VOLUME 5

DRAFT
ENVIRONMENTAL IMPACT STATEMENT

GREGORY CANYON LANDFILL

SAN DIEGO COUNTY, CALIFORNIA

TECHNICAL APPENDIX G

December 2012

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TECHNICAL APPENDIX G

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December 2012

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ENVIRONMENTAL IMPACT STATEMENT

GREGORY CANYON LANDFILL

San Diego County, California

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- Survey Results for Quino Checkerspot Butterfly
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- Survey Results for Coastal California Gnatcatcher
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- Gregory Mountain Golden Eagle Territory in San Diego County, California: A Compilation of Historical Data, Wildlife Research Institute, February 14, 2012
- Approved Jurisdictional Determination regarding presence/absence of geographic jurisdiction, Department of the Army, Los Angeles District, Corps of Engineers, February 13, 2012
- Approved Jurisdictional Determination regarding presence/absence of geographic jurisdiction, Department of the Army, Los Angeles District, Corps of Engineers, November 2, 2011
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- Supporting Biological Resources Figures
- Habitat Restoration and Resources Management Plan for Gregory Canyon Landfill Property, prepared by URS dated October 7, 2008

RESULTS OF FOCUSED SURVEY FOR QUINO CHECKERSPOT BUTTERFLY ON THE GREGORY CANYON LANDFILL PROJECT SITE, SAN DIEGO COUNTY

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May 2000

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1.0 INTRODUCTION

This document reports the negative findings of a focused survey for adult quino checkerspot butterflies (quino) on the 76-acre Gregory Canyon Landfill project site, located southeast of Fallbrook, just south of and along the San Luis Rey River, in northern San Diego County, California. The project site is located in portions of Section 4, 5, 6 and 32, Township 10 south (with a very small portion in T9S), Range 2 west, on the Pala USGS 7.5 minute series quadrangle.

2.0 QUINO CHECKERSPOT BUTTERFLY

The quino checkerspot was listed by the USFWS as an endangered species on January 16, 1997 (USFWS 1997). The butterfly occurs in sunny openings on clay soils in shrublands and grasslands of the interior foothills of southwestern California where its primary larval foodplant, California plantain (*Plantago erecta*), is abundant. Owl's clover (*Castilleja exserta*) and bird's beak (*Cordylanthus rigidus*), which occur in open fields and grasslands habitats, are also a known larval foodplant. The butterfly is found only in areas that contain fairly dense patches of at least one of these foodplants (Hawks and Ballmer 1997; USFWS 1997). The quino may have had an almost continuous distribution across cismontane southern California (Mattoni et al. 1997), and may have been one of the most abundant butterflies. There were only seven or eight known populations of this butterfly in the United States when the species was listed (USFWS 1997), all in southwestern Riverside and southern San Diego counties.

The quino is found in a variety of scrub community types, but only in openings within the community where there is sufficient local cover of larval foodplants. It does not generally occur in extensive open grasslands, or in extensive dense scrub habitats without clearings (Mattoni et. al 1997). Plant community structure therefore appears to be more important than species composition.

3.0 METHODS

An assessment of the quino habitat was conducted by Debbie Pudoff (Helix) and Brian Leatherman on 15 March 2000, prior to the start of the adult survey season. An estimate of the survey area for adult quino was less than 53 acres. The extent of excluded and non-excluded habitat for adult focused surveys is depicted on

Figure 1. Criteria for determining what was considered an excluded area are based on those listed in the Year 2000 Survey Protocol (USFWS 2000).

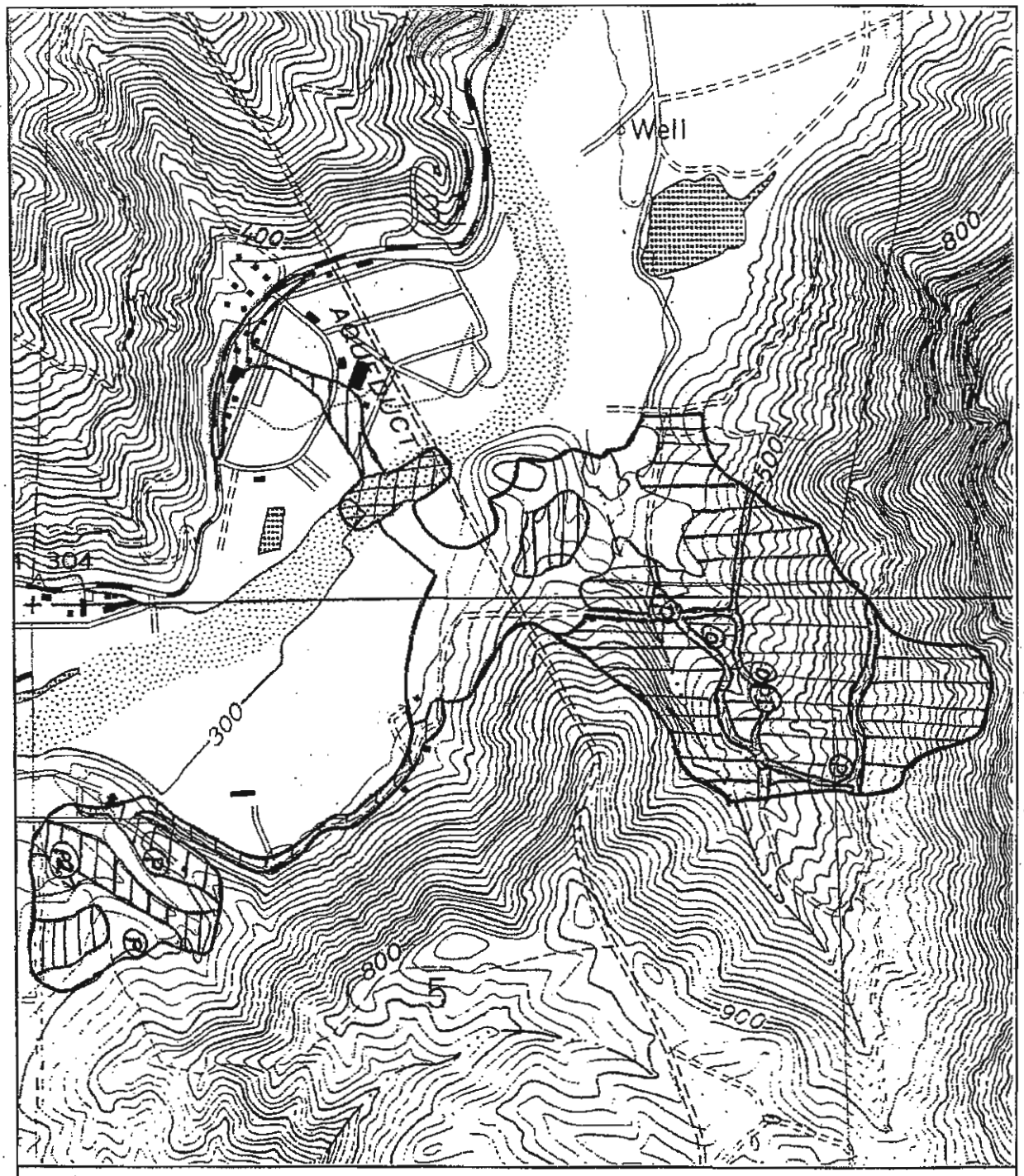
A focused adult quino survey was then conducted by Brian Leatherman (permit # TE-827493-3). Surveys focused on the discovery and identification of quino and sympatric resident butterflies, larvae, and habitat components suitable for quino. The official survey season as determined by the USFWS began on 31 March 2000 and ended on 4 May 2000. Focused surveys on the Gregory Canyon Landfill site were initiated on 4 April 2000 and ended on 3 May 2000. Butterfly survey start and end times were dependent on reaching acceptable temperatures and therefore changed slightly as the season progressed and the current conditions warranted. The date, time and weather conditions for each survey are provided in Table 1. Copies of the original survey data sheets are provided in Appendix A.

