APPENDIX C

Biological Resources

Burrowing Owl Protocol Survey Results

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June 17, 2013

Christine Erickson
California Department of Water Resources
Division of Engineering
1416 9th Street, Room 426
Sacramento, CA 95814

RE: Burrowing Owl Protocol Survey Results for the Perris Dam Emergency Release Facility Project

Dear Ms. Erickson:

The purpose of this letter is to report the results of focused burrowing owl (*Athene cunicularia*) surveys conducted for the Perris Dam Emergency Release Facility Project (project). The project is located within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The Western Riverside County Regional Conservation Authority (RCA) requires a focused burrowing owl survey for all proposed projects within the MSHCP coverage area having suitable habitat for burrowing owls. Presented in this letter is a summary of the project, the biological setting of the project site, methodology and results of the focused surveys for burrowing owl, and conclusions and recommendations.

Project Description and Background

The project is approximately 15 miles south of the City of Riverside in unincorporated western Riverside County and the City of Perris (see attached **Figure 1, Regional Location Map**).

When Perris Dam was initially constructed, there was little development between the dam and the Perris Valley Channel. Over time, urbanization of neighborhoods, city streets, and commercial development downstream of the dam has increased and could be affected (i.e., flooded) should an emergency release be needed. The new Emergency Release Facility (ERF) would be sized to accommodate up to 3,800 cubic feet per second, which is the current emergency drawdown capacity requirement set by the California Division of Safety of Dams for Lake Perris, thus reducing potential flooding to adjacent areas.

The attached map (**Figure 2, Project Location**) identifies the project site and project components that extend westward from Perris Dam to the Perris Valley Channel. The project would upgrade the existing outlet structure and develop three levees, a weir, a concrete chute or unlined trapezoidal channel and an earthen channel that would be capable of conveying emergency releases to the Perris Valley Channel. The project components encompass approximately 40-acres of temporary and permanent impacts.

Biological Setting

The project site encompasses a portion of the foothills of the Bernasconi Hills to the east, and the relatively level land below the dam to the west that is between approximately 1,400 to 2,000 feet amsl. The project extends along the north side of Ramona Highway through the Perris Fairgrounds and a designated right-of-way along an

area between the highway and agricultural fields. Outside the project limits, the surrounding area is a mosaic of developed land and open space that consists of both natural and previously disturbed areas.

Perris Dam is chevron-shaped and earth-filled and is 2 miles long and 128 feet tall. The flat, lowland area to the west of the dam slopes gently westward from the base of the dam to the western edge of the project's boundary. This flat, lowland area is bound on the north by a rocky hill that rises upward of 130 feet above the surrounding landscape to approximately 1681 amsl. Approximately 25 acres of riparian habitat (mainly southern riparian willow woodland and scrub) exists below the dam within the flat, lowland area. However, the majority of the land below the dam, including the project's impact area, consists of non-native grassland interspersed with scattered patches of Riversidean Sage Scrub.

Methods

Burrowing owl surveys conducted at the project site followed the guidelines in the *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area*. The survey details are summarized below in **Table 1, Burrowing Owl Survey Details**.

TABLE 1
BURROWING OWL SURVEY DETAILS

Date	MSHCP Survey	Survey Area	Time	Weather Conditions
2011 and 2012	Step I: Habitat Assessment	Project impact area and 150 meter buffer (see Figure 3)	various	various
3/11/2013	Step 2: Part A and Part B (1 of 4)	Suitable burrowing owl habitat (see Figure 3)	0900 - 1500	60-70 F, 0-5 mph, 5% cloud cover
3/13/2013	Step 2: Part B (2 of 4)	Mapped burrows and 150 meter buffer (see Figure 3)	1100 – 1500	80-90 F, 0-5 mph, 5% could cover
3/15/2013	Step 2: Part B (3 of 4)	Mapped burrows and 150 meter buffer (see Figure 3)	0800 - 1200	50-60 F, 0-5 mph, 80% cloud cover
3/18/2013	Step 2: Part B (4 of 4)	Mapped burrows and 150 meter buffer (see Figure 3)	0900 - 1300	60-70 F, 0-5 mph, 60% cloud cover

Step I: Habitat Assessment

In support of the Perris Dam Remediation Project EIR, which includes the proposed impact area, DWR completed numerous biological surveys, including several pedestrian transect surveys that included 100% visual coverage of the project impact area and a 150 meter (m) buffer surrounding the impact area (see **Figure 3** attached). In 2013, DWR used those data described above to map suitable burrowing owl habitat on the project site and the habitat was re-assessed to confirm the suitability prior to surveying.

The California Department of Fish and Wildlife's (CDFW) *Staff Report on Burrowing Owl Mitigation* defines the elements of essential habitat for the burrowing owl in California as suitable year-round habitat, primarily for breeding, foraging, wintering and dispersal habitat consisting of short or sparse vegetation (at least at some time of year), presence of burrows, burrow surrogates or presence of fossorial mammal dens, well-drained soils, and abundant and available prey within close proximity to the burrow. These characteristics were considered when determining suitable burrowing owl habitat on the project site.

Step II: Burrow and Burrowing Owl Surveys

<u>Part A Survey and Part B Survey 1 of 4</u>
On March 11, 2013, ESA biologists Matthew South, Nicolle Steiner, Jon West, and Andrew Paden conducted transect surveys spaced at 30m apart through the habitat areas shown in Figure 3 to identify suitable habitat for burrowing owls (i.e., potential burrows and other refugia suitable for use by burrowing owls for nesting, foraging and/or breeding). Visibility was very high (at least 30m) throughout the survey area due to the presence of low growing annual grasses and spaced sage scrub vegetation on flat topography. Locations of burrows were marked with a Garmin GPS unit and were inspected for sign of use by burrowing owl (i.e., pellets, feathers, discarded bones of prey species, whitewash, owl tracks).

<u>Part B Surveys 2, 3, and 4 of 4</u>
ESA biologist Jon West conducted additional transect surveys on March 13, 15, and 18 in areas where suitable-sized burrows were previously mapped during the Part A survey. This survey included a 150m buffer around all previously mapped burrows. Surveys were conducted by walking transects spaced at 30m or less within the 150m buffer area, inspecting each burrow for sign of burrowing owl, and scanning the survey area with binoculars to identify any burrowing owls.

Results

Suitable burrowing owl habitat was identified on the project site as depicted in Figure 2. The area below the dam where suitable habitat was identified includes mainly non-native grassland, and gaps between the large concrete rubble at the base of the dam that provides potential refugia and nesting habitat for burrowing owl. However, as shown in Figure 3, suitable burrows of the appropriate size for use by burrowing owls were observed primarily within areas having low and/or sparse vegetation. Representative photos of suitable habitat can be found in the attached **Photo Exhibit**.

No burrowing owls or indicators of presence (feathers, pellets, excrements, etc.) were observed during any of the surveys. As shown in the attached photographs (Attachment A), suitable burrows consisted of California ground squirrel (*Spermophilus beecheyi*) burrows and burrow complexes, many having dirt mounds at the

burrow entrance that elevated above the grassland. Biologists generally observed these burrows clustered at the base of the hill in the northern portion of the survey area and within the non-native grassland north of Ramona Highway, at the western limits of the project site.

Biologists observed numerous canine (i.e., dogs and coyote) tracks and scat within the project site during the transect surveys. In addition, a diversity of raptor species were observed foraging and/or nesting in the vicinity of the survey area, including red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), great horned owl (*Bubo virginianus*), northern harrier (*Circus cyaneus*), and Cooper's hawk (*Accipiter cooperii*).

Conclusions and Recommendations

Because no sign of burrowing owl presence was observed during focused surveys, it has been concluded that burrowing owls do not currently occupy the project site. Because suitable habitat is present, ESA recommends that pre-construction surveys for burrowing owls be conducted by a qualified biologist in suitable habitat areas within 30 days prior to ground disturbance activities associated with the project. If burrowing owls are observed during the preconstruction surveys, DWR shall coordinate with the CDFW and the County of Riverside to determine suitable avoidance options.

If you should have any questions regarding this report or should you need any additional information, please feel free to contact me at (213) 599-4300 or email at msouth@esassoc.com.

