

**APPENDIX D**  
**Other Relevant Environmental Data**



Environmental  
Intelligence, LLC



**CONFIDENTIAL - ARCHAEOLOGICAL SURVEY REPORT FOR THE  
PROPOSED EXPANSION OF THE RIVERSIDE NATIONAL CEMETERY  
PROJECT, LOCATED IN RIVERSIDE COUNTY, CALIFORNIA**

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## EXECUTIVE SUMMARY

**Purpose and Scope:** Environmental Intelligence, LLC (EI) conducted a Phase 1 cultural resources investigation of 705 acres in support of the U.S. Department of Veterans Affairs' (VA) proposed Riverside National Cemetery Expansion Project (Project) in Riverside County, California. The expansion of the already existing cemetery would encompass and replace the General Old Golf Course, as well as undeveloped areas to the south and east.

This study has been prepared pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations (36 CFR 800). The purpose of this study is to identify historic properties within the Area of Potential Effects (APE) and to assess any project impacts on historic properties in compliance with NHPA.

A preliminary Archaeological Sensitivity Assessment (ASA; Pritchard et al. 2017) prepared for the Project included a cultural resources records search at the Eastern Information Center (EIC) and windshield/reconnaissance survey. This cultural resources study consists of a summary of the ASA, an intensive pedestrian survey of the APE, and a report of the survey findings.

**Results:** A records search was conducted at the EIC on May 22, 2017. The EIC records search identified nine (9) previous cultural resource studies within the ½-mile record search buffer, three (3) of which overlap with the APE. The record search results indicate that portions of the APE were last surveyed in 2007. The last report that covered the expansion area occurred in 1996. Sixty-eight previously recorded cultural resources were identified within the record search buffer, 14 of which overlap with the APE. The previously recorded resources within the APE consist of 10 prehistoric milling features, one (1) site with historic foundations, one (1) site with historic concrete markers, one (1) historic Quonset hut, and one (1) historic isolate (bullet casings). The resources located outside of the APE consist of 45 prehistoric milling features, one (1) prehistoric site with milling features and a lithic scatter, two (2) multicomponent sites with prehistoric milling features and historic refuse scatters, four (4) historic refuse scatters, and two (2) prehistoric isolates.

EI conducted an intensive pedestrian survey of the Project area between July 24 and July 28, 2017. Thirteen previously recorded sites and one (1) previously recorded isolate were located within the APE. Of the 13 sites, EI relocated seven (7) previously recorded prehistoric sites with milling features and two (2) previously recorded historic sites. Three (3) previously recorded prehistoric sites with milling features and one (1) historic isolate were not relocated during the course of the survey. One (1) historic Quonset hut is located within the APE, but outside of the proposed expansion area. Three (3) new resources were identified and recorded by EI during the survey, including two (2) prehistoric milling sites and one (1) historic can scatter.

**Recommendations:** As a result of the current survey, 10 previously recorded and three (3) newly recorded resources were identified within the APE. All recorded resources are recommended as not eligible for the National Register of Historic Places (NRHP). As such, no impacts to historic properties are expected to occur as part of the proposed Project.

No further work for cultural resources is recommended, unless the scope changes to include areas not reviewed as part of this study. In the event that cultural resources are discovered during ground disturbing activities for the proposed Project, work must be halted until the resources can be evaluated by a qualified archaeologist. Further, should human remains be encountered, all work in the immediate vicinity must cease and the County Coroner must be immediately notified.



## 1.0 INTRODUCTION

Environmental Intelligence, LLC (EI) was retained by Environmental Research Group (ERG) to conduct a Phase 1 cultural resources investigation for the U.S. Department of Veterans Affairs' (VA) proposed Riverside National Cemetery Expansion Project (Project), located in Riverside County, California.

As the Project meets the definition of an undertaking (36 CFR 800.16(y)), this report has been prepared pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations (36 CFR 800).

A preliminary Archaeological Sensitivity Assessment (ASA; Pritchard et al. 2017) prepared for the Project included a cultural resources records search and windshield/reconnaissance survey. This report documents the results of the ASA and an intensive pedestrian survey of the Area of Potential Effects (APE).

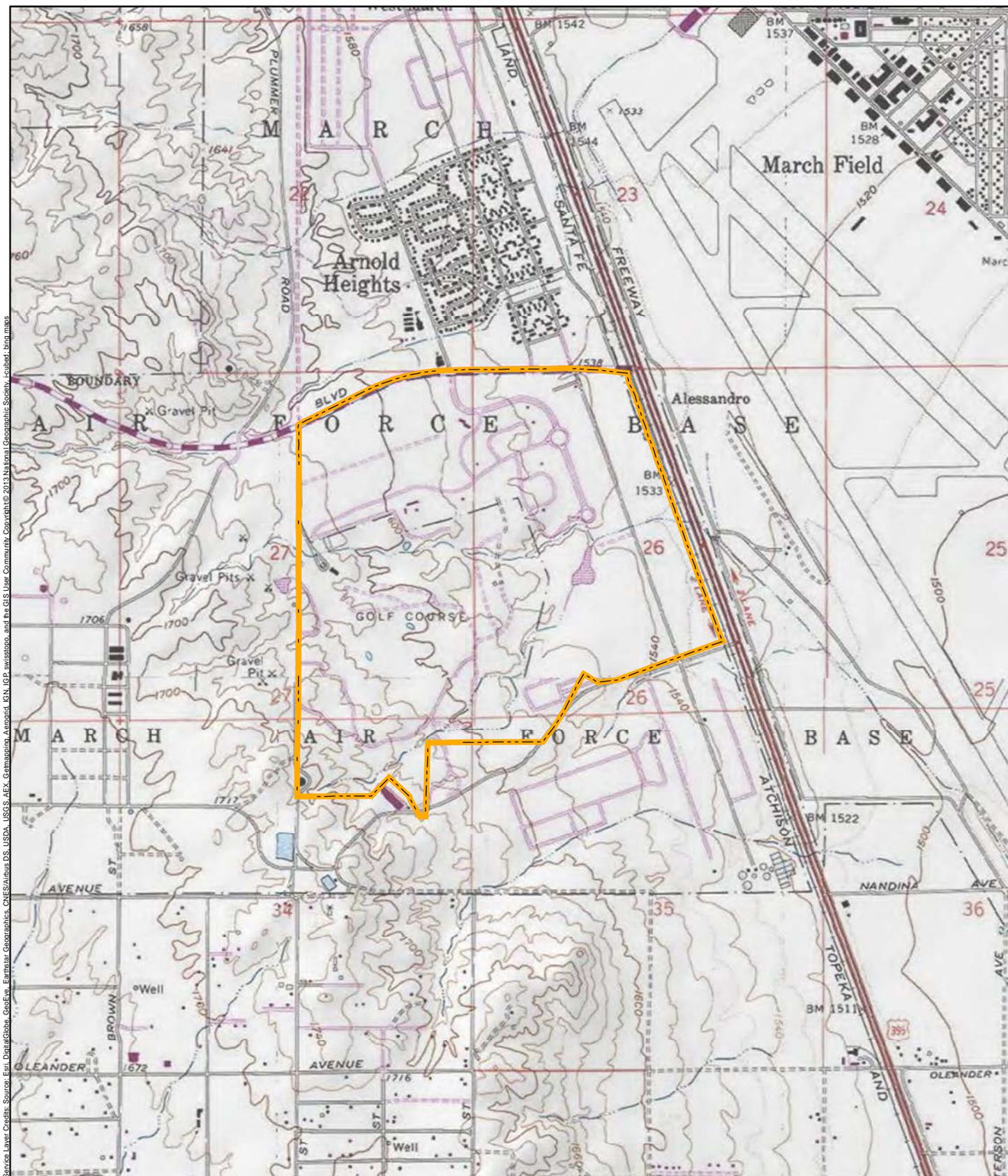
### 1.1 Project Description and Location

The Project area consists of 705 acres located in western Riverside County, approximately 10 miles southwest of the city of Moreno Valley, and directly to the south of the existing Riverside National Cemetery. The Project area is primarily surrounded by modern residential development, with March Air Reserve Base to the east. The Project will expand the current 941-acre cemetery by 315 acres, for a total size of 1,256 acres. The expansion will encompass and replace the existing General Old Golf Course as well as undeveloped land to the southeast. The Project area is bordered by Van Buren Boulevard to the north, the 215 Freeway to the east, and Village Drive to the west. Specifically, the Project is located in Sections 26, 27, 34, and 35 of Township 3 South, Range 4 West, as shown on the *Riverside East* and *Steele Peak* United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Exhibit 1).

### 1.2 Area of Potential Effects

The APE includes the existing Riverside National Cemetery property and the proposed expansion area, totaling approximately 705 acres. The expansion area, including the golf course and undeveloped area, totals approximately 315 acres (Exhibit 2).





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 APE

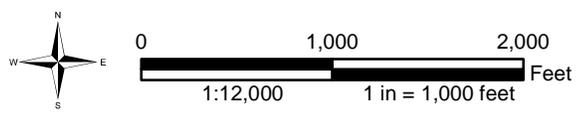




Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Geomatics, Aerotri, IGN, IGP, swisstopo, and the GIS User Community. Copyright © 2013 National Geographic Society. -cubed1\_bing maps

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-  APE
-  Proposed expansion



## 2.0 REGULATORY CONTEXT

### 2.1 Federal

#### 2.1.1 NATIONAL HISTORIC PRESERVATION ACT

The NHPA, enacted in 1966, established the National Register of Historic Places (NRHP), established the position of the State Historic Preservation Officer (SHPO), provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHPA, and created the President's Advisory Council on Historic Preservation (ACHP).

Section 106 of the NHPA directs "the head of any Federal Agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP." Additionally, the ACHP must be afforded an opportunity to comment on such undertakings through a process outlined in 36 CFR Part 800.

Section 106 requires the responsible federal agency to determine the potential for effects to historic and archaeological resources (historic properties) within the APE and to consider mitigation measures capable of avoiding or minimizing adverse effects to historic properties.

#### 2.1.2 NATIONAL REGISTER OF HISTORIC PLACES

The NRHP was established by the NHPA "to indicate what properties should be considered for protection from destruction or impairment" (36 CFR 60.2). As defined in 36 CFR 800 60.4, for a cultural resource to be considered a historic property under NRHP criteria (i.e., eligible for listing in the NRHP), it must be demonstrated that the resource possesses integrity of location, design, setting, materials, workmanship, feeling, and association, and meets at least one of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of our history.
2. It is associated with the lives of persons who are significant in our past.
3. It embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.
4. It has yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

Cemeteries, birthplaces, graves of historic figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years old to be considered for the NRHP, unless it satisfies a standard of exceptional importance.



### **3.0 BACKGROUND INFORMATION**

#### **3.1 Environmental Setting**

The Project area is situated in western Riverside County, within the western portion of March Air Force Base. Western Riverside County is located in the Peninsular Ranges Geomorphic Province, characterized by a series of mountain ranges separated by northwest trending valleys, subparallel to the San Andreas fault (California Geological Society 2002). The Project area itself is located within one such valley, the northern portion of Perris Valley, approximately halfway between the San Jacinto Mountain Range, 10 miles to the northeast, and the Santa Ana Mountain Range, 12 miles to the southwest. Topography in the Project area generally consists of flat or gently sloping terrain. Elevation decreases from southwest to northeast, with elevations ranging from approximately 1660 feet above mean sea level (amsl) in the southwest corner of the APE to 1550 feet amsl in the northwest corner.

The geology of western Riverside County is comprised primarily of igneous and metamorphic rocks such as granite and quartz diorite. The geological formation of the APE consists of Mesozoic-era granitic rocks from the Perris Block. As is clearly visible within the APE, outcrops of granitic bedrock protrude from the ground surface or are overlain by Quaternary alluvium. Subsurface testing from 1994 within the APE indicates that the granitic bedrock is shallow, as it was often encountered less than 30 cm below the surface (McDonald and Giacomini 1996). There are no major sources of water within the APE or within its immediate vicinity. Several small intermittent drainages flow west to east through the APE, towards the base of the Perris Valley.

Vegetation within the area consists predominantly of mustard, tumbleweeds, and dense grasses, including foxtail, wild oat, and other grasses. Riparian vegetation such as willow and horsetail line the intermittent drainages located within the APE. Several species of coastal sage scrub, such as cholla cactus and California sagebrush were also located within the southern portion of the APE. Fauna within the APE consists of a variety of mammals such as ground squirrels, cottontails, kangaroo rats, and coyotes, as well as various birds and lizards.

#### **3.2 Prehistoric Overview**

The Southern Bight Region, extending from Point Conception to the Mexican border, is defined as encompassing Orange and San Diego Counties, western Riverside County, and the offshore islands of Santa Catalina, San Clemente, and San Nicolas. California prehistory for this region is generally divided into three broad time periods: Early Holocene (9,600 – 5,600 B.C.), Middle Holocene (5,600 – 1,650 B.C.), and Late Holocene (1,650 B.C. – A.D. 1769). These periods are briefly described below.

##### **3.2.1 EARLY HOLOCENE (9,600 – 5,600 B.C)**

Prior to 9,600 B.C., there is little evidence of early human occupation of Southern California, particularly the coastal areas. The end of the (Wisconsin) Ice Age between 10,000 and 8,000 B.C. is thought to have been the start of the migration of early humans into the coastal areas. Following the initial settlement in the region, coastal groups began to adopt marine foods such as shellfish and fish. The earliest archaeological site within the Southern Bight region is Daisy Cave (SMI-261) on San Miguel Island, with the oldest layer dated to between 9,600 and 9,000 B.C. There are no known sites within San Diego and Riverside Counties with comparable age, though radiocarbon evidence shows occupation of the coastal mainland between ca. 8,000 and 7,000 B.C. (Byrd and Raab 2007).



### 3.2.2 MIDDLE HOLOCENE (5,600 – 1,650 B.C.)

During the Middle Holocene, environmental factors are thought to have played a role in the shift to collection and processing of small plant seeds and the introduction of millingstone cultures, as well as the hunting of a variety of medium and small game animals. Occupation on the mainland of the Southern Bight Region emphasized sizable, semisedentary populations focused around the resource-rich bays and estuaries. Shellfish were a dietary staple, along with plant resources (both nuts and grasses) with a decrease in the importance of hunting and fishing. Evidence from Santa Catalina and San Clemente Islands suggest there was a 5,000-year-old *Olivella* grooved rectangular (OGR) bead trade network during the Middle Holocene extending from the Southern Channel Islands across southern California through the Mojave Desert, along the western fringes of the Great Basin all the way to Oregon (Byrd and Raab 2007).

### 3.2.3 LATE HOLOCENE (1,650 B.C. – A.D. 1769)

The Late Holocene exhibited greater resource intensification, with a focus on smaller, more labor-intensive resources such as shellfish, fish, small terrestrial mammals, and small seeded plants. This shift in subsistence strategies led to changes in settlement patterns, with major residential bases, short-term residential camps, and limited activities sites to exploit the resources. More complex settlement configurations lead to major social reorganization (with the emergence of political and economic leaders), need for more structured decision making with respect to assignment of economic tasks, and formal mechanisms for dealing with scheduling conflicts. It was during this period when gender-based division of labor emerged (Byrd and Raab 2007).

## 3.3 Ethnographic Overview

The Project area is situated along the boundary of the traditional ethnographic territory of the Luiseño and the Cahuilla and would have served as an interaction sphere with neighboring groups who traveled through and inhabited portions of the region (Byrd and Raab 2007). Both groups spoke a dialect of the Cupan language. Linguistically, the Cupan languages are considered part of the Takic family, a branch of the Uto-Aztecan linguistic stock (Bean and Smith 1978). Takic language speakers, which also included the neighboring Serrano and Juaneño, are thought to have originated in the Great Basin and spread into southern California within the last 1,000 years (Mithun 2004).

### 3.3.1 LUISEÑO

The territory of the Luiseño comprised approximately 1,500 square miles in coastal Southern California, from Agua Hedionda Creek to Aliso Creek along the coast and from Santiago Peak to Palomar Mountain in the inland. They employed a hunting and gathering subsistence strategy focused on a variety of coastal and inland resources, with hunting of both large and small mammals, such as deer, rabbit, coyote, and squirrels. Plant and vegetable resources including grass seeds, manzanita, pine nuts, and acorns were utilized, with acorns serving as a primary food source for the Luiseño. Traditionally the Luiseño men were responsible for hunting and the women for gathering but there was no rigid sexual division of labor. Older women often stayed home to care for children while older men were most active in ritual and ceremonial affairs, making political decisions, and teaching younger men (Bean and Shipek 1978).

The Luiseño were organized into patrilineal clan tribelets, each with an autonomous, sedentary village led by a hereditary chief (Kroeber 1925). The hereditary village chief held an administrative position with religious and economic powers. There was an advisory council of hereditary ritual specialists and shamans, each with his own special area of knowledge. Each village group had



their own specific hunting, collecting, and fishing areas in valley bottoms, along streams, or along coastal strands near mountain ranges. Houses were primarily conical, partially subterranean thatched structures of locally available material such as reeds, brush, or bark (Bean and Shipek 1978).

### 3.3.2 CAHUILLA

The Cahuilla's territory, located near the geographic center of Southern California, was bisected by a major travel trade route, the Cocopa-Maricopa Trail. The Colorado Desert separated the Cahuilla from the Mohave, Hachidoma, Ipai, and Tapai and the mountains, hills, and plains separated them from the Luiseño, Serrano, and Gabrielino (Bean 1978). Subsistence included hunting of large and small game animals, such as deer, antelope, mountain sheep, rabbits, squirrels, and ducks by the men. Women were responsible for the gathering of plant foods, with the most important being acorns (six varieties of oaks), mesquite and screw beans, pinon nuts, and the fleshy bulbs of various types of cacti (Bean 1978).

The Cahuilla were organized into political-ritual-corporates units (clans), composed of 3-10 lineages. The founding lineages often owned the office of ceremonial leader, the ceremonial house, and a ceremonial bundle, or *máyswut*. Cahuilla villages were usually situated in canyons or on alluvial fans near adequate sources of water or food material that offered protection from strong, prevailing winds. The lands surrounding the village were divided into tracts that were owned by clans, families, and individuals. Trail networks used for hunting, trading, and social interaction interconnected the villages. The villages were permanent, with movement out of them for a specific purpose such as hunting, gathering, trade, ritual, or social visiting. Buildings varied in size from small brush shelters to dome-shaped or rectangular house, 15-20 feet long depending on the needs of each individual family, along with village ceremonial houses (Bean 1978).

## 3.4 Historic Overview

The post-contact history of California is generally divided into three periods: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Each of these periods is briefly described below.

### 3.4.1 SPANISH PERIOD (1769-1822)

The earliest historic exploration of California was conducted by Juan Rodriguez Cabrillo in 1542, when contact was made with the Gabrielino on Santa Catalina Island. Contacts were amicable, and the Spanish were again received with hospitality during a return visit in 1602 by Sebastian Vizcaino (Bean and Smith 1978). Exploration of California would continue through the 1700s by European nations, and by the 1760s Britain, France, and Russia were claiming additional territory in North America. Spain made the decision to colonize Alta (upper) California to prevent foreign invasion (Hoover et al. 2002).

The colonization of Southern California did not begin until 1769 under an expedition led by military commander Gaspar de Portola, and in 1796 the Luiseño first encountered non-natives. While Portola had been instructed to find the Bay of Monterey, Father Junipero Serra was to begin establishing missions throughout the region. The first mission was established in San Diego de Alcala in 1769, and four more had been built by 1771. While no missions were built in Riverside County, Spanish mission fathers form Mission San Gabriel (Los Angeles County), San Juan Capistrano (Orange County), and San Luis Rey (San Diego County) used the lands in what is now western Riverside County for raising grain and cattle.



Twenty-one missions would eventually be established between San Diego and San Francisco, and they evolved into extensive operations containing churches, quarters for Indian laborers and soldiers, and a padre's residence. Spanish colonization was destructive to native populations of Southern California. Besides infectious diseases, which severely decreased population rates of groups such as the Luiseño and Cahuilla, the incorporation of young and healthy individuals into the Mission system had an undeniable impact on the cultural systems of native populations.

### 3.4.2 MEXICAN PERIOD (1822-1848)

The Republic of Mexico was established in 1822, and Mexican rule brought significant changes from that of Spain. The missions were viewed as major economic forces by the Mexican government due to their vast landholdings. In 1834, the secularization of missions would begin and the mission properties would be taken over by the state and sold to highest bidders. Tracts of land, called "ranchos", up to 1,000 acres in size were granted to citizens. These ranchos mark the first attempts to make specific identifications of land, and approximately 500 land grants were made during Mexican rule (Hoover et al. 2002). In 1838, Juan Bandini was given the first land grant in Riverside County at Rancho Jurupa.

### 3.4.3 AMERICAN PERIOD (1848-PRESENT)

The United States took possession of California after the signing of the Treaty of Guadalupe Hidalgo in 1848. After the initial discovery of gold in Northern California in 1849, the rush west began in full swing and population increased as Americans ventured to seek their fortune. California's ports also facilitated a population influx from places such as Australia, China, Europe, and Chile. The movement toward statehood began in 1849, and by 1850 California was admitted as the 31<sup>st</sup> state. After a series of extensive flooding in 1861 and 1862, California endured a widespread drought in the mid-1860s. This period marked a transition in the economic history of California, as landowners were forced to sell their property, thus breaking up the previously established rancho system. After the subdivision of a number of landholdings, a more diverse agricultural economy developed, most notably including the citrus industry.

### 3.4.4 PROJECT AREA HISTORY

#### 3.4.4.1 Riverside County

Riverside County was formed out of portions of San Bernardino and San Diego Counties. On May 9, 1893, voters approved a bill to establish Riverside County (Hoover et al. 2002). Voters were also asked to vote for a county seat and Riverside won by a wide margin. Meanwhile, population at settlements like Lake Elsinore, San Jacinto, and South Riverside (present day Corona), were rapidly increasing. The County's early years were linked to agriculture and the City of Riverside grew to become the wealthiest city per capita in the country due to the success of the navel orange industry. The introduction of commerce, construction, manufacturing, transportation, and tourism caused the region to begin to grow rapidly and recent years have brought even more rapid population growth. Between 1980 and 1990, population grew by over 76% making Riverside the fastest growing county in California. By 1992, the County had over 1.3 million residents, more than the entire population in 13 states, including Maine, Nevada, Hawaii, and New Hampshire. Since 1992, the County has nearly doubled its population (Riverside County History 2017).

#### 3.4.4.2 March Air Force Base

An aviation facility was first constructed northeast of the APE in 1918. Later renamed March Field, it was originally named Alessandro Aviation Field, and was utilized throughout World War I, before being deactivated. A new base was constructed in the mid-1920s in the same location.



Camp Haan, which served as an Antiaircraft Replacement Training Center was established to the southeast, west of the current 215 Freeway, on Armistice Day, 1940. The camp included a Prisoner of War Camp, U.S. Disciplinary Barracks, and an Armed Forces Service Depot and would house an estimated 15,000 people by 1941 (McDonald and Giacomini 1996). After World War II, the buildings associated with the camp were largely moved or destroyed after being declared surplus. The former base sits on the eastern end of the APE within the current boundaries of the Riverside National Cemetery.

#### *3.4.4.3 Riverside National Cemetery*

In 1976, 760 acres were transferred from March Air Force Base (called U.S. Army Camp William G. Haan during World War II) to form the Riverside National Cemetery. On November 11, 1978, the cemetery was officially dedicated and opened for burials. In 2003, an additional 181 acres was transferred to the cemetery by the Air Force. Managed by the National Cemetery Administration (NCA), the cemetery is open to members of the armed forces who have met minimum active duty service requirements and were discharged under conditions other than dishonorable; spouses, widows or widowers, or minor dependent children are also eligible for burial (NCA 2017). At its current size of 941 acres, the Riverside National Cemetery is the third largest managed by the NCA, and since 2000, has been the most active in number of interments, with 228,000 graves as of 2014.

#### *3.4.4.4 General Old Golf Course*

The golf course opened in 1955 as a private, military course. In 1996, the course was opened to the public, while still offering a military discount to active and retired military members. The 18-hole course features 6,801 yards of golf from the longest tees for a par of 72 (General Old Golf Course 2017).



## **4.0 METHODOLOGY**

### **4.1 CHRIS Records Search**

A records search was conducted by EI archaeologist, Amber Johnson, at the Eastern Information Center (EIC) of the California Historical Resources Information Center (CHRIS) located at University of California Riverside, on May 22, 2017. The records search identified all previously recorded cultural resources and cultural resource studies within a ½-mile radius around the APE. The records search included a review of the NRHP, the California Register of Historical Resources (CRHR), the California Points of Historical Interest list (CPHI), the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list. The records search also included a review of all historic USGS 7.5-minute quadrangle maps.

### **4.2 Field Survey**

EI archaeologists, Amber Johnson and Christopher Bonn, conducted an intensive pedestrian survey of the Project area between July 24 and July 28, 2017. The Project area was surveyed using transects spaced no greater than 15 meters apart.

The archaeologists examined exposed ground surface for artifacts (e.g., flaked stone tools, tool-making debris, milling tools, ceramics, ecofacts [e.g., marine shell and bone], soil discoloration that might indicate the presence of a cultural midden, and features indicative of the former presence of structures or buildings [e.g., standing exterior walls, postholes, foundations] or historic debris [e.g., metal, glass, ceramics]). Ground disturbances such as burrows were visually inspected. Aerial imagery was utilized to locate previously recorded resources. All new and previously recorded resources were documented, photographed, and recorded on California Department of Parks and Recreation (DPR) 523 forms.



## 5.0 RESULTS

### 5.1 CHRIS Record Search Results

The EIC records search identified nine (9) previous cultural resource studies within the ½-mile record search buffer, three (3) of which overlap with the APE (Table 1). The record search results indicate that portions of the APE were last surveyed in 2007. The last report that covered the expansion area occurred in 1996.

Sixty-eight previously recorded cultural resources were identified within the record search buffer, 14 of which overlap with the APE (Table 2). The previously recorded resources within the APE consist of 10 prehistoric milling features, one (1) site with historic foundations, one (1) site with historic concrete markers, one (1) historic Quonset hut, and one (1) historic isolate (bullet casings). The resources located outside of the APE consist of 45 prehistoric milling features, one (1) prehistoric site with milling features and a lithic scatter, two (2) multicomponent sites with prehistoric milling features and historic refuse scatters, four (4) historic refuse scatters, and two (2) prehistoric isolates.

TABLE 1: PREVIOUSLY STUDIES WITHIN A 1/2-MILE RECORDS SEARCH AREA.  
ITEMS IN BOLD ITALICS OVERLAP WITH THE APE.

Report No.	Author	Title	Year
RI-02159	Drover, C.E.	An Archaeological Assessment of the Air Force Village West, Riverside County, California	1987
<b><i>RI-03150</i></b>	<b><i>McDonald, M., and B. Giacomini</i></b>	<b><i>An Intensive Survey of Approximately 2,500 Acres of March Air Force Base, Riverside County, California</i></b>	<b><i>1996</i></b>
RI-03189	Peak and Associates	Cultural Resources Assessment of AT&T's Proposed San Bernardino to San Diego Fiber Optic Cable, San Bernardino, Riverside and San Diego Counties, California	1990
RI-04767	Hogan, M., B. Tang, J. Smallwood, and D. Everson	Archaeological Testing and Site Evaluations, Specific Plan No. 341/466, Near the City of Perris, Riverside County, California	2004
RI-05408	Love, B., B.T., Tang, and M. Hernandez	Identification and Evaluation of Historic Properties, March ARB Wastewater Treatment Plant Expansion and Recycled Water Pipeline, Near March Air Reserve Base, Riverside County, California	2005
<b><i>RI-06718</i></b>	<b><i>Jordan, S.C.</i></b>	<b><i>Archaeological Survey Report for Southern California Edison Company: March JPA Village West Projects, March Air Force Base, Riverside County, California (WO #6477-2000, AI #P2206; WO #6077-7947, AI #K7992)</i></b>	<b><i>2007</i></b>
<b><i>RI-07568</i></b>	<b><i>McGinnis, P.</i></b>	<b><i>Archaeological Survey Report of the I-215/Van Buren Boulevard Interchange Project Riverside County, California</i></b>	<b><i>2007</i></b>
RI-08167	Hogan, M.	Van Buren Boulevard Street Improvement Project, Phase I	2014
RI-08231	Schultze, C. A., and J. R. Cook	A Cultural Resource Survey of Landfill Remediation Area IRP-24Y Riverside County, California	1996

TABLE 2: PREVIOUSLY RECORDED RESOURCES WITHIN A 1/2-MILE RECORDS SEARCH AREA.  
ITEMS IN BOLD ITALICS OVERLAP WITH THE APE.

