		✓	c
Amsinckia tessellata	tessellate fiddleneck	✓		c
Amsinckia tessellata var. *gloriosa*	tessellate fiddleneck		✓	c
Cryptantha circumscissa	western-forget-me-not	✓	✓	c
Cryptantha micrantha	popcorn flower	✓	✓	c
Heliotropium curassavicum	alkali heliotrope		✓	o
Pectocarya penicillata	northern pectocarya		✓	c
Phacelia fremontii	Fremont's phacelia		✓	c
Phacelia tanacetifolia	tansy-leaved phacelia	✓	✓	c
Tiquilia nuttallii	Nuttall's coldenia	✓		u
Brassicaceae				
Caulanthus lasiophyllus	California mustard	✓	✓	u
Descurainia pinnata ssp. *glabra*	tansy mustard	✓	✓	c
Dithyrea californica	spectaclepod		✓	u
**Hirschfeldia incana*	Mediterrannean mustard		✓	c
Lepidium flavum	peppergrass		✓	u
**Sisymbrium altissimum*	tumble mustard	✓	✓	c
Stanleya pinnata	Prince's plume	✓	✓	o
Campanulaceae				
Nemacladus sp.	--	✓		c
Chenopodiaceae				

Atriplex canescens var. *canescens*	four-wing saltbush	✓	✓	c
Atriplex confertifolia	shadescale	✓		c
Atriplex polycarpa	allscale saltbush	✓		c
Chenopodium sp.	goosefoot		✓	?
Krascheninnikovia lanata	winter fat	✓	✓	u
**Salsola tragus*	Russian-thistle	✓	✓	c
Euphorbiaceae				
Croton californicus	California croton	✓		o
Geraniaceae				
Erodium cicutarium	redstem filaree		✓	c
Lamiaceae				
Monardella exilis	slender monardella	✓		o
Scutellaria mexicana	bladder sage	✓		o
Loasaceae				
Mentzelia sp.	blazing star	✓		o
Mentzelia albicaulis	small flowered blazing star		✓	u
Malvaceae				
Eremalche exilis	white mallow		✓	c
Onagraceae				
Camissonia sp.	suncup	✓		o
Camissonia campestris ssp. *campestris*	Mojave suncup		✓	u
Camissoniopsis pallida ssp. *pallida*	pale suncup		✓	u
Eremothera boothii ssp. *desertorum*	Booth's desert rose	✓		c
Nyctaginaceae				
Abronia pogonantha	sand-verbena		✓	u
Papaveraceae				
Eschscholzia minutiflora	small-flowered California poppy		✓	c
Polemoniaceae				
Eriastrum cf. *pluriflorum*	Tehachapi woollystar	✓		o
Gilia sp.	gilia		✓	?
Langloisia setosissima ssp. *setosissima*	bristly langloisia	✓		o
Polygonaceae				
Eriogonum maculatum	spotted buckwheat	✓		f
Rumex hymenosepalus	wild rhubarb		✓	o
Salicaceae				
Populus fremontii ssp. *fremontii*	Fremont cottonwood	✓		o
Solanaceae				
Datura wrightii	jimson weed		✓	c
Lycium andersonii	Anderson's thornbush		✓	o
Lycium cooperi	box thorn	✓		o
Zygophyllaceae				
Larrea tridentata	creosote bush	✓	✓	c
FLOWERING PLANTS-MONOCOTS				
Agavaceae				
Yucca brevifolia	Joshua tree	✓	✓	f
Melanthiaceae				
Toxicoscordion brevibracteatum	desert zygadene	✓		o
Poaceae				

Stipa hymenoides	Indian ricegrass	✓	✓	c
**Bromus madritensis* ssp. *rubens*	red brome	✓	✓	c
**Bromus tectorum*	cheat grass	✓	✓	c
**Dactylis glomerata*	orchard grass	✓		o
**Hordeum murinum*	foxtail barley	✓	✓	c
Poa secunda	one-sided bluegrass	✓		s
**Schismus arabicus*	Arabian schismus	✓		c
**Schismus barbatus*	Mediterranean grass		✓	c
[1] c=common; f=fairly common; u=uncommon; o=occasional; s=scarce				

Appendix 3
Assessment of Potential for Occurrence of Special-Status Plant Species

Appendix 3
Potential for Occurrence of Special-Status Vascular Plants at Subject Property

Common Name (*Scientific Name)*	Form	Blooming Period	Primary Habitat Associations	Status (Federal/State/ CNPS)	Potential to Occur (high, moderate, low, none)
alkali mariposa lily (*Calochortus striatus*)	perennial bulbiferous herb	April - June	Meadows and seeps and alkaline substrates in mesic habitats found in chaparral, chenopod scrub, and Mojavean desert scrub at elevations between 70 and 1595 meters.	1B.2	Suitable habitat may be present at the site, given alkaline soils and evidence of temporary pooling. Although occurrences of this species in the Antelope Valley region are predominately north and west of the site in the vicinity of Lancaster, the CNDDB and a Consortium of California Herbaria record place this species within the Lovejoy Buttes quadrangle in the vicinity of Lovejoy Springs, which is approximately 3 miles northeast of the site. Potentially present, but with low probability.
Barstow woolly sunflower (*Eriophyllum mohavense*)	annual herb	March - May	Playas and chenopod and Mojavean desert scrub at elevations between 500 and 960 meters.	1B.2	The site is not a playa; however, suitable habitat may be present (e.g., alkaline soils, chenopod scrub, and depressions where water pools). The site is outside of the known range and distribution of the species; known occurrences in the region are well to the north and northeast of the site with no records for Los Angeles County. Potentially present, but with very low probability.
Big Bear Valley woollypod (*Astragalus leucolobus*)	perennial herb	May - July	Rocky substrates in lower montane coniferous forests, pebble (pavement) plains, pinyon and juniper woodlands, and upper montane coniferous forests at elevations between 1750 and 2885 meters.	1B.2	This species is found in mountain ranges in the region and does not occur on desert flats/slopes of the Antelope Valley. No potential for occurrence as the site is outside the range of the species and suitable habitat is absent.

bluish spike-moss (*Selaginella asprella*)	perennial rhizomatous herb	July	Granitic, rocky substrates in cismontane woodlands, lower and upper montane coniferous forests, pinyon and juniper forests, and subalpine coniferous forests at elevations between 1600 – 2700 meters.	4.3	No potential for occurrence. Suitable habitat absent. Also, based on Consortium of California Herbaria records, the site is outside the known distribution of this species.
California muhly (*Muhlenbergia californica*)	perennial rhizomatous herb	June - September	Mesic seeps and streambeds in chaparral, coastal scrub, and lower montane coniferous forests at elevations between 100 – 2000 meters.	4.3	No potential for occurrence. Suitable habitat is absent. Also, based on Consortium of California Herbaria records, the site is outside the known distribution of this species.
chaparral sand-verbena (*Abronia villosa* var. *aurita*)	annual herb	January - September	Sandy substrates in chaparral, coastal scrub, and desert dunes at elevations between 75 – 1600 meters.	1B.1	No potential for occurrence. Suitable habitat is absent at the site. Also, based on Consortium of California Herbaria records, the site is outside the known distribution of this species.
Clokey's cryptantha (*Cryptantha clokeyi*)	annual herb	April	Mojavean desert scrub at elevations between 725 – 1365 meters. Rocky to gravelly slopes, ridge crests, and desert woodland.	1B.2	The sandy alkaline soils at the site do not appear to be preferred habitat. Closest record southeast of Lake Los Angeles is a few miles from the site. No potential for occurrence due to lack of suitable habitat.
Colorado Desert larkspur (*Delphinium parishii* ssp. *subglobosum*)	perennial herb	March - June	Chaparral, cismontane woodland, pinyon and juniper woodland, and Sonoran desert scrub at elevations between 600 – 1800 meters.	4.3	No potential to occur due to lack of suitable habitat. Also, range of species appears to be restricted to Sonoran Desert and northern Baja California. Consortium of California Herbaria records for Mohave Desert may be problematic, but may represent range extensions.
crested milk-vetch (*Astragalus bicristatus*)	perennial herb	May - August	Sandy or rocky, mostly carbonate substrate found in lower and upper montane coniferous forests at elevations between 1700 – 2745 meters.	4.3	Species of southern California mountain ranges. No potential for occurrence. Suitable habitat is absent at the site. Also, based on Consortium of California Herbaria records, the site is outside the range of this species.