Sincerely,

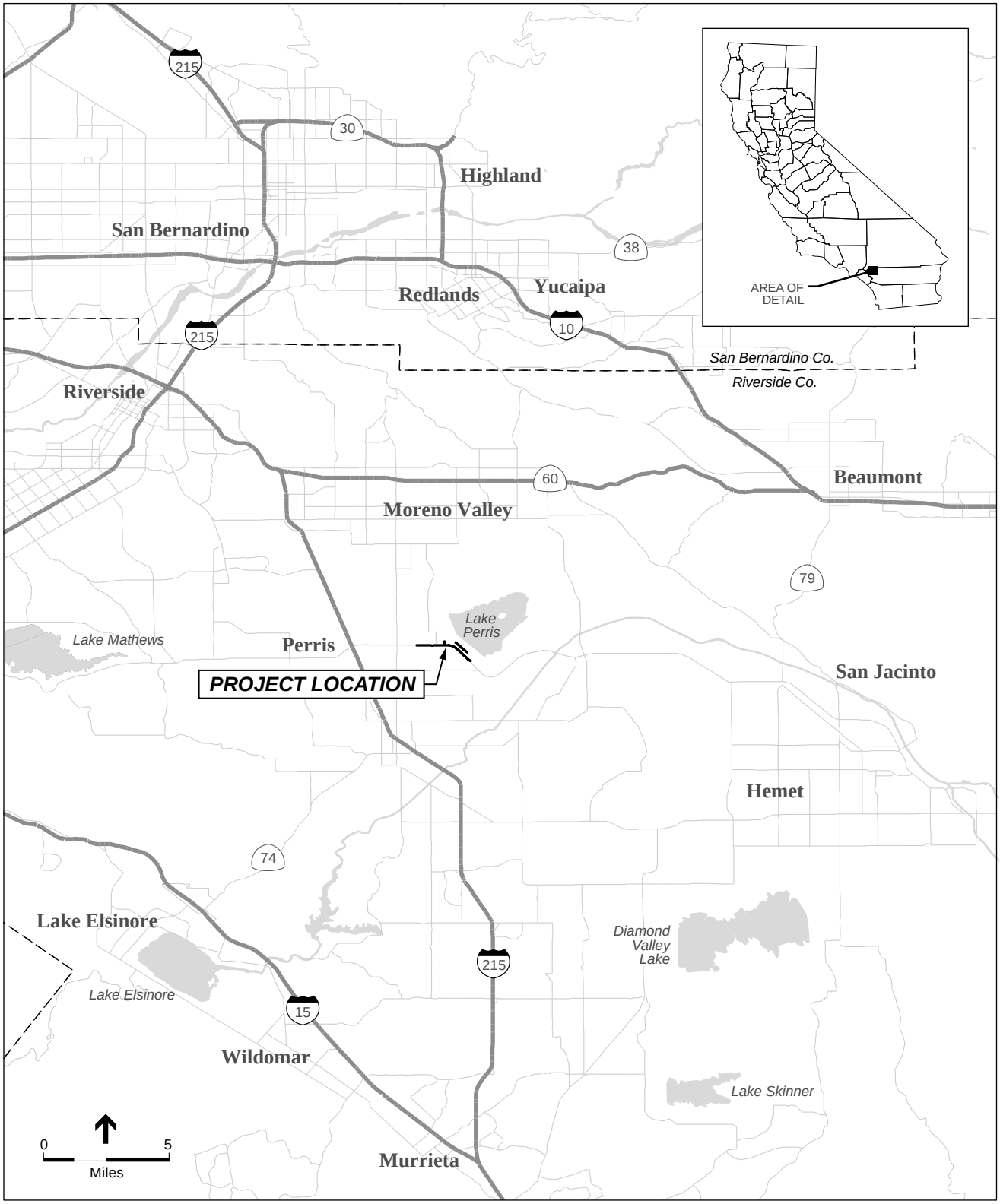
Matthew R. South
Wildlife Biologist

Greg Ainsworth
Director, Southern California Biological Resources

Attachments

Figure 1 – Regional Location Map
Figure 2 – Project Location Map
Figure 3 – Burrowing Owl Survey Map

Photo Exhibit



SOURCE: Riverside County, 2013

DWR - Perris Dam Remediation Project . 120083.02

Figure 1
Regional Location Map

SOURCE: Bing Maps

DWR - Perris Dam Remediation Project . 120083.02

Figure 2

Project Location

SOURCE: ESRI, 2013

DWR - Perris Dam Remediation Project . 120083.02

Figure 3

Burrowing Owl Survey Map

Burrowing Owl Survey Photo Exhibits of the Perris Dam Emergency Release Facility Project

Photo 1. Photo taken of boulder pile and grassland habitat from base of dam southeast of the survey area facing west

Photo 2. Typical Habitat and Hiking Trail in Survey Area. Photo taken from east edge of survey area, facing west.

Photo 3. Typical Burrow and Burrow Mound Observed in the Survey Area. Photo taken at the base of the hill in the northern portion of the survey area.

Photo 4. Grassland and sage scrub found below the hill north of the survey area.

Small Mammal Survey Report

SJM BIOLOGICAL CONSULTANTS

24 August 2013 SJMBC.849

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SUBJECT: Results of a survey for Los Angeles pocket mouse and Stephens' kangaroo rat at the Emergency Relief Facility (ERF) project area, at the Lake Perris Dam Remediation Project Site, Riverside County, California (Figures 1 and 2).

Dear Ms. Ianelli-Steiner:

This report summarizes the results of a live-trapping survey for the Los Angeles pocket mouse (LAPM, *Perognathus longimembris brevinasus*), a California Species of Concern, and the Stephens' kangaroo rat (SKR, *Dipodomys stephensi*), a federally endangered species, at the linear ERF project area located within the Lake Perris State Recreation Area (LPSRA).

The primary focus of the survey was the LAPM, which is known to occur in noteworthy numbers in the project area. However, since SKR also are known to occur in very low numbers at two scattered locations near the ERF project alignment, the trapping effort also considered the habitat conditions preferred by and the potential for occurrence of this species. Thus, the survey was carried out to determine the distribution of both LAPM and SKR in habitats within the proposed ERF project area that could be impacted by the ERF portion of the overall proposed Lake Perris Dam Remediation Program.

INTRODUCTION

The project site is located in portions of Sections 4, 5, 6, 9 and 10, Township 4 South, Range 3 West, on the Perris 7.5" USGS Quadrangle Map (Figure 1). Figure 2 shows an aerial photo with the alignment and impact areas of the proposed project. NAD 83 UTM coordinates for the approximate center of the project area are 11 0482298E/3744943N. The site occurs at an elevation of approximately 1470 feet above mean sea level.

The proposed project consists of an arrangement of elevated and below-grade structures (levees, drains, basins) designed to transport any leaked water flows that may originate at the Lake Perris Dam to the west into the Perris Valley Storm Drain, which is located approximately 1.4 miles to the west (See Figure 2).

Background on the Los Angeles Pocket Mouse

The Los Angeles pocket mouse is a California Species of Special Concern (CSC). Historically, the LAPM occurred in the coastal basins of southern California, from San Fernando and Burbank in the San Fernando Valley east to Cabazon, and south through the San Jacinto and Temecula Valleys to Aguanga, Warner Pass, Vail Lake, and Temecula. The LAPM typically occurs on sandy and gravelly soils, most commonly in alluvial fan sage scrub habitats but also in sage scrub, grassland and chaparral habitats. Plant species composition varies greatly among LAPM occupied habitat areas, but typically encompasses both native and non-native plants commonly associated with sandy or granular soils, usually in lower elevational alluvial systems. Like other species of little pocket mice (*Perognathus longimembris ssp*), the Los Angeles pocket mouse hibernates in the winter, generally from October to February, becomes torpid when deprived of food for 24 to 36 hours, and periodically emerges from hibernation to feed on seed caches stored in its burrows. Thus, surveys for this species usually must be completed during the warmer months between late spring and early fall.

Within the project area, LAPM have been confirmed in the easterly portion of the ERF alignment, and in habitats in the general vicinity of the project area (Brylski et al. 2008; Montgomery 2012 a, b).

Background on the Stephens' Kangaroo Rat

The natural history and habitat requirements of SKR are fairly well known. Habitats occupied by SKR typically occur on level to gently sloping terrain, although the species has occasionally been found on relatively steep slopes. Soils in habitats harboring SKR are typically loamy in nature, while soils dominated by clay or sand very rarely support this species (Price and Endo 1989; SJ Montgomery, pers. observ.; USFWS 1997).

SKR prefer open grasslands with abundant bare ground and low grass density. Bare ground is required for kangaroo rat dust bathing, foraging and easy movement. Spring/early summer flushes of forb growth often temporarily reduce the amount of bare mineral soil available in otherwise more open habitats. Nonetheless, by summer's end most forbs dry up, disarticulate and gradually disperse, thereby returning such habitats to the open condition that is characteristic of occupied SKR habitat. Reflecting a preference for open ground, a high ratio of forbs to grasses increases the suitability of grassland for SKR. When grasslands develop extremely high densities of herb cover following periods of heavy rainfall, SKR usually occur only along dirt roads that traverse such excessively dense habitats. Similarly, SKR often will be found along truck or cow trails that traverse dense grasslands. It follows that the SKR is capable of occupying small patches of open vegetation amidst otherwise excessively dense habitat, and will traverse narrow trails and roads through otherwise unsuitable habitat when moving between larger blocks of suitable habitat (S. Montgomery, pers. observation; Price et al, 1991). Although SKR have been recorded in sage scrub stands with cover values over 50 percent, areas exhibiting high perennial shrub cover are rarely occupied by this species (USFWS 1997; S.J. Montgomery, pers. observation).

Within the project vicinity, SKR have been confirmed as residents of very small habitat patches immediately eastward of the southeastern end of the ERF alignment, northeast from the ERF alignment, and at other more distant locations to the south and east (Brylski et al. 2008; Montgomery 2012 a, b).

Site Description

The entire linear ERF alignment occurs in level terrain to the east and north of the Ramona Expressway, and westward of Perris Lake Dam (Figure 2). The project area occurs in two primary sections: (a) a long southeast-northwest oriented section that parallels the Dam face, and (b) an east-west oriented section that extends to the west from the northern end of segment (a) and terminates in the Perris Valley Storm Drain. These sections exhibit the following general habitat conditions.

- **(a) Easterly (north-south) levee system** – This section of the alignment crosses five dirt roads and exhibits abundant pocket gopher excavations. Most of this area exhibits disturbed annual grassland varying in density from moderate to high. Scattered small open patches of buckwheat scrub occur in the far southern and far northern ends of this section of the alignment. Common plants in this section are soft chess (*Bromus hordeaceus*), red brome (*B. madritensis rubens*), ripgut grass *(B. diandrus*), wild oats (*Avena sp*.), foxtail barley (*Hordeum murinum*), Mediterranean grass (*Schismus barbatus*), and California buckwheat (*Eriogonum fasciculatum*).

- **(b) Northerly (east-west) levee/channel system** – Portions of this section of the alignment cross three dirt and two paved roads, as well as various other intensive human disturbances that make them unsuitable for LAPM and SKR. This part of the alignment includes: (1) an easterly section characterized by a dense stand of buckwheat scrub and scattered small patches of willow/mulefat scrub and scattered small tamarisk trees; (2) an east-central segment that extends north along and beyond the eastern boundary fence of the BMX track fence, and exhibits various stages of disturbed annual grassland vegetation; (3) an east-central segment that traverses the southern boundary of the BMX track and is completely disturbed; (4) a west-central segment that traverses the southern limit of the Fairground overflow parking lot; and (5) a westerly segment that traverses disturbed annual grassland vegetation. Characteristic plants in this northerly east-west section vary greatly with the particular section and the level of disturbance and include: California buckwheat, tarweed (*Hemizonia sp*.), willows (Salix sp.), mule fat (*Baccharis salicifolia*), soft chess (*Bromus hordeaceus*), red brome (*B. madritensis rubens*), ripgut grass *(B. diandrus*), wild oats, foxtail barley, Mediterranean grass, tocalote (*Centaurea melitensis*), mustard (*Brassica sp.*), red-stem filaree (*Erodium cicutarium*), sand aster (*Corethrogyne filaginifolia*), Russian thistle (*Salsola sp*.) and fiddleneck (*Amsinckia sp.).* Scattered individuals of tamarisk (*Tamarix sp*.), oleander (*Nerium oleander*) and Peruvian peppertree (*Schinus molle*) occur at scattered locations in the area of the BMX track and fairgrounds.

