

**DETERMINATION OF BIOLOGICALLY
EQUIVALENT OR SUPERIOR PRESERVATION**

**HORIZONS
APN 380-250-023**

CITY OF WILDOMAR, RIVERSIDE COUNTY, CALIFORNIA

**SECTION 6.1.2 RIPARIAN/RIVERINE AND VERNAL POOLS OF THE
WESTERN RIVERSIDE COUNTY MULTIPLE SPECIES HABITAT CONSERVATION PLAN**



APRIL 2015

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Project Location:

U.S. Geological Survey (USGS) 7.5-minute
Wildomar topographic quadrangle map, Section 26, T. 6 S., R. 4 W.

Prepared For:

Strata Keith, LLC
4370 La Jolla Village Drive, Suite 960
San Diego, California 92122
Contact: Mr. Eric Flodine

Prepared By:

PCR Services Corporation
2121 Alton Parkway, Suite 100
Irvine, California 92606
Contacts: Ceri Williams-Dodd Ph.D., Senior Biologist II
Amir Morales, Principal Regulatory/Environmental Scientist

Surveys Conducted:

November 27, 2012; April 11, 2013;
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APRIL 2015

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1.0 INTRODUCTION

1.1 Background and Purpose

This document presents the results of a Determination of Biologically Equivalent or Superior Preservation (DBESP) conducted by **PCR Services Corporation (PCR)** for the proposed Horizons development (Project), Assessor Parcel Numbers (APN) 380-250-023, as required under Section 6.1.2, Riparian/Riverine and Vernal Pools policy of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) (Riverside County Integrated Project/RCIP, 2003; Dudek & Associates, 2003).

1.2 Definition of the Project Site

The approximately 20.27-acre Project site and 4.29 acres off-site is generally situated just east of Interstate 15 (I-15) and west of I-215, as shown in **Figure 1, Regional Map**. Specifically, the Project site is located directly northwest of the intersection of Prielipp Road and the proposed southerly extension of Elizabeth Lane. The Project site can be found on the U.S. Geological Survey (USGS) 7.5' Murrieta topographic quadrangle map, Section 6, T. 7 S., R. 3 W. (USGS 1953), as shown in **Figure 2, Vicinity Map**. Surrounding land uses include a mix of rural and suburban residential development and open space in all directions, in addition to a few commercial developments to the northeast, west, and south west.

The Project site and off-site areas consist primarily of disturbed fallow agricultural fields, with a smaller component of native vegetation dominated by California buckwheat (*Eriogonum fasciculatum*), chamise (*Adenostoma fasciculatum*), and Riversidean sage scrub. One drainage feature, Drainage A, was observed to support field indicators associated with USACE, RWQCB and CDFW (collectively “the resource agencies”) jurisdictional waters. Drainage A traverses the Project site in a northeast to southwest direction, and meanders on- and off-site along the central to southern end of the eastern boundary. No USGS blue-line streams are mapped within the Project site or off-site areas.

The topography of the Project site consists of gently rolling hills. The site slopes gently in a northeast to southwest direction, with the elevations ranging from approximately 1,330 feet above MSL along the southwestern boundary to approximately 1,380 feet above MSL along the northern boundary. Representative photographs of the Project site are included in **Figure 3, Site Photographs**.

1.3 Relationship to the MSHCP

The Project site is located in the Elsinore Area Plan of the MSHCP. The MSHCP is a multi-jurisdictional Habitat Conservation Plan to maintain biological and ecological diversity within a rapidly urbanizing region. Under the MSHCP, participating jurisdictions (in this case, the City of Wildomar) are authorized to allow “take” of specified plant and wildlife species within the MSHCP Plan Area. In addition, the wildlife agencies, namely California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS), allow take of habitat or individual species outside of the MSHCP Conservation Area in exchange for the assembly and management of a coordinated MSHCP Conservation Area.

The Project site is not within or adjacent to a criteria cell, as shown in **Figure 4, Location within the Elsinore Area Plan of the MSHCP** (Riverside County TLMA, 2013a). A criteria cell is defined as a “unit within the Criteria Area” for which descriptions are provided “to guide assembly of the Additional Reserve Lands”.

Since the Project site is not within a criteria cell, it is not subject to the Habitat Acquisition and Negotiation Strategy (HANS) process. The HANS process applies to properties within a MSHCP criteria cell which may be needed for inclusion in the MSHCP Conservation Area. The nearest Criteria Cell is located approximately 1,400 feet north of the Project site, on the north side of Clinton Keith Road; specifically Cell Group L', cell 5558 (Riverside County TLMA, 2013b).

Although the Project site is outside of a criteria cell, it is still subject to other plan wide requirements of the MSHCP. The Applicant is required to pay the Local Development Mitigation Fee established in the MSHCP Implementation Agreement (Section 8.5.1 of the MSHCP), comply with the Riparian/Riverine policy in the MSHCP (Section 6.1.2 of the MSHCP), and conduct burrowing owl surveys because the Project site is within the Burrowing Owl Survey Area (Section 6.3.2 of the MSHCP). The Project site is not within the MSHCP's Narrow Endemic Plant Species Survey Area (Section 6.1.3 of the MSHCP), Criteria Area Species Survey Area, Amphibian Species Survey Area, or Mammal Species Survey Area (Section 6.3.2 of the MSHCP).

The Project site is not within any Core or Linkage areas as identified by the MSHCP (Dudek & Associates, 2003). The closest linkage to the Project site is Proposed Linkage 8 just over approximately one mile to the north associated with Sedco Hills. The closest Core areas are approximately located just over five miles to the northwest (Proposed Extension of Existing Core 3, Lake Elsinore Soils), west (Existing Core B, Cleveland National Forest), south (Existing Core F, Santa Rosa Plateau), and east (Proposed Core 2, Antelope Valley).

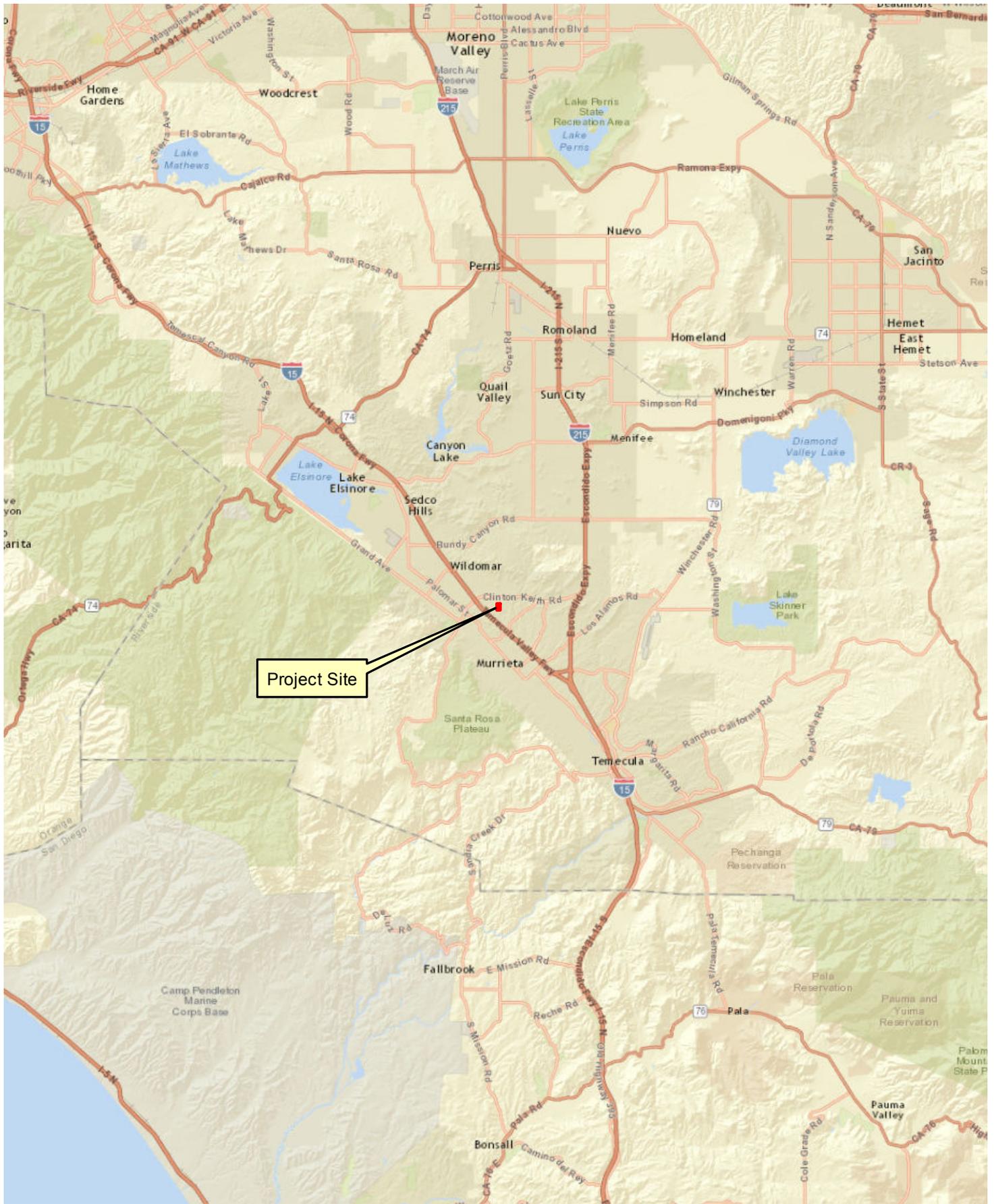
2.0 PROJECT DESCRIPTION

2.1 Proposed Project

The proposed Project is a mixed-use residential and assisted living development as depicted on **Figure 5, Conceptual Site Plan**. The residential portion includes 2-story townhomes on the majority of the Project site. Specifically, the townhomes are proposed within the northern and central portions of the site, including 146 units on 12 acres. A recreation and leasing building is also proposed in the central portion of the apartment complex, in addition to 350 parking spaces. The proposed assisted living facility is located in the southern portion of the Project site north of Prielipp Road, and comprises skilled nursing units (1-story) and assisted living units (2-story) in addition to 86 parking spaces on 4.5 acres.

Additional features of the Project include the proposed extension of Elizabeth Lane along the eastern boundary of the Project site, and a 2-acre open space area along the western boundary. The open space area comprises a 1-acre retention basin in the southern part and a 1-acre area supporting an existing drainage in the northern part. The main entry for the assisted living facility is located off Prielipp Road in the south, and the main entry for the townhomes is located off Elizabeth Lane to the east. Emergency vehicle access roads are provided for the assisting living facility and townhomes, and both are located off Elizabeth Lane.

The off-site areas include predominately linear buffers surrounding the entire Project site, and a larger area to the south of the Project site. The off-site areas are proposed to accommodate disturbance from grading activities associated with manufactured slopes, as well as road improvements associated with Elizabeth Lane to the east, Prielipp Road to the south, and potentially Bunny Trail Road to the north, as required by the City of Wildomar.



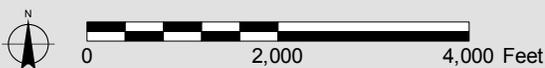
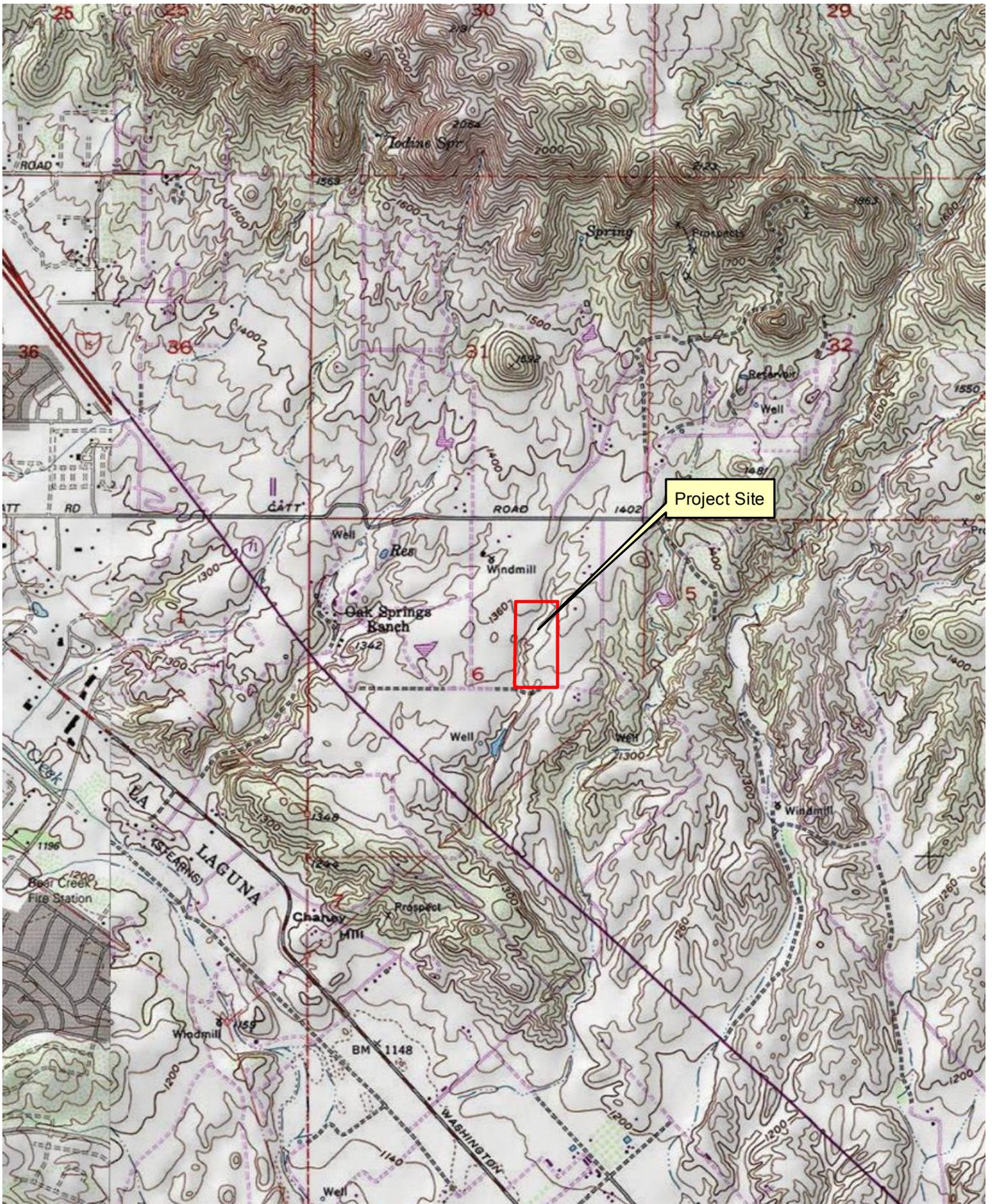
Regional Map

Horizons APN 380250023

Source: ESRI Street Map, 2009; PCR Services Corporation, 2015.

FIGURE

1



Vicinity Map

Horizons APN 380250023

Source: USGS Topographic Series (Murrieta, Wildomar, CA); PCR Services Corporation, 2015.

FIGURE

2



Photograph 1: Photograph of Disturbed and Buckwheat Scrub habitats taken on the northeast corner facing south.



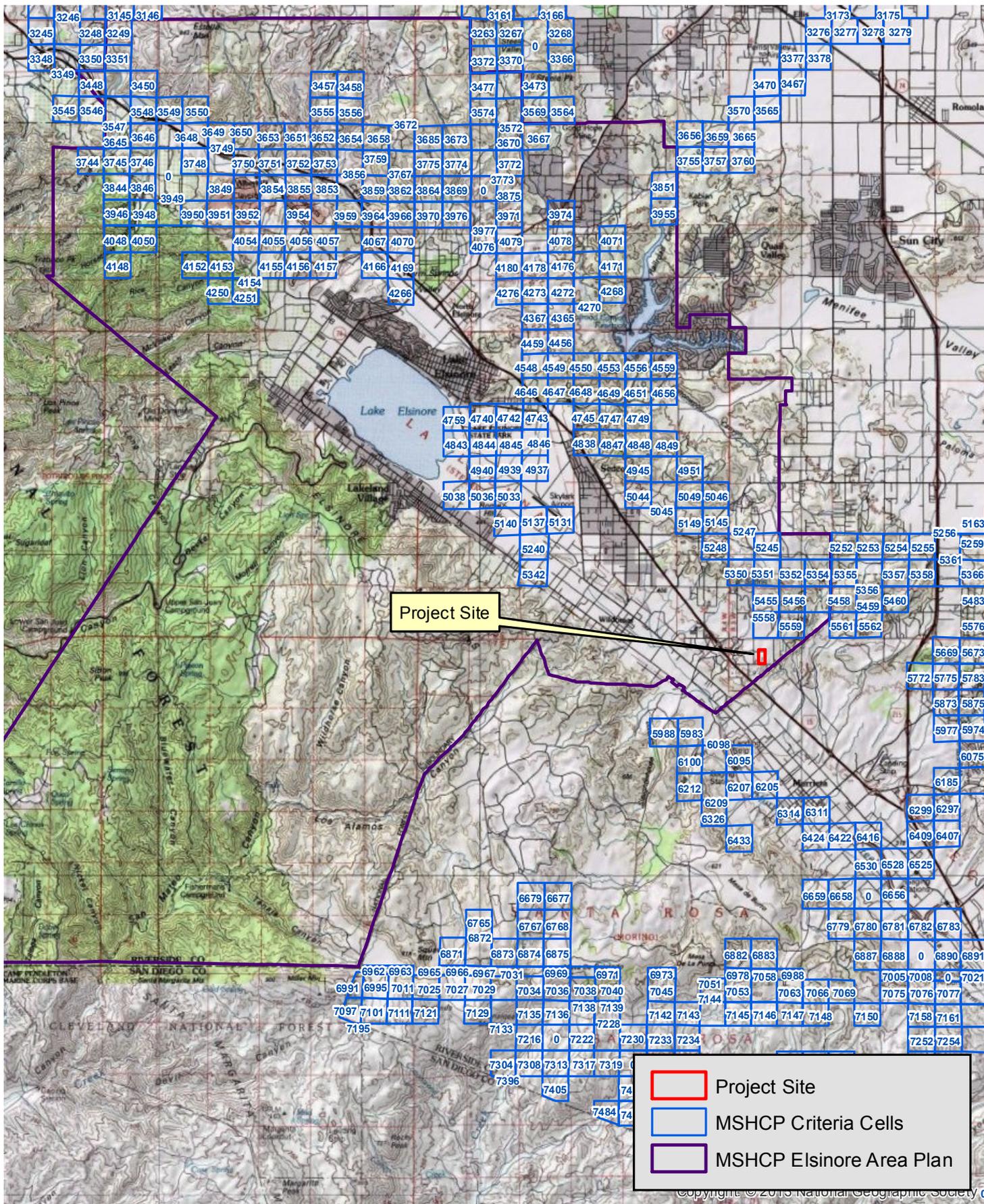
Photograph 2: Photograph of Disturbed habitat taken on the northwest corner facing south.



Photograph 3: Photograph of Disturbed habitat taken on Prielipp Road facing north.



Photograph 4: Photograph of Ruderal/Riversidean Sage Scrub, Chamise Chaparral, and Disturbed habitats taken on the southwest corner facing northeast.



0 2.5 Miles

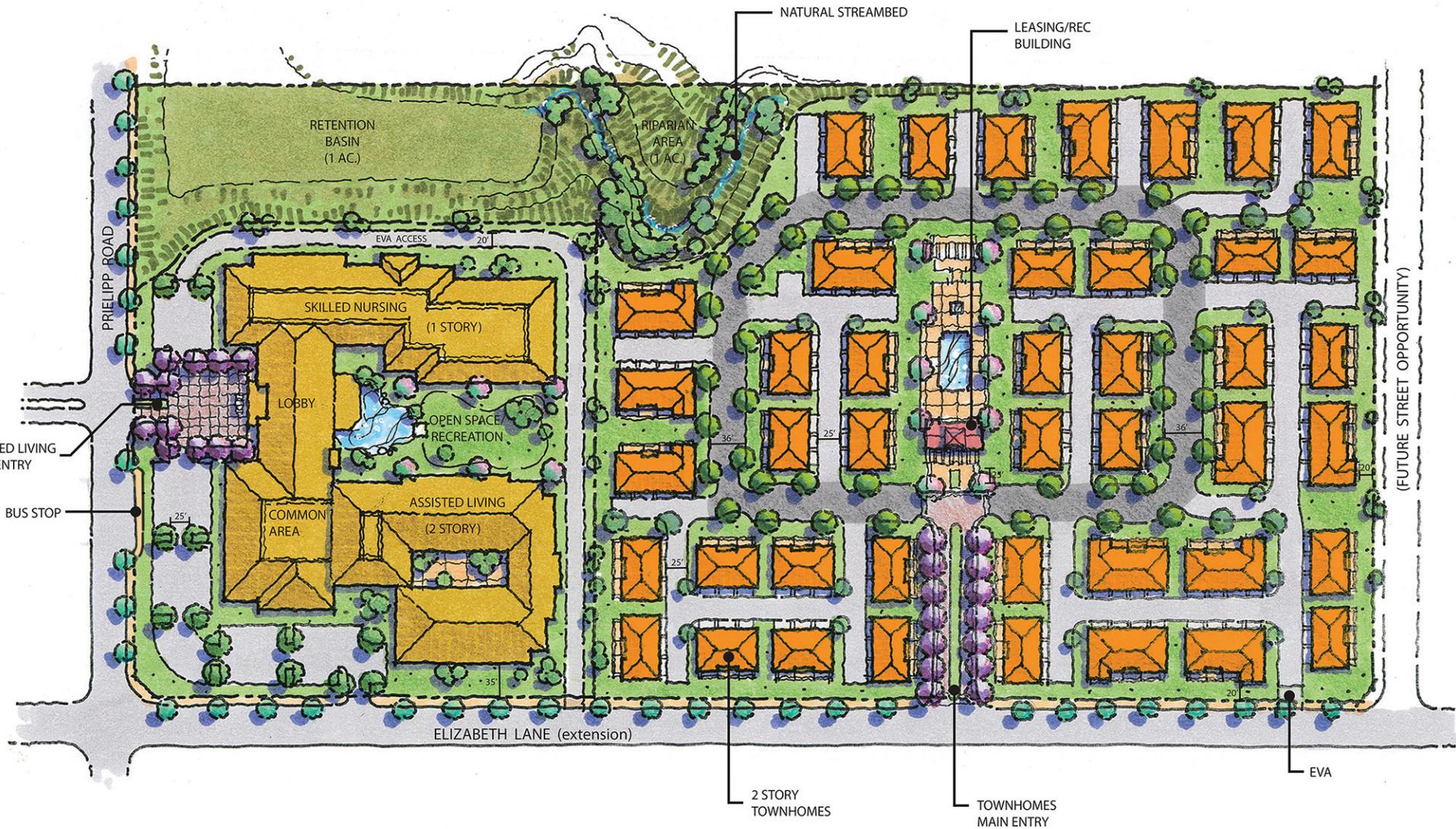
Location within the Elsinore Area Plan of the MSHCP

FIGURE

4

Horizons APN 380250023

Source: USGS Topographic Series; MSHCP; PCR Services Corporation, 2015.



Conceptual Site Plan

Horizons APN 380250023
 Source: KTG, 2013.

FIGURE
5

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One drainage feature, Drainage A, was observed traversing the Project site in a northeast to southwest direction, and meanders on- and off-site along the central to southern end of the eastern boundary. No USGS blue-line streams are mapped within the Project site or off-site areas. Drainage A is considered to meet the definition of a MSHCP Riverine Area. Representative photographs of the drainages are included in **Figure 6, Drainage Photographs**

2.2 Project Alternatives

Avoidance of biological resources on the Project site would not allow the developable acreage necessary to make the Project economically feasible, and off-site impacts were minimized to those necessary to comply with the City of Wildomar requirements, as described further in section 2.3 below. However, the Project site does not support high function and value biological resources either on-site or off-site. As described in this report, the biological resources are limited to an ephemeral drainage (Drainage A). The remainder of the site is characterized by predominately disturbed non-native communities in addition to remnant patches of disturbed upland native vegetation; Drainage A is unvegetated within the channel with associated vegetation dominated by ruderal non-native species and limited patches of native upland vegetation. The primary function of the drainage is to convey flows downstream. Based on the unvegetated and ephemeral nature of the drainage, it is considered of lower function and value when compared to drainages dominated by riparian vegetation or special aquatic sites regulated by the USACE such as wetlands. Although the drainage is not vegetated and therefore does not support habitat for riparian species covered by the MSHCP, Drainage A is considered a Riverine Area pursuant to the MSHCP, and USACE, RWQCB, and CDFW jurisdictional. As such, even though the drainage is of low function and value, impacts will be mitigated at a minimum 1:1 ratio pursuant to Section 404 of the Clean Water Act (CWA) regulated by USACE, Section 401 of the Clean Water Act regulated by RWQCB, and CDFW Section 1602 of the Fish and Game Code. Furthermore, the Project would increase the hydrology (volume of water) to downstream areas whilst maintaining the velocity and discharge levels consistent with pre-project conditions to avoid streambed erosion. The existing function of Drainage A as conveying flows to downstream areas would therefore be maintained by the Project, and even improved with the increase in hydrology that would have a potential to support additional habitat downstream.

2.3 100 Percent Avoidance Analysis

In accordance with the MSHCP, a 100 percent avoidance alternative was considered to determine if a project could be developed on the property site that avoided 100 percent of the Riparian/Riverine areas present. The site supports one drainage feature, as described further in section 4.4, Jurisdictional Drainage Features, of this report that is considered to meet the definition of a MSHCP Riverine Area. The drainage traverses through the center of the northern portion of the Project site, and is incised with steep adjacent slopes. Based on these factors, the required grading would be logistically challenging, costly, and would reduce the developable acreage and number of lots to a point that would make the Project infeasible. As such, in order to avoid all impacts to the Riverine Area, the Project could not 1) implement the off-site improvements to Prielipp Road to the south, Elizabeth Lane to the east, and potentially to Bunny Trail Road to the north as required by the City of Wildomar, or 2) support the developable acreage necessary to make the Project economically feasible. Therefore, the 100 percent avoidance alternative was determined to be infeasible and no further analysis was considered by the Project proponent with regard to 100 percent avoidance. Avoidance was incorporated into the Project to the greatest extent feasible based on the above factors, including a portion of Drainage A along the western boundary.

Since the proposed Project is not within a MSHCP criteria cell, removing any possible development would place further development pressure on areas within MSHCP criteria cells. In addition, under the 100 percent avoidance alternative, there would be no off-site mitigation that would provide wider reaching watershed benefits than the isolated features and vegetation communities supported on the Project site and in the off-site areas (see section 7.3 of this report), or improvements to water quality downstream of the Project post-development.

In summary, a 100 percent avoidance alternative is not feasible because it would not allow the Applicant to realize Project objectives, it would increase development pressure within MSHCP criteria cells, and there would be no wide reaching watershed-level benefits.

2.4 Other Alternatives Considered

No other alternatives beyond those discussed in Sections 2.1 and 2.2 above were considered for the development based on the economical infeasibility and low function and value of the biological resources identified.

3.0 METHODOLOGY

The biological resources of the Project site are documented in the Biological Resources Assessment (PCR, 2013) (refer to **Appendix A**, *Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis*). An overview of the methods is provided below.

3.1 Literature Review

The assessment began with a review of relevant maps and literature on the biological resources of the Project site and surrounding vicinity. Initially, the California Natural Diversity Database (CNDDDB), a CDFW species account database; the MSHCP; and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants were reviewed for all pertinent information regarding the localities of known observations of sensitive species and habitats in the vicinity of the Project site. Federal register listings, protocols, and species data provided by the USFWS and CDFW were reviewed in conjunction with anticipated federally- and state-listed species potentially occurring within the vicinity as necessary. In addition, regional flora and fauna field guides were utilized to assist in the identification of species and suitable habitats.

3.2 Field Investigations

The following field investigations were conducted by PCR. The detailed methodology for each type of survey can be found in Appendix A (section 3.0), *Biological Resources Assessment*.

- General biological survey (including sensitive species habitat assessments) and vegetation mapping was conducted on November 29, 2012 by PCR biologist Ezekiel Cooley.
- Jurisdictional delineation was conducted on November 27, 2012 by PCR Principal Regulatory Scientist Amir Morales.



Photograph 1: View of Drainage A looking downstream/south approximately 150 feet south of the property's northern project boundary.



Photograph 2: View within Drainage A looking south/downstream near center of property.



Photograph 3: View of Drainage A looking north/upstream approximately 350 feet from southern boundary.

- Focused sensitive plant surveys were conducted by PCR biologists Ezekiel Cooley, Bob Huttar, Florence Chan, and/or Amy Lee on April 11, 2013 and August 19, 2013. Surveys were conducted following CDFW and USFWS published guidelines.
- Focused Step I and Step II burrowing owl surveys were conducted on April 11, 2013 (PCR biologists Ezekiel Cooley and Bob Huttar), May 10, 2013 (PCR biologists Ezekiel Cooley and Amy Lee), June 13, 2013 (PCR biologists Florence Chan and Amy Lee), and August 19, 2013 (PCR biologists Amy Lee, Florence Chan, and Bob Huttar). The surveys were conducted in accordance with the MSHCP burrowing owl survey instructions (County of Riverside, 2006).

3.3 Plant Community Mapping

Plant communities were mapped directly in the field utilizing a 100-scale (1"=100') aerial photograph. Plant community names and descriptions follow Holland (1986). After completing the fieldwork, the plant community polygons were digitized using Geographic Information System (GIS) technology to calculate acreages.

4.0 DESCRIPTION OF AVAILABLE BIOLOGICAL INFORMATION

This section summarizes the biological resources of the Project site and proposed impacts as documented in Appendix A, *Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis*. Observed species lists are included in Appendix A (as Appendix A of the *Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis*).

4.1 Plant Communities

The Project site and off-site areas total 24.56 acres and support 22.82 acres of non-native dominated plant communities (19.4 acres on-site and 3.42 acres off-site) and 1.74 acres of native plant communities (0.87 acres on-site and 0.87 acre off-site). Non-native plant communities include 0.01 acre of ornamental (off-site only), 0.56 acre of ruderal (0.41 acre on-site and 0.15 acre off-site), 0.73 acre ruderal/buckwheat scrub (0.56 acre on-site and 0.17 acre off-site), 1.73 acres ruderal/Riversidean Sage Scrub (1.62 acres on-site and 0.11 acre off-site), 18.99 acres disturbed (16.54 acres on-site and 2.45 acres off-site), in addition to 0.80 acre developed (0.27 acre on-site and 0.53 acre off-site). Native plant communities include 0.72 acre of buckwheat scrub (off-site only), 0.08 acre of buckwheat scrub/ruderal (on-site only), 0.38 acre of chamise chaparral (0.31 acre on-site and 0.07 acre off-site), 0.16 acre Riversidean sage scrub (on-site only), and 0.40 acre Riversidean sage scrub/ruderal (0.32 acre on-site and 0.08 acre off-site). Descriptions and a map of the plant communities are included in the *Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis* prepared by PCR (2013) (Appendix A). The total acreages of each plant community mapped within the Project site are summarized in **Table 1, Existing Plant Communities**.

All of the non-native and native plant communities described above would be either permanently or temporarily impacted by the Project; the majority of both on-site and off-site impacts will be permanent. The acreages of both permanent and temporary impacts to each plant community mapped on- and off-site are summarized in **Table 2, Permanent and Temporary Impacts to Plant Communities**.

Table 1**Existing Plant Communities**

Plant Community	On-Site (acres)	Off-Site (acres)	Total (acres)
Buckwheat Scrub	-	0.72	0.72
Buckwheat Scrub/Ruderal	0.08	-	0.08
Chamise Chaparral	0.31	0.07	0.38
Riversidean Sage Scrub	0.16	-	0.16
Riversidean Sage Scrub/Ruderal	0.32	0.08	0.40
Ornamental	-	0.01	0.01
Ruderal	0.41	0.15	0.56
Ruderal/Buckwheat Scrub	0.56	0.17	0.73
Ruderal/Riversidean Sage Scrub	1.62	0.11	1.73
Disturbed	16.54	2.45	18.99
Developed	0.27	0.53	0.80
Total	20.27	4.29	24.56

Source: PCR Services Corporation, 2013.

Table 2**Permanent and Temporary Impacts to Plant Communities**

Plant Community	Impacts (acres)			
	On-Site		Off-Site	
	Permanent	Temporary	Permanent	Temporary
Buckwheat Scrub	-	-	0.40	0.32
Buckwheat Scrub/Ruderal	0.08	-	-	-
Chamise Chaparral	0.25	0.06	0.07	-
Riversidean Sage Scrub	0.16	-	-	-
Riversidean Sage Scrub/Ruderal	0.02	0.30	0.08	-
Ornamental	-	-	0.01	-
Ruderal	0.41	-	0.15	-
Ruderal/Buckwheat Scrub	0.56	-	0.17	-
Ruderal/Riversidean Sage Scrub	1.49	0.13	0.11	-
Disturbed	16.16	0.38	2.23	0.22
Developed	0.27	-	0.50	0.03
Total	19.40	0.87	3.72	0.57

Source: PCR Services Corporation, 2013.

4.2 Sensitive Plant Species

Sensitive plants include those listed by the USFWS, CDFW, and CNPS (particularly lists 1A, 1B, and 2). One potentially sensitive plant species was observed on the Project site, paniculate tarplant (*Deinandra paniculata*). This species is a CNPS List 4, which is classified as 'Plants of limited distribution – a watch list'. A low density of this species occurs in two locations on the Project site totaling 1.83 acres in the northeast and southeast. The species was flowering at the time of the survey.

All of the paniculate tarplant would be permanently impacted as a result of the Project (see **Figure 7, Impacts to Distribution of Paniculate Tarplant**). This species is widely distributed in Riverside County, as documented on Calflora, including 31 CNPS and other records, in addition to georeferenced coordinates for several hundred observations (Calflora, 2012). In addition, it is not a species covered by the MSHCP, nor was it considered for coverage under the MSHCP. Based on the distribution of this species within Riverside County, the lack of consideration of this species for coverage under the MSHCP, and the CNPS listing of 4, this species is not considered sensitive. Therefore, impacts to paniculate tarplant would be considered a less than significant impact and no mitigation measures would be required.

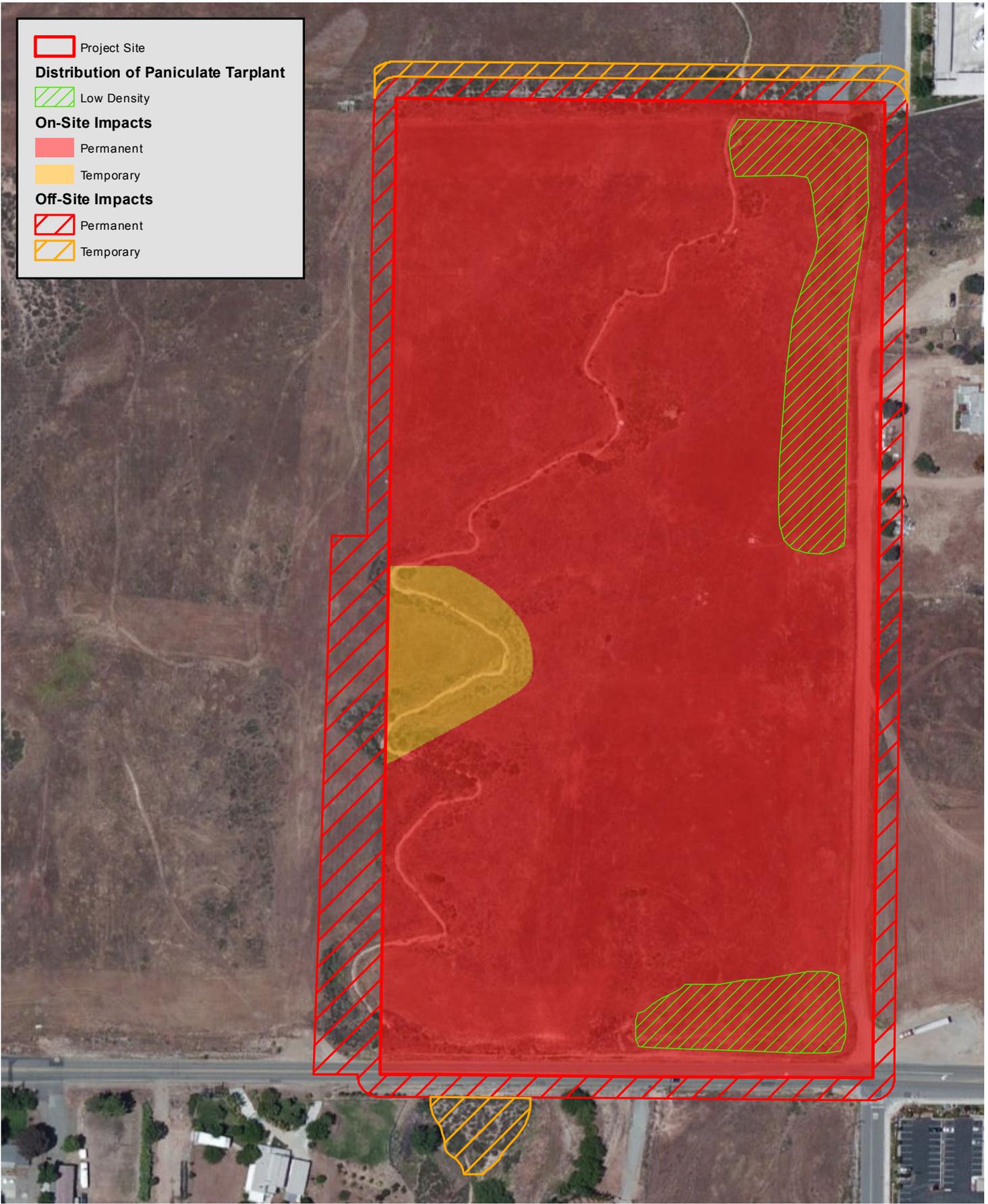
As discussed in the *Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis*, attached (PCR, 2013), no other sensitive plant species were observed on-site. The Project site is not within the MSHCP Narrow Endemic Plant Species Survey Area or Criteria Area Species Survey Area.

4.3 Sensitive Wildlife Species

Sensitive wildlife species include those species listed as Endangered or Threatened under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA), candidates for listing by the USFWS or CDFW, and Species of Special Concern to the CDFW. Several special-status wildlife species were reported in the vicinity based on CNDDB, totaling 40 species within the 9-quadrangle search. Of these, a total of 22 species were considered to have no potential to occur on the Project site or off-site areas due to the lack of suitable habitat or the site's location outside of the species' range, 1 species (burrowing owl/*Athene cunicularia*) was determined absent based on focused surveys, 12 species were determined to have a very low, low, moderate or moderate to high potential to inhabit or forage, 2 species were observed (San Diego black-tailed jackrabbit/*Lepus californicus bennettii* and white-tailed kite/*Elanus leucurus*), and the remaining five species were migratory birds and raptors considered to have a potential to occur. A summary table of these species is provided in Appendix C of the *Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis*, attached (PCR, 2013). The results of the focused burrowing owl survey are provided below, in addition to a summary of the 2 species observed, the 12 species with potential to occur, and a discussion of migratory bird and raptor species.

Burrowing Owl

Burrowing owl is a California Species of Special Concern that is known to occur in the Project vicinity based on CNDDB and the MSHCP. The Project site is within an overlay in the MSHCP that requires additional surveys. Therefore, focused Step I and Step II surveys for burrowing owls were conducted on the Project site. As outlined in the *Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis*, attached (PCR, 2013), suitable habitat was identified on-site during the Step I survey, including disturbed, low-growing vegetation; bare ground; and small fossorial mammal burrows. Burrowing owls



Impacts to Distribution of Paniculate Tarplant

Horizons APN 380250023
 Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2015.

FIGURE
7

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often use the burrows of California ground squirrels (*Spermophilus beecheyi*); ground squirrel burrows were abundant along the northern Project site boundary (within an earthen berm and concrete pipes) and along the slopes of Drainage A. The site is fairly open, which burrowing owls prefer, and potential perch features were observed including the earthen berm along the northern boundary. Although the Project site supports some suitable habitat, no owls were observed on-site during the focused Step II surveys, or within approximately 500-feet of the Project site as required by the survey protocol. Therefore, the site and adjacent area does not currently support burrowing owls.

However, due to the presence of suitable habitat and in compliance with the MSHCP, a pre-construction survey for burrowing owl is required within 30 days prior to ground disturbance to avoid potential direct take of burrowing owls in the future. A Condition of Approval requiring this survey is recommended in Section 8.0 of the *Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis*, attached (PCR, 2013), in addition to a recommended mitigation measure should burrowing owls be present in the future pursuant to CDFW published guidelines.

Species Observed On-Site

- **White-tailed kite (*Elanus leucurus*):** This mammal species is a California Fully Protected species and a Covered Species pursuant to the MSHCP. The species was incidentally observed foraging on-site by PCR during surveys in 2013.
- **San Diego black-tailed jackrabbit (*Lepus californicus bennettii*):** This mammal species is a California Species of Special Concern and a Covered Species pursuant to the MSHCP. An occurrence of San Diego black-tailed jackrabbit was reported in the CNDDDB on the Project site dated 1998, and the species was incidentally observed on-site by PCR during surveys.

Species With Potential to Occur

The following 12 species were determined to have a potential to occur on the Project site:

- **Coast horned lizard (*Phrynosoma blainvillii*):** This reptile species is a state species of special concern and is a Covered Species pursuant to the MSHCP. Coast horned lizard was determined to have a moderate potential to occur on the Project site and off-site areas based on the presence of limited scrub and wash habitat. However, the potential to occur was considered moderate due to the scattered and disturbed nature of the habitat. No incidental sightings of this species were made during site surveys conducted in 2012 and 2013.
- **Orange-throated whiptail (*Aspidoscelis hyperythra*):** This reptile species is a state species of special concern and a Covered Species pursuant to the MSHCP. Orange-throated whiptail was determined to have a potential to occur within the Project site and off-site areas based on the presence of scrub, dry and disturbed habitats. However, the potential to occur was considered moderate due to the high level of disturbance and scattered habitat. No incidental sightings of this species were made during site surveys conducted in 2012 and 2013.
- **Red-diamond rattlesnake (*Crotalus ruber*):** This reptile species is a state species of special concern and a Covered Species pursuant to the MSHCP. Red-diamond rattlesnake was determined to have a potential to occur within the Project site and off-site areas based on the presence of suitable

habitat such as chamise chaparral. However, the potential to occur was considered moderate due to the high level of disturbance and scattered habitat. No incidental sightings of this species were made during site surveys conducted in 2012 and 2013.

- **Coastal California Gnatcatcher (*Polioptila californica californica*):** This bird species is listed as federally Threatened, a state species of special concern, and a Covered Species pursuant to the MSHCP. Coastal California gnatcatcher was determined to have a potential to occur within the Project site and off-site areas based on the presence of suitable scrub habitat, although the habitat is limited and scattered. An occurrence of coastal California gnatcatcher was reported in the CNDDDB on the Project site dated 2001, and one individual of this species was incidentally observed by PCR in scrub habitat on a project site less than 1,000 feet northwest of the property. Based on the presence of limited habitat, past sightings on-site, and observations in close proximity to the Project site, the potential to occur was considered moderate to high. No incidental sightings of this species were made during site surveys conducted in 2012 and 2013.
- **Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*):** This mammal species is listed as a state species of special concern and a Covered Species pursuant to the MSHCP. Northwestern San Diego pocket mouse was determined to have a potential to occur within the Project site and off-site areas based on the presence of scrub habitat. A high density of small mammal burrows was located along the northern boundary of the Project site. Numerous burrows were also observed along the slopes of Drainage A. However, the potential to occur was considered very low due to the limited habitat on-site that is scattered and highly disturbed.
- **Stephen's kangaroo rat (*Dipodomys stephensi*):** This mammal species is listed as federally endangered, state threatened, and a Covered Species pursuant to the MSHCP. Stephen's kangaroo rat was determined to have a potential to occur within the Project site and off-site areas based on the presence of scrub habitat. A high density of small mammal burrows was located along the northern boundary of the Project site. Numerous burrows were also observed along the slopes of Drainage A. However, the potential to occur was considered very low due to the limited habitat on-site that is scattered and highly disturbed.
- **Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*):** This mammal species is listed as federally endangered, state threatened, and a Covered Species pursuant to the MSHCP (with additional surveys required in survey overlay areas). It prefers coastal sage scrub and grassland habitats. Los Angeles pocket mouse was determined to have a potential to occur within the Project site and off-site areas based on the presence of scrub habitat and potential burrows observed within approximately 1 mile of the Project site. A high density of small mammal burrows was also located along the northern boundary of the Project site, and along the slopes of Drainage A. However, the potential to occur was considered low due to the limited habitat on-site that is scattered and highly disturbed.
- **Jacumba Pocket Mouse (*Perognathus longimembris internationalis*):** This mammal species is listed as a state species of special concern. Jacumba pocket mouse was determined to have a potential to occur within the Project site and off-site areas based on the presence of scrub habitat and potential burrows observed within approximately 1 mile of the Project site. A high density of small mammal burrows was also located along the northern boundary of the Project site, and along the slopes of Drainage A. However, the potential to occur was considered low due to the limited habitat on-site that is scattered and highly disturbed.