Table 1. Dates, Times and Conditions for Focused Quino Checkerspot Survey, Spring 2000

Week	Survey Date	Time	Weather Conditions*
31 March – 6 April	4 April	0930-1600	69 °F; <1 mph winds; clear 80 °F; 7-10 mph winds; clear
7 April – 13 April	11 April	1000-1600	80 °F; 1-3 mph winds; clear 81 °F; 1-3 winds, occasionally from 4-7 mph ; clear
14 April – 20 April	20 April	1000-1600*	73 °F; 1-3 mph winds; clear 78 °F; 4-7 mph winds; ~25 % thin high cirrus cloud layer
21 April – 27 April	23 April	1030-1500	68 °F, muggy; 1-3 mph winds; ~60% cumulus cloud cover – burning off 75 °F; 4-7 mph winds; ~20% cumulus cloud cover
28 April – 4 May	4 May	0930-1430	72 °F, muggy; <1 mph winds; morning low clouds almost burned off 85 °F; 1-3 mph winds, occasionally from 4-7 mph; clear

* All wind measurements taken 4 feet above ground with a Dwyer hand held wind meter.
All temperatures were taken in shade of body 1 inch above ground with Spirit Pocket Thermometer (REI)
Additional weather data taken during survey can be found on data sheets in Appendix A.

Survey techniques for detecting quino and other adult butterflies were based on those stated in the Year 2000 Survey Protocol (USFWS 2000) and over ten years of butterfly collecting experience in southern California.



GREGORY CANYON LANDFILL

ASSESSMENT AND HOST PLANT MAP

Figure 1

Excluded Areas

- Closed Canopy Mixed Chaparral/Oaks
- Closed Canopy Willow Riparian
- Developed/Agricultural/Annual Grassland

Host Plants

- California Plantain
- Purple owl's clover

↑ N

Source: USGS 1:24,000 Pala Quadrangle 200% enlarged

White and Leatherman BioServices
HRL.01

All wildlife and plants observed during the course of the surveys were documented on standardized field forms. The lists of observed plants and wildlife for the site are included in Appendix B.

4.0 RESULTS

4.1 Host Plants, Nectar Plants and Plant Communities

The following are lists of the host plants, nectar plants and plant communities observed on the project site. These are discussed in more detail in the text that follows. Commonly reported nectar plants are listed here, possible additional nectar sources are in the plant list in Appendix B. Plant taxonomy and nomenclature follows Hickman (1993), and plant communities follow California Department of Fish and Game (1997), which is based on Sawyer and Keeler-Wolf (1995).

Larval Host Plants

- California plantain (*Plantago erecta*)
- Purple owl's clover (*Castilleja exserta*)

Nectar Plants

- Common fiddleneck (*Amsinkia menziesii*)
- Popcorn flower (*Cryptantha* sp.)
- Pectocarya (*Pectocarya* sp.)
- Popcorn flower (*Plagiobothrys* sp.)
- Hirsute lotus (*Lotus strigosus*)
- Chia (*Salvia columbariae*)
- Southern goldfields (*Lasthenia coronaria*)
- Tidy-tips (*Layia playtglossa*)
- Suncups (*Camissonia* sp)
- Gilia (*Gilia* sp)

Plant Communities

- California annual grassland
- Needlegrass grassland
- California sagebrush-California buckwheat
- Mixed chaparral (no CDFG equivalent)
- Southern arroyo willow riparian
- Coast live oak woodland

4.2 Vegetation

Briefly, the project site consists of an office and landfill area, a separate spoil area that is located about one-third of a mile to the southeast, and associated access roads. The landfill and spoil sites are connected by an existing dirt road bordering an adjacent dairy on the property.

Habitat on the proposed office site consists almost exclusively of dense non-native grassland dominated by ripgut brome (*Bromus diandrus*). This area appears to have been historically plowed. A small portion of the office area includes a hill, the top of which has been bladed to a flat terrace. Although dominated by non-native ruderal species, this hilltop was included in the weekly survey area.

Most of the habitat on the proposed landfill site consists of dense mixed chaparral on moderate to steep slopes with massive boulders. A riparian area supporting coast live oak (*Quercus agrifolia*) woodland (and associated understory) runs the length of the canyon bottom. Small areas supporting open coastal sage scrub occur near the mouth of the canyon on the more moderate slopes. Non-native grasslands are present in patches in disturbed areas along the margins of several dirt roads and trails through the area.

The proposed spoil site supports open coastal sage scrub in varying degrees of disturbance and two large tracts of land currently in agricultural use. A relatively intact patch of native grassland dominated by needlegrass (*Nassella* sp.) occurs in one area of the sage scrub.

The proposed main access road from Highway 76 to the landfill site traverses an existing dairy before crossing the San Luis Rey River. Habitat along the river consists of dense willow riparian woodland with an understory of shrubby willows (*Salix* spp.) and mulefat (*Baccharis salicifolia*). Portions of the floodplain along the proposed access road alignment consist of sandy terraces with no (or sprouting) vegetation.

4.3 Quino Survey Areas

Areas surveyed for adult quino consist of the dirt roads and trails through the mixed chaparral, adjacent patches of coastal sage scrub at the canyon mouth, the bladed hilltop, open areas along the margins of the willow riparian habitat along the San Luis Rey

River, and the coastal sage scrub habitat at the spoil site. Existing dirt roads through the dairy and agricultural lands were not included in the butterfly survey area. Surveyed area and areas excluded from survey are depicted in Figure 1.

4.4 Host and Nectar Plant Presence

Several populations of larval foodplants, including both California plantain (*Plantago erecta*) and purple owl's clover (*Castilleja exserta*), were identified on the project site. The two largest populations are labeled P1 and P2 on Figure 1. P1 is located on a trail through mature mixed chaparral, and P2 is located along an old road connecting agricultural fields at different elevations. The remaining populations generally consist of relatively few individuals scattered in openings or grasslands.

4.5 Butterfly Fauna

No quino checkerspot butterflies were observed on the project site.

Twenty-five species of butterfly representing six Families were identified during the course of the surveys (Table 2)(taxonomy and nomenclature follow NABA 1999). Table 2 includes totals for the number of species and the number of individuals observed for each day and cumulatively. However, because data collection was not standardized, no conclusions about individual species relative abundance and distribution can be made. The turnover in butterfly fauna from the early spring flyers to the summer flyers was apparent by the final survey.

5.0 CONCLUSIONS

Based on the negative survey results for the project site, lack of recent sightings in the survey area, lack of historical records from the vicinity (Mattoni et al. 1997), and professional judgement and experience, the quino checkerspot butterfly is likely absent from the Gregory Canyon Landfill property at this time.

6.0 REFERENCES

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Table 2. Summary of Butterfly Species Observed During Each Weekly Survey - Spring 2000

	SURVEY WEEK					
	3/31 - 4/6	4/7 - 4/13	4/14 - 4/20	4/21 - 4/27	2/28 -5/4	
	SURVEY DATE					
BUTTERFLY SPECIES*	**4/4**	**4/11**	**4/20**	**4/23**	**5/3**	**TOTAL**
Swallowtails						
Giant Swallowtail					4	4
Western Tiger Swallowtail	1	2	2		1	6
Pale Swallowtail		1			1	2
Whites and Sulfures						
Common (Checkered) White	1	1			2	4
Cabbage Butterfly			3	3	4	10
Sara's Orangetip	10	6	1	1	3	21
Orange Sulfur (Alfalfa Butterfly)					1	1
Dainty Sulfur					1	1
Gossomer-winged Butterflies						
Bramble (Perplexing) Hairstreak	1					1
Brown Elfin		1	2			3
Western Tailed-blue					1	1
Silvery (Southern) Blue	8	6	2			16
Acmon Blue	4	6	5	3	6	24
Metalmarks						
Mormon (Behr's) Metalmark	3	6	8	16	27	60
Brush-footed Butterflies						
Painted Lady	1				1	2
West Coast Lady			1	3	1	5
Red Admiral		1			1	2
Common Buckeye				1		1
Lorquin's Admiral					2	2
California Sister	1	1			1	3
Common (California) Ringlet		8	17	22	22	69
Skippers						
Funereal Duskywing	1	4	6	4		15
Duskywing sp.	1	1		2	1	5
Field Skipper	1					1
Umber Skipper		1	1			2
TOTAL (Species/Abundance)	**12/33**	**14/45**	**11/48**	**9/55**	**18/80**	**25/261**

*Local common names or subspecies names are provided parenthetically

2010 San Luis Rey River Steelhead Surveys on the Gregory Canyon Ltd. Property

1 December 2011

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1.0 INTRODUCTION

Southern California Steelhead (*Oncorhynchus mykiss*) were historically present in the San Luis Rey River in San Diego County until the 1940's (Downie and Kajtaniak 2010). The Southern California steelhead DPS (Distinct Population Segment), including all naturally spawned populations of steelhead (and their progeny) in streams from the Santa Maria River to Malibu Creek, was listed as federally endangered in 1997, due to major population reductions region wide (62 FR 43937. 1997). A Southern Range Extension to include streams as far south as San Diego County was promulgated on May 1, 2002 (50 CFR Part 224), and reaffirmed January 5, 2006 (71 FR 834).