Soils in the project area are sandy loams from the Exeter, Greenfield and Ramona associations, all of which are generally of high suitability for both LAPM and SKR.

Figure 1. Vicinity map for the ERF project- Source: Perris USGS 7.5' topographic quad map.

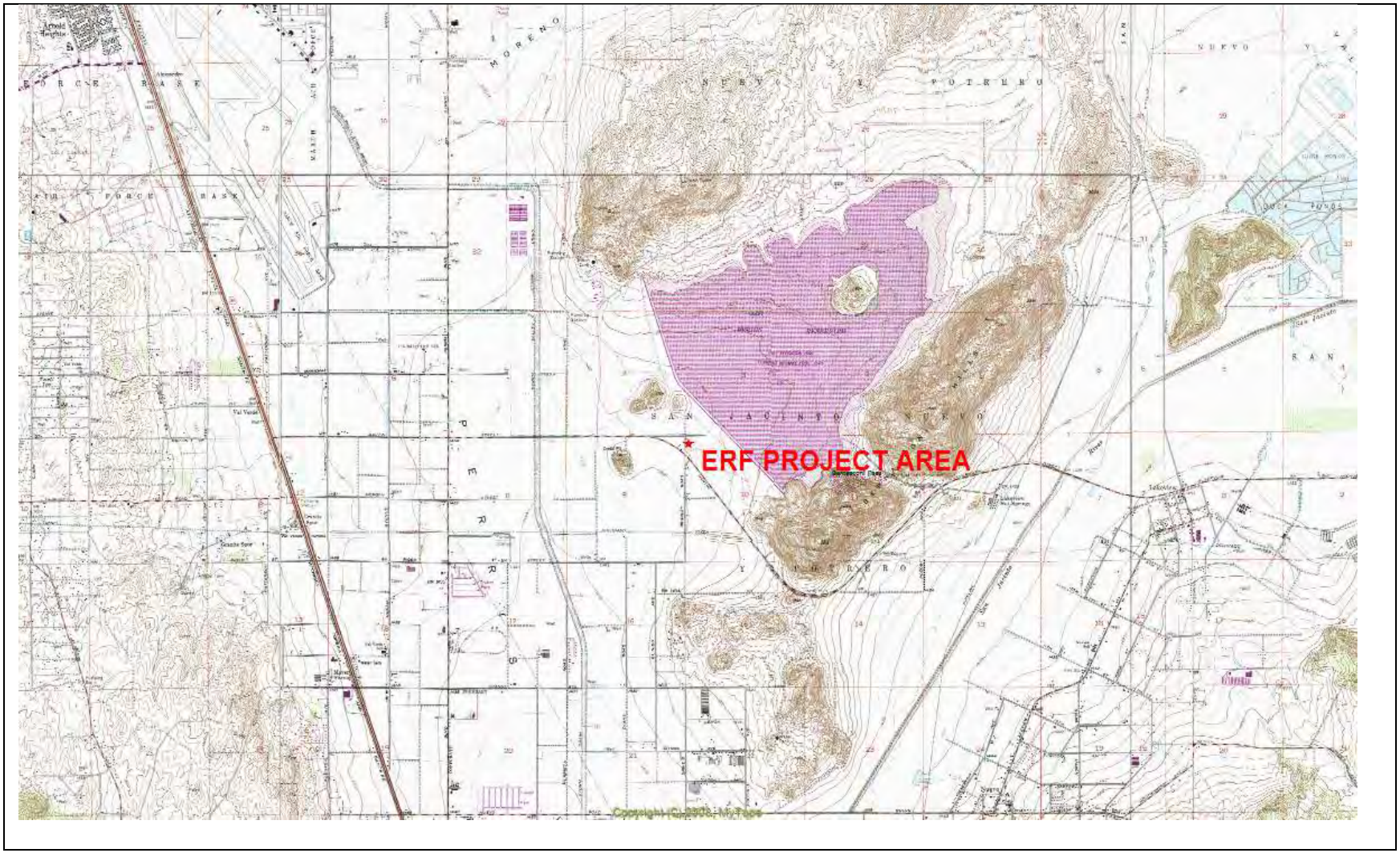

Figure 2. Aerial Photo of the ERF project alignment and impact areas (in green)

METHODS

Literature Review

Prior to the field survey, available reports and other literature were reviewed for SKR and LAPM capture records in the project vicinity. Records for LAPM and SKR occurrence in the project vicinity were examined in focused survey reports for the two species, as well as the California Natural Diversity Database (CNDDB, CDFG 2012) and the online database of museum mammal specimens (Manis 2012). Soils information for the site was obtained from an online database prepared by the Soil Conservation Service (http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm). In addition, the results of a previous field trapping survey for the general project area were reviewed for mapped locations of SKR and LAPM captures (Brylski et al.; Montgomery 2012 a, b, c).

Field Surveys

The focused survey for LAPM and SKR was carried out by Stephen J. Montgomery and Dr. Phillip Brylski according to FWS and CDFW permit conditions. The principal investigator for the survey was Stephen J. Montgomery, who holds permits from the U.S. Fish and Wildlife Service (TE745541-10) for SKR live-trapping surveys, and a Memorandum of Understanding (MOU) from the California Department of Fish and Game (CDFG) for trapping/handling the SKR and LAPM. Dr. Brylski also is permitted by the USFWS (TE148555-1) and CDFG (MOU) for trapping/handling these species.

Traps were set in seven segments (see Figure 3) of the project alignment, excluding the BMX track area. Habitat conditions suitable for LAPM and/or SKR are absent in the BMX segment, due to the long term present of intense substrate disturbance, loud noise (which often occurs during nighttime hours), and nighttime lighting from competitive motorcycle events. Traps were set in habitats/areas exhibiting the highest likelihood of capturing the target species, based on the known bio-ecology and habitat preferences of SKR and LAPM (see above). Since sign of LAPM can be difficult to detect in certain disturbed habitats, the westerly segments lying north of Ramona Expressway were included in the trapping effort, even though habitat conditions in these segments are very disturbed and of generally low quality for this species. Signs of SKR are typically very obvious and such signs were absent in the westerly segments.

Live-trapping was carried out during two separate sessions in spring 2013, including 15-19 April (4 nights) and 12-17 May (5 nights). Only four nights were accrued during the April field effort due to the immediate capture of LAPM in most locations with traps exhibiting suitable habitat and obvious LAPM sign. Furthermore, not all trap lines were covered each night, due to the immediate response of LAPM to traps in most locations. Nonetheless, traps were left open beyond the initial LAPM capture nights at all April lines except B, in order to expand the number of capture stations and provide insight into the overall dispersion of this species across the habitat areas. In contrast, five nights were accrued during the May trapping session, which occurred in the area west of the BMX track property, because neither LAPM nor SKR were captured during the initial four nights, and the protocol for such surveys is five nights if the target species is not captured prior to the fifth night. A total of

Traps were opened and baited with bird seed in the late afternoon, and checked near midnight and then again beginning at sunrise. Traps were typically set at approximately 5-10 meter intervals, but were also placed at specific locations exhibiting small burrows typical of those excavated by LAPM. These burrows are very obvious at gopher excavation sites, where the bare mineral soil exposed by gopher activity provides abundant deep soft soil that can be readily excavated by the diminutive LAPM.
Animals were identified and released immediately at their respective capture points.

RESULTS AND DICUSSION

Weather during the trapping surveys included air temperatures ranging from 50-76F, wind speeds ranging from 0-30 mph, and cloud cover ranging from 0-100%. There was no precipitation during the trapping sessions. Table 1 shows representative weather conditions during the various trapping sessions.

A total of 1300 trap-nights was accrued during a total of 9 nights of trapping across 7 locations (Tables 2 and 3). A total of 200 rodent captures distributed among six rodent species was recorded across the various trap lines, including: LAPM (48), San Diego pocket mice (17), deer mice (104), desert woodrat (2), harvest mouse (6) and house mouse (23). This constituted a trap success of 15.4% for all species combined. The most common captured species was the ubiquitous deer mouse, a common inhabitant of disturbed habitat types. LAPM were only captured in the easterly parts of the study area, including Trap Lines A-D (Figure 4). No LAPM were captured from the BMX track area westward to the Perris Valley Storm Drain. Photographs of the area of Trap Lines A-C, where LAPM were captured, are shown in Appendix A.

The LAPM inhabits the grassland and open sage scrub habitats in the ERF study area that are relatively undisturbed. The more westerly habitats have been heavily disturbed for many years and any LAPM that may have occurred in these areas have been extirpated. This species clearly occupies dense grasslands in Trap Line Areas A-D, which deviates to some degree from the more open habitats that one typically associates with this species. The extensive gopher activity that produces numerous mounds of bare mineral soil amidst good grassland cover appear to be ideal for this species. However, while it appears as though the primary locations used for burrowing by LAPM are gopher mounds, the difficulty in detecting burrow openings in the dense grass cover around the gopher mounds undoubtedly biases this observation to some degree. For example, whereas initial careful searches for burrows in denser grassland cover revealed some obviously used LAPM burrows, such searches were excessively time consuming and were abandoned after these initial observations.

Development of the ERF project will negatively affect LAPM inhabiting the areas of Trap Lines A-D. Project designs may be configured so as to reduce impacts to this species. However, with the currently proposed alignment, or essentially any alignment that might be proposed in this general easterly grassland/scrub habitat area, impacts to this species will be unavoidable.

LITERATURE CITED

Brylski, P., S. Montgomery and Psomas. 2008. Stephens' kangaroo rat survey for the Lake Perris dam remediation project.

Montgomery, S.J. 2012a. Results of a Survey for the Stephens' kangaroo rat and Los Angeles pocket mouse for the Lake Perris Dam Remediation Project, Riverside County, California. Prepared for ESA. Los Angeles and San Diego, California.

Montgomery, S.J. 2012b. Results of a trapping survey for Stephens' kangaroo rats (SKR) and Los Angeles pocket mice (LAPM) at Parcels B, 10 and 15, along the Ramona Expressway in Riverside County. Prepared for ESA. Los Angeles and San Diego, California.