- **Western Mastiff Bat (*Eumops perotis californicus*):** This mammal species is a state species of special concern. Western mastiff bat was determined to have a potential to occur on the Project site and off-site areas for foraging only based on the presence of open habitat. However, the potential to occur was considered low due to the limited habitat. No suitable roosting habitat was determined present on- or off-site.
- **San Diego Desert Woodrat (*Neotoma lepida intermedia*):** This mammal species is a state species of special concern. San Diego desert woodrat was determined to have a potential to occur on the Project site and off-site areas based on the presence of open habitat. However, the potential to occur was considered very low based on the limited habitat and the absence of any recorded observations in CNDDDB within 10 miles of the site.
- **Southern Grasshopper Mouse (*Onychomys torridus ramona*):** This mammal species is a state species of special concern. Southern grasshopper mouse was determined to have a potential to occur on the Project site and off-site areas based on the presence of potentially suitable habitat. However, the potential to occur was considered very low based on the limited habitat supported and the absence of any recorded observations in CNDDDB within 8 miles of the site since 1932.
- **Pallid Bat (*Antrozous pallidus*):** This mammal species is a state species of special concern. Pallid bat was determined to have a potential to occur on the Project site and off-site areas for foraging only based on the presence of open habitat. However, the potential to occur was considered low based on the limited habitat.

Of the 12 species above, 7 are Covered Species pursuant to the MSHCP (coast horned lizard, orange-throated whiptail, red-diamond rattlesnake, coastal California gnatcatcher, northwestern San Diego pocket mouse, Stephen's kangaroo rat, and Los Angeles pocket mouse). No surveys or mitigation is required for these Covered Species assuming payment of the MSHCP development fee and implementation of MSHCP measures, including the Standard Best Management Practices provided in Appendix C of the MSHCP (see also section 6.3.6 *Consistency with Adopted Natural Community Conservation Plan* below). For the remaining 5 species, 3 species are state species of special concern with very low or low potential based on the limited, scattered and disturbed scrub habitat on- or off-site and occurrences in the region (Jacumba pocket mouse, San Diego desert woodrat, and southern grasshopper mouse), and two species are state species of special concern bats with potential for foraging only (western mastiff bat and pallid bat – foraging habitat is limited). No significant impacts to these species, are expected, as discussed in the *Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis*, attached (PCR, 2013; section 6.3.1.2).

Migratory Birds and Raptors

The Project site and off-site areas support potential nesting and foraging habitat for birds (limited to shrubs for nesting), and also potential foraging habitat for birds including raptors (primarily in the disturbed areas and more open scrub habitat). Several species of non-listed birds were observed during surveys (see Appendix A) and special-status birds were identified by CNDDDB as potentially occurring within the 9-quadrangle search area (see Appendix C of Appendix A, attached). Only one of the special-status non-raptor species, loggerhead shrike (*Lanius ludovicianus*), was determined to have the potential to occur within the Project site or off-site areas (low potential for nesting, and moderate potential for foraging).

According to CNDDDB, there is also a potential for special-status raptors such as northern harrier (*Circus cyaneus*/Species of Special Concern), bald eagle (*Haliaeetus leucocephalus*/Fully Protected), and golden eagle (*Aquila chrysaetos*/Fully Protected) within the 9-quadrangle search area. Of these only bald eagle was

determined to have no potential to occur due to the lack of aquatic habitats associated with the Project site or off-site areas; the remaining two species were determined to have potential to occur for foraging only but were not incidentally observed by PCR during any surveys. White-tailed kite (Fully Protected) was observed foraging on-site, as described above. Other raptors observed on-site were limited to non-listed species including red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*).

No significant impacts to foraging habitat for migratory birds and raptors is expected based on the low quality of habitat as a result of historical disturbance on-site and due to surrounding development. The loss of foraging habitat as a result of the Project would not expect to impact the foraging of these species. Therefore, impacts to foraging habitat would be considered less than significant and no mitigation measures would be required. Direct impacts to these species would be avoided through compliance with the Migratory Bird Treaty Act (MBTA), as discussed in the *Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis*, attached (PCR, 2013; sections 4.7.5 and 6.3.1.2).

4.4 Jurisdictional Drainage Features

Based on the jurisdictional assessment, the Project site supports one ephemeral drainage feature identified as Drainage A that occurs both on-site and off-site. Drainage A is not identified as a USGS blue-line drainage, but is considered jurisdictional. The drainage is mapped on **Figure 8, Drainage Features** and summarized in **Table 3, Drainage Features**. Photographs of the drainages are provided in Figure 6, and a more detailed description is provided below in section 5.1.1.

Table 3

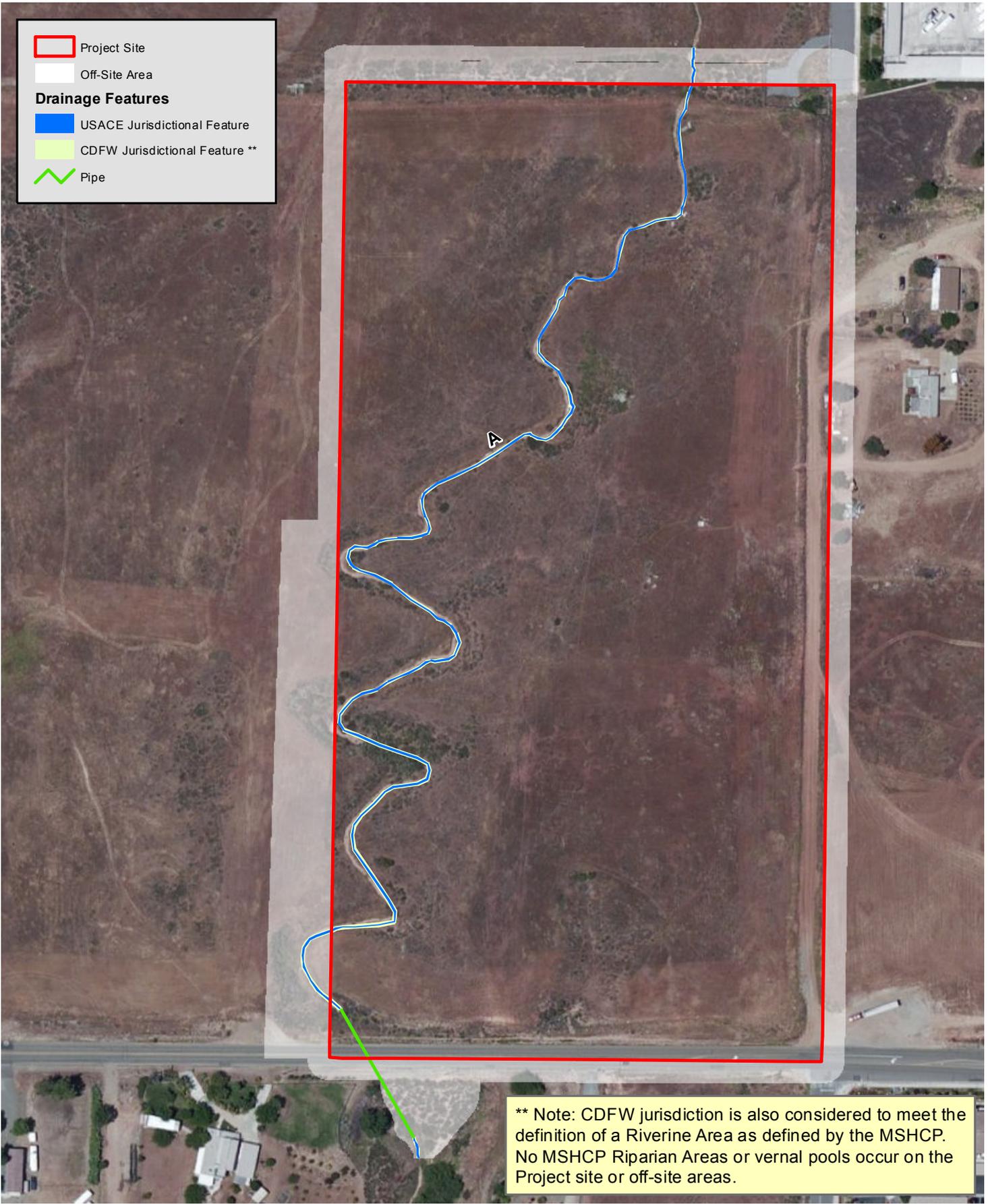
Jurisdictional Features^a

Drainage	Length (feet)	Area (acres)	
		USACE/RWQCB	CDFW
A (On-site)	1,950	0.12	0.22
A (off-site)	212	0.01	0.03
Total	2,162	0.13	0.25

^a Jurisdictional acreages overlap and are not additive (e.g., USACE/RWQCB acreages are included in the total CDFW jurisdictional acreages).

Source: PCR Services Corporation, 2013.

Drainage A supports approximately 2,162 linear feet of ephemeral streambed totaling 0.13 acre of USACE and RWQCB jurisdictional waters (including 0.12 acre on-site and 0.01 acre off-site) and 0.25 acre of CDFW jurisdictional streambed (including 0.22 acre on-site and 0.03 acre off-site). Jurisdictional channel widths associated with USACE/RWQCB jurisdictional waters average 2.5 feet based on the OHWM, while CDFW jurisdictional streambed widths range from 4-6 feet based on the top-of-bank condition. Drainage A is considered to meet the definition of a MSHCP Riverine Area equivalent to the limits of CDFW jurisdiction, as discussed in section 5.0 of this report, below.



Drainage Features

Horizons APN 380250023

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2015.

FIGURE

8

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4.5 Soils

Mapping provided by the Department of Agriculture Natural Resources Conservation Service (NRCS) identified ten soil types on the Project site and off-site areas as follows (NRCS, 2012):

- Arlington and Greenfield fine sandy loams, 2 to 8 percent slopes, eroded
- Handford sandy loam, 2 to 15 percent slopes
- Monserate sandy loam, 8 to 15 percent slopes, eroded
- Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded
- Monserate sandy loam, shallow, 15 to 25 percent slopes, severely eroded
- Placentia fine sandy loam, 5 to 15 percent slopes
- Ramona and Buren sandy loams, 15 to 25 percent slopes, severely eroded
- Ramona and Buren loams, 5 to 15 percent slopes, eroded
- Ramona and Buren loams, 5 to 25 percent slopes, severely eroded
- San Timoteo loam, 8 to 25 percent slopes, eroded

5.0 ASSESSMENT OF RIPARIAN/RIVERINE AND VERNAL POOL RESOURCES

5.1 Assessment of Riparian/Riverine and Vernal Pool Features

Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP provides for the protection of Riparian/Riverine Areas and Vernal Pools within the MSHCP Plan Area. Riparian/Riverine areas are defined in the MSHCP as “lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year.” Vernal pools are defined in the MSHCP as “seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season.”

The Project supports one MSHCP Riverine Area, Drainage A, which occurs both on the Project site and off-site. The limits of the Riverine Area is considered equivalent to the CDFW jurisdiction mapped on Figure 8 and summarized in **Table 4**, *MSHCP Riparian/Riverine Areas*, totaling 0.25 acre (0.22 acre on-site and 0.03 acre off-site). A description of Drainage A is provided below in section 5.1.1, and representative photographs are provided as Figure 6.

5.1.1 Drainage A (MSHCP Riverine Area)

Drainage A is an ephemeral drainage that bisects the Project site and meanders from north to south for approximately 1,950 linear feet, prior to exiting the site for 131 linear feet and then reentering the site near

Table 4

MSHCP Riparian/Riverine Areas

Drainage	Riparian		Riverine	
	On-site	Off-Site	On-Site	Off-Site
A	-	-	0.22	0.03
Total	0.00	0.00	0.22	0.03

Source: PCR Services Corporation, 2013

the southwest corner of the property where flows enter a 36-inch corrugated metal pipe beneath Prielipp Road along the southern Project site boundary. Off-site areas were also delineated due to proposed road improvements required by the City of Wildomar, including approximately 51 linear feet of Drainage A north/upstream of the Project site and 30 linear feet of Drainage A south/downstream of the Project site. Drainage A is unvegetated within the channel and exhibits ephemeral flow from headwaters commencing in the foothills located approximately 1.5-miles north of the Project site. The drainage is within the Santa Margarita Watershed and ultimately conveys runoff into an unnamed tributary to Murrieta Creek that joins Murrieta Creek approximately 1.6 miles southwest of the Project site. Drainage A supports sandy loam soils associated with the Monserate soil series¹ that are overlain by cobbles and gravels.

No wetlands or other special aquatic sites occur within the Project site or off-site areas.

The biological functions and values of Riverine Areas do not exist in Drainage A due to the absence of riparian/riverine associated vegetation (adjacent areas are predominately mapped as ruderal communities). MSHCP Riverine Area associated with Drainage A is equivalent to CDFW jurisdiction totaling 0.25 acre (0.22 acre on-site and 0.03 acre off-site) (see also Table and section 4.4 above).

5.1.2 Other Features

The Project site and off-site areas do not support other features that are jurisdictional and/or meet the definition of MSHCP Riparian/Riverine Areas, such as wetlands, special aquatic sites, or other kinds of aquatic features that could provide suitable habitat for Riparian/Riverine species, such as fairy shrimp (i.e. vernal pools, swales, vernal pool-like ephemeral ponds, seasonal ponds, stock ponds, or other human-modified depressions such as tire ruts, etc.).

5.2 Assessment of Riparian/Riverine and Vernal Pool Plant and Wildlife Species

5.2.1 Riparian/Riverine Plant Species

A habitat assessment was conducted for species listed in Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP. The results are presented in **Table 5, MSHCP Riparian/Riverine Plant Species**. No Riparian/Riverine plant species are expected to occur within the Project site or off-site areas due to the lack of suitable habitat, the location of the site outside of the species range, or based on the negative results of focused surveys.

¹ Soil series confirmed by USDA-NCSS Soils Web data accessed online via Google Earth on August 12, 2013.

Table 5

MSHCP Riparian/Riverine Plant Species

Species	Potential to Occur within the Study Area
Brand's phacelia <i>Phacelia stellaris</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
California Orcutt grass <i>Orcuttia californica</i>	Not expected to occur due to the lack of vernal pools.
Coulter's matilija poppy <i>Romneya coulteri</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
Engelmann oak <i>Quercus engelmannii</i>	Not observed and not expected to occur. This is a conspicuous tree species that would have been detected if present.
Fish's milkwort <i>Polygala cornuta</i> var. <i>fishiae</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
Graceful tarplant <i>Holocarpha virgata</i> ssp. <i>elongata</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
Lemon lily <i>Lilium parryi</i>	Not expected to occur due to the lack of suitable habitat. Also, the Project site is outside the species range; this species is restricted to the San Jacinto Mountains.
Mojave tarplant <i>Deinandra mohavensis</i>	Not expected to occur due to the lack of suitable habitat. Also, the Project site is outside the species range; this species is restricted to the San Jacinto Mountains.
Mud nama <i>Nama stenocarpum</i>	Not expected to occur due to the lack of wetlands. Also, none were observed during the 2013 focused plant surveys (this species can occasionally occur in non-wetlands).
Ocellated Humboldt lily <i>Lilium humboldtii</i> ssp. <i>ocellatum</i>	Not expected to occur due to the lack of suitable habitat.
Orcutt's brodiaea <i>Brodiaea orcuttii</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys. Also, the Project site is outside the species range; this species occurs in wetland areas at the Santa Rosa Plateau, Miller Mountain, and San Jacinto River.
Parish's meadowfoam <i>Limnanthes gracilis</i> ssp. <i>parishii</i>	Not expected to occur due to the lack of suitable habitat. Also, the Project site is outside the species range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area.
Prostrate navarretia <i>Navarretia prostrata</i>	Not expected to occur due to the lack of suitable habitat. Also, the Project site is outside the species range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area.
San Diego button-celery <i>Eryngium aristulatum</i> var. <i>parishii</i>	Not expected to occur due to the lack of suitable habitat. Also, the Project site is outside the species range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area.
San Jacinto Valley crownscale <i>Atriplex coronata</i> var. <i>notatior</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
San Miguel savory <i>Satureja chandleri</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.

Table 5 (Continued)

MSHCP Riparian/Riverine Plant Species

Species	Potential to Occur within the Study Area
Santa Ana River woollystar <i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Not expected to occur. The Project site is outside the species range; this species is restricted to the Santa Ana River and alluvial fan sage scrub habitat which does not occur within the Project site.
Slender-horned spineflower <i>Dodecahema leptoceras</i>	Not expected to occur due to the lack of alluvial fan habitat. None were observed during the 2013 focused plant surveys.
Smooth tarplant <i>Centromadia pungens</i> ssp. <i>laevis</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
Southern California black walnut <i>Juglans californica</i>	Not expected to occur. This is a conspicuous tree species that would have been detected if present.
Spreading navarretia <i>Navarretia fossalis</i>	Not expected to occur due to the lack of vernal pools.
Thread-leaved brodiaea <i>Brodiaea filifolia</i>	Not expected to occur due to the absence of clay soils based on the NRCS soils map. Also, none were observed during the 2013 focused plant surveys.
Vernal barley <i>Hordeum intercedens</i>	Not expected to occur due to the lack of alkaline areas and vernal pools. Also, none were observed during the 2013 focused plant surveys (this species can also occasionally occur in coastal scrub).

Source: PCR Services Corporation 2013.

5.2.2 Riparian/Riverine Wildlife Species

Habitat assessments were conducted for wildlife species listed in Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP. One species had the potential to occur on the Project site and off-site areas, namely the American peregrine falcon, as indicated in **Table 6**, *MSHCP Riparian/Riverine Wildlife Species*. This species has a very low potential to forage only; no suitable breeding habitat (cliffs or tall buildings) occurs. This species can be found foraging in nearly any open habitat, but most likely near areas such as lake edges and mountain chains. The nearest of these areas is Lake Elsinore approximately 6 miles to the northwest, and Sedco Hills approximately 0.75 mile to the north. No other species are expected to occur due to the lack of suitable habitat.

5.3 Assessment of Riparian/Riverine and Vernal Pool Ecological Processes

The Riverine Area (Drainage A) totals 0.25 acre, including 0.22 acre on-site and 0.03 acre off-site. The drainage channel itself is unvegetated and is surrounded by predominately ruderal vegetation communities (i.e., ruderal/buckwheat scrub and ruderal/Riversidean sage scrub) with only patches of native vegetation including Riversidean sage scrub and chamise chaparral. Based on the lack of vegetation associated with the drainage channel and small overall acreage, the Riverine drainage has a limited capacity to provide functions including flood storage, groundwater recharge, flood flow attenuation, velocity dissipation, nutrient and

Table 6

MSHCP Riparian/Riverine Wildlife Species

Species	Potential to Occur within the Study Area
Arroyo toad <i>Anaxyrus californicus</i>	Not expected to occur due to the lack of suitable habitat.
Mountain yellow-legged frog <i>Rana muscosa</i>	Not expected to occur due to the lack of suitable habitat.
California red-legged frog <i>Rana aurora draytonii</i>	Not expected to occur due to the lack of suitable habitat.
Bald eagle <i>Haliaeetus leucocephalus</i>	Not expected to occur due to the lack of suitable habitat.
Least Bell's vireo <i>Vireo bellii pusillus</i>	Not expected to occur due to the lack of suitable habitat.
American peregrine falcon <i>Falco peregrinus anatum</i>	Very low potential for foraging (not observed). No suitable breeding habitat occurs within the Project site (on- or off-site).
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	Not expected to occur due to the lack of suitable habitat.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	Not expected to occur due to the lack of suitable habitat.
Santa Ana sucker <i>Catostomus santaanae</i>	Not expected to occur due to the lack of suitable habitat.
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	Not expected to occur due to the lack of suitable habitat.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Not expected to occur due to the lack of suitable habitat.

Source: PCR Services Corporation 2013.

sediment transport and trapping, carbon transport, and toxicant trapping from the stormwater and nuisance urban runoff entering this feature. Furthermore, the drainage provides only a seasonal (ephemeral) water source that provides a small contribution (based on the size of the drainage) to the hydrology of the downstream watershed and associated habitats for Conserved Species, such as within Murrieta Creek where the flows ultimately drain. The drainage also provide limited foraging habitat for wildlife species (based on the lack of vegetation and limited water), and opportunities for wildlife movement are restricted based on the lack of vegetation and size of the drainage. The function of Drainage A appears to be limited to conveyance of flows downstream. Based on this assessment, the biological functions and values of Riparian/Riverine Areas do not exist in Drainage A, and the hydrological functions and values are considered low.

6.0 UNAVOIDABLE IMPACTS TO RIPARIAN/RIVERINE AND VERNAL POOL AREAS

The Project proposes either permanent or temporary impacts to the entire 0.25-acre of MSHCP Riverine Areas on- and off-site, as described in sections 6.1 and 6.2 below. Mitigation to compensate for these impacts is outlined in section 7.0 of this report.

6.1 Direct Impacts

Direct impacts are considered to be those that involve the loss, modification, or disturbance of natural resources or habitats (i.e., vegetative communities or substrate) that in turn, directly affect plant and wildlife species dependent on that habitat. Direct impacts include the destruction of individual plants or wildlife of low mobility (i.e., plants, amphibians, reptiles, and small mammals). The collective loss of individuals may also directly affect area-wide population numbers or result in the physical isolation of populations thereby reducing genetic diversity and population stability.

6.1.1 Permanent Direct Impacts

As shown in **Figure 9**, *Impacts to MSHCP Riverine Areas*, and summarized in **Table 7**, *Impacts to MSHCP Riverine Areas (CDFW Jurisdiction)*, the proposed Project would result in permanent direct impacts to 0.19 acre of Riverine Areas (Drainage A), including 0.17 acre on-site and 0.02 acre off-site. (no Riparian Areas exist on the Project site or off-site areas). These impacts are equivalent to the extent of impacts to CDFW streambed. Drainage A is unvegetated within the channel with limited associated upland vegetation, and transports only ephemeral flows.

Table 7

Impacts to MSHCP Riverine Areas (CDFW Jurisdiction)

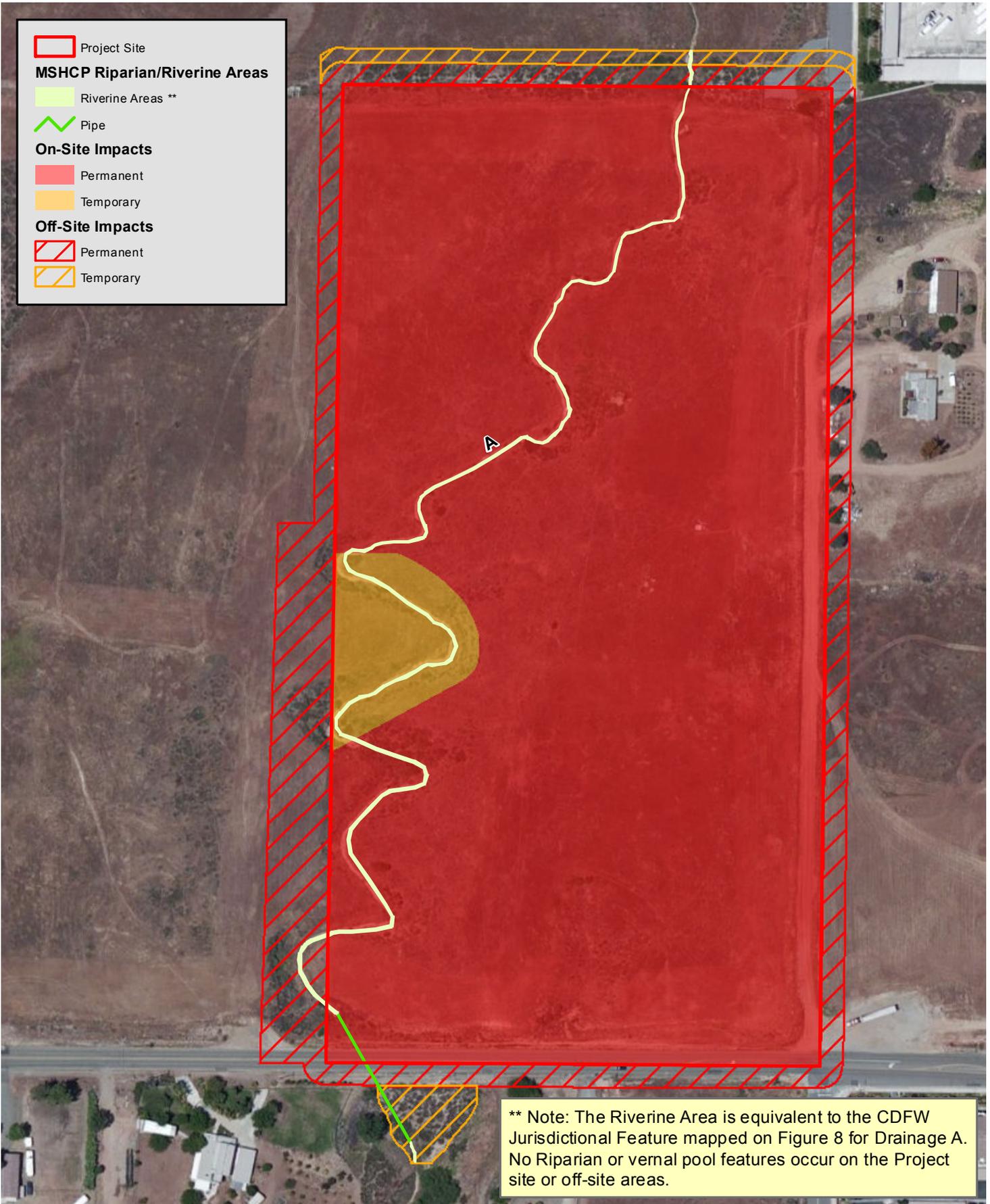
Drainage	Impacts (acres)		
	Permanent	Temporary	Total
A (On-site)	0.17	0.05	0.22
A (Off-site)	0.02	0.01	0.03
Total	0.19	0.06	0.25

Source; PCR Services Corporation, 2013.

No direct loss of individuals of any MSHCP Riparian/Riverine species is anticipated due to the absence of potential habitat (see section 5.2 above).

6.1.2 Temporary Direct Impacts

As shown in **Figure 9** and summarized in **Table 7**, the proposed Project would result in temporary direct impacts to 0.06 acre of Riverine Areas (Drainage A), including 0.05 acre on-site and 0.01 acre off-site. (no Riparian Areas exist on the Project site or off-site areas). These impacts are equivalent to the extent of impacts to CDFW streambed. Drainage A is unvegetated within the channel with limited associated upland vegetation, and transports only ephemeral flows.



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6.2 Indirect Impacts

Indirect impacts are considered to be those impacts associated with the Project that involve the effects of alteration of the existing habitat and an increase in human population within the Project site and off-site areas. These impacts are commonly referred to as “edge effects” and may result in changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to the Project site. Indirect impacts can occur to the following functions: hydrologic regime, flood storage, flood flow modification, nutrient retention and transformation, sediment trapping and transport, toxic trapping, public use, and wildlife habitat (downstream effects to Conserved Species). Measures to address potential indirect impacts are provided in section 7.0 of this report.

6.2.1 Permanent Indirect Impacts

Permanent indirect impacts include the effects of increases in ambient levels of sensory stimuli (e.g. noise, light), unnatural predators (e.g. domestic cats and other non-native animals), competitors (e.g. exotic plants, non-native animals), and trampling and unauthorized recreational use due to the increase in human population. Other permanent indirect effects may occur that are related to water quality and storm water management, including trash/debris, toxic materials, and dust. Permanent indirect impacts may be associated with the eventual habitation/operation of a Project. These impacts would affect the limited functions provided by these drainages, as outlined in section 5.3 above. No permanent indirect impacts (e.g., noise from the development) to MSHCP Riparian/Riverine species are anticipated as potential for these species is limited to foraging by the American peregrine falcon, which overall has a very low potential to occur (see section 5.2.2 above).

6.2.2 Temporary Indirect Impacts

Temporary indirect impacts may be associated with the construction and eventual habitation/operation of a project; therefore, these impacts may be both short-term and long-term in their duration. Temporary indirect impacts may include increases in ambient levels of sensory stimuli (e.g. noise, light), dust, and trampling due to construction within the Project site. No temporary indirect impacts (e.g., noise from Project construction) to MSHCP Riparian/Riverine species are anticipated as potential for these species is limited to foraging by the American peregrine falcon, which overall has a very low potential to occur (see section 5.2.2 above).

7.0 PROJECT AVOIDANCE, DESIGN FEATURES AND MITIGATION MEASURES

Avoidance of the small acreage (0.25 acre) of MSHCP Riverine Areas was not feasible, as discussed in sections 2.2 above and 7.1 below. The design features and mitigation measures to compensate for unavoidable direct impacts to Riverine Areas and indirect edge effects are discussed in this section.

7.1 Avoidance

The Project is required by the City of Wildomar to conduct off-site improvements associated with Prielipp Road to the south, Elizabeth Lane to the east, and potentially to Bunny Trail Road to the north. Furthermore, Drainage A traverses through the center of the entire northern portion of the Project and is incised with steep slopes, making avoidance economically inviable due to the loss of developable acreage as a result of extensive remedial grading, manufactured slopes, and setbacks required for full avoidance of the drainage

feature. As such, avoidance of the small acreage (0.25 acre) of MSHCP Riverine Areas associated with the on- and off-site portions of the Project is not feasible (no Riparian Areas exist on- or off-site) (see also section 2.3 above).

7.2 Design Features

The Project design includes Best Management Practices (BMPs) to address water quality, as outlined in the Preliminary Water Quality Management Plan (WQMP) (JLC Engineering and Consulting, Inc., 2014). These include site design BMPs, source control BMPs, and treatment control BMPs. The Property Management and Home Owner's Association (HOA) will be responsible for operations and maintenance of the BMPs. Detailed operations and maintenance, including specific activities and checklists, will be provided during final engineering. A description of the BMPs is provided below based on slight modification of the text provided in the WQMP.

7.2.1 Site Design BMPs

The Project includes four site design BMPs to address water quality as detailed below, including minimizing urban runoff, minimizing the impervious footprint, conserving natural areas, and minimizing directly connected impervious areas (DCIAs).

1. **Minimizing urban runoff** – The Project site has been designed to minimize urban runoff by maximizing the permeable area; incorporating landscaped buffer areas between the sidewalks and streets where feasible; maximizing canopy interception and water conservation through incorporation of native or drought tolerant trees and large shrubs where feasible; using natural drainage systems (specifically, Sand Filter Basin “A” discharges in the natural drainage course adjacent to the Project site); using perforated pipes and gravel filtration pits for low flow infiltration where soil conditions are suitable (specifically, two sand filter basins will use perforated pipes, and a proposed subsurface basin will utilize gravel filtration); incorporating sand filter basins to promote on-site ponding to increase opportunities for infiltration consistent with vector control objectives; and use of the proposed landscaped area within the assisted living development for water quality and mitigation for increased runoff. Additionally, the Project will design the site so that impervious areas will drain to adjacent landscaping, where feasible, to minimize the DCIAs, and to be consistent with the Low-Impact Development (LID) guidelines.
2. **Minimizing the permeable area** – The Project site has been designed to minimize the impervious footprint by maximizing the permeable area (specifically, the County of Riverside guidelines were utilized in order to determine the minimum width for public street pavements, driveways, and sidewalks, as well as evaluations of LID materials such as landscape buffers); minimizing the widths of streets and parking lot aisles per County of Riverside Guidelines; reducing the widths of streets where off-street parking is available per County of Riverside guidelines; minimizing the use of impervious surfaces (specifically, the Project does not incorporate decorative concrete in the landscape design); and utilizing the proposed landscaped areas within the assisted living development for water quality and mitigation for increased runoff. Additionally, the Project will design the site so that impervious areas drain to adjacent landscaping, where feasible, to minimize DCIAs, and to be consistent with LID guidelines.

3. **Conserving Natural Areas** – The Project site has been designed to conserve natural areas by maximizing canopy interception through incorporation of native or drought tolerant trees and shrubs, where feasible, using natural drainage systems (specifically, Sand Filter Basin “A” discharges in the natural drainage course adjacent to the Project site). and utilizing the proposed landscaped areas within the assisted living development for water quality and mitigation for increased runoff. Additionally, the Project will design the site so that impervious areas drain to adjacent landscaping, where feasible, to minimize DCIAs, and to be consistent with LID guidelines.
4. **Minimizing DCIAs** – The Project site has been designed to minimize DCIAs by incorporating landscaped areas wherever feasible to intercept roof runoff; drain impervious surfaces to adjacent landscaping wherever feasible; incorporating a sand filter basin in the landscape areas within the assisted living development; and utilizing the proposed landscaped areas within the assisted living development for water quality and mitigation for increased runoff. Additionally, the Project will design the site so that impervious areas drain to adjacent landscaping, where feasible, to minimize DCIAs, and to be consistent with LID guidelines.

7.2.2 Source Control BMPs

The Project proposes the following non-structural source control BMPs and structural source control BMPs:

Non-Structural Source Control BMPs:

- Education for property owners, tenants, occupants or employees, including provision of the education materials included as Appendix D of the preliminary WQMP at the time of purchase, occupancy or hire.
- Activity restrictions, including prohibiting the following: on-site power washes, blowing of landscaping and debris into catch basins and sand filter basins, dumping of oils into the streets, discharges of fertilizer, pesticides, or animal wastes to streets or storm drains, and discharges of paint or masonry wastes to streets or storm drains. There will also be a requirement to keep trash receptacles covered or sheltered by a roof overhang or canopy.
- Irrigation system and landscape maintenance shall be maintained by a professional contractor determined by the Home Owner’s Association (HOA).
- Common area litter control through street sweeping of private streets and parking lots and waste management.
- Drainage facility inspection and maintenance by the HOA.

Structural Source Control BMPs:

- Landscape and irrigation system design.
- Protection of slopes and channels by landscaping.
- Proper design of trash storage areas.

7.2.3 Treatment Control BMPs

The proposed Project incorporates two sand filter basins and one subsurface basin to treat for water quality purposes and mitigate for increased runoff. A graphic depicting these features taken from the WQMP is provided as **Figure 10, Water Quality Management Features**. Area A drains to Sand Filter Basin “A” for water quality treatment and mitigation of increased runoff; the basin is located in the south westerly corner of the Project site. Area B1 drains to Sand Filter Basin “B” for water quality treatment, and then is conveyed to Subsurface System “C” for mitigation of increased runoff. Sand Filter Basin “B” is located within the landscaped area of the assisted living development on the north side of the proposed building, and Subsurface Basin “C” is located within the street and parking area of the assisted living development. Area B2 is treated for water quality purposes and mitigation for increased runoff in Subsurface System “C”.

7.3 Mitigation for Direct Impacts to MSHCP Riverine Areas

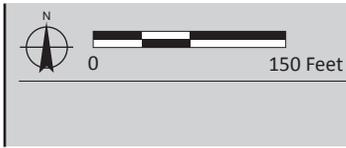
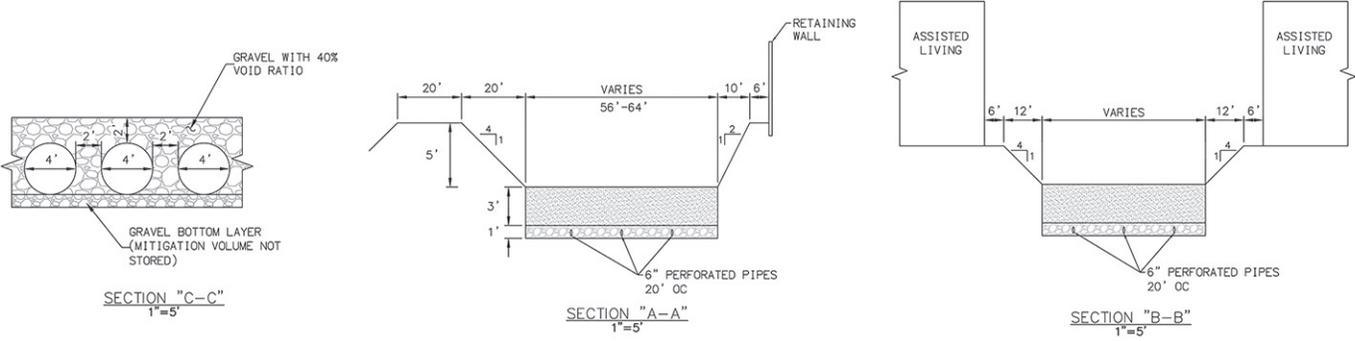
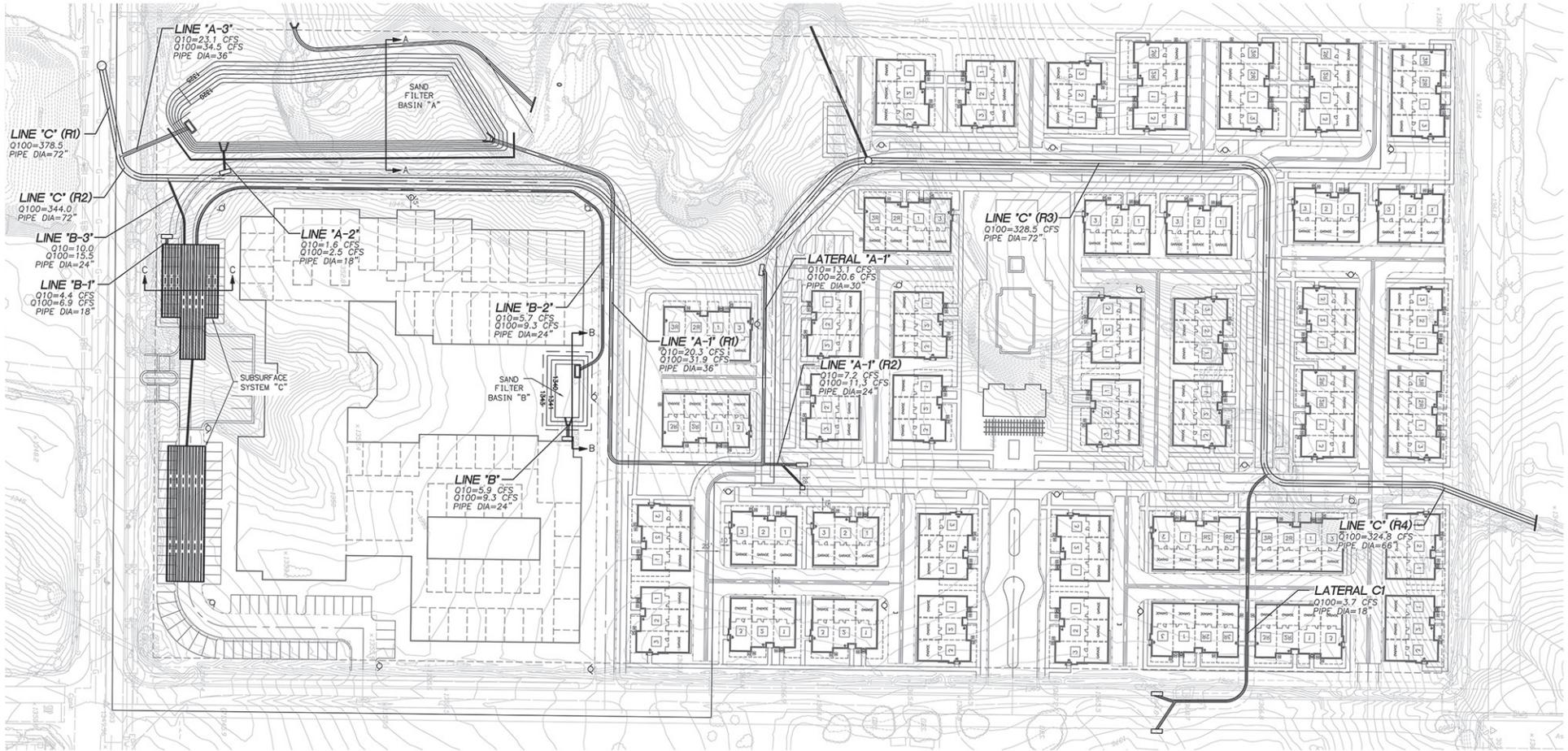
7.3.1 Conceptual Mitigation Plan (Off-Site)

This DBESP proposes off-site mitigation for permanent impacts to MSHCP Riverine Areas (equivalent to CDFW jurisdictional areas) on the Project site to demonstrate biologically equivalent or superior preservation pursuant to requirements of the MSHCP. Off-site mitigation provides wide-reaching watershed benefits since it is typically part of a larger effort and/or within an area with more habitat diversity, and would be preserved in perpetuity and managed by a pre-identified entity or entities. As such, impacts to the low function and value ephemeral systems on the Project site would be compensated with off-site mitigation within a larger drainage system in the watershed and pre-secured for in-perpetuity preservation and management by an agency-approved entity. Off-site mitigation is preferred by the USACE as it has been demonstrated to have a higher rate of success than on-site mitigation in general.

Temporary impacts would be mitigated by restoring to pre-project contours and re-vegetating as appropriate. Specifically, any impacts to native vegetation would be replanted with similar species, and any impacts to non-native vegetation would be re-planted with native species consistent with the same growth form (e.g., impacts to disturbed or ruderal vegetation would be replanted with native herbaceous and grassland species; impacts to unvegetated areas would only be replanted with native herbaceous or grassland species if required for erosion control).

The proposed off-site mitigation would require regulatory agency approval during the permitting process for impacts to jurisdictional drainages.² The intent is to provide the same mitigation to satisfy the requirements of the regulatory agencies and Regional Conservation Authority (RCA) to avoid double-mitigating for impacts to the same drainages. Due to the uncertainty in the forthcoming regulatory permit application process, a specific off-site mitigation option cannot be selected at present. As such, this DBESP identifies the potential off-site mitigation options and assesses them based on available information. Currently, there are no agency approved mitigation banks or in-lieu fee programs available in the watershed to provide off-site compensatory mitigation. However, mitigation is currently available within Wilson Creek through a

² Permit applications would include a Section 404 Nationwide Permit through the USACE under the Clean Water Act (CWA), a Section 401 Water Quality Certification through the RWQCB under the CWA, and a Streambed Alteration Agreement through the CDFW under Section 1602 of the California Fish and Game Code.



Water Quality Management Features

Horizons APN 380250023
 Source: JLC Engineering & Consulting, Inc., 2014.

FIGURE
10

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permittee-responsible³ mitigation effort, and other potential opportunities could occur on lands owned by the RCA or on alternate off-site lands as part of a collaborative group of developers.

The off-site mitigation would include creation, restoration and/or enhancement of habitat associated with existing drainages in the Santa Margarita Watershed or possibly within an adjacent watershed. The off-site mitigation would be proposed at a minimum 1:1 ratio for impacts to acreage. Feasible off-site mitigation opportunities as close to the Project site as possible will be selected and it should be noted that off-site mitigation outside of the watershed, if approved by the resource agencies, will require a higher mitigation ratio of no less than 2:1 to adequately offset Project impacts. It is expected that the mitigation would include at minimum removal of non-native weed species to increase native plant species establishment, and potential planting with native habitat consistent with the type of drainage systems being impacted on the Project site. Since vegetation associated with Drainage A (outside of the unvegetated channel) is dominated by ruderal non-native species, an example of compensatory mitigation planting would consist of drier upland vegetation associated with the drainage in limited patches and typical of ephemeral drainage systems in the region, including buckwheat scrub and Riversidean sage scrub. As such, the off-site mitigation would result in a higher function and value than existing site conditions (i.e., drier upland vegetation such as buckwheat scrub to mitigate impacts to Drainage A characterized by an unvegetated channel and predominately ruderal non-native species with limited patches of native upland vegetation).

The off-site mitigation would be part of a larger mitigation effort that would be implemented, monitored and maintained pursuant to a document prepared for the entire program. For approved mitigation banks or in-lieu fee programs this would consist of an existing document such as a Habitat Restoration Plan (HRP), Habitat Mitigation and Monitoring Plan (HMMP), or similar, that the regulatory agencies would have required as part of the approval process for the bank or in-lieu fee program. The Wilson Creek Habitat Restoration Area is a permittee-responsible mitigation option that is not an approved bank or in-lieu fee program, but has recently been accepted by the resource agencies as mitigation for other projects in the watershed on a case-by-case basis based on the Wilson Creek HRP included as **Appendix B, Wilson Creek Habitat Restoration Plan**. In the absence of a resource agency approved bank or in-lieu fee program at the time of regulatory permit processing, the Wilson Creek HRP demonstrates equivalent or superior mitigation as analyzed by this DBESP at a minimum 1:1 mitigation ratio if available at the time of regulatory permitting for the Project. If other permittee-responsible off-site mitigation opportunities become available, such as land purchased for mitigation by the Project, a HMMP will be prepared and provided to the regulatory agencies for review and approval; the final HMMP would be provided to the RCA. The Wilson Creek HRP would provide an example of the methodology, success criteria, and long-term conservation that a similar mitigation effort on a different site would be required to implement in order to maintain consistency with this DBESP, since the Wilson Creek HRP was prepared in compliance with the USACE approved guidance for the preparation of HMMP's and the USACE's 2008 Mitigation Rule.

Proof of off-site mitigation purchase would be provided to the regulatory agencies and RCA for participation in an approved mitigation bank, in-lieu fee program, private bank, or off-site permittee responsible mitigation opportunities such as within Wilson Creek. As mentioned above, the off-site mitigation would

³ *Off-site mitigation currently available through Wilson Creek Farms, LLC is not a resource agency approved mitigation bank or In-Lieu Fee program, but has recently been accepted by the agencies as compensatory mitigation for jurisdictional streambed impacts associated with public and private projects and continues to be evaluated by the agencies for regulatory permitting compensation on a project-by-project basis.*

provide compensation for the loss of the ephemeral habitat by at minimum the removal of non-native weeds to encourage increased native plant establishment, and potential planting with native habitat as appropriate. The expected functional gains and success of the off-site mitigation is discussed in section 7.3.3 below.