Davidson's bush mallow (*Malacothamnus davidsonii*)	perennial deciduous shrub	June - January	Frequently found in chaparral, cismontane woodland, coastal scrub, and riparian woodland at elevations between 185 and 855 meters.	1B.2	No potential for occurrence. Suitable habitat is absent at the site. Also, based on Consortium of California Herbaria records, the site is outside the known distribution of this species.
Greata'a aster (*Symphyotrichum greatae*)	perennial rhizomatous herb	June - October	Mesic habitats in broadleaf upland forests, chaparral, cismontane woodlands, lower montane coniferous forests, and riparian woodlands at elevations between 300 – 2010 meters.	1B.3	No potential for occurrence. Suitable habitat is absent at the site. Also, based on Consortium of California Herbaria records, the site is outside the known distribution of this species.
grey-leaved violet (*Viola pinetorum* var. *grisea*)	perennial herb	April - July	Meadows and seeps in subalpine coniferous forests and upper montane coniferous forests at elevations between 1500 – 3400 meters.	1B.3	No potential for occurrence. Suitable habitat is absent at the site and site is outside the species' range.
interior bush lupine (*Lupinus excubitus* var. *johnstonii*)	perennial shrub	May - July	Decomposed granitic substrate found in chaparral and lower montane coniferous forests at elevations between 1500 – 2500 meters.	4.3	No potential for occurrence. Suitable habitat is absent at the site and the site is outside the species' range.
interior manzanita (*Arctostaphylos parryana* ssp. *tumescens*)	perennial evergreen shrub	February - April	Chaparral (montane) and cismontane woodland at elevations between 2100 – 2310 meters.	4.3	No potential for occurrence. Suitable habitat is absent at the site and site is outside of species' range.
Johnston's bedstraw (*Galium johnstonii*)	perennial herb	June – July	Chaparral, lower montane coniferous forest, pinyon and juniper woodland, and riparian woodland at elevations between 1220 – 2300 meters.	4.3	No potential for occurrence. Suitable habitat is absent at the site and the site is outside the species' range.
Johnston's buckwheat (*Eriogonum microthecum* var. *johnstonii*)	perennial deciduous shrub	July - September	Rocky substrates found in subalpine montane coniferous forests and upper montane coniferous forests at elevations between 1829 – 2926 meters.	1B.3	Found in eastern San Gabriel Mountains and western San Bernardino Mountains. No potential for occurrence. Suitable habitat is absent at the site and the site is outside the species' range.

Johnston's monkeyflower (*Mimulus johnstonii*)	annual herb	May - August	Scree, disturbed areas, rocky or gravelly, roadsides found in lower montane coniferous forests at elevations between 975 – 2920 meters.	4.3	Found in San Gabriel and San Bernardino Mountains. No potential for occurrence. Suitable habitat is absent at the site and the site is outside the species' range.
Kern Canyon clarkia (*Clarkia xantiana* ssp. *parviflora*)	annual herb	May - June	Often found on sandy, sometimes rocky, slopes, and roadsides in chaparral, cismontane woodland, Great Basin scrub, and valley and foothill grassland at elevations between 700 – 3620 meters.	4.2	Appears to be restricted to southern Sierra Nevada; records for San Gabriel Mountains and foothills may be problematic or may represent range extensions. Regardless, this species has no potential to occur due to lack of suitable habitat.
Lemmon's syntrichopappus (*Syntrichopappus lemmonii*)	annual herb	April – June	Sandy or gravelly substrates in chaparral, Joshua Tree woodlands, pinyon and juniper woodlands at elevations between 500 – 1830 meters.	4.3	No potential for occurrence. Although sandy Joshua tree woodland habitats are present, nearest known occurrences are at high elevations and in desert foothills of the San Gabriel Mountains.
lemon lily (*Lilium parryi*)	perennial bulbiferous herb	July - August	Mesic meadows and seeps found in lower montane coniferous forests, riparian forests, and upper montane coniferous forests at elevations between 1220 – 2745 meters.	1B.2	No potential for occurrence. Suitable habitats are absent at the site and the site is outside the species' range.
Mojave paintbrush (*Castilleja plagiotoma*)	perennial herb (hemi-parasitic)	April – June	Great Basin scrub (alluvial), Joshua tree woodland, lower montane coniferous forest, and pinyon and juniper woodland at elevations between 300 -2500 meters.	4.3	No potential for occurrence. Site is probably not suitable habitat. Nearest known occurrences are at higher elevations and in desert foothills of the San Gabriel Mountains. Also, field survey adequate to confirm absence of perennial Castillejas.
Mohave phacelia (*Phacelia mohavensis*)	annual herb	April – August	Sandy or gravelly substrates found in cismontane woodlands, lower montane coniferous forests, meadows and seeps, and pinyon and juniper woodland at elevations between 1400 – 2500 meters.	4.3	No potential for occurrence. Montane species of Sierra Nevada, San Gabriel, and San Bernardino Mountains.

Palmer's mariposa lily (*Calochortus palmeri* var. *palmeri*)	perennial bulbiferous herb	April – July	Mesic meadows and seeps found in lower montane coniferous forests and chaparral at elevations between 1000 – 2390 meters.	1B.2	No potential for occurrence. Suitable habitat is absent and site is outside known species' range.
Parish's oxytheca (*Acanthoscyphus parishii* var. *parishii*)	annual herb	June – September	Sandy or gravelly substrate found in chaparral and lower montane coniferous forests at elevations between 1220 – 2600 meters.	4.2	No potential for occurrence. Suitable habitat is absent and site is outside known species' range.
Parish's popcornflower (*Plagiobothrys parishii*)	annual herb	March – November	Alkaline substrates found in mesic Great Basin scrub and Joshua tree woodlands at elevations between 750 – 1400 meters. Wet, alkaline soil around desert springs, mud flats.	1B.1	Despite alkaline soils and evidence of temporary pooling, the site probably does not contain suitable habitat for this species, which appears to occur at sites with a more consistent moisture regime (e.g., vicinity of seeps, springs, and marshes). The nearest (extirpated) occurrence is within the Lovejoy Buttes quadrangle in the vicinity of Lovejoy Springs, which is approximately 3 miles northeast of the site. Potentially present, but with very low probability.
Peirson's lupine (*Lupinus peirsonii*)	perennial herb	April – June	Gravelly or rocky substrate in Joshua tree woodlands, lower montane coniferous forests, pinyon and juniper woodlands, and upper montane coniferous forests at elevations between 1000 – 2500 meters.	1B.3	No potential for occurrence. Suitable habitat is absent and the site is outside of the species' range.
Pierson's morning-glory (*Calystegia peirsonii*)	perennial rhizomatous herb	April - June	Chaparral, chenopod scrub, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland at elevations between 30 – 1500 meters.	4.2	No potential for occurrence. Suitable habitat is absent and the site is outside of the species' range.
pine green-gentian (*Frasera neglecta*)	perennial herb	May - July	Lower and upper coniferous forests and pinyon and juniper coniferous forests at elevations between 1400 – 2500 meters.	4.3	No potential for occurrence. Suitable habitat is absent and the site is outside of the species' range.