TABLE 1. Representative weather conditions during the Lake Perris ERF trapping survey – Spring 2013

Date	Activity	Time	Air Temperature (°F)	Cloud Cover (%)	Wind Speed (mph)
4/15/2013	Set Traps	1800	65	85	2-7
4/16/2013	Check Traps	630	50	95	3-5
4/16/2013	Set Traps	1800	60	15	5-20 (30)
4/17/2013	Check Traps	630	56	0	10-30
4/17/2013	Set Traps	1815	69	0	4-8
4/18/2013	Check Traps	640	60	0	0-2 (10)
4/18/2013	Set Traps	1745	76	0	7-9
4/19/2013	Check Traps	0710	52	0	0-4
5/12/2013	Set Traps	1800			
5/13/2013	Check Traps	620	72	0	0
5/13/2013	Set Traps	1850			
5/14/2013	Check Traps	630	74	0	2
5/14/2013	Set Traps	1830			
5/15/2013	Check Traps	630	57	20	2
5/15/2013	Set Traps	2000			
5/16/2013	Check Traps	630	58	100	3
5/16/2013	Set Traps	1900			
5/17/2013	Check Traps	630	60	100	3-4.
5/17/2013	Set Traps	1815	69	0	4-8

TABLE 2. Summary of results for the Lake Perris ERF trapping survey - 2013

Trap Line	# Traps Set Each Night	LAPM (recaptures)	SKR	PEMA	CHFA	NEBR	RMEG	MUMU
A	50	9	0	4	2	0		
A1	15	0	0	2	0	0		
A2	15	0	0	3	0	0		
B	50	10	0	4	2	0		
C	80	23	0	20	6	1		
D	70	6	0	35	7	1		
E	35	0	0	14				
F	45	0	0	13				
G	50	0	0	9			6	23

TABLE 3. Results of a trapping survey for LAPM and SKR at the Lake Perris ERF project site. Only detailed results of the first trapping session are included, because the results of the second session did not include LAPM or SKR captures.

Date Traps Checked	Area	GPS #	Species	Age	Sex	Notes
4/16/2013	A	271	LAPM	Adult	Male	Non-scrotal
4/16/2013	A	272	LAPM		Female	Perf.
4/16/2013	A	273	LAPM	Adult	Female	13 grams, lactating
4/16/2013	A	274	LAPM		Female	Perf.
4/16/2013	A	275	LAPM	Adult	Female	Perf.
4/16/2013	A		CHFA			2 animals
4/16/2013	A		PEMA			4 animals
4/16/2013	A	276	LAPM	Adult	Female	Imperf.
4/16/2013	A	277	LAPM	Adult	Male	Scrotal
4/16/2013	A	278	LAPM	Adult	Female	Lactating
4/16/2013	A	279	LAPM	Adult	Male	Non-scrotal
4/17/2013	D	298	LAPM	Adult	Male	Road edge
4/17/2013	D		PEMA			7 animals

4/17/2013	D		CHFA			1 animal
4/17/2013	D		NEBR			1 animal
4/17/2013	C		PEMA			4 animals
4/17/2013	C	299	LAPM	Adult	Male	
4/17/2013	C	300	LAPM	Adult	Male	
4/17/2013	C	301	LAPM	Adult	Male	
4/17/2013	C	302	LAPM	Adult	Male	Non-scrotal
4/17/2013	C	303	LAPM	Adult	Female	Lactating
4/17/2013	C	304	LAPM	Adult	Male	Scrotal
4/17/2013	C	305	LAPM	Adult	Male	Scrotal
4/17/2013	C	306	LAPM	Adult	Female	Lactating
4/17/2013	C		PEMA			1 animal
4/17/2013	C	307	LAPM	Adult	Male	Scrotal
4/17/2013	C	308	LAPM	Adult	Male	Scrotal
4/17/2013	B	309	LAPM	Adult	Male	Scrotal
4/17/2013	B	271	LAPM	Adult		Recap 2m fr prev. capture
4/17/2013	B	310	LAPM	Adult	Female	Perf. Nip. Small
4/17/2013	B	273	LAPM	Adult	Female	Nip. Medium
4/17/2013	B	274	LAPM			Recap * 4 m prev. capture
4/17/2013	B	311	LAPM	Adult	Female	Perf. Nip. Medium
4/17/2013	B	312	LAPM			Recap
4/17/2013	B		CHFA			2 animals
4/17/2013	B		PEMA			4 animals
4/17/2013	B	277	LAPM			Recap * 1 m prev. capture
4/17/2013	B	276	LAPM	Adult	Female	Lactating
4/17/2013	B	313	LAPM	Adult	Male	Scrotal
4/18/2013	D	329	LAPM	Adult	Male	Non-scrotal
4/18/2013	D		PEMA			10 animals
4/18/2013	D		CHFA			2 animals
4/18/2013	C	330	LAPM	Adult	Female	Nip. Small
4/18/2013	C	331	LAPM		Male	Non-scrotal
4/18/2013	C	332	LAPM		Female	Nip. Small, Vimp.
4/18/2013	C		CHFA			2 animals
4/18/2013	C		PEMA			6 animals
4/18/2013	C		NEBR			1 animal
4/18/2013	C	334	LAPM	Adult	Female	Lactating
4/18/2013	C	335	LAPM		Female	Nip. Small, Vag. Perf
4/18/2013	C	336	LAPM			Recap
4/18/2013	A1		No caps			

4/18/2013	A2		PEMA			2 animals
4/19/2013	A1		PEMA			2 animals
4/19/2013	A2		PEMA			1 animal
4/19/2013	C	342	LAPM	Adult	Male	Scrotal
4/19/2013	C		PEMA			9 animals
4/19/2013	C		CHFA			4 animals
4/19/2013	C	330	LAPM			Recap
4/19/2013	C	346	LAPM	Adult	Female	Nip. Medium, Vimp.
4/19/2013	C	302	LAPM	Adult	Male	Scrotal
4/19/2013	C	281	LAPM	Adult	Male	
4/19/2013	C	281	LAPM	Adult	Female	
4/19/2013	C	308	LAPM			Recap
4/19/2013	D		PEMA			18 animals
4/19/2013	D		CHFA			4 animals
4/19/2013	D	343	LAPM	Adult	Male	Scrotal
4/19/2013	D	344	LAPM	Adult	Male	Scrotal
4/19/2013	D	329	LAPM	Adult	Female	Lactating
4/19/2013	D	345	LAPM		Male	Non-scrotal

Figure 3. Trap lines in the ERF project area.

Figure 4. LAPM capture locations in the ERF project area – Spring 2013

APPENDIX A

Photographs of habitat conditions, LAPM burrows and LAPM in the area of Trap Lines A-C

Jurisdictional Delineation Memorandum

LAKE PERRIS DAM REMEDIATION EMERGENCY RELEASE FACILITY PROJECT

Jurisdictional Delineation Memorandum

Prepared for
California Department of Water Resources

December 2013

ESA

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TABLE OF CONTENTS

Lake Perris Dam Remediation Emergency Release Facility Project Jurisdictional Delineation

Page

1. Introduction and Purpose 1
2. Methods 3
   - 2.1 Field Surveys 3
   - 2.2 Jurisdictional Authority 4
3. Results and Conclusions 7
   - 3.1 Field Survey Results 7
   - 3.2 Conclusions 11
4. References 13

Figures

Figure 1: Regional Location
Figure 2: Project Location
Figure 3: Jurisdictional Detail
Figure 4: Jurisdictional Nexus
Figure 5: Soils

Attachments

Attachment A: Representative Photographs
Attachment B: Wetland Determination Data Forms

Tables

Table 1: Summary of Jurisdictional Acreage within Study Area

LAKE PERRIS DAM REDEMIATION EMERGENCY RELEASE FACILITY

Jurisdictional Delineation

1. Introduction and Purpose

Environmental Science Associates (ESA) conducted a jurisdictional delineation for the California Department of Water Resources (DWR) Lake Perris Dam Remediation Emergency Release Facilities Project (Project), which includes the construction of new emergency release facilities and upgrade the existing release structure that would release and convey emergency flows from Lake Perris in the event of an emergency drawdown. The Project is located below the Lake Perris Dam in Riverside County, California, approximately 15 miles south of the City of Riverside (**Figure 1**).

The Project components cover approximately 70 acres. The Project is composed of upgrades to an existing emergency release structure and installation of conveyance facilities connecting to the Perris Valley Channel. The Project consists of the following primary components:

1. The proposed project would upgrade the existing emergency release structure by removing the existing bulkhead and replacing it with an automated valve, which adds flexibility and redundancy to the system. A portion of the emergency release structure would need to be demolished and rebuilt around the new valve. The portion of the existing structure downstream of the valves is designed to be demolished and erode in the unlikely event of an emergency release. The new structure will follow that design, but will also ensure that a release will not damage the critical portions of the structure. The emergency release structure release capacity would remain unchanged at 3,800 cubic feet per second.
2. Water released from the emergency release structure would flow overland across the Lake Perris State Recreational Area (SRA) property. The released water would be controlled by a proposed levee system, conveyed to a channel or chute across the Perris Fairgrounds, and finally conveyed in a channel north of Ramona Expressway to the Perris Valley Channel.

The purpose of this study was to identify and map the location and extent of the limits of waters of the U.S., including wetlands, which would fall under the jurisdiction of the Army Corps of Engineers (USACE) pursuant to the Federal Clean Water Act (CWA), Section 404 regulatory program. This wetland study also evaluated the extent of waters of the State of California (State)

that may fall under the jurisdiction of California Department of Fish and Wildlife[1] (CDFW) pursuant to Section 1602 of the Fish and Game Code of California (Streambed Alteration Agreements), and the Regional Water Quality Control Board (RWQCB) pursuant to the CWA Section 401 Certification Program, the Porter-Cologne Act regulating waste discharge into waters of the State, or the Waste Discharge Requirements general permitting process. Additionally, the study analyzed the potential for the site to support riparian/riverine resources potentially under the jurisdiction of the Western Riverside County Multiple Species Habitat Compensation Plan (MSHCP), pursuant to Section 6.1.2 of the MSHCP (MSHCP, 2004). The study area included all areas that would be directly affected by the implementation of Project components, and also included a 50-foot buffer.