7.3.2 Summary of Mitigation Compensation

The mitigation proposed provides a minimum 1:1 ratio of compensation for impacts to acreage of low function and value Riverine Areas thus resulting in no net loss of habitat. A summary is provided below in **Table 8, Summary of Impacts and Mitigation for Riverine Areas.**

Table 8
Summary of Impacts and Mitigation for Riverine Areas

Drainage	Existing (Acres)	Permanent Impacts (Acres)	Mitigation (Acres)*	Temporary Impacts To Be Restored (Acres)
A (On-site)	0.22	0.17	-	0.05
A (Off-site)	0.03	0.02	-	0.01
Total	0.25	0.19	0.19	0.06

* Mitigation is proposed off-site.

Source: PCR Services Corporation, 2014

7.3.3 Expected Functional Gains of the Mitigation

The off-site mitigation set forth in section 7.3.1 above will compensate for the loss of ephemeral streambed within the Project site that is unvegetated within the channel with associated vegetation dominated by non-native ruderal species and limited native upland species. Although a site-specific analysis of off-site mitigation cannot be completed at present since the resource agencies have yet to determine what they will accept as compensatory mitigation for the Project, the mitigation would be expected to include the creation, restoration, and/or enhancement of a drainage with native species, likely within a larger drainage system than supported on the Project site. The Wilson Creek HRP, attached as Appendix B, provides an example of measures that are considered appropriate to implement off-site permittee-responsible mitigation should such off-site mitigation outside of Wilson Creek be chosen as preferred mitigation for future project regulatory permits. Mitigation within Wilson Creek, at a formal bank, or an in-lieu fee program would also be part of a wider-reaching effort and would therefore result in a more collective benefit to the watershed. The off-site mitigation would result in a higher function and value system than the ephemeral drainage (Drainage A) currently on the Project site, specifically an ephemeral drainage that is unvegetated in the channel portion with associated vegetation dominated by ruderal non-native species and only patches of native habitat including buckwheat scrub and Riversidean sage scrub. A higher function and value system at the off-site mitigation site would be achieved through the removal of weeds to encourage native plant establishment and potential planting of native species, as appropriate, and by being part of a larger drainage system and/or a wider-reaching mitigation effort. Any planting would be designed to increase species and structural diversity and density within the habitat. There is also the potential that new drainage habitat could be created as part of the mitigation. Considering these factors, the following functional gains would be expected:

1. *Compensation for impacts to a small ephemeral drainage with an unvegetated channel and limited associated upland vegetation with native vegetated habitat of increased species/structural diversity and density will provide biogeochemical and water quality functions.*

The off-site mitigation would be expected to include removal of non-native species to encourage increased native plant establishment, and potential planting with natives as appropriate. The drainage on the Project site is unvegetated within the channel, with associated vegetation dominated by non-native ruderal vegetation and limited native upland vegetation. Any planting would be designed to increase species and structural diversity and density within the habitat utilizing native species appropriate for the area. As such, the proposed off-site removal of non-natives and increased native plants would improve water quality and provide biogeochemical functions within the watershed. Specifically, the vegetation will result in increased trapping of sediment, and the microbial action in the root zone of plants removes toxins, nitrogen, and other nutrients from the runoff, thereby improving water quality and helping to reduce the impacts of non-point source pollution (Schaefer and Brown, 1992) through natural filtering of pollutants (bio-filtration effects). Heterotrophic microorganisms may also increase in association with the native vegetation, and these organisms are also responsible for converting detritus from leaf litter and other dead organic matter into consumable organic matter. This organic material forms the base for the food chain and, within drainages, can be released downstream as dissolved organic matter (Gregory, *et al.*, 1991; Schaefer and Brown, 1992). Knight and Bottorff (1984) reported that up to 1000g/m²/yr of detritus are processed by aquatic macrophytes in riparian zones and this provides a food chain base for these ecosystems, promoting their biodiversity. Improvement of water quality and biogeochemical functions will take place as these nutrients pass through the drainage and are transformed or sequestered into the plant tissue. In addition, the deposition of fine and coarse woody debris will provide important habitat for amphibians, reptiles, and other wildlife. Improving these functions within a larger drainage system and/or as part of a wider-reaching mitigation effort would also provide a collective benefit to the watershed.

2. *Compensation for impacts to a small ephemeral drainage with an unvegetated channel and limited associated upland vegetation with native vegetated habitat of increased species/structural diversity and density will provide hydrologic functions.*

Improving the quality of habitat with increased native species and structural diversity, in addition to an increase density of vegetation, will provide energy dissipation and storage during storm events that is currently limited on the Project site. Increasing plant cover also stabilizes soil to deter channel and habitat degradation by storm flows. Interception and retention of storm flows by vegetation regulates sharp run-off peaks and slows discharges over a longer time period to avoid erosional issues and may also contribute to groundwater recharge. Improving these functions within a larger drainage system and/or as part of a wider-reaching mitigation effort would also provide a collective benefit to the watershed.

3. *Compensation for impacts to a small ephemeral drainage with an unvegetated channel and limited associated upland vegetation with native vegetated habitat of increased species/structural diversity and density will provide biological functions.*

The proposed increase in native vegetation will increase potential wildlife habitat by providing a higher diversity of plant species to provide improved forage and cover for wildlife species that utilize drainage areas for breeding and foraging. In turn, an increase in structural and spatial diversity would be expected that would be expected to increase the diversity of wildlife species utilizing the habitat. Improving these functions within a larger drainage system and/or as part of a wider-reaching mitigation effort would also provide a collective benefit to the watershed.

7.3.4 Success Criteria for the Mitigation

In addition to compensating for streambed loss, the off-site mitigation will provide increased quality of native plant cover for wildlife habitat and to stabilize the drainage system. For banks or in-lieu fee programs it is expected that the success criteria below are already incorporated into a restoration plan prepared for the entire effort. However, if lands are secured for off-site mitigation, these success criteria will be incorporated into a final HMMP to ensure long-term success of the mitigation, consistent with the Wilson Creek HRP (see Appendix B).

1. The habitat mitigation will contribute to regional biodiversity in perpetuity.

The proposed mitigation will include the goal of increasing native plant cover, structure and diversity and removing non-native weeds. This will create habitat for wildlife populations within the mitigation site and general area to ensure a more diverse habitat structure and stable watershed. Off-site mitigation within an approved mitigation bank, private bank, or in-lieu free program will be part of a larger mitigation effort benefitting the regional watershed that is preserved in perpetuity typically through an existing preservation mechanism. For off-site land purchased for preservation, a preservation mechanism will be established to ensure in-perpetuity conservation of the mitigation.

2. The habitat mitigation will be self-sustaining and will not require supplemental watering or outside input for recruitment and propagation of plant species.

For off-site mitigation on acquired lands, a HMMP will be prepared and will include a number of specific interim and ultimate success criteria over a five-year program that would require the site to be self-sustaining. It is expected that agency approved mitigation banks, in-lieu fee programs, and private banks would have existing success criteria outlined in a plan prepared as part of the larger mitigation effort, such as the Wilson Creek HRP (see Appendix B). Any plans prepared by the Project, such as for lands acquired for mitigation outside the Wilson Creek Habitat Restoration Area, would include criteria for demonstrating the mitigation is self-sustaining consistent with the Wilson Creek HRP.

3. The entire range of biological components, processes, and interactions will be present in each community.

As discussed above, success criteria will be developed as part of the HMMP or are anticipated to be part of existing plans for approved mitigation banks, in-lieu fee programs, and private banks. These will, or are expected to, include criteria related to habitat structural diversity, habitat coverage and spatial diversity, percent of non-native vegetation, and hydrologic regime, and will allow for monitoring of the expected range of biological components, processes and interactions within the mitigation site.

4. *Natural processes of ecological succession will be allowed to occur.*

The success criteria and/or goals in the HMMP or existing plans will ensure the long-term survivability of the habitats created, including self-sustaining habitat that will follow natural ecological succession including processes such as nutrient cycling.

7.4 Project Design Features and Mitigation Measures to Address Edge Effects

Section 6.1.4, *Guidelines Pertaining to the Urban/Wildlands Interface*, of the MSHCP presents a number of guidelines that are intended to address indirect effects associated with locating developments in proximity to a MSHCP Conservation Area. These guidelines address the quantity and quality of any runoff generated by the development, night lighting, noise, and domestic predators. The Project site is not within or adjacent to any Criteria Cells; the nearest Criteria Cell is located approximately 1,400 feet north of the Project site on the north side of Clinton Keith Road. In addition, the Project site is not within or adjacent to any MSHCP Cores or Linkages. The closest linkage to the Project site, Proposed Linkage 8, is located just over approximately one mile to the north associated with Sedco Hills, and the closest Core areas are just over five miles to the northwest (Proposed Extension of Existing Core 3, Lake Elsinore Soils), west (Existing Core B, Cleveland National Forest), south (Existing Core F, Santa Rosa Plateau), and east (Proposed Core 2, Antelope Valley). As such, potential for indirect effects is anticipated to be limited to Drainage A, specifically drainage and water quality that could affect the on-site temporary impact area that will ultimately be restored, in addition to off-site areas downstream that ultimately connect to Murrieta Creek. Project design features are proposed that will address indirect impacts of the proposed Project and to minimize edge effects beyond the limits of grading at the urban/wildlands interface, consistent with Section 6.1.4 of the MSHCP.

Drainage (Urban and Storm Water Runoff): The BMPs described in section 7.2 above and outlined in the preliminary WQMP are designed to mitigate for increased runoff, treat the water, maintain water quality, and address flood control/erosion pursuant to RWQCB and City of Wildomar standards. Examples include the construction of sand filter basins, the implementation of street sweeping and waste management, and providing education materials to inform the owners, occupants and employees on water quality issues. In addition, dust-control measures will be implemented during construction that will be outlined in the Storm Water Pollution Prevention Plan (SWPPP). Thus, all water leaving the development will be of a higher quality compared to existing site conditions and will contribute to the overall improvement of water quality downstream, in addition to being at discharge rates that will prevent downstream erosion. Furthermore, while the discharge flow rate to downstream areas will be similar to existing conditions, the overall volume of water will increase due to the additional water input from the development (e.g., from irrigation) which will be beneficial to the drainage and downstream areas by providing increased hydrology to at minimum maintain existing wildlife habitat, with the potential to support additional habitat. This will avoid any indirect effects to downstream MSHCP Conservation Areas as a result of the proposed Project.

Toxic Material: Construction of the proposed Project will incorporate erosion control measures (e.g., sand bags and/or straw wattles as appropriate) around the perimeter of the work area to ensure all water leaving the site is filtered and an increase in siltation does not occur. These measures will be outlined in the SWPPP. In addition, for the long-term operation of the Project, the BMPs outlined in the preliminary WQMP (see section 7.2 above) will treat project-generated flows and remove pollutants.

Trash/Debris: A number of non-structural source control BMPs are listed in section 7.2 above that will minimize and/or address the amount of trash/debris created by the proposed Project, and avoid

trash/debris from entering downstream areas. These include activity restrictions placed on the occupants, the distribution of educational materials, street sweeping and waste management.

Lighting: The Project is not within or adjacent to any preserved lands or MSHCP Conservation Areas, therefore lighting as part of the development will not affect these areas. However, the Project will ultimately be restoring the temporary impacts to Drainage A within an open space area. The Project has been designed to minimize night lighting while remaining compliant with City of Wildomar ordinances related to street lighting and, as such, is not anticipated to affect the open space area.

Noise: The proposed use of the site for residential townhomes and an assisted living facility will not result in noise-generating activities apart from increased traffic noise. The Project will comply with all City of Wildomar requirements pertaining to noise and traffic standards. Furthermore, the closest MSHCP Conservation Area is located 1,400 feet north (and upstream) of the Project and separated from it by Clinton Keith Road. As such, neither post-project noise, nor temporary short-term increases in noise during construction, is anticipated to impact MSHCP Conservation Areas.

Invasives: To the maximum extent practicable, native plants will be used in the landscape plans for the common areas of the Project. No invasive, non-native plant species listed in Table 6-2 of the MSHCP, *Plants That Should Be Avoided Adjacent To The MSHCP Conservation Area*, will be utilized in the landscape plans. This will avoid dispersal of invasive plant seeds in the watershed.

Barriers: The MSHCP requires the incorporation of barriers, such as native landscaping, rocks/boulders, fencing, walls, and/or signage, for proposed land uses adjacent to preservation areas to minimize unauthorized public access, trampling, introduction of urban wildlife, and/or illegal dumping within the preservation areas. The proposed Project is not located adjacent to any MSHCP preservation areas but will be restoring the temporary impacts to Drainage A within an open space area. As such, signs are proposed to inform the occupants on the sensitivity of the area. In addition, the Project will likely include fences and/or walls around the entire development to prevent unauthorized public access onto the site.

Grading/Land Development and/or Fuel Modification Activities: The proposed Project is not within or adjacent to any preserved lands or MSHCP Conservation Areas and, as such, no impacts to these areas will occur as a result of the Project. Temporary impacts during construction are proposed to the portion of Drainage A that will ultimately be restored to a natural state within the open space area. However, the final grade of any manufactured slopes will not encroach into Drainage A and shall be contained within the Project site and/or off-site areas identified in this report and analyzed in the Biological Resources Assessment (Appendix A, attached). Brush management, as well as all ground disturbing activities associated with operation of the Project, shall also be contained within the Project's impact footprint and shall not encroach into the open space in accordance with Section 6.4 of the MSHCP.

The Fuels Management guidelines presented in Section 6.4 of the MSHCP are intended to address brush management activities around new development within or adjacent to the MSHCP Conservation Area. No fuel modification is expected for the proposed Project.

8.0 DETERMINATION OF BIOLOGICALLY EQUIVALENT OR SUPERIOR PRESERVATION

Section 6.1.2 of the MSHCP, Volume I, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, is intended to ensure protection of Riparian/Riverine Areas within the entire MSHCP Plan Area such that habitat values are preserved for those species within the MSHCP Conservation Area. No sensitive species listed in Section 6.1.2 of the MSHCP are expected to occupy the Project site due to the lack of suitable habitat.

The proposed Project, inclusive of all project design features and mitigation measures, is biologically superior to an avoidance alternative by replacing a low function and value MSHCP Riverine Area (Drainage A) with higher function and value mitigation, and avoiding any potential impacts to downstream areas through features such as improved water quality. A summary of this statement is provided below based on the analysis in this report, and further assessed in sections 8.1 through 8.3.

- The proposed permanent impacts are limited to 0.19 acre of the 0.25 acre of MSHCP Riverine Area (Drainage A) associated with the Project. Drainage A was determined to have a low function and value based on the limited vegetation and absence of habitat to support any resident sensitive species. The function and value of Drainage A is limited to the conveyance of flows to downstream areas.
- Proposed mitigation for permanent impacts is proposed at a 1:1 ratio (0.19 acre) through creation, restoration and/or enhancement of drainage habitat off-site at an approved mitigation bank/in-lieu fee program, a private bank, or on land purchased for mitigation. This mitigation would provide higher function and value than the existing drainage proposed for impacts by removing non-native species and encouraging increased native species coverage, including the potential to plant with appropriate native species to create higher density, diversity and structure. The increase in native vegetation would result in an increase in native habitat acreage than currently exists on the Project site, and would provide improved functions such as water quality, water storage and wildlife habitat. Furthermore, the mitigation has the potential to provide additional function and value by being part of a larger drainage system and/or mitigation program, thus resulting in wider-reaching watershed benefits.
- The existing function and value of Drainage A, the conveyance of flows to downstream areas, will be preserved by the Project through the BMPs that will mitigate for water quality and the increase in runoff.
- Temporary impacts during construction are limited to 0.06 acre of Drainage A and will be restored to a natural state consistent with existing condition within a dedicated open space area.
- The off-site mitigation would be protected in perpetuity through a legal instrument, which is expected to be in place for banks and in-lieu fee programs. Preservation will ensure protection of MSHCP Riparian/Riverine Areas as intended pursuant to Volume I, Section 6.1.2 of the MSHCP, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*. Currently the on-site drainage is unprotected and subject to disturbance.

- The success of the off-site mitigation would be ensured through an approved plan. If the mitigation occurs on lands acquired solely for mitigation purposes, a project-specific HMMP will be prepared and submitted to the USACE, RWQCB, and CDFW for review and/or approval as part of the regulatory permitting process. A copy would also be provided to the RCA. The mitigation would be monitored regularly pursuant to a five-year program, and analyzed against a number of interim and target success criteria. The success criteria will ensure that the mitigation efforts are successful. Off-site mitigation at a mitigation bank, in-lieu fee program, or private mitigation bank will be part of a larger program and, as such, will be monitored pursuant to an existing agency-approved plan prepared for the entire program.
- The Project is not located within or adjacent to any MSHCP Conservation Areas but will avoid indirect impacts to any such areas downstream through BMPs proposed in the preliminary WQMP that will mitigate for water quality and the increase in runoff, as outlined above in section 7.2 of this report. As such, the water discharged downstream will be treated for both sediment and pollutants. Also, as outlined in section 7.4, current flow rates to downstream areas will be maintained to prevent erosion, but the overall volume of water discharged downstream will increase providing at minimum sufficient hydrology to maintain and even increase downstream habitats. Increased native plant species coverage in the off-site mitigation area is also expected to increase biofiltration, providing further water quality benefits for the watershed system.
- A number of additional project design features have been incorporated to address edge effects (i.e., indirect impacts) such as avoiding impacts from trash/debris, toxics, and non-native invasive species, as discussed above in section 7.4.

8.1 Effects on Riparian/Riverine Planning Species

- Suitable habitat was determined present on the Project site for one Riparian/Riverine bird species, namely the American peregrine falcon. The falcon was determined to have a very low potential for foraging only due to the low quality of foraging habitat and absence of nesting habitat. No sensitive species were observed during the site surveys. Based on this, no significant effects on Riparian/Riverine planning species are expected to occur as a result of the Project.
- The mitigation for permanent impacts is proposed at a 1:1 ratio, including removing non-native species and an increase in native habitat, pursuant to an agency approved plan outlining methods and success criteria. This mitigation will at minimum result in no net loss of acreage of native habitat and is expected to increase the spatial, structural and species diversity to encourage wildlife use. The mitigation will also improve water quality and hydrology functions. As such, the proposed mitigation will improve the quality of the habitat for wildlife species and provide potential habitat for Riparian/Riverine planning species. Wildlife habitat is currently lacking in the MSHCP Riverine Area associated with the Project.
- The improved quality of water and expected increase in volume of water due to additional input (e.g., from irrigation; the flow rate will not increase), would be beneficial to areas downstream of the Project for supporting any existing wildlife habitat and potentially allowing additional habitat to establish.

8.2 Effects on Conserved Habitats

- The proposed Project permanently impacts a small acreage (0.19 acre) of low function and value Riverine Area that is not currently preserved and is unvegetated in the channel with associated vegetation dominated by ruderal non-native species and limited patches of native upland species. As such, the vegetation associated with the Project is not contiguous with any habitats, conserved or otherwise. The Project would preserve the existing function and value of Drainage A by conveying flows downstream (that ultimately drain to Murrieta Creek), and also by mitigating for increased runoff and water quality. As such, the Project impacts would not result in any effects to conserved habitats. The proposed off-site mitigation would increase the function and value of habitat and would be preserved in perpetuity, thereby contributing to the acreage of conserved habitats within the MSHCP (see also below for further detail).
- The proposed Project would contribute higher function and value habitat to be conserved within the MSHCP. The Riverine Area on the Project site is unvegetated in the channel with associated vegetation dominated by ruderal non-native species and limited patches of native vegetation such as buckwheat scrub and Riversidean Sage Scrub. As such, Riverine Area lacks appropriate habitat features to support residents of the Riparian/Riverine wildlife species listed under Section 6.1.2 of the MSHCP. The main function of the ephemeral drainage is the transport of water during storm events, with limited ecological functions (i.e., limited sediment transport, transport of nutrients and aquatic chemicals to downstream waters, seasonal flood storage, flood flow attenuation, toxicant trapping, and velocity dissipation). The proposed mitigation would provide these ecological functions at a greater magnitude due to the removal of non-native species and an increase in native species within an appropriate off-site area that would occur pursuant to an agency approved plan, and would likely be part of a larger mitigation effort. The mitigation would be designed to provide increased wildlife habitat that could support species listed in Section 6.1.2 of the MSHCP. Furthermore, the mitigation would allow for greater nutrient and toxicant trapping, which would be beneficial to downstream water quality. The off-site mitigation would be protected through a legal instrument (which is expected to be in place for approved mitigation banks or in-lieu fee programs). Based on the above, the off-site mitigation would be biologically superior to the 0.19 acre of Riverine Area proposed for permanent impacts by the Project.

8.3 Effects on Linkages and Functions of the MSHCP Conservation Area

- The Project site is not located within or adjacent to any MSHCP Cores, Linkages or Conservation Areas, and measures have been incorporated into the project design to avoid potential indirect edge effects to such areas, including maintaining the flows and improving water quality to downstream areas. As such, the Project would not impact the functions of any MSHCP Cores, Linkages or Conservation Areas.
- The proposed Project impacts a low function and value Riverine Area that would be replaced with higher function and value habitat by the proposed off-site mitigation. The off-site mitigation would also be protected through a legal instrument to contribute to the MSHCP Conservation Area acreage. In addition to the off-site mitigation, the existing function of the drainage proposed for impacts would be maintained by the Project through the continued conveyance of flows downstream that will be mitigated for water quality and increased runoff.

- The Project's preliminary WQMP and associated BMPs will ensure that water quality standards are met. The flow rate will be similar to existing conditions; however the volume of water will increase which will be beneficial to the drainage and downstream areas by providing increased hydrology to support wildlife habitat functions. In addition, the BMPs will protect against flooding, prevent downstream erosion, and improve water quality by filtering pollutants from previously untreated flows. Thus, all water leaving the Project site will be of a higher quality compared to existing site conditions. The off-site mitigation is also expected to provide additional biofiltration functions through an increase in native vegetation. As such, both the Project development and off-site mitigation would improve the overall water quality of flows downstream and within MSHCP Conservation Areas, and potentially improve the habitat for MSHCP planning species, making this a superior alternative to existing conditions.

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Appendix A: Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis

BIOLOGICAL RESOURCES ASSESSMENT AND
WESTERN RIVERSIDE COUNTY MSHCP CONSISTENCY ANALYSIS

PRIELIPP ROAD
APN 380-250-023

CITY OF WILDOMAR, RIVERSIDE COUNTY, CALIFORNIA



SEPTEMBER 2013

BIOLOGICAL RESOURCES ASSESSMENT AND
WESTERN RIVERSIDE COUNTY MSHCP CONSISTENCY ANALYSIS

PRIELIPP ROAD
APN 380-250-023

CITY OF WILDOMAR, RIVERSIDE COUNTY, CALIFORNIA

Prepared For:

Strata Equity Group, Inc.
4370 La Jolla Village Drive, Suite 960
San Diego, California 92122
Contact: Mr. Eric Flodine

Prepared By:

PCR Services Corporation
One Venture, Suite 150
Irvine, California 92618
Contact: Ceri Williams-Dodd Ph.D., Senior Biologist II
Amir Morales, Principal Regulatory Scientist

SEPTEMBER 2013

Biological Resources Assessment and Western Riverside County MSHCP Consistency Analysis

Prielipp Road
APN 380-250-023
City of Wildomar, Riverside County, California

Project Location:

U.S. Geological Survey (USGS) 7.5-minute
Murrieta topographic quadrangle map, Section 6, T. 7 S., R. 3 W.

Prepared For:

Strata Equity Group, Inc.
4370 La Jolla Village Drive, Suite 960
San Diego, California 92122

Contact:

Mr. Eric Flodine

Prepared By:

PCR Services Corporation
One Venture, Suite 150
Irvine, California 92618

Contacts:

Ceri Williams-Dodd, Senior Biologist II
Amir Morales, Principal Regulatory Scientist

Report Date:

September 2013

Biological Resources Assessment and Western Riverside County MSHCP Consistency

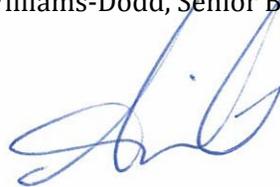
Prielipp Road
APN 380-250-023
City of Wildomar, Riverside County, California

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a biological resources assessment and Western Riverside County MSHCP consistency analysis for the above-referenced project.

PCR Services Corporation



Ceri Williams-Dodd, Senior Biologist II



Amir Morales, Principal Regulatory Scientist

September 2013

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1.0 INTRODUCTION

1.1 BACKGROUND AND PURPOSE

This report presents the findings of a Biological Resources Assessment (BRA) and a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) consistency analysis conducted by **PCR Services Corporation (PCR)** for Accessor Parcel Number (APN) 380-250-023, Prielipp Road, in the City of Wildomar (City), Riverside County (County), California. APN 380-250-023 is proposed as a mixed-use residential and assisted living development (Project), comprising 20.27 acres with an additional 4.29 acres off-site. The purpose of this report is to satisfy the requirements of the California Environmental Quality Act (CEQA) and to support approvals that Strata Equity Group, Inc. (Project Applicant) is requesting from the City and Responsible Agencies (Agencies).

1.2 SOURCES

This report is based on information compiled through field reconnaissance and appropriate reference materials, in addition to field surveys conducted by PCR. Field surveys included a general biological survey and vegetation mapping, a jurisdictional waters and wetland delineation, and focused surveys for special-status plants and burrowing owl (*Athene cunicularia*). The information sources used in preparation of this report are provided in section 9.0 *References*.

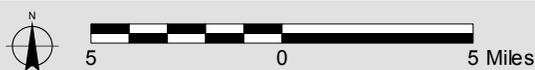
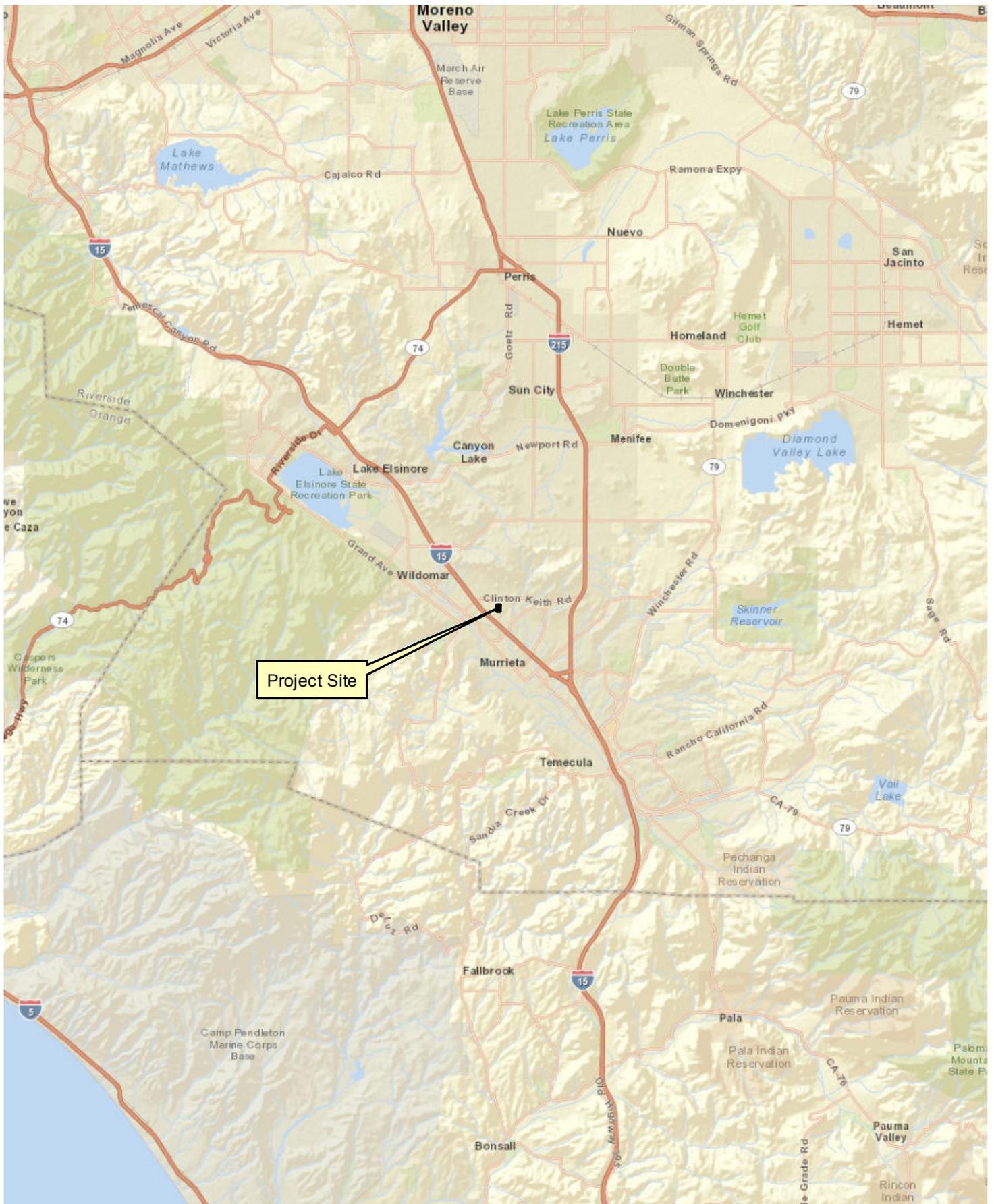
1.3 PROJECT SITE LOCATION

The Project site is generally situated just east of Interstate 15 (I-15) and west of I-215, as shown in **Figure 1, Regional Map**. Specifically, the Project site is located directly northwest of the intersection of Prielipp Road and the proposed southerly extension of Elizabeth Lane. The Project site can be found on the U.S. Geological Survey (USGS) 7.5' Murrieta topographic quadrangle map, Section 6, T. 7 S., R. 3 W. (USGS 1953), as shown in **Figure 2, Vicinity Map**.

1.4 SCOPE OF STUDY

The scope of this report encompasses descriptions of the Project, methods of study, and existing site conditions, in addition to an evaluation of potential impacts to sensitive biological resources pursuant to CEQA thresholds and regulatory requirements including the Western Riverside County MSHCP. Avoidance, minimization, and/or mitigation measures are proposed to reduce any significant impacts.

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Regional Map

FIGURE

1

Prielipp Road APN 380250023

Source: ESRI Street Map, 2009; PCR Services Corporation, 2013.

2.0 PROJECT DESCRIPTION

2.1 PROJECT DESCRIPTION

The proposed Project is a mixed-use residential and assisted living development. The residential portion includes 2-story townhomes on the majority of the Project site. Specifically, the townhomes are proposed within the northern and central portions of the site, including 146 units on 12 acres. A recreation and leasing building is also proposed in the central portion of the apartment complex, in addition to 350 parking spaces. The proposed assisted living facility is located in the southern portion of the Project site north of Prielipp Road, and comprises skilled nursing units (1-story) and assisted living units (2-story) in addition to 86 parking spaces on 4.5 acres. The Project footprint is depicted on **Figure 3, Conceptual Site Plan**.

Additional features of the Project include the proposed extension of Elizabeth Lane along the eastern boundary of the Project site, and a 2-acre open space area along the western boundary. The open space area comprises a 1-acre retention basin in the southern part and a 1-acre area supporting an existing drainage in the northern part. The main entry for the assisted living facility is located off Prielipp Road in the south, and the main entry for the townhomes is located off Elizabeth Lane to the east. Emergency vehicle access roads are provided for the assisting living facility and townhomes, and both are located off Elizabeth Lane.

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Conceptual Site Plan

Priellip Road APN 380250023
Source: KTG, 2013.

FIGURE

3.0 METHODS OF STUDY

3.1 APPROACH

This report is based on information compiled through a review of appropriate databases and reference materials, and field reconnaissance. A general biological survey and vegetation mapping was conducted, in addition to a jurisdictional waters and wetlands delineation and focused surveys for special-status plants and the burrowing owl.

3.2 LITERATURE REVIEW

The report began with a review of relevant literature on the biological resources of the Project site and surrounding vicinity. The California Natural Diversity Database (CNDDDB), a California Department of Fish and Wildlife (CDFW¹) species account database, was reviewed for all pertinent information regarding the localities of known observations of sensitive species and habitats in the vicinity of the Project site (CNDDDB 2013). The vicinity of the Project site included the following eight USGS topographic quadrangles: Romoland, Winchester, Bachelor Mountain, Pechanga, Temecula, Fallbrook, Wildomar, Lake Elsinore. Federal register listings, protocols, and species data provided by the United States Fish and Wildlife Service (USFWS) (USFWS 2013a), CDFW, and the California Native Plant Society (CNPS) (CNPS 2013) were reviewed in conjunction with anticipated federally and state listed species potentially occurring within the vicinity. Other data sources reviewed include USFWS critical habitat maps (USFWS 2013b) and United States Department of Agriculture Natural Resources Conservation Service (NRCS) soils mapping (NRCS 2012). In addition, numerous regional flora and fauna field guides were utilized to assist in the identification of species and suitable habitats, and relevant local policies were referenced such as the Western Riverside County MSHCP (Dudek and Associates 2003). A list of all relevant references reviewed is included in section 9.0 *References*.

3.3 FIELD INVESTIGATIONS

On November 29, 2012, a general biological survey and vegetation mapping was conducted by PCR Senior Biologist Ezekiel Cooley to document existing conditions relating to plant communities, and a delineation of jurisdictional waters and wetlands was conducted by PCR Principal Regulatory Scientist Amir Morales to identify the presence of drainages and/or wetland features. The observed vegetation communities and drainage features were mapped on aerial photographs. Survey coverage of the entire Project site and off-site areas, with special attention to sensitive habitats or those areas potentially supporting sensitive flora or fauna, was ensured using aerial photographs. Focused surveys were also conducted for special-status plants and burrowing owls in April, May, June and August 2013. During the course of all field visits, an inventory of plant and wildlife species observed was compiled. The methods for these field investigations are described in detail below.

¹ Previously known as the California Department of Fish and Game (CDFG). The name change was effective on January 1, 2013.

3.3.1 Natural Community Mapping

Natural vegetation communities were mapped directly in the field utilizing a 100-scale (1"=100') aerial photograph based on dominant species. Natural community names and descriptions follow Oberbauer (2008), which is based on Holland (1986). After completing the fieldwork, the natural community polygons were digitized using Geographic Information System (GIS) technology to calculate acreages.

3.3.2 General Plant Inventory

All plant species observed during the field surveys were either identified in the field and recorded in field notes, or collected and later identified using taxonomic keys and added to the inventory. Regional field guides were utilized for the identification of plants, as necessary. Plant taxonomy follows Hickman (1993). Common plant names, when not available from Hickman, were taken from Munz (1974) and/or Clarke (2007). The NRCS PLANTS Database was also utilized (NRCS 2013). Scientific names are used during the first mention of a species; common names only are used in the remainder of the text. Since common names vary significantly between references, one common name per species is used consistently throughout the report. Special-status plant species are discussed below in section 3.3.4 *Special-Status Plant Species*.

3.3.3 General Wildlife Inventory

All wildlife species observed during the field surveys, as well as any diagnostic sign (call, tracks, nests, scat, remains, or other sign), were recorded in field notes. Binoculars and regional field guides were utilized for the identification of wildlife, as necessary. Wildlife taxonomy follows Stebbins (2003) for amphibians and reptiles, the American Ornithologists' Union (2012 and 1998) for birds, and Jameson and Peeters (1988) for mammals. Scientific names are used during the first mention of a species; common names only are used in the remainder of the text. Since common names vary significantly between references, one common name per species is used consistently throughout the report. Special-status wildlife species are discussed below in section 3.3.5 *Special-Status Wildlife Species*.

3.3.4 Sensitive Habitats

Sensitive habitats are listed by CDFW on their *List of Vegetation Alliances and Associations* (CDFW 2010).² Sensitive habitats for the Project site were identified based on the natural communities mapped for the Project site and off-site areas (see section 3.3.1 *Natural Community Mapping*).

3.3.5 Special-Status Plant Species

The potential for special-status plant species was assessed based upon the known occurrence of species in the area as identified from USFWS, CDFW, and CNPS databases (see section 3.2 *Literature Review*), and the presence or absence of suitable habitat within the Project site based on natural community vegetation mapping (see section 3.3.1 *Natural Community Mapping*). Suitable habitat was defined as areas with appropriate vegetation communities, soils and/or elevation at mean sea level (MSL) to support the species based on known occurrences in those habitats and/or CDFW and CNPS documented habitat descriptions for the species. The definitions of suitable habitat were then compared against the vegetation mapping conducted for the Project site and local knowledge. A table of special-status plant species was prepared for

² Available online at: http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp. Sensitive (also referred to by CDFW as 'rare' or 'special status') natural communities are asterisked on the list.

the Project site based on the databases, and the potential for each species to occur was determined following completion of the field surveys.

Based on the presence of suitable habitat for special-status species, focused plant surveys were conducted by PCR Senior Biologist Ezekiel Cooley, and PCR Biologists Bob Huttar, Florence Chan, and/or Amy Lee on April 11 and August 19, 2013. The focused surveys were conducted pursuant to published CDFW and USFWS protocols (CDFW 2009; CDFW 2000; USFWS 2000), including walking transects and making close observations at ground level during the blooming periods of the special-status plants with potential to occur on the Project site (both on- and off-site) to ensure detection.

All plant species observed during the field surveys were identified and recorded using scientific and common names, as described in section 3.3.2 *General Plant Inventory*

3.3.6 Special-Status Wildlife Species

The potential for special-status wildlife species was assessed based upon the known occurrence of species in the area as identified from USFWS and CDFW databases (see section 3.2 *Literature Review*), and the presence or absence of suitable habitat within the Project site based on natural community mapping (see section 3.3.1 *Natural Community Mapping*). Suitable habitat was defined as areas with appropriate vegetation communities and/or topography (elevation at MSL) to support the species based on known occurrences in those habitats and/or USFWS and CDFW documented habitat descriptions for the species. The definitions of suitable habitat were then compared against the vegetation mapping conducted for the Project site and local knowledge. A table of special-status wildlife species was prepared for the Project site based on the databases, and the potential for each species to occur was determined following completion of the field surveys.

Based on the presence of suitable habitat and regulatory requirements, including compliance with the MSHCP, focused surveys were conducted for burrowing owl by PCR Senior Biologist Ezekiel Cooley, and PCR Biologists Bob Huttar, Florence Chan, and/or Amy Lee. This methodology is described below in section 3.3.5.1 *Focused Burrowing Owl Surveys*. All wildlife species observed during the field surveys were identified and recorded using scientific and common names, as described in section 3.3.3 *General Wildlife Inventory*

3.3.5.1. Focused Burrowing Owl Surveys

Focused Step I and Step II burrowing owl surveys were conducted on April 11, 2013 (PCR Senior Biologist Ezekiel Cooley and PCR Biologist Bob Huttar), May 10, 2013 (PCR Senior Biologist Ezekiel Cooley and PCR Biologist Amy Lee), June 13, 2013 (PCR Biologists Florence Chan and Amy Lee), and August 19, 2013 (PCR Biologists Amy Lee, Florence Chan, and Bob Huttar). The surveys were conducted in accordance with the County of Riverside's *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (County of Riverside, 2006), including Step I, Habitat Assessment, and Step II, Locating Burrows and Burrowing Owls. Surveys were conducted within the Project site plus a 150-meter (approximately 500 feet) buffer zone around the Project site perimeter; binoculars were used to survey any inaccessible areas. The Step I survey was conducted to identify the presence or absence of suitable burrowing owl habitat (e.g., annual and perennial grasslands, deserts, and arid scrublands characterized by low-growing vegetation). The Step II surveys focused on the detection of small fossorial mammal burrows potentially suitable for burrowing owl, burrowing owl burrows, individual burrowing owls, and any diagnostic sign of their occurrence (e.g., molted feathers, cast pellets, prey remains, eggshell fragments, or

excrement at or near a burrow entrance). Transects were utilized, spaced no more than 100 feet apart, to allow 100 percent visual coverage of the ground surface. The four surveys were conducted during the burrowing owl breeding season (March 1 to August 31) on separate days between two hours before sunset to one hour after or one hour before sunrise to two hours after.³

3.3.7 Jurisdictional Delineation

A jurisdictional delineation of all existing drainage features on the Project site and off-site areas was conducted by PCR Principal Regulatory Scientist Amir Morales and Senior Biologist Ezekiel Cooley on November 29, 2012 to assess the extent of “waters of the U.S.” and/or wetlands under the jurisdiction of the U.S. Army Corps of Engineers (USACE)/Regional Water Quality Control Board (RWQCB), and/or streambed and associated riparian habitat under the jurisdiction of the CDFW. All areas were delineated using the protocol stipulated by the USACE under Section 404 of the Clean Water Act (CWA) and by the CDFW under Section 1600-1607 of the California Fish and Game Code. Any wetlands were delineated using the procedures stipulated in the USACE Wetland Delineation Manual (Environmental Laboratory 1987) and Arid West Supplement (USACE 2008a, USACE 2008b). Given the ephemeral nature of the drainages features associated with the Project site, the potential for USACE jurisdictional “waters of the U.S.” was based primarily on the presence or absence of jurisdictional field indicators consistent with the USACE guidelines pursuant to *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ACOE 2008a) such as the presence of an OHWM and/or secondary indicators of hydrology, including evidence of the deposition of debris, scour, sediment sorting, and changes in vegetation. The extent of CDFW jurisdiction was assessed based on the limits of the defined bed and bank and includes riparian streambed associated vegetation, where applicable. If these criteria were met, data was collected to estimate the length and width of jurisdictional features potentially regulated by the resource agencies. Upon completion of the field work, documentation of all jurisdictional wetlands, “waters of the U.S.,” and CDFW jurisdictional areas were completed. The documentation included a map illustrating the location, extent and acreage of all jurisdictional features. Downstream surface connections to known USACE jurisdictional waters were also evaluated in the field and by using satellite imagery and mapping, for the purpose of establishing a connection to “waters of the U.S.,” where applicable.

3.4 REGIONAL CONNECTIVITY/WILDLIFE MOVEMENT CORRIDOR

An analysis of wildlife movement was conducted based on information compiled from the literature, analysis of aerial photographs and topographic maps, direct observations made in the field during survey work, and an analysis of existing wildlife movement functions. Relative to corridor issues, the focus of this assessment is to determine if the change of the existing land use within the Project site will have significant impacts on the regional wildlife movement associated with the Project site and the immediate vicinity.

The MSHCP was reviewed to identify any Linkage or Core Areas proposed for preservation on the Project site or off-site areas (Dudek and Associates 2003). Additionally, the *South Coast Missing Linkages: A Wildland Network for the South Coast Ecoregion* document was reviewed (South Coast Wildlands 2008).

³ For projects within the Western Riverside County MSHCP plan area, it has been PCR's experience that the County of Riverside has recently preferred that Step II surveys be conducted approximately one week apart.

4.0 EXISTING CONDITIONS

4.1 CHARACTERISTICS OF THE PROJECT SITE AND SURROUNDING AREA

The approximate 20.27-acre Project site and 4.29 acres of off-site areas is located within the City of Wildomar in Riverside County. The Project site and off-site areas are not within any USFWS designated critical habitat, but are within the Elsinore Area Plan of the MSHCP (**Figure 4**, *Location within the Elsinore Area Plan of the MSHCP*).

The natural communities mapped include primarily disturbed fallow agricultural fields, with a smaller component of native vegetation dominated by California buckwheat (*Eriogonum fasciculatum*), chamise (*Adenostoma fasciculatum*), and Riversidean sage scrub. One drainage feature, Drainage A, was observed to support field indicators associated with USACE, RWQCB and CDFW (collectively “the resource agencies”) jurisdictional waters. Drainage A traverses the Project site in a northeast to southwest direction, and meanders on- and off-site along the central to southern end of the eastern boundary. No USGS blueline streams are mapped within the Project site or off-site areas.

The topography of the Project site consists of gently rolling hills. The site slopes gently in a northeast to southwest direction, with the elevations ranging from approximately 1,330 feet above MSL along the southwestern boundary to approximately 1,380 feet above MSL along the northern boundary.

Mapped soils in the Project site and off-site areas include ten soil types as follows (NRCS 2012):

- Arlington and Greenfield fine sandy loams, 2 to 8 percent slopes, eroded
- Handford sandy loam, 2 to 15 percent slopes
- Monserate sandy loam, 8 to 15 percent slopes, eroded
- Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded
- Monserate sandy loam, shallow, 15 to 25 percent slopes, severely eroded
- Placentia fine sandy loam, 5 to 15 percent slopes
- Ramona and Buren sandy loams, 15 to 25 percent slopes, severely eroded
- Ramona and Buren loams, 5 to 15 percent slopes, eroded
- Ramona and Buren loams, 5 to 25 percent slopes, severely eroded
- San Timoteo loam, 8 to 25 percent slopes, eroded

Surrounding land uses include a mix of rural and suburban residential development and open space in all directions, in addition to a few commercial developments to the northeast, west, and south west.

4.2 NATURAL COMMUNITIES

Descriptions of each of the natural communities found within the Project site (on-site) and off-site areas (off-site) are provided below, and the locations of each community are shown in **Figure 5, Natural Communities**. **Table 1, Natural Communities** lists each of the natural communities observed, as well as the acreage. Representative photographs of natural communities found within the Project site are included in **Figure 6, Site Photographs**.