Site Number	Description	Type	Recorder and Year
P-33-001782/CA-RIV-1782	Eroded slick	Prehistoric	Banks, T. (1979)
P-33-001783/CA-RIV-1783	Cave-like area with slicks	Prehistoric	Banks, T. (1979)
P-33-003096/CA-RIV-3096	BRM and can scatter	Multicomponent	McCarthy, D. (1986), Tsunoda, K. (2007)
P-33-003098/CA-RIV-3098	Milling slicks	Prehistoric	McCarthy, D. (1986)
P-33-003302/CA-RIV-3302	Milling features	Prehistoric	Swope, K., and B. Neiditch (1987)
P-33-003303/CA-RIV-3303	Milling slick	Prehistoric	Swope, K., and B. Neiditch (1987)
P-33-003325/CA-RIV-3325	Milling slicks	Prehistoric	Drover, C.E. (1987)
P-33-003326/CA-RIV-3326	Milling slick	Prehistoric	Drover, C.E. (1987)
P-33-003327/CA-RIV-3327	Milling slicks	Prehistoric	Drover, C.E. (1987)
P-33-003328/CA-RIV-3328	Milling slick	Prehistoric	Drover, C.E. (1987)
P-33-003329/CA-RIV-3329	Milling slicks	Prehistoric	Drover, C.E. (1987)
P-33-003382/CA-RIV-3382	Milling slick	Prehistoric	Gorenflo, L. (1987)
P-33-003383/CA-RIV-3383	Milling slicks	Prehistoric	Gorenflo, L. (1987)
P-33-005197/CA-RIV-5197	Milling slick	Prehistoric	Nelson, E., and K. Doyle (1993)
P-33-005394/CA-RIV-5394	Milling slick	Prehistoric	Keller, J. (1994)
<b><i>P-33-005399/CA-RIV-5399</i></b>	<b><i>Milling slicks</i></b>	<b><i>Prehistoric</i></b>	<b><i>Giacomini, B. (1994)</i></b>
<b><i>P-33-005402/CA-RIV-5402</i></b>	<b><i>Milling slicks</i></b>	<b><i>Prehistoric</i></b>	<b><i>Giacomini, B. (1994)</i></b>
P-33-005403/CA-RIV-5403	BRM	Prehistoric	Giacomini, B. (1994)
P-33-005404/CA-RIV-5404	Milling slicks	Prehistoric	Giacomini, B. (1994)
P-33-005405/CA-RIV-5405	Milling slicks	Prehistoric	Giacomini, B. (1994)
<b><i>P-33-005406/CA-RIV-5406</i></b>	<b><i>Milling slick</i></b>	<b><i>Prehistoric</i></b>	<b><i>Giacomini, B. (1994)</i></b>
<b><i>P-33-005407/CA-RIV-5407</i></b>	<b><i>Milling slick</i></b>	<b><i>Prehistoric</i></b>	<b><i>Giacomini, B. (1994)</i></b>
<b><i>P-33-005408/CA-RIV-5408</i></b>	<b><i>Milling slicks</i></b>	<b><i>Prehistoric</i></b>	<b><i>Giacomini, B. (1994)</i></b>
<b><i>P-33-005409/CA-RIV-5409</i></b>	<b><i>Milling slicks</i></b>	<b><i>Prehistoric</i></b>	<b><i>Giacomini, B. (1994)</i></b>
<b><i>P-33-005410/CA-RIV-5410</i></b>	<b><i>Milling slicks</i></b>	<b><i>Prehistoric</i></b>	<b><i>Giacomini, B. (1994)</i></b>
<b><i>P-33-005411/CA-RIV-5411</i></b>	<b><i>Milling features</i></b>	<b><i>Prehistoric</i></b>	<b><i>Giacomini, B. (1994)</i></b>
P-33-005412/CA-RIV-5412	Milling slicks	Prehistoric	Giacomini, B. (1994)
<b><i>P-33-005413/CA-RIV-5413</i></b>	<b><i>Milling slicks</i></b>	<b><i>Prehistoric</i></b>	<b><i>Giacomini, B. (1994)</i></b>
P-33-005414/CA-RIV-5414	Milling slicks	Prehistoric	Giacomini, B. (1994)
P-33-005415/CA-RIV-5415	Milling slicks	Prehistoric	Giacomini, B. (1994)
P-33-005416/CA-RIV-5416	Milling slick	Prehistoric	Giacomini, B. (1994)
P-33-005417/CA-RIV-5417	Milling slick	Prehistoric	Giacomini, B. (1994)
P-33-005418/CA-RIV-5418	Milling slicks	Prehistoric	Giacomini, B. (1994)
P-33-005428/CA-RIV-5428	Milling slicks and purple glass	Multicomponent	Giacomini, B. (1994)
P-33-005430/CA-RIV-5430	Milling feature	Prehistoric	Giacomini, B. (1994)

Site Number	Description	Type	Recorder and Year
P-33-005431/CA-RIV-5431	Milling slicks	Prehistoric	Giacomini, B. (1994)
P-33-005432/CA-RIV-5432	Milling slicks	Prehistoric	Giacomini, B. (1994)
P-33-005434/CA-RIV-5434	Milling slicks	Prehistoric	Giacomini, B. (1994)
P-33-005435/CA-RIV-5435	Milling slick	Prehistoric	Giacomini, B. (1994)
P-33-005436/CA-RIV-5436	Milling slicks	Prehistoric	Giacomini, B. (1994)
P-33-005437/CA-RIV-5437	Milling slick	Prehistoric	Giacomini, B. (1994)
P-33-005443/CA-RIV-5443	Milling slicks	Prehistoric	Giacomini, B. (1994)
<b><i>P-33-005444/CA-RIV-5444</i></b>	<b><i>Historic concrete markers</i></b>	<b><i>Historic</i></b>	<b><i>Giacomini, B. (1994)</i></b>
<b><i>P-33-005445/CA-RIV-5445</i></b>	<b><i>Milling slicks</i></b>	<b><i>Prehistoric</i></b>	<b><i>Giacomini, B. (1994)</i></b>
P-33-005447/CA-RIV-5447	Milling slick	Prehistoric	Giacomini, B. (1994)
P-33-005448/CA-RIV-5448	BRM and lithics	Prehistoric	Giacomini, B. (1994)
<b><i>P-33-005455/CA-RIV-5455H</i></b>	<b><i>Concrete slab foundations</i></b>	<b><i>Historic</i></b>	<b><i>Giacomini, B. (1994)</i></b>
<b><i>P-33-005561</i></b>	<b><i>Bullet casings</i></b>	<b><i>Historic</i></b>	<b><i>Giacomini, B. (1994)</i></b>
P-33-007782/CA-RIV-5823	Milling slick	Prehistoric	ASM Affiliates (1996)
P-33-007828/CA-RIV-5824	Milling slicks	Prehistoric	Unknown (1996); Ballester, D. (2001)
P-33-007829/CA-RIV-5825	Milling slick	Prehistoric	ASM Affiliates (1996)
P-33-007830/CA-RIV-5826H	Historic refuse scatter	Historic	ASM Affiliates (1996)
P-33-011075/CA-RIV-6663	Milling slicks	Prehistoric	Ballester, D. (2001)
P-33-011077/CA-RIV-6665	Milling slick	Prehistoric	Moreno, A. S. (2001)
P-33-011078/CA-RIV-6666	Milling slicks	Prehistoric	Ballester, D. (2001)
P-33-011079/CA-RIV-6667	Milling slicks	Prehistoric	Moreno, A. S. (2001)
P-33-011080/CA-RIV-6668	Milling slick	Prehistoric	Ballester, D. (2001)
P-33-011081/CA-RIV-6669	Milling slicks	Prehistoric	Moreno, A. S. (2001)
P-33-011082/CA-RIV-6670	Milling slicks	Prehistoric	Ballester, D. (2001)
P-33-022104/CA-RIV-11324	Historic refuse scatter	Historic	McGinnis, P., and H. Murphy (2009)
P-33-023982/CA-RIV-11787	Milling slick	Prehistoric	Gallardo, N., and D. Ballester (2014)
P-33-023983/CA-RIV-11788	Historic refuse scatter	Historic	Gallardo, N., and D. Ballester (2014)
P-33-023984/CA-RIV-11789	Milling slick	Prehistoric	Gallardo, N., and D. Ballester (2014)
P-33-023985/CA-RIV-11790	Milling slick	Prehistoric	Gallardo, N., and D. Ballester (2014)
<b><i>P-33-024180</i></b>	<b><i>Military property (Quonset Hut)</i></b>	<b><i>Historic</i></b>	<b><i>Par Environmental (2014)</i></b>
P-33-024859/CA-RIV-12321	Historic refuse scatter	Historic	Gallardo, N., and D. Ballester (2014)
P-33-026625	Metate fragment	Prehistoric	Perry, T., and M. Hogan (2016)
P-33-026668	Chert flake	Prehistoric	Ballester, D. (2016)

## 5.2 Field Survey Results

EI conducted the pedestrian survey of the expansion area between July 24 and July 28, 2017. The survey began in the southwest corner of the expansion area and continued to the north and northeast. The entire expansion area was accessible throughout the survey. The disturbed, landscaped portions of the expansion area, including the golf course fairways, greens, driving range, and parking lot were not surveyed. Given the disturbed nature of these areas, they are unlikely to contain cultural resources. All undeveloped portions of the Project area located between golf course components were surveyed.

The topography of the Project area was predominately flat (0-5°), most notably in areas near the golf course. Gently sloping terrain (5-8°) was encountered in some portions of the southern extent of the expansion area, as well as near drainages. Two intermittent drainages containing riparian vegetation, dry at the time of the survey, flow west to east through the Project area. Sediments in the surveyed area are largely homogenous, consisting primarily of light brown loamy sand. A small amount of small to moderate sized quartz gravels were observed within the southern extent of the Project area. Numerous outcrops of large granitic boulders are located throughout the area.

Vegetation within the Project area consisted primarily of tall (shin to knee-high), dried grass. Vegetation associated with the coastal sage scrub community, such as California sagebrush and cholla cactus was observed in the southern portion of the APE. Areas closer to the golf course were characterized by introduced grasses and trees and have been previously disturbed from landscaping and grading associated with the golf course. Surface visibility was variable throughout the Project area. Visibility ranged from poor (<25%) within sections of the Project area that were covered by tall grass to good (50-80%) in areas closer to the golf course with exposed ground surface and short, introduced grasses (Exhibits 3-5).



EXHIBIT 3: APE OVERVIEW, VIEW NORTH.



EXHIBIT 4: APE OVERVIEW, VIEW EAST.



EXHIBIT 4: APE OVERVIEW, VIEW SOUTHEAST

Thirteen previously recorded sites and one (1) previously recorded isolate were located within the APE. Of the 13 sites, EI relocated seven (7) previously recorded prehistoric sites with milling features and two (2) previously recorded historic sites. Three (3) previously recorded prehistoric sites with milling features and one (1) historic isolate were not relocated during the course of the survey. One (1) historic Quonset hut is located within the APE, but outside of the proposed expansion area. Three (3) new resources were identified and recorded by EI during the survey, including two (2) prehistoric milling sites and one (1) historic can scatter.

### 5.2.1 CULTURAL RESOURCES WITHIN THE APE

All previously recorded sites within the expansion area were identified in 1994 (McDonald and Giacomini 1996). Previously recorded resources consist primarily of milling features on the granite outcrops located throughout the area. Milling features that have been identified on the outcrops consist predominantly of shallow milling slicks. Additional features such as basin milling features and ‘rubs’ were also identified. Seven (7) of the 10 previously recorded milling slick sites were relocated during the survey. In most cases, EI was able to identify features that were previously identified as milling slicks or basin milling features. Areas previously identified as rubs were defined by McDonald and Giacomini (1996) as ‘irregularly or linear-shaped areas exhibiting minimal (though often just glossy high spots) to moderate polish on either sloping (25°) or convex boulder surfaces where the containment of a granular substance would not have been possible and are generally more amorphous in shape than slicks’. These areas were difficult to identify and were generally not identified as milling features during the current survey.

#### 5.2.1.1 Previously Recorded Sites

##### **CA-RIV-5399**

CA-RIV-5399 was found to be in similar condition as when it was originally recorded. Three (3) of the four (4) previously recorded milling slicks were identified during the survey. The milling slicks are located on two (2) low-lying boulders located 17 meters apart. The site is located within undeveloped terrain and surface visibility around the outcrop was poor due to the surrounding tall, dense grass. The observed slicks were all shallow, less than 25 cm in length, and generally difficult to discern on the outcrops.

##### **CA-RIV-5402**

CA-RIV-5402 was found to be in similar condition as when it was originally recorded. Three (3) of the four (4) previously recorded milling slicks were identified during the survey. The milling slicks are located on two (2) low-lying boulders located 10 meters apart. The site is located within a disturbed area directly adjacent to the golf course and an asphalt golf cart path. The site is located under a canopy of pepper trees and is surrounded by short, sparse grass. Surface visibility in the surrounding area was good due to the exposed ground surface resulting from previous landscaping disturbance. The observed milling slicks are between 19 and 22 cm in length, and generally difficult to discern on the outcrops.

##### **CA-RIV-5406**

CA-RIV-5406 was found to be in essentially the same condition as when it was originally recorded. The site consists of a single milling slick, measuring 28 cm by 20 cm, which is located on a cracked, granitic boulder that measures 1.8 meters (north/south) by 2.5 meters (east/west) by 0.2 meters (height). The site is located within undeveloped terrain, eight (8) meters east of a dirt access road. The site is surrounded by dense grass, and is located 17 meters north of an intermittent drainage that flows through the area. The milling slick was poorly defined and not as smooth as similar sites in the vicinity.

##### **CA-RIV-5407**

CA-RIV-5407 was originally identified as containing one (1) milling slick on a single granite boulder. EI was not able to relocate the site during the current survey. Using information from the original site record, no outcrops matching the recorded site were observed.



**CA-RIV-5408**

CA-RIV-5408 was found to be in essentially the same condition as when it was originally recorded. The site was originally identified as containing two (2) milling slicks and one (1) rub on the surface of a single granitic boulder. The boulder measures 4.0 meters (north/south) by 2.5 meters (east/west) by 0.3 meters (height) and is located 10 meters north of a dirt access road. The site is located within undeveloped terrain, and surface visibility was poor due to the surrounding dense tall grass. The two (2) identified milling slicks are between 28 and 31 cm in length and are more well-defined and clearly visible than those from other sites in the surrounding vicinity. The rub was not discernible as a cultural modification in its current state.

**CA-RIV-5409**

CA-RIV-5409 was found to be in similar condition as when it was originally recorded. The site was originally identified as containing seven (7) milling surfaces (six [6] milling slicks, one [1] rub) on the surface of three (3) boulders. EI identified five (5) of the six (6) milling slicks which had been identified on the two (2) westernmost boulders. No cultural modification was observed on the third boulder, which was previously identified as containing a rub; this boulder is excluded from the current site boundary. The boulders containing milling slicks are low-lying to the ground surface and are located 38 meters apart. The surrounding area has been disturbed from landscaping associated with the adjacent golf course, and several dirt paths/roads cross through the site boundary. Surface visibility in the surrounding area was good due to the exposed ground surface and short grass resulting from previous landscaping disturbance.

**CA-RIV-5410**

CA-RIV-5410 was found to be in similar condition as when it was originally recorded. EI relocated the main outcrop containing two (2) milling slicks on a single boulder. A third milling slick located on a smaller outcrop to the southwest of the site was not relocated and was excluded from the current site boundary. The observed milling slicks were located on a low-lying boulder, measuring 5.0 m (north/south) by 3.0 m (east/west). The boulder is situated in an outcrop within a heavily disturbed area on the southwest edge of the golf course. The outcrop is surrounded by dirt paths/roads and vegetation consists of sparse and short grasses. Surface visibility in the surround area was good due to the exposed ground surface.

**CA-RIV-5411**

CA-RIV-5411 was originally identified as containing one (1) basin milling feature and one (1) rub, on the surface of a single granitic boulder. The boulder was relocated during the current survey, however, portions of the boulder were heavily eroded and damaged and showed no signs of milling surfaces.

**CA-RIV-5413**

CA-RIV-5413 was found to be in similar condition as when it was originally recorded, which consisted of five (5) milling surfaces on boulders in an outcrop of over 10 boulders. EI relocated one (1) basin milling feature on a large boulder, measuring 9.0 m (north/south) by 3.5 m (east/west) by 0.3 m (height) and two (2) milling slicks on a second boulder, measuring 5.0 m (north/south) by 12 m (east/west) by 0.5 m (height). A previously identified rub on a third boulder was not identified and is excluded from the current site boundary. The site is located within a moderately disturbed area, directly south of a tee box and directly north of a dirt access road. The site is surrounded by short grasses and weeds and surface visibility was good due to the disturbance associated with landscaping from the adjacent golf course. The basin milling feature observed



within the site was the most well developed milling surface identified during the survey, and the only milling surface to display any depth (3 cm).

#### **CA-RIV-5444H**

CA-RIV-5444H was originally identified as a historic site that consists of three (3) markings imprinted in concrete, attached to a granitic boulder. The site was found to be in identical condition as when it was originally recorded. The markings consist of “Hruska 41”, with a right hand print, “SGT Thompson, A Bat, 78<sup>th</sup> CA,” and “Nippy” with imprinted paw prints. All previously identified markings were observed on the boulder. The boulder is situated on undeveloped terrain, but is located directly west of the firing range. The site was previously interpreted as being associated with Camp Haan (CA-RIV-3285H), a World War II era Antiaircraft Training Replacement Center (1940-1946) that was located directly west of Highway 215. The presence of “Hruska 41”, if it represents a date of 1941, would support this interpretation.

#### **CA-RIV-5445**

CA-RIV-5445 was originally identified as containing three (3) milling surfaces (two [2] milling slicks, one [1] rub) located on two (2) granite boulders. The outcrop was relocated during the current survey, but no evidence of milling slicks was observed on the boulders. The site is situated directly west of the golf course tee box, and has been previously disturbed from associated landscaping activity. Surface visibility in the area was good due to the exposed ground surface, and no additional cultural material was observed on site.

#### **CA-RIV-5455H**

CA-RIV-5455H was originally identified as a set of two (2) historic concrete foundations and was found to be in identical condition to when it was originally recorded. The foundations measure 75 feet in length by 26 feet in width and are located 102 feet apart. The site was also interpreted as being associated with Camp Haan, as the observed foundations matched others that have been previously recorded at Camp Haan (CA-RIV-3285H) in color, texture and pattern of cold joints/controlled cracks.

#### **P-33-024180**

P-33-024180 is a previously recorded Quonset Hut recorded within the fenced maintenance facility for the Riverside National Cemetery. The hut is located within the APE, but outside of the surveyed expansion area and was not accessible at the time of survey. A review of existing information indicates that the structure was previously determined not eligible for the NRHP (Nolte and Maniery 2014). A review of aerial imagery indicates that the structure is no longer standing in its recorded location as a new building has been constructed in its place. No further review is required for P-33-024180 and the resource is not documented further in this report.

#### *5.2.1.2 Newly Recorded Sites*

#### **ERG-VA-RIV-Site001**

ERG-VA-RIV-Site001 consists of a small historic can scatter which contains a mixture of modern debris. The site measures 36 feet in length by 8 feet in width, and is located at the base of a large granitic boulder, approximately 50 feet northeast of the firing range and 15 feet northwest of CA-RIV-5455H. Historic material includes approximately 35 aluminum-top pull tab beverage cans and aluminum soda cans (Fanta and 7UP), eight (8) rotary-opened sanitary cans, and five (5) crushed paint cans. An approximately equal amount of modern debris, including numerous beer bottles, tires, hose fragments, an ironing board, steel garbage can, mattress spring fragments, and



scrap metal fragments are also mixed in with the deposit. The predominant historic artifact type in the site, aluminum-top pull tab cans, dates to the 1950s (Rock 1989). The site is interpreted as a single or small number of dumping episodes of historic-era cans. Given the age of the cans, they are likely associated with activity at the adjacent firing range, rather than Camp Haan, which was decommissioned in 1946. The abundance of modern debris at the site indicates that the area has continued to serve as a dumping ground, also likely from the adjacent firing range.

### **ERG-VA-RIV-Site002**

ERG-VA-RIV-Site002 consists of a bedrock milling site containing four (4) observed milling slicks on four (4) separate granitic boulders. The site is situated within a larger outcrop of boulders and measures 22 meters (north/south) by 53 meters (east/west). This site is located directly north of an intermittent drainage and directly west of the golf course. The observed milling slicks consist of smooth surfaces with no depth, that are similar to other milling surfaces on previously recorded sites in the surrounding vicinity. Three (3) of the slicks range in length between 18 and 28 cm, while the largest slick measures 55 cm (length) x 30 cm (width). The site has been heavily disturbed by dirt paths/access roads that have been cut through the site and a borrow pit is located in the northwestern portion of the site, directly south of an access road. Vegetation consists of a mixture of riparian vegetation along the drainage on the southern extent of the site and short grasses in the northern portion of the site. Surface visibility was very good (>75%) due to the extensive ground disturbance at the site and no additional cultural material was observed in the area.

### **ERG-VA-RIV-Site003**

ERG-VA-RIV-Site003 consists of a bedrock milling site containing one (1) observed milling slick on a single low-lying, granitic boulder. The boulder measures 8 m (north/south) by 5 m (east/west) and is located directly west of the golf course and an asphalt golf cart path. The observed slick consists of a smooth surface with no depth, measuring 30 cm by 25 cm and is similar to other sites in the surrounding vicinity. The site is located under a canopy of non-native trees lining the fairway, and vegetation consists of short and sparse grass. The area has been disturbed from landscaping associated with the golf course and surface visibility was very good (>75%) due to the exposed ground surface. No additional cultural material was observed in the vicinity of the site.



## 6.0 SUMMARY AND RECOMMENDATIONS

As a result of the current survey, seven (7) previously recorded resources and three (3) newly recorded resources were identified within the APE. Three (3) previously recorded resources were not identified during the current survey. All previously recorded sites have been previously recommended as not eligible to the NRHP (McDonald and Giacomini 1996). EI agrees with these recommendations, and recommends all newly recorded sites as not eligible to the NRHP (Table 3).

### 6.1 NRHP Eligibility Recommendations

#### 6.1.1 PREHISTORIC SITES

Seven (7) previously recorded and two (2) newly recorded resources consist of bedrock milling stations, comprised primarily of milling slicks located on granitic outcrops throughout the APE. Given the homogeneity of the sites, the NRHP eligibility status of each site is described together.

As archaeological sites, they do not appear to be associated with events that have made a significant contribution to the patterns of history (Criterion A) and the cultural materials present are not known to be associated with the lives of significant people (Criterion B). The sites do not represent the work of a master or a distinctive type of construction (Criterion C). For example, the observed milling slicks are commonly found throughout the area and do not display evidence of exceptional workmanship.

All observed sites consist almost entirely of milling slicks with little to no depth, with the exception of one (1) basin milling feature (3 cm depth) at CA-RIV-5413. Each site contains a small number of milling surfaces (between one [1] and five [5]), and each boulder contained between one (1) and three (3) milling features. This type of site has typically been interpreted as food or plant processing locations resulting from limited utilization. Sediments throughout the area were similar and no evidence of midden or other long-term occupation was observed. Previous subsurface testing at several of the sites indicated that the area is underlain by shallow granitic bedrock and no additional cultural material was observed at any of the sites. Given the observed feature type and the low potential for subsurface cultural deposit, further research at the site is unlikely to provide additional data and information regarding cultural chronology, subsistence-settlement systems or other research themes for the region. For these reasons, the sites do not appear eligible for the NRHP under Criterion D.

The prehistoric sites do not appear to meet any criteria for eligibility for the NRHP and EI recommends the sites as not eligible.

#### 6.1.2 HISTORIC SITES

Two (2) previously recorded resources and one (1) newly recorded resource are historic-era sites identified adjacent to the March Air Force Base firing range. Both previously recorded resources were previously recommended as not eligible to the NRHP (McDonald and Giacomini 1996). The sites consist of a boulder with three (3) concrete historic signature/markings and a set of two (2) parallel foundations, both of which were interpreted as being associated with Camp Haan, a World War II era Antiaircraft Replacement Training Center (1940-1946). The sites are not associated with events that have made a significant contribution to the broad patterns of our history (Criterion A). Camp Haan was in operation for five to six years during World War II before being decommissioned and a previously recorded Camp Haan site on the west side of the base has been determined not to be eligible for the NRHP. The sites are not known to be associated with the lives of significant people (Criterion B). The concrete markings for example, appear to be from two



unknown people, of many, that have been associated with military activity in the area. The sites do not represent the work of a master or a distinctive style of construction (Criterion C). The foundations, for example were previously determined to be similar to those found at other Camp Haan sites (CA-RIV-3285H and CA-RIV-5454H). The sites do not contain standing structures and have low data potential. Further research at the site, consisting of foundations and concrete markings, is unlikely to provide additional data and information regarding the historical development of the area (Criterion D).

The newly recorded site consists of a secondary deposit of historic cans, which also contains a mixture of modern debris. Based on the age of the observed cans, which date to no earlier than the 1950s, they do not appear to be associated with Camp Haan, but from later activity from the adjacent firing range. This type of site cannot be associated with specific events or people, but is the result of several dumping episodes associated with the firing range. Ultimately, the type of observed cans are very common and do not contain any potential for further data.

The sites do not appear to meet any criteria for eligibility for the NRHP and EI recommends the sites as not eligible for the NRHP.

TABLE 3: SUMMARY OF RESOURCES WITHIN APE AND NRHP ELIGIBILITY RECOMMENDATIONS

Site No.	Site Description	Previous Eligibility Recommendation	EI Eligibility Recommendation
CA-RIV-5399	Milling slicks; 3 slicks on 2 boulders	Recommended Not Eligible	Recommended Not Eligible
CA-RIV-5402	Milling slicks; 3 slicks on 2 boulders	Recommended Not Eligible	Recommended Not Eligible
CA-RIV-5406	Milling slicks; 1 slick on 1 boulder	Recommended Not Eligible	Recommended Not Eligible
CA-RIV-5407	Milling slicks; 1 slick on 1 boulder	Recommended Not Eligible	n/a; not relocated within APE
CA-RIV-5408	Milling slicks; 2 slicks on 1 boulder	Recommended Not Eligible	Recommended Not Eligible
CA-RIV-5409	Milling slicks; 5 slicks on 2 boulders	Recommended Not Eligible	Recommended Not Eligible
CA-RIV-5410	Milling slicks; 2 slicks on 1 boulder	Recommended Not Eligible	Recommended Not Eligible
CA-RIV-5411	Milling slicks; 1 slick on 1 boulder	Recommended Not Eligible	n/a; not relocated within APE
CA-RIV-5413	Milling slicks and basin milling feature; 2 slicks and 1 milling feature on 2 boulders	Recommended Not Eligible	Recommended Not Eligible
CA-RIV-5444H	Historic signatures/markers in concrete; attached to boulder	Recommended Not Eligible	Recommended Not Eligible
CA-RIV-5445	Milling slicks; 3 slicks on 2 boulders	Recommended Not Eligible	n/a; not relocated within APE
CA-RIV-5455H	Concrete foundations	Recommended Not Eligible	Recommended Not Eligible
P-33-24180	Quonset hut	Determined Not Eligible	n/a
ERG-VA-RIV-Site001	Historic can scatter	n/a	Recommended Not Eligible
ERG-VA-RIV-Site002	Milling slicks; 4 slicks on 4 boulders	n/a	Recommended Not Eligible
ERG-VA-RIV-Site003	Milling slicks; 1 slick on 1 boulder	n/a	Recommended Not Eligible



## 6.2 Management Recommendations

As a result of the current survey, 10 previously recorded and three (3) newly recorded resources were identified within the APE. Section 106 sets forth specific criteria for determining whether a project, or undertaking, would have an adverse effect on a historic property, if any properties exist within the APE (36 CFR.16d). All recorded resources are recommended as being not eligible for the NRHP and therefore are not historic properties. As such, no impacts to historic properties are expected to occur as part of the proposed Project.

No further work for cultural resources is recommended, unless the scope changes to include areas not reviewed as part of this study. In the event that cultural resources are discovered during ground disturbing activities for the proposed Project, work must be halted until the resources can be evaluated by a qualified archaeologist. Further, should human remains be encountered, all work in the immediate vicinity must cease and the County Coroner must be immediately notified.



## 7.0 REFERENCES CITED

Bean, L.J.,

- 1978 Cahuilla. In R.F. Heizer (Ed.) *Handbook of North American Indians*, Vol. 8, California (pp. 575-588). Washington, D.C.: Smithsonian Institution.

Bean, L.J., and F.C. Shipek

1978. Luiseño. In R.F. Heizer (Ed.) *Handbook of North American Indians*, Vol. 8, California (pp. 550-563). Washington, D.C: Smithsonian Institution.

Bean, L.J., and C.R. Smith

- 1978 Gabrielino. In R.F. Heizer (Ed.) *Handbook of North American Indians*, Vol. 8, California (pp. 538-549). Washington, D.C.: Smithsonian Institution.

Byrd, B.F., and L.M. Raab

- 2007 Prehistory of the Southern Bight: Models for a New Millennium. In T.L. Jones and K.A. Klar (Eds.) *California Prehistory: Colonization, Culture, and Complexity* (pp. 215-228). New York, NY: Altamira Press.

California Geological Survey

- 2002 *California Geomorphic Provinces, Note 36*. Prepared by the Office of the California Geologic Survey. California Department of Conservation, Sacramento.

Hoover, M.B., H.E. Rensch, E.G. Rensch, and W.N. Abeloe

- 2002 In D.E. Kyle (Ed.) *Historic Spots in California*. Stanford, CA: Stanford University Press.

General Old Golf Course

- 2017 Online document, accessed at <https://www.generaloldgolfcourse.com/aboutus/>, August, 2017.

Kroeber, A.L.

- 1925 *Handbook of the Indians of California*. Bureau of American Ethnology, Bulletin 78. Smithsonian Institute, Washington, D.C.

McDonald, M., and B. Giacomini

- 1996 An Intensive Survey of Approximately 2,500 Acres of March Air Force Base, Riverside County, California. Report on file at the Eastern Information Center, University of California, Riverside.

Mithun, M.

- 2004 *The Languages of North America*. Cambridge University Press, Cambridge, Massachusetts.

National Cemetery Administration

- 2017 Online document, accessed at <https://www.cem.va.gov/cems/nchp/riverside.asp#hi>, August, 2017.



Nolte, M., and M. L. Maniery

- 2014 Cultural Resources Literature Review and Finding of No Effect for the Riverside National Cemetery Maintenance Yard/Storage Expansion Project, NCA Project No. 901CM3038. Report on file at the Eastern Information Center, University of California, Riverside.

Pritchard, J., R. Gilbert, and A. Johnson

- 2017 Archaeological Sensitivity Assessment for the Proposed Expansion of the Riverside National Cemetery, City of Riverside, Riverside County, California. Report prepared for the United States Department of Veterans Affairs, Washington, D.C.