Two recent observations of salmonids (potentially steelhead) in the San Luis Rey watershed are not well documented; however, an adult steelhead was observed in the San Luis Rey River in a pool at the College Avenue crossing in Oceanside in 2007 (personal communication, Mary Larson, Department of Fish and Game (CDFG)). In addition, a purported steelhead was observed in a tributary to the San Luis Rey River, Gomez Creek, in 2006 (personal communication, Mary Larson, CDFG). However, that fish is now considered to be a domestic rainbow trout that escaped from an adjacent stock pond where the property owner was raising stocked rainbow trout (personal communication, Tim Hovey, CDFG). The property owner indicated that high flows in 2005 caused the stock ponds to flood, releasing stocked, domestic rainbow trout into Gomez Creek (Dudek 2007).

The Southern California Steelhead Recovery Plan (Plan) (NMFS 2009) designates the San Luis Rey as a high priority watershed for recovery of the species. Under the Plan, the immediate objectives are to increase steelhead abundance and to preserve the variety of life-history strategies that characterize steelhead populations. To meet these objectives, the Plan uses a Threat Assessment Process to identify, prioritize and compare threats among Southern California watersheds and to examine the possibilities for mitigation. As a result of this process, the Plan categorizes the San Luis Rey River as a high priority, or Core 1 basin. Core 1 population designation is based on several factors, including "the intrinsic potential of the population in an unimpaired condition, the role of the population in meeting the spatial and/or redundancy viability criteria, the conditions of the population, the severity of threats facing the

populations, the potential ecological or genetic diversity the watershed and population could provide to the species, and the capacity of the watershed and population to respond to the critical recovery actions needed to abate those threats. Core 1 populations form the nucleus of the recovery strategy". However, there are many obstacles to steelhead recovery in the San Luis Rey River, most notably, the over-allocation of water diversions in the basin, resulting in less than suitable spawning, rearing, and passage flows in the mainstem San Luis Rey River, and further, premature (on a seasonal basis) dewatering of many miles of mainstem channel. This combined with agricultural crossings and other barriers resulting either from 1) lower than suitable instream flows caused by upstream diversion, 2) historic channel modifications throughout the basin from agricultural or industrial practices, or 3) gravel mining operations that have acted to reroute the San Luis Rey streamflows into the old Fenton ponds have further exacerbated the problem of successful upstream passage of adult steelhead, which is currently only infrequently possible during years of high flow.

It is a conclusion of this report that steelhead may still use the San Luis Rey River, but only infrequently during years when conditions are suitable, and only as a corridor through which 1) adults must pass to reach upstream spawning tributaries, and 2) juveniles ("smolts") must pass from upstream rearing habitat (that is present only in certain tributaries) to the Pacific Ocean.

1.1 Project Description

The proposed Gregory Canyon Landfill (GCL) is located in northern San Diego County, approximately 3 miles east of Interstate 15 to the south of Highway SR 76, within the *Pala Hydrologic Subarea of the San Luis Rey Watershed* (Joint Technical Document for the Proposed Gregory Canyon Landfill, 2004) (Figure 1). The proposed project is designed as a Class III municipal solid waste (MSW) landfill, which could accept municipal solid waste, inert waste and dewatered sewage sludge. The proposed Class III MSW landfill would not be allowed to accept hazardous wastes for disposal. The proposed project would cover approximately 1,770 acres located adjacent to the San Luis Rey River. The proposed landfill footprint is approximately 183 acres with a design capacity of approximately 46 million cubic yards (or 31 million tons) of waste and an expected service life of approximately 30 years.

An access road leading from SR 76 will be about two to three lanes and approximately 32 to 36 feet in width, and will include a bridge over the San Luis Rey River (Figure 2). That portion of the road leading from SR 76 to the bridge will be 32 ft. in width, with two 12-ft travel lanes, and a 4-ft shoulder on each lane. That portion of the road leading from the bridge to the ancillary facilities will be 36 ft in width, with three lanes (two 12-ft. travel lanes, and a 4-ft shoulder on each lane). The access road will be paved with asphalt curbs. The bridge will be 681 ft. in length, 35.5 ft in width, and supported by five large diameter piers for support that will extend across the San Luis Rey River. The length of the bridge was increased from the original design to decrease potential environmental effects. The primary abutments are located completely outside the river channel, with no approach fill on either side of the river. In addition, grading and channelization activities within the river channel and adjacent floodplain are reduced from 9 acres to 1.6 acres. That reduction in affected acreage increases the amount of native vegetation restoration, thereby enhancing habitat.

The San Luis Rey River extends for approximately 1.75 km through the GCL property. No other project facilities will directly contact the San Luis Rey river channel.

1.2 Study Purpose

In discussions with the National Marine Fisheries, Mr. Stan Glowacki (NMFS) requested that information be collected on steelhead utilization in the portion of the San Luis Rey River potentially affected by GCL construction or operations. It was agreed that three surveys be conducted in the San Luis Rey River and nearby tributary drainages for steelhead, and that the surveys be completed prior to April 30, 2010. Survey methods are described in Section 2.0 of this report. Survey results and discussion are presented in sections 3.0 and 4.0, respectively, of this report. References are provided in Section 5.0 of this report.

Because of the designation of the San Luis Rey River as a Core 1 basin, a secondary purpose of this study is to provide a historic analysis of the San Luis Rey River hydrology, and some indication of conditions necessary for upstream passage through the Project site.

2.0 METHODS

2.1 Steelhead Surveys

Three steelhead surveys were conducted on March 5, March 19, and April 16, 2010. Follow-up checks of flow conditions in the San Luis Rey River were conducted on May 18, 2010 and on July 5, 2010. The surveys were conducted along the entire reach of the San Luis Rey River within the boundaries of the GCL property on each survey date (see Figure 2). Although surveys upstream and downstream of the GCL property and nearby tributaries were originally requested by NMFS, access to adjacent property upstream and downstream of the GCL property and tributaries off the GCL property was not available. Therefore, off-site river and tributary observations were conducted at publicly accessible areas, including San Diego County Wilderness Gardens Park (upstream of GCL), and at the bridge crossings of the San Luis Rey River at Couser Canyon Road and at Shearer Road (downstream of GCL). Conditions in the San Luis Rey River and Gomez Creek on the Pala Indian Reservation or lands owned by the Pala Tribe were observed at several locations that were readily viewable from SR 76 or the GCL property without the need to enter the reservation or tribal property. Conditions in Gregory Canyon were observed by all surveyors on March 5, 2010.

As a reference to another Southern California stream where steelhead were historically present and were recently observed, conditions in the Santa Margarita River at the crossings of De Luz Road and Sandia Creek Drive where steelhead were present in 2009 were surveyed on April 16, 2010. In addition, several points along the San Luis Rey River between the project site and Oceanside were also surveyed.

Surveys were conducted by walking alongside and within the stream channel. Surveys were conducted by proceeding from the downstream edge of the property to the upstream edge of the property on each survey day. Extra time was spent at pools to increase the likelihood of observing fish in the pools, if any were present. Data on fish observed were recorded. If steelhead were located, exact locations were to be recorded. Channel conditions, fish habitat, and fish cover conditions were observed and recorded into field books, and locations documented with GPS.

Steelhead surveyors included Tom Keegan and Manna Warburton of ECORP Consulting, Inc. (ECORP), and Bill Magdych of Bill Magdych Associates. The U.S. Army Corps of Engineers also provided observers during the surveys in March and April, which included Meris Bantilan-Smith and Peggy Bartels.

2.2 Hydrologic Analyses

In order to describe the instream conditions (including stream depths, habitat, and fish cover) within the San Luis Rey River in the vicinity of the Project area, and to put these conditions into perspective relative to potential steelhead utilization in this portion of the San Luis Rey River, we have prepared hydrologic information from several staff gages, and have prepared maps showing instream conditions.