Table 1
Natural Communities

Natural Community	On-Site (acres)	Off-Site (acres)	Total (acres)
Buckwheat Scrub	-	0.72	0.72
Buckwheat Scrub/Ruderal	0.08	-	0.08
Chamise Chaparral	0.31	0.07	0.38
Riversidean Sage Scrub	0.16	-	0.16
Riversidean Sage Scrub/Ruderal	0.32	0.08	0.40
Ornamental	-	0.01	0.01
Ruderal	0.41	0.15	0.56
Ruderal/Buckwheat Scrub	0.56	0.17	0.73
Ruderal/Riversidean Sage Scrub	1.62	0.11	1.73
Disturbed	16.54	2.45	18.99
Developed	0.27	0.53	0.80
Total	20.27	4.29	24.56

Source: PCR Services Corporation, 2013.

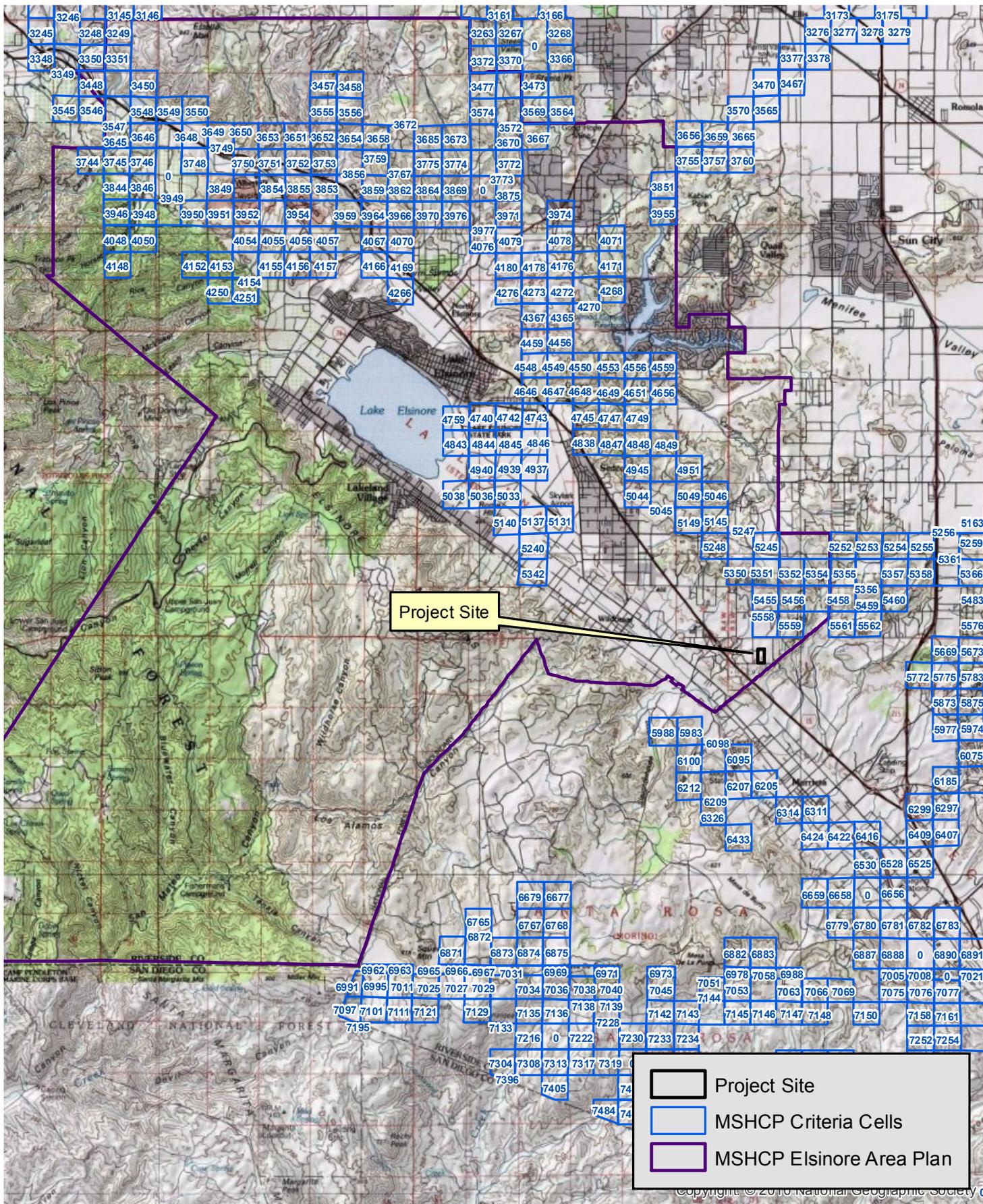
4.2.1 Buckwheat Scrub (Holland Code: 32000)

California buckwheat scrub is a shrubland with an alliance of plants dominated by California buckwheat (*Eriogonum fasciculatum*). In coastal California this community is usually one of the first to establish in mechanically disturbed areas.

The pioneering California buckwheat community was present in one location off-site, directly south of Prielipp Road. In this area, the buckwheat scrub community is well developed with mature individuals that are closely spaced with non-native grasses and forbs filling those spaces. This community occupies a small acreage, including 0.72 acre within the off-site areas only.

4.2.2 Buckwheat Scrub/Ruderal (Holland Codes: 32000/11000)

Buckwheat scrub/ruderal is a shrubland with an alliance of plants dominated or co-dominated by California buckwheat and primarily non-native ruderal vegetation.



0 2.5 Miles

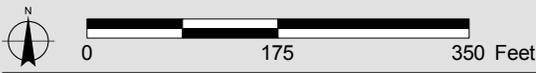
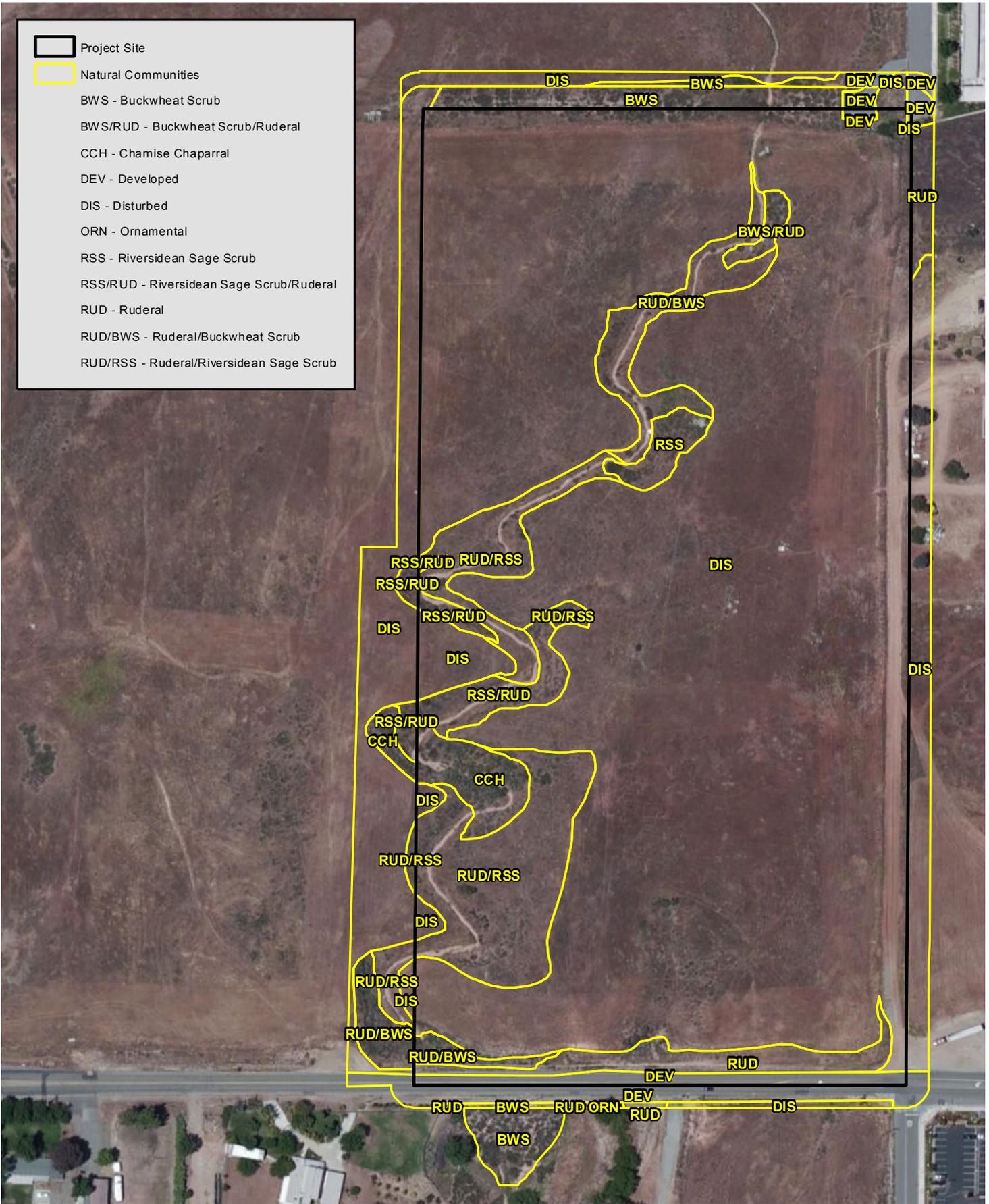
Location within the Elsinore Area Plan of the MSHCP

FIGURE

4

Pierlapp Road APN 380250023

Source: USGS Topographic Series; MSHCP; PCR Services Corporation, 2013.



Natural Communities

Priellipp Road APN 380250023
 Source: Aerial Express, 2010; PCR Services Corporation, 2013.

FIGURE



Photograph 1: Photograph of Disturbed and Buckwheat Scrub habitats taken on the northeast corner facing south.



Photograph 2: Photograph of Disturbed habitat taken on the northwest corner facing south.



Photograph 3: Photograph of Disturbed habitat taken on Prielipp Road facing north.



Photograph 4: Photograph of Ruderal/Riversidean Sage Scrub, Chamise Chaparral, and Disturbed habitats taken on the southwest corner facing northeast.

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The buckwheat scrub/ruderal community is found in one small area in the northeastern portion of the Project site, totaling 0.08 acre within the Project site only.

4.2.3 Chamise Chaparral (Holland Code: 37200)

Chamise is the most characteristic and widespread chaparral species in the state of California. In chamise chaparral, the shrub accounts for at least half of the cover and the ground cover is sparse to intermittent.

Chamise chaparral occurs within the southwestern portion of the Project site, and continues into the off-site areas. The only shrub found in this community is chamise and the associated species include understory species of brome grasses (*Bromus* spp.) and tocalote (*Centaurea melitensis*). This community occupies a small acreage, including 0.31 acre within the Project site and 0.07 acre within the off-site areas.

4.2.4 Riversidean Sage Scrub (Holland Code: 32700)

Riversidean sage scrub is the driest, most inland expression of the collection of sage scrub or coastal scrub series and ranges throughout southern California. It typically occurs on steep slopes, severely drained soils, or clays that release soil moisture slowly. Typical stands of this type of sage scrub are fairly open and dominated by California sagebrush (*Artemisia californica*), California buckwheat, and foxtail chess. Additional species characteristic of this plant community include deerweed (*Acmispon glaber*), white sage (*Salvia apiana*), and black sage (*Salvia mellifera*).

The Riversidean sage scrub community within the Project site were primarily dominated by California buckwheat in addition to other species such as California sagebrush, deerweed, white sage, and an understory of ruderal species including California cholla (*Cylindropuntia californica*) and shortpod mustard (*Hirschfeldia incana*). Riversidean sage scrub was observed in the approximate central portion of the Project site only, occupying 0.16 acre.

4.2.5 Riversidean Sage Scrub/Ruderal (Holland Codes: 32700/11000)

The plant species observed in the Riversidean sage scrub/ruderal areas were comparable to the Riversidean sage scrub areas described above in section 4.2.4 *Riversidean Sage Scrub (Holland Code: 32700)*, with the exception that this community was characterized by a higher density of ruderal species and a lower density of native species due to disturbance. The Riversidean sage scrub/ruderal community was observed along the eastern-central boundary of the Project site, encompassing 0.33 acre, and continues into the off-site areas for an additional 0.08 acre.

4.2.6 Ornamental (Holland Code: 11000)

Ornamental vegetation includes pepper trees (*Schinus* spp.) and other non-native tree species generally used for landscaping. A total of 0.01 acre of ornamental vegetation occurs in one location in the off-site areas only, associated with Prielipp Road to the south.

4.2.7 Ruderal (Holland Code: 11000)

Ruderal vegetation is found in areas heavily disturbed by human activities, such as roadsides, graded fields, former agricultural areas or dump sites, and frequently the plants are introduced as a consequence of the activity. There is a wide variability in the types of species found due to many factors including the site location and frequency of disturbance.

Typical plant species observed in this community included many brome grasses, tocalote, telegraph weed (*Heterotheca grandiflora*), shortpod mustard, and prickly Russian thistle (*Salsola tragus*). Ruderal areas comprise 0.41 acre within the Project site along the southern boundary parallel to Prielipp Road, and 0.15 acre within the off-site areas northeast of the Project site.

4.2.8 Ruderal/Buckwheat Scrub (Holland Codes: 11000/32000)

The ruderal/ buckwheat scrub community was observed to be dominated by the ruderal species described above in section 4.2.7 *Ruderal (Holland Code: 11000)*, with a higher density of California buckwheat. The California buckwheat species are scattered and at a low density (less than approximately 20 percent) within this community. The ruderal/buckwheat scrub occupies 0.56 acre within the Project site in two small patches, including one patch in the north-central portion of the Project site and one patch in the southwestern corner that continues off-site for an additional 0.17 acre.

4.2.9 Ruderal/Riversidean Sage Scrub (Holland Codes: 11000/32700)

The plant species observed in the ruderal/Riversidean sage scrub areas were comparable to the Riversidean sage scrub areas described above in 4.2.4 *Riversidean Sage Scrub (Holland Code: 32700)*, with the exception that this community was dominated by a high density of ruderal species and a lower density of native species due to disturbance. The ruderal/Riversidean sage scrub was observed along the western boundary of the Project site, including 1.62 acres on-site and 0.11 acre in the off-site areas.

4.2.10 Disturbed (Holland Code: 11300)

Disturbed areas consist of regularly maintained areas that lack vegetation. Disturbed areas observed primarily include frequently disced fallow agricultural fields, and dirt access roads. These areas occupy approximately 16.54 acres within the Project site and 2.45 acres within the off-site areas.

4.2.11 Developed (Holland Code: 12000)

Developed areas are paved, or are unpaved, maintained areas that consist of compacted soils with no vegetation. The developed areas observed include a paved access road in the northeastern corner and Prielipp Road along the southern boundary, totaling 0.27 acre within the Project site and 0.53 acre in the off-site areas.

4.3 GENERAL PLANT INVENTORY

The natural communities discussed above are composed of numerous plant species. Observations regarding the plant species present were made during each field visit, and a list of all plant species observed is

provided in **Appendix A, *Floral and Faunal Compendium***. Special-status plant species occurring or potentially occurring within the on-site and off-site areas of the Project are discussed below in section 4.7.3 *Special-Status Plant Species*.

4.4 GENERAL WILDLIFE INVENTORY

The natural communities discussed above can provide habitat for common wildlife species. Observations regarding the wildlife species present were made during each field visit, and a list of all species observed is provided in Appendix A. Special-status wildlife species occurring or potentially occurring within the on-site and off-site areas of the Project are discussed below in section 4.7.4 *Special-Status Wildlife Species*.

4.5 WILDLIFE MOVEMENT

4.5.1 Overview

Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated “islands” of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic material (MacArthur and Wilson 1967, Soulé 1987, Harris and Gallagher 1989, Bennet 1990).

Corridors effectively act as links between different populations of a species. A group of smaller populations (termed “demes”) linked together via a system of corridors is termed a “metapopulation.” The long-term health of each deme within the metapopulation is dependent upon its size and the frequency of interchange of individuals (immigration vs. emigration). The smaller the deme, the more important immigration becomes, because prolonged inbreeding with the same individuals can reduce genetic variability. Immigrant individuals that move into the deme from adjoining demes mate with individuals and supply that deme with new genes and gene combinations that increases overall genetic diversity. An increase in a population’s genetic variability is generally associated with an increase in a population’s health and long-term viability.

Corridors mitigate the effects of habitat fragmentation by: (1) allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fires or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Noss 1983, Fahrig and Merriam 1985, Simberloff and Cox 1987, Harris and Gallagher 1989).

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions); (2) seasonal migration; and, (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). A number of terms have been used in various wildlife movement studies, such as “wildlife corridor,” “travel route,” and “wildlife crossing” to refer to areas in which wildlife move

from one area to another. To clarify the meaning of these terms and facilitate the discussion on wildlife movement in this study, these terms are defined as follows:

Travel Route: A landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and provide access to necessary resources (e.g., water, food, cover, den areas). The travel route is generally preferred because it provides the least amount of topographic resistance in moving from one area to another; it contains adequate food, water, and/or cover while moving between habitat areas; and provides a relatively direct link between target habitat areas.

Wildlife Corridor: A piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as “habitat or landscape linkages”) can provide both transitory and resident habitat for a variety of species.

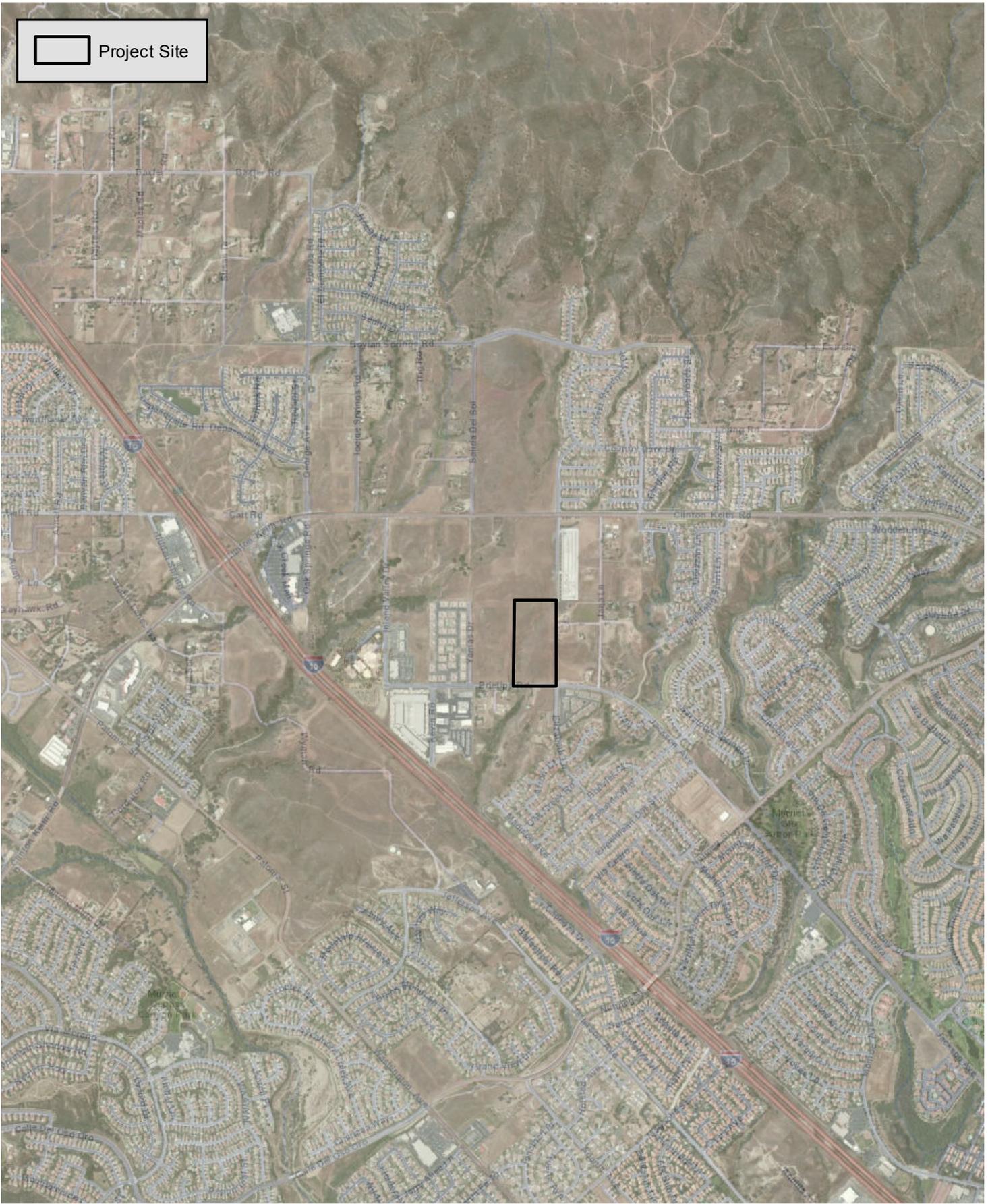
Wildlife Crossing: A small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are manmade and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These are often “choke points” along a movement corridor.

4.5.2 Wildlife Movement Within the Project Site

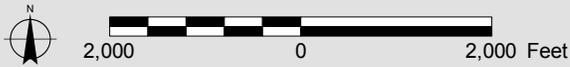
As previously described, wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). Although the nature of each of these types of movement is species specific, large open spaces will generally support a diverse wildlife community representing all types of movement. Each type of movement may also be represented at a variety of scales from non-migratory movement of amphibians, reptiles, and some birds on a “local” level to home ranges encompassing many square-miles for large mammals moving on a “regional” level.

Regional movement through the Project site to the surrounding vicinity immediately adjacent to the Project site is restricted in all directions due to the surrounding development and the I-15 freeway. The Project site is situated approximately 0.75 mile from the foothills of the Sedco Hills located to the north, and approximately 0.4 mile northeast of the I-15 freeway (refer to **Figure 7, Aerial Photograph**). Due to the urbanization of the region, the Project site is immediately surrounded by commercial development to the northeast, suburban residential development to the southeast, and sparse rural residential development to the south. Vacant land occurs to the immediate east, north, and west, but developed areas and the I-15 freeway occur beyond these open areas, restricting potential wildlife movement.

One potential wildlife movement area was identified on the Project site, specifically Drainage A that traverses the site in a northeast to southwest direction. The drainage appears to connect the Sedco Hills in the north to areas south of the I-15 (see Figure 7). From Sedco Hills the drainage appears to traverse in a



Project Site



Aerial Photograph

Prielipp Road APN 380250023

Source: Aerial Express, 2010; PCR Services Corporation, 2013.

FIGURE

7

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southwest direction through a residential development before crossing under Clinton Keith Road via a culvert. The drainage then traverses north of a self-storage facility in a southwest direction before running parallel to the facility near its western boundary in southerly direction. Drainage A then enters the Project site in the northeast corner and exits in the southwest corner, and continues in a southwest direction under the I-15 after which it changes direction to southeast flowing towards Murrieta Creek. A more detailed description of Drainage A is provided below in section 4.6 *Jurisdictional Waters and Wetlands*. Due to the small size and low density vegetation cover, Drainage A is not likely to provide a movement corridor for larger mammals that require larger home range areas and dispersal distances, and dense vegetation cover. Dense vegetation cover appears to be lacking in the portion of the drainage south of Clinton Keith Road and north of Prielipp Road. Local experts have documented use of the drainages on another project site immediately adjacent to the I-15 and west of the proposed Project (including the main drainage and one of its tributaries) by mountain lion (*Felis concolor*) (Live Oak Associates, Inc. 2007). However, a wildlife study conducted for that project concluded that movement on a larger “regional” scale is less likely to occur for wildlife that require expansive home ranges and more likely for wildlife that are adapted to more urban environments (PCR 2005). The nearby project also had large culverts under Clinton Keith Road and denser vegetation in the drainages overall that could facilitate wildlife movement. Wildlife movement onto the Project site from the north would therefore likely have to occur by crossing Clinton Keith Road. As such, regional movement through Drainage A most likely occurs on a limited basis.

The Project site is not within any cores or linkages identified by the MSHCP (Dudek and Associates 2003). The closest linkage to the Project site is Proposed Linkage 8 just over approximately one mile to the north associated with Sedco Hills. The closest Core areas are approximately located just over five miles to the northwest (Proposed Extension of Existing Core 3, Lake Elsinore Soils), west (Existing Core B, Cleveland National Forest), south (Existing Core F, Santa Rosa Plateau), and east (Proposed Core 2, Antelope Valley). The Project site is also not within any linkages identified by the South Coast Missing Linkages document; the nearest linkage design identified is for the Palomar-San Jacinto-Santa Rosa Connection located approximately 16 miles to the east (South Coast Wildlands 2008). Since the Project site is not identified as a linkage by the MSHCP or South Coast Wildlands, and it does not support habitat that connects two or more habitat patches that would otherwise be fragmented or isolated from one another, the Project site is not considered a wildlife corridor. The Project site may provide limited opportunities for wildlife movement, more likely for local wildlife movement as described below.

Movement on a smaller or “local” scale could occur within the Project site for species that are less restricted in movement pathway requirements or are adapted to urban areas (e.g., raccoon/*Procyon lotor*, striped skunk/*Mephitis mephitis*, coyote/*Canis latrans*, and bird species in general). The Project site is routinely disced and was likely historically used for agriculture. Limited habitat within the Project site therefore consists of primarily disturbed areas dominated by non-native species with patches of native vegetation including buckwheat, chamise chaparral, and Riversidean sage scrub. Although the habitat on-site is disturbed, it likely supports some wildlife movement within the Project site for foraging. Data gathered from the biological survey indicates that the Project site contains habitat that supports common species of invertebrates, reptiles, birds, and mammals. The home range and average dispersal distance of many of these species may be entirely contained within the Project site and immediate vicinity. Populations of animals such as insects, reptiles, small mammals, and a few bird species may find all their resource requirements without moving far or outside of the Project site at all. Occasionally, individuals expanding their home range or dispersing from their parental range will attempt to move outside of the Project site, if feasible, based on the surrounding restrictions to movement from development (see above). Bird species

may fly over the surrounding development and utilize the Project site for foraging, although this is expected to be limited due to the high level of human activity in the region.

Although the Project site supports live-in and movement habitat for species on a local scale (i.e., some limited live-in and at least marginal movement habitat for reptile, bird, and mammal species), it likely provides little to no function to facilitate wildlife movement for wildlife species on a regional scale, and is not identified as a regionally important dispersal or seasonal migration corridor.

4.6 JURISDICTIONAL WATERS AND WETLANDS

Based on the jurisdictional assessment, the Project site supports one ephemeral drainage feature identified as Drainage A that occurs both on-site and off-site. Drainage A is not identified as a USGS blue-line drainage, but is considered jurisdictional. Drainage A supports approximately 2,162 linear feet of ephemeral streambed totaling 0.13 acre of USACE and RWQCB jurisdictional waters (including 0.12 acre on-site and 0.01 acre off-site) and 0.25 acre of CDFW jurisdictional streambed (including 0.22 acre on-site and 0.03 acre off-site).

Drainage A is depicted on **Figure 8, Jurisdictional Features** and photographs are provided as **Figure 9, Drainage Photographs**. The drainage is described below and a summary of the acreages are provided in **Table 2, Jurisdictional Features**.

4.6.1 Drainage A

Drainage A bisects the Project site and meanders from north to south for approximately 1,950 linear feet, prior to exiting the site for 131 linear feet and then reentering the site near the southwest corner of the property where flows enter a 36-inch corrugated metal pipe beneath Prielipp Road along the southern Project site boundary. Off-site areas were also delineated due to proposed road improvements required by the City of Wildomar, including approximately 51 linear feet of Drainage A north/upstream of the Project site and 30 linear feet of Drainage A south/downstream of the Project site. Drainage A is completely unvegetated and exhibits ephemeral flow from headwaters commencing in the foothills located approximately 1.5-miles north of the Project site. The drainage is within the Santa Margarita Watershed and ultimately conveys runoff into an unnamed tributary to Murrieta Creek that joins Murrieta Creek approximately 1.6 miles southwest of the Project site. Drainage A supports sandy loam soils associated with the Monserate soil series⁴ that are overlain by cobbles and gravels. No wetlands or other special aquatic sites occur within the Project site or off-site areas. Jurisdictional channel widths associated with USACE/RWQCB jurisdictional waters average 2.5 feet based on the OHWM, while CDFW jurisdictional streambed widths range from 4-6 feet based on the top-of-bank condition.

4.7 SENSITIVE BIOLOGICAL RESOURCES

Protected sensitive species are classified by either federal or state resource management agencies, or both, as threatened or endangered, under provisions of the federal and state Endangered Species Acts (FESA and CESA, respectively). The following discussion describes the federal and state resource protection and

⁴ Soil series confirmed by USDA-NCSS Soils Web data accessed online via Google Earth on August 12, 2013.



Jurisdictional Features

Prielipp Road APN 380250023
 Source: Aerial Express, 2010; PCR Services Corporation, 2013.

FIGURE
8



Photograph 1: View of Drainage A looking south/downstream from northern property boundary.



Photograph 3: View of Drainage A looking south/downstream approximately 350 feet from southern property boundary.



Photograph 2: View within Drainage A looking south/downstream near center of property.

Table 2

Jurisdictional Features^a

Drainage	Length (feet)	Area (acres)	
		USACE/RWQCB	CDFW
A (On-site)	1,950	0.12	0.22
A (off-site)	212	0.01	0.03
Total	2,162	0.13	0.25

^a Jurisdictional acreages overlap and are not additive (e.g., USACE/RWQCB acreages are included in the total CDFW jurisdictional acreages).

Source: PCR Services Corporation, 2013.

classifications, followed by the plant and wildlife species present, or potentially present, within the study area that have been afforded special recognition by federal, state, or local resource conservation agencies and organizations. These species have declining or limited population sizes, usually resulting from habitat loss. Also discussed are habitats that are unique, of relatively limited distribution, or of particular value to wildlife.

4.7.1 Federal Sensitive Resource Protection and Classifications

FESA

The Federal Endangered Species Act of 1973 (FESA) defines an “endangered” species as “any species which is in danger of extinction throughout all or a significant portion of its range”. A “threatened” species is defined as “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range”. Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to “take” any listed species. “Take” is defined in Section 3(18) of FESA as to: “...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Further, the U.S. Fish and Wildlife Service (USFWS), through regulation, has interpreted the terms “harm” and “harass” to include certain types of habitat modification as forms of “take”. These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action which could affect a federally listed plant or animal species, the property owner and agency are required to consult with USFWS pursuant to Section 7 of the ESA if there is a federal nexus, or pursuant to Section 10 of the ESA. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

The status of federally listed species is assigned by USFWS as one of the following:

- Federally Endangered (FE)
- Federally Threatened (FT)
- Federally Proposed as Endangered (FPE)
- Federally Proposed as Threatened (FPT)
- Federally Proposed for Delisting (FPD)

- Federal Candidate for a Proposed Species (FC)

Some of the USFWS offices maintain a database of listed species within their jurisdiction, for example the Sacramento⁵ and Carlsbad⁶ offices. The Carlsbad USFWS Office jurisdiction encompasses the counties of Los Angeles, Orange, Riverside, San Bernardino, Imperial, and San Diego.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) protects individuals as well as any part, nest, or eggs of any bird listed as migratory. In practice, federal permits issued for activities that potentially impact migratory birds typically have conditions that require pre-disturbance surveys for nesting birds. In the event nesting is observed, a buffer area with a specified radius must be established, within which no disturbance or intrusion is allowed until the young have fledged and left the nest, or it has been determined that the nest has failed. If not otherwise specified in the permit, the size of the buffer area varies with species and local circumstances (e.g., presence of busy roads, intervening topography, etc.), and is based on the professional judgment of a monitoring biologist. A list of migratory bird species protected under the MBTA is published by USFWS (USFWS, 2012c).

Federal Clean Water Act, Section 404

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredged or fill material into waters of the U.S. and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Implementing regulations for the CWA define waters of the U.S. as “rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands.” Wetlands are defined as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions.” The permit review process entails an assessment of potentially adverse impacts to USACE jurisdictional waters of the U.S..

Over the years, the USACE has modified its regulations, typically due to evolving policy or judicial decisions, through the issuance of Regulatory Guidance Letters, memorandums, or more expansive instruction guidebooks. These guidance documents help to update and define how jurisdiction is claimed, and how these waters of the U.S. will be regulated. The most recent, significant modification occurred on June 5, 2007, subsequently updated in December 2008, when the USACE and the U.S. Environmental Protection Agency (USEPA) issued a series of guidance documents outlining the requirements and procedures, effective immediately, to establish jurisdiction under Section 404 of the CWA and the Section 10 of the Rivers and Harbors Act of 1899. These documents are intended to be used for all jurisdictional delineations and provide specific guidance for the jurisdictional determination of potentially jurisdictional features affected by the U.S. Supreme Court rulings in *Rapanos v. the United States* and *Carabell v. the United States* 547 U.S. 715 (2006) (jointly referred to as *Rapanos*).

The *Rapanos* case outlines the conditions and criteria used by the USACE to assess and claim jurisdiction over non-isolated, non-navigable, ephemeral tributaries. Under a plurality ruling, the Court noted that certain “not relatively permanent” (i.e., ephemeral), non-navigable tributaries must have a “significant nexus” to downstream traditional navigable waters to be jurisdictional. An ephemeral tributary has a

⁵ http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists-overview.htm

⁶ http://www.fws.gov/carlsbad/SpeciesStatusList/CFWO_Species_Status_List.htm

significant nexus to downstream navigable “waters” when it has “more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a Traditional Navigable Water (TNW).” A significant nexus is established through the consideration of a variety of hydrologic, geologic and ecological factors specific to the particular drainage feature in question. For drainage features that do not meet the significant nexus criteria, a significant nexus determination is provided by the USACE to the USEPA for the final determination of federal jurisdiction. Drainage features that do not meet the significant nexus criteria based on completion of an AJD, and/or are determined to be isolated pursuant to the SWANCC ruling (see below), may still be regulated by California Department of Fish and Wildlife (CDFW) under Fish and Game Code Section 1600 or the Regional Water Quality Control Board (RWQCB) under the Porter-Cologne Water Quality Act.

On January 15, 2003, the USACE and USEPA issued a Joint Memorandum to provide clarifying guidance regarding the United States Supreme Court ruling in the *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, No. 99-1178 (January 9, 2001) (“the SWANCC ruling”), (Federal Register: Vol. 68, No. 10.). This ruling held that the CWA does not give the federal government regulatory authority over non-navigable, isolated, intrastate waters. As a result of this decision, some previously regulated depressional areas such as mudflats, sandflats, wetlands, prairie potholes, wet meadows, playa lakes, natural ponds, and vernal pools, which are not hydrologically connected to other intra- or inter-state “waters of the U.S.,” are no longer regulated by the USACE.

Federal Clean Water Act, Section 401

The mission of the RWQCB is to develop and enforce water quality objectives and implement plans that will best protect the beneficial uses of the state’s waters, recognizing local differences in climate, topography, geology, and hydrology. The California RWQCB is responsible for implementing compliance not only with state codes such as the California Water Code, but also some federal acts such as Section 401 of the CWA. Section 401 of the CWA requires that any applicant for a federal permit for activities that involve a discharge to waters of the state shall provide the federal permitting agency with a certification from the state in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal CWA.⁷ As such, before the USACE will issue a CWA Section 404 permit, applicants must apply for and receive a Section 401 water quality certification (WQC) from the RWQCB. The RWQCB regulates “discharging waste, or proposing to discharge waste, within any region that could affect “waters of the state” (Water Code § 13260 (a)), pursuant to provisions of the Porter-Cologne Water Quality Control Act which defines RWQCB jurisdictional “waters of the state” as “any surface water or groundwater, including saline waters, within the boundaries of the state” (Water Code § 13050 (e)).

With the exception of isolated waters and wetlands, most discharges of fill to waters of the state are also subject to a CWA Section 404 permit. If a CWA Section 404 permit is not required for the project, the RWQCB may still require issuance of Waste Discharge Requirements (WDR) under the Porter-Cologne Water Quality Control Act. The RWQCB may regulate isolated waters that are not under jurisdiction of the USACE through issuance of WDR’s. However, projects that obtain a Section 401 WQC are simultaneously enrolled in a statewide general WDR. Processing of Section 401 WQC’s generally requires submittal of 1) a construction storm water pollution prevention plan (SWPPP), 2) a final water quality technical report that demonstrates that post-construction storm water Best Management Practices (BMPs) comply with the local design

⁷ 33 USC 1341 (a) (1).

standards for municipal storm drain permits (MS4 permits) implemented by the State Water Resources Control Board effective January 1, 2011, and 3) a conceptual Habitat Mitigation and Monitoring Plan (HMMP) to compensate for permanent impacts to RWQCB waters, if any. In addition to submittal of a draft CEQA document, a WQC application typically requires a discussion of avoidance and minimization of impacts to RWQCB jurisdictional resources, and efforts to protect beneficial uses as defined by the local RWQCB basin plan for the project. The RWQCB cannot issue a Section 401 WQC until the project CEQA document is certified by the lead agency.

4.7.2 State of California Sensitive Resource Protection and Classifications

CESA

CESA defines an endangered species as:

...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.

The State defines a threatened species as:

...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species.

Candidate species are defined as:

...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list.

Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the FESA, CESA does not include listing provisions for invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened or endangered species by stating:

...no person shall import into this State, export out of this State, or take, possess, purchase, or sell within this State, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided.

Under the CESA, “take” is defined as, “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Additionally, some sensitive mammals and birds are protected by the State as Fully Protected Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively.

California Species of Special Concern are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. Informally listed species are not protected per se, but warrant consideration in the preparation of biological assessments. For some species, the CNDDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest areas.

For the purposes of this BRA, the following acronyms are used for State status species, as applicable:

- State Endangered (SE)
- State Threatened (ST)
- State Rare (SR)
- State Candidate for Endangered (SCE)
- State Candidate for Threatened (SCT)
- State Fully Protected (SFP)
- California Species of Special Concern (SSC)

Protection of Birds

Section 3503.5 of the California Fish and Game Code states that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Activities that result in the abandonment of an active bird of prey nest may also be considered in violation of this code. In addition, California Fish and Game Code, Section 3511 prohibits the taking of any bird listed as fully protected, and California Fish and Game Code, Section 3515 states that it is unlawful to take any non-game migratory bird protected under the MBTA.

State of California Fish and Game Code, Section 1602

Section 1602 of the California Fish and Game Code requires any entity (e.g., person, state or local government agency, or public utility) who proposes a project that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake to notify the CDFW of the proposed project. In the course of this notification process, the CDFW will review the proposed project as it affects streambed habitats within the project area. The CDFW may then place conditions in the Section 1602 Streambed Alteration Agreement to avoid, minimize, and mitigate any potentially significant adverse impacts within CDFW jurisdictional limits.

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in California. CNPS has compiled an inventory comprised of the information focusing on

geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California (CNPS, 2012). The list serves as the candidate list for listing as Threatened and Endangered by CDFW. CNPS has developed five categories of rarity, of which Lists 1A, 1B, and 2 are particularly considered sensitive:

- List 1A Presumed extinct in California.
- List 1B Plants Rare, Threatened, or Endangered in California and elsewhere.
- List 2 Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
- List 3 Plants about which we need more information – a review list.
- List 4 Plants of limited distribution – a watch list.

The CNPS recently added “threat ranks” which parallel the ranks used by the CNDDDB, referred to as the California Rare Plant Rank (CRPR). The CRPRs are added as a decimal code after the CNPS List (e.g., List 1B.1). The threat codes are as follows:

- .1 – Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat);
- .2 – Fairly endangered in California (20-80% occurrences threatened);
- .3 – Not very endangered in California (<20% of occurrences threatened or no current threats known).

Sensitive species that occur or potentially could occur within the study area are based on one or more of the following: (1) the direct observation of the species within the study area during any field surveys; (2) a record reported in the CNDDDB; and (3) the study area is within known distribution of a species and contains appropriate habitat.

Sensitive Natural Communities

CDFW maintains a natural plant community list, the *List of California Terrestrial Natural Communities*.⁸ Sensitive natural communities (also referred to by CDFW as ‘rare’ or ‘special-status’) are identified on the list by an asterisk.

Western Riverside County MSHCP

The Project site is within the Western Riverside County MSHCP which was adopted by the Riverside County Board of Supervisors on June 17, 2003. The MSHCP functions as an Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(B) of the FESA and as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The USFWS and CDFW have authorized the take of a number of sensitive plant and wildlife species (Covered Species) within the MSHCP Plan Area in exchange for the assembly and

⁸ Available online at: http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp.

management of a coordinated MSHCP Conservation Area. Many of the sensitive plant and wildlife species discussed herein will provide information on the status of the species within the Project site.

4.7.3 Sensitive Natural Communities

No sensitive natural communities occur within the Project site or off-site areas.

As summarized in Table 1, eleven communities were mapped on the Project site and off-site areas. These include five native dominated natural communities totaling 1.74 acres were mapped (0.87 acre on-site and 0.87 acre off-site), including buckwheat scrub (0.72 acre off-site), buckwheat scrub/ruderal (0.08 acre on-site), chamise chaparral (0.31 acre on-site and 0.07-acre off-site), Riversidean sage scrub (0.16 acre on-site), and Riversidean sage scrub/ruderal (0.32 acre on-site and 0.08 acre off-site). However, these communities are not considered sensitive habitats by wildlife agencies such as CDFW and USFWS, or in the MSHCP. Furthermore, the native communities within the Project site are small, scattered, and are of low quality for sensitive plant and wildlife species. The remaining 22.82 acres (19.4 acres on-site and 3.42 acres off-site) are non-native dominated and are not considered sensitive habitats, including the following six communities: ornamental, ruderal, ruderal/buckwheat scrub, ruderal/Riversidean sage scrub, and disturbed, in addition to developed areas.

4.7.4 Special-Status Plant Species

Special-status plants include those listed, or candidates for listing, by the USFWS and CDFW, and species listed by the CNPS (particularly Lists 1A, 1B, and 2). Several special-status plant species were reported in the vicinity based on CNDDDB, totaling 65 species within the 9-quadrangle search. Of these, a total of 31 species were considered to have no potential to occur on the Project site or off-site areas due to the lack of suitable habitat or the site's location outside of the species' range. Based on the focused surveys, 33 of the species were determined absent and 1 species was observed. A summary table of these species is provided in **Appendix B, Special-Status Plant Species**.

The one species observed on-site, paniculate tarplant (*Deinandra paniculata*), is a CNPS List 4, which is classified as 'Plants of limited distribution – a watch list'. A low density of this species occurs in two locations on the Project site totaling 1.83 acres in the northeast and southeast, as shown on **Figure 10, Paniculate Tarplant Locations**. The species was flowering at the time of the survey. Based on CNDDDB records, this species is found throughout Riverside County. In addition, it is not an MSHCP Covered Species, nor was it considered for coverage under the plan. Based on the wide distribution of this species within Riverside County, and the CNPS listing of 4, paniculate tarplant is not considered sensitive.

4.7.5 Special-Status Wildlife Species

Special-status wildlife include those species listed as Endangered or Threatened under the FESA or CESA, candidates for listing by the USFWS or CDFW, and species of special concern to the CDFW. Several special-status wildlife species were reported in the vicinity based on CNDDDB, totaling 40 species within the 9-quadrangle search. Of these, a total of 22 species were considered to have no potential to occur on the Project site or off-site areas due to the lack of suitable habitat or the site's location outside of the species' range, 1 species (burrowing owl) was determined absent based on focused surveys, 15 species were determined to have a very low, low, moderate or moderate to high potential to inhabit or forage, and 2

species were observed (San Diego black-tailed jackrabbit/*Lepus californicus bennettii* and white-tailed kite/*Elanus leucurus*). A summary table of these species is provided in **Appendix C, Special-Status Wildlife Species**. The results of the focused burrowing owl survey are provided below, in addition to a summary of the 2 species observed and the 16 species with potential to occur on-site; 3 of those species are migratory bird and raptor species that are described in a separate subsection below. Best Management Practices for wildlife species are recommended in section 7.3 *General Recommendations* of this BRA.

Burrowing Owl Focused Survey

Burrowing owl is a California Species of Special Concern that is known to occur in the Project vicinity based on CNDDDB and the MSHCP. The Project site is within an overlay in the MSHCP that requires additional surveys. Therefore, focused Step I and Step II surveys for burrowing owls were conducted on the Project site. Suitable habitat was identified on-site during the Step I survey, including disturbed, low-growing vegetation; bare ground; and small fossorial mammal burrows. Burrowing owls often use the burrows of California ground squirrels (*Spermophilus beecheyi*); ground squirrel burrows were abundant along the northern Project site boundary (within an earthen berm and concrete pipes) and along the slopes of Drainage A. The site is fairly open, which burrowing owls prefer, and potential perch features were observed including the earthen berm along the northern boundary. Although the Project site supports some suitable habitat, no owls were observed on-site during the focused Step II surveys, or within approximately 500-feet of the Project site as required by the survey protocol. Therefore, the site and adjacent area does not currently support burrowing owls.

Species Observed On-site

White-tailed kite (*Elanus leucurus*): This mammal species is a California Fully Protected species and a Covered Species pursuant to the MSHCP. It prefers agricultural areas, grasslands, marshes, savannas, and other open land or sparsely wooded areas.