[1] The California Department of Fish and Game (CDFG) changed its name on January 1, 2013 to The California Department of Fish and Wildlife (CDFW). In this document, references to literature published by CDFW prior to Jan. 1, 2013 are cited as 'CDFG'. The agency is otherwise referred to by its new name, CDFW.

2. Methods

2.1 Field Surveys

Prior to field surveys, a desktop analysis was conducted to obtain contextual information relevant to the survey area. ESA conducted a review of available background information pertaining to the Project layout, geography, and topography prior to conducting a jurisdictional delineation site visit. Field maps were generated with available aerial photographs and potentially jurisdictional features were identified and marked with lines and global positioning system (GPS) coordinates to assist in field verification. Soil types mapped within the study area were consulted prior to field efforts to target areas with potentially hydric soils.

ESA biologists Joseph Henry and Dallas Pugh conducted a site visit on November 7, 2013 to delineate potentially jurisdictional features within the study area, defined as within 50 feet of Project impacts. The jurisdictional delineation was conducted consistent with *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987). The definition of growing season and the basis of determining and recording indicators for hydrophytic vegetation, hydric soils, and wetland hydrology was based on the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region (Version 2.0)*, as well as the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE, 2008a; USACE, 2008b). The 1987 USACE Manual, Arid West Supplement, and Field Guide to the OHWM were used for the analysis and evaluation of any normal circumstances, atypical situations, and problem areas, as needed. Representative photographs of the study area are included in **Attachment A**. Completed wetland determination data forms are included in **Attachment B**.

Non-wetland waters of the U.S. were indicated if one or more USACE parameters were absent but the OHWM was clearly visible. The OHWM of channels was determined based on observations of physical evidence that included scour marks and drift lines of debris. It is assumed for the purpose of this report that USACE jurisdictional areas are also under the jurisdiction of the RWQCB. The limits of potential jurisdictional features were recorded in the field with a hand-held GPS with sub-foot accuracy. The USACE jurisdictional status of these areas was determined by the in-field verification of the hydrological connection (i.e., walking the connection) between the waters and Perris Valley Channel, a known tributary of a Traditional Navigable Water (TNW) and USACE-jurisdictional water under U.S. Supreme Court's decision in *Rapanos v. U.S.* and *Carabell v. U.S.* (Rapanos). Areas potentially under the jurisdiction of CDFW were delineated based on the outer edge of riparian vegetation or at the top of the bank of a stream, whichever was wider. Riparian/riverine areas potentially under the jurisdiction of the MSHCP were delineated based on the presence of habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or depend upon soil moisture from a nearby freshwater source; or areas with freshwater flow during all or a portion of the year, pursuant to Section 6.1.2 of the MSHCP (MSHCP, 2004).

2.2 Jurisdictional Authority

2.2.1 Waters of the U.S.

The USACE and the Environmental Protection Agency (EPA) have issued a set of guidance documents detailing the process for determining CWA jurisdiction following the Rapanos decision. The EPA and USACE issued a summary memorandum of the guidance for implementing the Supreme Court's Rapanos decision that addresses the jurisdiction over waters of the United States under the CWA. The complete set of guidance documents, summarized as key points below, were used to collect relevant data for evaluation by the EPA and the USACE to determine CWA jurisdiction over the Project site and to complete the "significant nexus test" as detailed in the guidelines.

The significant nexus test includes consideration of hydrologic and ecologic factors. For circumstances such as described in point (B) below, the significant nexus test would take into account physical indicators of flow (evidence of an OHWM), if a hydrologic connection to a TNW exists, and if the aquatic functions of the water body have a significant effect (more than speculative or insubstantial) on the chemical, physical, and biological integrity of a TNW. The USACE and EPA will apply the significant nexus standard to assess the flow characteristics and functions of the tributary drainage to determine if it significantly affects the chemical, physical and biological integrity of downstream TNW.

Rapanos Key Points Summary

(A) The USACE and EPA will assert jurisdiction over the following waters:

- TNWs
- Wetlands adjacent to TNW
- Non-navigable tributaries of TNW that are relatively permanent
- Where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries.

(B) The USACE and EPA will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary

(C) The USACE and EPA generally will not assert jurisdiction over the following features:

- Swales or erosion features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

2.2.2 Waters of the State

The State Water Resources Control Board (SWRCB) and the RWQCB (together "Boards") are the principal State agencies with primary responsibility for the coordination and control of water quality. The Boards regulate activities pursuant to Section 401(a)(1) of the federal CWA as well as the Porter Cologne Water Quality Control Act (Porter-Cologne) (Water Code Section 13260). Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable water at the point where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA.

Under Porter-Cologne, the Legislature declared that the "State must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the State from degradation..." (California Water Code Section 13000). Porter-Cologne grants the Boards the authority to implement and enforce the water quality laws, regulations, policies and plans to protect the groundwater and surface waters of the State. It is important to note that enforcement of the State's water quality requirements is not solely the purview of the Boards and their staff. Other agencies (e.g., CDFW) have the ability to enforce certain water quality provisions in state law.

Pursuant to Division 2, Chapter 6, Section 1602 of the Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream, or lake which supports fish or wildlife. A Lake or Streambed Alteration Agreement application must be submitted to CDFW for "any activity" that may substantially change the bed, channel, or bank of any river, stream or lake." CDFW has jurisdiction over riparian habitats associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation or at the top of the bank of a stream or lake, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources. The CDFW reviews proposed actions, and if necessary, submits to the applicant a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement.

Pursuant to the SWRCB's Water Quality Order Number 2004-0004-DWQ, *Statewide General Waste Discharge Requirements for Dredged of Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction* (General Waste Discharge Requirements), dredging, filling, or excavation of isolated waters not under USACE jurisdiction constitutes a discharge of waste to waters of the State, and prospective dischargers are required to submit a report of waste discharge to the RWQCB.

2.2.3 Riparian/Riverine Areas

Pursuant to Section 6.1.2 of the MSHCP, riparian/riverine areas which provide habitat for listed species within the MSHCP planning area are prioritized for conservation. The MSHCP outlines the procedures required to ensure that the biological functions of riparian/riverine areas within the

MSHCP planning area are maintained. The MSHCP requires an assessment of all potentially significant effects to riparian/riverine areas. The MSHCP requires the development of alternatives which avoid or minimize impacts to riparian/riverine areas. If avoidance of impacts to riparian/riverine areas is not feasible, the MSHCP requires mitigation such that the functions and values of impacted riparian/riverine areas are replaced and conserved, pursuant to the Determination of Biologically Equivalent or Superior Alternative (DBESP) process. The DBESP process requires coordination with applicable resource agencies (e.g., U.S. Fish and Wildlife Service, CDFW) to ensure adequate replacement and conservation of affected habitat (i.e., riparian/riverine areas) for listed species.

3. Results and Conclusions

3.1 Survey Results

3.1.1 Soils

The U.S Department of Agriculture, Natural Resources Conservation Service (NRCS) maps eight soil classes within the study area: Domino, Exeter, Gorgonio, Greenfield, Hanford, Monserate, Pachappa, and Ramona (NRCS, 2007). The soil types mapped within the study area are described in detail below and presented in **Figure 5**.

Domino fine loamy sand, eroded; and Domino silt loam, saline-alkali are mapped within the study area. These soil classes are moderately deep, moderately well drained soils typically over lime-cemented hardpans. Domino soils have slow runoff and slow permeability. These soils typically occur in annual grassland and agricultural habitats at low elevations. Domino soils are considered uncommon throughout basin areas in southern California. Domino fine loamy sand, eroded is not listed as a hydric soil. Domino silt loam, saline-alkali is listed as a potentially hydric soil (NRCS, 2012).

Exeter sandy loam, 0 to 2 percent slopes; Exeter sandy loam, 2 to 8 percent slopes, eroded; Exeter sandy loam, deep, 0 to 2 percent slopes; and Exeter very fine sandy loam, deep, 0 to 5 percent slopes are mapped within the study area. These soil classes are moderately deep to a duripan, moderately well drained soils typically formed from granitic alluvium parent material. Exeter soils have very slow to medium runoff and moderately slow permeability above the duripan. These soils typically occur in annual grassland and agricultural habitats at low elevations. Exeter soils are considered extensive within portions of the San Joaquin Valley and less common in southern California. Exeter sandy loam, 0 to 2 percent is listed as a potentially hydric soil. Exeter sandy loam, 2 to 8 percent slopes, eroded; Exeter sandy loam, deep, 0 to 2 percent slopes; and Exeter very fine sandy loam, deep, 0 to 5 percent slopes are not listed as hydric soils (NRCS, 2012).

Gorgonio loamy sand, 0 to 8 percent slopes is mapped within the study area. Gorgonio soils are somewhat excessively drained typically formed from granitic or grandiorite alluvium parent material. Gorgonio soils have very slow to medium runoff and rapid permeability. These soils typically occur in annual grassland and oak woodland habitats at low elevations up to 3,000 feet above mean sea level. Gorgonio soils are considered moderately extensive within mountainous areas of southern California. Gorgonio loamy sand, 0 to 8 percent slopes is not listed as a hydric soil (NRCS, 2012).

Greenfield sandy loam, 0 to 2 percent slopes; and Greenfield sandy loam, 2 to 8 percent slopes, eroded are mapped within the study area. These soil classes are deep, well drained soils typically formed from coarse-textured granitic and mixed rock alluvium parent material. Greenfield soils have slow to medium runoff and moderately rapid permeability. These soils typically occur in annual grassland, oak savannah, and agricultural habitats at low to moderate elevations.

Greenfield soils are considered extensive within interior and coastal valleys of central and southern California. Greenfield sandy loam, 0 to 2 percent is listed as a potentially hydric soil (NRCS, 2012).

Hanford coarse sandy loam, 2 to 8 percent slopes; and Hanford coarse sandy loam, 8 to 15 percent slopes, eroded are mapped within the study area. These soil classes are very deep, well drained soils typically formed from coarse-textured granitic alluvium parent material. Hanford soils have negligible to low runoff and moderately rapid permeability. These soils typically occur in annual grassland and agricultural habitats at low to moderate elevations. Hanford soils are considered extensive within the valleys of central and southern California. Hanford coarse sandy loam, 2 to 8 percent slopes; and Hanford coarse sandy loam, 8 to 15 percent slopes, eroded are not listed as hydric soils (NRCS, 2012).