Flows at the Oceanside, California Stream Gage. The U.S. Geological Survey (USGS) maintains a stream gage in Oceanside located at latitude 33.218055 and longitude -117.359444, NAD27. It is within San Diego County, California, Hydrologic Unit 18070303, which has a drainage area of 557 square miles and a datum of gage at 20.00 feet above sea level NGVD29. This stream gage has the longest period of record available for the San Luis Rey River, and includes data, although not in continuous years, from 1930 through present (currently through 2011). A total of 78 years of record (1930 through 2011) are available, with no data collected between 1942 and 1946 during World War II.

Flows at Stream Gages near the GCL Property. Several stream gages have been deployed over the years at locations near the GCL property; however, none of these gages provide a continuous period of record comparable to that available from the gage at Oceanside. The stream gages nearest to the project site with reasonable periods of measurement include the Monserate Narrows gage that recorded data between 1936 and 1986, the Couser gage at the former bridge crossing of the San Luis Rey at Couser Canyon Road that recorded data between 1987 and 1993 prior to the 1993 flood, and the Shearer Crossing bridge gage that has been recording data from 2003 to present (2011). The Monserate Narrows gage was replaced by the Couser gage, which was destroyed along with the former Couser Canyon Road bridge by the 1993 flood (the 1993 flood has the greatest recorded peak discharge at the Oceanside gage

since 1930). The Monserate Narrows and Couser gages both provide discharge data in cfs. The Shearer Crossing gage is a stage gage that only provides water level elevations in feet. Discharge data calculated to cfs were not available from that gage for this report.

The Monserate Narrows gage was located at latitude 33.337222 and longitude -117.135277, NAD27. It was within San Diego County, California, Hydrologic Unit 18070303, which had a drainage area of 373 square miles and datum of gage at 270.00 feet above sea level NGVD29. The Couser gage was located at latitude 33.340555 and longitude -117.130555, NAD27. It was within San Diego County, California, Hydrologic Unit 18070303, which had a drainage area of 364 square miles. The Shearer Crossing gage is located at latitude 33.332611 and longitude -117.149608, NAD83/WGS84 (the drainage area has not been calculated; however, it is similar to that for the Monserate Narrows gage because of its proximate location).

2.3 Topographic Mapping

An interim topographic map of the project area has been created by GCL. The contours created within the topographic drawing were compiled with the following data:

- the 2' contours were created using the DTM file provided by Analytical Photogrammetric Survey Inc., dated 2-1-2010 and titled 32699DB Upper 2-ft 2010,
- the 1' contours were created using the DTM file provided by Analytical Photogrammetric Survey Inc. Dated 2-1-2010, and titled 327DB Lower 1-ft 2010, along with field shots provided by BAS.
- Additional field shots were obtained by Excel Engineering during the month of August and September of 2010.

Additional information for a portion of the 1' contours was utilized by a 1998 aerial survey provided by San Lo Aerial Surveys DTM file, titled GregoryDTM and dated 1-14-1998. The DTM for this portion covered by this aerial was found to correctly match field shots taken in this area. During the time that this aerial was flown, flooding in the previous years of 1993 and 1995 had removed the vegetation and had not grown back by the time the aerial was flown in 1998. All

the referenced data shown above were utilized to give the best picture of actual ground locations.

Data from the topographic map were used to generate a grid-based digital elevation model (DEM) using ESRI's Spatial Analyst and ArcGIS software. The grid model was analyzed with the ArcHydro extension to develop water flow paths and approximate centerlines utilizing the D8 surface from the model. Potential pool areas were developed from the resulting layers by subtracting likely surface flow elevations from the base DEM. These potential pool areas were characterized by size and depth and those features that did not meet the minimum thresholds for those variables were excluded from the final pool layer.

3.0 RESULTS

A summary of the steelhead survey results is provided in Table 2, while a summary of other site observations is provided in Table 3. No steelhead were observed during the surveys. Fish species observed included largemouth bass (*Micropterus salmoides*), green sunfish (*Lepomis cyanellus*), and mosquitofish (*Gambusia affinis*). All fish observed during these surveys were warm water species and they were generally in the range of 4 to 6 inches in length, with the exception of mosquitofish which were less than 2 inches in length, and with larger largemouth bass specimens approaching 8 inches in length. These fish were more abundant in the upstream reaches on the GCL property during the initial survey, in proximity to the old Fenton Sand ponds. Fish were observed in the shallow pools further downstream and in slightly higher numbers during subsequent surveys. Crayfish were observed during the last survey, and were more abundant in the upstream portion of the river on the GCL property.

3.1 Habitat Description

Notes on general channel conditions, aquatic habitat, fish cover, and riparian vegetation were collected during the surveys and are summarized here. In general, the entire reach of the San Luis Rey within the Project area can be characterized as low-gradient, shallow, multi-braided channel with heavy riparian vegetation encroachment. The dominant substrate types are sand and silt, with occasional small deposits of pea-gravel where velocities were increased due to a

constriction of the low flow channel. However, a few shallow pools are also present in the reach (generally less than 3 ft in depth). Effort was spent to quantify these pool areas, because they contained the only plausible habitat for steelhead (potentially as adult holding habitat, and perhaps as marginal juvenile rearing habitat, although only warm water species were observed) throughout the reach. Figures 3, 4, and 5 are generated from a grid based digital elevation model (DEM) using the recently developed topographic map (see Section 2.3) as a base map. Figure 3 shows the potential pool locations throughout the reach (plus the location of two known pools), and Figure 4 gives depth information for those potential pools. These pools are generally scour-formed, due either to a constriction of the low flow channel, or a minor change in gradient along the longitudinal profile. Direct observation of these potential pools indicates most, if not all become dewatered when flows diminish during summer of most years. Many of these areas indicated as potential pools by this model are actually broad 'depressions' in the braided channels that become more 'pool-like' during moderate flows. Like the low flow and secondary flow channels, the pool substrates are dominated by fine sediments, with no cobble or boulder cover. Infrequently, organic input was present in the form of small woody debris. No undercut banks, boulder edge, or air bubble curtains were present as fish cover. Occasionally, large woody debris or overhanging vegetation would be present and provide minimal fish cover.

Streamflow levels in the San Luis Rey were low during the three steelhead surveys, and steadily declined from <10 cfs to <2 cfs (on average). Channel depths ranged from 0.1 to about 0.5 ft over the majority of the surveyed channel, and as such water levels were too shallow to allow benefit from snorkel surveys. Shallow pools up to about 3.0 ft in depth were infrequently encountered (see Figure 3). Streamflow generally ran clear, allowing views of the substrate and occasionally fish in the river. Average channel widths ranged from approximately 5 to 15 feet.

To facilitate describing the habitat and fish cover, the Project area was broken into subreaches 1 through 6 (Figure 5).

Subreach 1 (238 meters in length) begins just below the property boundary as an agricultural, low flow crossing with a series of 16" culverts. This relatively long section is characterized as a

broad, shallow, multi-braided channel. Heavy riparian vegetation encroaches into the entire channel.

Subreach 2 (155 m) is referred to as the Old Low flow Crossing. Multiple channels from Subreach 1 meet at a relatively long, shallow pool with cattails encroaching along the margins. At the head of this pool is a scour pool, formed by iron pipes and concrete rubble from the old low flow crossing.

Subreach 3 (275 m) is also a broad, shallow, multi-braided channel, with heavy riparian vegetation encroachment. At the upstream end, a short seasonal riffle section is formed by a slight change in longitudinal profile gradient.

Subreach 4 (338 m) is a relatively open section (vegetation not encroaching into channel) that is characterized as having a relatively long, shallow pool section ("pipe pool") during moderate flow (> 10 cfs) that continues to shrink to a small depression at low flow (< 2 cfs).

Subreach 5 (609 m) is characterized as a relatively long, broad, shallow, multi-braided channel, with heavy riparian vegetation encroaching into the entire channel. Shallow pool habitat is infrequently present, but only when stream flow is at moderate level. In addition, there is a large, shallow secondary channel (with multiple braids) that is formed behind a large sandy 'island' to the south and is located near the Gregory Canyon input.