The species was incidentally observed foraging on-site by PCR during surveys in 2013.

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*): This mammal species is a California Species of Special Concern and a Covered Species pursuant to the MSHCP. It prefers open brushlands and scrub habitats.

An occurrence of San Diego black-tailed jackrabbit was reported in the CNDDDB on the Project site dated 1998, and the species was incidentally observed on-site by PCR during surveys.

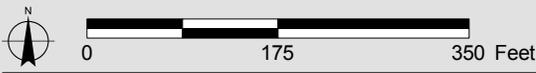
Species With Potential to Occur On-site

Coast horned lizard (*Phrynosoma blainvillii*): This reptile species is a state species of special concern and is a Covered Species pursuant to the MSHCP. It prefers sandy riparian and sage scrub habitats, but also occurs in valley-foothill, hardwood, conifer, pine-cypress, juniper and annual grassland habitats below 6,000 feet. Habitats include open country, especially sandy areas, washes, flood plains, and windblown deposits.

Coast horned lizard was determined to have a moderate potential to occur on the Project site and off-site areas based on the presence of limited scrub and wash habitat. However, the potential to occur was



Project Site
Distribution of Paniculate Tarplant
 Low Density



Paniculate Tarplant Locations

Prielipp Road APN 380250023

Source: Aerial Express, 2010; PCRServices Corporation, 2013.

FIGURE

10



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considered moderate due to the scattered and disturbed nature of the habitat. No incidental sightings of this species were made during site surveys conducted in 2012 and 2013.

Orange-throated whiptail (*Aspidoscelis hyperythra*): This reptile species is a state species of special concern and a Covered Species pursuant to the MSHCP. It prefers chaparral, non-native grassland, Riversidean sage scrub, and juniper and oak woodlands. It is often associated with riparian areas and alluvial fan sage scrub habitats.

Orange-throated whiptail was determined to have a potential to occur within the Project site and off-site areas based on the presence of scrub, dry and disturbed habitats. However, the potential to occur was considered moderate due to the high level of disturbance and scattered habitat. No incidental sightings of this species were made during site surveys conducted in 2012 and 2013.

Red-diamond rattlesnake (*Crotalus ruber*): This reptile species is a state species of special concern and a Covered Species pursuant to the MSHCP. It prefers rocky areas and dense chaparral, woodland, and grassland.

Red-diamond rattlesnake was determined to have a potential to occur within the Project site and off-site areas based on the presence of suitable habitat such as chamise chaparral. However, the potential to occur was considered moderate due to the high level of disturbance and scattered habitat. No incidental sightings of this species were made during site surveys conducted in 2012 and 2013.

Coastal California Gnatcatcher (*Polioptila californica californica*): This bird species is listed as federally Threatened, a state species of special concern, and a Covered Species pursuant to the MSHCP. It prefers coastal sage scrub vegetation below 2,500 feet elevation.

Coastal California gnatcatcher was determined to have a potential to occur within the Project site and off-site areas based on the presence of suitable scrub habitat, although the habitat is limited and scattered. An occurrence of coastal California gnatcatcher was reported in the CNDDDB on the Project site dated 2001, and one individual of this species was incidentally observed by PCR in scrub habitat on a project site less than 1,000 feet northwest of the property. Based on the presence of limited habitat, past sightings on-site, and observations in close proximity to the Project site, the potential to occur was considered moderate to high. No incidental sightings of this species were made during site surveys conducted in 2012 and 2013.

Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*): This mammal species is listed as a state species of special concern and a Covered Species pursuant to the MSHCP. It prefers chaparral and coastal sage scrub habitats.

Northwestern San Diego pocket mouse was determined to have a potential to occur within the Project site and off-site areas based on the presence of scrub habitat. A high density of small mammal burrows was located along the northern boundary of the Project site. Numerous burrows were also observed along the slopes of Drainage A. However, the potential to occur was considered very low due to the limited habitat on-site that is scattered and highly disturbed.

Stephen's kangaroo rat (*Dipodomys stephensi*): This mammal species is listed as federally endangered, state threatened, and a Covered Species pursuant to the MSHCP. It prefers open coastal sage scrub and grassland habitats.

Stephen's kangaroo rat was determined to have a potential to occur within the Project site and off-site areas based on the presence of scrub habitat. A high density of small mammal burrows was located along the northern boundary of the Project site. Numerous burrows were also observed along the slopes of Drainage A. However, the potential to occur was considered very low due to the limited habitat on-site that is scattered and highly disturbed.

Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*): This mammal species is listed as federally endangered, state threatened, and a Covered Species pursuant to the MSHCP (with additional surveys required in survey overlay areas). It prefers coastal sage scrub and grassland habitats.

Los Angeles pocket mouse was determined to have a potential to occur within the Project site and off-site areas based on the presence of scrub habitat and potential burrows observed within approximately 1 mile of the Project site. A high density of small mammal burrows was also located along the northern boundary of the Project site, and along the slopes of Drainage A. However, the potential to occur was considered low due to the limited habitat on-site that is scattered and highly disturbed.

Jacumba Pocket Mouse (*Perognathus longimembris internationalis*): This mammal species is listed as a state species of special concern. It prefers arid coastal sage scrub and chaparral habitats.

Jacumba pocket mouse was determined to have a potential to occur within the Project site and off-site areas based on the presence of scrub habitat and potential burrows observed within approximately 1 mile of the Project site. A high density of small mammal burrows was also located along the northern boundary of the Project site, and along the slopes of Drainage A. However, the potential to occur was considered low due to the limited habitat on-site that is scattered and highly disturbed.

Western Mastiff Bat (*Eumops perotis californicus*): This mammal species is a state species of special concern. It prefers open scrub and grassland habitats.

Western mastiff bat was determined to have a potential to occur on the Project site and off-site areas for foraging only based on the presence of open habitat. However, the potential to occur was considered low due to the limited habitat. No suitable roosting habitat was determined present on- or off-site.

San Diego Desert Woodrat (*Neotoma lepida intermedia*): This mammal species is a state species of special concern. It prefers a variety of habitats with moderate to dense canopies.

San Diego desert woodrat was determined to have a potential to occur on the Project site and off-site areas based on the presence of open habitat. However, the potential to occur was considered very low based on the limited habitat and the absence of any recorded observations in CNDDDB within 10 miles of the site.

Southern Grasshopper Mouse (*Onychomys torridus ramona*): This mammal species is a state species of special concern. It prefers grasslands, desert areas, and especially scrub with friable soils.

Southern grasshopper mouse was determined to have a potential to occur on the Project site and off-site areas based on the presence of potentially suitable habitat. However, the potential to occur was considered very low based on the limited habitat supported and the absence of any recorded observations in CNDDDB within 8 miles of the site since 1932.

Pallid Bat (*Antrozous pallidus*): This mammal species is a state species of special concern. It prefers a variety of habitats, but mostly open, dry habitats.

Pallid bat was determined to have a potential to occur on the Project site and off-site areas for foraging only based on the presence of open habitat. However, the potential to occur was considered low based on the limited habitat.

Migratory Birds and Raptors

The Project site and off-site areas support potential nesting and foraging habitat for birds (limited to shrubs for nesting), and also potential foraging habitat for birds including raptors (primarily in the disturbed areas and more open scrub habitat). Several species of non-listed birds were observed during surveys (see Appendix A) and special-status birds were identified by CNDDDB as potentially occurring within the 9-quadrangle search area (see Appendix C). Only one of the special-status non-raptor species, loggerhead shrike (*Lanius ludovicianus*), was determined to have the potential to occur within the Project site or off-site areas (low potential for nesting, and moderate potential for foraging).

According to CNDDDB, there is also a potential for special-status raptors such as northern harrier (*Circus cyaneus*/Species of Special Concern), bald eagle (*Haliaeetus leucocephalus*/Fully Protected), and golden eagle (*Aquila chrysaetos*/Fully Protected) within the 9-quadrangle search area. Of these only bald eagle was determined to have no potential to occur due to the lack of aquatic habitats associated with the Project site or off-site areas; the remaining two species were determined to have potential to occur for foraging only but were not incidentally observed by PCR during any surveys. White-tailed kite (Fully Protected) was observed foraging on-site, as described above. Other raptors observed on-site were limited to non-listed species including red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*).

4.7.6 Western Riverside County MSHCP Consistency Analysis

This section provides a discussion of the Project site's relationship to the MSHCP policies, including the location within the MSHCP Area Plan, Criteria Cells, and cores and linkages, and the presence of MSHCP protected biological resources.

4.7.6.1 Location of the Project Site within the MSHCP Area Plan and Criteria Cells

The entire Project site and off-site areas are within the Elsinore Area Plan near its eastern boundary (see Figure 4) but not within or adjacent to a Criteria Cell, a designated Cell Group, or a subunit within the Elsinore Area Plan that requires conservation of land for inclusion in the MSHCP Conservation Area (Riverside County TLMA 2013a). The nearest Criteria Cell is located approximately 1,400 feet north of the Project site, on the north side of Clinton Keith Road; specifically Cell Group L', cell 5558 (Riverside County TLMA 2013b).

4.7.6.2 Location of the Study Area within MSHCP Cores and Linkages

As mentioned previously in section 3.5.2 *Wildlife Movement within the Project Site*, the Project site is not within any cores or linkages (i.e., Special Linkage Areas) as identified in the Elsinore Area Plan. The Elsinore Area Plan supports the following cores and linkages: all of Proposed Constrained Linkage 5, all of Proposed Constrained Linkage 6, most of Proposed Core 1, a portion of Proposed Extension of Existing Core 2, all of Proposed Extension of Existing Core 3, all of Proposed Linkage 1, all of Proposed Linkage 2, a portion of Proposed Linkage 3, a portion of Proposed Linkage 7, and a large portion of Proposed Linkage 8. The closest linkage to the Project site is Proposed Linkage 8 just over approximately one mile to the north associated with Sedco Hills. The closest Core areas are approximately located just over five miles to the northwest (Proposed Extension of Existing Core 3, Lake Elsinore Soils), west (Existing Core B, Cleveland National Forest), south (Existing Core F, Santa Rosa Plateau), and east (Proposed Core 2, Antelope Valley).

4.7.6.3 Riparian/Riverine Areas and Vernal Pools

Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP provides for the protection of Riparian/Riverine Areas and Vernal Pools within the MSHCP Plan Area. Riparian/Riverine areas are defined in the MSHCP as “lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year.” Vernal pools are defined in the MSHCP as “seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season.”

Drainage A meets the definition of a Riverine Area pursuant to the MSHCP (“areas with fresh water flow during all or a portion of the year”). However, the biological functions and values of Riparian/Riverine Areas do not exist within Drainage A due to the absence of any vegetation. As such, the protection of associated species of amphibians, birds, fish, invertebrate-crustacean, and plant species does not apply to the Project site or off-site areas. Drainage A does ultimately connect to Murrieta Creek downstream. The Project will result in permanent and temporary impacts to the Riverine Area, and preparation of a Determination of Biologically Equivalent or Superior Preservation (DBESP) analysis will be required providing details on the impacts and compensatory mitigation.

Other kinds of aquatic features that could provide suitable habitat for Riparian/Riverine species, such as fairy shrimp, are not present within the on- or off-site portions of the Project site (i.e. vernal pools, swales, vernal pool-like ephemeral ponds, seasonal ponds, stock ponds, or other human-modified depressions such as tire ruts, etc.).

Riparian/Riverine Plant Species

A habitat assessment was conducted for species listed in Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP. The results are presented in **Table 3**, *MSHCP Riparian/Riverine Plant Species*. No Riparian/Riverine plant species are expected to occur within the Project site or off-site areas due to the lack of suitable habitat, the location of the site outside of the species range, or based on the negative results of focused surveys.

Table 3

MSHCP Riparian/Riverine Plant Species

Species	Potential to Occur within the Study Area
Brand's phacelia <i>Phacelia stellaris</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
California Orcutt grass <i>Orcuttia californica</i>	Not expected to occur due to the lack of vernal pools.
Coulter's matilija poppy <i>Romneya coulteri</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
Engelmann oak <i>Quercus engelmannii</i>	Not observed and not expected to occur. This is a conspicuous tree species that would have been detected if present.
Fish's milkwort <i>Polygala cornuta</i> var. <i>fishiae</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
Graceful tarplant <i>Holocarpha virgata</i> ssp. <i>elongata</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
Lemon lily <i>Lilium parryi</i>	Not expected to occur due to the lack of suitable habitat. Also, the Project site is outside the species range; this species is restricted to the San Jacinto Mountains.
Mojave tarplant <i>Deinandra mohavensis</i>	Not expected to occur due to the lack of suitable habitat. Also, the Project site is outside the species range; this species is restricted to the San Jacinto Mountains.
Mud nama <i>Nama stenocarpum</i>	Not expected to occur due to the lack of wetlands. Also, none were observed during the 2013 focused plant surveys (this species can occasionally occur in non-wetlands).
Ocellated Humboldt lily <i>Lilium humboldtii</i> ssp. <i>ocellatum</i>	Not expected to occur due to the lack of suitable habitat.
Orcutt's brodiaea <i>Brodiaea orcuttii</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys. Also, the Project site is outside the species range; this species occurs in wetland areas at the Santa Rosa Plateau, Miller Mountain, and San Jacinto River.
Parish's meadowfoam <i>Limnanthes gracilis</i> ssp. <i>parishii</i>	Not expected to occur due to the lack of suitable habitat. Also, the Project site is outside the species range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area.
Prostrate navarretia <i>Navarretia prostrata</i>	Not expected to occur due to the lack of suitable habitat. Also, the Project site is outside the species range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area.
San Diego button-celery <i>Eryngium aristulatum</i> var. <i>parishii</i>	Not expected to occur due to the lack of suitable habitat. Also, the Project site is outside the species range; this species is restricted to the Santa Rosa Plateau within the MSHCP Plan Area.
San Jacinto Valley crownscale <i>Atriplex coronata</i> var. <i>notatior</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
San Miguel savory <i>Satureja chandleri</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.

Table 3 (Continued)

MSHCP Riparian/Riverine Plant Species

Species	Potential to Occur within the Study Area
Santa Ana River woollystar <i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Not expected to occur. The Project site is outside the species range; this species is restricted to the Santa Ana River and alluvial fan sage scrub habitat which does not occur within the Project site.
Slender-horned spineflower <i>Dodecahema leptoceras</i>	Not expected to occur due to the lack of alluvial fan habitat. None were observed during the 2013 focused plant surveys.
Smooth tarplant <i>Centromadia pungens</i> ssp. <i>laevis</i>	Suitable habitat occurs; however, none were observed during the 2013 focused plant surveys.
Southern California black walnut <i>Juglans californica</i>	Not expected to occur. This is a conspicuous tree species that would have been detected if present.
Spreading navarretia <i>Navarretia fossalis</i>	Not expected to occur due to the lack of vernal pools.
Thread-leaved brodiaea <i>Brodiaea filifolia</i>	Not expected to occur due to the absence of clay soils based on the NRCS soils map. Also, none were observed during the 2013 focused plant surveys.
Vernal barley <i>Hordeum intercedens</i>	Not expected to occur due to the lack of alkaline areas and vernal pools. Also, none were observed during the 2013 focused plant surveys (this species can also occasionally occur in coastal scrub).

Source: PCR Services Corporation 2013.

Riparian/Riverine Wildlife Species

Habitat assessments were conducted for wildlife species listed in Section 6.1.2, *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools*, of the MSHCP. One species had the potential to occur on the Project site and off-site areas, namely the American peregrine falcon, as indicated in **Table 4**, *MSHCP Riparian/Riverine Wildlife Species*. This species has a very low potential to forage only; no suitable breeding habitat (cliffs or tall buildings) occurs. This species can be found foraging in nearly any open habitat, but most likely near areas such as lake edges and mountain chains. The nearest of these areas is Lake Elsinore approximately 6 miles to the northwest, and Sedco Hills approximately 0.75 mile to the north. No other species are expected to occur due to the lack of suitable habitat.

4.7.6.4 Narrow Endemic Plant Species Survey Area

The Project site and off-site areas are not within the Narrow Endemic Plant Species Survey Area; therefore, no surveys were required for Narrow Endemic plant species.

4.7.6.5 Additional Survey Needs and Procedures

Section 6.3.2, *Additional Survey Needs and Procedures*, of the MSHCP provides for additional survey needs for the burrowing owl, as well as a number of sensitive plant, amphibian, and mammal species.

Table 4

MSHCP Riparian/Riverine Wildlife Species

Species	Potential to Occur within the Study Area
Arroyo toad <i>Anaxyrus californicus</i>	Not expected to occur due to the lack of suitable habitat.
Mountain yellow-legged frog <i>Rana muscosa</i>	Not expected to occur due to the lack of suitable habitat.
California red-legged frog <i>Rana aurora draytonii</i>	Not expected to occur due to the lack of suitable habitat.
Bald eagle <i>Haliaeetus leucocephalus</i>	Not expected to occur due to the lack of suitable habitat.
Least Bell's vireo <i>Vireo bellii pusillus</i>	Not expected to occur due to the lack of suitable habitat.
American peregrine falcon <i>Falco peregrinus anatum</i>	Very low potential for foraging (not observed). No suitable breeding habitat occurs within the Project site (on- or off-site).
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	Not expected to occur due to the lack of suitable habitat.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	Not expected to occur due to the lack of suitable habitat.
Santa Ana sucker <i>Catostomus santaanae</i>	Not expected to occur due to the lack of suitable habitat.
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	Not expected to occur due to the lack of suitable habitat.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Not expected to occur due to the lack of suitable habitat.

Source: PCR Services Corporation 2013.

Burrowing Owl Survey Area

The Project site is within the Burrowing Owl Survey Area; therefore, in compliance with the MSHCP, surveys are required for this species. As discussed above in section 4.7.5 *Special-Status Wildlife Species*, Step I and Step II surveys conducted following Western Riverside County MSHCP protocol were negative. Although the Project site and off-site areas do not currently support burrowing owls, pre-construction surveys are required within 30 days of ground disturbance based on the presence of suitable habitat.

Criteria Area Species Survey Area

The Project site and off-site areas are not within the Criteria Area Species Survey Area; therefore, no surveys were required for Criteria Area plant species.

Amphibian Species Survey Area

The Project site and off-site areas are not within the Amphibian Species Survey Area; therefore, no surveys are required.

Mammal Species Survey Area

The Project site and off-site areas are not within the Mammal Species Survey Area; therefore, no surveys are required.

4.7.6.6 Urban/Wildlands Interface

Section 6.1.4, *Guidelines Pertaining to the Urban/Wildlands Interface*, of the MSHCP presents a number of guidelines that are intended to address indirect effects associated with locating developments in proximity to a MSHCP Conservation Area. These guidelines address the quantity and quality of any runoff generated by the development, night lighting, noise, and domestic predators. The Project site and off-site areas are not directly adjacent to a Criteria Cell, and are separated by the nearest Criteria Cell by Clinton Keith Road to the north. Therefore no potential for indirect edge effects is anticipated, and these guidelines are not considered applicable to the Project.

5.0 THRESHOLDS OF SIGNIFICANCE

The environmental impacts relative to biological resources are assessed using impact significance threshold criteria which mirror the policy statement contained in the CEQA, Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be the policy of the State to:

“Prevent the elimination of fish or wildlife species due to man’s activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities...”

Determining whether a project may have a significant effect, or impact, plays a critical role in the CEQA process. According to CEQA, Section 15064.7, Thresholds of Significance, each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. In the development of thresholds of significance for impacts to biological resources CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the State CEQA Guidelines, Appendix G, *Environmental Checklist Form*. Section 15065(a) states that a project may have a significant effect where:

“The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, reduce the number or restrict the range of an endangered, rare, or threatened species...”

Appendix G of the State CEQA Guidelines is more specific in addressing biological resources and encompasses a broader range of resources to be considered, including: candidate, sensitive, or special status species; riparian habitat or other sensitive natural communities; federally protected wetlands; fish and wildlife movement corridors; local policies or ordinances protecting biological resources; and, adopted HCPs. This is done in the form of a checklist of questions to be answered during the Initial Study leading to the preparation of the appropriate environmental documentation for a project [i.e., Negative Declaration, Mitigated Negative Declaration, or Environmental Impacts Report (EIR)]. Because these questions are derived from standards in other laws, regulations, and other commonly used thresholds, it is reasonable to use these standards as a basis for defining significance thresholds in an EIR. Therefore, for the purpose of this analysis, impacts to biological resources are considered potentially significant (before considering offsetting mitigation measures) if one or more of the following conditions would result from implementation of the proposed project.

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

Threshold BIO-B	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U. S. Fish and Wildlife Service.
Threshold BIO-C	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
Threshold BIO-D	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery areas.
Threshold BIO-E	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
Threshold BIO-F	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

For the purposes of this impact analysis the following definitions apply, where applicable:

- “Significant Impact” means loss or harm of a magnitude which, based on current scientific data and knowledge would: (1) substantially reduce population numbers of a listed, candidate, sensitive, rare, or otherwise special status species; (2) substantially reduce the distribution of a sensitive natural community/habitat type; or (3) eliminate or substantially impair the functions and values of a biological resource (e.g., streams, wetlands, or woodlands) in a geographical area defined by interrelated biological components and systems. In the case of this analysis the prescribed geographical area is considered to be the region that includes the USGS topographic quadrangles for the Project, namely Murrieta. For some species, the geographic area may extend to the vicinity of the Project site based on known distributions of the species. The vicinity of the Project is considered to comprise the following USGS topographic quadrangles: Romoland, Winchester, Bachelor Mountain, Pechanga, Temecula, Fallbrook, Wildomar, and Lake Elsinore.
- “Conflict” means contradiction of a magnitude, which based on foreseeable circumstances, would preclude or prevent substantial compliance.
- “Rare” means: (1) that the species exists in such small numbers throughout all, or a significant portion of, its range that it may become endangered if its environment worsens; or (2) the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered “threatened” as that term is used in the FESA.

6.0 PROJECT RELATED IMPACTS

6.1 REGULATORY SETTING

Sensitive species are provided protection by either federal or state resource management agencies, or both, under provisions of the FESA and CESA. There are a number of performance criteria and standard conditions that must be met as part of any review and approval of projects. These include compliance with all of the terms, provisions, and requirements with applicable laws that relate to federal, state, and local regulating agencies related to potential impacts to sensitive plant and wildlife species, wetlands, riparian habitats, and blue lined stream courses. The following summarizes federal and state regulations, and CNPS, as previously discussed in section 4.7 *Sensitive Biological Resources*.

6.1.1 Federal Regulations

As previously discussed in section 4.7.1 *Federal Sensitive Resource Protection and Classifications* of this BRA, under provisions of Section 9(a)(1)(B) of the FESA, unless properly permitted, it is unlawful to “take” any listed species. In a case where a property owner seeks permission from a federal agency for an action which could affect a federally-listed plant and animal species, the property owner and agency are required to consult with USFWS to obtain appropriate permits. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants. In addition to FESA, take of migratory birds, or bald or golden eagles, require permits pursuant to the MBTA and the Bald and Golden Eagle Protection Act, respectively. Furthermore, any impacts to USACE and RWQCB jurisdictional waters may require permitting pursuant to Sections 404 and 401 of the CWA, respectively.

6.1.2 State of California Regulations

As previously discussed in section 4.7.2 *State of California Sensitive Resource Protection and Classifications* of this BRA, Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened or endangered species. Exceptions authorized by the state to allow “take” require permits or memoranda of understanding and can be authorized for “endangered species, threatened species, or candidate species for scientific, educational, or management purposes.” Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required by an initiator prior to disturbance. State regulations also exist for protection of birds pursuant to the MBTA, and for acquiring permits for impacts to CDFW jurisdictional streambeds pursuant to Section 1602 of the Fish and Game Code.

6.1.3 California Native Plant Society

As previously discussed in section 4.7.2 *State of California Sensitive Resource Protection and Classifications* of this BRA, the CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of rare, threatened, or endangered vascular plant species of California which classifies plant species into categories of rarity. Informally listed species are not protected per se, but warrant consideration in the preparation of biological assessments.

6.2 PROJECT IMPACTS

The analysis in section 6.3 *Impact Analysis* of this BRA examines the potential impacts to plant and wildlife resources that may occur as a result of implementation of the Project. For the purpose of this BRA, project-related impacts take two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, modification or disturbance of natural habitats (i.e., vegetation or plant communities), which in turn, directly affect plant and wildlife species dependent on that habitat. Direct impacts also include the destruction of individual plants or wildlife, which is typically the case in species of low mobility (i.e., plants, amphibians, reptiles, and small mammals). The collective loss of individuals in these manners may also directly affect regional population numbers of a species or result in the physical isolation of populations thereby reducing genetic diversity and, hence, population stability.

Indirect impacts are considered to be those that involve the effects of increases in ambient levels of sensory stimuli (e.g., noise, light), unnatural predators (e.g., domestic cats and other non-native animals), and competitors (e.g., exotic plants, non-native animals). Indirect impacts may be associated with the construction and/or eventual habitation/operation of a project; therefore, these impacts may be both short-term and long-term in their duration. These impacts are commonly referred to as “edge effects” and may result in changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to study areas.

The determination of impacts in this analysis is based on both the Project site’s existing uses and the biological values of the habitat and/or sensitivity of plant and wildlife species to be affected. Any required mitigation measures to address impacts are discussed in section 7.0 below; compliance with existing regulations are outlined in section 7.0 as Conditions of Approval, and recommendations for Best Management Practices are also provided.

The biological values of resources within, adjacent to, and outside the area to be affected by the Project were determined by consideration of several factors, as applicable. These included the overall size of habitats to be affected, the Project site’s previous land uses and disturbance history, the Project site’s surrounding environment and regional context, the on-site biological diversity and abundance, the presence of sensitive and special-status plant and wildlife species, the Project site’s importance to regional populations of these species, and the degree to which on-site habitats are limited or restricted in distribution on a regional basis and, therefore, are considered sensitive in themselves. Therefore, the focus of this impacts analysis is on sensitive plant communities/habitats, resources that play an important role in the regional biological system, and special-status species.

Impacts to biological resources as a result of Project development were analyzed in GIS using Computer-Aided Design (CAD) data of the Project footprint provided by the project architect, KTG Group, Inc., on September 10, 2013. Acreages of impacts were calculated by overlaying the CAD data over GPS data of biological resources collected by PCR during the surveys.

6.3 IMPACT ANALYSIS

6.3.1 Impacts to Sensitive Species

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

Less than Significant with Regulatory Compliance

6.3.1.1 Special-Status Plant Species

Development of the Project would result in the direct removal of numerous common plant species; a list of plant species observed during the surveys is included in Appendix A. Common plant species present within the Project site or off-site areas occur in large numbers throughout the region and their removal does not meet the significance thresholds defined in section 5.0 *Thresholds of Significance* above. Therefore, impacts to common plant species would be considered a less than significant impact and no mitigation measures would be required.

As discussed in section 4.7.4 *Special-Status Plant Species*, only one listed species was observed on the Project site, paniculate tarplant (CNPS List 4). The Project site supports low densities of this species in the northeast and southeast corners totaling 1.83 acres. Both of the paniculate tarplant locations, totaling 1.83 acres, would be permanently impacted as a result of the Project, as shown on **Figure 11**, *Impacts to Paniculate Tarplant*. This species is widely distributed in Riverside County, as documented on Calflora, including 31 CNPS and other records, in addition to georeferenced coordinates for several hundred observations (Calflora, 2012). Based on the distribution of this species within Riverside County, the lack of consideration of this species for coverage under the MSHCP, and the CNPS listing of 4, this species is not considered sensitive. Therefore, impacts to paniculate tarplant would be considered a less than significant impact and no mitigation measures would be required.

6.3.1.2 Special-Status Wildlife Species

Development of the Project would result in the disruption and removal of habitat and the loss and displacement of non-sensitive common wildlife species. A list of wildlife species observed during the surveys is included in Appendix A. Due to the limited amount of native habitat to be removed and the high level of existing disturbance from human activity, these impacts would not be expected to reduce the general wildlife populations below self-sustaining levels within the region and impacts to non-sensitive wildlife species do not meet the significance thresholds defined in section 5.0 *Thresholds of Significance* above. Therefore, impacts to common wildlife species would be considered less than significant impact and no mitigation measures would be required.

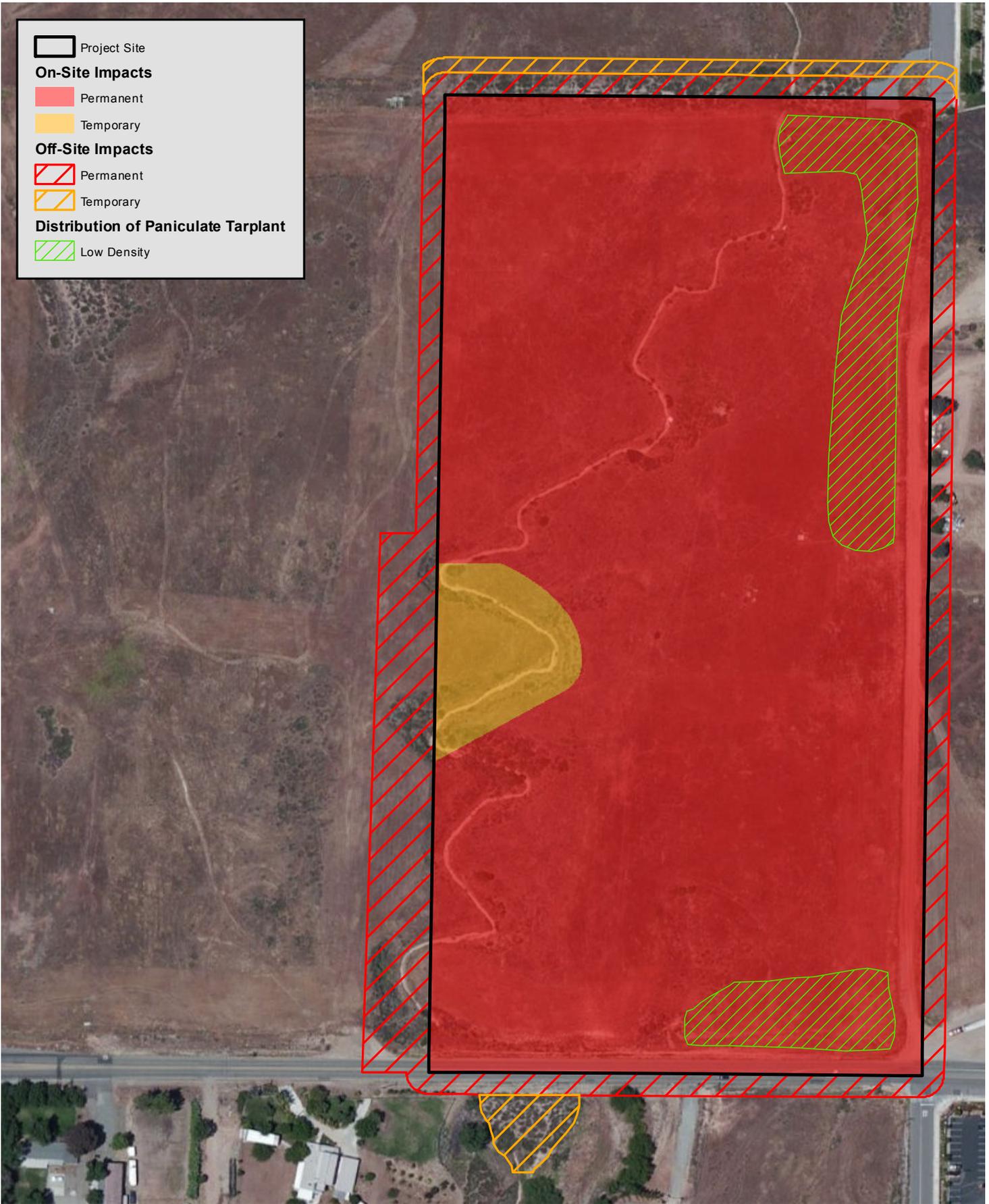
As outlined above in section 4.7.5 *Special-Status Wildlife Species* and Appendix C, 15 special-status species were determined to have a potential to occur on the Project site or off-site areas, 1 species (burrowing owl) was determined absent following focused surveys, and 2 species (white-tailed kite and San Diego black-tailed jackrabbit) were observed on-site. Both of the observed species and 10 of the 15 species with potential to occur are Covered Species pursuant to the MSHCP (i.e., white-tailed kite and San Diego black-

tailed jackrabbit; and coast horned lizard, orange-throated whiptail, red-diamond rattlesnake, coastal California gnatcatcher, northern harrier, bald eagle, golden eagle, northwestern San Diego pocket mouse, Stephen's kangaroo rat, and Los Angeles pocket mouse). No surveys or mitigation is required for these Covered Species, apart from burrowing owl discussed below, assuming payment of the MSHCP development fee and implementation of MSHCP measures, including the *Standard Best Management Practices* provided in Appendix C of the MSHCP (see also section 6.3.6 *Consistency with Adopted Natural Community Conservation Plan* below). For the remaining 5 species, 3 species are state species of special concern with very low or low potential to occur based on the limited, scattered and disturbed scrub habitat on- or off-site and lack of occurrences in the region (Jacumba pocket mouse, southern grasshopper mouse, and San Diego desert woodrat), and two species are state species of special concern bats with potential for foraging only (western mastiff bat and pallid bat – foraging habitat is limited). No significant impacts to these species are expected, as summarized below:

- No significant impacts to Jacumba pocket mouse, southern grasshopper mouse, or San Diego desert woodrat based on the very low or low potential to occur, and the limited, disturbed habitat that would not be expected to support large populations of these species, if present. Furthermore, these species were not considered for coverage under the MSHCP, indicating that regionally significant populations of these species do not exist within the MSHCP boundaries, and no CNDDDB records occur within 8 to 10 miles of the Project site. As such, any impacts to these species would be less than significant and no mitigation measures would be required.
- No significant impacts to western mastiff bat and pallid bat foraging habitat based on the limited and disturbed nature of the habitat on the Project site and off-site areas, the high level of development surrounding the Project site, and the availability of alternative, higher quality foraging habitat within the region. As such, any impacts to foraging habitat for these species would be less than significant and no mitigation measures would be required.

With regards to burrowing owl, despite negative surveys, a pre-construction survey is required within 30 days prior to ground disturbance due to the presence of potentially suitable habitat, to avoid potential direct take of burrowing owls in the future. A Condition of Approval is provided for burrowing owl in section 7.2.4 *Measures to Mitigate Potentially Significant Impacts to the MSHCP* of this BRA in compliance with the MSHCP, in addition to a recommended mitigation measure should burrowing owls be present in the future (see also section 6.3.6 *Consistency with Adopted Natural Community Conservation Plan* below).

As previously discussed in section 4.7.5 *Special-Status Wildlife Species*, the site supports potential nesting and foraging habitat for migratory birds, in addition to potential foraging habitat for raptors. Raptors observed during surveys were limited to non-listed species including red-tailed hawk and American kestrel. Based on the disturbed nature of observed habitat and the presence of development surrounding the Project site, the quality of foraging habitat is considered to be low. The loss of foraging habitat as a result of the Project would not be expected to impact the foraging of these species. Therefore, indirect impacts to these species through loss of foraging habitat would be considered less than significant and no mitigation measures would be required. Direct impacts to these species would be avoided through compliance with the Migratory Bird Treaty Act (MBTA), as discussed in section 6.3.4 *Impacts to Wildlife Movement and Migratory Species* below.



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6.3.2 Impacts to Sensitive Plant Communities

Threshold BIO-B: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U. S. Fish and Wildlife Service?

Less than Significant with Regulatory Compliance

6.3.2.1 Sensitive Plant Communities

No sensitive plant communities are present on the Project site or off-site areas, therefore no impacts will occur.

The Project site supports predominately non-native and limited native plant communities which are not considered sensitive pursuant to CDFW, USFWS, or the MSHCP. Furthermore, the native plant communities within the Project site and off-site areas are small, scattered, and are of low quality for sensitive plant and wildlife species. All of the plant communities will be permanently or temporarily impacted by the Project, as shown in **Figure 12, Impacts to Natural Communities**, and acreages are summarized in **Table 5, Impacts to Natural Communities**. Temporary impacts to native dominated communities on the Project site are limited to chamise chaparral and Riversidean sage scrub/ruderal associated with Drainage A in the central portion of the site along the western boundary. The buckwheat scrub in the off-site area is also proposed for mostly temporary impacts. However, since neither the native or non-native communities are sensitive, impacts would be less than significant and no mitigation measures would be required.

Table 5

Impacts to Natural Communities

Natural Community	Impacts (acres)			
	On-Site		Off-Site	
	Permanent	Temporary	Permanent	Temporary
Buckwheat Scrub	-	-	0.40	0.32
Buckwheat Scrub/Ruderal	0.08	-	-	-
Chamise Chaparral	0.25	0.06	0.07	-
Riversidean Sage Scrub	0.16	-	-	-
Riversidean Sage Scrub/Ruderal	0.02	0.30	0.08	-
Ornamental	-	-	0.01	-
Ruderal	0.41	-	0.15	-
Ruderal/Buckwheat Scrub	0.56	-	0.17	-
Ruderal/Riversidean Sage Scrub	1.49	0.13	0.11	-
Disturbed	16.16	0.38	2.23	0.22
Developed	0.27	-	0.50	0.03
Total	19.40	0.87	3.72	0.57

Source: PCR Services Corporation, 2013.

6.3.2.2 CDFW Jurisdiction

The Project site and off-site areas support Drainage A that is considered jurisdictional streambed pursuant to Section 1602 of the California Fish and Game Code, as regulated by CDFW. Permanent or temporary impacts are proposed to the entire portion of this jurisdictional drainage, as shown in **Figure 13, Impacts to Jurisdictional Features**. Existing and impact acreages are summarized in **Table 6, Impacts to CDFW Jurisdiction**, totaling 0.22 acre of impacts on the Project site (0.17 acre of permanent impacts and 0.05 acre of temporary impacts) and 0.03 acre of impacts in off-site areas (0.02 acre of permanent impacts and 0.01 acre of temporary impacts). The temporary impacts to Drainage A are proposed in the central portion of the Project site along the western boundary, and for short sections of the drainage at the northern and southern limits within the off-site areas. Impacts to these jurisdictional drainages would be required to comply with Section 1602 of the California Fish and Game Code, including applying for a permit and compensatory mitigation. A Condition of Approval is proposed in section 7.2.1 *Measures to Mitigate Potentially Significant Impacts to Jurisdictional Features* of this BRA to comply with the compensatory mitigation requirement of this regulation, subject to approval by CDFW. Compliance with Section 1602 of the California Fish and Game Code would reduce impacts to a less than significant level.

Table 6

Impacts to CDFW Jurisdiction

Drainage	Impacts (acres)		Total
	Permanent	Temporary	
A (On-site)	0.17	0.05	0.22
A (Off-site)	0.02	0.01	0.03
Total	0.19	0.06	0.25

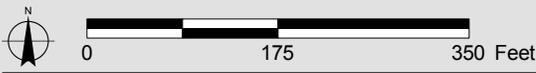
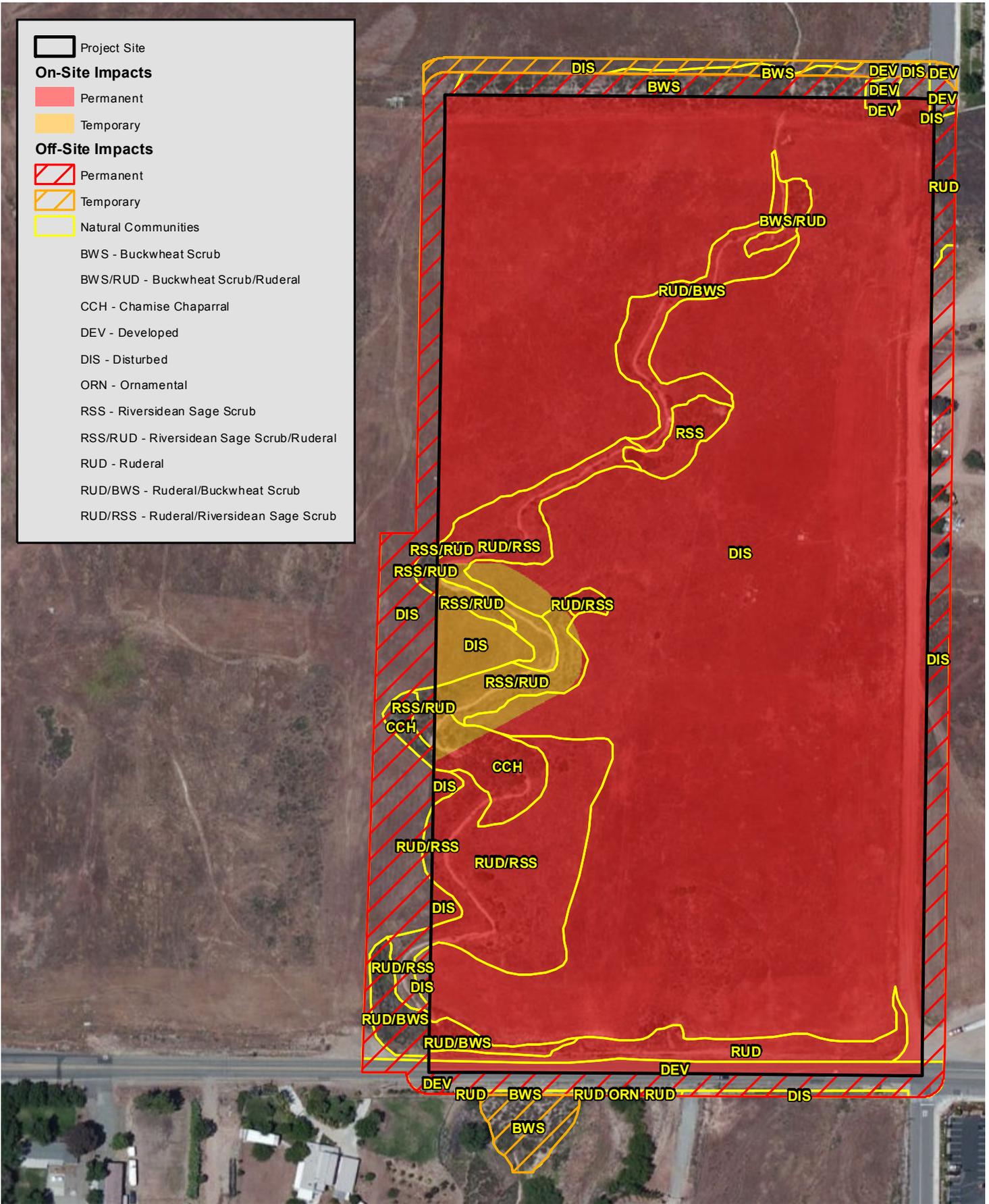
Source; PCR Services Corporation, 2013.

6.3.3 Impacts to Wetlands

Threshold BIO-C: Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant with Regulatory Compliance

No federally protected wetlands occur within the Project site or off-site areas. However, Drainage A is a non-wetland, ephemeral drainage that is considered jurisdictional “waters of the U.S.” pursuant to the Clean Water Act (CWA), as regulated by USACE through Section 404 of the CWA and by RWQCB through Section 401 of the CWA. Impacts are proposed to the entire portion of Drainage A on the Project site and off-site areas, as shown in Figure 13. Impact acreages are summarized in **Table 7, Impacts to USACE/RWQCB Jurisdiction**, totaling 0.12 acre of impacts on the Project site (0.09 acre/1,500 linear feet of permanent impacts and 0.03 acre/451 linear feet of temporary impacts) and 0.01 acre/212 linear feet of permanent



Impacts to Natural Communities

Prielipp Road APN 380250023
 Source: Aerial Express, 2010; PCR Services Corporation, 2013.