Monserate sandy loam, 0 to 5 percent slopes is mapped within the study area. Monserate soils are moderately well to well drained soils typically underlain by a silica-cemented duripan. Monserate soils have slow to rapid runoff and moderately slow permeability above the duripan and very slow permeability within the duripan. These soils typically occur in annual grassland, scrub, and oak woodland habitats at low to moderate elevations. Monserate soils are considered extensive within the interior valleys of southern California. Monserate sandy loam, 0 to 5 percent slopes is not listed as a hydric soil (NRCS, 2012).

Pachappa fine sandy loam, 2 to 8 percent slopes eroded is mapped within the study area. These soils are well drained and typically derived from moderately coarse-textured alluvium. These soils have slow runoff and moderate permeability. Pachappa soils typically occur in annual grassland and agricultural habitats at low elevations. Pachappa soils are considered extensive within central and southern California. Pachappa fine sandy loam, 2 to 8 percent slopes, eroded is not listed as a hydric soil (NRCS, 2012).

Ramona sandy loam, 0 to 2 percent slopes; and Ramona sandy loam, 0 to 5 percent slopes, severely eroded are mapped within the study area. These soils are well drained and typically derived from granitic alluvium. Ramona soils have slow to rapid runoff and moderately slow permeability. These soils typically occur in annual grassland, scrub, and agricultural habitats at low to moderate elevations. Ramona soils are considered extensive within the valleys of central and southern California. Ramona sandy loam, 0 to 2 percent slopes is listed as a potentially hydric soil, and Ramona sandy loam, 0 to 5 percent slopes, severely eroded is not listed as a hydric soil (NRCS, 2012).

Despite the mapping of several soil classes listed as potentially hydric within the study area, the vast majority of the study area was not observed to support hydric soil conditions. A single area within Drainage A outside of the impact area, where natural hydrological conditions have been altered, was observed to support hydric soil conditions. The extent of these soil conditions was restricted to the area immediately affected by the altered hydrologic conditions (**Figure 3**).

3.1.2 Vegetation

Three dominant plant communities were identified within the study area: non-native grassland, coastal sage scrub, and southern willow scrub. Areas of disturbed habitat associated with existing and past development were also identified within the study area. Within the study area, mapped drainages often occur within upland plant communities (i.e., non-native grassland and coastal sage scrub) lacking hydrophytic vegetation and dominated by facultative upland species. Facultative upland species occasionally occur in wetlands, but are mostly associated with uplands. Upland species rarely occur in wetlands, and almost always occur in uplands. Features dominated by upland vegetation, and lacking any hydrophytic vegetation, were identified as unvegetated streambed.

Although the drainages identified within the study area largely occur within upland plant communities, hydrophytic vegetation was observed within portions of both Drainage A and Drainage B, upstream of the confluence with Drainage C (**Figure 3**). However, the hydrophytic vegetation present within the immediate vicinity of the impact areas was observed to be patchy, and was not prevalent enough to pass the USACE dominance test. Hydrophytic plant species observed within the study area included Goodding's willow (*Salix gooddingii*), a facultative wetland species, and mulefat (*Baccharis salicifolia*), a facultative species. Facultative wetland species usually occur in wetlands, but occasionally occur in uplands. Facultative species occur in wetlands and non-wetlands.

3.1.3 Hydrology

Water that flows through the unvegetated channel features (**Figure 3**) within the Project site originates from the surrounding uplands. These features are hydrologically connected to Perris Valley Channel, a known tributary of Canyon Lake (**Figure 4**). The unvegetated channel features are considered non-relatively permanent waters (non-RPWs) or ephemeral drainages based on observations of the short duration of flow in the channel segments after rain events during several site visits to the study area, and the criteria discussed in Section 2.2,. An OHWM was clearly visible within Drainage A, Drainage B, and Drainage C. Evidence of ponding water was observed within two portions of Drainage A, and was determined to be caused by altered hydrological conditions in both cases. The upstream area where evidence of ponding water was observed was determined to likely be the results of activities associated with improvements of the nearby unpaved access road. The downstream area where evidence of ponding water was observed was determined to likely be the result of alterations to hydrology within the Lake Perris Fairgrounds property. Despite the altered hydrology observed within Drainage A, the feature was determined to still have a hydrologic connection to the Perris Valley Channel.

3.1.4 Feature Detail

Drainage A originates at the foot of the Lake Perris Dam just north of the unnamed granitic hills (**Figure 3**). The feature originates within southern willow scrub habitat to the west of the existing access road and flows generally southwest through southern willow scrub, coastal sage scrub, and non-native grassland habitats. At the Lake Perris Fairgrounds property, Drainage A turns southeast and then south continuing along the fenceline of the Lake Perris Fairgrounds before ultimately connecting within Drainage B and Drainage C at the southeastern corner of the Lake Perris Fairgrounds property. In all probability, Drainage A once continued southwest through what is now the Lake Perris Fairgrounds property. As recently as November 2012, Drainage A entered the Lake Perris Fairgrounds property within the Starwest Motocross Park; however, this connection has been altered, resulting in the current hydrological connection around the eastern fenceline of the Lake Perris Fairgrounds property (GoogleEarth, 2013). Within the study area, hydric soil conditions were identified within Drainage A associated with improvements of an existing unpaved access road. Hydrophytic vegetation is present within the southern willow scrub habitat near the upstream end of the feature. Based on observations of short duration flow following rain events, the feature is considered an ephemeral drainage.

Drainage B originates at the foot of the Lake Perris Dam just north of the former continuation of Ramona Expressway (**Figure 3**). The feature originates within southern willow scrub habitat then flows west through southern willow scrub, coastal sage scrub, and non-native grassland habitats before connecting within Drainage A and Drainage C at the southeastern corner of the Lake Perris Fairgrounds property. Within the study area, hydric soil conditions were not identified within Drainage B. Hydrophytic vegetation is present within the southern willow scrub habitat near the upstream end of the feature. Based on observations of short duration flow following rain events, the feature is considered an ephemeral drainage.

Drainage C collects flow from the uplands surrounding the western side of the Bernasconi Hills South (**Figure 3**). Portions of Drainage C, primarily upstream of the study area, are concrete-lined. Drainage C parallels Ramona Expressway through the study area before ultimately connecting with the Perris Valley Channel just east of the study area. Both Drainage A and Drainage B flow into Drainage C at the southeastern corner of the Lake Perris Fairgrounds property. Vegetation within Drainage C is limited to non-native annual species, dominated by Russian thistle (*Salsola tragus*). Within the study area, neither hydric soil conditions nor hydrophytic vegetation were identified within Drainage C. Based on observations of short duration flow following rain events, the feature is considered an ephemeral drainage.

3.2 Conclusions

Impacts to Drainage A, Drainage B, and Drainage C are expected to occur as a result of the Project. Potential impacts to Drainage A are expected where the Project footprint overlays the extent of the drainage along the east edge of the Lake Perris Fairgrounds property just upstream of the confluence with Drainage B and Drainage C (**Figure 3C**). Potential impacts to Drainage B are expected where the Project footprint crosses the drainage east of the confluence with Drainage A and Drainage C (**Figure 3C**). Potential impacts to Drainage C are expected where the Project footprint overlays the drainage along Ramona Expressway (**Figure 3A** and **Figure 3B**). Although portions of the proposed haul roads cross Drainage A, Drainage B, and Drainage C, no improvements to existing roadways are proposed under the Project; hence, impacts to the drainages in the areas will be avoided. In order to avoid impacts to potentially jurisdictional drainages in the areas described above, mitigation measures or alterations to the Project design may be necessary.

3.2.1 Non-Wetland Waters of the U.S.

Potentially jurisdictional features within the study area under the USACE's jurisdiction are limited to non-wetland waters of the U.S. characterized as drainage features that have a defined bed and bank and a distinguishable OHWM, but lack hydrophytic vegetation and/or hydric soils, and are connected to a TNW.

A significant nexus determination is required for the USACE to take jurisdiction over (1) non-RPWs that flow directly or indirectly into TNWs; (2) wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs; and, (3) wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

The unvegetated channel features within the vicinity of Project impacts were identified as non-wetland waters of the U.S. under the jurisdiction of USACE (**Table 1**), as indicated by the presence of wetland hydrology and determination of hydrologic connectivity to a TNW (**Figure 4**). These non-wetland waters were determined to be connected to Canyon Lake via the Perris Valley Channel.

The Project would result in potential impacts to 0.65 acre of USACE-jurisdictional non-wetland waters. Additional avoidance, minimization, and mitigation measures may be necessary. If avoidance of impacts to USACE-jurisdictional areas is not feasible, it may be necessary to complete the CWA Section 404 permitting process.

3.2.2 Waters of the State

CDFW

Areas of CDFW jurisdiction refer to streambeds and associated riparian scrub habitats. A total of 0.65 acre of CDFW-jurisdictional areas was mapped within the impact area (**Table 1**).

Based on the presence of a distinguishable channel, all unvegetated channels under USACE jurisdiction were also determined to be under the jurisdiction of the CDFW. Additionally, areas

supporting riparian scrub vegetation were determined to be under the jurisdiction of the CDFW. Although several areas of riparian habitat were observed during the field survey efforts, impacts to CDFW-jurisdictional areas are limited to streambeds also mapped as USACE-jurisdictional non-wetland waters. Additional avoidance, minimization, and mitigation measures may be necessary to avoid impacts. If avoidance of impacts to CDFW-jurisdictional areas is not feasible, it may be necessary to obtain a Streambed Alteration Agreement, pursuant to Division 2, Chapter 6, Section 1602 of the Fish and Game Code.

RWQCB

All areas mapped as USACE-jurisdictional waters fall within the CWA Section 401 authority of the RWQCB, specifically the unvegetated channel features.

The Project would result in potential impacts to 0.65 acre of RWQCB-jurisdictional areas. Additional avoidance, minimization, and mitigation measures may be necessary to avoid impacts. If avoidance of impacts to RWQCB-jurisdictional areas is not feasible, it may necessary to complete the CWA Section 401 permitting process.

3.2.2 Riparian/Riverine Areas

Areas of MSHCP jurisdiction refer to riparian/riverine areas which provide habitat for listed species, and areas with freshwater flow during all or a portion of the year. All areas mapped under CDFW jurisdiction fall under MSHCP jurisdiction. A total of 0.65 acre of MSHCP-jurisdictional areas was mapped within the impact area (**Table 1**). Additional avoidance, minimization, and mitigation measures may be necessary to avoid impacts. If the avoidance of impacts to MSHCP-jurisdiction riparian/riverine areas is not feasible, it may be necessary to complete the DBESP process in order to mitigate for impacts.