Robbin's nemacladus (*Nemacladus secundiflorus* var. *robbinsii*)	annual herb	April - June	Found in openings in chaparral and valley and foothill grassland at elevation between 350 – 1700 meters.	1B.2	No potential for occurrence. Suitable habitat is absent and the site is outside of the species' range.
Rockcreek broomrape (*Orobanche valida* ssp. *valida*)	perennial herb (parasitic)	May - September	Granitic substrates in chaparral and pinyon and juniper woodland at elevations between 1250 – 2000 meters.	1B.2	No potential for occurrence. Suitable habitat is absent and the site is outside of the species' range.
Rosamond eriastrum (*Eriastrum rosamondense*)	annual herb	April – July	Alkaline and often sandy hummocks in openings in chenopod scrub and edges of vernal pools at elevations between 700 and 715 meters.	1B.1	Known only from the Rosamond and Rogers Dry Lake areas. This species is newly described (2013) and was formerly identified as *E. hooveri.* The site may be suitable habitat for this species. Potentially present, although the probability of occurrence is very low.
San Antonio milk-vetch (*Astragalus lentiginosus* var. *antonius*)	perennial herb	April – July	Lower and upper montane coniferous forests at elevations between 1500 – 2600 meters.	1B.3	No potential for occurrence. Montane species of San Gabriel Mountains. Suitable habitats are absent and the site is outside of the species' range.
San Gabriel linanthus (*Linanthus concinnus*)	annual herb	April - July	Rocky, openings in chaparral and lower and upper montane coniferous forests at elevations between 1520 – 2800 meters.	1B.2	No potential for occurrence. Montane species of San Gabriel Mountains. Suitable habitats are absent and the site is outside of the species' range.
San Gabriel manzanita (*Arctostaphylos glandulosa* ssp. *gabrielensis*)	perennial evergreen shrub	March	Rocky substrates in chaparral at elevations between 595 – 1500.	1B.2	No potential for occurrence. Species of the Sierra Madre and San Gabriel Mountains. Suitable habitats are absent and the site is outside of the species' range.
Short-joint beavertail (*Opuntia basilaris* var. *brachyclada*)	perennial stem succulent	April - August	Joshua tree woodland, chaparral, pinyon and juniper woodland, and Mohavean desert scrub at elevations between 425 – 1800 meters.	1B.2	No potential for occurrence, as field surveys were adequate to confirm absence. This species is known to occur in Joshua tree woodland but not chenopod scrub. Based on CNDDB and Consortium of California Herbaria records, the nearest known occurrences are at higher elevations in the foothills of the San Gabriel Mountains.

shrub live oak (*Quercus turbinella*)	perennial evergreen shrub	April - June	Chaparral, cismontane woodland, lower montane coniferous forests, and pinyon and juniper woodland at elevations between 1200 – 2000 meters.	4.3	No potential for occurrence, as field surveys were adequate to confirm absence. Also, suitable habitat is absent.
white pygmy-poppy (*Canbya candida*)	annual herb	March – June	Gravelly, sandy, granitic substrate in Joshua tree woodland, pinyon and juniper woodland, and Mohavean desert scrub at elevations between 600 – 1460 meters.	4.2	A small white-flowered plant was detected at the site during the February 2014 field survey, which was not identified and could be this species. Suitable habitat is present at the site. Potentially present with moderate probability.
woolly mountain-parsley (*Oreonana vestita*)	perennial herb	March - September	Gravel or talus substrate in subalpine coniferous forest and lower and upper montane coniferous forest at elevations between 1615 – 3500 meters.	1B.3	No potential for occurrence. Montane species of San Gabriel and San Bernardino Mountains. Suitable habitat is absent and the site is outside of the species' range.

Federally Protected Species

FE (Federal Endangered): A species that is in danger of extinction throughout all or a significant portion of its range.

FT (Federal Threatened): A species that is likely to become endangered in the foreseeable future.

FC (Federal Candidate): A species for which USFWS has sufficient information on its biological status and threats to propose it as Endangered or Threatened under the Endangered Species Act (ESA), but for which development of a proposed listing regulation is precluded by other higher priority listing activities.

State Protected Species

CE (California Endangered): A native species or subspecies which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.

CT (California Threatened): A native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "Rare" on or before January 1, 1985, is a "Threatened species."

CR (California Rare): A species, subspecies, or variety of plant is Rare under the Native Plant Protection Act when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens. Animals are no longer listed as Rare; all animals listed as Rare before 1985 have been listed as Threatened.

California Native Plant Society (CNPS) Rare Plant Rank

CRPR 1A: Plants presumed extinct in California and either rare or extinct elsewhere.

CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.

CRPR 2A: Plants presumed extirpated in California, but more common elsewhere.

CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.

CRPR 3: A review list for plants for which there is inadequate information to assign them to one of the other lists or to reject them.

CRPR 4: A watch list for plants that are of limited distribution in California.

CNPS Threat Rank

The CNPS Threat Rank is an extension added onto the California Rare Plant Rank and designates the level of endangerment, as follow:

- 0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat).
- 0.2-Fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat).
- 0.3-Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

Appendix 4
Expected Wildlife at the Site and Surrounding Area

LEGEND

ABUNDANCE

c = common – observed or expected throughout the area in high numbers; should be easily seen on most sites in appropriate habitat and season.

f = fairly common – observed or expected to occur in moderate numbers over most of the area; should be located during active searches in appropriate habitat and season.

u = uncommon – observed or expected in low numbers; may be seen on a few site visits.

o = occasional – observed or expected only sporadically; only casually observed, even in suitable habitat and season; no more than a few individuals are present at any time.

s = scarce – observed or expected rarely; may be observed if suitable habitat visited frequently during the appropriate season; usually individual observations, rarely more than one present at a given time.

? = unknown, focused searches during appropriate season necessary.

Observed species shown in bold lettering.

SEASONALITY (Birds Only)

R = resident – expected during any time of the year
S = summer – present only during summer nesting season
W = winter – present only during winter; nests elsewhere
V = visitor - nests off-site but may occur on the site from nearby areas
(note: standard definition of visitant not used in this case)
T = transient – seen in migration; unlikely to nest in the region

ORDER **FAMILY** ***Scientific Name***	**Common Name**	**Pop. Size Site**	**Pop. Size Area**
BUTTERFLIES			
LEPIDOPTERA			
NYMPHALIDAE – Brushfooted Butterflies			
Danaus plexippus	monarch	u	f
Danaus gilippus strigosus	striated queen	o	o
Chlosyne leanira wrightii	Leanira checkerspot	f	f
Phyciodes mylitta	Mylitta Crescent	u	f
Vanessa cardui	painted butterfly	f	f
Libytheana carinenta bachmanii	snout butterfly	u	f
PIERIDAE – Whites, Sulphurs, and Yellows			
Pontia beckerii	Becker's white	f	f
Pontia sisymbrii	California white	f	f
Pontia protodice	checkered white	f	f
Zerene cesonia	southern dogface	o	o
Abaeis nicippe	sleepy orange	f	f
Nathalis iole	dwarf yellow	s	o