FIGURE

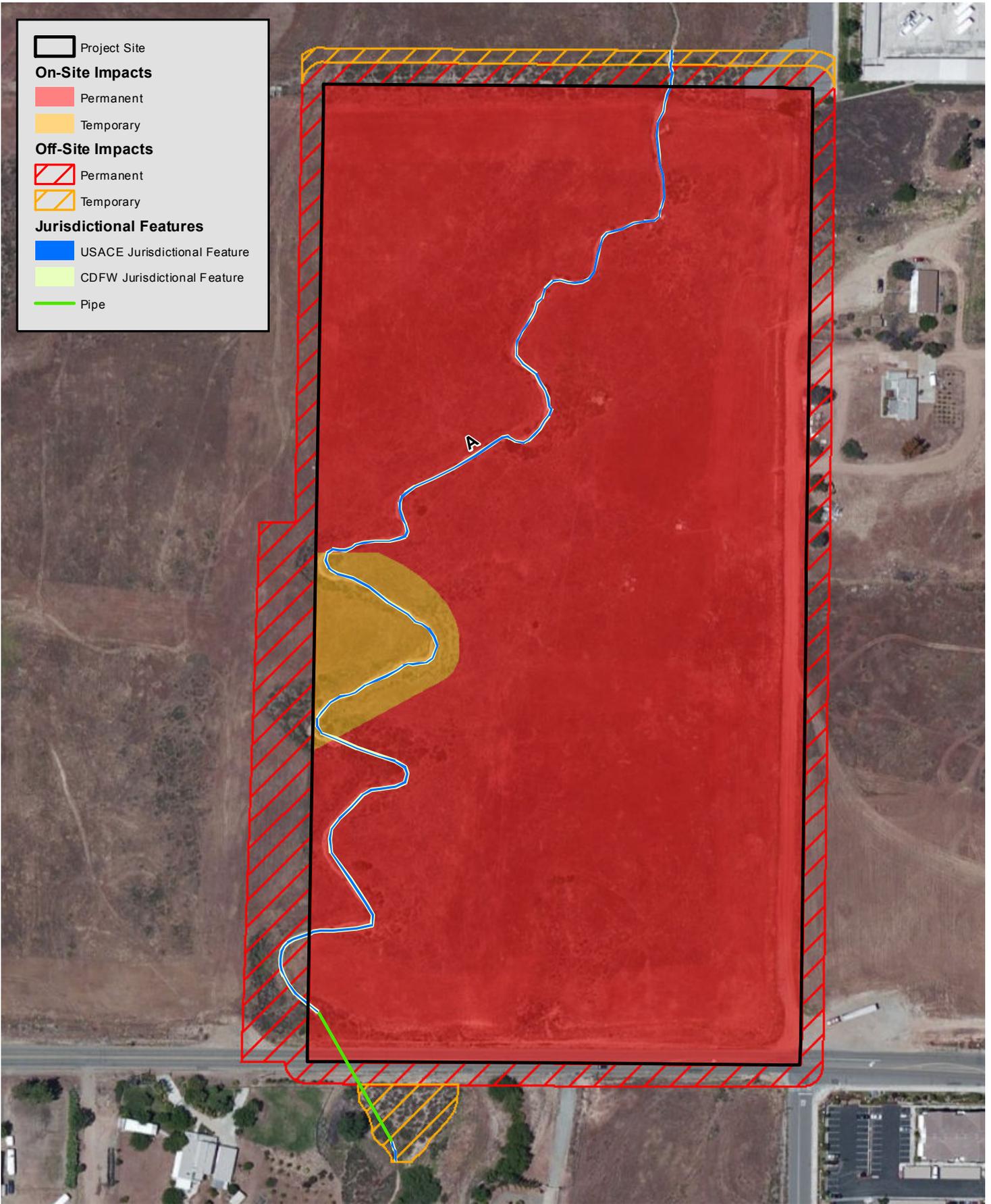


Table 7

Impacts to USACE/RWQCB Jurisdiction

Drainage	Length (feet)	Area (acres)		Total
		Permanent	Temporary	
A (On-site)	1,950 ^a	0.09	0.03	0.12
A (off-site)	212 ^b	0.01	0.00 ^c	0.01
Total	2,162	0.10	0.03	0.13

^a Includes 1,500 linear feet of permanent impacts and 451 linear feet of temporary impacts.

^b Includes 162 linear feet of permanent impacts and 50 linear feet of temporary impacts.

^c A negligible acreage of impacts is proposed, totaling 0.00306 acre.

Source: PCR Services Corporation, 2013.

impacts in off-site areas. The temporary impacts to Drainage A are proposed in the central portion of the Project site along the western boundary, and for short sections of the drainage at the northern and southern limits within the off-site areas. Impacts to Drainage A would be required to comply with Sections 404 and 401 of the CWA, including applying for a permit and mitigation subject to approval by USACE and RWQCB, respectively. A Condition of Approval is proposed in section 7.2.1 *Measures to Mitigate Potentially Significant Impacts to Jurisdictional Features* of this BRA to comply with the compensatory mitigation requirement of these regulations, subject to approval by USACE and RWQCB. Compliance with Sections 404 and 401 of the CWA would reduce impacts to a less than significant level.

6.3.4 Impacts to Wildlife Movement and Migratory Species

Threshold BIO-D: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery areas?

Less than Significant with MBTA Compliance

6.3.4.1 Wildlife Movement

As described in section 4.5.2 *Wildlife Movement Within the Project Site* above, the Project site supports potential live-in and movement habitat for species on a local scale (i.e., some limited live-in and at least marginal movement habitat for reptile, bird, and mammal species), but it likely provides little to no function to facilitate wildlife movement for wildlife species on a regional scale, and is not identified as a regionally important dispersal or seasonal migration corridor. Movement on a local scale likely occurs with species adapted to urban environments due to the high level of development in the vicinity of the Project site. Although implementation of the Project would result in disturbances to local wildlife movement within the Project site, those species are considered to comprise primarily of those adapted to urban areas and would be expected to persist in the area following construction. As such, impacts would be less than significant and no mitigation measures would be required. Since the Project site does not function as a regional wildlife corridor and is not known to support wildlife nursery area(s), no impacts would occur and no mitigation measures would be required.

6.3.4.2 Migratory Species

The Project site has the potential to support songbird nests due to the presence of limited shrubs and ground cover both on- and off-site. Nesting activity typically occurs from February 15 to August 31. Disturbing or destroying active nests is a violation of the MBTA (16 U.S.C. 703 et seq.). In addition, nests and eggs are protected under Fish and Game Code Section 3503. The removal of vegetation during the breeding season is considered a potentially significant impact as defined by the thresholds of significance (Threshold BIO-D) in section 5.0 *Thresholds of Significance* above. Any potential impacts to raptor and songbird nests would be considered potentially significant. A mitigation measure is proposed in section 7.2.2 *Measures to Mitigate Potentially Significant Impacts to Migratory or Nesting Birds* of this BRA to comply with the MBTA and reduce impacts to a less than significant level.

6.3.5 Consistency with Local Policies and Ordinances

Threshold BIO-E: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impacts

There is no local tree ordinance for the City of Wildomar, nor other local ordinances with which the proposed Project would conflict.

6.3.6 Consistency with Adopted Natural Community Conservation Plan

Threshold BIO-F: Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less than Significant with MSHCP Compliance

As discussed in section 4.7.6 *Western Riverside County MSHCP Consistency Analysis* of this BRA, the Project site is within the Elsinore Area Plan of the Western Riverside County MSHCP and requires compliance with the Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (Section 6.1.2 of the MSHCP) and the Burrowing Owl Survey Area (Section 6.3.2 of the MSHCP). The Project site is not within a Criteria Cell, designated cell group, or a subunit within the Elsinore Area Plan; therefore, conservation of land on the Project site is not required pursuant to the MSHCP. The Project site is also not within the survey overlays for Narrow Endemic Plant Species (Section 6.1.3 of the MSHCP), Criteria Area Species, Amphibian Species, or Mammal Species (Section 6.3.2 of the MSHCP). The Project site will not result in edge effects that will adversely affect biological resources within the MSHCP Conservation Area and, as such, will not be subject to the *Guidelines Pertaining to the Urban/Wildlands Interface* (Section 6.1.4 of the MSHCP) for the treatment and management of edge factors such as lighting, urban runoff, toxics, and domestic predators. Compliance with the Riparian/Riverine and Burrowing Owl sections of the MSHCP are summarized below. Compliance with these sections, in addition to payment of the MSHCP development fee and implementation of required measures, including the *Standard Best Management Practices* provided in Appendix C of the MSHCP, will reduce impacts to a less than significant level. A Condition of Approval is proposed in section 7.2.3 *Measures to Mitigate Potentially Significant Impacts to the MSHCP* of this BRA to comply with the MSHCP.

Riparian/Riverine Areas and Vernal Pools

Drainage A meets the definition of a Riverine Area pursuant to the MSHCP (“*areas with fresh water flow during all or a portion of the year*”). However, the biological functions and values of Riparian/Riverine Areas do not exist within Drainage A due to the lack of vegetation and, as such, there is an absence of any riparian/riverine plants or wildlife. Therefore, the protection of associated species of amphibians, birds, fish, invertebrate-crustacean, and plant species is not applicable to this Project. Drainage A does ultimately connect downstream to Murrieta Creek. The Project will result in permanent and temporary impacts to the entire Riverine Area, considered equivalent to the CDFW jurisdictional impacts discussed in section 6.3.2.2 *CDFW Jurisdiction* above. As such, these impacts include a total of 0.22 acre on the Project site (0.17 acre of permanent impacts and 0.05 acre of temporary impacts) and 0.03 acre of impacts in off-site areas (0.02 acre of permanent impacts and 0.01 of temporary impacts). The temporary impacts are proposed in the central portion of the Project site along the western boundary, and for short sections of the drainage at the northern and southern limits within the off-site areas. Since impacts are proposed, the preparation of a DBESP analysis will be required providing details on the impacts and compensatory mitigation. A Condition of Approval is proposed in section 7.2.3 *Measures to Mitigate Potentially Significant Impacts to the MSHCP* of this BRA to comply with the Riparian/Riverine requirements of the MSHCP.

No other aquatic features that could provide suitable habitat for Riparian/Riverine species occur within the on- or off-site portions of the Project site.

Burrowing Owl

As discussed above in section 6.3.1.2 *Special-Status Wildlife Species* of this BRA, the on- and off-site portions of the Project do not currently support burrowing owls. However, in compliance with the MSHCP, pre-construction surveys are required within 30 days of ground disturbance based on the presence of suitable habitat. These surveys should be conducted in accordance with the *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (County of Riverside 2006). A Condition of Approval is proposed in section 7.2.3 *Measures to Mitigate Potentially Significant Impacts to the MSHCP* of this BRA to comply with the burrowing owl requirements of the MSHCP, in addition to a recommended mitigation measure pursuant to CDFW published guidelines (CDFW 2012) should burrowing owls be present within the Project site in the future.

7.0 MITIGATION MEASURES AND CONDITIONS OF APPROVAL

7.1 APPROACH

Mitigation measures are recommended for those impacts determined to be significant to sensitive biological resources. Mitigation measures for impacts considered to be “significant” were developed in an effort to reduce such impacts to a level of “insignificance,” while at the same time allowing an opportunity to realize development goals for the Project. As stated in CEQA Guidelines Section 15370 mitigation includes:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.

Where compliance with existing regulations and the issuance of permits by regulatory agencies would reduce impacts to a less than significant level, those measures are proposed as Conditions of Approval.

7.2 MITIGATION MEASURES AND CONDITIONS OF APPROVAL FOR SIGNIFICANT IMPACTS

The following mitigation measures (MM) and conditions of approval (COA) address potentially significant impacts from the proposed Project.

7.2.1 Measures to Mitigate Potentially Significant Impacts to Jurisdictional Features

COA BIO-1 Prior to the issuance of any grading permits, the project applicant shall obtain a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers, a Clean Water Act Section 401 permit from the Regional Water Quality Control Board, and a Streambed Alteration Agreement permit under Section 1602 of the California Fish and Game Code from the California Department of Fish and Wildlife for impacts to jurisdictional features. The following shall be incorporated into the permitting, subject to approval by the regulatory agencies:

1. Off-site replacement and/or restoration of USACE/RWQCB jurisdictional “waters of the U.S.”/“waters of the State” within the Santa Margarita Watershed at a ratio no less than 1:1 or within an adjacent watershed at a ratio no less than 2:1 for permanent impacts, and for any temporary impacts to restore the impact area to pre-project conditions (i.e., pre-project contours and revegetate where applicable). Off-site mitigation may occur on land acquired for the purpose of in-perpetuity

preservation, or through the purchase of mitigation credits at an agency-approved off-site mitigation bank.

2. Off-site replacement and/or restoration of CDFW jurisdictional streambed and associated riparian habitat within the Santa Margarita Watershed at a ratio no less than 1:1 or within an adjacent watershed at a ratio no less than 2:1 for permanent impacts, and for any temporary impacts to restore the impact area to pre-project conditions (i.e., pre-project contours and revegetate where applicable). Off-site mitigation may occur on land acquired for the purpose of in-perpetuity preservation, or through the purchase of mitigation credits at an agency-approved off-site mitigation bank.

Purchase of mitigation credits through an agency-approved mitigation bank or in-lieu fee program should occur prior to any impacts to jurisdictional drainages. Mitigation proposed on land acquired for the purpose of in-perpetuity mitigation that is not part of an agency-approved mitigation bank or in-lieu fee program shall include the preservation, creation, restoration, and/or enhancement of similar habitat pursuant to a Habitat Mitigation and Monitoring Plan (HMMP). The HMMP shall be prepared prior to any impacts to jurisdictional features, and shall provide details as to the implementation of the mitigation, maintenance, and future monitoring. The goal of the mitigation shall be to preserve, create, restore, and/or enhance similar habitat with equal or greater function and value than the impacted habitat.

7.2.2 Measures to Mitigate Potentially Significant Impacts to Migratory or Nesting Birds

MM BIO-1 Prior to the issuance of any grading permits that would result in removal of all suitable raptor and songbird nesting habitat, the Project applicant shall demonstrate to the satisfaction of the City of Wildomar that either of the following has been or will be accomplished.

1. Vegetation removal activities shall be scheduled outside the nesting season (September 1 to February 14 for songbirds; September 1 to January 14 for raptors) to avoid potential impacts to nesting birds.
2. Any construction activities that occur during the nesting season (February 15 to August 31 for songbirds; January 15 to August 31 for raptors) will require that all suitable habitat be thoroughly surveyed for the presence of nesting birds by a qualified biologist before commencement of clearing. If any active nests are detected, a buffer of approximately 300 feet (500 feet for raptors) will be delineated, flagged, and avoided until the nesting cycle is complete, as determined by the biological monitor to minimize impacts. The biological monitor may determine alternative appropriate buffers and/or measures to protect the nesting birds.

7.2.3 Measures to Mitigate Potentially Significant Impacts to the MSHCP

COA BIO-2 Prior to the issuance of any grading permits, the Project applicant shall comply with all of the provisions of the Western Riverside County Multiple Species Habitat

Conservation Plan (MSHCP), including payment of the MSHCP Local Development Mitigation Fee. In addition, the Project shall implement the Best Management Practices provided in Appendix C, *Standard Best Management Practices*, of the Western Riverside County MSHCP during construction.

COA BIO-3 Due to the presence of suitable habitat and in compliance with the Western Riverside County MSHCP, pre-construction surveys for burrowing owl shall be conducted within 30 days prior to ground disturbance to avoid potential direct take of burrowing owls that may occupy the site in the future. These surveys should be conducted in accordance with the *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area*.

MM BIO-2 If burrowing owls are determined present following the pre-construction surveys, occupied burrows shall be avoided to the greatest extent feasible, following the guidelines in the "Staff Report on Burrowing Owl Mitigation" published by the Department of Fish and Wildlife (March 7, 2012) including, but not limited to, avoiding occupied burrows during the nesting and non-breeding seasons, implementing a worker awareness program, biological monitoring, establishing avoidance buffers, and flagging burrows for avoidance with visible markers. If occupied burrows cannot be avoided, acceptable methods may be used to exclude burrowing owl either temporarily or permanently, pursuant to a Burrowing Owl Exclusion Plan that shall be prepared and approved by CDFW. The Burrowing Owl Exclusion Plan shall be prepared in accordance with the guidelines in the Staff Report on Burrowing Owl Mitigation.

COA BIO-4 Prior to the issuance of any grading permits, the Project applicant shall prepare a Determination of Biologically Equivalent or Superior Preservation (DBESP) analysis pursuant to the Western Riverside County MSHCP. The DBESP shall outline the impacts and proposed compensatory mitigation for impacts to Riverine Areas (Drainage A) for submittal and approval by the Regional Conservation Authority, California Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service.

7.3 GENERAL RECOMMENDATIONS

7.3.1 Best Management Practices for Wildlife

- Construction activities should not commence until 0700 hours and should be completed before dusk each day to the greatest extent feasible.
- If night-time construction is required, lighting should be directed away from native vegetation and should be limited to the minimum amount necessary to complete the construction activities.
- Any open trenches should be covered at the end of each work day in a manner to prevent the entrapment of wildlife, or adequately ramped to provide an animal escape.
- If any wildlife is encountered during construction activities, the wildlife should be allowed to leave the work area unharmed and shall be flushed or herded in a safe direction away from the work area(s).

- All vehicles and equipment should be maintained in proper working condition to minimize fugitive emissions and accidental spills from motor oil, hydraulic fluid, grease, or other fluids or hazardous materials entering downstream drainages. All fuel or hazardous waste leaks, spills, or releases shall be stopped or repaired immediately and cleaned up at the time of occurrence. All spill material removed should be disposed of at an appropriate offsite landfill. Maintenance vehicles should carry appropriate equipment and materials to isolate and remediate leaks or spills, such as a spill containment kit.
- All litter and pollutions laws should be followed. If trash receptacles are provided within or near the work areas they should be wildlife-proof.
- All exposed/disturbed areas should be stabilized to the greatest extent possible using appropriate, industry standard erosion control measures to prevent soil run-off into downstream drainages
- No construction activities should occur during active precipitation. If any precipitation is forecasted, the work area should be secured at least one day prior so no materials enter or wash into downstream drainages.

8.0 IMPACTS AFTER MITIGATION

8.1 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed Project, inclusive of mitigation measures and conditions of approval, would have less than significant impacts to sensitive wildlife species, jurisdictional features, migratory and/or nesting birds, and the Western Riverside County MSHCP.

8.2 CUMULATIVE IMPACTS

Cumulative impacts are defined as the direct and indirect effects of a proposed project which, when considered alone, would not be deemed a substantial impact, but when considered in addition to the impacts of related projects in the area, would be considered significant. “Related projects” refers to past, present, and reasonably foreseeable probable future projects, which would have similar impacts to the proposed Project. CEQA deems a cumulative impact analysis to be adequate if a list of “related projects” is included in the EIR or the proposed project is consistent with an adopted general, specific, master, or comparable programmatic plan [Section 15130(b)(1)(B)]. CEQA also states that no further cumulative impact analysis is necessary for impacts of a proposed project consistent with an adopted general, specific, master, or comparable programmatic plan [Section 15130(d)].

The MSHCP identifies areas for long-term conservation and management. As such, cumulative impacts of proposed projects within authorized take lands are minimized through the conservation of land. Cumulative impacts to the biological resources listed below for the Project site are considered to be less than significant based on compliance with the Western Riverside County MSHCP and regulations for jurisdictional waters, in addition to compliance with the MBTA. This includes implementation of the mitigation measures and Conditions of Approval outlined above in section 6.0 *Project Related Impacts* and 7.0 *Mitigation Measures and Conditions of Approval*. Since the Project site was determined not to function as a regional wildlife movement corridor, this biological resource is not included below.

- Burrowing Owl;
- Migratory and/or nesting birds;
- Drainage A (jurisdictional and a MSHCP Riverine Area).

The proposed mitigation would result in a no-net-loss of the biological function and value of these biological resources, and the Conditions of Approval would ensure compliance with existing regulations (such as the MSHCP and regulations for jurisdictional drainages). Therefore, with the proposed mitigation and Conditions of Approval, impacts would not be considered cumulatively significant. A summary is provided below.

Sensitive Wildlife Species: If any burrowing owls are observed on-site in the future, additional mitigation is proposed that would avoid direct impacts in compliance with the MSHCP. Mitigation is also proposed to avoid direct impacts to raptors and migratory bird species through compliance with the MBTA. With these mitigation measures, any impacts would not be considered cumulatively significant.

Jurisdictional Drainages: Impacts to jurisdictional Drainage A would be subject to permitting with the regulatory agencies, including USACE, RWQCB and/or CDFW, including compensatory mitigation. With the proposed mitigation and compliance with existing regulations through the permitting process, impacts would not be considered cumulatively significant.

Riparian/Riverine Areas: Impacts to the Riverine Area (Drainage A) would be subject to approval of a DBESP by the Regional Conservation Authority and wildlife agencies, as required in Section 6.1.2 of the MSHCP. With the approval and implementation of the DBESP, impacts would not be considered cumulatively significant.

9.0 REFERENCES

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APPENDIX A

FLORAL AND FAUNAL COMPENDIUM

Appendix A: Floral and Faunal Compendium

ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Adoxaceae	Elderberry Family
<i>Sambucus nigra</i>	blue elderberry
Adoxaceae	Elderberry Family
<i>Hesperoyucca whipplei</i>	chaparral yucca
Apiaceae	Carrot Family
<i>Berula erecta</i>	cutleaf waterparsnip
Asteraceae	Aster Family
<i>Acourtia microcephala</i>	sacapellote
<i>Ambrosia psilostachya</i>	western ragweed
<i>Artemisia californica</i>	coastal sagebrush
<i>Baccharis salicifolia</i>	mule fat
* <i>Centaurea melitensis</i>	tocalote
<i>Corethrogyne filaginifolia</i>	common sandaster
<i>Deinandra paniculata</i>	paniculate tarweed
<i>Ericameria pinifolia</i>	pinebush
<i>Erigeron canadensis</i>	horseweed
<i>Eriophyllum confertiflorum</i>	golden-yarrow
<i>Helianthus annuus</i>	common sunflower
<i>Heterotheca grandiflora</i>	telegraphweed
<i>Isocoma menziesii</i>	Menzies' goldenbush
<i>Microseris lindleyi</i>	Lindley's silverpuffs
<i>Stylocline gnaphalioides</i>	mountain neststraw
<i>Tetradymia comosa</i>	hairy horsebrush
Boraginaceae	Borage Family
<i>Amsinckia menziesii</i>	Menzies' fiddleneck
<i>Cryptantha intermedia</i>	common cryptantha
<i>Heliotropium curassavicum</i>	salt heliotrope
<i>Nemophila menziesii</i>	baby blue eyes
<i>Plagiobothrys canescens</i>	valley popcornflower
Brassicaceae	Mustard Family
* <i>Hirschfeldia incana</i>	shortpod mustard
Cassulaceae	Stonecrop Family
<i>Dudleya lanceolata</i>	lanceleaf liveforever
Cactaceae	Cactus Family
<i>Cylindropuntia californica</i>	California Cholla
Chenopodiaceae	Goosefoot Family
* <i>Salsola tragus</i>	prickly Russian thistle

* Non-native species

ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Convolvulaceae <i>Cuscuta</i> sp.	Morning-Glory Family dodder
Euphorbiaceae <i>Chamaesyce albomarginata</i>	Spurge Family rattlesnake weed
Fabaceae <i>Acmispon americanus</i> <i>Acmispon glaber</i> var. <i>glaber</i> * <i>Melilotus indicus</i>	Legume Family Spanish lotus deerweed sourclover
Geraniaceae * <i>Erodium cicutarium</i>	Geranium Family redstem stork's bill
Lamiaceae <i>Salvia apiana</i> <i>Trichostema lanceolatum</i>	Mint Family white sage vinegarweed
Olagraceae <i>Epilobium canum</i>	Evening Primrose Family California fuchsia
Papaveraceae <i>Eschscholzia californica</i>	Poppy Family California poppy
Phrymaceae <i>Mimulus guttatus</i>	Lopseed Family common monkeyflower
Polygonaceae <i>Eriogonum fasciculatum</i> <i>Pterostegia drymarioides</i> <i>Rumex salicifolius</i>	Buckwheat Family California buckwheat California thread-stem willow dock
Primulaceae * <i>Anagallis arvensis</i>	Primrose Family scarlet pimpernel
Rhamnaceae <i>Rhamnus crocea</i> <i>Rhamnus ilicifolia</i>	Buckthorn Family spiny redberry holly-leaf redberry
Rosaceae <i>Adenostoma fasciculatum</i>	Rose Family chamise
Rubiaceae <i>Galium angustifolium</i>	Madder Family narrow-leaved bedstraw
Scrophulariaceae <i>Keckiella antirrhinoides</i>	Figwort Family chaparral beard-tongue
Solanaceae <i>Datura wrightii</i>	Nightshade Family jimson weed
Themidace <i>Dichelostemma capitatum</i>	Brodiaea Family blue dicks

* Non-native species

ANGIOSPERMS (MONOCOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Poaceae	Grass Family
<i>Avena sp.</i>	oat
* <i>Bromus diandrus</i>	ripgut grass
* <i>Bromus hordeaceus</i>	soft chess
* <i>Bromus madritensis ssp. rubens</i>	foxtail chess
* <i>Cynodon dactylon</i>	Bermuda grass
* <i>Festuca myuros</i>	rattail fescue
* <i>Eragrostis cilianensis</i>	stinkgrass
<i>Melica imperfecta</i>	coast range melic

FERNS

SCIENTIFIC NAME	COMMON NAME
Pteridaceae	Maidenhair Fern Family
<i>Pentagramma triangularis</i>	goldback fern

REPTILES

SCIENTIFIC NAME	COMMON NAME
Phrynosomatidae	Zebra-tailed Lizards and Relatives
<i>Sceloporus occidentalis</i>	western fence lizard
<i>Sceloporus orcutti</i>	granite spiny lizard

BIRDS

SCIENTIFIC NAME	COMMON NAME
Accipitridae	Hawks, Kites, Harriers, and Eagles
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Elanus leucurus</i>	white-tailed kite
Falconidae	Falcons
<i>Falco sparverius</i>	American kestrel
Columbidae	Pigeons and Doves
<i>Zenaida macroura</i>	mourning dove
Trochilidae	Hummingbirds
<i>Calypte anna</i>	Anna's hummingbird
Picidae	Woodpeckers
<i>Picoides nuttalli</i>	Nuttall's woodpecker

* Non-native species

BIRDS

SCIENTIFIC NAME	COMMON NAME
Tyrannidae	Tyrant Flycatchers
<i>Sayornis nigricans</i>	black phoebe
<i>Sayornis saya</i>	Say's phoebe
<i>Tyrannus verticalis</i>	western kingbird
Corvidae	Jays and Crows
<i>Aphelocoma californica</i>	western scrub-jay
<i>Corvus brachyrhynchos</i>	American crow
Alaudidae	Larks
<i>Eremophila alpestris</i>	horned lark
Hirundinidae	Swallows
<i>Petrochelidon pyrrhonota</i>	cliff swallow
Troglodytidae	Wrens
<i>Thryomanes bewickii</i>	Bewick's wren
Turdidae	Thrushes
<i>Sialia mexicana</i>	western bluebird
Mimidae	Thrashers
<i>Mimus polyglottos</i>	northern mockingbird
Motacillidae	Wagtails and Pipits
<i>Anthus rubescens</i>	American pipits
Sturnidae	Starlings
* <i>Sturnus vulgaris</i>	European starling
Emberizidae	Emberizids
<i>Chondestes grammacus</i>	lark sparrow
<i>Melospiza crissalis</i>	California towhee
<i>Pipilo maculatus</i>	spotted towhee
<i>Zonotrichia leucophrys</i>	white-crowned sparrow
Icteridae	Blackbirds
<i>Sturnella neglecta</i>	western meadowlark
Fringillidae	Finches
<i>Carpodacus mexicanus</i>	house finch
<i>Spinus psaltria</i>	lesser goldfinch

* Non-native species

MAMMALS

SCIENTIFIC NAME	COMMON NAME
Leporidae	Hares and Rabbits
<i>Lepus californicus</i>	black-tailed jackrabbit
<i>Sylvilagus audubonii</i>	desert cottontail
Muridae	Mice, Rats, and Voles
<i>Neotoma</i> sp.	woodrat
Sciuridae	Squirrels
<i>Spermophilus beecheyi</i>	California ground squirrel

* *Non-native species*

APPENDIX B

SPECIAL-STATUS PLANT SPECIES

APPENDIX B: SPECIAL-STATUS PLANT SPECIES

Scientific Name	Common Name	Flowering Period	FEDERAL	STATE	CNPS	OTHER (MSHCP)	Preferred Habitat	Potential for Occurrence
BRYOPHYTES								
Bryaceae	Mosses Family							
<i>Schizymerium shevockii</i>	Shevock's copper moss	N/A	NONE	NONE	1B.2	NONE	Cismontane woodland (metamorphic, rock, mesic); between 2,461 and 4,593 feet.	None
<i>Tortula californica</i>	California screw moss	N/A	NONE	NONE	1B.2	NONE	Chenopod scrub, valley and foothill grassland; sandy, soil; between 33 and 328 feet.	None
Sphaerocarpaceae	Liverwort Family							
<i>Geothallus tuberosus</i>	Campbell's liverwort	N/A	NONE	NONE	1B.1	NONE	Coastal scrub (mesic), vernal pools; soil; between 33 and 1,969 feet.	None
<i>Sphaerocarpos drewei</i>	bottle liverwort	N/A	NONE	NONE	1B.1	NONE	Chaparral, coastal scrub; openings, soil; between 295 and 1,969 feet.	None
GYMNOSPERMS								
Cupressaceae	Cypress Family							
<i>Hesperocypris forbesii</i>	Tecate cypress	N/A	NONE	NONE	1B.1	NONE	Closed-cone coniferous forest, chaparral; clay, gabbroic or metavolcanic; between 837 and 4,921 feet.	None

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Scientific Name	Common Name	Flowering Period	FEDERAL	STATE	CNPS	OTHER (MSHCP)	Preferred Habitat	Potential for Occurrence
ANGIOSPERMS (DICOTYLEDONS)								
Apiaceae	Carrot Family							
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button-celery	Apr.-Jun.	FE	SE	1B.1	MSHCP	Valley grassland, coastal sage scrub, freshwater wetlands, wetland-riparian; vernal pools.	None
Asteraceae	Sunflower Family							
<i>Ambrosia pumila</i>	San Diego ambrosia	Apr.-Oct.	FE	NONE	1B.1	MSHCP	Chaparral, coastal scrub, desert dunes/sandy; Dry, sunny grasslands on disturbed sites.	Absent
<i>Centromadia pungens</i> ssp. <i>laevis</i>	smooth tarplant	Apr.-Sep.	NONE	NONE	1B.1	MSHCP	Valley and foothill grasslands with poorly drained alkaline soil conditions at low elevations.	Absent
<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i>	Orcutt's pincushion	Jan.-Aug.	NONE	NONE	1B.1	NONE	Coastal bluff scrub, coastal dunes; between 0 and 328 feet.	None
<i>Deinandra paniculata</i>	paniculate tarplant	Apr.-Nov.	NONE	NONE	4.2	NONE	Coastal scrub, valley and foothill grassland, vernal pools; usually vernal mesic, sometimes sandy; between 80 to 3090 feet.	Observed
<i>Holocarpha virgata</i> ssp. <i>elongata</i>	graceful tarplant	May-Nov.	NONE	NONE	4.2	MSHCP	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; between 190 to 3610 feet.	Absent

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Scientific Name	Common Name	Flowering Period	FEDERAL	STATE	CNPS	OTHER (MSHCP)	Preferred Habitat	Potential for Occurrence
ANGIOSPERMS (DICOTYLEDONS)								
<i>Lasthenia glabrata</i> <i>ssp. coulteri</i>	Coulter's goldfields	Feb.-Jun.	NONE	NONE	1B.1	MSHCP	Salt-marsh, playas, vernal-pools, coastal; usually occurs in wetlands but occasionally in non-wetlands.	None
<i>Packera gander</i>	Gander's ragwort	Apr.-Jun.	NONE	SR	1B.2		Chaparral.	None
<i>Pseudognaphalium leucocephalum</i>	white rabbit-tobacco	Aug.-Nov.	NONE	NONE	2.2	NONE	Chaparral, cismontane woodland, coastal scrub, riparian woodland; sandy, gravelly.	Absent
<i>Symphotrichum defoliatum</i>	San Bernardino aster	Jul.-Nov.	NONE	NONE	1B.2	NONE	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic); near ditches, streams, springs; between 7 and 6,693 feet.	Absent
<i>Viguiera laciniata</i>	San Diego County viguiera	Feb.-Aug.	NONE	NONE	4.2	NONE	Chaparral, coastal scrub; between 190 to 2460 feet.	Absent
Berberidaceae	Barberry Family							
<i>Berberis nevini</i>	Nevin's barberry	Mar.-Jun.	FE	SE	1B.1	MSHCP	Sandy soils in low-gradient washes, alluvial terraces, and canyon bottoms, along gravelly wash margins, or on coarse soils on steep, generally north-facing slopes in alluvial scrub, cismontane (e.g., chamise) chaparral, coastal sage	Absent

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Scientific Name	Common Name	Flowering Period	FEDERAL	STATE	CNPS	OTHER (MSHCP)	Preferred Habitat	Potential for Occurrence
ANGIOSPERMS (DICOTYLEDONS)								
							scrub, oak woodland, and/or riparian scrub or woodland.	
Boraginaceae	Borage Family							
<i>Harpagonella palmeri</i>	Palmer's grapplinghook	Mar.-Apr.	NONE	NONE	4.2	MSHCP	Variety of southern California plant communities including chaparral; sage scrub; clay soils; below 2,500 feet.	Absent
Brassicaceae	Cabbage Family							
<i>Caulanthus simulans</i>	Payton's jewel-flower	Mar.-Jun.	NONE	NONE	4.2	MSHCP	Burned areas, streambeds, rocky, steep slopes and other disturbed sites, below 6,500 feet.	Absent
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper-grass	Jan.-July	NONE	NONE	1B.2	NONE	Chaparral and coastal scrub.	Absent
<i>Sibaropsis hammittii</i>	Hammitt's clay-cress	Mar.-Apr.	NONE	NONE	1B.2	MSHCP	Chaparral (openings), valley and foothill grassland; between 2,395 and 3,494 feet.	None
Chenopodiaceae	Goosefoot Family							
<i>Atriplex coronata</i> var. <i>notatior</i>	San Jacinto Valley crownscale	Apr.-Aug.	FE	NONE	1B.1	MSHCP	Alkaline flats, playas, valley and foothill grassland, vernal pools; between 1216 to 1600 feet.	Absent

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Scientific Name	Common Name	Flowering Period	FEDERAL	STATE	CNPS	OTHER (MSHCP)	Preferred Habitat	Potential for Occurrence
ANGIOSPERMS (DICOTYLEDONS)								
<i>Atriplex pacifica</i>	South Coast saltscale	Mar.-Oct.	NONE	NONE	1B.2	NONE	Alkali sink, coastal sage scrub, wetland-riparian; playas, coastal; equally as likely to be in wetland areas as non-wetland areas.	Absent
<i>Atriplex parishii</i>	Parish's brittlescale	Jun.-Oct.	NONE	NONE	1B.1	MSHCP	Shadscale scrub, alkali sinks, freshwater wetlands, wetland-riparian; playas, vernal pools; between 0 and 1,000 feet.	None
<i>Atriplex serenana</i> var. <i> davidsonii</i>	Davidson's saltscale	Apr.-Oct.	NONE	NONE	1B.2	MSHCP	Coastal sage scrub, wetland-riparian; coastal.	None
Convolvulaceae	Morning Glory Family							
<i>Convolvulus simulans</i>	small-flowered morning-glory	Mar.-Jul.	NONE	NONE	4.2	NONE	Chaparral (openings), coastal scrub, and valley and foothill grassland; clay or serpentinite seeps; between 90 to 2300 feet.	None
Crassulaceae	Stonecrop Family							
<i>Dudleya multicaulis</i>	many-stemmed dudleya	Apr.-Jul.	NONE	NONE	1B.2	MSHCP	Chaparral, coastal scrub, valley and foothill grassland often on clay soils.	Absent
<i>Dudleya viscida</i>	sticky dudleya	May-Jun.	NONE	NONE	1B.2	MSHCP	Chaparral, coastal sage scrub; coastal.	None
Ericaceae	Heather Family							
<i>Arctostaphylos rainbowensis</i>	Rainbow manzanita	Dec.-Mar.	NONE	NONE	1B.1	MSHCP	Chaparral.	None

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Scientific Name	Common Name	Flowering Period	FEDERAL	STATE	CNPS	OTHER (MSHCP)	Preferred Habitat	Potential for Occurrence
ANGIOSPERMS (DICOTYLEDONS)								
Fabaceae	Legume Family							
<i>Astragalus pachypus</i> <i>var. jaegeri</i>	Jaeger's milk-vetch	Dec.-Jun.	NONE	NONE	1B.1	MSHCP	Chaparral, valley grassland, foothill woodland.	Absent
<i>Pickeringia montana</i> <i>var. tomentosa</i>	woolly chaparral-pea	May-Aug.	NONE	NONE	4.3	NONE	Chaparral; gabbroic, granitic, clay; between 0 to 5580 feet.	None
Fagaceae	Beech Family							
<i>Quercus engelmannii</i>	Engelmann oak	Mar.-Jun.	NONE	NONE	4.2	MSHCP	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland; between 160 to 4270 feet.	Absent
Geraniaceae	Geranium Family							
<i>California macrophylla</i>	round-leaved filaree	Mar.-May	NINE	NONE	1B.1	MSHCP	Cismontane woodland, valley and foothill grassland, clay soils.	Absent
Juglandaceae	Walnut Family							
<i>Juglans californica</i>	Southern California black walnut	Mar.-Aug.	NONE	NONE	4.2	MSHCP	Chaparral, cismontane woodland, southern oak woodland, coastal scrub; alluvial; between 160 to 3000 feet.	Absent
Lamiaceae	Mint Family							
<i>Clinopodium chandleri</i>	San Miguel savory	Mar.-Jul.	NONE	NONE	1B.2	MSHCP	Chaparral, foothill woodland, coastal sage scrub, valley grassland; riparian.	Absent

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Scientific Name	Common Name	Flowering Period	FEDERAL	STATE	CNPS	OTHER (MSHCP)	Preferred Habitat	Potential for Occurrence
ANGIOSPERMS (DICOTYLEDONS)								
<i>Monardella hypoleuca</i> ssp. <i>lanata</i>	felt-leaved monardella	Jun.-Aug.	NONE	NONE	1B.2	NONE	Chaparral, foothill wetland.	None
<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i>	southern mountains skullcap	Jun.-Aug.	NONE	NONE	1B.2	NONE	Typically grows on moist embankments of montane creeks.	None
Malvaceae	Mallow Family							
<i>Ayenia compacta</i>	California ayenia	Mar.-Apr.	NONE	NONE	2.3	NONE	Creosote bush scrub, washes.	None
Nyctaginaceae	Four O'clock Family							
<i>Abronia villosa</i> var. <i>aurita</i>	chaparral sand-verbena	Jan.-Sep.	NONE	NONE	1B.1	NONE	Chaparral, coastal scrub, and desert dunes/sandy areas.	Absent
Papaveraceae	Poppy Family							
<i>Romneya coulteri</i>	Coulter's matilija poppy	Mar.-Jul.	NONE	NONE	4.2	MSHCP	Chaparral, coastal scrub; often in burns; between 60 to 3940 feet.	Absent
Picrodendraceae	Bitter Tree Family							
<i>Tetracoccus dioicus</i>	Parry's tetracoccus	Apr.-May	NONE	NONE	1B.2	NONE	Low growing chamise chaparral, coastal sage scrub; prefers Las Posas soils.	Absent
Polemonaceae	Phlox Family							
<i>Navarretia fossalis</i>	spreading navarretia	Apr.-Jun.	FT	NONE	1B.1	MSHCP	Vernal pools.	None

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ANGIOSPERMS (DICOTYLEDONS)								
<i>Navarretia prostrata</i>	prostrate vernal pool navarretia	Apr.-Jul.	NONE	NONE	1B.1	MSHCP	Coastal sage scrub, wetland-riparian; occurs almost always under natural conditions in wetlands.	None
Polygalaceae	Milkwort Family							
<i>Polygala cornuta</i> var. <i>fishiae</i>	Fish's milkwort	May-Aug.	NONE	NONE	4.3	MSHCP	Chaparral, cismontane woodland, riparian woodland; between 320 to 3280 feet.	Absent
Polygonaceae	Buckwheat Family							
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower	Apr.-Jun.	NONE	NONE	1B.1	MSHCP	Openings/clearings in coastal or desert sage scrub, chaparral or interface; dry slopes or flat ground; sandy soils.	Absent
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	long-spined spineflower	Apr.-Jun.	NONE	NONE	1B.2	MSHCP	Primarily associated with clay soils but also found on sandy or gravelly soils within open areas of chaparral, sage scrub, or needlegrass grassland.	Absent
<i>Dodecahema leptoceras</i>	slender-horned spineflower	Apr.-Jun.	FE	SE	1B.1	MSHCP	Scrub and chaparral in sandy soils and alluvial fans.	Absent
Ranunculales	Buttercup Family							
<i>Myosurus minimus</i> ssp. <i>apus</i>	little mousetail	Mar.-Jun.	NONE	NONE	3.1	MSHCP	Associated with vernal pools and inundated grassland habitats.	None

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ANGIOSPERMS (DICOTYLEDONS)								
Rosaceae	Rose Family							
<i>Horkelia cuneata</i> var. <i>puberula</i>	mesa horkelia	Feb.-July (uncommonly Sept.)	NONE	NONE	1B.1	NONE	Chaparral, cismontane woodland, coastal scrub/sandy or gravelly.	Absent
<i>Horkelia truncata</i>	Ramona horkelia	May-Jun.	NONE	NONE	1B.3	NONE	Chaparral, cismontane woodland; clay and gabbroic; between 1310 and 4270 feet.	None
Rhamnaceae	Buckthorn Family							
<i>Ceanothus cyaneus</i>	Lakeside ceanothus	Apr.-Jun,	NONE	None	1B.2	NONE	Chaparral, closed-cone pine forest.	None
<i>Ceanothus ophiochilus</i>	Vail Lake ceanothus	Feb.-Mar.	FT	SE	1B.1	MSHCP	Chaparral.	None

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Scientific Name	Common Name	Flowering Period	FEDERAL	STATE	CNPS	OTHER (MSHCP)	Preferred Habitat	Potential for Occurrence
ANGIOSPERMS (MONOCOTYLEDONS)								
Alliaceae	Onion Family							
<i>Allium munzii</i>	Munz's onion	Mar.-May	FE	ST	1B.1	MSHCP	Bare or grassy clearings in a variety of southern California plant communities; clay soils; between 1,000-3,000 feet	Absent
Juncaceae	Juncus							
<i>Juncus luciensis</i>	Santa Lucia dwarf rush	Apr.-Jul.	NONE	NONE	1B.2	NONE	Wetland-riparian.	None
Liliaceae	Lily Family							
<i>Calochortus plummerae</i>	Plummer's mariposa lily	May-Jul.	NONE	NONE	1B.2	MSHCP	Chaparral (openings), cismontane woodland, coastal scrub, valley and foothill grassland, granitic/rocky.	Absent
<i>Calochortus weedii</i> var. <i>intermedius</i>	intermediate mariposa lily	May-Jul.	NONE	NONE	1B.2	MSHCP	Coastal scrub, chaparral, valley and foothill grassland on rocky soil.	Absent
<i>Lilium humboldtii</i> ssp. <i>ocellatum</i>	ocellated Humboldt lily	Mar.-Aug.	NONE	NONE	4.2	MSHCP	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland; openings; between 90 to 5910 feet.	None

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ANGIOSPERMS (MONOCOTYLEDONS)								
<i>Lilium parryi</i>	lemon lily	Jul.-Aug.	NONE	NONE	1B.2	MSHCP	Red fir forest, yellow pine forest, wetland-riparian; riparian meadows; usually occurs in wetlands, but occasionally found in non-wetlands; between 4000 to 9010 feet.	None
Limnanthaceae (Liliaceae)	Meadowfoam Family							
<i>Limnanthes alba</i> ssp. <i>parishii</i>	Parish's meadowfoam	Apr.-Jun.	NONE	SE	1B.2	MSHCP	Yellow pine forests, freshwater wetlands, wetland-riparian; meadows, vernal pools.	None
Poaceae	True Grass Family							
<i>Hordeum intercedens</i>	vernal barley	Mar.-Jun.	NONE	NONE	3.2	MSHCP	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools; between 10 to 3280 feet.	Absent
<i>Orcuttia californica</i>	California Orcutt grass	Apr.-Aug.	FE	SE	1B.1	MSHCP	Vernal pools.	None
Ruscaceae	Ruscus Family							
<i>Nolina cismontana</i>	chaparral nolina	Mar.-Jul.	NONE	NONE	1B.2	NONE	Xeric Diegan sage scrub, open chaparral; sandstone or gabbro; between 450 to 4190 feet.	Absent
Themidaceae	Brodiaea Family							
<i>Brodiaea filifolia</i>	thread-leaved brodiaea	Mar.-Jun.	FT	SE	1B.1	MSHCP	Sage scrub, valley and foothill grassland, cismontane woodland, vernal pools (clay soils).	Absent

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ANGIOSPERMS (MONOCOTYLEDONS)								
<i>Brodiaea orcuttii</i>	Orcutt's brodiaea	May-Jul.	NONE	NONE	1B.1	MSHCP	Chaparral, valley and foothill grassland, cismontane woodland; wet meadows/seeps, vernal pools (clay soils); sometimes associated with serpentine substrate.	Absent
<i>Brodiaea santarosae</i>	Santa Rosa Basalt brodiaea	May-Jun.	NONE	NONE	3	NONE	Valley and foothill grassland; basaltic; between 1900 to 3430 feet.	None

Key to Species Listing Status Codes

FE	Federally Endangered	SE	State Listed as Endangered
FT	Federally Threatened	ST	State Listed as Threatened
FPE	Federally Endangered	SCE	State Candidate for Endangered
FPT	Federally Proposed as Threatened	SCT	State Candidate for Threatened
FPD	Federally Proposed for Delisting	SFP	State Fully Protected
		SR	State Rare
		SSC	California Species of Special Concern

California Native Plant Society (CNPS)

- List 1A: Presumed extinct in California.
- List 1B: Rare, threatened, or endangered throughout their range.
- List 2: Rare, threatened, or endangered in California, but more common in other states.
- List 3: Plant species for which additional information is needed before rarity can be determined.
- List 4: Species of limited distribution in California (i.e., naturally rare in the wild), but whose existence does not appear to be susceptible to threat.

New Threat Code extensions and their meanings:

- 1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- 2 Fairly endangered in California (20-80% occurrences threatened)
- 3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Source: PCR Services Corporation 2013.