TABLE 1
SUMMARY OF IMPACTS TO JURISDICTIONAL AREAS

Agency	Total Impacts (acres)[1]
USACE	0.65
CDFW	0.65
RWQCB	0.65
MSHCP	0.65

[1]All impacts are considered permanent.

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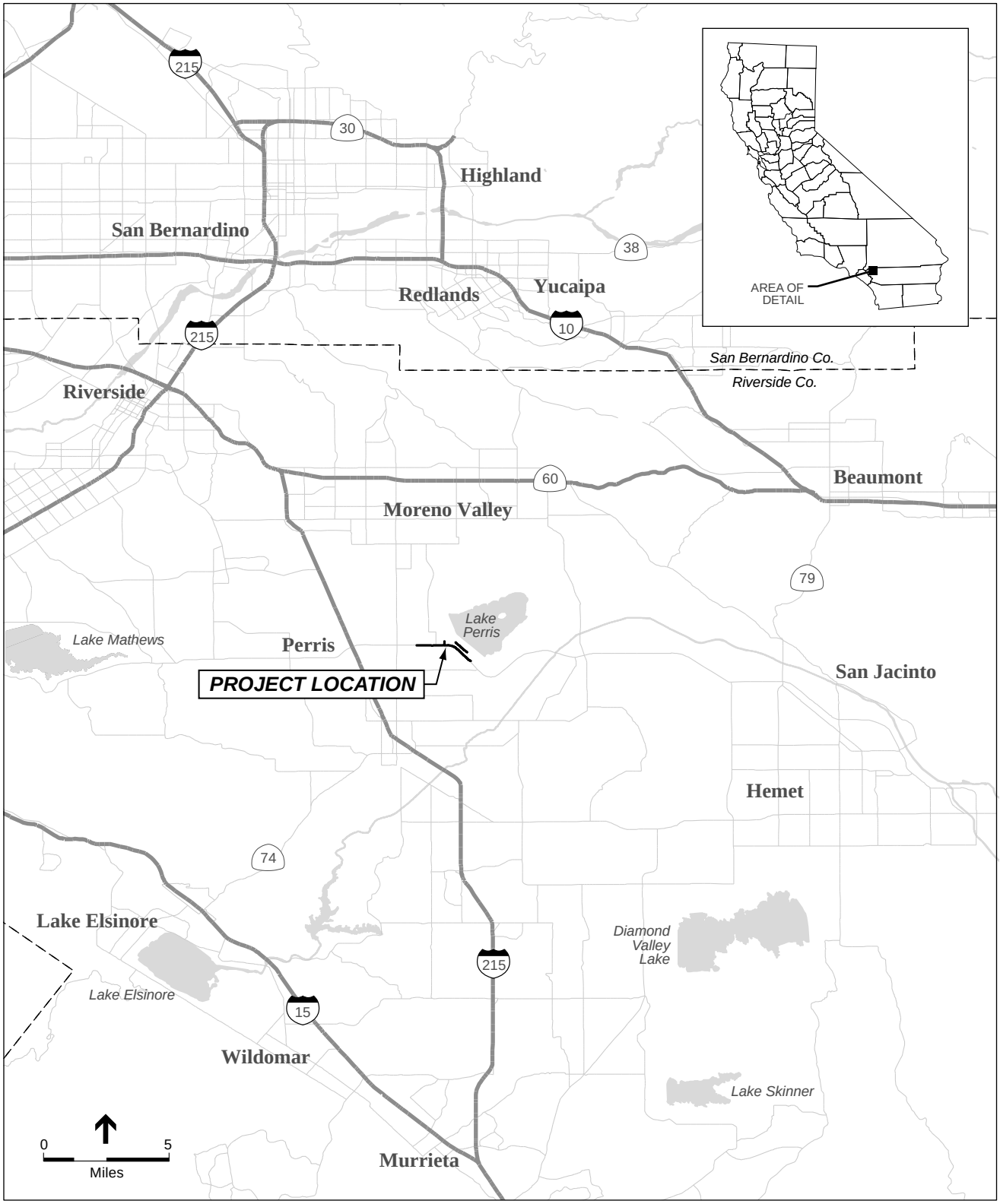