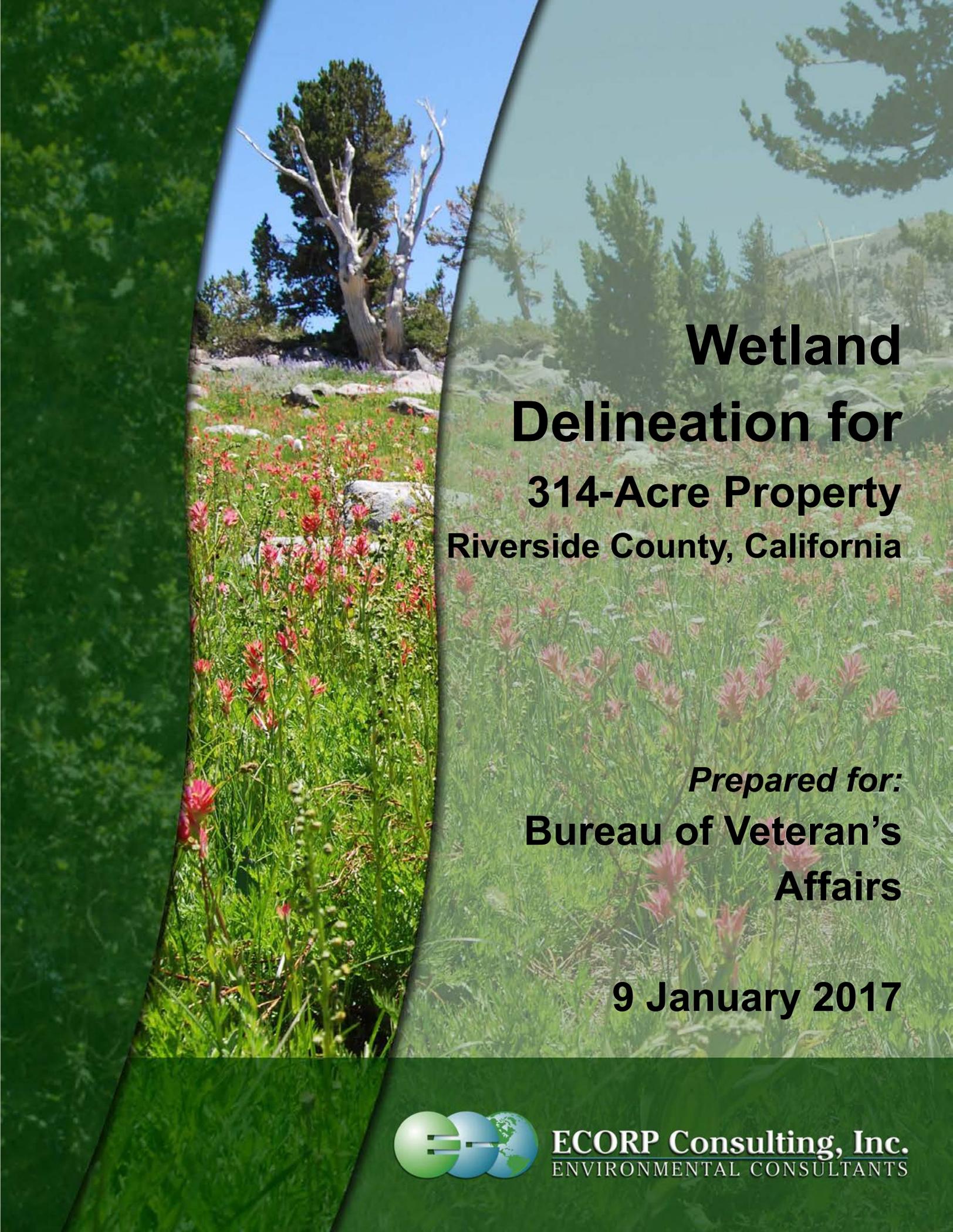
Riverside County History

- 2017 Online document, accessed at <http://countyofriverside.us/Visitors/CountyofRiversideInformation/RiversideCountyHistory.aspx>, August, 2017.

Rock, J.

- 1989 Tin Canisters: Their Identification. Unpublished manuscript on file at U.S. Forest Service, Klamath National Forest.





**Wetland  
Delineation for  
314-Acre Property  
Riverside County, California**

*Prepared for:*  
**Bureau of Veteran's  
Affairs**

**9 January 2017**



**ECORP Consulting, Inc.**  
ENVIRONMENTAL CONSULTANTS

# **Delineation of Waters of the U.S.**

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## **314-Acre Property**

Riverside County, California

Prepared For:

**United States Department of Veterans Affairs**

9 January 2017



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Attachment G - Riverside Property Access Agreement

## **1.0 INTRODUCTION**

On behalf of the United States (U.S.) Department of Veterans Affairs, ECORP Consulting, Inc. (ECORP) conducted a delineation of Waters of the U.S. for a ±314-acre parcel (Property) located in Riverside County, California. The Property is located approximately 0.5 mile west of Interstate (I-) 215, approximately 0.5 mile south of Van Buren Boulevard, and directly east of Village West Drive in the City of Riverside (Figure 1. *Project Vicinity*; Figure 2. *Project Location*). The Property corresponds to portions of Section 27, Township 3 South, and Range 4 West; Section 26, Township 3 South, and Range 4 West; Section 34, Township 3 South, and Range 4 West; and Section 35, Township 3 South, and Range 4 West (MDBM) of the "Riverside East, California" and "Steele Peak, California" 7.5-minute quadrangles (USGS 1981). The approximate center of the site is located at 33° 52' 37.84" North and 117° 16' 53.87" West within the Santa Ana Watershed (#18070203, USGS 1978) and within the Perris Reservoir Subwatershed (#180702030305, USGS 1978).

The Property is accessible from Riverside by driving south on I-215 and exiting Van Buren Boulevard. Turn right onto Van Buren Boulevard and proceed one mile, and turn left on Village West Drive. The entrance to the Project is then 0.3-mile ahead on the left (Attachment A).

This report describes potential waters of the U.S., including wetlands, identified within the site that may be regulated by the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the federal Clean Water Act (CWA). The potential Waters of the U.S. boundaries depicted in this report represent a calculated estimation of the jurisdictional area within the site, and are subject to modification following the USACE verification process.

The purpose of this delineation of Waters of the U.S. is to provide enough information to the USACE for a Preliminary Jurisdictional Determination.

## **2.0 REGULATORY SETTING**

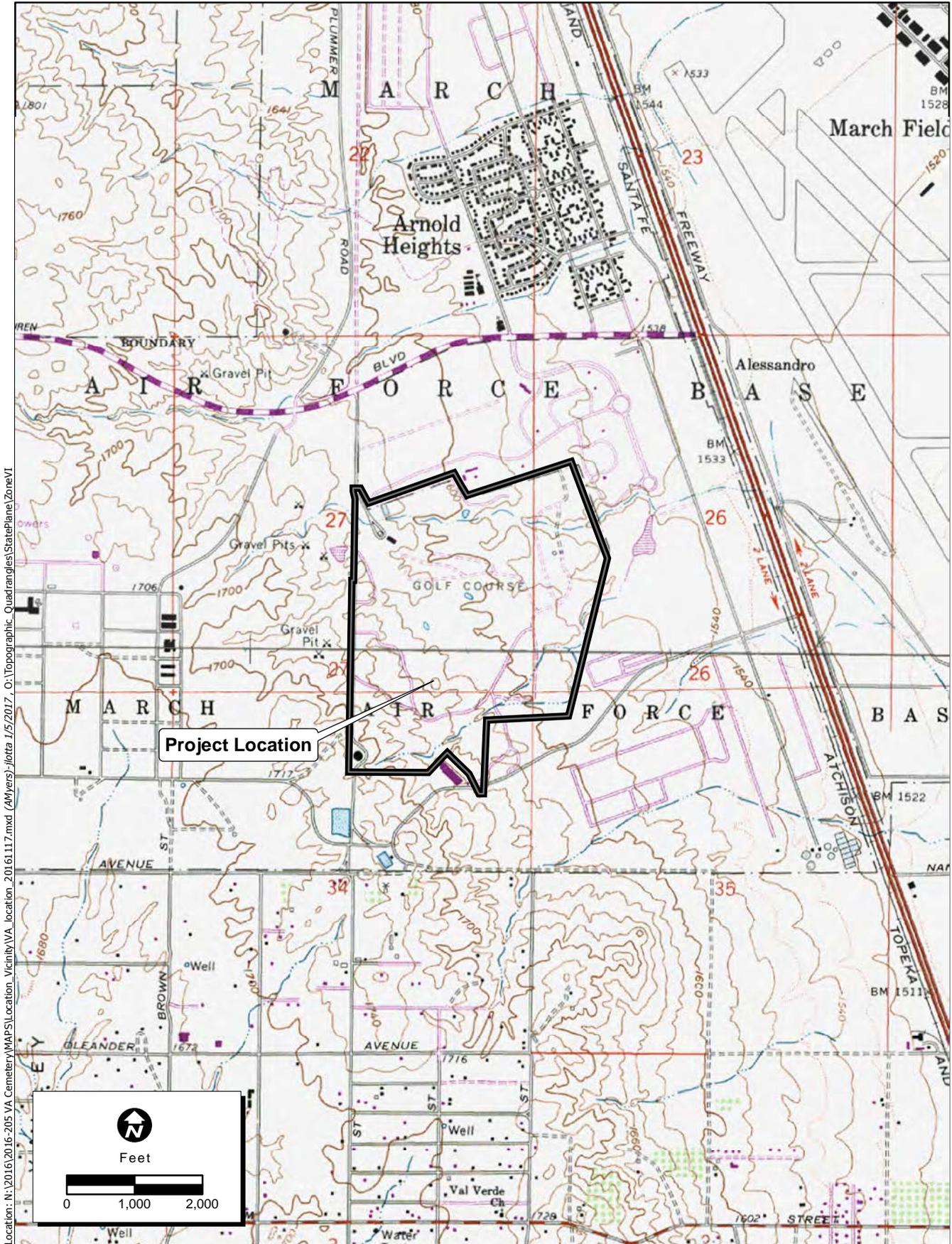
### **2.1 Waters of the United States**

This report describes potential Waters of the U.S., including wetlands that may be regulated by the USACE under Section 404 of the federal CWA.

#### **2.1.1 Wetlands**

Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [51 FR 41250, Nov. 13, 1986, as amended at 58 FR 45036, Aug. 25, 1993]. Wetlands can be perennial or intermittent.





Location: N:\2016\2016-205 VA Cemetery\MAPS\Location\_Vicinity\VA\_location\_20161117.mxd (4Myers)\jctts 1/5/2017, O:\Topographic\_Quad\angles\StatePlane\ZoneV1

Map Date: 1/5/2017  
Source: ESRI

**Figure 2. Project Location**

2016-205 Riverside Cemetery

### **2.1.2 Other Waters**

Other waters that may be found in the Delineation Area are non-tidal, perennial, and intermittent watercourses and tributaries to such watercourses [51 FR 41250, Nov. 13, 1986, as amended at 58 FR 45036, Aug. 25, 1993]. The limit of USACE jurisdiction for non-tidal watercourses (without adjacent wetlands) is defined in 33 CFR 328.4(c)(1) as the "ordinary high water mark" (OHWM). The OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" approximation of the lateral limit of USACE jurisdiction. The upstream limits of other waters are defined as the point where the OHWM is no longer perceptible.

## **2.2 Clean Water Act**

The USACE regulates discharge of dredged or fill material into Waters of the U.S. under Section 404 of the CWA. "Discharges of fill material" is defined as the addition of fill material into Waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines [33 C.F.R. §328.2(f)]. In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to wetlands, over 0.5 acre of impact, may require an individual permit. Projects that only minimally affect wetlands, less than 0.5 acre of impact, may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

## **2.3 Jurisdictional Assessment**

Pursuant to the U.S. Environmental Protection Agency (USEPA) and USACE memorandum regarding CWA jurisdiction, issued following the United States Supreme Court's decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (herein referred to as *Rapanos*), the agencies will assert jurisdiction over the following waters: "Traditional Navigable Waters" (TNW), all wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are "relatively permanent" waters (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally), and wetlands that directly abut such tributaries (USEPA and USACE 2007).

Waters requiring a significant nexus determination by the USACE and USEPA to establish jurisdiction include non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not relatively permanent, and wetlands adjacent to but do not directly

about a relatively permanent non-navigable tributary (USEPA and USACE 2007). The jurisdictional determination is a fact-based evaluation to establish whether a water has a significant nexus with a TNW. The significant nexus analysis will assess the flow characteristics and functions of the non-navigable tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNWs (USEPA and USACE 2007).

### **3.0 METHODS**

This wetland delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Region Supplement) (USACE 2008a). The boundaries of potential Waters of the U.S. were delineated through aerial photograph interpretation and standard field methods (e.g. paired sample set analyses), and field data were recorded on Wetland Determination Data Forms - Arid West Region (Attachment B). A color aerial photograph (1"=1,200' scale, NAIP 2012) was used to assist with mapping and ground-truthing (Attachment C). *Munsell Soil Color Charts* (Kollmorgen Instruments Co. 1990) and the Web Soil Survey (NRCS 2016) were used to aid in identifying hydric soils in the field. The Jepson Manual, 2nd Edition (Baldwin et al. 2012) was used for plant nomenclature and identification.

Field surveys were conducted on 15 November 2016 by ECORP biologist Scott Taylor. Mr. Taylor walked the entire ±314-acre Project site to determine the location and extent of potential Waters of the U.S. within the survey area. Paired sampling point locations were sampled to evaluate whether or not the vegetation, hydrology, and soils data supported a determination of wetland or non-wetland status. At each paired location, one point was located such that it was within the estimated wetland area, and the other point was situated outside the limits of the estimated wetland area. The total area of the wetlands and other waters within the site was recorded in the field using a post-processing capable global positioning system (GPS) unit with sub-meter accuracy (Trimble GeoXT).

#### **3.1 Routine Determinations for Wetlands**

To be determined a wetland, the following three criteria must be met:

- A majority of dominant vegetation species are wetland-associated species;
- Hydrologic conditions exist that result in periods of flooding, ponding, or saturation during the growing season; and
- Hydric soils are present.

##### **3.1.1 Vegetation**

Hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanent or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present (Environmental Laboratory 1987). The definition of wetlands includes the phrase "a prevalence of

vegetation typically adapted for life in saturated soil conditions." Prevalent vegetation is characterized by the dominant plant species comprising the plant community (Environmental Laboratory 1987). The dominance test is the basic hydrophytic vegetation indicator and was applied at each sampling point location. The "50/20 rule" was used to select the dominant plant species from each stratum of the community. The rule states that for each stratum in the plant community, dominant species are the most abundant plant species (when ranked in descending order of coverage and cumulatively totaled) that immediately exceed 50 percent of the total coverage for the stratum, plus any additional species that individually comprise 20 percent or more of the total cover in the stratum (HQUSACE 1992, USACE 2008a).

Dominant plant species observed at each sampling point were then classified according to their indicator status (probability of occurrence in wetlands) (Table 1), *North American Digital Flora: National Wetland Plant List* (Lichvar et al. 2016). If the majority (greater than 50 percent) of the dominant vegetation on a site are classified as obligate (OBL), facultative wetland (FACW), or facultative (FAC), then the site was considered to be dominated by hydrophytic vegetation.

Plant Species Classification	Abbreviation	Probability of Occurring in Wetland
Obligate	OBL	Almost always occur in wetlands
Facultative Wetland	FACW	Usually occur in wetlands, but may occur in non-wetlands
Facultative	FAC	Occur in wetlands and non-wetlands
Facultative Upland	FACU	Usually occur in non-wetlands, but may occur in wetlands
Upland	UPL	Almost never occur in wetlands
Plants That Are Not Listed (assumed upland species)	N/L	Does not occur in wetlands in any region.

<sup>1</sup>Source: Lichvar et al. 2014

In instances where indicators of hydric soil and wetland hydrology were present, but the plant community failed the dominance test, the vegetation was re-evaluated using the Prevalence Index. The Prevalence Index is a weighted-average wetland indicator status of all plant species in the sampling plot, where each indicator status category is given a numeric code (OBL=1, FACW=2, FAC=3, FACU=4, and UPL=5) and weighting is by abundance (percent cover). If the plant community failed the Prevalence Index, the presence/absence of plant morphological adaptations to prolonged inundation or saturation in the root zone was evaluated.

### 3.1.2 Soils

A hydric soil is defined as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS 2003). Indicators that a hydric soil is present include, but are not limited to, histosols, histic epipedon, hydrogen sulfide, depleted below dark surface, sandy redox, loamy gleyed matrix, depleted matrix, redox dark surface, redox depressions, and vernal pools.

At each sampling point a soil pit was excavated to the depth needed to document an indicator, to confirm the absence of indicators, or until refusal at each sampling point. The soil was then examined for hydric soil indicators. Soil colors were determined while the soil was moist using the

*Munsell Soil Color Charts* (Kollmorgen Instruments Co. 1990). Hydric soils are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated and anaerobic environment. These processes and the features in the soil that develop can be identified by looking at the color and texture of the soils.

### **3.1.3 Hydrology**

Wetlands, by definition, are seasonally or perennially inundated or saturated at or near (within 12 inches of) the soil surface. Primary indicators of wetland hydrology include, but are not limited to: visual observation of saturated soils, visual observation of inundation, surface soil cracks, inundation visible on aerial imagery, water-stained leaves, oxidized rhizospheres along living roots, aquatic invertebrates, water marks (secondary indicator in riverine environments), drift lines (secondary indicator in riverine environments), and sediment deposits (secondary indicator in riverine environments). The occurrence of one primary indicator is sufficient to conclude that wetland hydrology is present. If no primary indicators are observed, two or more secondary indicators are required to conclude wetland hydrology is present. Secondary indicators include, but are not limited to: drainage patterns, crayfish burrows, FAC-neutral test, and shallow aquitard. The occurrence of at least one primary indicator or two secondary indicators is required to confirm the presence of wetland hydrology.

## **4.0 RESULTS**

### **4.1 Existing Site Conditions**

The Delineation Area is located within gently rolling terrain situated at an elevational range of approximately 1,560 to 1,710 feet above mean sea level in the South Coast Subregion of the Southwestern California region of California (Baldwin et. al. 2012). Average annual low temperatures range from 40°F to 50°F and summer high temperatures average in the 90s°F. Average annual precipitation is approximately 7.1 inches, which falls as rainfall (NOAA 2016a).

The Delineation Area is primarily composed of a golf course (General Old) and open space within private property. Just west of the golf course there are several residences that drain into the Delineation Area. The Property and surrounding area include the following upland land cover types: golf course/ornamental, disturbed eucalyptus grove, disturbed California buckwheat scrub, disturbed, and developed. The Delineation Area also contains aquatic habitat types including waters and wetlands.

Vegetation within the upland habitats on-site is mainly composed of ornamental species associated with the golf course such as eucalyptus (*Eucalyptus* sp.). There is also mixed non-native vegetation such as Russian thistle (*Salsola tragus*), black mustard (*Brassica nigra*), horehound (*Marrubium vulgare*). Small patches of California buckwheat (*Eriogonum fasciculatum*) and Menzie's goldenbush (*Isocoma menziezii*) are found amongst larger swaths of non-native vegetation, primarily consisting of Russian thistle.

The aquatic habitat types on-site are dominated by Disturbed riparian habitats that appear to be remnant of historical water flow contain stands of mulefat (*Baccharis salicifolia*), black willow (*Salix goodingii*), and arroyo willow (*Salix lasiolepis*). A cattail marsh with no visible surface water containing cattail (*Typha* sp.) was observed towards the western portion of the golf course. See Section 4.2, Potential Wetlands and Waters of the U.S., for a more detailed description of each aquatic habitat type and its associated vegetation.

The wetland delineation was conducted in the fall, outside of the blooming season for many plant species. The survey was conducted at a preferred time of the year to observe wetland soils, and although not all wetland plant species were in bloom at the time of the survey, most plants were identifiable to species based upon the vegetative morphology. During the 2015-2016 rainy season a year prior to the field survey (1 October 2015 to 31 October 2016), 12.33 inches of precipitation were recorded at the Riverside Airport reporting station (NOAA 2016b), located approximately 10 miles from the Delineation Area. The most recent significant precipitation event prior to the surveys occurred from 6 to 8 January 2016 with a total of 2.3 inches of rain in three days. The last recorded precipitation event prior to the surveys was in March 2016, totaling 0.28 inches (NOAA 2016b).

#### **4.1.1 National Wetland Inventory (NWI)**

According to the National Wetland Inventory (USACE 2011), there are four features mapped within the survey area (Figure 3. *National Wetland Inventory Map*). These correspond to Freshwater Pond (two mapped) and Riverine (two mapped).

#### **4.1.2 Soils**

According to the Web Soil Survey (NRCS 2016a), 11 soil units, or types, have been mapped within the survey area (Figure 4. *Natural Resources Conservation Service Soil Types*). These are:

- FcD2 - Fallbrook rocky sandy loam (shallow, 8 to 15 percent slopes, eroded)
- FcF2 - Fallbrook rocky sandy loam (shallow, 15 to 50 percent slopes, eroded)
- FfC2 - Fallbrook fine sandy loam (2 to 8 percent slopes, eroded)
- FkD2 - Fallbrook fine sandy loam (8 to 15 percent slopes, eroded)
- HcC - Hanford coarse sandy loam (2 to 8 percent slopes)
- HfD - Hanford sandy loam (2 to 15 percent slopes)
- MmB - Monserate sandy loam (0 to 5 percent slopes)
- MmC2 - Monserate sandy loam (5 to 8 percent slopes, eroded)
- MmD2 - Monserate sandy loam (8 to 15 percent slopes, eroded)
- Vsc - Vista coarse sandy loam (2 to 8 percent slopes)

Hanford Sandy Loam, 2 to 15 percent slopes (HfD) is sometimes composed of the Riverwash component, which is considered hydric when occurring within floodplains (NRCS 2016b). None of the other soil series recorded on the Property are known to contain hydric soil elements.

**Map Contents**

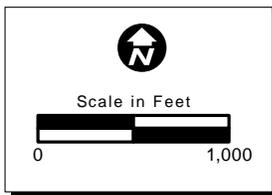
Project Boundary

NWI Type

Freshwater Emergent Wetland

Freshwater Pond

Riverine



Location: N:\2016\2016-205 VA Cemetery\MAPS\Wetland\_Mapping\NWI\_V1.mxd (MAG)-mguidry-1/5/2017

Map Date: 1/5/2017  
Photo Source: NAIP (2016)



**DRAFT**

**Figure 3 - National Wetlands Inventory Map**

2016-205 Riverside Cemetery



Location: N:\2016\2016-205 VA Cemetery\MAPS\Soils and Geology\Soils\VA\_Cemetery\_Soils\_V1.mxd (MAG-mg\udry 1/5/2017

Map Date: 1/5/2017  
 Photo Source: NAIP 2016

**Figure 3. Natural Resource Conservation Service Soil Types**

**DRAFT**

## 4.2 Potential Waters of the U.S.

A total of 0.51 acre of potential Waters of the U.S. has been mapped within the survey area (Table 2). The wetland determination data forms are included in Attachment B, aerial photos in Attachment C, and a list of plant species observed on-site is included in Attachment D. A discussion of the wetlands and other waters is presented below, and wetland delineation maps are presented as Figure 5. *Wetland Delineation*. The USACE Preliminary Jurisdictional Determination (PJD) Form of potential Waters of the U.S. is included in Attachment E.

Type	Acreage <sup>1</sup>
Wetlands	
Freshwater Marsh	0.22
Other Waters	
Ephemeral Stream	0.29
<b>Total</b>	<b>0.51</b>

<sup>1</sup>Acreages represent a calculated estimation and are subject to modification following the USACE verification process.

### 4.2.1 Wetlands

#### Freshwater Marsh

Freshwater Marshes are perennially wet due to accumulation of surface runoff, rainwater and other consistent water sources within low-lying areas. Inundation periods tend to take up most of the year and the most prevalent vegetation consists of perennial hydrophytic species. A single freshwater marsh is located within the golf course of the Property, along one of the ephemeral streams. Sampling point one was located within freshwater marsh.

Dominant plant species observed within the freshwater included annual rabbit's foot grass (*Polypogon monspeliensis*) (FACW) and cattail (*Typha latifolia*) (OBL).

The soil matrix color within freshwater marsh FWM-1 was 10YR 5/2 with 5 percent redox features colored 5YR 4/6. Soils within FWM-1 were determined to be hydric based on the presence of hydric soil indicator Hydrogen Sulfide (A4).

Wetland hydrology indicators observed within the freshwater marsh included Surface Water (A1), Water-stained Leaves (B9) and Saturation Visible on Satellite Imagery (C9).

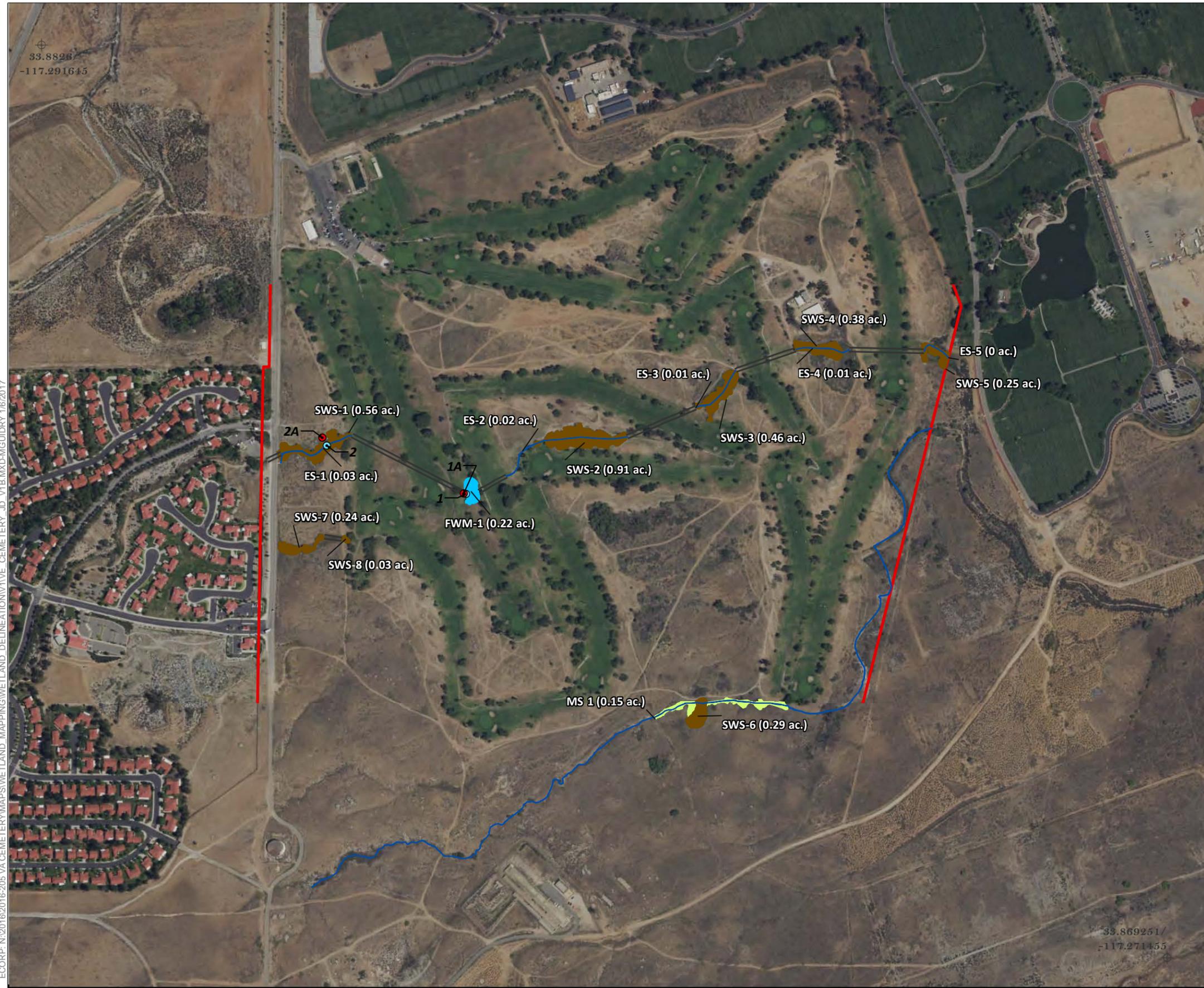
**Figure 5. Wetland Delineation**

**Map Features**

- Project Boundary (414.48 acres)
- Reference Coordinate (NAD83)
- Existing Culvert
- Three Criteria Sample Points**
- Upland Point
- Waters Point
- Waters of the US (0.51 acres)<sup>1</sup>**
- Ephemeral Stream (0.29 acres)
- Freshwater Marsh (0.22 acres)
- CDFW Habitat (4.25 acres)**
- Freshwater Marsh (0.22 acres)
- Mulefat Scrub (0.37 acres)
- Southern Willow Scrub (3.12 acres)
- Streambed (0.54 acres)

<sup>1</sup> Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.  
 \* The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



ECORP: N:\2016\2016-2005 VA CEMETERY\MAPS\WETLAND\_MAPPING\WETLAND\_DELINEATION\1\1\VE\_CEMETERY\_JD\_V14B.MXD-MGJUDRY 1/6/2017

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## 4.2.2 Other Waters

### Ephemeral Drainage

Ephemeral drainages are linear features that exhibit a bed and bank and an OHWM. These features typically convey runoff for short periods of time, during and immediately following rain events, and are not influenced by groundwater sources at any time during the year. Ephemeral drainages within the Delineation Area ranged from sparsely vegetated (southern area) to heavily vegetated (within the golf course). There were two ephemeral drainages mapped within the Delineation Area. Sampling point 2 was taken in ephemeral drainage; sampling point 1A is the adjacent upland point.

The ephemeral drainages mapped within the delineation area are mostly unvegetated. Where vegetation is present, dominant plant species identified within the ephemeral drainages included mulefat (*Baccharis salicifolia*) (FAC), black willow (*Salix goodingii*) (FACW), and arroyo willow (*Salix lasiolepis*) (FACW). Dominant plant species identified within the uplands adjacent to the ephemeral drainages included non-native vegetation such as Russian thistle (*Salsola tragus*) (FACU), black mustard (*Brassica nigra*) (N/L), and horehound (*Marrubium vulgare*) (FACU).

Soil matrix colors within the ephemeral drainage point 2 from 0 to 9 inches below the soil surface included 10YR 5/3 (Attachment B). The soils within the ephemeral drainage point were determined not to be hydric. The soil matrix colors in the upland area adjacent to the ephemeral point 2 from 0 to 10 inches below the soil surface was 10YR 5/4. Hydric soil indicators were absent from the upland sampling point.

Wetland hydrology indicators observed within the ephemeral drainages included water marks (B1) (riverine), sediment deposits (B2) (riverine) and drift deposits (B3) (riverine). Wetland hydrology indicators were not observed in the upland areas adjacent to the drainage ditches. The boundaries of the ephemeral drainages were mapped at the OHWM defined by scour lines and water marks.