ORDER **FAMILY** ***Scientific Name***	**Common Name**	**Pop. Size Site**	**Pop. Size Area**
Anthocharis cethura cethura	Felder's orange-tip	f	f
Anthocharis sara sara	Sara orange-tip	o	f
Anthocharis lanceolata australis	gray marble	f	f
Euchloe hyantis	southern marble	f	f
RIODINIDAE - Metalmark			
Apodemia mormo	Mormon metalmark	s	o
Apodemia virgulti	Behr's metalmark	f	f
Apodemia mormo cythera	Cythera metalmark	o	u
LYCAENIDAE – Hairstreaks, Coppers, and Blues			
Callophrys gryneus juniperaria	juniper hairstreak	u	f
Leptotes marina	marine blue	f	f
Brephidium exilis	pygmy blue	f	f
Plebejus acmon acmon	Acmon blue	f	f
Euphilotes bernardino bernardino	Bernardino blue	s	f
Euphilotes pallescens elvirae	Elvira's blue	?	?
Euphilotes mojave	Mojave blue	f	f
Philotiella speciosa	small blue	f	f
HESPERIIDAE – Skippers			
Megathymus coloradensis martini	Martin's giant skipper	f	f
Polites sabuleti chusca	Chusca skipper	f	f
Hesperia juba	Juba skipper	f	f
Pholisora catullus	sootywing	f	f
AMPHIBIANS			
ANURA			
BUFONIDAE - True Toads			
Anaxyrus punctatus	red-spotted toad	s	o
REPTILES			
SQUAMATA			
TESTUDINIDAE – Land Tortoises			
Gopherus agassizii	desert tortoise	s	s
GEKKONIIDAE - Geckos			
Coleonyx variegatus	banded gecko	u	u
IGUANIDAE - Iguanid Lizards			
Dipsosaurus dorsalis	desert iguana	u	c
Sauromalus ater	chuckwalla	--	o
PHRYNOSOMATIDAE – Zebra-tailed, Fringe-toed, Spiny, Tree, Side-blotched, amd Horned Lizards			
Callisaurus draconoides	zebra-tailed lizard	c	c
Sceloporus magister	desert spiny lizard	c	c
Sceloporus occidentalis	western fence lizard	o	f
Sceloporus graciosus	sagebrush lizard	o	u
Urosaurus graciosus	long-tailed brush lizard	o	u
Phrynosoma blainvilli	coast horned lizard	--	s
Phrynosoma platyrhinos	desert horned lizard	u	u
CROTAPHYIDAE – Collared and Leopard Lizards			
Crotaphytus bicinctores	western collared lizard	o	u
Gambelia wislizenii	common leopard lizard	u	c
Uta stansburiana	**side-blotched lizard**	c	c
XANTUSIIDAE – Night Lizards			

ORDER **FAMILY** ***Scientific Name***	**Common Name**	**Pop. Size Site**	**Pop. Size Area**
Xantusia vigilis	**desert night lizard**	c	c
TEIIDAE - Whiptail Lizards			
Aspidoscelis tigris	western whiptail	c	c
LEPTOTYPHLOPIDAE – Slender Blind Snakes			
Rena humilis	western blind snake	s	s
BOIDAE - Boas			
Licharina trivirgata	rosy boa	s	u
COLUBRIDAE - Colubrid Snakes			
Arizona elegans	glossy snake	u	u
Chionactis occipitalis	western shovel-nosed snake	u	u
Hypsiglena torguata	night snake	u	u
Lampropeltis getula	common kingsnake	u	u
Coluber flagellum	coachwhip	f	f
Phyllorhynchus decurtatus	spotted leaf-nosed snake	o	o
Pituophis melanoleucus	gopher snake	c	c
Rhinocheilus lecontei	long-nosed snake	s	s
Salvadora hexalepis	western patch-nosed snake	u	u
Trimorphodon biscutatus	lyre snake	s	o
VIPERIDAE - Vipers			
Crotalus cerastes	sidewinder	c	c
Crotalus mitchellii	speckled rattlesnake	s	o
Crotalus scutulatus	Mojave rattlesnake	s	o
BIRDS			
CATHARTIDAE - New World Vultures			
Cathartes aura	turkey vulture	c, R/V	c, R/V
ACCIPITRIDAE – Kites, Hawks, and Eagles			
Elanus leucurus	white-tailed kite	o, R	o, R
Circus cyaneus	northern harrier	o, W/T	u, W/T
Accipiter striatus	sharp-shinned hawk	o, V	f, W/T
Accipiter cooperii	Cooper's hawk	o, V	f, R
Buteo jamaicensis	**red-tailed hawk**	c, R	c, R
Buteo regalis	ferruginous hawk	o, W/T	o, W/T
Buteo swainsoni	Swainson's hawk	s, T	s, W/T
Buteo lagopus	rough-legged hawk	o, W	o, W
Aquila chrysaetos	golden eagle	o, R	f, R
FALCONIDAE -Falcons			
Falco sparverius	American kestrel	f, R	c, R
Falco columbarius	merlin	o, W	o, W
Falco mexicanus	**prairie falcon**	u, V	u, R
ODONTOPHORIDAE – New World Quail			
Callipepla californica	**California quail**	f, R	f, R
Callipepla gambelii	**Gambel's quail**	f, R	f, R
CHARADRIIDAE – Plovers			
Charadrius vociferus	killdeer	o, R	f, R
COLUMBIDAE –Pigeons and Doves			
Columba livia	**rock dove**	f, R	c, R
Zenaida macroura	**mourning dove**	c, R	c, R
CUCULIDAE –Cuckoos &Roadrunners			
Geococcyx californianus	**greater roadrunner**	f, R	f, R
TYTONIDAE – Barn Owls			

ORDER **FAMILY** ***Scientific Name***	**Common Name**	**Pop. Size Site**	**Pop. Size Area**
Tyto alba	**barn owl**	c, R	c, R
STRIGIDAE –Typical Owls			
Bubo virginianus	great horned owl	f, R	c, R
Athene cunicularia	burrowing owl	s, R/W	o, R/W
CAPRIMULGIDAE – Goatsuckers (Nightjars)			
Chordeiles acutipennis	lesser nighthawk	o, S	o, S
Phalaenoptilus nuttallii	common poorwill	u, S	u, S
APODIDAE –Swifts			
Aeronautes saxatalis	white-throated swift	o, R	o, R
TROCHILIDAE -Hummingbirds			
Archilochus alexandri	black-chinned hummingbird	f, S	f, S
Calypte anna	Anna's Hummingbird	u, R	f, R
Calypte costae	Costa's Hummingbird	c, R	c, R
PICIDAE -Woodpeckers			
Picoides scalaris	ladder-backed woodpecker	u, R	u, R
Picoides nuttallii	Nuttall's woodpecker	o, R	f, R
Colaptes auratus	**northern flicker**	f, R	f, R
TYRANNIDAE -Tyrant Flycatchers			
Sayornis nigricans	black phoebe	s, W	o, W
Sayornis saya	**Say's phoebe**	c R	c, R
Myiarchus cinerascens	ash-throated flycatcher	o, S	o, S
Tyrannus verticalis	western kingbird	o, S	o, S
Empidonax difficilis	Pacific-slope flycatcher	o, T	o, T
ALAUDIDAE -Larks			
Eremophila alpestris	California horned lark	u, R	f, R
HIRUNDINIDAE -Swallows			
Hirundo rustica	barn swallow	c, R	c, R
Petrochelidon pyrrhonota	cliff swallow	c, S	c, S
CORVIDAE –Crows and Jays			
Corvus corax	**common raven**	c, R	c, R
REMIZIDAE -Verdins			
Auriparus flaviceps	verdin	u, R	f, R
AEGITHALIDAE -Bushtits			
Psaltriparus minimus	bushtit	s, V	f, R
TROGLODYTIDAE –Wrens			
Campylorhynchus brunneicapillus	**cactus wren**	c, R	c, R
Salpinctes obsoletus	rock wren	o, V	f, R
Thryomanes bewickii	**Bewick's wren**	f, R	f, R
Troglodytes aedon	house wren	o, W	f, R
REGULIDAE –Kinglets and Firecrests			
Regulus calendula	ruby-crowned kinglet	o, W	o, W
TURIDAE - Thrushes			
Sialia mexicana	western bluebird	s, W	f, R
Sialia currucoides	mountain bluebird	o, W	f, W
Turdus migratorius	American robin	s, W	f, R
MIMIDAE – Mimic Thrushes			
Mimus polyglottos	**northern mockingbird**	f, R	f, R
Toxostoma redivivum	California thrasher	s, V	f R
Toxostoma lecontei	Le Conte's thrasher	o, R	u, R
PTILOGONATIDAE – Silky Flycatchers			
Phainopepla nitens	**phainopepla**	f, R	f, R