Subreach 6 (125 m) is an extension of subreach 5, but the multiple braids tend to form into one or two low flow channels, with somewhat deeper depth and higher velocities. This reach is near the upstream boundary of the property line and extends into the adjacent property to the old Fenton sand ponds.

3.2 Hydrology

The San Luis Rey River runs generally east to west from headwaters in the Cleveland National Forest to the Pacific Ocean at Oceanside, California. Lake Henshaw is located in the upper 1/3 of the watershed, and has affected water flows in the San Luis Rey since its construction in

1925. The GCL project site is located approximately 20 river miles upstream from Oceanside and the confluence of the San Luis Rey with the Pacific Ocean. Approximately 1 mile of the San Luis Rey runs through the middle of the GCL property, which extends north and south of the river.

Flows at the Oceanside, California Stream Gage. Figure 6 shows peak discharges recorded at the Oceanside stream gage, listed in sequence from 1930 through 2011. Figure 7 also shows peak discharges, listed in ranked order from highest peak discharges to lowest peak discharges. In summary:

- More than 25 percent of the years had peak discharges of 0 cfs, which means that no flow was recorded in the San Luis Rey at Oceanside during those years,
- 50 percent of the years had peak discharges of less than 262 cfs,
- 75 percent of the years had peak discharges less than 2,090 cfs,
- 90 percent of the years had peak discharges less than 9,780 cfs. The remaining 10 percent of the years experienced peak discharges from 25,700 cfs to 9,780 cfs.

Figure 8 shows mean daily discharges recorded for the years of record between 1930 and 2011 (except for the years 1942 through 1946, because of World War II). This figure shows that:

- the gage recorded 0 cfs discharges during several continuous years in a number of instances,
- there is a general pattern of discharges diminishing to 0 cfs during the dry summer periods in most years, and
- in most years, discharge returns to base flow within one day of peak flows.

Peak discharges are short-lived in most cases, usually diminishing to the base flow within a day of the peak discharge. The pattern of mean daily discharges generally mirrors the pattern of peak discharges, with only one large rain event that correlates with the single large peaking discharge event per year in most years. Flow in the San Luis Rey most commonly occurs between November and March of each rain year; however, it is commonly skewed to one or two months within that period in a given year, and sometimes to very specific rain events that

produce initial and/or peaking flows that would be indicative of continuous flows along the San Luis Rey.

Flows at Stream Gages near the GCL Property. Figure 9 shows peak discharges by year in sequence recorded at the Monserate Narrows and Couser stream gages for the 1936 though 1992 rain years. Figure 10 shows peak discharges recorded during this time, listed in ranked order from highest peak discharges to lowest peak discharges between 1936 and 1992. In summary:

- 25 percent of the 50 years of record had peak discharges of less than 7.3 cfs, and 6 of those years had no discharge.
- 50 percent of the years had peak discharges less than 80 cfs,
- 75 percent of the years had peak discharges less than 1,100 cfs, and
- 90 percent of the years had peak discharges less than 2,850 cfs. The remaining 10% of the years had peak discharges between 15,500 cfs and 2,850 cfs.

The flood stage gage at Shearer Crossing shows peak elevations of 0 feet in 2004, 5.1 feet in 2005, 0.41 feet in 2006, 0 feet in 2007, 3.59 feet in 2008, 1.04 feet in 2009, 3.6 feet in 2010, and 6.05 feet in 2011. The stage height of 6.05 feet at Shearer Crossing in 2011 (recorded on December 22, 2010) is almost 1 foot higher than was recorded in 2005 on January 11, 2005 during the third wettest year recorded in San Diego in 155 years of record. Flooding on the GCL project site was also observed to be approximately 1 foot higher in the 2011 water year on December 22, 2010 than occurred on January 11, 2005 (Figure 11). The three highest flood levels recorded at the Oceanside gage were 25,700 cfs in 1993, 25,000 cfs in 1980, and 21,800 cfs in 2005, all of which experienced rainfall countywide. The peak flood discharge recorded in Oceanside for 2011 on December 22, 2010 was 6,810 cfs, with rains focused inland.

The 1980 rain year produced flooding in the San Diego River that was characterized as 100-year flooding in portions of that river's watershed (San Diego County Flood Control District 1980). The extent of flooding in the San Luis Rey using scour observable from the 1993 flood based on 1994 and 1995 aerial photos is shown in Figure 12. Flooding observed on portions of the GCL property from the December 22, 2010 flood by Bill Magdych, Ph.D. and Matt Simmons

(personal communication) exceeded the 1993 limits shown in Figures 11 and 12. The flooding observed in portions of the San Diego River from the December 22, 2010 flood are comparable to those observed in 1980 in the San Diego River (personal communication, Rand Allan, San Diego Flood Control District). The National Weather Service (2011a and 2011b) described the December 22, 2010 storm as an extreme storm event in southern California with rainfall levels 400 to 800 percent of normal precipitation. Rainfall levels during this storm event were greater inland from the coast, into the mountains, and increased in north San Diego County. This focus of the storm inland and towards the mountains in north San Diego County accounts for the high levels of flooding observed on the GCL property that are comparable to and exceed the levels of the highest recording flooding observed in 1993 and 2005 on site, which were the respective highest and third highest floods recorded for the San Luis Rey at the Oceanside gage. The lower levels of rains in the lower portion of the watershed during the December 22, 2010 flood did not produce the relative addition to the total flood flows measured at the Oceanside gage that were observed in 1993 and 2005. Without the contributory downstream inputs to the flood, the extremely high flood flows observed on site were absorbed by the broader floodplain that occurs for the reach of the San Luis Rey from downstream of the Monserate Narrows to the Pacific Ocean. In this case of the 2011 flood, the Oceanside gage peak discharge value is not indicative of flood levels observed in the upper reaches of the San Luis Rey.

Daily stage levels from the Shearer Crossing gage are shown in Figure 13. This figure shows very dry conditions that occurred during 2004, 2006, 2007, and 2009 with little or no flow during most or possibly all of these years. The water level stage sensor is located above the bottom of the channel, and readings from the stage gage have been adjusted to show 0 feet for levels recorded below 0.2 feet in 2004, and below 0.4 feet thereafter to compensate for potential reading errors from the exposed sensor based on guidance provided by the San Diego Flood Control District, which manages this gage (San Diego Flood Control District, Rand Allan, personal communication). Therefore, values indicated as 0 feet may have had minor flow or possibly pooled water at this location ranging from a maximum depth of 0.4 feet to a minimum of 0.0 feet. Dry conditions have been observed in the river at this time during those periods (Bill Magdych, personal communication).

Surface Flow Conditions in 2010. Relatively low flow conditions (< 10 cfs)were observed in the San Luis Rey River on the GCL property during the first steelhead survey on March 5, and had steadily diminished to less than 5 cfs by the third steelhead survey on April 16 (Attachment A). Surface flow through the low flow crossing at the downstream end of the GCL property had ceased by May 18, 2010.

Streamflow velocities generally ranged from approximately 1.5 ft/s to 1 ft/s in runs between March 19 and April 16, 2010. Prior to these surveys, flooding in the San Luis Rey River occurred in January 2010. There were no other storms producing substantial flow in the San Luis Rey River after the January 2010 storms.

Surface flow on the GCL property was negligible on July 5, 2010, with no incoming surface flow from the San Luis Rey River upstream of the property (Subreach 6). Inflow from the old Fenton ponds at the upstream edge of the GCL property was much reduced from levels observed in May and earlier surveys. The water level in the San Luis Rey River at the location of the proposed bridge crossing (Subreach5) was confined to a minor channel approximately 7 feet wide and 2 to 4 inches deep. Water flow at the old low flow crossing was at a trickle with the pool immediately downstream of the crossing ponded without evident through-flow (Subreach 2). The San Luis Rey River channel was dry at the river crossing at the western edge of the GCL property (Subreach 1), with only a few very small pools bearing water generally less than 1 inch deep. Flow was not present at the Couser Canyon Road bridge and the Shearer Crossing bridge downstream of the GCL property. Photographs showing conditions along the San Luis Rey River during the surveys are provided in Attachment A.

Overall, a low flow channel is somewhat apparent along much of the reach of the San Luis Rey River within the GCL property. However, there are several areas of braids with indistinct channels that eventually dry as a result of declining water levels. These conditions result in isolation of segments of water within the reach on the GCL property, and the entire reach dries in some years (Attachment B shows several representative photos of dry conditions in 2009).