## 5.0 JURISDICTIONAL ASSESSMENT

As per Regulatory Guidance Letter (08-02), an Applicant “may elect to use a preliminary Jurisdictional Determination (PJD) to voluntarily waive or set aside questions regarding Clean Water Act/Rivers and Harbors Act jurisdiction over a particular site, usually in the interest of allowing the landowner or other “affected party” to move ahead expeditiously to obtain a USACE permit authorization where the party determines that is in his or her best interest to do so.” (USACE 2008c). A significant nexus evaluation is not necessary to obtain a PJD. The following information on connectivity of wetlands and other waters in the Delineation Area to TNWs is provided to support USACE should a formal Jurisdictional Determination (JD) be necessary.

The ephemeral drainages within the Delineation Area are either identified as unnamed tributaries on the USGS topographic 7.5-minute quadrangles “Riverside East, California” and “Steele Peak, California” (USGS 1980 and 1993, respectively). The unnamed tributaries enter into additional, larger unnamed tributaries and channels and ultimately enter the Santa Ana River. The Santa Ana River is identified by the USACE Los Angeles District as a TNW.

Other features mapped in the Delineation Area consist of a freshwater marsh. This feature is located within to flow course of an ephemeral drainage that ultimately connects to the Santa Ana River.

All wetlands and other waters have connectivity with and are likely to have a significant nexus (affecting the chemical, physical, or biological integrity) with downstream TNWs. Ultimately, this overland flow or flow via freshwater marsh and smaller drainages reach main drainages that are ultimately tributary to the Santa Ana River, a USACE identified as a TNW of the U.S. Thus, the waters in the Delineation Area are considered to have a significant nexus with TNW of the U.S. and would therefore have a nexus with interstate and/or foreign commerce.

## **6.0 CONCLUSION**

A total of 0.22 acre of potential wetlands and 0.29 acre of potential other waters have been mapped within the Delineation Area. These acreages represent a calculated estimation of the jurisdictional area within the Delineation Area and are subject to modification following the USACE review and/or verification process. The placement of dredged or fill material into jurisdictional features would require a permit pursuant to Section 404 of the CWA and certification or waiver in compliance with Section 401 of the CWA.

The areas mapped would also be considered state jurisdiction, under California Fish and Game Code Section 1600, as streams and associated habitat. Alteration of the ephemeral streams, their associated riparian habitats, and the freshwater marsh would necessitate a Lake or Streambed Alteration Agreement with the California Department of Fish and Wildlife.

## 7.0 REFERENCES

- Baldwin, B. G., D.H Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson Manual; Vascular Plants of California*, Second Edition. University of California Press, Berkeley, California. 1,519 pp. + app.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U. S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.
- Headquarters, U.S. Army Corps of Engineers (HQUSACE). 1992. *Clarification and Interpretation of the 1987 Manual*. Memorandum from Major General Arthur E. Williams. Dated March 6, 1992.
- Kollmorgen Instruments Company. 1990. *Munsell Soil Color Charts*. Kollmorgen Corporation. Baltimore, Maryland.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 wetland ratings*. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X
- National Agricultural Imagery Program (NAIP). 2012. Orthorectified aerial photographs.
- National Oceanic and Atmospheric Administration (NOAA). 2016a. Summary of Monthly Normals 1981-2010 for Sacramento 5 ESE, CA US GHCND: USW00023271. Available Online: [http://www.ncdc.noaa.gov/cdo-web/datasets/normal\\_mly/stations/GHCND:USW00023271/detail](http://www.ncdc.noaa.gov/cdo-web/datasets/normal_mly/stations/GHCND:USW00023271/detail). Accessed 29 March 2016.
- National Oceanic and Atmospheric Administration (NOAA). 2016b. Daily Summaries for Riverside Airport, CA US. Accessed 29 November 2016.
- "Navigation and Navigable Waters," Title 33 Code of Federal Regulations, Pt. 328. 2014 ed.
- U.S. Army Corps of Engineers (USACE), Sacramento District. 2001. *Minimum Standard for Acceptance of Preliminary Wetland Delineations*. Dated November 30, 2001.
- U.S. Army Corps of Engineers (USACE). 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers (USACE). 2008b. Regulatory Guidance Letter 08-02, Jurisdictional Determinations. Dated June 26, 2008.
- U.S. Army Corps of Engineers (USACE), Sacramento District. 2016. *Minimum Standard of Aquatic Resources Delineation Reports*. Dated January 2016.
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2003. *National Soil Survey Handbook*, title 430-VI. Available Online: <http://soils.usda.gov/technical/handbook>.

- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2006. *Hydric Soils List for Riverside County*. U.S. Department of Agriculture, Soil Conservation Service, Davis, California.
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2016. Web Soil Survey. Available Online: <http://websoilsurvey.nrcs.usda.gov/>.
- U.S. Department of the Interior, Geological Survey (USGS). 1981. "Riverside East, California" and "Steele Peak, California" 7.5-minute Quadrangles. Geological Survey. Riverside, California.
- U.S. Department of the Interior, Geological Survey (USGS). 1978. Hydrologic Unit Map, State of California. Geological Survey. Reston, Virginia.
- U.S. Environmental Protection Agency and U.S. Army Corps of Engineers (USEPA and USACE). 2007. Memorandum Re: Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States* & *Carabell v. United States*. Dated June 5, 2007.

November 18, 2016  
(2016-205/001)

Richard Banchoff, Legal Counsel  
ISI Professional Services  
1201 15th Street NW  
Suite 200  
Washington, D.C. 20005  
Via email: rbanchoff@isiwdc.com

**Subject: Biological Resource Assessment for the Riverside National Cemetery  
Expansion Project on a 314-acre Site in Riverside County, California**

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Dear Mr. Banchoff:

This letter provides the results of a biological reconnaissance survey (Survey) to identify any biological concerns conducted by ECORP Consulting, Inc. (ECORP) for ISI Professional Services in support of the acquisition of lands by the U.S. Department of Veterans Affairs (VA), to be consistent with the National Cemetery Administration's on-going mission in the Riverside, California area (Project). A literature and database search was conducted to identify previously documented special-status species in the region and Critical Habitat in the area. Subsequently, a site visit was performed to assess the potential for special-status species to occur on or adjacent to the site for the purposes of this biological resources assessment. The results of the biological resources assessment are presented in this report.

**Project Location**

The Project site is approximately 314 acres located 0.5 mile west of Interstate 215 (I-215), approximately 0.5 mile south of Van Buren Boulevard, and directly east of Village West Drive in Western Riverside County, California (Attachment 1; Figures 1 and 2). As shown on the U.S. Geological Survey (USGS) 7.5-minute Riverside East and Steele Peak topographic quadrangles, the proposed Project site is divided into four Sections within Township 3 South, Range 4 West of the San Bernardino Base and Meridian: Section 26 to the northeast, Section 27 to the northwest, Section 34 to the southwest, and Section 35 to the southeast.

**Project Background**

The proposed Project is the construction and expansion of the Riverside National Cemetery on 314 acres located southeast of Van Buren Boulevard and Village West Drive. The site consists of six parcels of partly undeveloped land and partly the General Old Golf Course development. Of the entire property, 237 acres are developed golf course and the remaining 77 acres are undeveloped. The golf course was built in 1955 as a private military course associated with March Air Reserve Base. It opened to the public during the 1990s. The VA is looking at the property from a due diligence standpoint and has requested this biological assessment as the proposed Project site.

## **Environmental Setting**

The surrounding area consists of undeveloped, public facilities, and residential land uses. To the west of the site across from Village West Drive lies the Air Force Base Village, as well as undeveloped parcels to the north and west of the homes. To the south contains undeveloped land and suburban housing to across from Nandina Avenue. The northern and eastern boundary is demarcated by the Riverside National Cemetery (Cemetery) and some undeveloped land to the southeast. Just beyond the Cemetery to the east lies Interstate 215 with March Air Reserve Base residing on the other side. Beyond the Cemetery to the north contains industrial buildings and vacant, disturbed parcels.

The elevation within the Project area ranges between approximately 1,560 and 1,710 feet above mean sea level. Local topography within the Project area consists of mostly flat areas with some slight elevation changes throughout the majority of the site. The northwest corner of the Project is developed with a large parking lot and several buildings, including the golf course's clubhouse. The golf course comprises a large majority of the Project, while the southern end of the Project is undeveloped. No major drainages or natural creeks occur within or near the Project, but several historical drainages and altered tributaries occur within the site. These are further discussed in the Jurisdictional Delineation Report.

Regional climate is semi-arid, typified by hot, dry summers, and mild, relatively wet winters with an average of 10 inches of precipitation annually. The rainiest months are January through March and temperatures in Riverside usually range from mid-40s to upper-60s degrees Fahrenheit in the winter and mid-60s to mid-90s degrees Fahrenheit in the summer (City Data 2016). Soil in the area consists of alluvial sediments of the Santa Ana River flood plain, made up of coarse granitic sand and gravel, with numerous large boulders. Vegetation within the Project site is generally characterized as disturbed, with a mix of native, non-native, and ornamental vegetation including the 18-hole golf course. Several drainages on-site contain varying degrees of disturbed riparian vegetation.

## **Methods**

Prior to conducting a field assessment, ECORP biologists conducted an online review of California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB), California Native Plant Society (CNPS) botanical inventory, historical aerial imagery of the property, and U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory to gather historical data on the property. Also, ECORP biologists acquired a United States Fish and Wildlife Service (USFWS) list of potentially-occurring sensitive species and critical habitat for the site.

ECORP conducted a biological resource assessment of the entire Project site plus a 500-foot buffer to document current biological conditions, delineate vegetation types, and evaluate habitat for potential sensitive plant and wildlife species. ECORP biologists familiar with fauna and flora of the western Riverside region walked the entire Project site and identified vegetation communities and plant and wildlife species present on and adjacent to the Project site. Vegetation communities present on the Project site were mapped according to the State's Vegetation Classification System and any potential habitat for sensitive species were identified within the site. Location coordinates of sensitive species observed, and other pertinent features identified within the Project site during the biological survey will be recorded using a post-processing capable global positioning system (GPS) unit (Trimble Juno). Photographs were

taken to document the current conditions of the site and vicinity. All plants and wildlife observed during the survey were recorded.

## **Results**

### Literature Review

An ECORP biologist conducted the literature search on November 2, 2016. The USGS nine-quad quadrangle search for Riverside East, Steele Peak, Perris, Sunnymead, Redlands, San Bernardino South, Fontana, Riverside West, and Lake Mathews, documented 45 special status plants and 38 special-status wildlife. Three special-status wildlife have been recorded on the Project site, including the Federally Endangered and State Threatened Stephen’s kangaroo rat (*Dipodomys stephensi*), California Species of Special Concern (SSC) coast horned lizard (*Phrynosoma blainvillii*), California SSC pocketed free-tailed bat (*Nyctinomops femorosaccus*); although, the records of coast horned lizard and pocketed free-tailed bat are over 30 years old. According to the USFWS database, eight special-status wildlife species have the potential to occur on the site, including Stephen’s kangaroo rat, least Bell’s vireo (*Vireo bellii pusillus*), coastal California gnatcatcher (*Polioptila californica californica*), southwestern willow flycatcher (*Epidonax traillii extermus*), Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), Santa Ana sucker (*Catostomus santaanae*), and Quino checkerspot butterfly (*Euphydryas editha quino*). Six USFWS protected plants were also determined to have potential on the site, including Munz’s onion (*Allium munzii*), Nevin’s barberry (*Berberis nevini*), San Diego ambrosia (*Ambrosia pumila*), Santa Ana River wooly-star (*Eriastrum densifolium ssp. sanctorum*), spreading navarretia (*Navarretia fossalis*), and thread-leaved brodiaea (*Brodiaea folifolia*). Critical habitat is not present within the Project site.

The complete Potential for Occurrence table containing all species returned from the literature search can be found in Attachment 2.

### Biological Assessment

ECORP biologists Kristen Wasz and Kevin Cornell conducted the biological resource assessment survey of the entire Project site on November 3, 2016. Survey timing and weather conditions are provided in Table 1.

**Table 1 - Weather Conditions During Field Surveys**

Date	Surveyors	Time		Temperature (°F)		Cloud Cover (%)		Wind Speed (mph)
		Start	End	Start	End	Start	End	
11/3/16	Kristen Wasz, Kevin Cornell	0810	1330	57	88	0	0	<1

Vegetation was determined to be mostly disturbed and developed throughout the Project site (Attachment 1; Figure 3). Some native vegetation communities leftover from historical habitat persist throughout the Project site, but are mostly disturbed and overrun by non-native vegetation. The 18-hole golf course and adjacent areas encompasses ornamental, disturbed, and disturbed riparian habitat. Disturbed riparian habitats that appear to be remnant of historical water flow contain stands of mulefat (*Baccharis salicifolia*), black willow (*Salix goodingii*), and arroyo willow (*Salix lasiolepis*), mixed with non-native vegetation such as

Russian thistle (*Salsola tragus*), black mustard (*Brassica nigra*), and horehound (*Marrubium vulgare*). Stands of mulefat, Fremont's cottonwood (*Populus fremontii*), and Mexican elderberry (*Sambucus mexicana*) were also observed among small drainages to the southwest. One disturbed black willow thicket was mapped towards the eastern extent of the Project area. A cattail marsh with no visible surface water containing cattail (*Typha* sp.) was observed towards the western portion of the golf course. A eucalyptus (*Eucalyptus* sp.) grove was mapped in the northeast corner of the site, adjacent to the golf course and Cemetery. Other areas between and immediately surrounding the golf course holes contain mostly a variation of disturbed vegetation. Small patches of California buckwheat (*Eriogonum fasciculatum*) and Menzie's goldenbush (*Isocoma mensiezii*) are found amongst larger swaths of non-native vegetation, primarily consisting of Russian thistle. Two patches of disturbed California buckwheat scrub found towards the eastern extent of the Project and have lower cover of non-native plants found elsewhere throughout the site. See Attachment 4 for a full list of native and non-native plant species observed on the Project site.

One special-status plant species, San Diego tarweed (*Deinandra paniculata*), was observed during the biological assessment. San Diego tarweed has CNPS 4.2 California Rare Plant Ranking, meaning distribution is limited in California and currently being watched for declines. A small population of approximately 10 individuals was observed towards the southwestern extent of the Project area. Other special-status plant species were not observed during the biological assessment. However, some additional special-status species were determined to have low potential to occur on the Project site including the federally listed San Diego ambrosia and Nevin's barberry. Because the biological assessment was conducted at a time outside a majority of special-status plant blooming periods, detection was unfavorable. A focused plant survey, loosely between the months of March and May, would be more effective to detect potential special-status plants.

Wildlife observed during the survey primarily consisted of birds and small mammals typical of disturbed habitats in western Riverside and southern California golf courses. Mammals including black-tailed jackrabbit (*Lepus californicus*), Audubon's cottontail (*Sylvilagus audubonii*), and California ground squirrel (*Otospermophilus beecheyi*) were observed multiple times throughout various parts of the Project site. A diversity of birds were observed using vegetation on the Project site to forage and hunt, including red-tailed hawk (*Buteo jamaicensis*), Prairie falcon (*Falco mexicana*), Anna's hummingbird (*Calypte anna*), killdeer (*Charadrius vociferus*), Bewick's wren (*Thryomanes bewickii*), northern flicker (*Colaptes auratus*), yellow-rumped warbler (*Setophaga coronata*), white-crowned sparrow (*Zonotrichia leucophrys*), black phoebe (*Sayornis nigricans*), and California towhee (*Polipo crissalis*). Although the survey was conducted outside of typical nesting season for birds, the Project site provides adequate habitat for breeding and nesting bird populations during the spring and summer time. See Attachment 4 for a full list of wildlife observed during the survey.

Sensitive wildlife species were not observed during the biological assessment. Least Bell's vireo and southwestern willow flycatcher, both state and federally listed songbirds, have respectively moderate and low potential to be on the Project site. Disturbed riparian vegetation provides slightly suitable habitat for nesting and foraging for these species. Coastal California gnatcatcher, also state and federally listed, has low potential to occur on the project site due to some marginal California buckwheat scrub to the southeastern extent of the project and beyond. The disturbed California buckwheat also provides marginal habitat for the federally

listed Quino checkerspot butterfly. Vernal pools not fairy shrimp, including the federally listed Riverside fairy shrimp and vernal pool fairy shrimp, were not observed during the survey.

Burrowing owl (*Athene cunicularia*) habitat is present on the Project site and has a high potential to occur. Suitable habitat can be found in disturbed areas to the west, south, and east around the golf course, to the outer-extent of the Project area. Low and sparsely distributed vegetation, small mammal burrows, and relatively flat topography provide desirable foraging and nesting habitat for burrowing owl. The disturbed habitat to the west and south of the golf course has the most suitable habitat, largely due to an abundance of California ground squirrels responsible for excavating burrows for burrowing owl and loosely dense vegetation. No burrowing owl or sign (i.e. feathers, pellets, whitewash) was observed during the survey.

Stephens' kangaroo rat has high potential to occur on the Project site. Stephens' kangaroo rat prefers California buckwheat and brome grass habitats, both which are found among the disturbed areas to the east, west, and south of the golf course. Historical populations of Stephen's kangaroo rats are documented near the Project site as recently as 2009 (CNDDDB). Previous studies have indicated that the Project site has density ranging from Absent (no Stephen's kangaroo rats detected) to High Abundance (>70 burrows per 1000 square meters). In addition, the March Stephens' kangaroo rat preserve, formerly part of March Air Base Reserve, encompasses approximately 1,000 acres between E. Alessandro Boulevard and Van Buren Boulevard just north of the Project area. Despite loss and fragmentation of historical habitat, the Stephens' kangaroo rats have a high potential to still be present in the Project area.

### **Conclusion and Recommendations**

The expansion of the Riverside National Cemetery will result in potential loss of habitat for several protected species of wildlife with potential for the loss of special-status plants.

The Project site contains marginal to low suitable habitat for special-status plant species. In addition, San Diego tarweed was observed during the biological assessment. It is recommended that a focused plant survey is conducted in the spring during blooming season, when potential special-status plants are easily detectable.

Quino checkerspot butterfly protocol surveys are also recommended since they may occur in some of the disturbed California buckwheat scrub habitat. The Project site is not in an excluded area for Quino surveys.

Stephens' kangaroo rats will likely be impacted by the proposed Project in the majority of the 77 acres that are undeveloped to the west, south, and eastern extents. Focused protocol trapping for Stephen's kangaroo rat is recommended to determine presence and density of the species.

In addition, focused protocol burrowing owl surveys during breeding season are recommended to determine if burrowing owls are nesting in the area. The strong presence of California ground squirrels and suitable contiguous habitat along the southern half of the Project site warrants further investigation for burrowing owls prior to Project disturbances.

Mr. Richard Banchoff  
ECORP Consulting, Inc.

ISI Professional Services Project  
November 18, 2016 (2016-205/001)

Photos from the biological resource assessment can be found in Attachment 3. If you have any questions regarding the information we have provided in this letter, or if you need further assistance, please contact me or Don Mitchell at (909) 307-0046.

Sincerely,

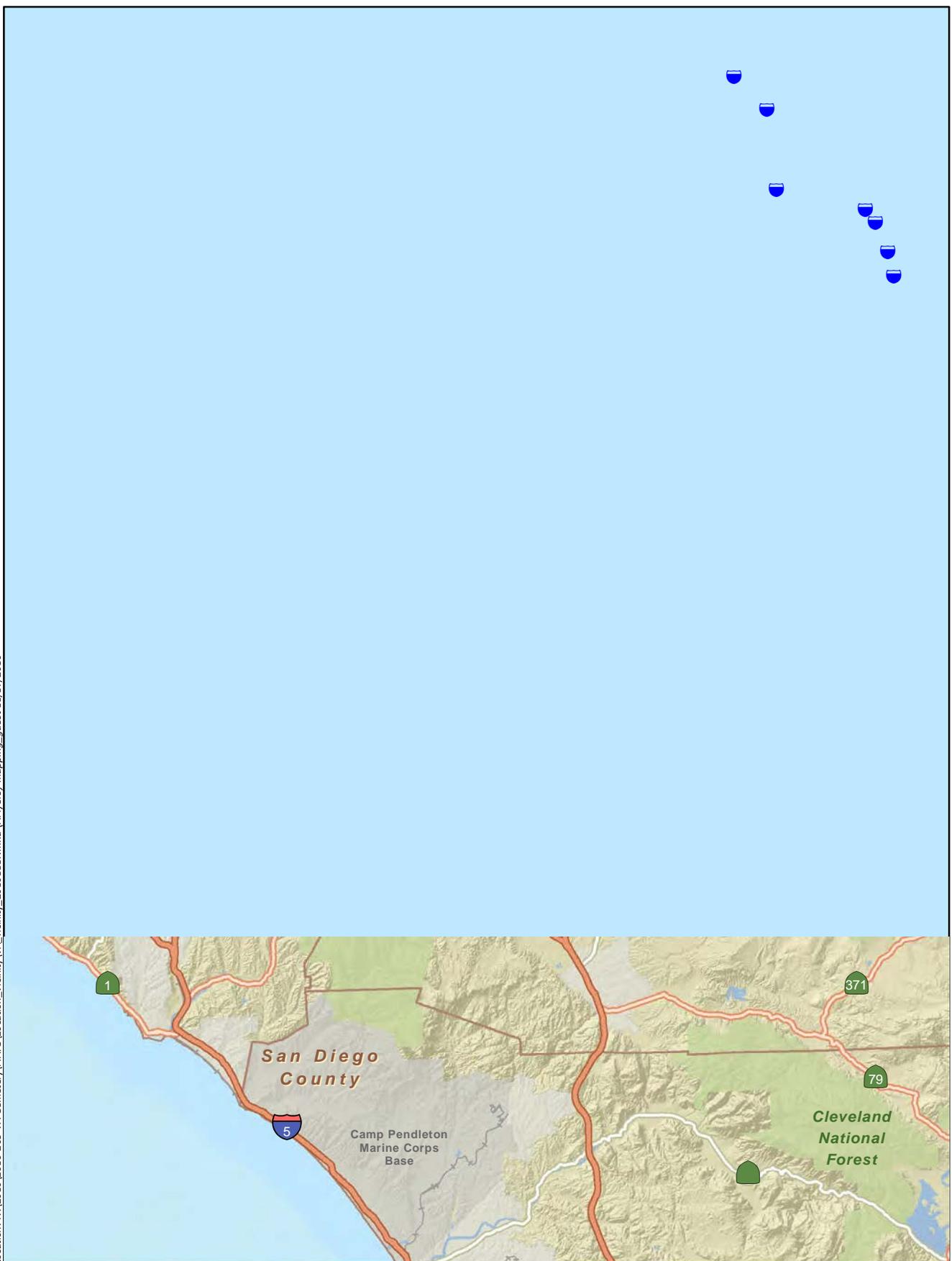
**ECORP Consulting, Inc.**

A handwritten signature in blue ink, appearing to read "Kevin Cornell".

Kevin Cornell  
Biologist

Attachment 1: Project Figures  
Attachment 2: Potential for Occurrence Tables  
Attachment 3: Photo Compendium  
Attachment 4: Plant and Wildlife Compendium

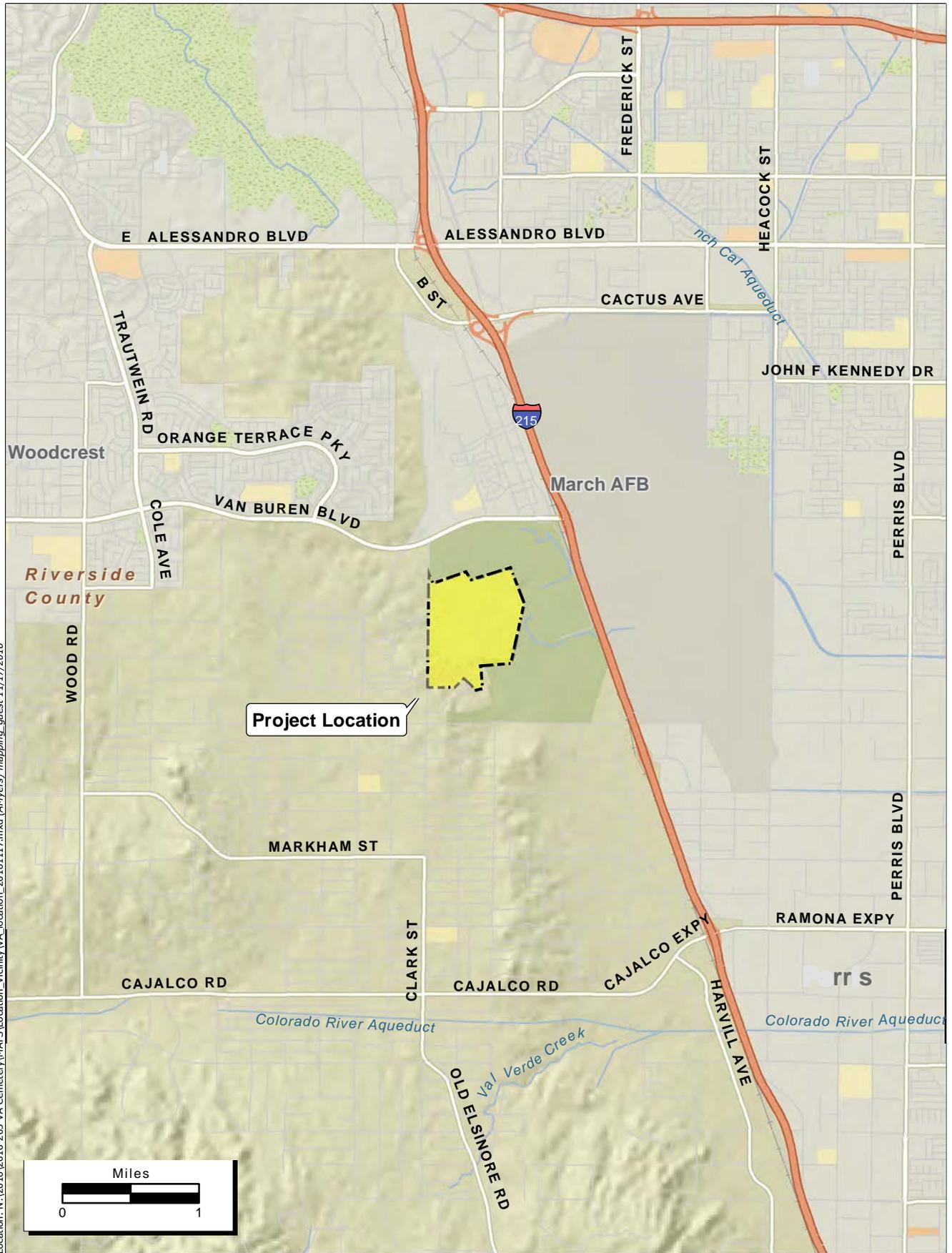
Location: N:\2016\2016-205 VA Cemetery\MAPS\Location\_Vicinity\VA\_vicinity\_20161117.mxd (A.Myers)-mapping\_guest 11/17/2016



Map Date: 11/17/2016  
Service Layer Credits: Sources: Esri, USGS, NOAA



**Figure 1. Project Vicinity**  
2016-205 Riverside Cemetery



Location: N:\2016\2016-205 VA Cemetery\MAPS\Location\_Vicinity\VA\_location\_20161117.mxd (AMyers)-mapping\_guest\_11/17/2016

Map Date: 11/17/2016  
Source: ESRI

**Figure 2. Project Location**

2016-205 Riverside Cemetery

Location: N:\2016\2016-205 VA Cemetery\MAPS\Vegetation\VA\_Vegetation\_V1.mxd (MAG) mguidry 11/14/2016

	Project Area		Disturbed Eucalyptus Grove
<u>Vegetation Community</u>			
	Cattail Marsh		Disturbed Riparian
	Disturbed Black Willow Thicket		Golf Course/Ornamental
	Disturbed California Buckwheat Scrub		Disturbed
			Developed



Scale in Feet



Map Date: 11/14/2016  
Photo Source: NAIP 2014



**DRAFT**

**Figure 3. Vegetation Map**  
2016-205 VA Cemetery

## Attachment 2 – Potential For Occurrence Tables

### Special-Status Plant Species

<i>Scientific Name</i> Common Name	Status		Blooming Period; Elevation (meters)	Potential for Occurrence; Habitat
<b><i>Abronia villosa ssp. aurita</i></b> Chaparral sand-verbena	Fed: Ca: CNPS: BLM:	none none 1B.1 none	January-September 75-1600	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral, coastal scrub, and desert dunes in sandy soils.
<b><i>Allium munzii</i></b> Munz' onion	Fed: Ca: CNPS: BLM:	<b>END</b> <b>THR</b> 1B.1 none	March-May 297 - 1070	<b>Presumed absent.</b> Suitable habitat or clay soils are not present on the project site and no records occur within 5 miles. Occurs in chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland in mesic clay soils.
<b><i>Ambrosia pumila</i></b> San Diego ambrosia	Fed: Ca: CNPS: BLM:	<b>END</b> none 1B.1 SEN	April-October 20-415	<b>Low potential to occur.</b> Marginally suitable habitat and soils are present on the project site, but no records occur within 5 miles. Occurs in chaparral, coastal scrub, valley and foothill grassland. Sandy loam or clay soil; sometimes alkaline. In valleys; persists where disturbance has been superficial. Sometimes on margins or near vernal pools. Species has a potential to occur in some disturbed areas in the southern portion of the project site.
<b><i>Arenaria paludicola</i></b> Marsh Sandwort	Fed: Ca: CNPS: BLM:	<b>END</b> <b>END</b> 1B.1 none	May-August 3-170	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in freshwater or brackish marshes and swamps in sandy openings.
<b><i>Astragalus hornii ssp. hornii</i></b> Horn's Milk-vetch	Fed: Ca: CNPS: BLM:	none none 1B.1 none	May-October 60-850	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in meadows, seeps, and playas in lake margins with alkaline soils.
<b><i>Atriplex coronata ssp. notatior</i></b> San Jacinto Valley crownscale	Fed: Ca: CNPS: BLM:	<b>END</b> none 1B.1 none	April-August 139-500	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in playas, chenopod scrub, valley and foothill Grassland, vernal pools in alkaline soils.