ORDER **FAMILY** ***Scientific Name***	**Common Name**	**Pop. Size Site**	**Pop. Size Area**
LANIIDAE –Shrikes			
Lanius ludovicianus	**loggerhead shrike**	u, R	u, R
STURNIDAE –Starlings			
Sturnus vulgaris	**European starling**	f, R	f, R
PARULIDAE - Warblers			
Setophaga coronata	yellow-rumped warbler	o, W	f, R
EMBERIZIDAE - Sparrows			
Amphispiza bilineata	black-throated sparrow	c, S	c, S
Artemisiospiza belli	**Bell's sparrow**	c, R	c, R
Passerculus sandwichensis	savannah sparrow	u, W	u, W
Spizella breweri	Brewer's sparrow	u, S	u, S
Spizella atrogularis	black-chinned sparrow	o, S	u, S
Melospiza lincolnii	Lincoln's sparrow	u, W	u, W
Melospiza melodia	song sparrow	o, R	u, R
Zonotrichia leucophrys	**white-crowned sparrow**	c, W	c, W
Zonotrichia atricapilla	golden-crowned sparrow	s, W	o, W
Junco hyemalis	dark-eyed junco	u, R	f, R
Pooecetes gramineus	Vesper sparrow	o, W	u, W
Chondestes grammacus	**lark sparrow**	o, R	f, R
ICTERIDAE - Meadowlarks, Blackbirds, and Orioles			
Euphagus cyanocephalus	Brewer's blackbird	f, R	f, R
Icterus cucullatus	hooded oriole	o, S	u, S
Icterus parisorum	Scott's oriole	o, S	f, S
FRINGILIDAE -Finches			
Haemorhous mexicanus	**house finch**	c, R	c, R
Spinus psaltria	**lesser goldfinch**	u, R	f, R
PASSERIDAE –Weaver Finches			
Passer domesticus	**house sparrow**	f, R	f, R
MAMMALS			
SORICIDAE –Shrews			
Notiosorex crawfordi	desert shrew	s	s
VESPERTILIONIDAE –Vesper Bats			
Myotis yumanensis	Yuma myotis	s	s
Myotis evotis	long-eared myotis	s	o
Myotis thysanodes	fringed myotis	s	o
Myotis volans	long-legged myotis	s	o
Myotis californicus	California myotis	f	c
Myotis ciliolabrum	small-footed myotis	u	f
Pipistrellus hesperus	western pipistrelle	f	c
Eptesicus fuscus	big brown bat	s	f
Lasiurus cinereus	hoary bat	o	f
Corynorhinus townsendii	Townsend's big-eared bat	s	s
Antrozous pallidus	pallid bat	s	o
MOLOSSIDAE – Free-tailed bat			
Tadarida brasiliensis	Brazilian free-tailed bat	o	u
Eumops perotis californicus	western mastiff bat	s	s
LEPORIDAE –Hares and Rabbits			
Sylvilagus audubonii	**desert cottontail**	c	c
Lepus californicus	**black-tailed jackrabbit**	c	c

ORDER **FAMILY** ***Scientific Name***	**Common Name**	**Pop. Size Site**	**Pop. Size Area**
SCIURIDAE -Squirrels			
Ammospermophilus leucurus	**white-tailed antelope squirrel**	c	c
Spermophilus mohavensis	Mojave ground squirrel	s	u
Spermophilus beecheyi	California ground squirrel	o	f
GEOMYIDAE –Pocket Gophers			
Thomomys bottae	**Botta's pocket gopher**	c	c
HETEROMYIDAE - Pocket and Kangaroo Mice and Rats			
Perognathus longimembris	little pocket mouse	c	c
Chaetodipus formosus	long-tailed pocket mouse	c	c
Chaetodipus penicillatus	desert pocket mouse	c	c
Chaetodipus fallax	San Diego pocket mouse	s	s
Chaetodipus californicus	California Pocket Mouse	s	f
Dipodomys merriami	Merriam's kangaroo rat	f	c
Dipodomys deserti	desert kangaroo rat	c	c
MURIDAE – Mice, Rats, and Voles			
Reithrodontomys megalotis	western harvest mouse	c	c
Peromyscus eremicus	cactus mouse	c	c
Peromyscus californicus	California mouse	s	f
Peromyscus maniculatus	deer mouse	c	c
Peromyscus crinitus	canyon mouse	c	c
Onychomys torridus	southern grasshopper mouse	?	?
Neotoma lepida	**desert woodrat**	c	c
Mus musculus	house mouse	c	c
CANIDAE – Wolves and Foxes			
Canis latrans	**coyote**	c	c
Canis familiaris	**domestic dog**	c	c
Vulpes macrotis	**kit fox**	u	u
PROCYONIDAE - Racoons, Coatis, Ringtail			
Bassariscus astutus	ringtail	s	o
MUSTELIDAE – Weasels, Badgers, and Otters			
Mustela frenata	**long-tailed weasel**	o	u
Taxidea taxus	American badger	f	f
MEPHITIDAE – Skunks			
Spilogale gracilis	western spotted skunk	s	u
Mephitis mephitis	striped skunk	s	u
FELIDAE –Cats			
Felis catus	domestic cat	o	c
Puma concolor	mountain lion	s	u
Lynx rufus	bobcat	o	u
EQUIIDAE - Horses			
Equus caballus	**domestic horse**	c	c

Appendix 5
Assessment of Potential for Occurrence of Special-Status Wildlife Species

Appendix 5
Potential for Occurrence of Special-Status Wildlife Species at Subject Property

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
Fish			
No species of fish have potential to occur due to lack of permanent water at the site.			
Amphibians			
Arroyo toad (*Anaxyrus californicus*)	FE/SSC	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	No potential to occur due to lack of suitable habitat. **Presumed absent.**
Southern mountain yellow-legged frog (*Rana muscosa*)	FE/SSC	Federal listing refers to populations in the San Gabriel, San Jacinto, and San Bernardino Mountains only. Always encountered within a few feet of water. Tadpoles may require 2 – 4 years to complete their aquatic development.	No potential to occur due to lack of suitable habitat. **Presumed absent.**
Reptiles			
Coast horned lizard (*Phrynosoma blainvillii*)	None/SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	This species does not occur in the desert regions of California, except perhaps along their margins. E.g., CNDDB occurrence #127 states location of observation as "Junction of 42nd street and Pearblossom Hwy (Joshua Acres), 3 miles southeast of Palmdale." Although the non-special-status southern desert horned lizard (*Phrynosoma platyrhinos calidiarum*) is expected at this site, the coast horned lizard is **presumed absent**.
Desert tortoise (*Gopherus agassizii*)	FT/CT	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	The site is suitable habitat for the species and it is within its historic range and potentially within its current range. A very old desert tortoise burrow was found during surveys of the site conducted in January 1999. No active or recently used burrows were observed during the field survey, but the surrounding area was not investigated.

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
			Desert tortoise populations have declined or been extirpated throughout much of the Antelope Valley due to habitat degradation, habitat fragmentation, and adverse effects of urbanization (ravens, pets, collecting, off-road vehicles, etc.). Nevertheless, given the amount of suitable habitat available in the surrounding area, this species is **potentially present**. If present, low population numbers and densities are expected.
Two-striped garter snake (*Thamnophis hammondii*)	None/SSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 feet elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	No potential to occur due to lack of suitable habitat. **Presumed absent.**
Birds			
Burrowing owl (*Athene cunicularia*) (burrow sites and some wintering sites)	None/SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel. "Scarce resident in the Antelope Valley, declining as urbanization spreads" (Garrett, et. al., 2006).	Site does not contain preferred open habitat with low growing vegetation, although burrowing owls will also occupy desert scrub. Several occurrences reported on eBird.org in the Antelope Valley, with majority concentrated in agricultural areas several miles northwest of the site and nearest report over 5 miles to the west. No CNDDB records for the Lovejoy Buttes quadrangle. Numerous small rodent burrows observed but few larger, suitable ground squirrel burrows were noted during the survey. Although not expected, this species has low potential to occur while foraging and potentially breeding, if present.