Two pools (Subreach 4) located on the GCL property have some potential to provide summer habitat for fish stranded when interconnecting channels dry up; however, these two pools may

also dry by mid-late summer. The first pool is located downstream of the second low flow crossing of the river on the GCL property at Wild Road. This pool was observed to have dried during the summer of 2009 (see photos in Attachment B). The second pool ("pipe pool") located further upstream has an old PVC pipe entering it that may have originated from one of the old ranch houses on site. Conditions in the second pool were observed to be anaerobic, with quantities of hydrogen sulfide gas emitted when sediments were disturbed within the pool. It is likely that eutrophic/anaerobic conditions in this second pool prevent it from providing refugia for fish (excluding *Gambusia* sp.) during low flow periods (summer-fall). Summer water temperatures are also likely to be unsuitable to support steelhead; suitable water temperatures are generally accepted to be less than 25°C (Mathews & Berg 1997; Spina 2007). It is therefore unlikely that these pools provide summer refugia for salmonids, although warm water species such as bass, sunfish or mosquitofish may be present throughout the summer within the GCL property.

There was no surface water flow in the San Luis Rey on the Pala Indian Reservation as observed from observation points during the surveys. There was also no water flow in Gomez Creek at the SR 76 crossing, near its confluence with the San Luis Rey. Water flow in the San Luis Rey through Wilderness Gardens Park, upstream of the Pala Indian Reservation, was present; however, there were signs of recently higher flows that were in the process of diminishing to a point where flows would be expected to cease within weeks of the final survey date. Normally, surface water flow through the Pala Indian Reservation onto the GCL property from the San Luis Rey does occur during periods of higher streamflow; however, flow entering the GCL property during the surveys appeared to be coming mainly from channels that connect to the old Fenton sand ponds that are upstream of the GCL property. These ponds were actively mined for sand prior to and during the 1990's (County of San Diego 2003). The mining that created these ponds resulted in a shift of the natural river course of the San Luis Rey that prior to mining extended along the north side of the river floodplain next to SR 76 to the south side of the floodplain because of the construction of a diversion berm upstream of the ponds. As a result, San Luis Rey surface flow is diverted to the south/southwest around the diversion berm; however, the low flow channel now directly enters the ponds at the immediate downstream end of the diversion berm (Figure 12). Water flows through the ponds to the northeast section of the GCL property relative to the San Luis Rey floodplain, and there is a

distinctive low flow channel entering the GCL property from the ponds rather than from the other portions of natural river channel and floodplain.

Loss of surface flow in the San Luis Rey River on the GCL property during summer and fall periods has been observed between 2004 and 2010, which may represent a general pattern of declining flows leading to intermittent conditions not only on the Pala Indian Reservation, but also on the GCL property.

4.0 DISCUSSION

Observations of Water Flow on and in the vicinity of the GCL Site. As discussed in Section 3.0 for the steelhead surveys, surface flows in the San Luis Rey on the GCL site vary with the season, and no surface flow may occur in many years, at least during the dry season. The San Luis Rey has been observed to be dry upstream of the GCL site during summer months and in parts of fall, winter, and spring months on the Pala reservation and other lands upstream of the GCL property boundary to Wilderness Gardens Park. The San Luis Rey has also been observed to be dry during these periods downstream of the GCL site at the Couser Canyon Road bridge and the Shearer Crossing bridge.

Figure 7 shows the general paths of flow in the San Luis Rey from upstream, through, and downstream of the GCL site. The old Fenton sand mine ponds are located upstream of the site and these ponds directly connect to the San Luis Rey channel. There is a diversion berm constructed on the upstream side of these ponds that directs flow from the upstream San Luis Rey channel along the berm toward the south; however, flow immediately spreads back to the north and west to the ponds around the end of the berm. Flow may overtop the berm in very large floods.

The channel within the San Luis Rey from upstream along the straight path from the river toward the GCL property is usually dry and the San Luis Rey floodplain/channel on the south side and east end of the GCL property is usually without flow, except in times of flooding when the entire width of the floodplain is under flow. Low flow from the San Luis Rey upstream enters the pond with sediment transport to the ponds. Water from the ponds flows through a

channel (generally year-round) to the north side and east end of the San Luis Rey floodplain onto the GCL property. The low flow channel waters originate from the ponds, which reduce or eliminate sediment transport to this area (and are a barrier to upstream fish migration during most flows). Therefore, erosion along the low flow channel from the low flowing water originating from the ponds is more likely in the local low flow channel on the north and east end of the floodplain on the GCL property.

The low flow channel continues for a short distance on the GCL property that soon becomes braided. The remainder of the low flow channel across the GCL property is along broad, relatively flat and undulating land in the bottom of the floodplain that creates braided channel conditions across most the GCL property. These conditions continue downstream and off site towards the Couser Canyon Road bridge. The drainage from Couser and Double canyons includes irrigation runoff from orchards during much of each year, and those flows enter the San Luis Rey downstream of the Couser Canyon Road Bridge.

Surface flow from Gregory Canyon to the San Luis Rey has been observed during three discrete events in the 2005, 2010, and 2011 rain years with respective peak discharges of 26 cfs, 4.7 cfs, and 22 cfs that flowed to the San Luis Rey for periods of less than 12 hours per event (Bill Magdych, personal communication). Otherwise, no flow from Gregory Canyon to the San Luis Rey has been observed since 2003.

Water depths in the San Luis Rey through the GCL site may approach 6 ft or greater during peak flood events. However, water levels after flood peaks have been observed to generally drop within one day to average depths of 1 to 2 feet (Figure 8) and to less than one foot after two days. In the past few years, water levels in the San Luis Rey on the GCL site have been less than 1 foot (and often less than 0.5 ft) during most of the period of flow, with potential flows beginning with fall or winter storms after November or December, and diminishing to elevation levels of less than 0.5 ft by May and July (Bill Magdych, personal communication), if not sooner. There are two larger pools ('pipe pool' and 'low flow crossing pool') within the San Luis Rey channel that are deeper (about 3.0 ft) than the otherwise braided channel (subreaches 2 and 3) and may retain water during otherwise dry conditions (see Figure 4). One of these pools became completely dry and the other pool nearly so during the late summer and fall of

2010 (author's observation). Potential periods of flow in the San Luis Rey through the GCL site with depths greater than 0.5 ft are most likely to occur between November and April each year (although not necessarily continuous during that time), with variation depending on the specific rain conditions in a given year.

Flow in the San Luis Rey upstream of the old Fenton Sand ponds may not occur during much of the year, even in the winter, based on observation during the past few years (Bill Magdych, personal communication and author's observations). Flow downstream of the GCL site is more likely to occur during winter months because of irrigation runoff from the heavily developed watershed downstream of the site, especially after inputs from Couser and Double canyons that enter the San Luis Rey downstream of the Couser Canyon Road bridge that continue through the Monserate Narrows toward I-15. These flows during are likely to be at or above 0.5 ft in depth during much of winter period; however, they may also drop to lower levels and even dry up during the winter.

Observations on fish presence. In recent years, salmonids have been observed in the San Luis Rey and Santa Margarita rivers or their tributaries. Salmonids were observed in Gomez Creek, a tributary to the San Luis Rey River located upstream of the GCL property that enters the river near the Pala Casino (Mary Larson, California Department of Fish and Game (CDFG) personal communication). These fish were observed in a spring fed portion of Gomez Creek upstream of the confluence with the San Luis Rey River in 2005, and this spring fed reach is reported by the owner to be perennial (Dudek 2007). These fish are now considered to be a domestic rainbow trout that escaped from an adjacent stock pond where the property owner was raising stocked rainbow trout (personal communication, Tim Hovey, CDFG). The property owner indicated that high flows in 2005 caused the stock ponds to flood, releasing stocked, domestic rainbow trout into Gomez Creek (Dudek 2007). Nevertheless, the watershed for Gomez Creek is relatively large and includes mountainous areas conducive to supporting a constant spring in the area where the fish were observed.

An adult steelhead was observed in the San Luis Rey River near the Pacific Ocean in a pool at the College Avenue crossing of the river in 2007 (personal communication, Mary Larson, CDFG).

The fate of that fish is not known since it was no longer observed soon after being initially sited. However, CDFG does not believe that it was able to move upstream.