<b><i>Atriplex pacifica</i></b> South Coast Saltscale	Fed: Ca: CNPS: BLM:	none none 1B.2 none	March-October 0-140	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in coastal scrub, coastal bluff scrub, and playas in alkali soils.
<b><i>Atriplex parishii</i></b> Parish's brittlescale	Fed: Ca: CNPS: BLM:	none none 1B.1 none	June-October 25 - 1900	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chenopod scrub, playas, vernal pools in alkaline soils.
<b><i>Atriplex serenana ssp. davidsonii</i></b> Davidson's saltscale	Fed: Ca: CNPS: BLM:	none none 1B.2 none	April-October 10-200	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in coastal bluff scrub, and coastal scrub in alkaline soils.
<b><i>Berberis nevinii</i></b> Nevin's barberry	Fed: Ca: CNPS: BLM:	<b>END</b> <b>END</b> 1B.1 none	March-June 274 - 825	<b>Low potential to occur.</b> Marginal habitat is present on the project site, but no records occur within 5 miles. Occurs in chaparral, cismontane, woodland, coastal scrub, riparian scrub in sandy or gravelly soils.
<b><i>Brodiaea filifolia</i></b> Thread-leaved brodiaea	Fed: Ca: CNPS: BLM:	<b>THR</b> <b>END</b> 1B.1 none	March-June 25-1120	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Often found in chaparral openings, cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools. Usually associated with annual grassland and vernal pools; often surrounded by shrubland habitats and in clay soils.
<b><i>California macrophylla</i></b> Round-leaved filaree	Fed: Ca: CNPS: BLM:	none none 1B.1 none	March-May 15-1200	<b>Presumed absent.</b> Suitable habitat or clay soils are not present on the project site, but some records do occur within 5 miles. Occurs in cismontane woodland, valley and foothill grassland in clay soils. Also found along disturbed roadsides.
<b><i>Calochortus plummerae</i></b> Plummer's Mariposa Lily	Fed: Ca: CNPS: BLM:	none none 1B.2 none	March-July 100 - 1700	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland in granitic and rocky substrate.

<p><b><i>Carex comosa</i></b> Bristly Sedge</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 2.1 none</p>	<p>May-September 0 - 625</p>	<p><b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in coastal prairie, marshes and swamps in lake margins, and Valley and foothill grassland.</p>
<p><b><i>Centromadia pungens ssp. laevis</i></b> Smooth tarplant</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 1B.1 none</p>	<p>April-September 0-640</p>	<p><b>Low potential to occur.</b> Marginal habitat present around the disturbed riparian areas and southern portion of the project site. Multiple records of this species occurs within 5 miles of the project site. Occurs in chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland in alkaline soils.</p>
<p><b><i>Chloropyron maritimum ssp. maritimum</i></b> Salt Marsh Bird's-beak</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p><b>END</b> <b>END</b> 1B.2 none</p>	<p>May-October 0-30</p>	<p><b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in Coastal dunes, marshes and swamps in coastal, salt areas.</p>
<p><b><i>Chorizanthe leptotheca</i></b> Peninsular spineflower</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 4.2 none</p>	<p>May-August 300-1900</p>	<p><b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in alluvial fans and granitic sediment, typically in chaparral, coastal scrub, and lower montane coniferous forest habitats.</p>
<p><b><i>Chorizanthe parryi ssp. parryi</i></b> Parry's spineflower</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 1B.1 none</p>	<p>April-June 275-1220</p>	<p><b>Presumed absent.</b> Records of this species occurs within 5 miles of the project site, but no suitable habitat is present. Occurs in chaparral, cismontane woodland, coastal scrub, valley and foothill grasslands in sandy or rocky openings.</p>
<p><b><i>Chorizanthe polygonoides ssp. longispina</i></b> long-spined spineflower</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 1B.2 none</p>	<p>April-July 30-1530</p>	<p><b>Presumed absent.</b> Records of this species occurs within 5 miles of the project site, but no suitable habitat is present. Occurs in clay soils in chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools.</p>
<p><b><i>Cuscuta obtusiflora ssp. glandulosa</i></b> Peruvian dodder</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 2.2B none</p>	<p>July-October 15-280</p>	<p><b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in marshes and swamps with freshwater.</p>

<p><b><i>Cylindropuntia californica ssp. californica</i></b> Snake Cholla</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 1B.1 none</p>	<p>April-May 30-150</p>	<p><b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral and coastal scrub.</p>
<p><b><i>Deinandra paniculata</i></b> San Diego tarweed</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 4.2 none</p>	<p>March-November 25-940</p>	<p><b>Present on site.</b> Suitable habitat and soils present among the southern disturbed portion of the project area. Records of this species occurs within 5 miles of the project site with marginal habitat present. Occurs in mesic habitats such as vernal pools, often in sandy soils found in coastal scrub, valley and foothill grasslands, and in disturbed areas. This species was observed towards the southwestern extend of the project site, but the biologist was unable to confirm without a more verdant sample.</p>
<p><b><i>Dodecahema leptoceras</i></b> Slender-horned spineflower</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p><b>END</b> <b>END</b> 1B.1 none</p>	<p>April-June 200-760</p>	<p><b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral, coastal scrub, and cismontane woodland habitats.</p>
<p><b><i>Dudleya multicaulis</i></b> Many-stemmed dudleya</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 1B.2 SEN</p>	<p>April-July 15-790</p>	<p><b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral, coastal scrub, valley and foothill grassland (often clay).</p>
<p><b><i>Eriastrum densifolium ssp. sanctorum</i></b> Santa Ana River Woollystar</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p><b>END</b> <b>END</b> 1B.1 none</p>	<p>April-September 91-610</p>	<p><b>Presumed absent.</b> Records of this species occurs within 5 miles of the project site, but no suitable wash habitat is present. Occurs in alluvial fan coastal scrub and chaparral habitats, typically in sandy and gravelly substrate.</p>
<p><b><i>Galium californicum ssp. primum</i></b> California Bedstraw</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 1B.2 SEN</p>	<p>May-July 1350-1700</p>	<p><b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral and lower montane coniferous forest in granatic and sandy soils.</p>
<p><b><i>Harpagonella palmeri</i></b> Palmer's grapplinghook</p>	<p>Fed: Ca: CNPS: BLM:</p>	<p>none none 4.2 none</p>	<p>July-September 3000-3700</p>	<p><b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral, coastal scrub, and valley and foothill grassland in</p>

				clay soils and open grassy areas within shrubland.
<b><i>Hordeum intercedens</i></b> Vernal Barley	Fed: Ca: CNPS: BLM:	none none 3.2 none	March-June 5-1000	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in coastal dunes, coastal scrub, and valley and foothill grassland in saline flats and depressions. Also occurs in vernal pools.
<b><i>Horkelia cuneata ssp. puberula</i></b> Mesa horkelia	Fed: Ca: CNPS: BLM:	none none 1B.1 none	February-September 70-810	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in maritime chaparral, cismontane woodland, and coastal scrub, in sandy or gravelly sites.
<b><i>Imperata brevifolia</i></b> California Satintail	Fed: Ca: CNPS: BLM:	none none 2.1 none	September-May 0-1215	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps, and riparian scrub, often in alkali and mesic soils.
<b><i>Lasthenia glabrata ssp. coulteri</i></b> Coulter's goldfields	Fed: Ca: CNPS: BLM:	none none 1B.1 SEN	February-June 1-1220	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in marshes and swamps with coastal salt, playas, valley and foothill grassland, and vernal pools.
<b><i>Lepidium virginicum ssp. robinsonii</i></b> Robinson's Pepper-grass	Fed: Ca: CNPS: BLM:	none none 1B.2 none	January-July 1-885	<b>Presumed absent.</b> Records occurring within 5 miles of the project site, but no suitable habitat is present. Occurs in chaparral, coastal scrub, and in dry soils in shrubland habitats.
<b><i>Malacothamnus parishii</i></b> Parish's Bush Mallow	Fed: Ca: CNPS: BLM:	none none 1A none	June-July 305-455	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral and coastal sage scrub.
<b><i>Monardella pringlei</i></b> Pringle's Monardella	Fed: Ca: CNPS: BLM:	none none 1A none	May-June 300-400	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral and coastal sage scrub.

<b><i>Myosurus minimus ssp. apus</i></b> Little mousetail	Fed: Ca: CNPS: BLM:	none none 3.1 none	March-June 20-640	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Valley and foothill grassland, and alkaline vernal pools.
<b><i>Nasturtium gambelii</i></b> Gambel's Water Cress	Fed: Ca: CNPS: BLM:	<b>END</b> <b>THR</b> 1B.1 none	April-October 5-330	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in marshes and swamps with both fresh and brackish water.
<b><i>Navarretia fossalis</i></b> Spreading navarretia	Fed: Ca: CNPS: BLM:	<b>THR</b> none 1B.1 none	April-June 30-655	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in vernal pools, chenopod scrub, marshes and swamps. Most commonly found in swales & vernal pools, often surrounded by other habitat types.
<b><i>Phacelia stellaris</i></b> Brand's Phacelia	Fed: Ca: CNPS: BLM:	<b>CAN</b> none 1B.1 none	March-June 1-400	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in coastal dunes and coastal scrub habitats.
<b><i>Pseudognaphalium leucocephalum</i></b> white rabbit-tobacco	Fed: Ca: CNPS: BLM:	none none 2B.2 none	July-December 0-2100	<b>Low potential to occur.</b> Marginal habitat in the disturbed riparian areas, but no records of this species occurs within 5 miles of the project site. Occurs in sandy and gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitat.
<b><i>Romneya coulterii</i></b> Coulter's montilija poppy	Fed: Ca: CNPS: BLM:	none none 4.2 none	March-July 20-1200	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in burned areas in chaparral and coastal scrub.
<b><i>Senecio aphanactis</i></b> Chaparral Ragwort	Fed: Ca: CNPS: BLM:	none none 2.2 none	January-April 15-800	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in cismontane woodland and coastal scrub, occasionally in alkaline soils.
<b><i>Sidalcea neomexicana</i></b> Salt Spring Checkerbloom	Fed: Ca: CNPS: BLM:	none none 2.2 none	March-June 15-1530	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in chaparral, coastal scrub, lower montane coniferous forest,

				Mojavean desert scrub, and playas.
<b><i>Sphenopholis obtusata</i></b> Prairie Wedge Grass	Fed: Ca: CNPS: BLM:	none none 2.2 none	April-July 300-2000	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in cismontane woodland, meadows and seeps in mesic soils.
<b><i>Symphyotrichum defoliatum</i></b> San Bernardino aster	Fed: Ca: CNPS: BLM:	none none 1B.2 none	July-November 2-2040	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland.
<b><i>Trichocoronis wrightii</i> ssp. <i>wrightii</i></b> Wright's trichocoronis	Fed: Ca: CNPS: BLM:	none none 2.1 none	May-September 5-435	<b>Presumed absent.</b> Suitable habitat is not present on the project site and no records occur within 5 miles. Occurs in marshes and swamps, riparian forest, meadows and seeps, and vernal pools.
<b>Federal Designations:</b> (Federal Endangered Species Act, USFWS)		<b>State designations:</b> (California Endangered Species Act, CDFG)		
<b>END:</b> federally-listed, endangered <b>THR:</b> federally-listed, threatened <b>CAN:</b> federally-listed, candidate		<b>END:</b> state-listed, endangered <b>THR:</b> state-listed, threatened		
<b>California Native Plant Society (CNPS) Designations:</b> <b>1A:</b> Plants presumed extinct in California. <b>1B:</b> Plants rare and endangered in CA and throughout their range. <b>2:</b> Plants rare, threatened, or endangered in CA but more common elsewhere in their range. <b>3:</b> Plants about which need more information; a review list. <b>4:</b> Plants of limited distribution; a watch list. <b>Plants 1B, 2, and 4 extension meanings:</b> <b>.1</b> Seriously endangered in CA (over 80% of occurrences threatened / high degree and immediacy of threat) <b>.2</b> Fairly endangered in California (20-80% occurrences threatened) <b>.3</b> Not very endangered in CA (<20% of occurrences threatened or no current threats known)  *Note: according to CNPS [Skinner and Pavlik 1994], plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code (CDFG 2010b). This interpretation is inconsistent with other definitions.)				
<b>Other Designations</b> SEN: Bureau of Land Management sensitive species				
Source: California Natural Diversity Data Base (CNDDDB) Bachelor Mountain, Murrieta, Temecula, Pechanga, Vail Lake, Sage, Hemet, Winchester, and Romoland 7.5 minute quads.				

Potential for occurrence was determined using the following criteria:

**Present:** Species was observed on site during a site visit or focused survey.

**High:** Habitat (including soils and elevation factors) for the species occurs on site and a known occurrence has been recorded within five miles of the site.

**Moderate:** Either habitat (including soils and elevation factors) for the species occurs on site and a known occurrence has been reported in the database, but not within five miles of the site; or a known occurrence occurs within five miles of the site and marginal or limited amounts of habitat occurs on site.

**Low:** Limited habitat for the species occurs on site and a known occurrence has been reported in the database, but not within five miles of the site, or suitable habitat strongly associated with the species occurs on site, but no records were found in the database search.

**Presumed Absent:** Focused surveys were conducted and the species was not found, or species was found in the database search but habitat (including soils, vegetation communities, and elevation factors) is not present on site, or the known geographic range of the species does not include the survey area.

### Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Status	Habitat	Potential to Occur On Site
<b>INVERTEBRATES</b>			
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	Fed: Ca: BLM: FS:	<b>THR</b> none none none	Endemic to the grasslands of the Central Valley, Central Coast, and South Coast mountains in rain-filled pools.
<i>Euphydryas editha quino</i> Quino checkerspot butterfly	Fed: Ca: BLM: FS:	<b>END</b> none none none	Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties.
<i>Rhaphiomidas terminatus abdominalis</i> Delhi sands flower-loving fly	Fed: Ca: BLM: FS:	<b>END</b> none none none	Presumed extinct but recently discovered on Malaga dunes, Los Angeles County. Perched dunes.
<i>Streptocephalus woottoni</i> Riverside fairy shrimp	Fed: Ca: BLM: FS:	<b>END</b> none none none	Endemic to Western Riverside, Orange, and San Diego counties. Typically in areas of tectonic activity in grassland basins and coastal sage scrub.
<b>FISH</b>			
<i>Catostomus santaanae</i> Santa Ana Sucker	Fed: Ca: BLM: FS:	<b>THR</b> SSC SS S	South coastal streams in the Los Angeles Basin, headwaters from the Santa Ana.
<i>Gila orcutti</i> arroyo chub	Fed: Ca: BLM: FS:	none SSC none S	Streams from Ventura County down to Malibu.
<i>Rhinichthys osculus ssp. 3</i> Santa Ana speckled dace	Fed: Ca: BLM: FS:	none SSC none S	Headwaters of the Santa Ana River.
<b>AMPHIBIANS</b>			
<i>Rana muscosa</i> mountain yellow-legged frog	Fed: Ca: BLM: FS:	<b>END</b> <b>END</b> none S	Occurs in lower montane to coniferous forests in streams and washes, found in the San Bernardino and San Gabriel Mountains.

<p><b><i>Spea hammondi</i></b>          western spadefoot toad</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          SS          none</p>	<p>Occurs in grassland, mixed woodland, coastal scrub, sandy washes, river floodplains, alluvial fans, chaparral with nearby vernal pools or other seasonal waters for breeding, foothills and mountains.</p>	<p><b>Low potential to occur.</b>          Marginal and isolated habitat at the cattail marsh and around some of the drainages to the eastern extent of the project site. Records of this species have been recorded within one mile. None were observed during the site assessment.</p>
<p><b>REPTILES</b></p>				
<p><b><i>Anniella pulchra pulchra</i></b>          silvery legless lizard</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          none          S</p>	<p>Found in sandy of loose loamy soils with low shrubs and overall sparse vegetation.</p>	<p><b>Low potential to occur.</b>          Marginally suitable Fallbrook Sandy Loam exists on the majority of the southern, undeveloped portion of the project site. No records of this species occurs within 5 miles of the project site.</p>
<p><b><i>Aspidoscelis hyperythra</i></b>          orange-throated whiptail</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          none          none</p>	<p>Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes &amp; other sandy areas with patches of brush &amp; rocks. Perennial plants necessary for its major food-termites.</p>	<p><b>Low potential to occur.</b>          Low suitable habitat and soils around the disturbed California buckwheat scrub and disturbed habitats to the southern undeveloped portion of the projects site. Records of this species has been recorded within 5 miles. None were observed during the site assessment.</p>
<p><b><i>Aspidoscelis tigris stejnegeri</i></b>          coastal western whiptail</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          none          none</p>	<p>Found in deserts &amp; semiarid areas with sparse vegetation and open areas. Also found in woodland &amp; riparian areas.</p>	<p><b>Low potential to occur.</b>          Marginal and isolated habitat around the disturbed riparian habitat and California sagebrush scrub to the southern and eastern extents of the project site. Records of this species has been recorded within 5 miles. None were observed during the site assessment.</p>
<p><b><i>Crotalus ruber</i></b>          red-diamond rattlesnake</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          none          none</p>	<p>Chaparral, woodland, grassland, &amp; desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas &amp; dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.</p>	<p><b>Presumed absent.</b> No suitable habitat was present on the project site.</p>
<p><b><i>Emys marmorata</i></b>          western pond turtle</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          SS          S</p>	<p>Inhabits deep pools in permanent or nearly permanent bodies of water below 6000' with basking sites.</p>	<p><b>Presumed absent.</b> No suitable permanent water or pool habitat was present on the project site.</p>

<p><b><i>Phrynosoma blainvillei</i></b>          Coast horned lizard</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          none          S</p>	<p>Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Prefers open areas for sunning, bushes for cover, patches of loose soil for burial, &amp; abundant supply of ants &amp; other insects.</p>	<p><b>Presumed absent.</b> No suitable habitat containing sandy washes or loose soil for burial was present on the project site.</p>
<p><b><i>Salvadora hexalepis virgulata</i></b>          coast patch-nosed snake</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          none          none</p>	<p>Brushy or shrubby vegetation in coastal Southern California. Require small mammal burrows for refuge and overwintering sites.</p>	<p><b>Presumed absent.</b> No suitable shrubby coastal habitat was present on the project site.</p>
<p><b><i>Thamnophis hammondi</i></b>          two-striped garter snake</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          CSC          SS          S</p>	<p>Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation.</p>	<p><b>Presumed absent.</b> No suitable permanent or semi-permanent water sources are present on site. No occurrences documented within 5 miles.</p>
<p><b>BIRDS</b></p>				
<p><b><i>Agelaius tricolor</i></b>          tri-colored blackbird (nesting colony)</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          SS          none</p>	<p>Highly colonial species, most numerous in Central Valley &amp; vicinity. Largely endemic to California. Requires open water, protected nesting substrate, &amp; foraging area with insect prey within a few km of the colony.</p>	<p><b>Presumed absent.</b> No suitable aquatic habitat was present on the project site.</p>
<p><b><i>Asio otus</i></b>          long-eared owl (nesting)</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          none          none</p>	<p>Riparian habitats and stream courses with mature willows, cottonwoods, and live oaks.</p>	<p><b>Low potential to occur.</b> Marginal suitable disturbed riparian habitat was present on the project site. No occurrences documented within 5 miles. Not observed during site assessment.</p>
<p><b><i>Athene cunicularia</i></b>          burrowing owl (burrow sites)</p>	<p>Fed:          Ca:          BLM:          FS:</p>	<p>none          SSC          SS          none</p>	<p>Open, dry annual or perennial grasslands, deserts &amp; scrublands characterized by low-growing vegetation.</p>	<p><b>High potential to occur.</b> Suitable habitat is present on the project site and records of this species occur within five miles. A substantial population of California ground squirrels and potential burrows were identified during the habitat assessment, but no burrowing owl or sign were observed.</p>

<p><b><i>Buteo swainsoni</i></b> Swainson's hawk</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none <b>THR</b> none S</p>	<p>Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, &amp; agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.</p>	<p><b>Low potential to occur.</b> Marginal and isolated foraging habitat is present throughout the project site. Migrating Swainson's hawks can potentially use most of the project site, including disturbed areas and California buckwheat scrub as foraging habitat. Records of this species have not been recorded within five miles. None were observed during the site assessment.</p>
<p><b><i>Coccyzus americanus occidentalis</i></b> western yellow-billed cuckoo</p>	<p>Fed: Ca: BLM: FS:</p>	<p><b>THR</b> <b>END</b> None S</p>	<p>Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.</p>	<p><b>Presumed absent.</b> No suitable riparian forest habitat was present on the project site.</p>
<p><b><i>Elanus leucurus</i></b> white-tailed kite (nesting)</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none FP none none</p>	<p>Rolling foothills and valley margins with scattered oaks &amp; river bottomlands or marshes next to deciduous woodland. Prefers open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.</p>	<p><b>Presumed absent.</b> No suitable nesting habitat is present on the project site. No records within 5 miles.</p>
<p><b><i>Empidonax traillii extimus</i></b> southwestern willow flycatcher</p>	<p>Fed: Ca: BLM: FS:</p>	<p><b>END</b> <b>END</b> none none</p>	<p>Riparian woodlands in Southern California.</p>	<p><b>Low potential to occur.</b> Records of this species within five miles of the project site. The disturbed black willow and riparian habitat in the project site respectively have moderate potential for nesting and foraging least Bell's vireo. None were observed during the site assessment.</p>
<p><b><i>Haliaeetus leucocephalus</i></b> bald eagle</p>	<p>Fed: Ca: BLM: FS:</p>	<p>DL END none none</p>	<p>Ocean shore, lake margins, &amp; rivers for both nesting &amp; wintering. Most nests within one mile of water.</p>	<p><b>Presumed absent.</b> No suitable lake, river, or ocean habitat was present on the project site.</p>

<p><b><i>Lanius ludovicianus</i></b> loggerhead shrike (nesting)</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none SSC none none</p>	<p>Broken woodlands, savannah, pinyon-juniper, Joshua tree, &amp; riparian woodlands, desert oases, scrub &amp; washes.</p>	<p><b>Presumed absent.</b> No suitable nesting habitat in the form of large shrubs was present on the project site.</p>
<p><b><i>Polioptila californica californica</i></b> coastal California gnatcatcher</p>	<p>Fed: Ca: BLM: FS:</p>	<p><b>THR</b> SSC none none</p>	<p>Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California. Low, coastal sage scrub in arid washes, on mesas &amp; slopes. Not all areas classified as coastal sage scrub are occupied.</p>	<p><b>Low potential to occur.</b> Marginal habitat is present in the project site with additional potential habitat just outside the project area to the southeast. No individuals have been documented within 5 miles or were observed during the site assessment.</p>
<p><b><i>Vireo bellii pusillus</i></b> least Bell's vireo</p>	<p>Fed: Ca: BLM: FS:</p>	<p><b>END</b> <b>END</b> none none</p>	<p>Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.</p>	<p><b>Moderate potential to occur.</b> Records of this species within five miles of the project site. The disturbed black willow and riparian habitat in the project site respectively have moderate potential for nesting and foraging least Bell's vireo. None were observed during the site assessment.</p>
<p><b>MAMMALS</b></p>				
<p><b><i>Antrozous pallidus</i></b> pallid bat</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none CSC SS S</p>	<p>Deserts, grasslands, shrublands, woodlands &amp; 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.</p>	<p><b>Presumed absent.</b> No suitable habitat or areas for roosting was present on the project site.</p>
<p><b><i>Chaetodipus fallax fallax</i></b> northwestern San Diego pocket mouse</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none SSC none none</p>	<p>Coastal scrub, chaparral, grasslands, sagebrush, etc. in western San Diego Co. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.</p>	<p><b>Presumed absent.</b> The site is outside of the current range of this species. No suitable habitat was present on the project site.</p>
<p><b><i>Dipodomys merriami parvus</i></b> San Bernardino kangaroo rat</p>	<p>Fed: Ca: BLM: FS:</p>	<p><b>END</b> SSC none none</p>	<p>Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains.</p>	<p><b>Presumed absent.</b> The site is outside of the current range of this species. No suitable habitat was present on the project site.</p>

<p><b><i>Dipodomys stephensi</i></b> Stephen's kangaroo rat</p>	<p>Fed: Ca: BLM: FS:</p>	<p><b>END THR</b> none none</p>	<p>Primarily annual &amp; perennial grasslands, but also occurs in coastal scrub &amp; sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass &amp; filaree. Will burrow into firm soil.</p>	<p><b>High potential to occur.</b> Suitable habitat is found among the disturbed and California sagebrush areas of the project site. Records of this species occurs on the project site, with historical evidence of a Stephen's kangaroo rat preserve among the project.</p>
<p><b><i>Eumops perotis californicus</i></b> western mastiff bat</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none SSC SS none</p>	<p>Many open, semi-arid to arid habitats, including conifer &amp; deciduous woodlands, coastal scrub, grasslands, chaparral etc.</p>	<p><b>Presumed absent.</b> No suitable habitat or areas for roosting was present on the project site.</p>
<p><b><i>Lasiurus xanthinus</i></b> western yellow bat</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none SSC none none</p>	<p>Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.</p>	<p><b>Low potential to occur.</b> Marginal and isolated suitable foraging and roosting habitat in some of the disturbed riparian areas and palm trees, but no water sources available for optimal foraging. Records of this species occurs within 5 miles of the project site.</p>
<p><b><i>Lepus californicus bennettii</i></b> San Diego black-tailed jackrabbit</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none SSC none none</p>	<p>Intermediate canopy stages of shrub habitats &amp; open shrub / herbaceous &amp; tree / herbaceous edges. Coastal sage scrub habitats in Southern California.</p>	<p><b>Low potential to occur.</b> Marginal habitat present, mostly around the California buckwheat scrub to the southeast extent of the project site. Records of this species within five miles of the project site.</p>
<p><b><i>Neotoma lepida intermedia</i></b> San Diego desert woodrat</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none SSC none none</p>	<p>Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops &amp; rocky cliffs &amp; slopes.</p>	<p><b>Presumed absent.</b> No suitable rocky habitat with moderate to dense vegetation was present on the project site.</p>
<p><b><i>Onychomys torridus ramona</i></b> southern grasshopper mouse</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none SSC none none</p>	<p>Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover.</p>	<p><b>Low potential to occur.</b> Marginally suitable habitat is present among the disturbed areas, mostly around the California buckwheat scrub to the southeast extent of the project site.</p>
<p><b><i>Perognathus longimembris brevinasus</i></b> Los Angeles pocket mouse</p>	<p>Fed: Ca: BLM: FS:</p>	<p>none SSC none S</p>	<p>Lower elevation grasslands &amp; coastal sage communities in and around the Los Angeles basin.</p>	<p><b>Low potential to occur.</b> Marginally suitable habitat is present among the disturbed areas, mostly around the California buckwheat scrub to the southeast extent of the project site.</p>

<p><b>Federal Designations</b> (Federal Endangered Species Act, USFWS)</p> <p><b>END:</b> federally-listed, endangered <b>THR:</b> federally-listed, threatened <b>DL:</b> federally-delisted</p>	<p><b>State designations:</b> (California Endangered Species Act, CDFG)</p> <p><b>END:</b> state-listed, endangered <b>THR:</b> state-listed, threatened <b>SSC:</b> California special concern species <b>FP:</b> DFG fully protected species</p>
<p><b>Other Designations</b></p> <p><b>SS:</b> Bureau of Land Management sensitive species <b>S:</b> U.S. Forest Service sensitive species</p>	
<p>Source: California Natural Diversity Data Base (CNDDB) Bachelor Mountain, Murrieta, Temecula, Pechanga, Vail Lake, Sage, Hemet, Winchester, and Romoland 7.5 minute quads.</p>	

Potential for occurrence was determined using the following criteria:

**Present:** Species was observed on site during a site visit or focused survey.

**High:** Habitat (including soils and elevation factors) for the species occurs on site and a known occurrence has been recorded within five miles of the site.

**Moderate:** Either habitat (including soils and elevation factors) for the species occurs on site and a known occurrence has been reported in the database, but not within five miles of the site; or a known occurrence occurs within five miles of the site and marginal or limited amounts of habitat occurs on site.

**Low:** Limited habitat for the species occurs on site and a known occurrence has been reported in the database, but not within five miles of the site, or suitable habitat strongly associated with the species occurs on site, but no records were found in the database search.

**Presumed Absent:** Focused surveys were conducted and the species was not found, or species was found in the database search but habitat (including soils, vegetation communities, and elevation factors) is not present on site, or the known geographic range of the species does not include the survey area.

### Attachment 3: Photo Compendium



Photo 1: Northern area of the project site between golf course fairways, looking west.



Photo 2: Dirt road at the northeast extent of the project site near an eucalyptus grove, facing west.



Photo 3: Disturbed habitat towards the eastern extent of the Project area, looking northwest



Photo 4: Disturbed riparian stand surrounded by disturbed habitat towards the southeast corner of the project site, looking southeast.



Photo 5: Disturbed habitat and small disturbed riparian stand of Fremont's cottonwood in the southern portion of the Project site, looking southwest.



Photo 6: Disturbed riparian stand next to detritus piling at the maintenance station towards the northeast of the project site, looking northwest.



Photo 7: Disturbed riparian and rocky habitat along the western extent of the project area, looking west.



Photo 8: Concrete pad and disturbed vegetation at the southern extent of the project area, looking east.



Photo 9: Overlook of the southern end of the golf course with surrounding disturbed habitat, looking northwest.



Photo 10: Southwestern extent of the project area in disturbed habitat, looking northeast.