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
			Potentially present.
Golden eagle (*Aquila chrysaetos*) (nesting and wintering)	--/CFP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas. "A few [golden eagles] occur on the floor of the Antelope Valley, mainly in fall and winter" (Garrett et al., 2006).	Moderate potential to forage over the site but would not nest at the site. Potentially present.
Le Conte's thrasher (*Toxostoma lecontei*) (nesting)	None/SSC	Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground. "Uncommon and declining resident in sparse creosote and saltbush scrub in the Antelope Valley, especially along washes" (Garrett et. al., 2006).	There are several CNDDB records for this species within Lovejoy Butte quadrangle, including one within or very close to the site: CNDDB element occurrence #99 states location of observation from 1998 as "Antelope Valley, W. of Lovejoy Buttes, NW of Jct of Avenue Q and North 145th St. East." Potentially present, and may potentially nest at the site. **Potentially present.**
Loggerhead shrike (*Lanius ludovicianus*) (nesting)	None/SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting. "Common year-round resident in the Antelope Valley" (Garrett et. al. 2006).	Several CNDDB records for the Palmdale and Lancaster area. **Observed** in February 2014 at adjacent property to the east of the site. Confirmed present, and may potentially nest at the site.
Long-eared owl (*Asio otus*) (nesting)	None/SSC	Riparian habitat required; also uses live oak thickets and other dense stands of trees (Zeiner et al. 1990b). "A few winter tree groves in the Antelope Valley; breeds rarely in the Antelope Valley (Garrett et al. 2006).	Large *Populus fremontii* in Big Rock Wash in vicinity of site may be suitable roosting habitat, although stands are not dense, which is preferred. **Potentially present** while foraging with low probability, but not nesting at the site.
Mountain plover (*Charadrius montanus*) (wintering)	None/SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground and flat topography. Prefers grazed areas and areas with burrowing rodents.	"Flocks winter (October to early March) in bare and heavily grazed agricultural fields in the Antelope Valley" (Garrett et. al, 2006). Not expected at the site due to

Common Name (*Scientific Name*)	**Status Federal/State/Other**	**Primary Habitat Associations**	**Status on Site or Potential to Occur**
			lack of preferred foraging or wintering habitat. **Presumed absent.**
Northern harrier (*Circus cyaneus*) (nesting)	None/SSC	Uncommon migrant and winter visitor (mid-September to early April) to extensive open freshwater and saltwater marshes, grasslands and agricultural fields. Breeding populations have been virtually extirpated from the coastal lowlands in the Los Angeles area (Garrett et al. 2006).	The site does not contain preferred foraging habitat, including grasslands, wetlands, and agricultural fields. Majority of observations reported on eBird.org for the Antelope Valley (data downloaded March 5, 2014) are associated with agricultural fields or wetlands. **Potentially present** with low probability while foraging temporarily at the site; not nesting.
Swainson's hawk (*Buteo swainsoni*) (nesting)	None/CT	Breeds in grasslands with scattered trees. Juniper-sage flats, riparian areas, savannahs, and agricultural or ranch. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations. "Migrants observed in spring and fall (September – October) in the Antelope Valley and occasionally elsewhere in the dry interior [of Los Angeles region]. A few summer in the Antelope Valley, with breeding pairs sometimes found at isolated stands of tall trees in agricultural areas" (Garrett et. al., 2006).	Many observations reported on eBird.org for the Palmdale area (data downloaded March 5, 2014), including one within three miles of the site. Site does not contain preferred foraging habitat. **Potentially present** with low probability while foraging temporarily at the site, but not nesting.
White-tailed kite (*Elanus leucurus*) (nesting)	--/CFP	Uncommon resident in open grasslands, valley oak savannas, marshes, and agricultural areas throughout the lowlands of the Los Angeles region (Garrett et al. 2006).	The site does not contain preferred foraging habitat, including grasslands, wetlands, or agricultural fields, although this nomadic species may range widely in search of prey. California voles are the preferred prey and make up the majority of diet, and California voles are not expected at the site. Majority of observations reported on eBird.org for the Antelope Valley (data

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
			downloaded March 5, 2014) are associated with agricultural fields or wetlands. **Potentially present** with low probability while foraging temporarily at the site; not nesting.
Mammals			
American badger (*Taxidea taxus*)	None/SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	No potential American badger burrows were observed during field surveys, although this species is expected to occur at the site at least occasionally while foraging or moving through the area. **Potentially present.**
Mohave ground squirrel (*Xerospermophilus mohavensis*)	None/CT	Open desert scrub, alkali scrub, and Joshua tree woodland. Also feeds in annual grasslands. Restricted to Mojave desert. Prefers sandy to gravelly soils, avoids rocky areas. Uses burrows at base of shrubs for cover. Nests are in burrows.	The site is within the species historic and potentially its current range but is not within an area that has been identified as a core area supporting relatively abundant populations. There are several historical records (prior to 1998) including one within one mile of the site but no recent records (post 1998) of the species within the southern Antelope Valley (CDFW BIOS datasets, downloaded March 5, 2014). Although this suggests potential extirpation from the southern Antelope Valley, recent surveys for the species have focused on particular areas within the Antelope Valley. Given the amount of suitable habitat and relatively low levels of development in the surrounding area, this species is **potentially present.**
Nelson's antelope squirrel (*Ammospermophilus nelsoni*)	None/CT	Western San Joaquin Valley from 200 – 1200 feet elevation on dry sparsely vegetated loam soils. Digs burrows or uses kangaroo rat	The site is outside the known range of the species. **Presumed absent.**

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
		burrows. Needs widely scattered shrubs, forbs, and grasses in broken terrain with gullies and washes.	
pallid bat (*Antrozous pallidus*)	None/SSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Potentially present** while foraging over the site, although probably not roosting on human structures at the site due to high sensitivity to disturbance.
pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*)	None/CSC	Desert border areas in eastern San Diego County in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc. Sandy herbaceous areas, usually in association with rocks or coarse gravel.	The sandy herbaceous habitats within desert scrub at the site may be suitable for this species, although it lacks rocks/coarse gravel and high cover of herbaceous vegetation. Based on CNDDB records and Hall 1998, the site may be outside or near the limits of the range of this species. Nearest reported occurrence is "2 miles east of Valyermo" which is approximately 9 miles south of the site. **Potentially present** with low probability.
San Bernardino kangaroo rat (*Dipodomys merriami parvus*)	FE/SSC	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains. Needs early to intermediate seral stages.	The site is outside the range of the species. CNDDB records for this species in the southern Antelope Valley appear to be misidentifications, as USFWS listing rule and Critical Habitat designation do not include the Antelope Valley as this subspecies' range. **Presumed absent.**
southern grasshopper mouse (*Onychomys torridus ramona*)	None/SSC	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	Although Hall 1998 appears to show the distribution of this subspecies to be west of the deserts in California, CNDDB element occurrence #25 states location of observation from 1988 in Lovejoy Buttes quadrangle as "about 1 mile north and 6 miles east of Pearblossom."

Common Name (*Scientific Name*)	Status Federal/State/Other	Primary Habitat Associations	Status on Site or Potential to Occur
			The site provides suitable habitat and numerous small rodent burrows were observed. **Potentially present.**
Townsend's big-eared bat (*Corynorhinus townsendii*)	None/SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**Potentially present** while foraging over the site, although probably not roosting temporarily on human structures at the site due to high sensitivity to disturbance.
western mastiff bat (*Eumops perotis californicus*)	None/SSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	**Potentially present** while foraging over the site, but not expected to roost at the site.
White-eared pocket mouse (*Perognathus alticolus alticolus*)	None/SSC	Ponderosa and Jeffrey pine habitats; also in mixed chaparral and sagebrush habitats in the San Bernardino Mountains. Burrows are constructed in loose soil.	No potential to occur. Site is outside of this subspecies' known range. **Presumed absent.**

Federally Protected Species

FE (Federal Endangered): A species that is in danger of extinction throughout all or a significant portion of its range.