Steelhead were observed in the Santa Margarita River in 2009 at the area of the De Luz Road and Sandia Creek Drive crossings of the river (personal communication, Mike Rouse, Marine Corps Base Camp Pendleton Fishery Biologist). The Santa Margarita River in this location is substantially different from the San Luis Rey River on the GCL property. The Santa Margarita River was much broader with substantially higher flows observed relative to the San Luis Rey River on April 16, 2010. The Santa Margarita River in this location also has numerous large pools, complex habitat, and provides conditions conducive to fish holding and fish movement. Photos of conditions observed in both rivers are provided in Attachment A.

Assessment of Fish Passage. Steelhead face many obstacles in moving upstream from the Pacific Ocean in the San Luis Rey River. These include modification and channelization of the river resulting in multi-channel (i.e., braided) conditions, vegetation snags, constrictions in the channel, and agricultural and urban development, including small sized culverts in low flow crossings. Obstacles to adult steelhead passage on the GCL property include shallow, braided channel conditions, dense vegetation with many snags, branches, and logs in portions of the reach, as well as prior historic development activities affecting the bank and instream channel at one location. Conditions downstream of the GCL property and on the GCL property are unlikely to provide suitable resting or refuge habitat for steelhead during the summer and fall of most years.

Figure 8 illustrates channel depth at the Shearer Crossing Gage from 2004 through 2011. Stage elevation (i.e., water depth) shown by this gage can also be considered to represent the majority of the stream channel just upstream from the gage on the GCL property (likely higher because of irrigation water input downstream of the GCL property and that shows up on the Shearer Crossing Gage). With only a few exceptions, water depths are less than 0.5 ft. Exceptions are during peak flood events and for one or two days after an event. Steelhead are known to require at least 0.5 ft water depth over at least half of the channel width for at least 20 meters of longitudinal stream channel to allow for successful upstream passage. These criteria are known as 'Thompson Criteria', and are widely used for assessment of steelhead

passage. The absence of suitable water depth and surface flows (and hence, lack of suitable rearing habitat) are the most likely factors reducing the viability of this portion of the San Luis Rey River as summer and fall refugia for steelhead, in addition to the presence of predatory warm water fish species. The most likely scenario for use by steelhead of the San Luis Rey River is as a corridor through which adult steelhead migrate in search of upstream spawning habitat (e.g., upper San Luis Rey tributaries) during periods of high flow of sufficient duration to sustain movement from the Pacific Ocean to potential spawning habitat. Such areas would be characterized by perennial surface water that are sufficiently cool and provide suitable rearing habitat for the progeny of spawning steelhead to persist through the summer and fall periods. In addition, similar high flows would then be required during the following season to allow for juvenile (i.e., smolting) steelhead to return to the ocean. These high flows are necessary to overcome the various physical obstacles in the San Luis Rey River.

Instead, warm water fish species were observed in the San Luis Rey River on the GCL property. These fish can tolerate elevated surface water temperatures that occur in this vicinity during the summer and fall, and they can seek refuge in the Old Fenton Sand ponds just upstream of the GCL property. All the fish observed on the GCL property were warm water species and initially were most abundant upstream proximal to the Fenton ponds, and increasing their distribution further downstream towards the end of the surveys. This suggests that the Fenton ponds are a refuge for warm water fish and small fish migrate from the Fenton ponds to the river when flows are present.

Conditions in the San Luis Rey River are in stark contrast with conditions in the Santa Margarita River (see photos in Attachment A). Although portions of the Santa Margarita River also have dense vegetation cover, there are many large pools and more open channels along much of the river to the Pacific Ocean. These factors likely provide easier opportunity for migration by steelhead along the river, in comparison with habitat presented in the San Luis Rey River.

There was no surface water and consequently, no habitat for fish in Gregory Canyon during the steelhead survey period, although surface flows were observed for 12 hours during the storm event of January 2011. Water flow in Gregory Canyon is infrequent and of very short duration, generally without physical nexus by surface water to the San Luis Rey River in most years (URS

2004). No records of fish inhabiting Gregory Canyon are known at this time, and no direct use of the canyon by steelhead is expected due to lack of suitable flows in sufficient duration to allow for upstream migration, spawning, or rearing. The nearest tributary channel to the San Luis Rey River in which steelhead may be present is Gomez Creek, which has a much larger watershed, including perennial springs in a least one reach of the creek. The overall contribution of water flow in Gregory Canyon to maintenance of steelhead in the San Luis Rey River appears to be negligible and is likely not significant to steelhead use of the San Luis Rey River.

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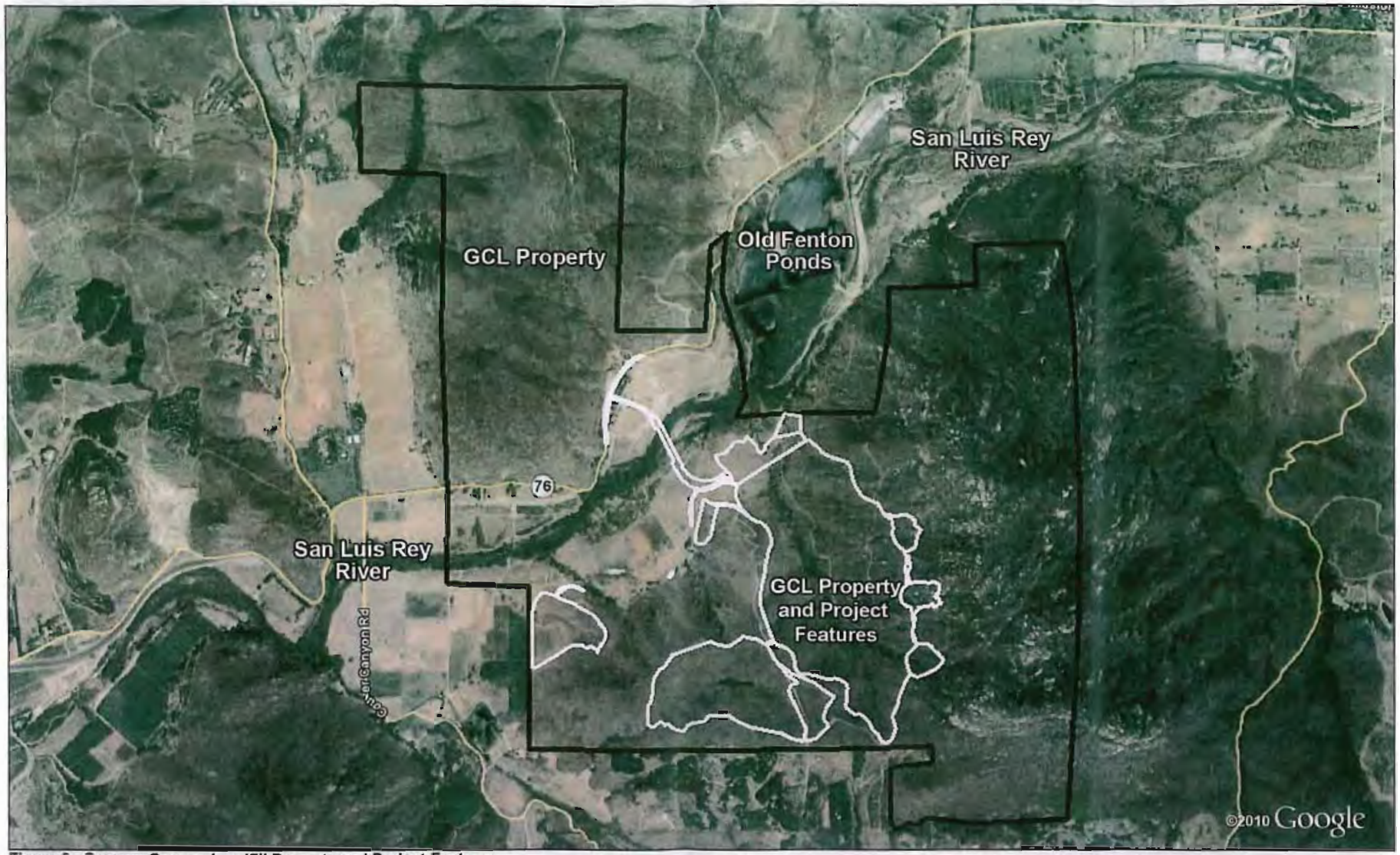


Figure 2. Gregory Canyon Landfill Property and Project Features

Map Date: 3/16/2011

Figure 3. Digital Elevation Model Showing Potential Pool Locations in the San Luis Rey River Within the GCL Project Area

2010-024 Gregory Canyon

ECORP Consulting, Inc.