## Attachment 4: Plant/Wildlife Compendiums

### Plant Compendium

Scientific Name	Common Name
<b>VASCULAR PLANTS</b>	
<b>GYMNOSPERMS</b>	
<b>CUPRESSACEAE</b>	<b>CYPRESS FAMILY</b>
<i>Cupressus sempervirens*</i>	Italian cypress
<i>Juniperus californica</i>	California juniper
<b>ANGIOSPERMS (DICOTYLEDONS)</b>	
<b>ANACARDIACEAE</b>	<b>SUMAC OR CASHEW FAMILY</b>
<i>Schinus molle*</i>	Peruvian pepper tree
<b>APOCYNACEAE (or ASCLEPIADACEAE)</b>	<b>DOGBANE FAMILY</b>
<i>Nerium oleander*</i>	Oleander
<b>ASTERACEAE</b>	<b>SUNFLOWER FAMILY</b>
<i>Baccharis salicifolia</i>	Mulefat
<i>Deinandra fasciculata**</i>	clustered tarweed
<i>Erigeron foliosus</i>	leafy daisy
<i>Gutierrezia californica</i>	California matchweed
<i>Heterotheca grandiflora</i>	telegraph weed
<i>Isocoma menziesii</i>	Menzies' goldenbush
<i>Taraxacum officinale*</i>	common dandelion
<b>BORAGINACEAE</b>	<b>BORAGE FAMILY</b>
<i>Cryptantha intermedia</i>	common forget-me-not
<b>BRASSICACEAE</b>	<b>MUSTARD FAMILY</b>
<i>Brassica nigra*</i>	black mustard
<i>Sisymbrium irio*</i>	London rocket
<b>CACTACEAE</b>	<b>CACTUS FAMILY</b>
<i>Cylindropuntia californica (= Opuntia parryi)</i>	valley cholla
<i>Opuntia basilaris</i>	beavertail cactus
<b>CAPPARACEAE</b>	<b>CAPER FAMILY</b>
<i>Isomeris arborea</i>	coastal bladderpod
<b>CAPRIFOLIACEAE</b>	<b>HONEYSUCKLE FAMILY</b>
<i>Sambucus mexicana</i>	Mexican elderberry
<b>CHENOPODIACEAE</b>	<b>GOOSEFOOT FAMILY</b>
<i>Atriplex lentiformis</i>	big saltbush
<i>Atriplex semibaccata*</i>	Australian saltbush
<i>Salsola tragus*</i>	Russian thistle; tumbleweed
<b>CUCURBITACEAE</b>	<b>GOURD FAMILY</b>
<i>Cucurbita palmata</i>	coyote melon
<b>EUPHORBIACEAE</b>	<b>SPURGE FAMILY</b>
<i>Euphorbia albomarginata (= Chamaesyce a.)</i>	whitemargin sandmat; rattlesnake weed
<i>Croton setigerus (= Eremocarpus s.)</i>	dove weed
<i>Spartium junceum*</i>	Spanish broom
<b>LAMIACEAE</b>	<b>MINT FAMILY</b>
<i>Marrubium vulgare*</i>	horehound

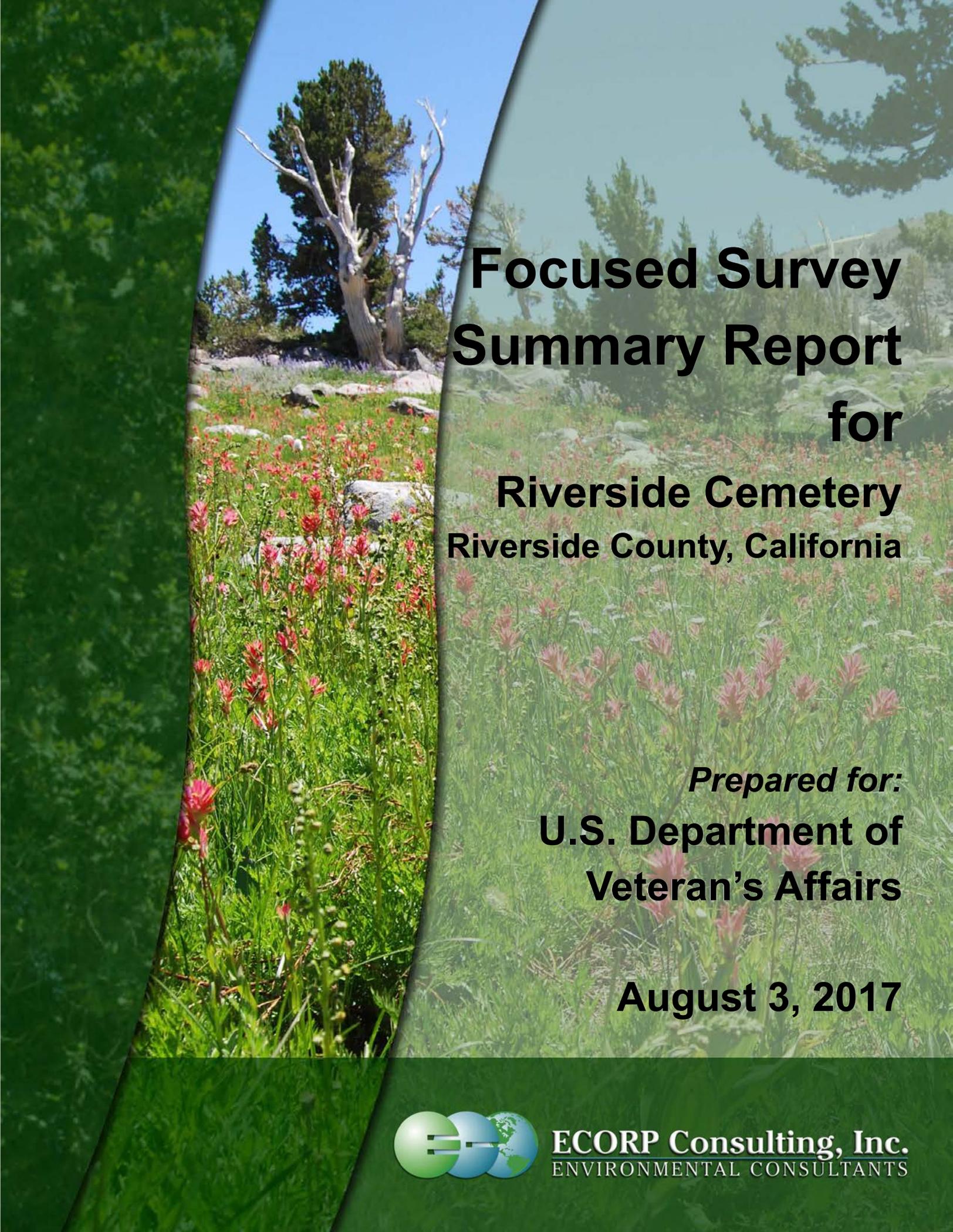
<i>Salvia columbariae</i>	chia
<b>MALVACEAE</b>	<b>MALLOW FAMILY</b>
<i>Malva parviflora*</i>	cheeseweed
<b>MYRTACEAE</b>	<b>MYRTLE FAMILY</b>
<i>Eucalyptus sp.</i>	gum tree
<b>PINACEAE</b>	<b>PINE FAMILY</b>
<i>Pinus sp.</i>	Pine
<b>POLYGONACEAE</b>	<b>BUCKWHEAT FAMILY</b>
<i>Eriogonum fasciculatum</i>	California buckwheat
<b>PORTULACACEAE</b>	<b>PURSLANE FAMILY</b>
<i>Portulaca oleracea*</i>	common purslane
<b>SALICACEAE</b>	<b>WILLOW FAMILY</b>
<i>Populus fremontii</i>	Fremont's cottonwood
<i>Salix gooddingii</i>	black willow
<i>Salix lasiolepis</i>	arroyo willow
<b>SIMAROUBACEAE</b>	<b>QUASSIA FAMILY</b>
<i>Ailanthus altissima*</i>	tree of heaven
<b>SOLANACEAE</b>	<b>NIGHTSHADE FAMILY</b>
<i>Datura wrightii</i>	jimson weed
<i>Nicotiana glauca*</i>	tree tobacco
<b>TAMARICACEAE</b>	<b>TAMARISK FAMILY</b>
<i>Tamarix aphylla*</i>	saltcedar
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>	
<b>ARECACEAE</b>	<b>PALM FAMILY</b>
<i>Washingtonia robusta</i>	Mexican fan palm; Washington fan palm
<b>POACEAE</b>	<b>GRASS FAMILY</b>
<i>Avena barbata*</i>	slender wild oat
<i>Bromus diandrus*</i>	ripgut grass
<i>Bromus hordeaceus*</i>	soft brome
<i>Cynodon dactylon*</i>	Bermuda grass
<i>Pennisetum setaceum*</i>	fountain grass
<b>TYPHACEAE</b>	<b>CATTAIL FAMILY</b>
<i>Typha sp.</i>	cattail

\* non-native species

\*\* special-status species

### Wildlife Compendium

<b>SCIENTIFIC NAME</b>	<b>COMMON NAME</b>
<b>REPTILIA</b>	<b>Reptiles</b>
<i>Sceloporus occidentalis biseriatus</i>	Western fence lizard
<b>AVES</b>	<b>Birds</b>
<i>Aphelocoma californica</i>	California scrub-jay
<i>Archilochus alexandri</i>	Black-chinned hummingbird
<i>Callipepla californica</i>	California quail
<i>Calypte anna</i>	Anna's hummingbird
<i>Carpodacus mexicanus</i>	House finch
<i>Chamaea fasciata</i>	Wrentit
<i>Charadrius vociferus</i>	Killdeer
<i>Colaptes auratus</i>	Northern flicker
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	Common raven
<i>Empidonax difficilis</i>	Pacific-slope flycatcher
<i>Falco mexicanus</i>	Prairie falcon
<i>Larus sp.</i>	Gull
<i>Melanerpes formicivorus</i>	Acorn woodpecker
<i>Melospiza melodia</i>	Song sparrow
<i>Mimus polyglottis</i>	Northern mockingbird
<i>Passer domesticus</i>	House sparrow
<i>Picoides nuttallii</i>	Nuttall's woodpecker
<i>Pipilo crissalis</i>	California towhee
<i>Psaltriparus minimus</i>	Bushtit
<i>Regulus calendula</i>	Ruby-crowned kinglet
<i>Sayornis nigricans</i>	Black phoebe
<i>Sayornis saya</i>	Say's phoebe
<i>Setophaga coronata</i>	Yellow-rumped warbler
<i>Sturnus vulgaris</i>	European starling
<i>Thryomanes bewickii</i>	Bewick's wren
<i>Tyrannus vociferans</i>	Cassin's kingbird
<i>Zenaida macroura</i>	Mourning dove
<i>Zonotrichia leucophrys</i>	White-crowned sparrow
<b>MAMMALIA</b>	<b>Mammals</b>
<i>Canis latrans</i>	Coyote (tracks, scat)
<i>Lepus californicus</i>	Black-tailed jackrabbit
<i>Otospermophilus beecheyi</i>	California ground squirrel
<i>Sylvilagus audubonii</i>	Audubon's cottontail
<i>Thomomys bottae</i>	Botta's pocket gopher (burrows)



**Focused Survey  
Summary Report  
for  
Riverside Cemetery  
Riverside County, California**

*Prepared for:*  
**U.S. Department of  
Veteran's Affairs**

**August 3, 2017**



**ECORP Consulting, Inc.**  
ENVIRONMENTAL CONSULTANTS

# Focused Survey Summary Report

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## 314-Acre Property

Riverside County, California

DRAFT

Prepared For:

**United States Department of Veteran's Affairs**

3 August 2017

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Attachment A – Full Species List

Attachment B – Burrowing Owl Survey Forms

Attachment C – Coastal California Gnatcatcher Survey Forms

Attachment D – Least Bell's Vireo Survey Forms

Attachment E – USFWS Species List

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## 1.0 INTRODUCTION

On behalf of the United States (U.S.) Department of Veterans Affairs, ECORP Consulting, Inc. (ECORP) conducted several focused biological surveys for the ±314-acre Riverside Cemetery Project (Project) located in Riverside County, California. The site is located The Property is located approximately 0.5 mile west of Interstate (I-) 215, approximately 0.5 mile south of Van Buren Boulevard, and directly east of Village West Drive in the City of Riverside (Figure 1. *Project Vicinity*; Figure 2. *Project Location*). The Property corresponds to portions of Section 27, Township 3 South, and Range 4 West; Section 26, Township 3 South, and Range 4 West; Section 34, Township 3 South, and Range 4 West; and Section 35, Township 3 South, and Range 4 West (MDBM) of the "Riverside East, California" and "Steele Peak, California" 7.5-minute quadrangles (USGS 1981). The approximate center of the site is located at 33° 52' 37.84" North and 117° 16' 53.87" West within the Santa Ana Watershed (#18070203, USGS 1978) and within the Perris Reservoir Subwatershed (#180702030305, USGS 1978).

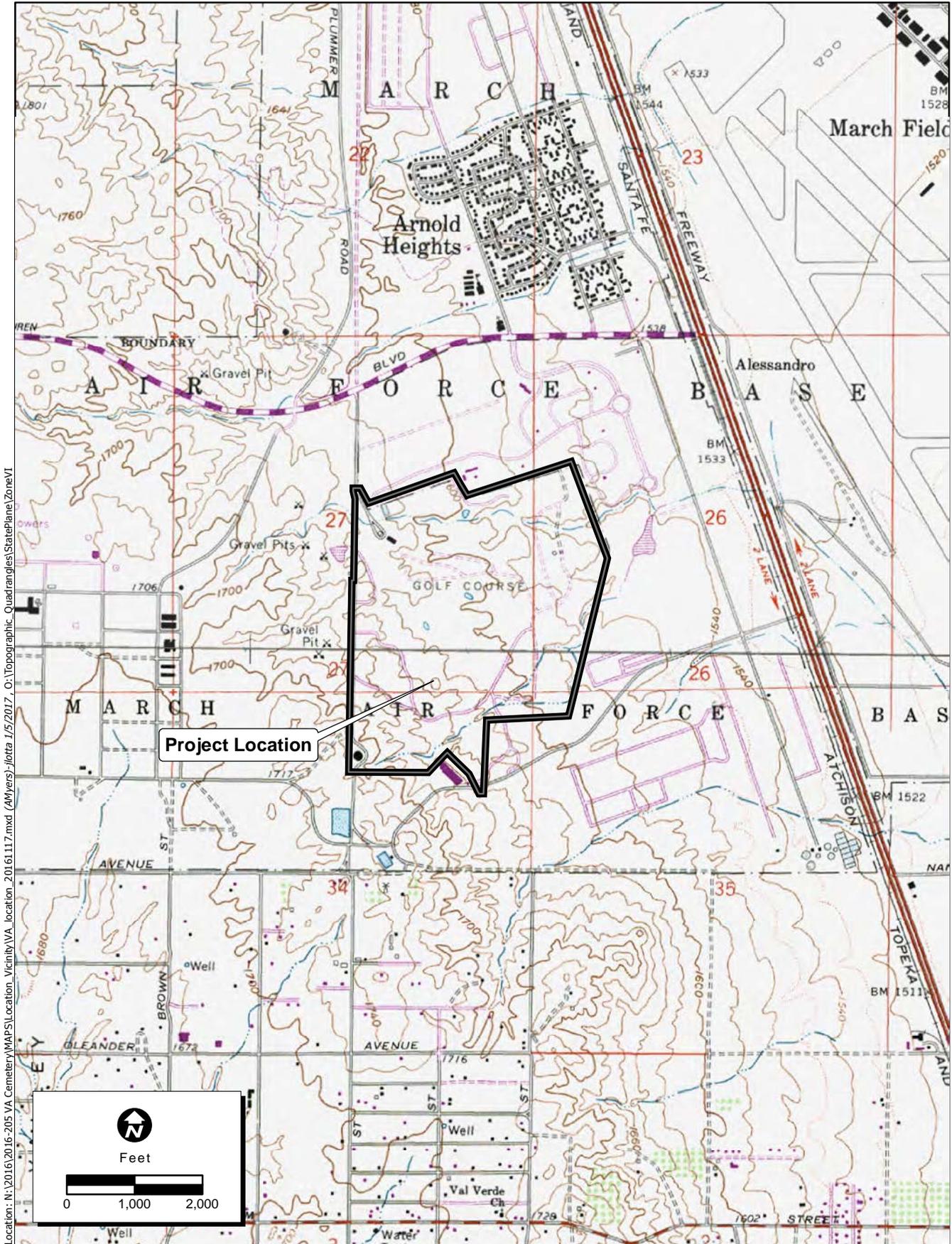
The property is accessible from Riverside by driving south on I-215 and exiting Van Buren Boulevard. Turn right onto Van Buren Boulevard and proceed one mile, and turn left on Village West Drive. The entrance to the Project is then 0.3-mile ahead on the left.

The proposed Project is the construction and expansion of the Riverside National Cemetery on 314 acres located southeast of Van Buren Boulevard and Village West Drive. The site consists of six parcels of partly undeveloped land and partly the General Old Golf Course development. Of the entire property, 237 acres are developed golf course and the remaining 77 acres are undeveloped. The golf course was built in 1955 as a private military course associated with March Air Reserve Base. It opened to the public during the 1990s. The VA is looking at the property from a due diligence standpoint and has requested this biological assessment as the proposed Project site.

This report describes the results of focused protocol surveys and/or habitat assessments for the following species or groups of species: rare, threatened, or endangered plants; quino checkerspot butterfly (*Euphydryas editha quino*), burrowing owl (*Athene cunicularia*); least Bell's vireo (*Vireo bellii pusillus*); coastal California gnatcatcher (*Polioptila californica californica*); and Stephens kangaroo rat (*Didodomys stephensi*). Previous work conducted on the property included a Delineation of Waters of the U.S., a Biological Resources Assessment, and a Tree Study.

The purpose of this report is to provide a summary of all focused surveys conducted in 2017 and to provide preliminary information regarding permitting for the proposed project on the property.





Location: N:\2016\2016-205 VA Cemetery\MAPS\Location\_Vicinity\VA\_location\_20161117.mxd (4Myers)\jctts 1/5/2017, O:\Topographic\_Quad\angles\StatePlane\ZoneVI

Map Date: 1/5/2017  
Source: ESRI

**Figure 2. Project Location**  
2016-205 Riverside Cemetery

## **2.0 REGULATORY SETTING**

### **2.1 Federal Policies and Regulations**

#### **2.1.1 Federal Endangered Species Act**

The Federal Endangered Species Act (FESA) was enacted in 1973, and provides for the conservation of species and populations of plant and animal species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. Under provisions of FESA, Section 7(a)(2), a federal agency that permits, licenses, funds, or otherwise authorizes a project activity must consult with the U.S. Fish and Wildlife Service (USFWS) or, as applicable, the National Marine Fisheries Service (NMFS) to ensure that its actions would not jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat that may be affected by the project.

#### **2.1.2 Clean Water Act**

The USACE regulates discharge of dredged or fill material into Waters of the U.S. under Section 404 of the CWA. "Discharges of fill material" is defined as the addition of fill material into Waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines [33 C.F.R. §328.2(f)]. In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. One of the resources identified previously on the property were potential Waters of the U.S., including wetlands, that may be regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the federal Clean Water Act (CWA).

Substantial impacts to wetlands, over 0.5 acre of impact, may require an individual permit. Projects that only minimally affect wetlands, less than 0.5 acre of impact, may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

### **2.1.3 Migratory Bird Treaty Act**

The federal Migratory Bird Treaty Act (MBTA) protects all migratory birds, including their eggs, nests, and feathers. The MBTA is enforced by USFWS, and potential constraints to species protected under this law may be evaluated by USFWS during the consultation process.

If any trees, shrubs, or other vegetation that could support nesting bird species would be removed during the typical nesting season (i.e., February 15 to August 31), preconstruction nest surveys should be conducted to determine if birds are actively nesting within the project area. Any work near active bird nests would have to be avoided until the young have left the nest. As feasible, removal of vegetation should be completed outside the nesting season.

### **2.1.4 Executive Order 11990: Protection of Wetlands**

On May 24, 1977, President Carter signed Executive Order (EO) 11990, requiring federal agencies to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. The term "wetlands" is defined as those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Examples of wetlands are also provided in the EO: wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. An Individual EO 11990 "Wetlands Only Practicable Alternative Finding" is required from FHWA if a state project is federally-aided and involves fill in wetlands requiring a USACE Section 404 Individual or Nationwide Permit (NWP) or a DEC/APA Article 24 Wetlands Permit. An additional requirement is to provide early public involvement in projects affecting wetlands.

### **2.1.5 Executive Order 13112: Invasive Species**

On February 3, 1999, President Clinton signed EO 13112, requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "...any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration (FHWA) guidance issued August 10, 1999, directs the use of the state's noxious weed list to define the invasive plants that must be considered as part of environmental analysis for a proposed project.

## **2.2 State Policies and Regulations**

### **2.2.1 California Endangered Species Act**

The California Endangered Species Act (CESA) is administered by California Department of Fish and Wildlife (CDFW) and prohibits the take of plant and animal species identified as either threatened or endangered in the State of California by the Fish and Game Commission (Fish and Game Code Section 2050–2097). “Take” means to hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill. CESA Sections 2091 and 2081 allow CDFW to authorize exceptions to the prohibition of take of the State-listed threatened or endangered plant and animal species for purposes such as public and private development. CDFW requires formal consultation to ensure that these actions would not jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat.

Chapter 4 of this NES details the impacts of the proposed project to State-listed plant and wildlife species. No Section 2081 Incidental Take Permit from CDFW is anticipated and no State-listed species are expected to occur within the BSA.

### **2.2.2 State of California Fish and Game Code**

#### **Section 1602**

State of California Fish and Game Code Section 1602 requires any person, state, or local government agency, or public utility proposing a project that may affect a river, stream, or lake to notify CDFW before beginning the project. If activities will result in the diversion or obstruction of the natural flow of a stream; substantially alter its bed, channel, or bank; impact riparian vegetation; or adversely affect existing fish and wildlife resources, then a Streambed Alteration Agreement is required.

A Streambed Alteration Agreement lists the CDFW conditions of approval relative to the project, and it serves as an agreement between an applicant and CDFW for a term of not more than 5 years for the performance of activities subject to this section. A CDFW Streambed Alteration Notification (SAN) is required for all activities potentially affecting streambeds and/or their associated riparian habitats. Subsequently, implementation of the project may require a 1602 Streambed Alteration Agreement if these areas are determined to be jurisdictional by CDFW. A Streambed Alteration Agreement will be required for potential impacts to drainages within the study area.

#### **Other Fish and Game Code Sections**

California Fish and Game Code Section 3503 include provisions to protect the nests and eggs of birds. Sections 3511, 4700, 5050, and 5515 include provisions to protect fully protected species, such as (1) prohibiting take or possession “at any time” of the species listed in the statute, with few exceptions; (2) stating that “no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to “take” the species; and (3) stating that no previously issued permits or licenses for take of the species “shall have any force or effect” for authorizing take or possession. CDFW cannot authorize incidental take of “fully protected” species when activities are proposed in areas inhabited by those species. Any project-related activities that could result in the take of any fully protected species would have to be avoided.

### **Natural Community Conservation Plans**

In an effort to respond to growing concerns over the conservation of coastal sage scrub and other biological communities, federal, state, and local agencies have developed a multispecies approach to habitat conservation planning known as the Natural Communities Conservation Planning (NCCP) process. This was made possible by legislation (Assembly Bill 2172) that authorized CDFW to enter into agreements for the preparation and implementation of NCCPs. USFWS joined in this effort, utilizing both the Section 4(d) Special Rule and the Habitat Conservation Plan (HCP) processes.

The goal of this NCCP program is to identify significantly important coastal sage scrub habitat and to develop ways and means to preserve and/or restore the ecological value of this and associated plant communities and their attendant sensitive species in a rapidly urbanizing setting. There are no NCCPs or HCPs within the immediate vicinity of the BSA.

## **3.0 METHODS**

### **3.1 Rare Plant Surveys**

#### **3.1.1 Literature Review and Reference Populations Visit**

A reconnaissance survey was performed on the Project site in 2016 that assessed the site’s potential to support rare plant species (ECORP 2016). This report, including the literature search performed of the California Natural Diversity Database (CNDDDB) and the California Native Plant Society (CNPS) Electronic Inventory, was reviewed prior to the rare plant survey and a list of target rare plant species was developed for the rare plant survey. Known reference populations of the target plant species in the region were also visited prior to conducting the survey to determine whether the target species were detectable at the time of the survey.

### **3.1.2 Rare Plant Surveys**

A focused rare plant survey was conducted by qualified biologists with extensive experience conducting botanical surveys and knowledge regarding plant taxonomy, plant species in the region, and rare plant species. The purpose of the survey was to determine the presence or absence, number of individuals, and acreages of rare plant species within the Project site. Rare plant species are those federally or state listed as threatened or endangered under the Endangered Species Act, or those considered rare by CNPS.

Survey methods were devised with consideration of the following resources: 1) Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 1996), 2) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2009), and 3) CNPS Botanical Survey Guidelines (CNPS 2001). The survey was scheduled to coincide with the target species bloom periods and during a period when target species were readily identifiable.

Pedestrian-based survey transects were walked to provide 100 percent visual coverage of the Project site. The survey effort was focused on areas with the highest potential for the target species to occur, including the riparian and undisturbed upland areas. Heavily disturbed areas and most areas of the golf course were not surveyed because they did not provide suitable habitat for rare plant species. A sub-meter Global Positioning System (GPS) device was used during the survey to record the coordinates of any rare plant species observed. Each GPS unit displayed a position using the Universal Transverse Mercator coordinate system, North American Datum 1983. The biologists walked transects spaced approximately 10 meters apart; transect width was expanded in areas where visibility was high.

Common plant species were identified and recorded during the survey. In some cases biologists took samples from the site so that a dissecting microscope could be used for plant identification.

## **3.2 Quino Checkerspot Butterfly**

A QCB habitat assessment survey and four adult surveys were conducted utilizing guidelines from the 2014 U.S. Fish and Wildlife Service (USFWS) Survey Guidelines (USFWS 2014) to determine if suitable QCB habitat occurs within the Project area and to detect adults during the flight season.

### **3.2.1 Habitat Assessment Survey**

The site is located within the potential range and recommended survey area of the Quino (USFWS 2014). Therefore, a QCB habitat assessment survey was conducted by federal 10(a)(1)(A) permitted biologist to determine if suitable QCB habitat occurs on site. The habitat assessment involved conducting a general field survey of the site and mapping excluded areas and QCB survey areas.

Excluded areas not recommended for QCB surveys include orchards, developed areas, small in-fill parcels that area largely dominated by non-native vegetation, active/in-use agricultural fields, and closed-canopy woody vegetation. Quino survey areas were mapped in all areas not mapped as excluded, regardless of the presence or absence of host plants or nectar sources.

General vegetation characteristics, flowering plants, nectar sources, and host plant locations were noted on the general survey forms or on separate field notes. A standardized survey form was filled out, noting the general weather conditions, date of the survey, and start and end times. Incidental wildlife observed during the surveys were noted on the survey form. Host plant and nectar source locations were recorded on the map and by utilizing GPS (Garmin Dakota 20).

### **3.2.2 Adult Surveys**

Surveys were conducted by federal 10(a)(1)(A) permitted biologist. Surveys were conducted once per week (weather permitting) and spaced no closer than 4 days apart during the flight season (third week of February to second Saturday in May). Surveys focused on likely breeding areas (host plant patches), feeding areas (nectaring plant patches), and topographical features conducive to detecting QCB (ridgelines, hilltops, rock outcrops, dirt roads, open ground with clays soils). Areas were walked at an average rate of 5-10 acres per hour. All butterfly species encountered were identified and numbers of each species were recorded. Binoculars (8x42 magnification) were utilized to identify the majority of butterfly species that could not be seen at a close range. Butterfly species that were definitely not a checkerspot species but that could not be identified to species on the fly were netted, identified, and released.

Surveys were not conducted during inclement weather conditions (fog, drizzle, rain, sustained winds greater than 15 miles per hour (mph), or temperatures less than 60 degrees Fahrenheit (°F) in the shade at 6 inches (6") above the ground on a clear sunny day, or temperatures less than 70°F on an overcast or cloudy day with greater than 50% cloud cover). Weather conditions were measured on site at the start and end of each survey utilizing a pocket weather meter (Kestrel 2500NV).

QCB survey forms were filled out for each survey, noting the general weather conditions, date of the survey, and start and end times. Incidental wildlife observed during the surveys were noted on the QCB survey forms. General vegetation characteristics, flowering plants, nectar sources, and host plant locations were noted on the QCB survey forms. Host plant and nectar source locations were recorded on the map and by utilizing GPS (Garmin Dakota 20).

### **3.3 Burrowing Owl**

Four focused presence/absence surveys for burrowing owl were conducted by qualified biologists who have experience in the identification of burrowing owl habitat, behavior, sign, and vocalizations. The surveys were conducted in accordance with the Staff Report on Burrowing Owl Mitigation

(CDFW 2012). Suitable burrowing owl habitat was mapped within the Project site during the biological reconnaissance survey conducted in 2016 (ECORP 2016). All areas of suitable burrowing owl habitat within the Project site and a 500-foot buffer were surveyed during the 2017 survey effort.

The survey protocol (CDFW 2012) recommends four breeding season surveys be conducted at least three weeks apart between April 15 and July 15. The first survey occurred between February 15 and April 15, two surveys occurred between April 16 and June 15, and the final survey occurred between June 16 and July 15. The surveys were conducted when detection rates are highest and owls are most active, between morning civil twilight and 10:00 AM. When weather conditions permitted (i.e., mild temperatures, little cloud cover, low winds), surveys within the 500-foot buffer areas extended beyond 10:00 am.

Using a handheld GPS unit for reference, biologists walked straight-line pedestrian survey transects, spaced no more than 65 feet apart, searching for burrowing owls, occupied burrows, and potential burrows. In accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012), burrows were classified as "occupied" if burrowing owl sign (such as pellets, whitewash, bones of prey items, and feathers) was present, regardless of whether burrowing owls were observed at the burrow location. Burrows were classified as "potential" if the burrow was of suitable size, shape, and depth for a burrowing owl to occupy, but no sign was present. Burrows were classified as "active and occupied" if burrowing owls were observed at an occupied burrow location at any point during the focused surveys.

During the surveys, all burrowing owl individuals, occupied burrows, and potential burrowing owl burrows were recorded with a handheld global positioning system (GPS) unit and recorded on data sheets. Weather conditions (temperature, cloud cover, wind speed) were recorded at the start and end of each survey. Some private lands located within the 500-foot buffer were not surveyed due to access issues. However, whenever possible, inaccessible areas were surveyed with binoculars.