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APPENDIX C

SPECIAL-STATUS WILDLIFE SPECIES

APPENDIX C: SPECIAL-STATUS WILDLIFE SPECIES

Scientific Name	Common Name	Federal	State	Other (MSHCP)	Preferred Habitat	Potential for Occurrence On the Project Site
INVERTEBRATES						
ARTHROPODS						
Branchinectidae	Fairy Shrimp Family					
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	FT	None	MSHCP	Vernal pools in areas of shallow depressions that have a clay hardpan soil layer that inhibits percolation.	None
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp	FE	None		Small shallow vernal pools ranging in depth from 2-12 inches and 50-68 degrees F.	None
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	FE	None	MSHCP	Vernal pools/swales; apparently prefers deeper pools through the warm weather of late Apr. and May.	None
INSECTA						
Nymphalidae	Brush-foot Butterfly Family					
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	FE	NONE	MSHCP	Grassland and open areas in sage scrub, chaparral, sparse native woodlands. Low levels of invasive, nonnative vegetation and soil with a cryptogamic crust. Associated with host plant species dwarf plantain (<i>Plantago erecta</i>) and purple owl's clover (<i>Castilleja exserta</i>).	None

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Scientific Name	Common Name	Federal	State	Other (MSHCP)	Preferred Habitat	Potential for Occurrence On the Project Site
VERTEBRATES						
FISHES						
Cyprinidae	Cyprinids					
<i>Gila orcuttii</i>	arroyo chub	NONE	SSC	MSHCP	Warm, coastal southern California streams.	None
Salmonidae	Salmons					
AMPHIBIANS						
Ambystomatidae	Mole Salamanders					
<i>Ambystoma californiense</i>	California tiger salamander	FT	ST/SSC		Frequents grassland, oak savanna, and edges of mixed woodland and lower elevation coniferous forest.	None
Bufo	True Toads					
<i>Anaxyrus californicus</i>	arroyo toad	FE	SSC	MSHCP	Shallow, exposed streambanks, quiet water stretches, or overflow pools with silt-free sandy or gravelly bottoms. Nearby sandy terraces, dampened in places by capillary action, with some scattered vegetation.	None
Pelobatidae	Spadefoot Toads					
<i>Spea hammondi</i>	western spadefoot	NONE	SSC	MSHCP	Prefers burrow sites within relatively open areas in lowland grasslands, chaparral, and pine-oak woodlands, areas of sandy or gravelly soil in alluvial fans, washes, and floodplains. Requires temporary pools for reproduction.	None
Rana	True Frogs					
<i>Rana draytonii</i>	California red-legged frog	FT	SSC	MSHCP	Found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and streambanks with plant cover. Most common in lowlands or foothills. Frequently found in woods adjacent to streams.	None
Salimandridae	Newts					
<i>Taricha torosa</i>	Coast Range newt	NONE	SSC	MSHCP	Terrestrial habitats and will migrate over 1 kilometer to breed in ponds, reservoirs and slow-moving streams.	None

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Scientific Name	Common Name	Federal	State	Other (MSHCP)	Preferred Habitat	Potential for Occurrence On the Project Site
REPTILES						
Colubridae	Colubrid Snakes					
<i>Salvadora hexalepis virgulata</i>	coast patch-nosed snake	NONE	SSC		Desert and rocky areas in chaparral covered hillsides and canyons.	None
<i>Thamnophis hammondi</i>	two-striped garter snake	NONE	SSC		Coastal California along watercourses with permanent fresh water, and near streams with rocky beds and riparian growth.	None
Emydidae	Pond Turtles					
<i>Emys marmorata</i>	western pond turtle	NONE	SSC	MSHCP	Ponds, marshes, rivers, streams, irrigation ditches.	None
Phrynosomatidae	Iguanid Lizard Family					
<i>Phrynosoma blainvillii</i>	coast horned lizard	NONE	SSC	MSHCP	Prefers sandy riparian and sage scrub habitats but also occurs in valley-foothill hardwood, conifer, , pine-cypress, juniper and annual grassland habitats below 6,000 feet, open country, especially sandy areas, washes, flood plains, and windblown deposits.	Moderate Not observed during site surveys conducted in 2012 and 2013.
Scincidae	Skinks					
<i>Plestiodon skiltonianus Interparietalis</i>	Coronado Island skink	NONE	SSC		Grassland, woodlands, pine forests, chaparral, especially in open sunny areas such as clearings and the edges of creeks and rivers. Prefers rocky areas near streams with lots of vegetation. Also found in areas away from water.	None
Teiidae	Whiptail Lizards					
<i>Aspidoscelis hyperythra</i>	orange-throated whiptail	NONE	SSC	MSHCP (ssp. <i>beldingi</i>)	Coarse soils in open coastal sage scrub vegetation; it also inhabits many other vegetation types and disturbed areas: open chaparral, along edges of open, dry, riparian areas, along trails, along dirt roads, and in areas of light off-road vehicle use; often in areas with 50% cover and 50% bare soil, and flat to sloping topography; it seldom uses rodent burrows. Washes and other sandy areas where there are	Moderate Not observed during site surveys conducted in 2012 and 2013.

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Scientific Name	Common Name	Federal	State	Other (MSHCP)	Preferred Habitat	Potential for Occurrence On the Project Site
REPTILES						
					rocks and patches of brush and rocky hillsides: coastal chaparral, thornscrub, and streamside growth. Prefers loose, fine-grained soils, such as rocky hillsides bordering arroyos or the lower slopes of foothills. Eggs are laid probably in a nest dug in soil/underground.	
Viperidae	Vipers					
<i>Crotalus ruber</i>	red-diamond rattlesnake	NONE	SSC	MSHCP	Chaparral, woodland, grassland, and desert. In rocky areas and dense vegetation.	Moderate Not observed during site surveys conducted in 2012 and 2013.

Scientific Name	Common Name	Federal	State	Other (MSHCP)	Preferred Habitat	Potential for Occurrence On the Project Site
BIRDS						
Accipitridae	Hawks, Kites, Harriers and Eagle Family					
<i>Aquila chrysaetos</i>	golden eagle	NONE	SFP	MSHCP	A variety of plant communities including grasslands, shrublands with tree saplings, and open-canopy blue oak (<i>Quercus douglasii</i>) woodlands. In late summer the golden eagle is often seen above timberline in California.	Low (F) Not observed during site surveys conducted in 2012 and 2013.
<i>Circus cyaneus</i>	northern harrier	NONE	SSC	MSHCP	Coastal salt marshes, freshwater marshes, grasslands, and agricultural fields; occasionally forages over open desert and brushlands.	Moderate (F) Not observed during site surveys conducted in 2012 and 2013.

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Scientific Name	Common Name	Federal	State	Other (MSHCP)	Preferred Habitat	Potential for Occurrence On the Project Site
BIRDS						
<i>Elanus leucurus</i>	white-tailed kite	NONE	SFP	MSHCP	Agricultural areas, grasslands, marshes, savannas, and other open land or sparsely wooded areas.	Observed
Comment: This species was incidentally observed foraging by PCR during surveys conducted on the Prielipp property in 2013.						
<i>Haliaeetus leucocephalus</i>	bald eagle	FD	SE/SFP	MSHCP	Seacoasts, rivers, lakes and other aquatic habitats; needs perching and nesting sites with adequate prey base.	None
Charadriidae	Plovers					
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	FT	SSC		Coastal sandy, gravelly beaches, estuarine salt ponds, alkali lakes, dry salt flats in lagoons, deposited dredge spoils, levees and flats at salt-evaporation ponds, river bars, dunes.	None
Cuculidae	Cuckoos					
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	FC	SE	MSHCP	Southwestern cottonwood-willow riparian, mixed broadleaf riparian forest.	None
Laniidae	Shrike Family					
<i>Lanius ludovicianus</i>	loggerhead shrike	NONE	SSC	MSHCP	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	Low (N); Moderate (F) Not observed during site surveys conducted in 2012 and 2013.

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Scientific Name	Common Name	Federal	State	Other (MSHCP)	Preferred Habitat	Potential for Occurrence On the Project Site
BIRDS						
Strigidae	Owls					
<i>Athene cunicularia</i>	burrowing owl	NONE	SSC	MSHCP	Dry grasslands, desert habitats, open-pinyon-juniper and ponderosa pine woodlands below 5,300 feet elevation. Prefers berms, ditches, and grasslands adjacent to rivers, agricultural, and scrub areas.	Absent None observed during the focused survey conducted in 2013.
Sylviidae	Old World Warblers, Gnatcatchers					
<i>Polioptila californica californica</i>	coastal California gnatcatcher	FT	SSC	MSHCP	Coastal sage scrub vegetation below 2,500 feet elevation in Riverside County and generally below 1,000 feet elevation along the coastal slope; generally avoids steep slopes and dense vegetation for nesting.	Moderate to High
Comment: An occurrence of coastal California gnatcatcher was reported on the Prielipp property in the CNDDDB in 2001, and one individual of this species was incidentally observed by PCR during a survey conducted in August 2013 on a project site less than 1,000 feet northwest of the property.						
Troglodytidae	Wren Family					
<i>Campylorhynchus brunneicapillus sandiegensis</i>	coastal cactus wren	NONE	SSC	MSHCP	Coastal sage scrub, vegetation with thickets of prickly pear or cholla cactus.	None
Vireonidae	Vireo Family					
<i>Vireo bellii pusillus</i>	least Bell's vireo	FE	SE	MSHCP	Perennial and intermittent streams with low, sense riparian scrub and riparian woodland habitats below 2,000 feet elevation; nests primarily in willows and forages in the riparian and occasionally in adjoining upland habitats. Associated with willow, cottonwood, and mule fat. Found especially in willow and mesquite thickets near water.	None

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Scientific Name	Common Name	Federal	State	Other (MSHCP)	Preferred Habitat	Potential for Occurrence On the Project Site
MAMMALS						
Heteromyidae	Pocket Mice and Kangaroo Rat Family					
<i>Chaetodipus californicus femoralis</i>	Dulzura pocket mouse	NONE	SSC		Chaparral, occasionally desert grasslands; between 0 and 4633 feet.	None
<i>Chaetodipus fallax fallax</i>	northwestern San Diego pocket mouse	NONE	SSC	MSHCP	Chaparral, coastal sage scrub (Riversidean and Diegan), desert scrub, grassland, juniper woodland and scrub, and Riversidean alluvial fan sage scrub.	Very Low Potential habitat on- and off-site is highly disturbed and scattered.
<i>Dipodomys stephensi</i>	Stephen's kangaroo rat	FE	ST	MSHCP	Coastal scrub, valley and foothill grassland; annual and perennial grasslands and coastal sage scrub with sparse canopy cover.	Very Low Potential habitat on- and off-site is highly disturbed and scattered.
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	NONE	SSC	MSHCP	Coastal sage scrub, and grasslands, desert cactus, creosote bush and sagebrush habitats.	Low Potential habitat on-site habitat is highly disturbed and scattered and there are no recorded occurrences of the species within 10 miles. However, unidentified burrows of either <i>Perognathus</i> sp. or <i>Peromyscus</i> sp. were observed within approximately 1 mile by Principe and Associates in 2012.

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Scientific Name	Common Name	Federal	State	Other (MSHCP)	Preferred Habitat	Potential for Occurrence On the Project Site
MAMMALS						
<i>Perognathus longimembris internationalis</i>	Jacumba pocket mouse	NONE	SSC		Arid coastal sage brush and chaparral; nocturnal, burrows during the day.	Low Potential habitat on-site habitat is highly disturbed and scattered and there are no recorded occurrences of the species within 10 miles. However, unidentified burrows of either <i>Perognathus</i> sp. or <i>Peromyscus</i> sp. were observed within approximately 1 mile by Principe and Associates in 2012.
Leporidae	Hares and Rabbit Family					
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	NONE	SSC	MSHCP	Open brushlands and scrub habitats between sea level and 4,000 feet elevation.	Observed
Comment: An occurrence of San Diego black-tailed jackrabbit was reported in the CNDDDB on the Prielipp property in 1998, and was incidentally observed by PCR during surveys.						
Molossidae	Free-tailed Bats					
<i>Eumops perotis californicus</i>	western mastiff bat	NONE	SSC		Many open, semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	Low (F)
<i>Nyctinomops femorosaccus</i>	pocketed free-tailed bat	NONE	SSC		More arid habitat such as pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis. Roosts in rock crevices, caverns, or buildings.	None

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Scientific Name	Common Name	Federal	State	Other (MSHCP)	Preferred Habitat	Potential for Occurrence On the Project Site
MAMMALS						
Muridae	Mice, Rats, and Vole Family					
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	NONE	SSC		Variety of habitats, often in the vicinity of rocky outcrops; prefer moderate to dense canopies.	Very Low No recorded occurrences within 10 miles
<i>Onychomys torridus ramona</i>	southern grasshopper mouse	NONE	SSC		Grasslands, desert areas, especially scrub with friable soils.	Very Low Not recorded within 8 miles since 1932
Vespertilionidae	Evening Bats					
<i>Antrozous pallidus</i>	pallid bat	NONE	SSC		Wide variety of habitats but most common in open, dry habitats with rocky areas for roosting.	Low (F)
<i>Lasiurus xanthinus</i>	western yellow bat	NONE	SSC		Desert wash	None
<p>Key to Federal and State Listings</p> <p> <i>FE</i> Federally Listed as Endangered <i>FT</i> Federally Listed as Threatened <i>FPE</i> Federally Proposed as Endangered <i>FPT</i> Federally Proposed as Threatened <i>FPD</i> Federally Proposed for Delisting <i>SE</i> State Listed as Endangered <i>ST</i> State Listed as Threatened <i>SCE</i> State Candidate for Endangered <i>SCT</i> State Candidate for Threatened <i>SFP</i> State Fully Protected <i>SSC</i> California Species of Special Concern </p> <p>Source: PCR Services Corporation 2013.</p>						

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PCR IRVINE

One Venture
Suite 150
Irvine, California 92618
TEL 949.753.7001
FAX 949.753.7002
PCRinfo@pcrnet.com

PCR SANTA MONICA

201 Santa Monica Boulevard
Suite 500
Santa Monica, California 90401
TEL 310.451.4488
FAX 310.451.5279
PCRinfo@pcrnet.com

PCR PASADENA

80 South Lake Avenue
Suite 570
Pasadena, California 91101
TEL 626.204.6170
FAX 626.204.6171
PCRinfo@pcrnet.com

Appendix B: Wilson Creek Habitat Restoration Plan

HABITAT RESTORATION PLAN

WILSON CREEK

AGUANGA, CALIFORNIA



OCTOBER 2011

HABITAT RESTORATION PLAN

WILSON CREEK

AGUANGA, CALIFORNIA

Prepared for:
Wilson Creek Farms LLC
P.O. Box 2921
Hemet, California 92546
Contact: Mr. Joe Gonzalez

Prepared By:
PCR SERVICES CORPORATION
One Venture, Suite 150
Irvine, California 92618
Contacts: Amir Morales, Principal Regulatory/Environmental Scientist
Scott Holbrook, Senior Biologist

OCTOBER 2011

HABITAT RESTORATION PLAN

WILSON CREEK AGUANGA, CALIFORNIA

Prepared for:

Wilson Creek Farms LLC
P.O. Box 2921
Hemet, CA 92546
Contact: Mr. Joe Gonzalez

Prepared By:

PCR Services Corporation
One Venture, Suite 150
Irvine, California 92618
(949) 753-7001

Contact:

Amir Morales, Principal Environmental Scientist
Scott Holbrook, Senior Biologist

Report Date:

October 2011

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Habitat Mitigation and Monitoring Plan

1.0 INTRODUCTION

This Habitat Restoration Plan (HRP, “Plan”) describes a strategy and presents guidelines and specifications for the enhancement and restoration of riparian habitat along a section of Wilson Creek in Aguanga, California (**Figure 1, Regional Map**). The restoration site area covers approximately 19.4 acres (**Figure 2, Vicinity Map**). The project will involve tamarisk eradication throughout the entire area with supplemental planting efforts to reestablish native riparian woodland and scrub vegetation. The site is proposed to be planted in phases with the first phase of planting to commence in the fall of 2012 and planting in Phases 2 and 3 planned in the 2013 and 2014, respectively (**Figure 3, Wilson Creek Restoration Area**). However, Wilson Creek Farms, LLC may conduct all planting in just one or two phases. The phasing and schedule for initial planting will be determined prior to implementation of the planting currently planned as Phase 1 to commence in Fall 2012. The proposed enhancement and restoration efforts prescribed herein are intended to increase habitat quality and improve functional values associated with this section of Wilson Creek. The restored areas will be made available for projects conducted off site by others that require compensatory habitat mitigation to offset impacts to jurisdictional areas regulated by the U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), and/or California Department of Fish and Game (CDFG). Each project will be subject to review and approval by the resource agencies through individual Habitat Mitigation and Monitoring Plan’s (HMMP) to ensure consistency with the intent of this HRP as appropriate.

This Plan describes the objectives, procedures, and performance criteria for habitat enhancement and restoration and provides discretionary recommendations to guide noxious weed eradication, site preparations, planting, maintenance, monitoring activities, and specifies requirements for reporting the implementation and progressive results of the prescribed habitat restoration efforts.

1.1 Project Location

The proposed project site encompasses approximately 19.4 acres within the rural Lancaster Valley area of Aguanga, situated in unincorporated Riverside County, California. The site lies to the east of Vail Lake just north of State Route (SR) 79 and approximately 16.7 miles east/southeast of the Interstate 15 (I-15) and Interstate 215 (I-215) interchange. The site is accessed from the end of the Cottonwood School Road which lies approximately 1.2 miles up Sage Road (County Road No. 3) north from the SR-79. The project site is found on the U.S. Geological Survey (USGS) 7.5-minute quadrangle map for Vail Lake, California, in Sections 17 and 18, Township 8 South, Range 1 East (Figure 2). The Universal Transverse Mercator (UTM) coordinates corresponding to the approximate center of the project site are 508935.52 m E and 3705008.43 m N (UTM Zone 11).

1.2 General Site Description

The restoration site in Wilson Creek is located in a rural area surrounded by active agriculture and natural open space with very little development in the near vicinity. The subject site and immediately adjacent farming areas vicinity lie within a relatively flat valley bottom. This segment of Wilson Creek is almost 3,000 feet in length and slopes gradually downward from east to west in the direction of flow. This

streambed area ranges in elevation from approximately 1,700 feet above mean sea level (MSL) at the eastern limits to about 1,645 above MSL at the western limits.

Wilson Creek is the single significant drainage feature in the area and it flows from east to west toward Sage Road. The southern banks of Wilson Creek are characterized by a historic levee that ranges from approximately 8 to 15 feet in height. The levee was constructed in the late 1800's to isolate Wilson Creek from farming activities in the Lancaster Valley just south of the Creek. In the last 20 years the project reach has been subjected to invasion by non-native tamarisk. Historic aerial imagery indicates that tamarisk has migrated upstream from Sage Road, located directly off-site to the east, until it became the dominant vegetation throughout the entire streambed up to the eastern boundary of the proposed 19.4-acre tamarisk removal area.

1.3 Jurisdictional Areas

Wilson Creek is an intermittent drainage feature and riparian corridor that is subject to CDFG regulatory jurisdiction. The streambed area and the active floodplain between the northern and southern embankments are also considered Waters of the U.S. and thus subject to ACOE and RWQCB jurisdiction (**Figure 4, Jurisdictional Limits and Photo Locations**).

Wilson Creek is considered to support intermittent flow through the Lancaster Valley as evidenced by USGS topographic blue-line stream mapping of Wilson Creek (see Figure 2). However the flow within this portion of the creek is ephemeral in nature due to the gentle topographic relief of the streambed, the presence of excessively well drained sandy soils, and the occurrence of historic farming levees that confine the creek and minimize hydrologic inputs from historic tributaries and/or upland sheet flow¹. The Wilson Creek restoration area supports ephemeral surface flows through a braided network of low-flow channels separated by sand bars that are experiencing incision due to stabilization by dense patches of tamarisk shrubs. However, evidence of continued lateral migration of smaller low-flow channels was observed in the field. Soils within the channel are dominated by Riverwash (Rw) based on Natural Resources Conservation Service (NRCS) Soil Web mapping in Google Earth, which are typically considered to be non-soils (NRCS 2011).

Given the dynamic nature of this streambed system, the sandy ephemeral classification of the stream, and its location in the arid southwest, the limits of ACOE jurisdiction were assessed based on the limits of the active floodplain pursuant to *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ACOE, 2008). CDFG jurisdiction was assessed based on the top-of-bank of the historic farming levee along the southern extent of the boundary only, as the northern boundary is contained entirely within the floodplain of the creek. The active floodplain of the restoration area supports an average width ranging from 300-600 feet in width and includes approximately 3,000 linear feet of braided channel.

Vegetation within the study area supports dense thickets of tamarisk scrub intermixed with sparse stands of mature cottonwood trees (*Populus fremontii*) and several species of mature willow trees (*Salix* sp.) that are mainly located along the southern perimeter of the Wilson Creek study area. More drought tolerant species such as scale broom (*Lepidospartum squamatum*), tarragon (*Artemisia dracunculus*) and California buckwheat (*Eriogonum fasciculatum*), and occasional cacti specimens including prickly pear cactus (*Opuntia*

¹¹ Ephemeral streambeds generally support flow during, and immediately after, a rain event.



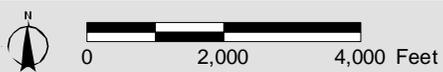
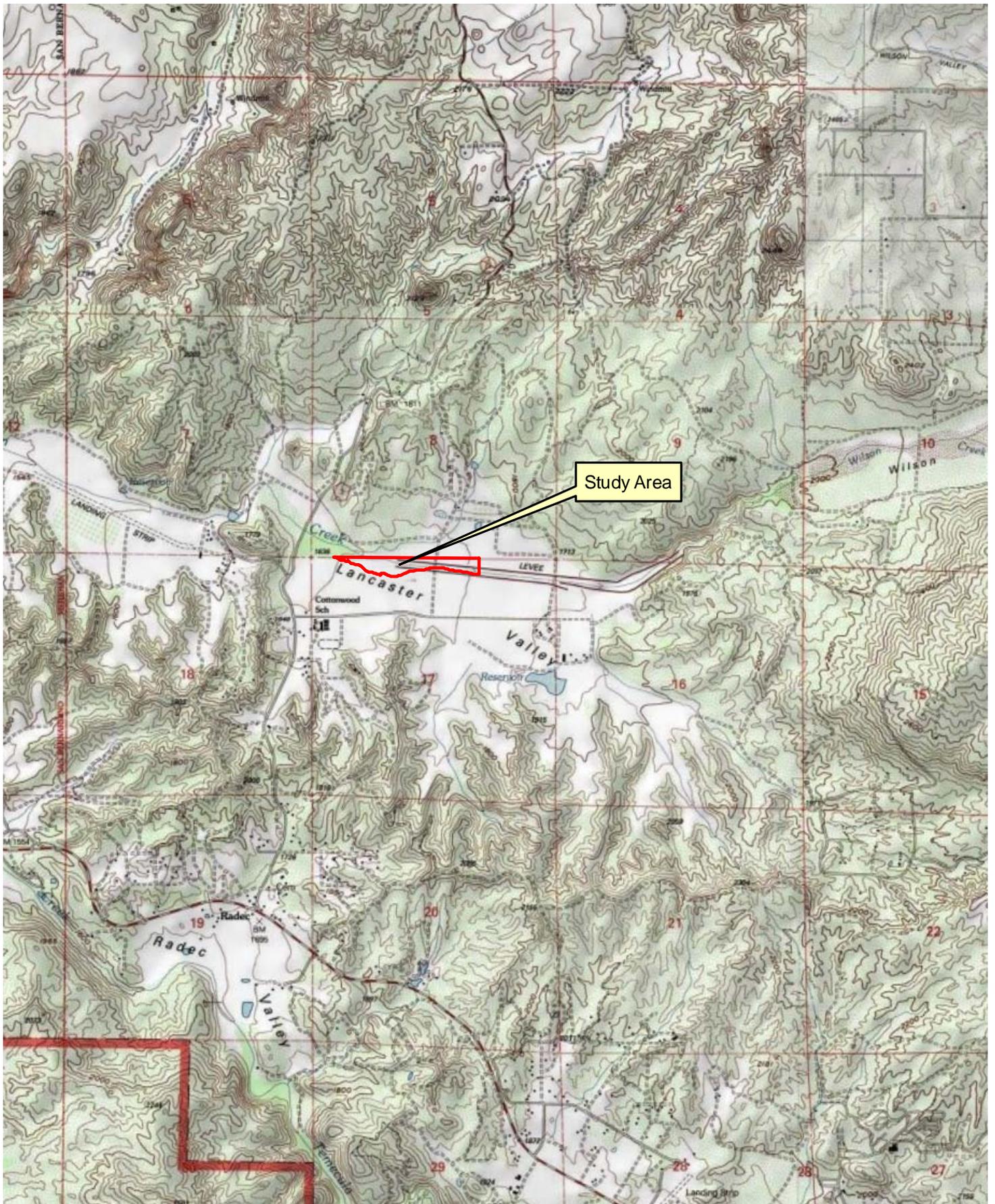
Regional Map

Wilson Creek Restoration Area

Source: ESRI Street Map, 2009; PCR Services Corporation, 2011.

FIGURE

1



Vicinity Map

Wilson Creek Restoration Area
 Source: USGS Topographic Series (, CA); PCR Services Corporation, 2011.

FIGURE
2





 ACOE Jurisdiction (18.1 acres)
 CDFG Jurisdiction (19.4 acres)
↑ Photograph Locations



Representative Photograph 1



Representative Photograph 2



Representative Photograph 3



Representative Photograph 4

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littoralis) and cholla (*Cylindropuntia* sp.) are present on the benches and low terraces within the floodplain and represent a form of alluvial scrub vegetation that is common in similar situations in this region. Representative photographs of on-site vegetation are included on (Figure 5, Representative Photographs).

1.4 Assessment of Functions and Values (HGM Assessment)

PCR has conducted a baseline functional assessment for the restoration area using the Santa Margarita Regional Riverine Hydrogeomorphic (HGM) Guidebook (Lee et al., 1997). The application of the HGM functional assessment is consistent with that of a previous assessment conducted by PCR in October 2001 for a section of Wilson Creek upstream from Sage Road, including the restoration area (PCR, 2001). The use of the HGM model for this assessment, as opposed to the California Rapid Assessment Method (CRAM) was directed by recommendations from the ACOE. The results of the HGM assessment, presented below, provide a baseline for comparison with the progress of the restoration efforts. Using the same parameters, the performance criteria for the restoration involves demonstrating functional improvements to at least two streambed functions as detailed in Section 5.1.

Methods

PCR biologists conducted a field assessment of the approximately 19-acre study area in order to characterize the physical structure, evaluate the biological condition, and assess the functional condition of the stream consistent with the HGM performed by PCR in 2001. Field investigations were performed on October 5, 2011 by PCR Principal Environmental Scientist, Amir Morales and Biologist, Zeke Cooley. Although only minor geomorphic and vegetative differences were observed throughout the study area, the creek was divided into three relatively homogenous “reaches” for the purpose of this assessment. Data was collected along three transects and used to characterize the condition of each reach. Given the homogenous nature of the vegetative cover in each reach, it was determined that one transect per reach would provide an adequate baseline assessment of functions within each reach for the purpose of this HRP. **Table 1, Location and Size of Reaches within the Study Area** provides a summary of the location and size of each reach of the study area and depicts transects that were used to evaluate that reach as depicted on (Figure 6, Transect Location Map).

Table 1

Location and Size of Reaches within the Study Area

Reach	Location	Transect	Length (feet)	Acres
1	Lancaster Valley	1	190	1.4
2	Lancaster Valley	2	1,750	12
3	Lancaster Valley	3	1,050	5

Source: PCR Services Corporation, 2011

At each transect, data was collected with regard to the physical and biological structure of the stream and a semi-quantitative functional assessment was performed using the Draft Santa Margarita Regional Riverine HGM Guidebook (Lee et al., 1997). Measures of the physical structure included channel geometry, number of geomorphic surfaces, soil characteristics and presence of hydrologic indicators. Measures of the biological

structure included documentation of the plant community composition, vertical structure of the habitat, and patchiness of different habitat types.

1.4.1 Overview of the Santa Margarita Regional HGM Guidebook

The HGM (Smith et al., 1995), developed by the U.S. Army Corps of Engineers Waterways Experiment Station assesses wetland functional capacity (as opposed to functional opportunity). The HGM approach uses variables measured in the field to compute Functional Indices for biotic, hydrologic, and biogeochemical riverine functions. Variables are the attributes or characteristics of a riverine ecosystem or surrounding landscape, that influence the capacity of a streambed to perform one or more functions. Variables are scored using an ordinal scale (in the case of the Santa Margarita model) from 0.0 to 1.0, based on their similarity to local sites with reference standard conditions. Comparing the variables assessed for the Wilson Creek study area against representative local reference sites within the same watershed, allows for a relative understanding of functional variations. Functional Capacity Indices (FCI's) are calculated based on defined relationships between variables for riverine systems that have been applied to similar resources across the watershed. FCI's range from 0 to 1.0, with 0 representing the most degraded condition and 1.0 representing functional capacity comparable to that found at standard reference sites.

The Santa Margarita Regional Riverine HGM Guidebook (Lee et al., 1997) was developed to evaluate the functional capacity of riverine wetlands and waters of the U. S. in the Santa Margarita Watershed. The regional model is divided into six subclasses and was calibrated based on data collected from approximately 150 reference sites in the watershed. Although a peer review workshop was conducted in October 1997, the recommendations that were developed from this workshop have never been incorporated into the model. Consequently, the model is still considered draft and does not comply with all requirements of the National Action Plan to Develop the Hydrogeomorphic Approach for Assessing Wetland Functions (Federal Register: August 16, 1996, Vol. 61, No. 160, pp 42593-42603).

1.4.2 Existing Stream Condition and Function

Wilson Creek is one of the major tributaries in the upper Santa Margarita Watershed. Below the confluence with Cahuilla Creek, Wilson Creek is a fourth order stream and is one of two major streams that flows into Vail Lake; the other being Temecula Creek. Through the study area, the active floodplain varies in width from 300 to 600 feet in channel width (from southern levy to northern property boundary) and encompasses a braided network of low-flow channels. The creek supports gentle topographic relief evidenced by an elevation of approximately 1,700 feet above mean sea level (msl) in Reach 1 (upstream reach) and at approximately 1,650 feet above msl in Reach 3 (downstream reach). Figure 6, depicts the Wilson Creek restoration area.

Wilson Creek is considered to support intermittent flow through the Lancaster Valley as evidenced by USGS topographic blue-line stream mapping (Figure 2) of the creek. However the flow within this portion of the creek is in ephemeral in nature due to the gentle topographic relief of the streambed, the presence of excessively well drained sandy soils, and the occurrence of historic farming levees that confine the creek and minimize hydrologic inputs from historic tributaries and/or upland sheet flow. This condition is exacerbated by the ongoing spread of tamarisk (salt cedar) that results in the reduction of available moisture from the surface and subsurface of the streambed through evapotranspiration, resulting in a drier habitat compared to pre-invasive conditions. The levees limit the ability of flows to overtop the channel and spread across the floodplain, thereby reducing the following functions: energy dissipation, surface water storage,



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detention of particulates, and detention of elements and compounds. Vegetation within the study area supports dense thickets of tamarisk scrub intermixed with sparse stands of mature cottonwood trees (*Populus fremontii*) and several species of mature willow trees (*Salix* sp.) that are mainly located along the southern perimeter of the Wilson Creek study area. Dense monotypic stands of tamarisk shrubs generally exhibit higher water-use and increased evapotranspiration rates when compared to native riparian species such as cottonwoods, willows, and mule fat. Over time, water table levels are reduced through the rapid progression of dense stands of tamarisk which results in direct competition with, and eventually mortality of, native riparian vegetation (Zouhar, 2003). Such mortality of native riparian vegetation is evident on the restoration site as much of the cottonwood and willow trees throughout the study area are significantly stressed and/or are in different stages of decline or mortality due to the long-term reduction in the water table and increased competition from invading salt cedar. The salt cedar stands have also stabilized the sand bars to the point where many of the low-flow channels are becoming more stable and incised. Figure 5 provides representative photographs of the non-native invasive dominated riparian habitat present in the study area. The location of each site photographs is depicted on Figure 4, *Jurisdictional Areas*.

Based on the NRCS Web Soil Survey in Google Earth, the restoration area encompasses Riverwash (RsC), Tujunga loamy sand (TvC) and Visalia sandy loam (VIC2), with the Riverwash soils occurring predominately in Reaches 1 and 2. Riverwash soils consist of unconsolidated sands, gravels, and cobbles that are typically considered "non-soils." Portions of Tujunga loamy sand and Visalia sandy loam occur in Reach 3 and consist of very deep, somewhat excessively drained soils, formed in alluvium weathered mostly from granitic sources.

The majority of the landscape surrounding Wilson Creek is currently in agricultural production or has been in the recent past consistent with historic conditions. The adjacent uplands off-site to the north of the study area, which is not currently in agricultural production, are relatively free of non-native grasses that are typically associated with prior clearing or grazing². The characteristics and functional condition of each reach are discussed in the sections below:

1.4.3 Reach 1 (Transect 1)

Characteristics of the Stream Reach

Reach 1 begins approximately 0.8 miles east of Sage Road, where the active floodplain habitat transitions from alluvial fan sage scrub to dense tamarisk scrub with remnant stands of cottonwood and willow trees located mainly along the perimeter of the study area. In Reach 1, the active floodplain of Wilson Creek ranges from 400 to 500 feet wide and is generally confined between earthen levees. Reach 1 supports confined flows within the creek levees, which consequently reduces the opportunity for overbank flow onto the historic floodplain. Between the levees, Reach 1 of Wilson Creek is a braided ephemeral stream, with each flow path being several feet wide and approximately one to two feet deep, with numerous interspersed sand bars dominated by tamarisk. It appears that much of the cottonwood and willow trees in this area, and throughout the study area, are significantly stressed, and many are in different stages of mortality likely due to the long-term reduction in the water table and competition from invading salt cedar. The interior portion of the creek is dominated by dense thickets of tamarisk scrub. In this area, the salt cedar grows in monotypic

² A general biological assessment of the upland resources south of the study area has been completed by PCR Services Corp. (2001), and is available under separate cover.

stands and has largely excluded the establishment of cottonwood or willow saplings and/or seedlings resulting in the presence of sparse old growth native vegetation. The salt cedar stands have also stabilized the bars to the point where some of the flow areas are beginning to incise. Total canopy cover is estimated at approximately 55 percent of the total study area. Overall, salt cedar accounts for between 65 percent and 75 percent of the canopy cover in Reach 1. Areas adjacent to the creek (outside the levees) are primarily ruderal or agriculture.

Functional Condition

As indicated in **Table 2**, *HGM Functional Index Scores for Wilson Creek*, the average Functional Capacity Index (FCI) scores were 0.55 or greater. Hydrologic and biogeochemical functions are depressed due to the constriction of the floodplain between the earthen levees. The levees limit the ability of flows to overtop the channel and spread across the floodplain, thereby reducing the following functions: energy dissipation, surface water storage, detention of particulates, and detention of elements and compounds. Reach 1 supports less structurally diverse riparian habitat than the downstream reaches of the Wilson Creek study area. The dominant vegetation type within the interior portion of Reach 1 is the non-native invasive salt cedar, which reduces habitat function for most organisms. Reach 1 supports riverine functions that have been reduced significantly due to the spread of invasive salt cedar.

Table 2

HGM Functional Scores for Wilson Creek Assessment Area

	Transect		
	1	2	3
Hydrologic Functions			
Maintenance of Characteristics Channel Dynamics	0.58	0.64	0.47
Dynamic Surface Water Storage and Energy Dissipation	0.38	0.54	0.38
Long-term Surface Water Storage	0.50	0.50	0.50
Dynamic Subsurface Water Storage	0.67	0.67	0.67
	0.53	0.59	0.50
Biogeochemical Functions			
Nutrient Cycling	0.25	0.42	0.17
Detention of Imported Elements and Compounds	0.41	0.50	0.38
Detention of Particulates	0.46	0.61	0.43
Organic Carbon Export	0.56	0.65	0.55
	0.42	0.54	0.38
Habitat Functions			
Maintain Characteristic Plant Community	0.35	0.40	0.25
Maintain Habitat Interspersion and Connectivity	0.45	0.55	0.55
Maintain Characteristic Detrital Biomass	0.75	0.83	0.71
Maintain Spatial Structure of Habitat	0.50	0.56	0.42
Maintain Characteristic Invertebrate Diversity	0.75	0.75	1.00
Maintain Characteristic Vertebrate Diversity	1.00	1.00	1.00
	0.63	0.68	0.66

Source: PCR Services Corporation, 2011

1.4.4 Reach 2 (Transect 2)

Characteristics of the Stream Reach

Reach 2 begins 0.6 miles east of Sage Road, where stream habitat consists of dense tamarisk intermixed with patches of cottonwood and willow trees. In Reach 2 Wilson Creek ranges from 400 to 600 feet wide and is generally confined between earthen levees. Reach 2 appears to be effective at containing flows within the creek, and consequently reducing the opportunity for overbank flow onto the floodplain. Between the levees, Reach 2 of Wilson Creek is a braided stream, with each flow path being several feet wide and approximately two feet deep, with numerous interspersed vegetated sand bars. It appears that most of the cottonwood and willow trees in Reach 2, and throughout the study area, are significantly stressed and many are in different stages of mortality likely due to the long-term reduction in the water table and competition from invading salt cedar. Similar to Reach 1, in Reach 2 the salt cedar grows in monotypic stands and has largely excluded the establishment of cottonwood or willow saplings and/or seedlings, leaving only old growth native trees in the area. The salt cedar stands have also stabilized the bars to the point where some of the flow areas are beginning to incise. Total canopy cover is estimated at approximately 60 percent in Reach 2. Overall, salt cedar accounts for between 70 and 75 percent of the canopy cover in Reach 2.

Functional Condition

As indicated in **Table 2**, *HGM Functional Index Scores for Wilson Creek*, below, the average FCI scores for all functions ranged from 0.64 to 0.70. Hydrologic and biogeochemical functions are depressed due to the constriction of the floodplain between the earthen levees. The levees limit the ability of flows to overtop the channel and spread across the floodplain, thereby reducing the following functions: energy dissipation, surface water storage, detention of particulates, and detention of elements and compounds. The dominant vegetation type within the interior portion of the creek is the non-native salt cedar, which reduces habitat function for most organisms. Reach 2 contains a 400 to 600-foot wide riparian corridor that supports riverine functions which have been reduced due to the infestation of invasive salt cedar.

1.4.5 Reach 3 (Transect 3)

Characteristics of the Stream Reach

Reach 3 begins approximately 0.4 miles east of Sage Road, where the streambed associated habitat transitions from tamarisk scrub with intermixed cottonwood trees, to a disturbed mule fat scrub among dense stands of tamarisk shrubs. In Reach 3 Wilson Creek ranges from 300 to 400 feet wide and is generally confined between earthen levees. Reach 3 appears to be effective at containing flows within the creek, and consequently reducing the opportunity for overbank flow onto the historic floodplain. Between the levees, Reach 3 of Wilson Creek is a braided stream, with each flow path being several feet wide and approximately one to two feet deep, with numerous interspersed vegetated sand bars. Reach 3 exhibits field indicators of ephemeral flow; however, this reach supports a slightly wetter plant community than Reaches 1 and 2. A backwater effect behind Sage Road may contribute to greater soil moisture in this area compared to other Reaches 1 and 2 upstream. In this reach, salt cedar grows in monotypic stands and has largely excluded the establishment of cottonwood or willow saplings and/or seedlings. Although vegetative cover is less than Reaches 1 and 2, a slightly greater density of native mule fat has established in this area.

Functional Condition

As indicated in Table 2, the average FCI scores for all functions associated with Reach 3 range between 0.43 and 0.67. The individual FCI scores for Reach 3 range between 0.25 and 1.0. Hydrologic and biogeochemical functions are depressed in this area due to the constriction of the floodplain between the earthen levees. Reach 3 supports less structurally diverse riparian habitat than the upstream portions of Wilson Creek. However, the dominant vegetation type within the interior portion of the creek is the non-native salt cedar, which reduces habitat function for most organisms. Total canopy cover is estimated at approximately 50 percent in Reach 3. Overall, salt cedar accounts for between 65 and 70 percent of the canopy cover in Reach 3. Reach 2 contains a 300 to 400-foot wide streambed corridor that supports riverine functions which have been reduced significantly due to the spread of invasive salt cedar.

1.4.6 Summary of Wilson Creek Functional Condition

All 3 reaches represent intact riverine systems with low to moderate topographic and geomorphic complexity, and spatially and structurally low habitat diversity. The historic floodplain adjacent to the study area has been subjected to anthropogenic alteration through the construction of levees dating back over 100 years. The levees limit the ability of flows to overtop the channel and spread across the floodplain, thereby reducing the following functions: energy dissipation, surface water storage, detention of particulates, and detention of elements and compounds. No direct impacts from anthropogenic disturbance within the streambed were observed. The Wilson Creek floodplain is contiguous up and downstream, but is laterally confined within a relatively broad floodplain area bound within the farming levees. Reaches 1, 2, and 3 support a reduced functional capacity compared to pre-anthropogenic influences due primarily to constriction of the floodplain and significant infestation with non-native salt cedar. The average FCI for these reaches ranges from 0.43 to 0.70, indicating that this portion of Wilson Creek supports a measureable reduction in function and value compared to more pristine riverine resources within the region. Construction of earthen levees has reduced floodplain connection, resulting in lower hydrologic and biogeochemical functions. In the study area, the high rates of infiltration into the deep alluvium of the Lancaster Valley, combined with the high rates of evapotranspiration from salt cedar infestation have resulted in a more xeric habitat. The habitat in the assessment area has substantially lower structural and spatial diversity than similar reference reaches within the watershed. Removal of salt cedar, and native restoration through the installation of local vegetation cuttings are believed to be the most productive methods to increase hydrologic, biogeochemical, and/or habitat functions within this portion of Wilson Creek.

2.0 GOAL FOR RESTORATION

Under this plan, the goal of the prescribed enhancement and restoration efforts is to eliminate the current coverage of noxious invasive weeds in the project area and promote replacement of the non-native vegetation with appropriate native riparian species. This goal will be accomplished using a two-part approach that includes 1) clearing the site of noxious vegetation followed by selective weed control for several years, and 2) progressively planting and seeding the site to restore native plant coverage in this segment of Wilson Creek.

These efforts are expected to result in improvement in two or more of the important characteristic functions and values attributed to this resource area. The improvements in resource functions and values is planned to provide mitigation for third parties that are required to provide compensatory habitat mitigation for

unavoidable project impacts in the local region. Implementation of compensatory mitigation measures will be subject to review and approval of a project-specific Habitat Mitigation and Monitoring Plan (HMMP) by the appropriate resource agencies. Project-specific HMMP's will be prepared and implemented by Wilson Creek Farms, LLC on behalf prospective permittees to ensure consistency with the intent and framework of this restoration Plan.

Proceeds from the granting of compensatory mitigation within the restoration area are anticipated to assist with funding of the following activities:

1. Implementation of the restoration efforts summarized in this Plan, which will be accomplished on a project-by-project basis through individual Habitat Mitigation and Monitoring Plans (HMMP) that will be reviewed and approved by the resource agencies to ensure consistency with this plan as appropriate.
2. Installation of piezometers to collect water table readings over the course of this Plan.
3. Preparation and processing of a prospectus and associated HMMP for 30-100 acres of streambed creation in Wilson Creek (upstream of the restoration area) through the lateral expansion of existing levees.
4. ACOE approval of the proposed upstream streambed creation area as part of a private mitigation bank for compensatory streambed mitigation.

2.1 Habitat Enhancement and Restoration Concept Plan

This plan consists of two parts. The first part involves enhancement through the eradication of Tamarisk from the project site; part two consists of habitat restoration by re-establishing native riparian vegetation in areas cleared of tamarisk.

2.1.1 Enhancement – Tamarisk Eradication (Part One)

Tamarisk eradication – the first part of the plan - constitutes substantial enhancement of the project area for at least two reasons. First, it provides an ample opportunity for restoration by providing open areas for establishing natural riparian habitat. Second, it should also significantly reduce water loss from this part of the hydrologic system via evapotranspiration, which is believed to be disproportionately high in areas dominated by tamarisk. Part one is proposed to commence immediately (e.g., November 2011) and will occur throughout the 19.4-acre project area in this sandy ephemeral floodplain. Eradication will first involve cutting and stump treatment of standing live tamarisk with the aboveground portion of plants being ground up in place using a flotation tire-mounted Barko Fecon mulcher. In addition to initial tamarisk removal and stump treatment with herbicide, other noxious invasive species such as tree tobacco (*Nicotiana glauca*) and castor bean (*Ricinis communis*) will also be cut and stump treated wherever they may occur on the project site. Subsequent to initial removal and treatment of these invasive exotic species, the entire project area will be monitored for re-growth and treated as needed to eliminate these species for five years.

2.1.2 Restoration – Progressive Planting (Part Two)

Restoration of native riparian vegetation is proposed to be conducted in a total area covering approximately 19.4 acres comprising the “site”. Establishment of native vegetation is not currently proposed to commence

all at one time, although it is entirely possible that planting may occur in just one or two phases instead of three. In any case, planting will start upstream and progress downstream. The first round of planting in the first phase of the restoration is proposed to formally commence in the late fall next year (2012). Phase 1 is expected to involve at least three to five acres near the eastern, upstream end of the. The second phase, as presently envisioned, would commence one year later, and the third phase the year after that, with each subsequent phase expected to include 5 acres or more, downstream from the previous phase area. Figure 4 depicts the progressive planting scheme and shows the separation between the phases as a dashed line since the exact acreage of each phase is not yet certain but will depend on the amount of mitigation required by participants.