FT (Federal Threatened): A species that is likely to become endangered in the foreseeable future.

FC (Federal Candidate): A species for which USFWS has sufficient information on its biological status and threats to propose it as Endangered or Threatened under the Endangered Species Act (ESA), but for which development of a proposed listing regulation is precluded by other higher priority listing activities.

FSC (Federal Species of Concern): A species under consideration for listing, for which there is insufficient information to support listing at this time. These species may or may not be listed in the future, and many of these species were formerly recognized as "Category-2 Candidate" species.

State Protected Species

CE (California Endangered): A native species or subspecies which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.

CT (California Threatened): A native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "Rare" on or before January 1, 1985, is a "Threatened species."

SSC (California Species of Special Concern): Animals that are not listed under the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist.

CFP (California Fully Protected): This designation originated from the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians, reptiles, and birds. Most fully protected species have also been listed as Threatened or Endangered species under the more recent endangered species laws and regulations. California Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Appendix 6
CNDDB Report for Lovejoy Buttes Quadrangle and Eight Surrounding Quadrangles

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Lovejoy Buttes (3411757) or Alpine Butte (3411768) or Adobe Mountain (3411766) or Littlerock (3411758) or El Mirage (3411756) or Juniper Hills (3411748) or Valyermo (3411747) or Mescal Creek (3411746) or Hi Vista (3411767))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alkali mariposa-lily *Calochortus striatus*	PMLIL0D190	None	None	G2	S2	1B.2
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S4	SSC
arroyo toad *Anaxyrus californicus*	AAABB01230	Endangered	None	G2G3	S2S3	SSC
Barstow woolly sunflower *Eriophyllum mohavense*	PDAST3N070	None	None	G2	S2	1B.2
Big Bear Valley woollypod *Astragalus leucolobus*	PDFAB0F4T0	None	None	G2	S2	1B.2
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S2	SSC
California muhly *Muhlenbergia californica*	PMPOA480A0	None	None	G3	S3.3	4.3
Canyon Live Oak Ravine Forest *Canyon Live Oak Ravine Forest*	CTT61350CA	None	None	G3	S3.3	
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G3G4	S3S4	SSC
Davidson's bush-mallow *Malacothamnus davidsonii*	PDMAL0Q040	None	None	G2	S2	1B.2
desert tortoise *Gopherus agassizii*	ARAAF01010	Threatened	Threatened	G3	S2	
Greata's aster *Symphyotrichum greatae*	PDASTE80U0	None	None	G2	S2.3	1B.3
grey-leaved violet *Viola pinetorum var. grisea*	PDVIO04431	None	None	G4G5T3?	S3?	1B.3
Kern Canyon clarkia *Clarkia xantiana ssp. parviflora*	PDONA05181	None	None	G4T3	S3	4.2
Le Conte's thrasher *Toxostoma lecontei*	ABPBK06100	None	None	G4	S3	SSC
lemon lily *Lilium parryi*	PMLIL1A0J0	None	None	G3	S3	1B.2
loggerhead shrike *Lanius ludovicianus*	ABPBR01030	None	None	G4	S4	SSC
long-eared myotis *Myotis evotis*	AMACC01070	None	None	G5	S4?	
long-legged myotis *Myotis volans*	AMACC01110	None	None	G5	S4?	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Mohave ground squirrel *Xerospermophilus mohavensis*	AMAFB05150	None	Threatened	G2G3	S2S3	
Mojave Riparian Forest *Mojave Riparian Forest*	CTT61700CA	None	None	G1	S1.1	
mountain plover *Charadrius montanus*	ABNNB03100	None	None	G3	S2?	SSC
Nelson's antelope squirrel *Ammospermophilus nelsoni*	AMAFB04040	None	Threatened	G2	S2	
pallid San Diego pocket mouse *Chaetodipus fallax pallidus*	AMAFD05032	None	None	G5T3	S3	SSC
Palmer's mariposa-lily *Calochortus palmeri var. palmeri*	PMLIL0D122	None	None	G3T3?	S3?	1B.2
Parish's popcornflower *Plagiobothrys parishii*	PDBOR0V0U0	None	None	G1	S1	1B.1
Peirson's lupine *Lupinus peirsonii*	PDFAB2B330	None	None	G2	S2	1B.3
Peirson's morning-glory *Calystegia peirsonii*	PDCON040A0	None	None	G3	S3.2	4.2
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S3	WL
Robbins' nemacladus *Nemacladus secundiflorus var. robbinsii*	PDCAM0F0B2	None	None	G3T2T3	S2S3	1B.2
Rock Creek broomrape *Orobanche valida ssp. valida*	PDORO040G2	None	None	G3T2	S2	1B.2
San Antonio milk-vetch *Astragalus lentiginosus var. antonius*	PDFAB0FB92	None	None	G5T2	S2	1B.3
San Bernardino kangaroo rat *Dipodomys merriami parvus*	AMAFD03143	Endangered	None	G5T1	S1	SSC
San Gabriel linanthus *Linanthus concinnus*	PDPLM090D0	None	None	G3	S3	1B.2
San Gabriel manzanita *Arctostaphylos glandulosa ssp. gabrielensis*	PDERI042P0	None	None	G5T2	S2	1B.2
San Gabriel Mountains blue butterfly *Plebejus saepiolus aureolus*	IILEPG6011	None	None	G5T1	S1	
short-joint beavertail *Opuntia basilaris var. brachyclada*	PDCAC0D053	None	None	G5T3	S3	1B.2
south coast marsh vole *Microtus californicus stephensi*	AMAFF11035	None	None	G5T1T2	S1S2	SSC
southern grasshopper mouse *Onychomys torridus ramona*	AMAFF06022	None	None	G5T3?	S3?	SSC
southern mountain yellow-legged frog *Rana muscosa*	AAABH01330	Endangered	Endangered	G1	S1	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Southern Riparian Scrub *Southern Riparian Scrub*	CTT63300CA	None	None	G3	S3.2	
Southern Sycamore Alder Riparian Woodland *Southern Sycamore Alder Riparian Woodland*	CTT62400CA	None	None	G4	S4	
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S2	
two-striped garter snake *Thamnophis hammondii*	ARADB36160	None	None	G4	S2	SSC
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G5T4	S3?	SSC
western small-footed myotis *Myotis ciliolabrum*	AMACC01140	None	None	G5	S2S3	
white pygmy-poppy *Canbya candida*	PDPAP05020	None	None	G3	S3.2	4.2
woolly mountain-parsley *Oreonana vestita*	PDAPI1G030	None	None	G3	S3	1B.3

Record Count: 48

Appendix 7
Qualifications

James Anderson
Senior Biologist

Mr. Anderson has more than ten years of experience in the environmental field, including employment in the private and public sectors and work experience in biology, forestry, and Geographic Information Systems (GIS). As a biologist with Envicom Corporation, Mr. Anderson conducts biological surveys, site mapping, CEQA analysis, and other biological studies in support of permitting and entitlement review processes. His biological field experience includes rare plant surveys, vegetation mapping, identification of sensitive plant communities, bird surveys, forest health assessment, biological monitoring, and delineation of Federal, State, and local jurisdictional wetlands and riparian habitat.

Mr. Anderson's recent experience includes biological surveys, vegetation mapping, and biological impact analyses for the Los Angeles County Malibu Institute Biota Report, Malibu Institute Environmental Impact Report, Calabasas Blue Residential Project Initial Study/Mitigation Negative Declaration in the City of Calabasas, the Westar Mixed-Use Project Environmental Impact Report in the City of Goleta, the Pepperdine University Campus Life Development Project Environmental Impact Report in the County of Los Angeles, and the Joint Powers Authority Solar Generation Project Initial Study/Mitigated Negative Declaration for the Las Virgenes Municipal Water District in the City of Calabasas. His other recent project experience includes the Willow Springs Phase II condominium development in Goleta, the McCrea Ranch Visitor Center Project in Thousand Oaks, the Hilton Foundation's proposed headquarters and Foursquare Gateway Church property in Agoura Hills, and the Sakaida and Sons Surface Mining Project in Sylmar.