### **3.4 Coastal California Gnatcatcher**

Focused protocol-level CAGN surveys were conducted by federal (a)(10)(A) permitted ECORP biologist in 2017. Surveys for CAGN followed the protocol methods in the Presence/Absence Survey Protocol for Coastal California Gnatcatcher, published by the U.S. Fish and Wildlife Service (USFWS 1997). A total of six surveys were conducted at least one week apart between March 15 and June 30. Suitable California buckwheat scrub habitat was mapped within the Project site during the biological reconnaissance survey conducted in 2016 (ECORP 2016); these habitat areas located on and adjacent to the site were surveyed for CAGN. Surveys were conducted during favorable weather conditions (no excessive fog, wind, rain, cold [temperatures at or below 45 degrees (°) Fahrenheit], heat [at or exceeding 100° Fahrenheit]). The goal of the breeding season surveys was to determine the presence or absence of the species within the Project site.

Surveys consisted of slowly walking within the California buckwheat scrub habitat and playing a taped recording of CAGN vocalizations while scanning all potential habitat with binoculars for the presence of CAGN and listening for vocal responses to the recording. Taped vocalizations were not replayed until the surveyor had moved a far enough distance to be confident they were in a different territory to prevent eliciting responses from the same individuals. If a CAGN was observed or detected, the biologist stopped playing the taped recording and watched the behavior of the CAGN to determine whether the individual had a mate, was tending to a nest, or was defending territory. The location of the CAGN was documented using a global positioning system (GPS) unit and the location was also drawn on an aerial map.

For each focused survey, the general weather conditions, date, start and end times, and all wildlife species observed during the surveys were documented on data sheets.

### **3.5 Least Bell's Vireo**

Least Bell's vireo surveys were performed by a biologist experienced with least Bell's vireo habitat, identification, vocalizations, and ecology. U.S. Fish and Wildlife (USFWS) protocol for least Bell's vireo surveys specifies eight surveys spaced at least 10 days apart be conducted between April 10 and July 31 (USFWS 2001). Surveys were conducted between the hours of 0600 and 1100 during suitable weather conditions. Suitable riparian habitat was mapped within the Project site during the biological reconnaissance survey conducted in 2016 (ECORP 2016). All areas of suitable least Bell's vireo habitat within the Project site were traversed on foot with frequent stops during the surveys to look and listen for least Bell's vireos.

### **3.6 Stephens' Kangaroo Rat**

Historical populations of SKRs are documented near the project site as recently as 2009 (CNDDDB). Previous studies have indicated that the project site has density ranging from Absent (no Stephen's kangaroo rats detected) to High Abundance (>70 burrows per 1000 square meters). In addition, the March Stephens' kangaroo rat preserve, formerly part of March Air Base Reserve, encompasses approximately 1,000 acres between E. Alessandro Boulevard and Van Buren Boulevard just north of the project area. It was further determined that the property is located within the SKR fee area and likely that focused surveys (trapping, and so on) for SKR are not necessary.

To assess the property for Stephens' kangaroo rat (SKR) presence, biologists noted any kangaroo rat observed during the surveys completed for the property. Sign includes tail drags, scat, dust baths, and burrow entrances.

**4.0 RESULTS**

**4.1 Rare Plant Surveys**

**4.1.1 Literature Review and Reference Populations Visit**

According to the literature review and results of the reconnaissance survey, eight rare plants were determined to be target species for the rare plant survey. These plants are included in Table 1.

**Table 1 - Target Rare Plant Species**

<b>Scientific Name</b> Common Name	<b>Status</b>		<b>Blooming Period;</b> <b>Elevation (meters)</b>
<b><i>Allium munzii</i></b> Munz's onion	Fed: CA: CNPS:	<b>END</b> <b>THR</b> 1B.1	March-May 297 - 1070
<b><i>Ambrosia pumila</i></b> San Diego ambrosia	Fed: CA: CNPS:	<b>END</b> none 1B.1	April-October 20-415
<b><i>Berberis nevinii</i></b> Nevin's barberry	Fed: CA: CNPS:	<b>END</b> <b>END</b> 1B.1	March-June 274 - 825
<b><i>Brodiaea filifolia</i></b> thread-leaved brodiaea	Fed: CA: CNPS:	<b>THR</b> <b>END</b> 1B.1	March-June 25-1120
<b><i>Deinandra paniculata</i></b> San Diego tarweed	Fed: CA: CNPS:	none none 4.2	March-November 25-940
<b><i>Dodecahema leptoceras</i></b> slender-horned spineflower	Fed: Ca: CNPS:	<b>END</b> <b>END</b> 1B.1	April-June 200-760
<b><i>Eriastrum densifolium</i></b> <b>ssp. sanctorum</b> Santa Ana River woolly star	Fed: CA: CNPS:	<b>END</b> <b>END</b> 1B.1	April-September 91-610

<p><b><i>Navarretia fossalis</i></b> spreading navarretia</p>	<p>Fed: CA: CNPS:</p>	<p><b>THR</b> none 1B.1</p>	<p>April-June 30-655</p>
<p><b>Federal Designations:</b> (Federal Endangered Species Act, USFWS)</p> <p><b>END:</b> federally-listed, endangered <b>THR:</b> federally-listed, threatened</p>		<p><b>State designations:</b> (California Endangered Species Act, CDFW)</p> <p><b>END:</b> state-listed, endangered <b>THR:</b> state-listed, threatened</p>	
<p><b>California Native Plant Society (CNPS) Designations:</b></p> <p><b>1A:</b> Plants presumed extinct in California. <b>1B:</b> Plants rare and endangered in CA and throughout their range. <b>2:</b> Plants rare, threatened, or endangered in CA but more common elsewhere in their range. <b>3:</b> Plants about which need more information; a review list. <b>4:</b> Plants of limited distribution; a watch list.</p> <p><b>Plants 1B, 2, and 4 extension meanings:</b></p> <p><b>.1</b> Seriously endangered in CA (over 80% of occurrences threatened / high degree and immediacy of threat) <b>.2</b> Fairly endangered in California (20-80% occurrences threatened) <b>.3</b> Not very endangered in CA (&lt;20% of occurrences threatened or no current threats known)</p>			

On April 21, 2017, biologists Kent Hughes and Jon Renard visited an area within the Santa Ana River in the City of Redlands to observe reference populations of the targeted species. The targeted plant species were not observed.

#### 4.1.2 Rare Plant Survey

Mr. Hughes and Mr. Renard performed the rare plant survey on the Project site on April 21, 2017. During the rare plant survey conducted in 2017, vegetation cover on and adjacent to the Project site was much denser than it was during the 2016 reconnaissance survey, likely due to the substantial

amount of rainfall in the region during the previous winter. Survey timing and weather conditions are provided in Table 2.

**Table 2 - Weather Conditions during the Focused Rare Plant Survey**

Date	Time		Temperature (°F)		Cloud Cover (%)		Wind Speed (mph)	
	Start	End	Start	End	Start	End	Start	End
4/21/17	0850	1300	71	90	0	0	1-4	3-6

One sensitive plant species was observed during the 2016 reconnaissance survey, the San Diego tarweed; approximately 10 individuals was observed in the southwestern area of the Project site. This population was revisited during the 2017 survey and a population of approximately 50 individuals was observed adjacent to this location (Figure 3). The increase in individual plants observed between 2016 and 2017 may be due to the high levels of precipitation that occurred during the winter of 2016, which promoted the population growth. No other rare plant species were observed on site.

#### 4.2 Quino Checkerspot Surveys

Christine Tischer, a QCB permitted biologist (TE-053379-4), conducted a QCB habitat assessment on April 12, 2017. Landscaped areas within the golf course and regularly mowed areas adjacent and within the golf course were determined to be unsuitable for QCB. However, much of the surrounding area supported nectar sources, open areas, and even the QCB's primary host plant, *Plantago erecta*; therefore, these areas were determined to be non-excluded (Figure 4). Protocol adult QCB surveys are recommended in these areas.

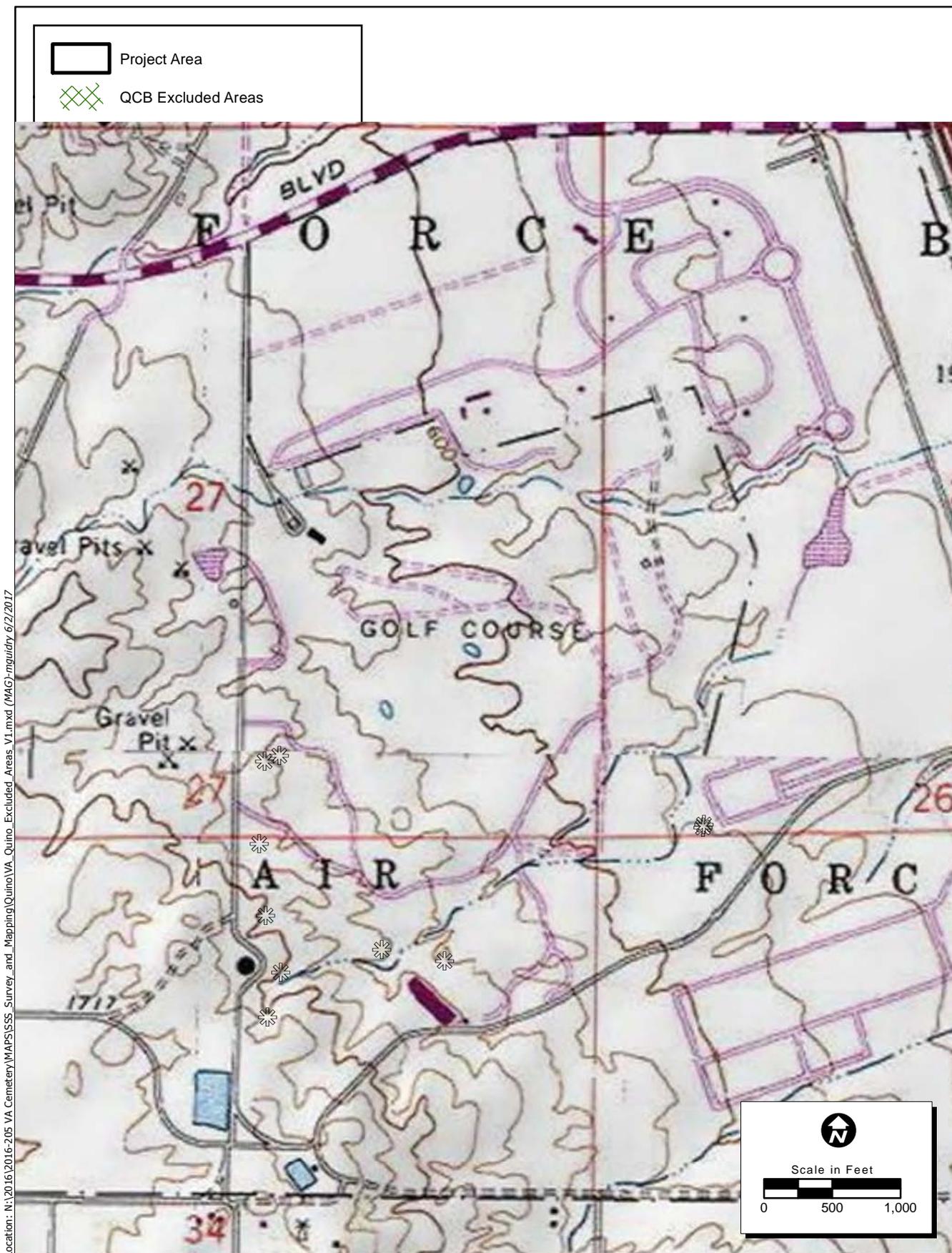
Protocol guidelines require surveys to start at the beginning of the flight season (third week of February) and continue weekly until the second Saturday in May. Due to constraints from the Project schedule, only four adult QCB surveys were conducted during the last four weeks of the 2017 QCB flight season. A summary of survey dates and weather conditions is included in Table 3 below.



Map Date: 6/9/2017  
 Photo Source: NAIP 2016

**Figure 3. Rare Plant Survey Results**

*2016-205 Riverside Cemetery*



Map Date: 6/2/2017  
 USGS Topographic Quadrangle: Riverside East, Steele Peak

**Figure 4. QCB Excluded Areas Map**

*2016-205 Riverside Cemetery*

**Table 3 – Dates and Weather Conditions during 2017 QCB Adult Surveys**

Date	Time		Temperature (°F)		Cloud Cover (%)		Wind Speed (mph)	
	Start	End	Start	End	Start	End	Start	End
4/19/17	0845	1350	68	78	0	0	1-2	3-5
4/26/17	0845	1325	70	80	15	15	0-2	4-8
5/3/17	0845	1245	71	88	0	0	1-2	3-6
5/13/17	0915	1325	63	72	45	0	3-5	2-5

No QCB adults were detected during the surveys. Host plants were already dried out and deteriorated at the start of the surveys and nectar sources steadily decreased with each of the weekly surveys. Several incidental butterfly species were detected on site, again with numbers steadily decreasing with each weekly survey.

#### **4.3 Burrowing Owl Surveys**

ECORP biologists Alfredo Aguirre, Jerry Aguirre, Taylor Dee, Gabriel Nunez, Jonathan Renard, Kristen (Mobraaten) Wasz, and Phillip Wasz conducted the protocol surveys for burrowing owl between April 14 and July 3, 2017.

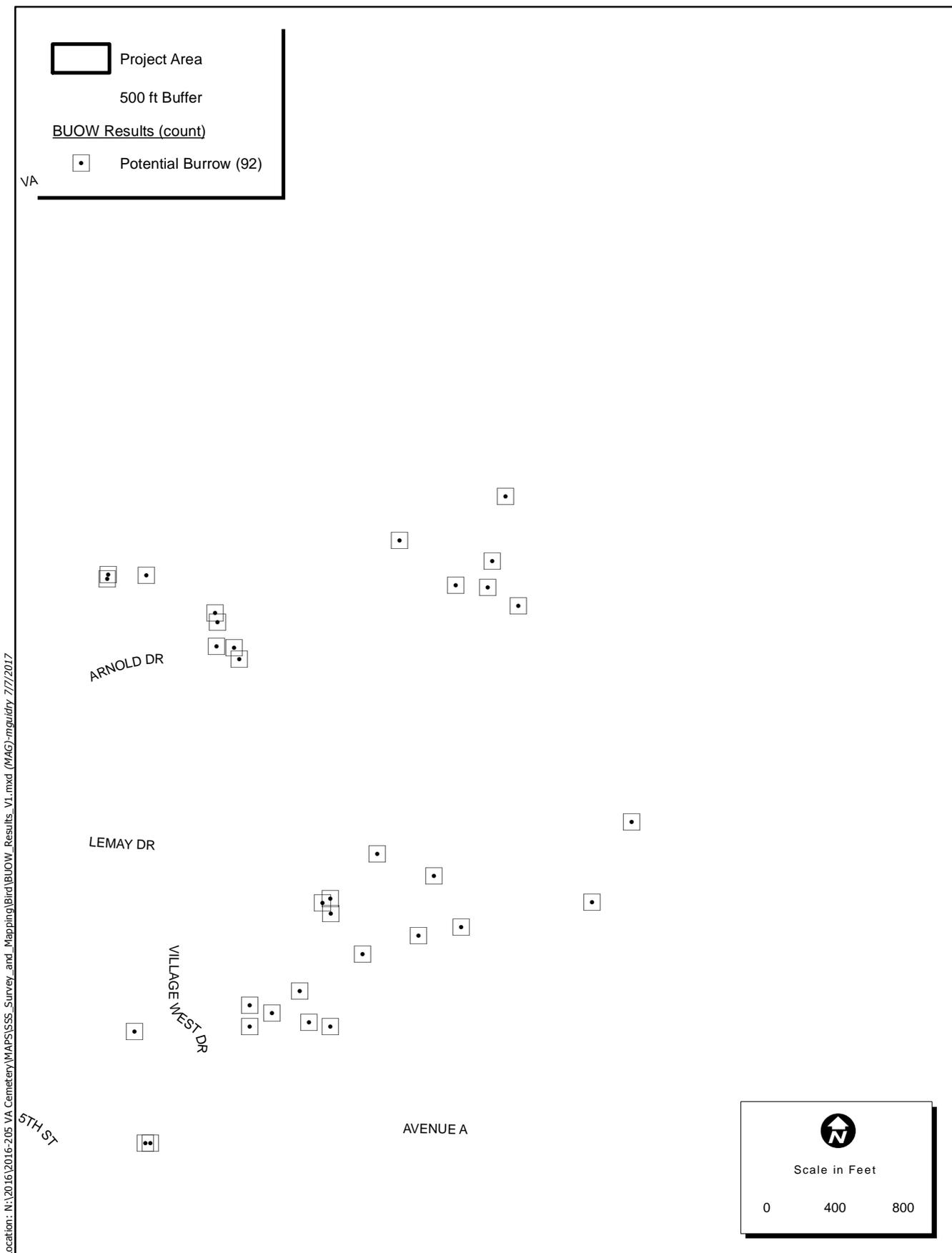
Many areas of the Project site provided suitable habitat for burrowing owl, which consists of sparsely vegetated open areas with flat or gently rolling topography. Vegetation communities and land cover types that provided suitable habitat on site included disturbed California buckwheat scrub, disturbed areas, and portions of the golf course/ornamental vegetation.

Weather conditions were suitable for the effort (Table 4).

**Table 4 - Weather Conditions during the Burrowing Owl Surveys**

Date	Surveyors	Time		Temperature (°F)		Cloud Cover (%)		Wind Speed (mph)	
		Start	End	Start	End	Start	End	Start	End
4/14/2017	A. Aguirre G. Nunez J. Renard P. Wasz	0600	1130	46	63	40	0	1-3	0-2
5/5/2017	J. Aguirre G. Nunez J. Renard K. Wasz	0600	1040	58	73	5	5	0	1-4
6/8/2017	A. Aguirre J. Aguirre J. Renard K. Wasz	0530	1030	57	62	100	100	0	1-3
7/3/2017	A. Aguirre J. Aguirre T. Dee J. Renard	0540	1015	58	79	0	0	0	0-2

Several potential burrowing owl burrows were identified during the four surveys; however, no burrowing owls or burrowing owl sign (e.g., whitewash, pellets, feathers, bones of prey items) were observed or detected (Figure 5). A total of 76 potential burrows were documented at 27 separate locations within the Project site; 16 burrows were documented at six separate locations within the survey buffer area. The burrows were of suitable size and shape for burrowing owl use, but evidence of use by a burrowing owl (e.g., presence of whitewash, pellets, feathers, bones of prey items) was not observed at any of the burrows. Most of the burrows documented during the surveys belonged to California ground squirrels (*Otospermophilus beecheyi*), which is a species that burrowing owls can depend on for burrow excavation.



Map Date: 7/6/2017  
 Photo Source: NAIP 2016

**Figure 5. Burrowing Owl Survey Results**

*2016-205 Riverside Cemetery*

Data sheets are included in Attachment B and a comprehensive list of wildlife species observed is included in Attachment A.

#### 4.4 Coastal California Gnatcatcher Surveys

Prior to conducting the surveys, a pre-survey notification was sent to USFWS on April 12, 2017 in accordance with permit conditions. ECORP biologist Kristen (Mobraaten) Wasz (TE46552A-1) conducted the protocol surveys for CAGN between May 4 and June 27, 2017. Weather conditions were suitable for the surveys (Table 5).

**Table 5 - Weather Conditions during the Coastal California Gnatcatcher Surveys**

Date	Time		Temperature (°F)		Cloud Cover (%)		Wind Speed (mph)	
	Start	End	Start	End	Start	End	Start	End
5/4/2017	0625	0925	60	74	0	0	0-1	1-3
5/15/2017	0615	0900	48	58	50	60	3-5	3-7
5/25/2017	0645	0915	56	62	100	80	0-1	2-4
6/6/2017	0700	0930	58	66	100	100	0-1	1-3
6/16/2017	0650	0900	69	83	0	0	0	0
6/27/2017	0650	0915	74	84	0	0	0-1	2-5

Suitable California buckwheat scrub vegetation was present in relatively small patches in the eastern and southeastern portions of the Project site (Figure 6). The California buckwheat scrub was considered moderately suitable habitat for CAGN because non-native plant presence within the habitat was low and human disturbances were limited, but the patches were relatively small, surrounded by non-native-dominated habitats, and monotypic in nature (native plant diversity was low).

CAGN were neither detected nor observed on or adjacent to the Project site during the focused surveys conducted in 2017.

Data sheets are included in Attachment C, and a comprehensive list of wildlife observed during the surveys is included in Attachment A.

Location: N:\2016\2016-205 VA Cemetery\MAPS\SS\_Survey\_and\_Mapping\Bird\CAGN\_Habitat\_V1.mxd (MAG)-mguidry 7/6/2017

 Project Area

 Coastal California Gnatcatcher Habitat



Scale in Feet



0 400 800

Map Date: 7/6/2017  
Photo Source: NAIP 2016

**Figure 6. Coastal California Gnatcatcher Habitat**

*2016-205 Riverside Cemetery*



#### 4.5 Least Bell’s Vireo Surveys

ECORP biologists Christine Tischer and Kristen (Mobraaten) Wasz conducted the protocol surveys for least Bell’s vireo between April 12 and June 26, 2017. Weather conditions were suitable for the surveys (Table 6).

**Table 6 - Weather Conditions during the Least Bell’s Vireo Surveys**

Date	Surveyor	Time		Temperature (°F)		Cloud Cover (%)		Wind Speed (mph)	
		Start	End	Start	End	Start	End	Start	End
4/12/2017	C. Tischer	0840	1100	63	75	0	0	1-3	1-2
4/24/2017	K. Wasz	0650	1000	59	62	100	100	0-2	1-3
5/4/2017	K. Wasz	0625	0925	60	74	0	0	0-1	1-3
5/15/2017	K. Wasz	0615	0900	48	58	50	60	3-5	3-7
5/25/2017	K. Wasz	0645	0915	56	62	100	80	0-1	2-4
6/6/2017	K. Wasz	0700	0930	58	66	100	100	0-1	1-3
6/16/2017	K. Wasz	0650	0900	69	83	0	0	0	0
6/27/2017	K. Wasz	0650	0915	74	84	0	0	0-1	2-5

Suitable riparian vegetation was present throughout the Project site. Most areas of riparian vegetation were of poor quality due to the small size and degradation (presence of non-native vegetation and human disturbances); however, two areas of riparian vegetation were slightly higher quality than the others on site. These two areas would be considered moderately suitable habitat because they contained fewer non-native plant species and had suitable density and canopy cover. Although they were larger in size than the other riparian patches, they were still relatively small and would not be considered high quality.

One migratory male and one pair of least Bell’s vireos were detected throughout the course of the surveys. The observation locations are shown in Figure 7 and are described in detail below.

One male least Bell’s vireo was observed in a riparian patch in the middle of the golf course on May 14, 2017. The male was flying throughout the patch of habitat singing at the time of observation, but no female or other vireos were detected. Due to the timing of this observation and the fact that this individual was not observed during any of the subsequent surveys, it is presumed that this male was migrating through the area.

Location: N:\2016\2016-205 VA Cemetery\MAPS\SS\_Survey\_and\_Mapping\Bird\LBVL\_Results\_V1.mxd (MAG)mguidry 7/10/2017

 Project Area

 Least Bells Vireo - Pair

 Least Bells Vireo - Individual

Riparian Vegetation Community

 Cattail Marsh

 Disturbed Black Willow Thicket

 Disturbed Riparian





Scale in Feet



0 400 800

Map Date: 7/6/2017  
Photo Source: NAIP 2016

**Figure 7. Least Bell's Vireo Survey Results**

*2016-205 Riverside Cemetery*

One pair of least Bell's vireo was observed in a patch of riparian habitat on the northwestern portion of the Project site during multiple surveys. The pair was first observed foraging throughout the habitat patch on May 5, 2017. On May 15, 2017, only the male of the pair was observed. The individual was flying throughout the habitat patch while singing, presumably defending territory. The individual would sing very conspicuously for about 10 minutes and then it would disappear and go quiet for several minutes. This pattern was observed for approximately 30 minutes during the survey, but neither the female nor the nest was located. The pair was observed for a final time during the protocol surveys on June 16, 2017; the male was calling and flying throughout the habitat while the female appeared to be foraging. The biologist observed the activity for approximately 35 minutes, but no nest location was identified and juveniles were not observed.

This location was briefly visited during a focused burrowing owl (*Athene cunicularia*) survey conducted on the project site on July 3, 2017, and least Bell's vireo were incidentally detected in this location by a biologist familiar with least Bell's vireo identification, calls, and behavior. The biologist observed the location for approximately 25 minutes and noted three least Bell's vireo, at least one adult and up to two juveniles. In addition to singing, the one confirmed adult was observed feeding one juvenile. Shortly after, the adult flew west across Village Drive toward a patch of riparian habitat outside of the project site, but the two remaining least Bell's vireo stayed in the riparian habitat within the project site.

Data sheets are included in Attachment D, and a comprehensive list of wildlife species observed during the surveys is included in Attachment A.

#### **4.6 Stephens' Kangaroo Rat Habitat Assessment**

During the original biological resources assessment of the property, SKR were determined to have a high potential to occur on the Project site. SKR prefers California buckwheat and brome grass habitats, both which are found among the disturbed areas to the east, west, and south of the golf course. During the site assessment, the property was found to have a high potential to support the SKR, primarily in the southern half of the property where the area is not developed. During focused surveys for the property, SKR sign was not observed.

## **5.0 CONCLUSIONS**

### **5.1 Rare Plant Species**

One rare plant species, San Diego tarweed, was observed on the Project site during the focused rare plant survey. San Diego tarweed is ranked 4.2 on the CNPS RPR, which is a species currently being watched for declines; however, this species will not require mitigation prior to construction.

### **5.2 Quino Checkerspot Butterfly**

In summary, the Project is located within the potential range of the QCB and supports suitable habitat for this species. Therefore, protocol adult QCB surveys should be conducted at this site to determine presence/absence. Four adult QCB surveys that were conducted at the end of the 2017 flight season did not detect QCB adults and potential habitat was determined to be past its prime. The non-detection of QCB during these surveys may not be adequate to determine presence/absence at the site since full protocol surveys are normally required (weekly surveys between 3<sup>rd</sup> week of February and 2<sup>nd</sup> Saturday in May). Current discussions with the USFWS are ongoing as to whether further surveys are recommended during the 2018 flight season.

### **5.3 Burrowing Owl**

A total of 76 potential burrows were documented within the Project site during the focused burrowing owl surveys; however, burrowing owl sign (e.g., whitewash, pellets, feathers, bones of prey items) was not observed at any of the burrow locations. Most of the burrows identified belonged to California ground squirrels, a species that burrowing owls can depend for burrow construction and excavation.

Although burrowing owls were neither observed nor detected on or adjacent to the Project site during focused surveys, it is possible for migratory or wintering burrowing owls to occupy the potential burrows present on site. Pre-construction surveys for this species are recommended prior to ground-breaking activities to determine whether owls are occupying the Project site or adjacent areas at that time. If owls are identified on site or adjacent to the site, then coordination with California Department of Fish and Wildlife may need to occur to determine the next steps.

### **5.4 Coastal California Gnatcatcher**

The Project site supports suitable California buckwheat scrub vegetation that provides habitat for CAGN; however, CAGN were neither observed nor detected during the focused surveys conducted in 2017. The Project is not expected to have any impacts on CAGN, and no federal permitting for the species should be required.

## 5.5 Least Bell's Vireo

The Project site supports suitable riparian vegetation that provides habitat for least Bell's vireo. One male and one pair of least Bell's vireos were observed using two separate riparian habitat patches within the Project site during the surveys conducted in 2017. The lone male was observed during one survey in mid-May. This individual was not observed during subsequent surveys and is therefore considered a migratory individual, likely using the Project site as a stopover while en route to other habitat areas in the region.

One pair of least Bell's vireos was observed in the same location during multiple surveys. Both individuals of the pair were observed in the same habitat patch on two separate occasions; in early May and again in mid-June. The male of the pair was observed in mid-May and exhibited behavior that suggested he may be visiting a nest (flying around and calling conspicuously and then disappearing and going quiet for several minutes). However, a nest was not located and juvenile least Bell's vireos were not detected during protocol surveys. The pair was not observed during the final protocol survey in late-June. However, at least one adult of the pair was incidentally observed in this location during a focused burrowing owl survey on July 3, 2017. At least one juvenile (possibly up to two) were observed with this adult and the adult was observed feeding one of the juveniles at the time of detection. Following this, the one confirmed adult was observed flying west across Village Drive toward a riparian habitat patch off the project site, while the two least Bell's vireo remained in the riparian patch on the project site. This observation suggests that the nesting activity occurred in the riparian habitat on the project site and that the species is using habitat both on the project site and off the project site.

Use of the riparian habitat by least Bell's vireo suggests that the vegetation patches on the Project site, although small in size and degraded in many areas, are important for the local population of least Bell's vireo for migration and potentially for nesting activities. There is also a larger patch of riparian habitat located to the north of the site along Van Buren Boulevard that has been known to support breeding vireos previously. If possible, the project should be designed to avoid impacts to riparian vegetation on site to avoid impacts to least Bell's vireo. If this is not feasible, then the VA will need to pursue permitting under the FESA. Because there are streams jurisdictional to the USACE associated with the least Bell's vireo habitat on site, and permitting would be required if impacts to the jurisdictional areas are expected, then the permit process would likely involve a Section 7 consultation with coordination between the USACE and USFWS to issue a Biological Opinion for the Project.

## 5.6 Stephens' Kangaroo Rat

Historical populations of SKRs are documented near the project site as recently as 2009 (CNDDDB). Previous studies have indicated that the project site has density ranging from Absent (no Stephen's

kangaroo rats detected) to High Abundance (>70 burrows per 1000 square meters). In addition, the March Stephens' kangaroo rat preserve, formerly part of March Air Base Reserve, encompasses approximately 1,000 acres between E. Alessandro Boulevard and Van Buren Boulevard just north of the project area. It was further determined that the property is located within the SKR fee area and likely that surveys for SKR are not necessary. During the site assessment, the property was found to have a high potential to support the SKR, primarily in the southern half of the property where the area is not developed.

Normally, for sites within the SKR fee area, the applicant will pay a fee per acre of development (not habitat for SKR) as noted in the ordinance below.