SOURCE: Riverside County, 2013

Perris Dam Emergency Release Facility . 120083.02

Figure 1

Regional Location Map

SOURCE: Bing Maps

Perris Dam Emergency Release Facility . 120083.02

Figure 2

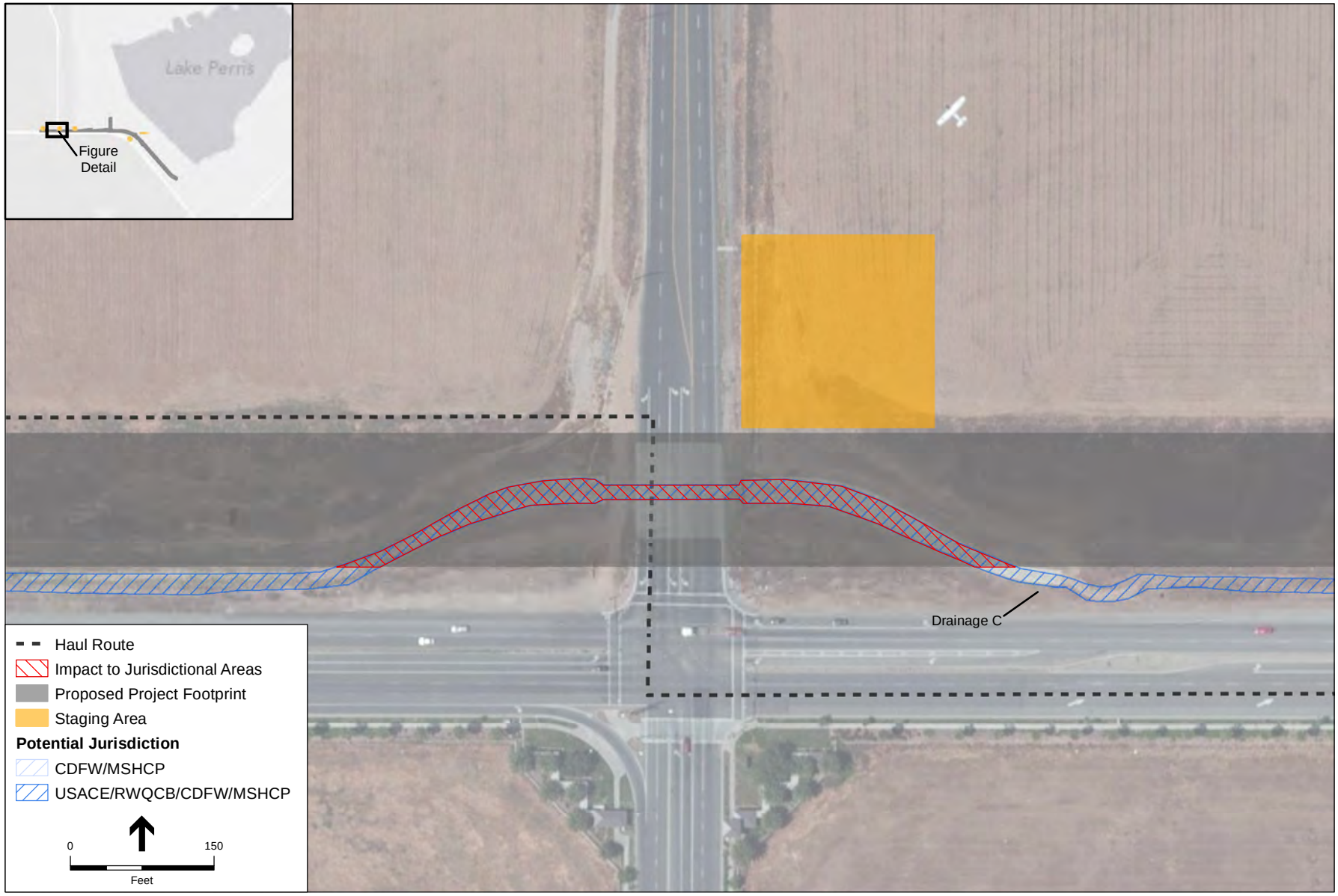
Project Location

SOURCE: Bing Maps

Perris Dam Emergency Release Facility . 120083.02

Figure 3

Jurisdiction Delineation

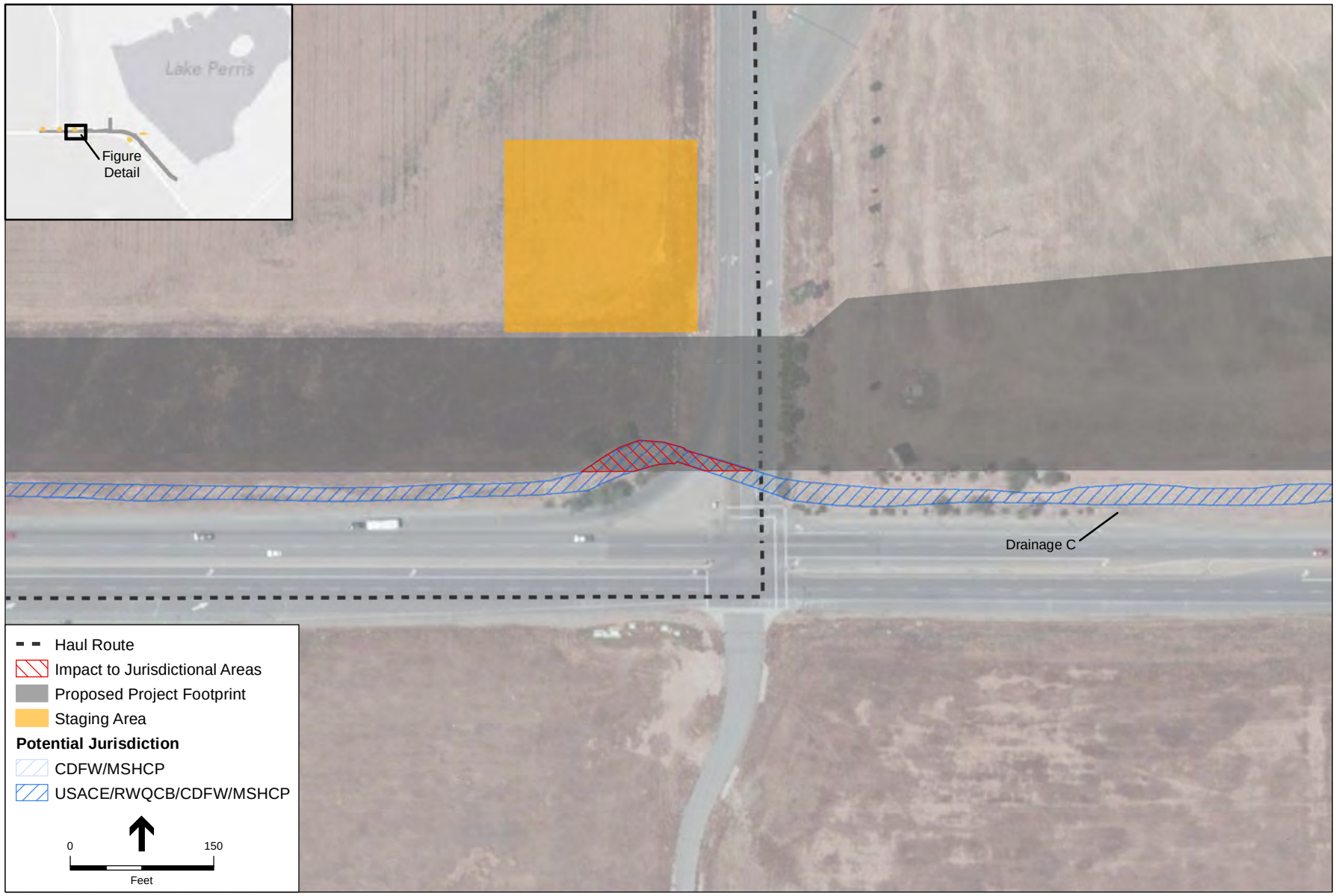


SOURCE: Bing Maps

Perris Dam Emergency Release Facility . 120083.02

Figure 3A

Jurisdiction Delineation

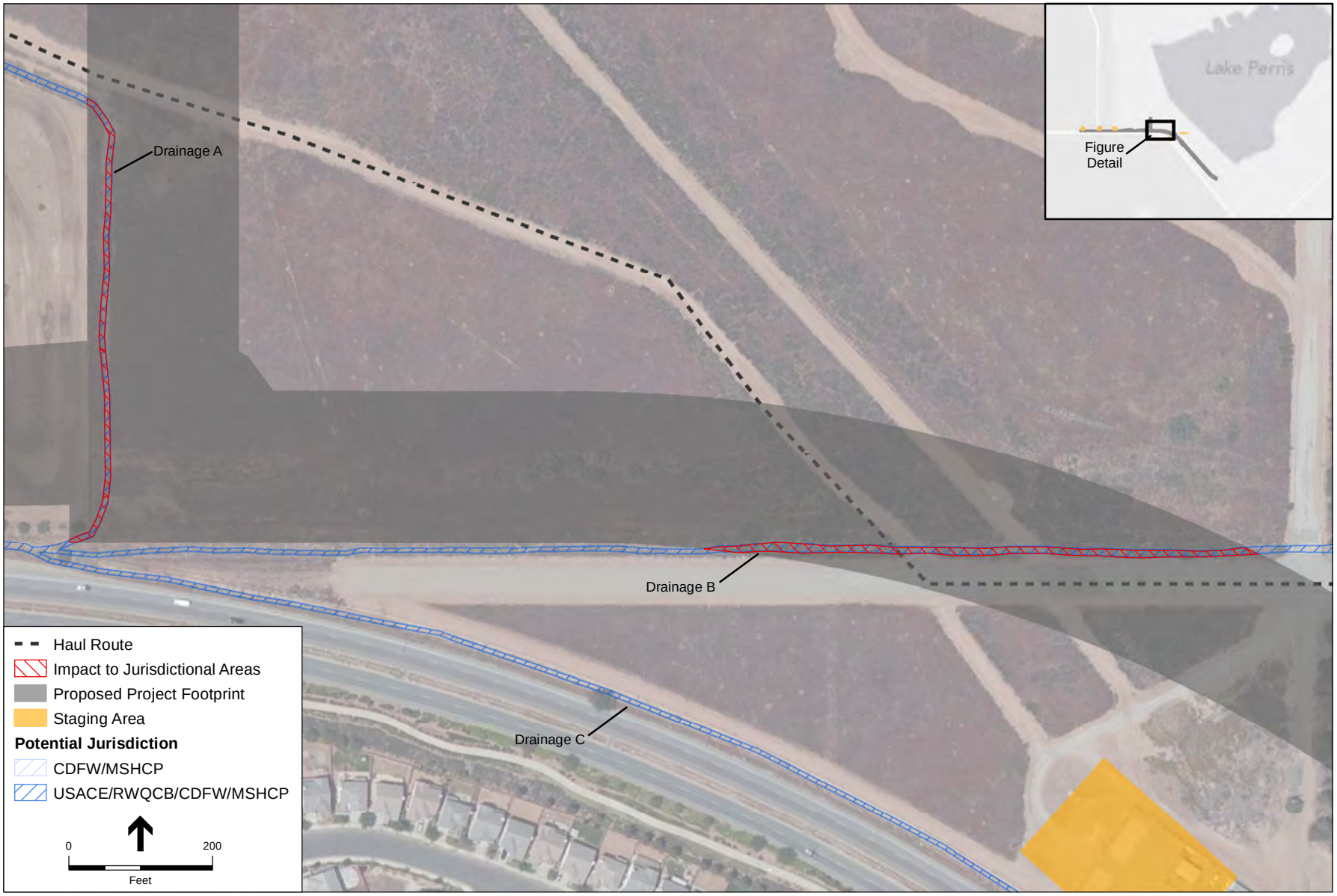


SOURCE: Bing Maps

Perris Dam Emergency Release Facility . 120083.02

Figure 3B

Jurisdiction Delineation



SOURCE: Bing Maps

Perris Dam Emergency Release Facility . 120083.02

Figure 3C

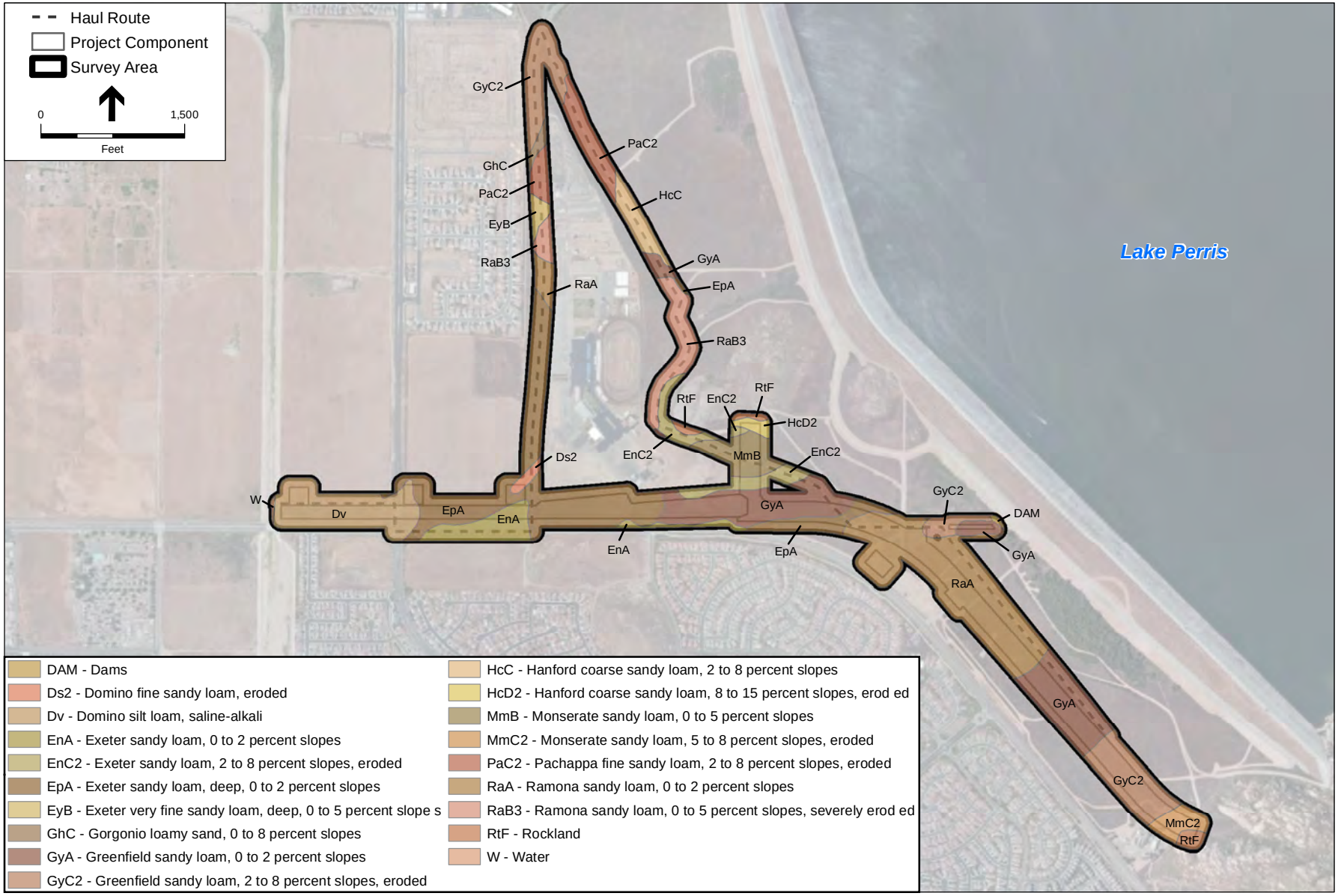
Jurisdiction Delineation

SOURCE: USGS, NHD

Perris Dam Emergency Release Facility . 120083.02

Figure 4

Jurisdictional Nexus



SOURCE: Bing Maps

Perris Dam Emergency Release Facility . 120083.02

Figure 5

Soils