2.1.3 Pilot Planting Project

Once initial tamarisk removal is completed, a preliminary trial or “pilot project” will be conducted to test and evaluate planting materials and methods within one or more small portions of the enhancement area. The location and extent of the pilot areas will be determined by Wilson Creek Farms based on recommendations by PCR and/or the RM. However, this HRP anticipates the implementation of 1-3 pilot project areas ranging from approximately 0.10-0.50 acre. The pilot program is being implemented voluntarily by Wilson Creek Farms to help identify the most successful approach to reestablishing native vegetation prior to implementation of Part 2 of this HRP (see Section 2.1.1). Planting in the trial site(s) will include installation of cuttings of native riparian scrub and woodland species such as mule fat, willow, and cottonwood, at varying soil depths, along with seed applications in a few patch areas. The trial effort is planned to avoid or minimize the use of supplemental irrigation as much as possible. If the weather is particularly dry and/or hot during the winter and spring months, or if the majority of installed plant materials appear to be severely stressed, supplemental irrigation may be applied. If applied, irrigation would involve direct hose application to installed plants and/or spray application directed into specific areas for short periods until the desired area is irrigated appropriately.

Seed germination, survivorship of cuttings, and potential irrigation requirements will be observed by Wilson Creek Farms and the knowledge gained from the trial planting and seeding will help determine the best methods and materials to be used during the actual planting effort that will commence with Phase 1 in 2012. Pilot project areas not immediately subject to performance criteria, but will ultimately be integrated into project-specific restoration efforts that will be subject to the performance criteria detailed in Section 5.1 of this HRP. The Year 2 monitoring “time clock” associated with project-specific mitigation areas will commence upon implementation of the Part 2 native revegetation efforts detailed in Section 2.1.1, and will include those project mitigation areas that may encompass a pilot site. Although implementation of pilot trial sites will occur immediately after the tamarisk removal enhancement (Part 1), and prior to the installation of project-specific restoration, trial sites will be integrated into project-specific mitigation areas by supplementing them with native vegetation as needed to meet the necessary vegetation densities proposed for the restoration effort (Part 2).

2.2 Functions and Values to be Improved

Implementation of this Plan is anticipated to provide both local and regional streambed benefits through the replacement of noxious tamarisk with native riparian vegetation, and the eradication of a significant source of tamarisk seed from the Wilson Creek sub-watershed. Although most streambed functions are expected to significantly increase over the long-term, the scope of this restoration Plan and associated five-year

monitoring schedule³ will be to demonstrate a benefit to a minimum of two of the following streambed functions:

1. Hydrology Function
2. Biogeochemical Function
3. Habitat Function

Successful performance of a minimum of two, of the three functions listed above, will be based on 1) the HGM results, 2) the percent native/non-native coverage, 3) the groundwater elevation results, or any combination of these factors that will be assessed in years 3 and 5 of the restoration monitoring effort. Functions assessed as part of the HGM assessment for this restoration Plan include all three streambed functions (hydrologic, biogeochemical, habitat) as detailed in Section 1.4 of this Plan. Estimation of riparian native/non-native coverage will support habitat based streambed functions, while groundwater elevation monitoring may support a determination of an increase in hydrologic streambed function.

The prescribed efforts will improve habitat quality by greatly decreasing noxious weed cover in favor of increased cover and diversity by native vegetation. In turn, the shift from tamarisk dominance to native dominance should improve nutrient cycling and increase subsurface water storage through decreased evapotranspiration rates. Although piezometers (wells) will be installed to monitor subsurface (water table) conditions, it's unclear if data from the wells will conclusively demonstrate a measurable increase in water table elevations over the scope of this restoration Plan. However, data will be kept over the course of the proposed phases of restoration in the event that useful information regarding the correlation of water table elevations and the reduction of salt cedar can be derived.

Establishing substantially higher percentages of native vegetative cover throughout the drainage feature as compared with the existing conditions is intended primarily to improve wildlife habitat values. Other intended benefits will include improved water quality through improved bio-filtration effects, dissipation of energy from storm flows within the braided washes, and soil stabilization. In general, establishing native vegetation in the subject area is intended to:

- Provide reasonably effective erosion control to deter channel and habitat degradation by natural flows;
- Enhance hydrologic and biogeochemical functions by reducing vegetative evapotranspiration rates contributing to more natural soil moisture levels;
- Enhance Beneficial Uses for Wilson Creek including an increase in "groundwater recharge" benefits within the restoration area through removal of tamarisk;
- Enhance biological values (e.g., species diversity, forage and cover for wildlife), as compared with existing conditions, by replacing existing ruderal (weedy) vegetation with predominantly native plants;

³ *The monitoring schedule proposed by this restoration Plan is anticipated to include one year of monitoring following tamarisk removals (part 1) followed by four years of monitoring after installation of native vegetation (part 2).*

- Substantially deter the establishment, reestablishment, and migration of particularly noxious invasive species (e.g., tamarisk, tree tobacco, giant reed, perennial pepperweed, castor bean).

2.3 Rationale for Expecting Successful Implementation

Successful implementation of habitat restoration may be expected based on the following factors:

- Tamarisk eradication methods have proved successful in other sites in the region.
- The plant palettes consist of site-appropriate native species and include dominant and common native species found in existing habitat on-site in Wilson Creek.
- Plant palette includes long-lived dominant perennial grasses and short-lived, aggressive “weed beater” species, nitrogen-fixing legumes, and mycorrhizal hosts.
- Planting will take place during the appropriate seasons and supplemental irrigation will be provided in case of extended drought conditions during the establishment period.
- The riparian restoration areas are situated in the low-lying floodplain with less than 3 feet elevation difference between the planting surface and the near adjacent braided low-flow stream bottom. Runoff from large tracts of adjacent agriculture on both sides of this segment of Wilson Creek is also anticipated to provide significant subsurface flows to the subject area along with storm runoff from the surrounding hillsides.

2.4 Responsible Parties

Wilson Creek Farms LLC, or its successors in interest or assigns, is responsible for implementation of the habitat restoration and monitoring efforts and will provide funding to implement this plan. Wilson Creek Farms intends to assign responsibilities for various plan elements to representative agents or contractors it engages to implement or oversee various plan elements. The planting and maintenance actions prescribed under this plan will be conducted or directed by a contractor with demonstrated habitat restoration experience. It will also be necessary to provide for adequate oversight, monitoring, and periodic assessment and reporting of planting and maintenance activities and site progress.

Therefore, a qualified firm with experience in planning and monitoring native habitat creation projects in the region should be retained by Wilson Creek Farms or its designated agent/representative for this purpose. The monitoring firm, hereinafter referred to as the Restoration Monitor (RM) will oversee implementation of all elements of this plan and will advise and assist Wilson Creek Farms or its designated representative and its contractor(s) with issues pertaining to the mitigation effort. The RM will:

- Provide appropriate recommendations where discretion or remedial measures are indicated and will be responsible for documentation and agency coordination.
- Observe the critical phases of habitat implementation including site preparations, topsoil salvage and redistribution, irrigation system function, seeding, and supplemental planting (if required).
- Document deviations from the plan and provide reasonable justification for changes.
- Periodically observe, assess and document maintenance activities and habitat development until the performance criteria have been satisfied.

- Communicate to the Applicant or designated representative regarding site implementation, maintenance activities, and habitat creation progress, and prepare annual monitoring reports for submittal to CDFG, ACOE, and RWQCB, if required.

3.0 ENHANCEMENT AND RESTORATION – GUIDELINES AND SPECIFICATIONS

3.1 Enhancement – Tamarisk Eradication

It is anticipated that initial tamarisk removal efforts will be conducted by Washburn Grove Associates (contractor), a licensed/bonded/insured company, with significant experience conducting large-scale mechanized and non-mechanized non-native invasive vegetation removals within jurisdictional streambeds. Tamarisk will be removed by cutting, grinding, and stump treatment of tamarisk with approved herbicides by licensed applicators, using low pressure rubber-tired mechanized equipment. Tamarisk shrubs adjacent to native riparian vegetation will be removed by hand crews with chain saws. Tamarisk removal is anticipated to take approximately one week. In the event that significant rain events are forecasted in the Aguanga area, the tamarisk removal effort will be temporarily demobilized and all equipment removed from the streambed until the next dry period. Tamarisk cuttings will be stock piled within the floodplain outside of low-flow channels, and will be protected with the appropriate Best Management Practices (BMP's) during rain events to minimize transport downstream. The RM (a qualified biologist) will conduct a thorough site inspection with the contractor to assure that native vegetation is avoided during tamarisk removals to the extent feasible. The RM will assist the contractor and perform subsequent inspections as necessary to observe that impacts to native vegetation are avoided.

Access to the site is available via existing unpaved Arizona crossings to the east and west of the nearly 21-acre tamarisk removal area. Cutting and mulching will be performed using a Barko 930 Mulcher with a Recon Cutting Head mounted on low ground pressure flotation tires to minimize ground disturbance. Applicators will follow immediately behind the cutting and mulching equipment to uncover fresh cut stumps and apply herbicide directly.

Subsequent herbicide applications will be necessary for at least two to three years after initial cut-stump treatments to assure complete eradication. Follow up treatments will generally consist of low volume foliar spray applications wherever new tamarisk or regrowth appears. Herbicide applications will be conducted in accordance with product labels and manufacturer's instructions and/or as directed by a licensed Pest Control Adviser. Monitoring and maintenance will continue for at least three years to assure effective eradication as described in Section 4 below.

3.2 Restoration – Planting and Seeding

Areas that do not already contain native vegetation in the 19.4 acre site will receive seed and/or be planted with appropriate plant materials representing the existing native species that naturally occur in this section of Wilson Creek. In general, the lower-lying areas will be planted and/or seeded with species typical of riparian scrub and cottonwood-willow riparian woodland while the more elevated areas (e.g., terraces and upper benches) in the floodplain should be seeded with more drought tolerant alluvial fan scrub species such as California buckwheat and scale broom. The combination of proposed seeding of representative plant species in both habitat types, along with installing cuttings or containerized native trees and shrub plantings are expected to provide stratified canopy coverage.

Results of seeding and planting observed in the trial planting pilot project area will be used to refine the selection of the specific plant materials and techniques to be used. Cuttings and/or container plantings (if used) will be installed during late fall or winter using materials, densities, and techniques derived from the pilot project results.

As each phase of the Restoration effort commences, specific planting area acreage will be identified and the portion of the area where tamarisk has been removed will be planted and/or seeded with appropriate native species. Seeded areas will then be raked over lightly with available mulch and loose dirt to protect the seed bed and deter weed germination.

Supplemental irrigation may be supplied by installing and operating a temporary irrigation system designed and built to provide overhead spray coverage within planted areas.

Maintenance will consist primarily of weed control and would be required mostly during the spring and early summer months.

Monitoring of the revegetation process will be conducted periodically throughout the year and annual performance evaluations will be performed in the summer when the site is driest. Annual monitoring reports will be submitted to the resource agencies, if requested, describing the site's performance through the year and any supplemental planting conducted.

3.3 Schedule

Enhancement efforts involving initial mulching and stump treatments to eradicate tamarisk is expected to commence by mid-November 2011. The trial planting and seeding in the pilot project will commence directly thereafter in December 2011. Planting and seeding efforts in subsequent Phases 1, 2, and 3 (depending on actual schedule for phased planting TBD), to formally commence progressive habitat restoration in selected areas, are expected to commence in the late fall of 2012, 2013, and 2014, respectively. Initial seeding and installation of cuttings and container planting (if any) should be conducted during the late fall and early winter (October 15 - January 15) after installation of a temporary irrigation system (if needed). Likewise, supplemental planting and seeding (if needed) should be conducted in the late fall or early winter in subsequent years.

3.4 Site Preparations

Site preparations prior to planting in each of the sections of the restoration site, by phase, may include a certain amount of clearing ruderal (weedy) vegetation and excessive accumulations of vegetative debris (as may be left behind by mulching tamarisk) to provide exposed soils for planting and seeding. This effort should be accomplished by manual raking. If substantial ruderal cover becomes established in areas slated for seeding or planting, it may be advantageous to perform a selective foliar herbicide application several weeks, in the spring and/or just prior to planting to reduce weed cover in specific planting sites.

Depending on the results observed in the pilot project, it may also be desirable to provide for temporary irrigation to sustain plants for the first two to three years after planting.

3.4.1 Temporary Irrigation

The prescribed upland habitat type is composed mainly of drought tolerant species and is not expected to require supplemental irrigation beyond the first three years during plant establishment.. However, if the results of the pilot project indicate the need to provide temporary irrigation in order to promote seed germination and plant establishment and growth, particularly in case of extended drought conditions, a temporary irrigation system may be needed. If so, it will be necessary to provide a reliable connection to the local water source and may be prudent to provide a water tank and pumping device(s) to assure sufficient volume and pressure is available for use.

Since the irrigation system will not be a permanent installation, a simple surface system with a basic layout is recommended, and no elaborate landscape plans or designs are necessary; only a basic “design-build” is warranted. The system should provide overhead spray coverage throughout the specific areas designated for planting and seeding. Supplemental irrigation applications will follow the natural rainfall patterns, with watering provided to assist with germination and establishment of plantings. Supplemental irrigation is typically decreased in the second year after planting and discontinued at the end of three years following plant installation. The RM should determine adjustments to irrigation scheduling and whether to discontinue and remove irrigation at 2-3 years.

3.4.2 Pre-Planting Weed Control

If necessary, prior to planting in each successive phase area, control of perennial woody species such as castor bean, tamarisk, and tree tobacco and other noxious perennials may include cutting and removal followed by direct stump treatment with herbicide. Annual herbaceous weeds may be mowed or weed whipped before they can germinate to prevent growth, flowering and seed set. Any pesticide application must be performed in coordination with the RM and must be conducted or directly supervised by someone in possession of either a Qualified Applicator License (QAL) or a Qualified Applicator Certificate (QAC) issued by the California Department of Pesticide Regulation (DPR).

3.5 Planting Plan

In general, planting and seeding will be performed in areas that are currently occupied by tamarisk or are otherwise lacking significant native cover. Tamarisk cover currently ranges from 25 to 50 percent of total cover in most patch areas. However, existing native vegetation also provides up to 25 percent or more of the cover in some areas. Therefore, on average, planting and seeding is expected to be performed in not more than about half the acreage in any given patch area. Thus, the quantities of plants to be installed or pounds of seed applied per acre, is substantially lower for this project than it would typically be if the areas exhibited little or no vegetation. Moreover, in order to install plants or apply seed in some areas where tamarisk cover was particularly dense prior to treatment and mulching, patches may need to be raked clear of excessive organic debris to expose soil in preparation to receive plants or seed.

Initial seeding and planting must be conducted during the late fall or early winter and should not be performed later than January 15 to maximize the benefits of natural precipitation and cool weather for germination and growth seedlings as well as for rooting and development of cuttings and container plants through the rainy season.

3.5.1 Plant Materials

Seed materials should be derived from the local region. Installing propagules of local origin, which are adapted to local conditions, increases the likelihood that revegetation will be successful, and helps to maintain the genetic integrity of the local ecosystem. However, widespread herbaceous species and grasses are more likely to be genetically homogeneous and site specificity is a less important consideration. Therefore, seed for native grasses and wildflowers may be procured from commercial sources in Southern California, unless local sources are readily available. If seed for certain species is unavailable in the local area, the RM will request information regarding available sources in the region and determine whether more distant sources will be acceptable.

Container plants will be grown from local obtained cuttings or from reputable nurseries in the region that specialize in native and drought tolerant plants (e.g., Native Grow, Mockingbird Nursery, Tree O'Life). Container stock originating from cismontane southern California may be used. For species that occur over widespread areas in southern California, it is not critical to procure custom grown, site-specific plant materials.

The species selected for planting and seeding are listed on **Table 3, Riparian Scrub - Cuttings**, and **Table 4, Riparian Habitat Seed Palette**, respectively. All species listed were observed on site and/or are native to the local area. The total number and type of cuttings installed may be modified, or cuttings may be substituted with rooted container plants, subject to approval by the RM.

Table 3

Riparian Scrub – Cuttings (per acre)

Scientific Name	Common Name	Size	Quantity (spacing)
<i>Baccharis salicifolia</i>	Mule fat	Cuttings	450 (8' - 10')
<i>Populus fremontii</i>	Cottonwood	Cuttings	25 (15'-20')
<i>Salix exigua</i>	Sandbar willow	Cuttings	50 (10'-12')
<i>Salix laevigata or gooddingii</i>	Red or Black Willow	Cuttings	50 (10'-12')
<i>Salix lasiolepis</i>	Arroyo Willow	Cuttings	50 (10'-12')

Source: PCR Services Corporation, 2011

3.5.2 Installing Cuttings or Container Plant Stock

Only native riparian species that are indigenous to the area will be planted. Willows (*Salix* spp.) and mule fat are used extensively due to their high survival rates and commonness in the project area. Some cottonwoods will be planted at low densities in an effort to supplement the plant palette given the presence of cottonwoods in the area today. However, the successful establishment of cottonwood saplings may be not be feasible over a 5 year period, given the long-term reduction of the water table by tamarisk and the generally poor health of many of the existing cottonwood specimens on the site due to the tamarisk invasion. Cottonwoods that do not survive installation may be replaced by willows and/or mule fat per the discretion of the RM.

Table 4
Riparian Habitat Seed Palette – Seed Rate (per acre)

Botanical Name	Common Name	Life Form	Seed Count	Total Bulk Lbs.
<i>Ambrosia psilostachya</i>	Western ragweed	Herb	20,000	2.0
<i>Artemisia douglasiana</i>	Mugwort	Forb	500,000	1.0
<i>Artemisia dracunculus</i>	Tarragon	Sub-shrub	350,000	1.0
<i>Baccharis salicifolia</i>	Mule fat	Shrub	12,000,000	0.5
<i>Cressa truxillensis</i>	Alkai weed	Herb	60,000	0.3
<i>Eriodictyon crassifolium</i>	Yerba santa	Shrub	500,000	1.0
<i>Eriogonum fasciculatum</i>	Cal. buckwheat	Shrub	20,000	3.0
<i>Heliotropium curassavicum</i>	Wild heliotrope	Herb	900,000	0.2
<i>Lepidospartum squamatum</i>	Scale broom	Shrub	390,000	0.5
<i>Muhlenbergia rigens</i>	Deergrass	Grass	1,500,000	1.0
<i>Plantago insularis</i>	Plantain	Herb		6.0
			Subtotal (Pounds)	16.5

Source: PCR Services Corporation, 2011.

Cuttings should be collected and installed during the winter season when the plants are dormant before the leaves utilize the food reserves stored in the stem. When planted during the season of relative dormancy food reserves will be primarily used in the development of a root system if the stem is in contact with moisture.

Collecting and Installing Live-stakes (Plant Cuttings):

Plant cuttings will be collected locally and installed during periods of ample moisture, preferably during the winter season, to ensure establishment of the root system.

- Collect cuttings from many individual plant specimens in the immediate area. To improve survival, cuttings should be at least 40" long, preferably 48" or more, to enable planting at least 3' of the stake in the ground for maximum soil contact and proximity to ground water.
- Make the cuttings as straight and clean as possible so there are no split ends or torn bark. The optimum diameter is one inch and the minimum length is 40 inches with 48 inches preferred when practical.
- After the cutting is removed from the tree, cut off the side branches as close to the stem as possible. Cut the stem to the chosen length and remove any leaves.
- Sharpen the bottom of the cutting to aid in staking. Keep cuttings moist at all times by storing them in water or covering with a wet fabric until they are planted.
- Punch a hole in the desired planting location to a minimum depth of 3'. A long pry bar is typically used to open the hole to insert the live stake.
- Irrigate the hole (i.e., using a hose or bucket of water) prior to inserting the live stake.

- Drive the cutting into the ground until 75 to 80 percent of the length is below ground (about 3 feet of a 48" stake).
- Maximize soil contact by firmly tamping the soil around the stake. It must be firmly in the ground so it cannot be easily moved or pulled up.

Installing Container Plants

Planting is presently proposed to rely primarily on the use of locally collected cuttings. However, planting rooted container stock from one or more species of the same group of woody riparian plants is also acceptable and may be an appropriate alternative. Therefore, the pilot project effort is intended to utilize some plantings of rooted container plants using one gallon or smaller container sizes. As this is the case, and planting in the successive project phases may utilize such materials for planting in place of or as a supplement to installing live stake cuttings, the following guidelines are provided for storing and planting container stock:

- **Container Plant Inspection.** The RM will inspect all container plants upon delivery and reject any specimens that are unsatisfactory (e.g., diseased, root bound, wrong species, etc.) and should specify storage areas and watering requirements until specimens are planted to prevent overheating or drying out.
- **Root Protection.** Roots should be adequately protected at all times from sun and/or drying winds.
- **Planting Holes.** All planting holes should be dug with a shovel or posthole digger. The holes should have vertical sides with roughened surfaces, and be initially excavated to a depth to at least twice as deep as the container plant's root ball and two times as wide.
- **Planting Location Preparation.** Existing non-native vegetation, thatch, and debris must be cleared at least 18 inches away from plant centers (e.g., clear a 3-foot diameter area around each planted stem).
- **Container Plant Preparation.** The root ball should be thoroughly soaked while still in the container. After removing the root ball from the container, any roots wrapped around the sides of the container should be pulled loose from the root ball. The sides of the rootball may need to be scarified and tangled roots pulled free to promote new root growth into the surrounding soil.
- **Mycorrhizal Inoculation.** Add and thoroughly mix three (3) teaspoons of mycorrhizal fungi inoculum, either Endonet or Bionet to native backfill material replaced in each planting hole.
- **Watering In Plants.** After excavation and before planting, planting holes should be thoroughly wetted by filling each empty hole approximately half full with water, then backfill with thoroughly broken up native topsoil, then add water to the filled hole and tamp down firmly to eliminate air pockets and avoid excessive settling after installation.
- **Installing Plants.** Set the root ball atop the moistened soil backfill so that the collar (crown) sets between one-half inch to one full inch higher than the finished grade (or mean grade on slopes). Thoroughly water at least once or twice again after plants are set. Check each plant after deep soaking to determine whether the specimen has sunk. Replant if necessary to reset crown slightly above grade.

Irrigation basins or berms should be formed around each plant (downslope side only, for plantings set on slopes) to trap water so that it infiltrates the root zone. Berms must be tamped firmly to form at least a 2 inches high ridge at a minimum 18-inch radius around the stem.

- **Initial Watering.** Each plant must be individually watered at the time of planting as specified above, with sufficient water to reach to the lower roots.
- **Mulching.** A 1 inch to 2-inch thick top dressing of coarse, organic, weed-free mulch (e.g. bark, woodchips) is recommended to be placed around each plant stem to cover the entire basin area (at least 2-foot diameter). “Green waste” is not an acceptable form of mulch material.
- **Post-planting Irrigation.** Shortly after plants are set and mulch is placed, each specimen should receive additional hand watering as follows. Irrigate from the top, filling the basin with water and sprinkling around to settle the backfill, mulch, and berm. Allow water to soak in and repeat.

3.5.3 Seed Application

Manual broadcast seeding and raking will be performed to selectively distribute and lightly rake seed into the soil in the restoration areas. Seed shall be spread in patches that are relatively free from excessive amounts of organic debris and existing vegetation. In some cases, only very small amounts of seed may need to be scattered within the interstitial spaces where soil is exposed between clumps of existing vegetation. The seed palette provided in Table 4 may be pre-mixed, but it is recommended that the more drought tolerant species (e.g., scale broom and buckwheat) should be spread separately on the highest ground in the restoration area such as across the upper benches and embankments. Specifications for seed materials, rates and application technique may be adjusted by the RM, based on performance observed in the pilot project site and based on specific site conditions.

Seeded areas should be thoroughly watered with a fine spray as soon as possible after application (i.e., same day or next day). Therefore, it is recommended that initial seeding be performed when a significant rain event is forecast in the immediate future. It is also recommended that seed applied in barren areas should be protected by spreading a thin application of certified weed-free straw or other carbon based mulch (e.g., bark, wood chips) over seeded areas. Carbon-based mulch materials absorb the soil nitrogen, reducing the high nitrogen levels that promote rapid weed growth. The carbon based materials later breakdown providing a slow release of nitrogen back to the native plants within a year or two.

3.6 Install Complete (As-Built) Reports - For Each Phase

An As-Built Report will be prepared within 30 days of implementing the initial enhancement effort to cut down and chip existing tamarisk. This report will be submitted to the owner, CDFG, the San Diego RWQCB, and if requested, to the ACOE to provide a record of the initial tamarisk removal effort. In subsequent years as the restoration efforts commence in the several project phases, memoranda will be prepared and submitted to the owner and each regulatory agency within 30 days of completion of initial planting efforts for each phase of the project to indicate how and when site preparations and planting efforts were completed and to document and explain any significant modifications to, or deviations from the prescribed methods and materials as indicated in this Plan.

4.0 MAINTENANCE DURING MONITORING PERIOD

4.1 Maintenance Activities

Appropriate maintenance efforts are vital to the successful establishment of the planted and seeded areas until the desired vegetation becomes established. The restoration area will require regular maintenance and periodic inspections to determine if actions are needed to address or correct erosion, weed invasion, irrigation adequacy, plant stress, or other adverse conditions. Each phase of the restoration planting area will be maintained regularly for up to five years, or as stipulated by the agencies following installation. In general, maintenance should include any activity required to meet the performance standards set forth in this mitigation plan. The RM is responsible for making recommendations regarding maintenance to the contractor.

4.2 Weed Eradication

4.2.1 Annual Weeds

The purpose of controlling annual weeds is two-fold, to temporarily immobilize completion and prevent the production of additional seeds. Annual weeds are extremely fast-growing and high water/nitrogen consumers. This allows these plants to quickly produce seeds before conclusion of their annual life cycle. Maintenance activities should be conducted in a manner that controls these annual weeds so that slower growing target species have an opportunity for water and sunlight. These activities may include pulling weeds, spraying herbicides, and mowing. The main goal is to promote the germination and growth of the project target species by controlling the annual weeds. In no way should the annual weed control methods damage, destroy, or hamper the target species. Eradication of unwanted species will include those invasive species identified by the California Invasive Plant Council but weed eradication will not be limited to those species alone. Appropriate timing is critical to control seed production. The contractor must remove, kill, or mow annual weeds before seed production. If the contractor misses the window to remove annual weeds before seed production, any mowing, spraying, or removal activities are unnecessary. These annual weeds will die once seed production occurs. Regardless of the success of target species, limitations in the production of annual weed seeds significantly decreases annual weed challenges in the following growing season.

4.2.2 Perennial Weeds

Unlike annual weeds, perennial weeds must be completely killed or removed in order to maintain these species. Mowing in most cases enhances the growth of these species. In order to mow these plants shorter than the re-growth height, the contractor would also be cutting the target species too short. Perennial weeds most likely need to be hand pulled or sprayed with appropriate herbicides. Regardless of the success of target species, good removal of perennial weeds will offer significant advancements in project success.

As tamarisk is the primary target species for eradication for this site, it will be the focus of most of the maintenance effort to control this noxious perennial. The contractor will be responsible for eliminating tamarisk specimens during their normal routine maintenance visits and may use any appropriate means to carry out this task as long as any herbicide applications are approved for use in California and are applied as specified below:

4.3 Herbicide Applications

In specific circumstances, herbicide applications may be necessary. The contractor is responsible for determining the appropriate herbicide to achieve the maintenance goals. The contractor is also responsible for assuring that herbicides are applied in a manner that will not damage desirable plants in the mitigation areas or in adjacent areas. Also, any herbicide or pesticide application must be performed in coordination with the RM and must be conducted or directly supervised by a person in possession of either a QAL or a QAC issued by the California DPR.

4.4 Pest Control

Insect and rodent (herbivore) damage is not typically observed to interfere with habitat mitigation projects. The contractor is encouraged to tolerate reasonable levels of predation or disruption by wildlife species during habitat establishment. However, under certain occasions, for example, extreme levels of insect infestation or browsing by deer, pocket gophers, or rabbits, may require the contractor to take appropriate measures to deter or suppress pest populations.

4.5 Replacement of Dead or Diseased Plant Materials

Any container plants or other nursery materials should be surveyed by the RM for one year following installation. Container plantings that die off or exhibit disease during the initial 120-day warranty period following installation should be replaced by the contractor that installed (unless no warranty is provided). After the first year the maintenance contractor (or staff) may be required to perform supplemental planting or seed applications as directed by the RM in coordination with the owner to assure that the project's several restoration areas meet the performance standards set forth in Section 5, *Monitoring Plan*, below.

5.0 MONITORING PLAN

5.1 Performance Standards

The performance standards for assessing success of the Wilson Creek restoration area will be based on demonstrating an increase in a minimum of two (2) streambed functions within the restoration area. Intuitively, the eradication and replacement of tamarisk within native vegetation within a streambed will result in significant benefits to hydrologic, biogeochemical, habitat functions. However, the true scope of such benefits is likely to occur over a much longer period of time than five years, considering that the current level of late succession tamarisk domination has taken decades to establish. However, we believe that a measurable increase in a minimum of two streambed functions can be demonstrated over the time frame for this restoration Plan as requested by the San Diego Regional Water Quality Control Board. Therefore, the objective of this restoration Plan during the course of its five-year monitoring schedule⁴ will be to demonstrate an improvement to a minimum of two (2) streambed functions based on the HGM functional scores and/or the combination of any of the following criteria to be measured in years 3 and 5 of the monitoring effort:

⁴ *The monitoring schedule proposed by this restoration Plan is anticipated to include one year of monitoring following tamarisk removals (part 1) followed by four years of monitoring after installation of native vegetation (part 2).*

- HGM functional assessment compared to baseline data;
- Percent of native and non-native vegetation coverage;
- Groundwater elevation data via monitoring of piezometers to be installed in proximity to the restoration area.

Functions assessed as part of the HGM assessment for this restoration Plan include hydrologic, biogeochemical, and habitat functions as detailed in Section 1.4 of this Plan. Estimation of riparian native/non-native coverage will support habitat based streambed functions, while groundwater elevation monitoring may support a determination of an increase in hydrologic streambed function.

5.1.1 HGM Functional Assessment

Section 4.1 provides a summary of the Functional Capacity Indexes (FCI) utilized to determine the baseline functions for hydrologic, biogeochemical, and habitat functions assessed within the restoration area prior to implementation of Part 1 of this plan. The FCI's are developed using 20 HGM variables derived by the Santa Margarita Regional Riverine HGM Guidebook consistent with the methods utilized in the PCR functional assessment performed in 2001 which included the restoration area. Success using solely the HGM assessment will require a measurable increase in two of three of the baseline streambed functions in year 5 of the restoration effort. However, the percent of vegetation cover and/or the groundwater data may be independently used to demonstrate a measurable increase in streambed function.

5.1.2 Percent Cover

In part, the success of the revegetation effort for the habitat restoration area is based on establishing a reasonable and progressively increasing amount of cover by native species. Native grasses and herbaceous species may constitute most of the vegetative cover during the first year after planting. Scrub species are expected to provide most of the native cover by the end of the third year. Tree species should provide reasonable canopy cover after three or four years. In general, establishing progressively higher percentages of native vegetative cover is intended to:

- Provide reasonably effective erosion control;
- Enhance biological values (e.g., species diversity, forage and cover for wildlife), as compared with pre-existing conditions in the restoration areas that complements existing habitat in the local vicinity and in the adjacent segments of Wilson Creek;
- Exhibit characteristics that indicate the habitat is self-sustaining. A primary characteristic of self-sustaining habitat would be that it requires no supplemental irrigation for two years with little or no mortality. .
- Substantially deter the establishment of non-native species, particularly noxious invasive species (e.g., tamarisk, castor bean, artichoke thistle (*Cynara cardunculus*)), while impeding the continued migration of these species up and downstream from the restoration area.

The primary macro-criteria for measuring habitat function are total vegetative cover, relative cover by native species, and diversity. Cover may be expressed in terms of the total cover (all vegetation) throughout the treated areas, as well as the relative cover (percent of vegetated areas) provided by native plants. Diversity

is expressed in terms of the number of species of native plants that are dominant or sub-dominant in the restoration area.

The following minimum standards must be achieved or exceeded for the revegetation effort to be deemed as supporting an increase in habitat function related to the streambed:

1. **Relative Native Vegetation Coverage (50%):** Native species must provide at least 50 percent of the relative coverage within the mitigation area. Therefore, in any area covering at least $\frac{1}{4}$ of the mitigation area (e.g., patch area covering greater than or equal to 0.25 acre) that exhibits the minimum of 50 percent total cover by plant material (e.g., if the remaining 20 percent is barren) appropriate native species must contribute at least 50 percent of the relative cover in that particular mitigation area. Native vegetation may include seeded species as well as “volunteers” (naturally recruited specimens), native to the area.
2. **Exotic/Invasive Vegetation Coverage:** Particularly noxious invasive exotic species (e.g., tree tobacco, artichoke thistle, castor bean, pampas grass, tamarisk, arundo etc.) must not contribute more than 5 percent of all vegetative cover. In addition, non-native invasive species listed as “high” or “moderate” in the California Invasive Plant Council (Cal-IPC) Inventory menu (Cal-IPC, 2006) must not contribute more than 10 percent of tree and shrub cover. Generally, no more than 10 percent of all vegetative cover may consist of ruderal non-native species. However, of the ruderal species “permitted” within the mitigation site, only species of common, “naturalized,” non-native grasses and herbs (e.g., California Brome),, oat (*Avena spp.*), mustard (*Brassica spp.*) may be allowed to contribute more than 10 percent of the total cover (see criterion 3 below), particularly if their removal would be likely to promote erosion or incur significant collateral damage to healthy native species.
3. **Irrigation Limitation:** If irrigation is warranted, based on results observed from the “pilot program”, supplemental irrigation will be discontinued in the mitigation area for a minimum of two years. In order to reach success the mitigation areas must be self-sustaining without irrigation for two years prior to release from regulatory oversight.

During post-installation monitoring, several features may be considered to represent progress toward successful establishment of native vegetation.

- Germination and growth of a variety of seeded plant species (total area coverage may be somewhat sparse through the first year following seed application).
- Lack of evidence of significant erosion.
- Evidence of resistance to invasion by non-native species (0-5 percent composition of non-natives).
- Evidence of natural recruitment of a variety of native species apparent by the third year after planting.

Table 5, Target Total Native Coverage Guidelines, provides a guideline for the total percent cover values exhibited by all native plant species combined that may be considered to represent an acceptable increase in streambed habitat function during the annual monitoring inspections.

Table 5

Target Total Native Coverage Guidelines

Year	Acceptable Range
1	10 - 15%
2	20 - 25%
3	25 - 30%
4	35 - 45%
5	Minimum 50%)

Source: PCR Services Corporation, 2011

5.2 Monitoring Procedures

Progress monitoring and performance assessments will be conducted by the RM. After initial seeding is accomplished, for the first year, the revegetation areas will be inspected quarterly winter (January/February), spring (April/May), at least once in late summer (August/September), and once again prior to the onset of the rainy season (October/November). The fall inspection provides the opportunity to determine plans and specifications for any supplemental planting and seeding and maintenance actions that may be warranted during the winter. Monitoring reports will be grouped by phase and will provide the independent monitoring results associated with each individual project mitigation area within that phase.⁵ Each project area will be surveyed and marked in the field to ensure the RM can accurately distinguish individual project areas during monitoring activities.

Qualitative surveys, consisting of a general site walkover and characterization of the coverage and species distribution exhibited in each channel segment, will be completed during each monitoring visit and will include each project area as defined in the individual HMMP's. General observations, such as fitness and health of the revegetation species, weed or pest problems, signs of over watering, and drought stress, will be noted in each site walkover.

A qualitative visual estimate of cover values in within each individual restoration area and over the aggregate total area will be useful for comparison with the data recorded from the linear transects to determine whether the transect data is representative of prevailing conditions of the mitigation site. The RM should visually estimate and record the total cover provided by vegetation within the treated area. The mitigation areas may be divided into six equivalent segments and identified on a simple diagram for reference and inclusion with progress reports. The RM should also visually estimate and list the dominant species in each discrete quadrant area (all species that individually account for more than 1 to 5 percent of vegetative cover in each stratum) and estimate the approximate relative coverage provided by each. Quantitative data will be collected annually (typically in June/July) to determine survivorship, relative and total coverage by species, and to assess species composition. A list of species present is compiled for each planned vegetation community making up the mitigation. Cover estimates for individual species are used to calculate the total vegetation cover, total cover of non-natives, total cover of bare ground, total cover of litter and debris, and total cover for each vegetation strata.

⁵ Each project HMMP will be modeled after this HRP and is subject to approval by the appropriate resource agency.

Either of the two techniques described below may be employed to assess percent coverage of plant species in the revegetated areas during the annual quantitative surveys: line intercept transect sampling or the point-step method.

5.2.1 Line Intercept Transect Method

At least one permanent sampling transect for annual quantitative monitoring is established within each one-acre patch of the relevant restoration area at appropriate locations as determined by the RM. Transects are typically a minimum length of 100 feet (approximately 30 meters). Then data on plant coverage or bare ground is collected by extending a measuring tape between two staked points marking the ends of the permanent transects. Percent cover is then determined by measuring the plant intercept length, which is the length of the plant directly under the tape measure, for each species intercepted under (or over) the line. Ocular estimates of percent absolute areal cover (cover) are recorded for each entry. Cover is the vertical projection of vegetation from the ground as viewed from above. Areal cover includes the extent of the entire plant canopy. Absolute cover is measured relative to the entire sampling unit (i.e., mitigation component) including unvegetated surfaces, recorded as “bare ground”, and vegetative overlap. Intercept length measurements are made for each individual plant (or cluster) and summed for each species to provide percent cover for each species. From the sum for each species the total native and non-native cover can be calculated according to the following equation: $PC = t/T \times 100$, where “PC” is percent coverage, “t” is the sum of all intercepts for a species, and “T” is the total length of the transect. Percent coverage figures can be greater than 100 percent due to the overlap between the herbaceous and shrub canopies.

5.2.2 Point-Step Method

The point-step method provides a quantitative determination of native and exotic plant cover using a series of transects laid out to represent the entire restoration area. When applying this method, the position of the transects is not fixed but is determined independently at the time of each annual survey. The intention is not to document the progress of small permanent strips of habitat in each successive year, but to measure the performance of the whole area. (In this case the “whole area” would consist of the relevant Phase of planting being evaluated.) This is accomplished with a large number of points laid down randomly or nearly so in an independent manner on each sampling date.

Since vegetation is intrinsically variable and its measurement necessarily imprecise, this method of sampling is based on the idea that the number of samples is more important than the precision of their placement, as long as no systematic bias is built into the method of placement.

To facilitate collection of a large number of data points the following procedures should be followed for their placement and evaluation:

- An initial direction for the first transect will be selected by tossing an object from the edge toward the interior of the vegetated area.
- The RM will walk in a straight line in the indicated direction, passing through the interior of the area until reaching the opposite boundary of the area.

- Upon reaching the opposite boundary the RM will turn at an angle approximately equal to the angle of approach to the boundary. This motion resembles that of a billiard ball bouncing from the edge of the table. A similar turn will be made each time the edge of the area is reached.
- At each step the RM will note the position of the same point on the toe of his or her left shoe. That point is the intercept point and each plant species intercepted by a vertical line through that point is recorded. There may be from none to several plant species intercepted, and the record must record clearly that all intercepted species are assigned to that intercept.
- The intercept is a single vertical line, not a circle or volume of space. The calculation of depends heavily on adherence to the one-dimensional line.
- At the discretion of the biologist the number of points may be doubled by considering corresponding points on each shoe.
- When the RM encounters an impassible object such as a large boulder, cactus patch, hole, or body of water, the biologist will move to the side of the object and proceed in the same direction. As soon as possible the RM will return to the original track. While off the intended pathway the RM will record from as near as possible the intercepts that would have been encountered had he been able to remain on the original course.
- During the course of the survey any native or exotic species seen within the planted area but not encountered on the transect will be recorded on a separate list.
- Plant species not immediately known to the biologist will be designated with a number or code and specimens or photographs taken for later identification.
- The procedure will be continued until the entire planted area has been covered to an approximately equal extent by the straight-line transects. The final number of points must be at least 200, and may be higher in the case of large or irregularly-shaped areas.
- The procedure will be repeated for each defined or separately mapped restoration area.
- Within each survey area, the number of “hits” on each plant species will be tallied. The number of points is recorded and is lower than the number of points.
- The number of points for each species divided by the number of points, then multiplied by 100 is the absolute percent cover for that species. Bare ground is treated as a plant species, except that it is not recorded if there is any plant present. The total cover will be greater than 100 percent unless there are no points with more than one plant species.
- The number of plant species recorded on the transects, plus the number of additional species within the Site, but not on a transect, is the species richness. Both cover and species richness will be expressed separately for native and exotic plant species.

5.3 Reports

Monitoring results will be recorded within each distinct project mitigation area and included in the annual monitoring reports submitted to the appropriate resource agencies and the Applicant, if requested.

Documentation will include the following:

5.3.1 Recording the Initial Planting Effort (by Phase)

Upon completion of seeding and planting in each phase of the restoration area, the RM should prepare an installation As-Built Report to document the implementation of the mitigation site preparations, planting and seeding. This report should describe the site preparation methods used, species and quantities of seed and container stock installed, seeding methods, and planting locations. Any significant problems encountered will be recorded. Documentation of the finished installation will include a graphic exhibit depicting each area as planted or seeded and whether treatments varied from the alternative methods provided in this HMMP. Any significant deviations from this plan must be reported, particularly with respect to site preparation activities, plant materials actually installed, and irrigation facilities and coverage. This document will be submitted to the Applicant and the regulatory agencies, if requested, to confirm completion of initial installation and commencement of the maintenance and monitoring phase.

5.3.2 Annual Monitoring and Reports

Each successive phase of the restoration area shall be monitored quarterly during the first year, semi-annually during the second and third years, and at least annually during the last two years. Each phase of the restoration will encompass one year of monitoring following tamarisk removals⁶, followed by four years of monitoring following the installation of native material to be detailed in project-specific HMMP's, for a total monitoring period of five years. Therefore, the Year 2 monitoring "time clock" associated with project-specific mitigation areas will commence upon implementation of the Part 2 native revegetation efforts detailed in Section 2.1.1. Observations will be recorded and memoranda provided to the Applicant and contractor as needed to report site progress and identify necessary maintenance actions. In the month of June/July following the first full growing season after initial installation, quantitative assessments will be conducted as described above and a progress report summarizing monitoring results will be prepared and distributed by the RM not later than January 1 each year.

Monitoring will commence through individual project HMMP implementation after the primary planting and seeding is performed in each successive phase and will continue for five years in each Phase or until either: (1) it can be demonstrated that functions and values have met or exceeded final success criteria; (2) the resource agencies determine that monitoring is no longer required.

Each annual report will document mitigation and maintenance activities and site performance and recommend corrective measures if deficiencies are observed. Annual reports will also describe observed features including qualitative estimates of species cover and survivorship, success or failure rates of seeded species, growth of perennial species, and will report quantitative measurements of the total vegetative cover and the percentage of relative cover by native species. Coverage values will be determined both by general inspection and by direct sampling using the line-intercept transect procedures described above. The frequency and volume of irrigation if utilized, observed weed or pest problems, additional maintenance procedures, and general condition and health of the vegetation will also be noted in each annual report. Photographs taken from each photo station will provide visual records of the site's progress. Recommendations and schedules for corrective measures will be identified and described.

⁶ *Tamarisk removals currently scheduled for November 2011 will be implemented throughout the entire 19.4-acre restoration area by Wilson Creek Farms and will be integrated into project-specific HMMP's as part of Year 1 monitoring/reporting.*

5.4 Contingency Measures

If the interim success criteria are not attained by the 3rd year or the ultimate success criteria are not attained by the 5th year of monitoring then contingency measures will be triggered whereby the responsible parties will consult with the regulatory agencies to examine the cause of the deficiency. Remedial actions will be developed at that time to correct the cause of the deficiency. If the deficiency cannot be corrected then alternative mitigation sites or actions will be developed.

6.0 REFERENCES

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PCR IRVINE

One Venture

Suite 150

Irvine, California 92618

TEL 949.753.7001

FAX 949.753.7002

PCRinfo@pcrnet.com

PCR SANTA MONICA

233 Wilshire Boulevard

Suite 130

Santa Monica, California 90401

TEL 310.451.4488

FAX 310.451.5279

PCRinfo@pcrnet.com

PCR PASADENA

80 South Lake Avenue, Suite 570

Pasadena, California 91101

TEL 626.204.6170

FAX 626.204.6171

PCRinfo@pcrnet.com



PCR IRVINE

2121 Alton Parkway
Suite 100
Irvine, California 92606
TEL 949.753.7001
FAX 949.753.7002
PCRinfo@pcrnet.com

PCR SANTA MONICA

201 Santa Monica Boulevard
Suite 500
Santa Monica, California 90401
TEL 310.451.4488
FAX 310.451.5279
PCRinfo@pcrnet.com

PCR PASADENA

80 South Lake Avenue
Suite 570
Pasadena, California 91101
TEL 626.204.6170
FAX 626.204.6171
PCRinfo@pcrnet.com