Section 6. MITIGATION FEE. All applicants for development permits within the boundaries of the Fee Assessment Area who cannot satisfy mitigation requirements through on-site mitigation as determined through the environmental review process shall pay a Mitigation Fee of \$500.00 per gross acre of the parcels proposed for development.

Also in the ordinance are listed exemptions, of which the planned cemetery appears to fall under exemption D (excerpt below).

Section 10. EXEMPTIONS. For purposes of this ordinance, the following types of development shall not be required to pay the Mitigation Fee unless such development voluntarily participates in order to mitigate the disturbance of occupied Stephens' Kangaroo Rat habitat:

(d) Development of any parcel used by local, state or federal entities for governmental purposes (i.e. public works, schools);

## 7.0 REFERENCES

- Baldwin, B. G., D.H Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson Manual; Vascular Plants of California*, Second Edition. University of California Press, Berkeley, California. 1,519 pp. + app.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U. S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.
- Headquarters, U.S. Army Corps of Engineers (HQUSACE). 1992. *Clarification and Interpretation of the 1987 Manual*. Memorandum from Major General Arthur E. Williams. Dated March 6, 1992.
- Kollmorgen Instruments Company. 1990. *Munsell Soil Color Charts*. Kollmorgen Corporation. Baltimore, Maryland.
- National Agricultural Imagery Program (NAIP). 2012. Orthorectified aerial photographs.
- National Oceanic and Atmospheric Administration (NOAA). 2016a. Summary of Monthly Normals 1981-2010 for Sacramento 5 ESE, CA US GHCND: USW00023271. Available Online: [http://www.ncdc.noaa.gov/cdo-web/datasets/normal\\_mly/stations/GHCND:USW00023271/detail](http://www.ncdc.noaa.gov/cdo-web/datasets/normal_mly/stations/GHCND:USW00023271/detail). Accessed 29 March 2016.
- National Oceanic and Atmospheric Administration (NOAA). 2016b. Daily Summaries for Riverside Airport, CA US. Accessed 29 November 2016.
- "Navigation and Navigable Waters," Title 33 Code of Federal Regulations, Pt. 328. 2014 ed.
- U.S. Army Corps of Engineers (USACE), Sacramento District. 2001. *Minimum Standard for Acceptance of Preliminary Wetland Delineations*. Dated November 30, 2001.
- U.S. Army Corps of Engineers (USACE). 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers (USACE). 2008b. Regulatory Guidance Letter 08-02, Jurisdictional Determinations. Dated June 26, 2008.
- U.S. Army Corps of Engineers (USACE), Sacramento District. 2016. *Minimum Standard of Aquatic Resources Delineation Reports*. Dated January 2016.
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2003. *National Soil Survey Handbook*, title 430-VI. Available Online: <http://soils.usda.gov/technical/handbook>.

- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2006. *Hydric Soils List for Riverside County*. U.S. Department of Agriculture, Soil Conservation Service, Davis, California.
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2016. Web Soil Survey. Available Online: <http://websoilsurvey.nrcs.usda.gov/>.
- U.S. Department of the Interior, Geological Survey (USGS). 1981. "Riverside East, California" and "Steele Peak, California" 7.5-minute Quadrangles. Geological Survey. Riverside, California.
- U.S. Department of the Interior, Geological Survey (USGS). 1978. Hydrologic Unit Map, State of California. Geological Survey. Reston, Virginia.
- U.S. Environmental Protection Agency and U.S. Army Corps of Engineers (USEPA and USACE). 2007. Memorandum Re: Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*. Dated June 5, 2007.

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NOVEMBER 23, 2016

**Ecorp Consulting**

Scott Taylor  
1801 Park Court Place, B-103  
Santa Ana, CA 92701

Dear Mr. Taylor,

This letter summarizes the results of the tree study I performed per the scope of work CLIN 0002. The site is located at 16700 West Drive, Riverside, CA 92518, and includes approximately 300 acres per Appendix A to the scope of work. The area surveyed is exhibited on the next page (Exhibit A). The survey area includes a 300 foot buffer area beyond the property line.

**Method**

For purposed of this survey, I have used the International Society of Arboriculture's definition of a tree – *a woody perennial usually having one dominant trunk, and a mature height greater than 5 meters (16 feet)*. I have reviewed the U.S. Fish and Wildlife Service's list of threatened or endangered plants. These plants are considered federally protected under the Endangered Species Act. None of the tree species are indigenous to the exhibited site area, and not expected to be found there.

Next, I reviewed the California Department of Fish and Wildlife's (California Natural Diversity Database) list of state endangered, threatened, and rare plants of California. These are plants considered protected by the State of California. I also reviewed the California Native Plant Society's inventory of rare and endangered plants. No trees from these lists are indigenous to the site area, and were not expected to be found.

The County of Riverside protects Oak trees in 'oak woodlands', and/or on sites greater than 5,000 feet elevation. These restrictions do not apply because the elevation of the site exhibited is under 5,000 feet.

Finally, I physically surveyed the site to observe if any protected trees exist. My field survey did not reveal any protected tree species. **For the purposes of the U.S. Department of Veterans Affairs acquisition of an interest in the site in Exhibit A, I certify that no trees exist on the exhibited Site that would be considered federally, state, or locally protected.**

Please don't hesitate to contact me should you have any questions.

Regards,

A handwritten signature in black ink, appearing to read "Evan Sims", written in a cursive style.

**Evan Sims**

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## QuickFacts

### Riverside city, California

QuickFacts provides statistics for all states and counties, and for cities and towns with a **population of 5,000 or more**.

All Topics	RIVERSIDE CITY, CALIFORNIA	RIVERSIDE COUNTY, CALIFORNIA	CALIFORNIA	UNITED STATES
<b>People</b>				
<b>Population</b>				
Population estimates, July 1, 2016, (V2016)	NA	NA	39,250,017	323,127,513
Population estimates, July 1, 2015, (V2015)	322,424	2,361,026	39,144,818	321,418,820
Population estimates base, April 1, 2010, (V2016)	NA	NA	37,254,522	308,758,105
Population estimates base, April 1, 2010, (V2015)	303,983	2,189,760	37,254,503	308,758,105
Population, percent change - April 1, 2010 (estimates base) to July 1, 2016, (V2016)	NA	NA	5.4%	4.7%
Population, percent change - April 1, 2010 (estimates base) to July 1, 2015, (V2015)	6.1%	7.8%	5.1%	4.1%
Population, Census, April 1, 2010	303,871	2,189,641	37,253,956	308,745,538
<b>Age and Sex</b>				
Persons under 5 years, percent, July 1, 2015, (V2015)	X	6.7%	6.4%	6.2%
Persons under 5 years, percent, April 1, 2010	7.2%	7.4%	6.8%	6.5%
Persons under 18 years, percent, July 1, 2015, (V2015)	X	26.0%	23.3%	22.9%
Persons under 18 years, percent, April 1, 2010	26.8%	28.3%	25.0%	24.0%
Persons 65 years and over, percent, July 1, 2015, (V2015)	X	13.6%	13.3%	14.9%
Persons 65 years and over, percent, April 1, 2010	8.6%	11.8%	11.4%	13.0%
Female persons, percent, July 1, 2015, (V2015)	X	50.3%	50.3%	50.8%
Female persons, percent, April 1, 2010	50.6%	50.2%	50.3%	50.8%
<b>Race and Hispanic Origin</b>				
White alone, percent, July 1, 2015, (V2015) (a)	X	80.2%	72.9%	77.1%
White alone, percent, April 1, 2010 (a)	56.5%	61.0%	57.6%	72.4%
Black or African American alone, percent, July 1, 2015, (V2015) (a)	X	7.1%	6.5%	13.3%
Black or African American alone, percent, April 1, 2010 (a)	7.0%	6.4%	6.2%	12.6%
American Indian and Alaska Native alone, percent, July 1, 2015, (V2015) (a)	X	1.9%	1.7%	1.2%
American Indian and Alaska Native alone, percent, April 1, 2010 (a)	1.1%	1.1%	1.0%	0.9%
Asian alone, percent, July 1, 2015, (V2015) (a)	X	6.9%	14.7%	5.6%
Asian alone, percent, April 1, 2010 (a)	7.4%	6.0%	13.0%	4.8%
Native Hawaiian and Other Pacific Islander alone, percent, July 1, 2015, (V2015) (a)	X	0.4%	0.5%	0.2%
Native Hawaiian and Other Pacific Islander alone, percent, April 1, 2010 (a)	0.4%	0.3%	0.4%	0.2%
Two or More Races, percent, July 1, 2015, (V2015)	X	3.4%	3.8%	2.6%
Two or More Races, percent, April 1, 2010	5.1%	4.8%	4.9%	2.9%
Hispanic or Latino, percent, July 1, 2015, (V2015) (b)	X	47.9%	38.8%	17.6%
Hispanic or Latino, percent, April 1, 2010 (b)	49.0%	45.5%	37.6%	16.3%
White alone, not Hispanic or Latino, percent, July 1, 2015, (V2015)	X	36.7%	38.0%	61.6%
White alone, not Hispanic or Latino, percent, April 1, 2010	34.0%	39.7%	40.1%	63.7%
<b>Population Characteristics</b>				
Veterans, 2011-2015	13,310	129,364	1,777,410	20,108,332
Foreign born persons, percent, 2011-2015	22.3%	22.0%	27.0%	13.2%
<b>Housing</b>				
Housing units, July 1, 2015, (V2015)	X	826,790	13,987,625	134,789,944
Housing units, April 1, 2010	98,444	800,707	13,680,081	131,704,730
Owner-occupied housing unit rate, 2011-2015	55.3%	64.8%	54.3%	63.9%
Median value of owner-occupied housing units, 2011-2015	\$261,400	\$253,200	\$385,500	\$178,600
Median selected monthly owner costs -with a mortgage, 2011-2015	\$1,785	\$1,821	\$2,155	\$1,492

Median selected monthly owner costs -without a mortgage, 2011-2015	\$424	\$494	\$500	\$458
Median gross rent, 2011-2015	\$1,161	\$1,179	\$1,255	\$928
Building permits, 2015	X	6,158	98,188	1,182,582
<b>Families and Living Arrangements</b>				
Households, 2011-2015	91,267	699,232	12,717,801	116,926,305
Persons per household, 2011-2015	3.34	3.24	2.96	2.64
Living in same house 1 year ago, percent of persons age 1 year+, 2011-2015	83.3%	84.4%	85.2%	85.1%
Language other than English spoken at home, percent of persons age 5 years+, 2011-2015	41.3%	40.0%	43.9%	21.0%
<b>Education</b>				
High school graduate or higher, percent of persons age 25 years+, 2011-2015	78.5%	80.1%	81.8%	86.7%
Bachelor's degree or higher, percent of persons age 25 years+, 2011-2015	22.2%	20.9%	31.4%	29.8%
<b>Health</b>				
With a disability, under age 65 years, percent, 2011-2015	6.6%	7.5%	6.8%	8.6%
Persons without health insurance, under age 65 years, percent	▲ 18.8%	▲ 17.0%	▲ 9.7%	▲ 10.5%
<b>Economy</b>				
In civilian labor force, total, percent of population age 16 years+, 2011-2015	63.1%	60.2%	63.1%	63.3%
In civilian labor force, female, percent of population age 16 years+, 2011-2015	56.1%	53.4%	57.2%	58.5%
Total accommodation and food services sales, 2012 (\$1,000) (c)	516,559	5,230,919	90,830,372	708,138,598
Total health care and social assistance receipts/revenue, 2012 (\$1,000) (c)	2,611,813	8,412,078	248,953,592	2,040,441,203
Total manufacturers shipments, 2012 (\$1,000) (c)	2,802,939	15,137,013	512,303,164	5,696,729,632
Total merchant wholesaler sales, 2012 (\$1,000) (c)	2,747,573	18,716,807	688,852,186	5,208,023,478
Total retail sales, 2012 (\$1,000) (c)	4,127,390	25,058,857	481,800,461	4,219,821,871
Total retail sales per capita, 2012 (c)	\$13,158	\$11,045	\$12,865	\$13,443
<b>Transportation</b>				
Mean travel time to work (minutes), workers age 18 years+, 2011-2015	29.4	32.4	28.0	25.9
<b>Income and Poverty</b>				
Median household income (in 2015 dollars), 2011-2015	\$57,196	\$56,603	\$61,818	\$53,889
Per capita income in past 12 months (in 2015 dollars), 2011-2015	\$22,568	\$23,783	\$30,318	\$28,930
Persons in poverty, percent	▲ 18.8%	▲ 16.2%	▲ 15.3%	▲ 13.5%
<b>Businesses</b>				
Total employer establishments, 2014	X	35,595	889,846 <sup>1</sup>	7,583,085
Total employment, 2014	X	514,885	13,838,702 <sup>1</sup>	121,079,879
Total annual payroll, 2014 (\$1,000)	X	18,944,355	797,045,734 <sup>1</sup>	5,940,442,637
Total employment, percent change, 2013-2014	X	4.4%	3.3% <sup>1</sup>	2.4%
Total nonemployer establishments, 2014	X	158,405	3,117,591	23,836,937
All firms, 2012	24,046	175,971	3,548,449	27,626,360
Men-owned firms, 2012	12,152	90,803	1,852,580	14,844,597
Women-owned firms, 2012	9,203	66,313	1,320,085	9,878,397
Minority-owned firms, 2012	12,088	85,804	1,619,857	7,952,386
Nonminority-owned firms, 2012	10,841	84,871	1,819,107	18,987,918
Veteran-owned firms, 2012	2,045	13,780	252,377	2,521,882
Nonveteran-owned firms, 2012	21,012	156,472	3,176,341	24,070,685
<b>Geography</b>				
Population per square mile, 2010	3,745.0	303.8	239.1	87.4
Land area in square miles, 2010	81.14	7,206.48	155,779.22	3,531,905.43
FIPS Code	0662000	06065	06	00

1. Includes data not distributed by county.

▲ This geographic level of poverty and health estimates are not comparable to other geographic levels of these estimates

Some estimates presented here come from sample data, and thus have sampling errors that may render some apparent differences between geographies statistically indistinguishable. Click the Quick Info icon to the left of each row in TABLE view to learn about sampling error.

The vintage year (e.g., V2015) refers to the final year of the series (2010 thru 2015). Different vintage years of estimates are not comparable.

(a) Includes persons reporting only one race

(b) Hispanics may be of any race, so also are included in applicable race categories

(c) Economic Census - Puerto Rico data are not comparable to U.S. Economic Census data

D Suppressed to avoid disclosure of confidential information

F Fewer than 25 firms

FN Footnote on this item in place of data

NA Not available

S Suppressed; does not meet publication standards  
X Not applicable  
Z Value greater than zero but less than half unit of measure shown

QuickFacts data are derived from: Population Estimates, American Community Survey, Census of Population and Housing, Current Population Survey, Small Area Health Insurance Estimates, Small Area Income and Poverty Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployment Statistics, Economic Census, Survey of Business Owners, Building Permits.

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[//www.census.gov/programs-surveys/e-stats.html](http://www.census.gov/programs-surveys/e-stats.html)  
International Trade  
[//www.census.gov/topics/international-trade.html](http://www.census.gov/topics/international-trade.html)  
Export Codes  
[//www.census.gov/topics/international-trade/schedule-b.html](http://www.census.gov/topics/international-trade/schedule-b.html)  
NAICS  
[//www.census.gov/topics/economy/naics.html](http://www.census.gov/topics/economy/naics.html)  
Governments  
[//www.census.gov/topics/public-sector.html](http://www.census.gov/topics/public-sector.html)  
Local Employment Dynamics  
[//www.census.gov/topics/employment-dynamics.html](http://www.census.gov/topics/employment-dynamics.html)  
Survey of Business Owners  
[//www.census.gov/programs-surveys/sbo.html](http://www.census.gov/programs-surveys/sbo.html)  
[//www.youtube.com/user/usensusbureau](http://www.youtube.com/user/usensusbureau)

**PEOPLE & HOUSEHOLDS**

2020 Census  
[//www.census.gov/2020census/](http://www.census.gov/2020census/)  
2010 Census  
[//www.census.gov/programs-surveys/decennial-census/2010-census.html](http://www.census.gov/programs-surveys/decennial-census/2010-census.html)  
American Community Survey  
[//www.census.gov/programs-surveys/acs/](http://www.census.gov/programs-surveys/acs/)  
Income  
[//www.census.gov/topics/income-poverty/income.html](http://www.census.gov/topics/income-poverty/income.html)  
Poverty  
[//www.census.gov/topics/income-poverty/poverty.html](http://www.census.gov/topics/income-poverty/poverty.html)  
Population Estimates  
[//www.census.gov/topics/population/estimates.html](http://www.census.gov/topics/population/estimates.html)  
Projections  
[//www.census.gov/topics/population/projections.html](http://www.census.gov/topics/population/projections.html)  
Health Insurance  
[//www.census.gov/topics/health/insurance.html](http://www.census.gov/topics/health/insurance.html)  
Housing  
[//www.census.gov/topics/housing.html](http://www.census.gov/topics/housing.html)  
International  
[//www.census.gov/topics/population/international.html](http://www.census.gov/topics/population/international.html)  
Genealogy  
[//www.census.gov/topics/population/genealogy.html](http://www.census.gov/topics/population/genealogy.html)

**SPECIAL TOPICS**

Advisors, Centers and Research Programs  
[//www.census.gov/about/partners.html](http://www.census.gov/about/partners.html)  
Statistics in Schools  
[//www.census.gov/schools/](http://www.census.gov/schools/)  
Tribal Resources (AIAN)  
[//www.census.gov/about/cong-gov-affairs/tribal-affairs/tribal-resources.html](http://www.census.gov/about/cong-gov-affairs/tribal-affairs/tribal-resources.html)  
Emergency Preparedness  
[//www.census.gov/topics/preparedness.html](http://www.census.gov/topics/preparedness.html)  
Statistical Abstract  
[//www.census.gov/library/publications/series/stat1/cal\\_abstracts.html](http://www.census.gov/library/publications/series/stat1/cal_abstracts.html)  
Special Census Program  
[//www.census.gov/programs-surveys/specialcensus.html](http://www.census.gov/programs-surveys/specialcensus.html)  
Data Linkage Infrastructure  
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Fraudulent Activity & Scams  
[//www.census.gov/programs-surveys/are-you-in-a-survey/fraudulent-activity-and-scams.html](http://www.census.gov/programs-surveys/are-you-in-a-survey/fraudulent-activity-and-scams.html)  
USA.gov [//www.usa.gov/](http://www.usa.gov/)  
USA.gov  
[//www.usa.gov/](http://www.usa.gov/)  
Business.gov  
[//business.usa.gov/](http://business.usa.gov/)

**NEWSROOM**

[//www.census.gov/newsroom.html](http://www.census.gov/newsroom.html)  
News Releases  
[//www.census.gov/newsroom/press-releases.html](http://www.census.gov/newsroom/press-releases.html)  
Release Schedule  
[//www.calendarwiz.com/calendars/calendar.php?cal=cens1&sample&cid\[\]=31783](http://www.calendarwiz.com/calendars/calendar.php?cal=cens1&sample&cid[]=31783)  
Facts for Features  
[//www.census.gov/newsroom/facts-for-features.html](http://www.census.gov/newsroom/facts-for-features.html)  
Stats for Stories  
[//www.census.gov/newsroom/stories.html](http://www.census.gov/newsroom/stories.html)  
Statistical Abstract  
[//www.census.gov/about/contact-us/stat1\\_media.html](http://www.census.gov/about/contact-us/stat1_media.html)

**CONNECT WITH US**

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[//public.govdelivery.com/accounts/USCENSUS/subscribe/new](https://public.govdelivery.com/accounts/USCENSUS/subscribe/new)

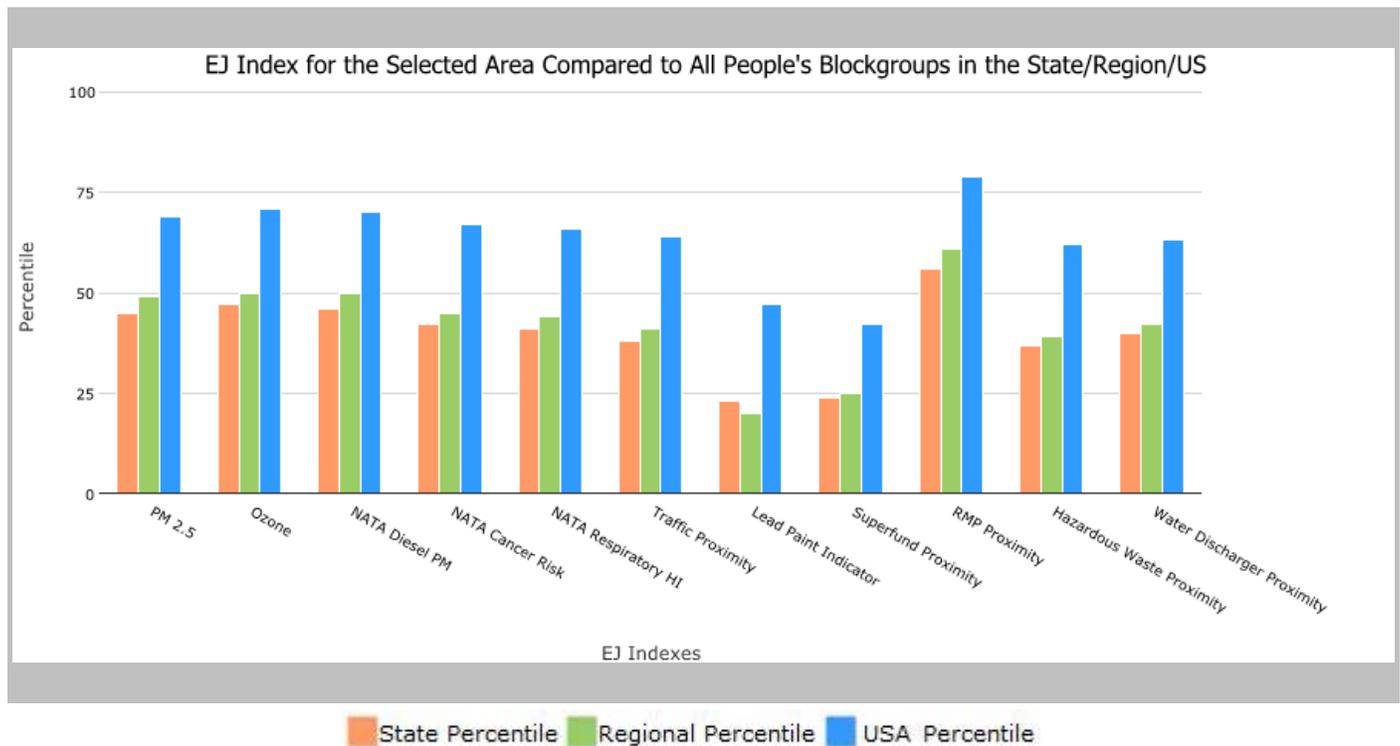
Accessibility [//www.census.gov/about/policies/privacy/privacy-policy.html#par\\_textImage\\_1](http://www.census.gov/about/policies/privacy/privacy-policy.html#par_textImage_1) | Information Quality [//www.census.gov/quality/](http://www.census.gov/quality/) | FOIA [//www.census.gov/foia/](http://www.census.gov/foia/) | Data Protection and Privacy Policy [//www.census.gov/privacy/](http://www.census.gov/privacy/) | U.S. Department of Commerce [//www.commerce.gov/](http://www.commerce.gov/)

the User Specified Area, CALIFORNIA, EPA Region 9

Approximate Population: 275

Input Area (sq. miles): 2.51

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
<b>EJ Indexes</b>			
EJ Index for PM2.5	45	49	69
EJ Index for Ozone	47	50	71
EJ Index for NATA* Diesel PM	46	50	70
EJ Index for NATA* Air Toxics Cancer Risk	42	45	67
EJ Index for NATA* Respiratory Hazard Index	41	44	66
EJ Index for Traffic Proximity and Volume	38	41	64
EJ Index for Lead Paint Indicator	23	20	47
EJ Index for Superfund Proximity	24	25	42
EJ Index for RMP Proximity	56	61	79
EJ Index for Hazardous Waste Proximity <sup>+</sup>	37	39	62
EJ Index for Water Discharger Proximity	40	42	63

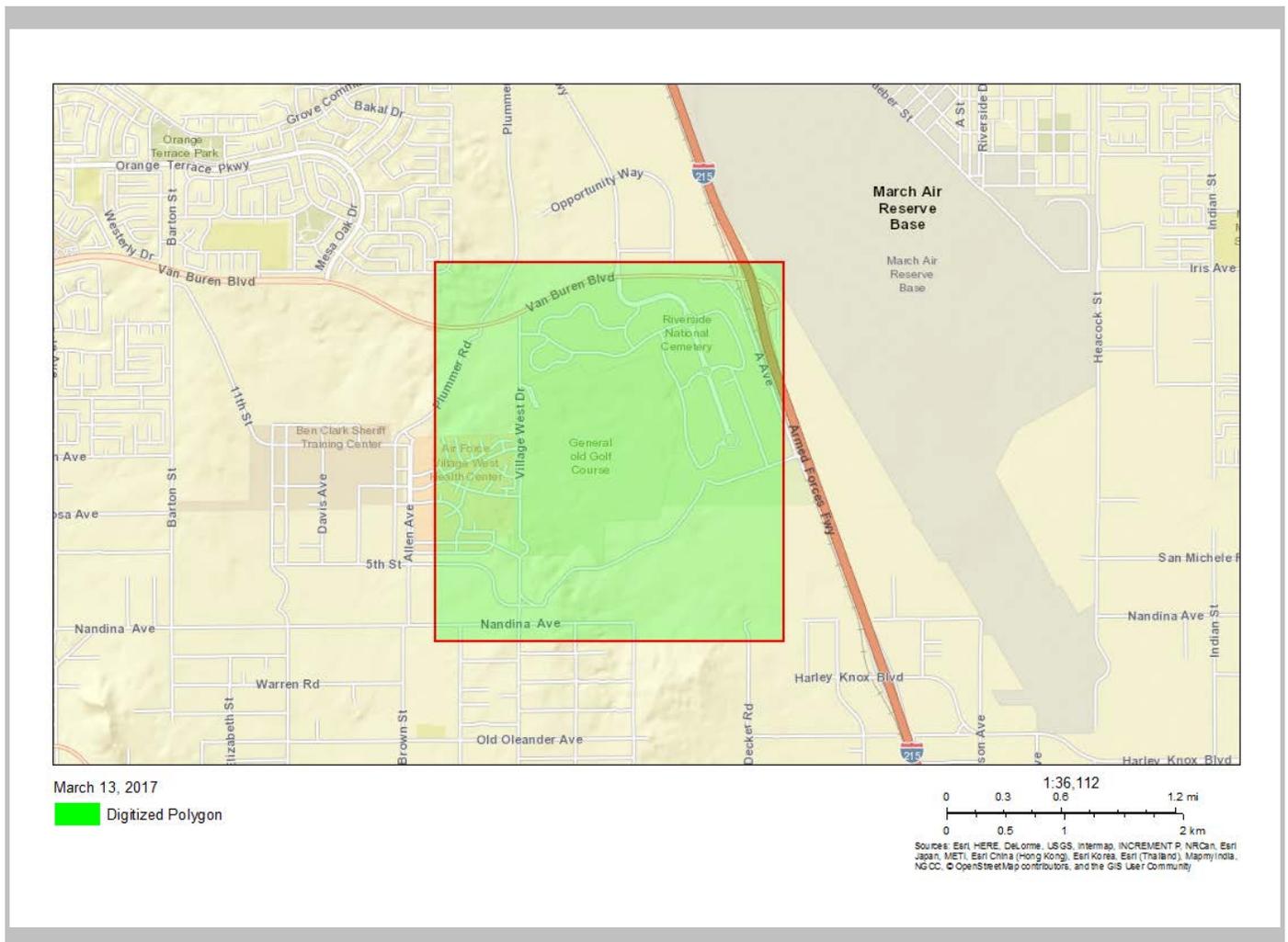


This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

the User Specified Area, CALIFORNIA, EPA Region 9

Approximate Population: 275

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Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0
National Pollutant Discharge Elimination System (NPDES)	0

## EJSCREEN Report (Version 2016)

the User Specified Area, CALIFORNIA, EPA Region 9

Approximate Population: 275

Input Area (sq. miles): 2.51



Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
<b>Environmental Indicators</b>							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$ )	11.8	9.83	74	9.37	79	9.32	94
Ozone (ppb)	69.1	49.8	93	51	94	47.4	99
NATA* Diesel PM ( $\mu\text{g}/\text{m}^3$ )	0.962	0.973	55	0.978	50-60th	0.937	60-70th
NATA* Cancer Risk (lifetime risk per million)	41	44	38	43	<50th	40	50-60th
NATA* Respiratory Hazard Index	1.5	2.1	27	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	25	1200	17	1100	21	590	30
Lead Paint Indicator (% Pre-1960 Housing)	0.19	0.3	47	0.24	55	0.3	49
Superfund Proximity (site count/km distance)	0.8	0.17	97	0.15	97	0.13	97
RMP Proximity (facility count/km distance)	0.84	0.64	78	0.57	80	0.43	85
Hazardous Waste Proximity* (facility count/km distance)	0.039	0.15	20	0.14	20	0.11	25
Water Discharger Proximity (facility count/km distance)	0.054	0.2	12	0.2	14	0.31	10
<b>Demographic Indicators</b>							
Demographic Index	38%	49%	36	47%	38	36%	61
Minority Population	47%	61%	34	58%	38	37%	66
Low Income Population	29%	36%	44	36%	44	35%	45
Linguistically Isolated Population	0%	10%	16	9%	19	5%	45
Population With Less Than High School Education	19%	19%	58	17%	61	14%	73
Population Under 5 years of age	6%	7%	47	7%	47	6%	51
Population over 64 years of age	43%	12%	99	13%	98	14%	98

\* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

+ The hazardous waste environmental indicator and the corresponding EJ index will appear as N/A if there are no hazardous waste facilities within 50 km of a selected location.

For additional information, see: [www.epa.gov/environmentaljustice](http://www.epa.gov/environmentaljustice)

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

## **APPENDIX E**

### **Public Notices and Comments**