Mr. Anderson has conducted biological surveys and biological monitoring for the North Fork Arroyo Conejo Flood Maintenance Project (a project to reduce the risk of flooding of the North Fork of Arroyo Conejo Creek at the Hill Canyon Wastewater Treatment Plant in Thousand Oaks), prepared Initial Study Biological Assessments for the County of Ventura, and performed jurisdictional delineations of Army Corps of Engineers Waters of the U.S. and California Department of Fish and Wildlife riparian habitat for the Malibu Institute Project in the Santa Monica Mountains, the Blessed Teresa of Calcutta Parish in the County of Riverside, and for Sinaloa Park (a component of the Rancho Simi Recreation and Park District within the City of Simi Valley). Mr. Anderson has also performed special-status species and habitat suitability surveys and monitored project compliance with the terms and conditions of a U.S. Fish and Wildlife Biological Opinion and California Fish and Game Code for the Santa Susana Field Laboratory Area IV Radiological Study Project, which encompassed 472 acres of habitat in the Simi Hills in Ventura County.

Mr. Anderson has extensive experience surveying plant communities in coastal southern California ecosystems. He has identified in the course of field investigations a number of sensitive plant communities and endangered, threatened, and rare plant species. Mr. Anderson worked on a vegetation map and classification of the Santa Monica Mountains and environs for the National Park Service, and performed forest inventory and forest health assessments in many California ecosystems while traveling extensively for the U.S. Forest Service. For Conservation International, he designed, implemented and evaluated surveys for monitoring endangered and threatened birds. He has attended protocol survey workshops recognized by the U.S. Fish and Wildlife Service (USFWS) for the threatened California desert tortoise (*Gopherus agassizii*) and the endangered southwestern willow flycatcher (*Empidonax traillii extimus*), as well as a workshop on the biology and management of the Threatened California red-legged frog (*Rana draytonii*). He has training in Surface Water Ambient Monitoring Training (SWAMP) aquatic bioassessment and has attended several plant identification workshops, including the rush family (Juncaceae), grass family (Poaceae), sedges (*Carex*), and others. He has completed coursework in field ornithology through the University of California, Riverside.

Mr. Anderson has provided, as a function of previous employment, GIS and cartography services for ecologists and planners. He co-produced vegetation and geology maps and managed GIS databases at the Tundra Ecosystem Analysis and Mapping Laboratory at the Institute for Arctic and Alpine Research, and has provided GIS and other technical support for trail management planning for the National Park Service.

Mr. Anderson has a Master of Environmental Science and Management with a specialization in Conservation Planning from the University of California, Santa Barbara. During his master's degree program, he worked on projects involving identification of wildlife corridors and impacts of projected future development on wildlife movement, protected area network design, and abundance estimation of endangered and threatened species. Mr. Anderson has a Bachelor of Arts degree in Geography from the University of Colorado, Boulder with a concentration in Geographic Information Science, and a certificate in Community-Based Development from the International Institute for Sustainable Development at Colorado State University, which focused on participatory practices and capacity building for community development.

Carl Wishner
Independent Consulting Biologist

Mr. Wishner has over 30 years of professional experience in the study and analysis of biological and natural sciences. His technical proficiency is broad-based, including expertise in floristic and faunal surveys, focused surveys of sensitive, rare and endangered species, habitat inventory and evaluation, biological impact assessment, wetland determination, natural resource policy analysis, habitat restoration, and biological monitoring. Mr. Wishner pursued his education in the biological sciences, receiving a BS (Cum Laude) in Botany and MS in Biology from Humboldt State University. He held the position of Lecturer in Botany at the University, conducted research for the Pacific Southwest Forest and Range Experiment Station (Corvalis) and worked for several years for the U.S. Forest Service in California.

Mr. Wishner's experience with endangered plant species is considerable, having performed numerous surveys and impact analyses, and prepared salvage and restoration plans and incidental take permits for Lyon's pentachaeta at Lake Sherwood, Conejo buckwheat and Verity's dudleya at Conejo Mountain, and Blochman's dudleya at El Chorro Regional Park. He also managed biological inventories and analyses for large areas including Santa Margarita and Hearst Ranches in San Luis Obispo County, and for the Ahmanson and Jordan Ranches in Ventura County. Mr. Wishner completed comprehensive surveys over 4,000 acres at Adams Canyon in Ventura County, a botanical resource inventory of Malibu Lagoon State Beach in Los Angeles County, and prepared a Biological Resources Management Plan for the 6,000-acre Upper Las Virgenes Canyon Open Space Preserve (formerly Ahmanson Ranch) for the Santa Monica Mountains Conservancy. Mr. Wishner's botanical skills were instrumental in the establishment of the former Soka University Botanical Research Center and Nursery at the King Gillette Ranch in the Santa Monica Mountains. Mr. Wishner served for five years as Editor of *Crossosoma*, the journal of Southern California Botanists, Inc, and contributed numerous articles to the journal.

Mr. Wishner has contributed to the development of habitat restoration plans for wetland areas in the Cuyama and Santa Clara Rivers of Ventura County, El Chorro Regional Park in San Luis Obispo County, and for a soil-contaminated upland restoration site at North American Rockwell's Santa Susana Field Laboratory (Rocketdyne) in the Simi Hills of Ventura County. He is also knowledgeable in zoology, wildlife management, mycology, bryology, biogeography and biostatistical analysis (multivariate). Mr. Wishner has investigated wildlife movements in the Santa Susana Mountains of Ventura County; the effects of blasting on nesting birds-of-prey in the Santa Monica Mountains; the status of endangered reptiles and amphibians in the Santa Lucia Mountains of San Luis Obispo County; the condition of Critical Habitat for endangered mammals at Morro Bay; faunal inventory for La Purisima Mission State Historic Park; a valuation of damages assessment at Gaviota State Park for the State's Attorney General; a botanical evaluation of Malibu Lagoon State Beach and implications for the planned Lagoon restoration; and plan for restoration of lower Topanga Creek for California State Parks.

In the arena of resource planning and public policy, Mr. Wishner has a number of General Plan documents to his credit including a map-based inventory of biological resource areas within the City of Los Angeles for the City's Framework Planning process. Mr. Wishner also provides services to litigants in civil suits involving the disposition and valuation of biological resources. Mr. Wishner is frequently requested to perform critical reviews of environmental reports, in many cases for projects involved in litigation. Mr. Wishner has been instrumental in recent cases involving properties which serve as nesting habitats for the California least tern in Ventura County, habitat for wintering bald eagles at Big Bear Lake (San Bernardino County), and habitats for Stephens' kangaroo-rat in Riverside County. Mr. Wishner was also involved in comprehensive planning efforts for facilities expansion at the Santa Barbara Botanic Garden, and for long range land uses over the 6,000 acre Upper Las Virgenes Open Space Conservation Area (formerly Ahmanson Ranch), on behalf of the Santa Monica Mountains Conservancy.

As a recognized biologist and environmental professional, Mr. Wishner served for ten years on the County of Los Angeles' Significant Ecological Areas Technical Advisory Committee (SEATAC), with responsibility to review proposed projects and make recommendations to the applicants, and to the Regional Planning Department and Board of Supervisors. Mr. Wishner has served on the Board of the Los Angeles Chapter of the California Native Plant Society, on the Scientific Advisory Committee for the Cold Creek Preserve and the Mountains Restoration Trust, and as a Volunteer to the National Park Service at Santa Monica Mountains National Recreation Area, and to the Forest Service at Tahoe National Forest. Los Angeles Pierce College recognized Mr. Wishner as a Distinguished Alumnus on their 50th anniversary in 1998.