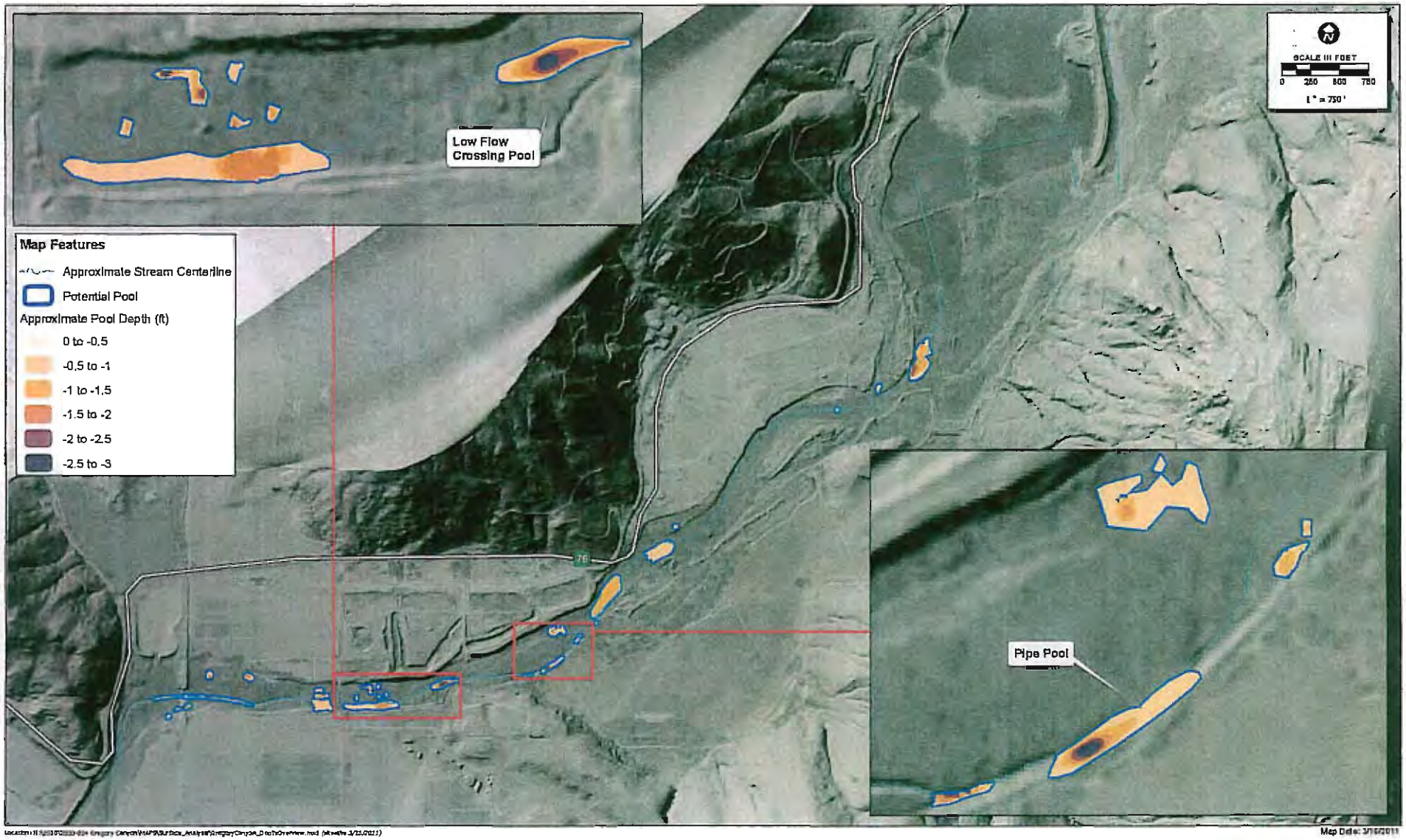
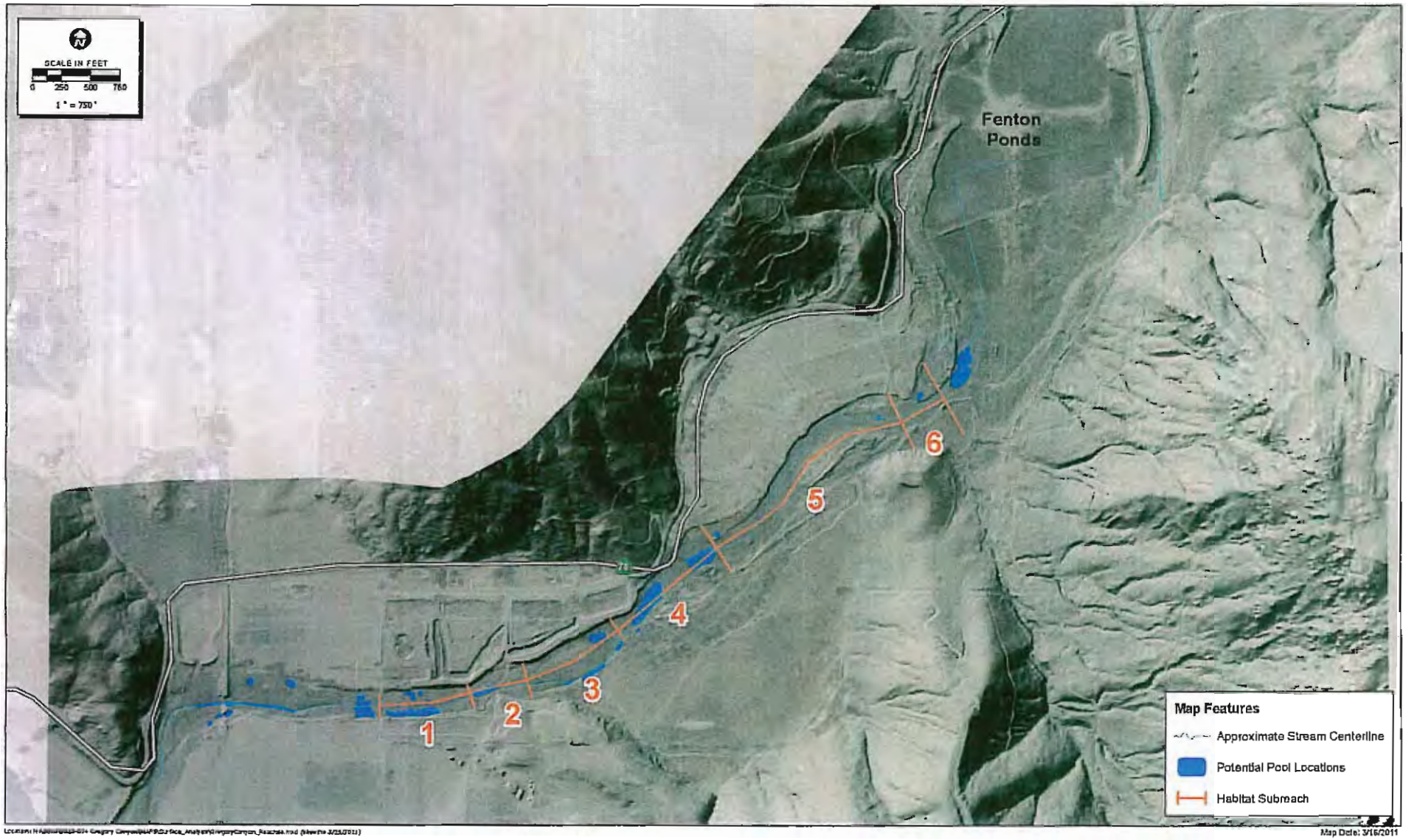


Figure 4. Digital Elevation Model Showing Approximate Depth of Potential Pool Habitat in the San Luis Rey River Within the GCL Project Area

2010-024 Gregory Canyon

ECORP Consulting, Inc.



Map Date: 3/16/2011

Figure 5. Aquatic Habitat Subreach Locations in the San Luis Rey River within the GCL Project Area

2010-024 Gregory Canyon

ECORP Consulting, Inc.

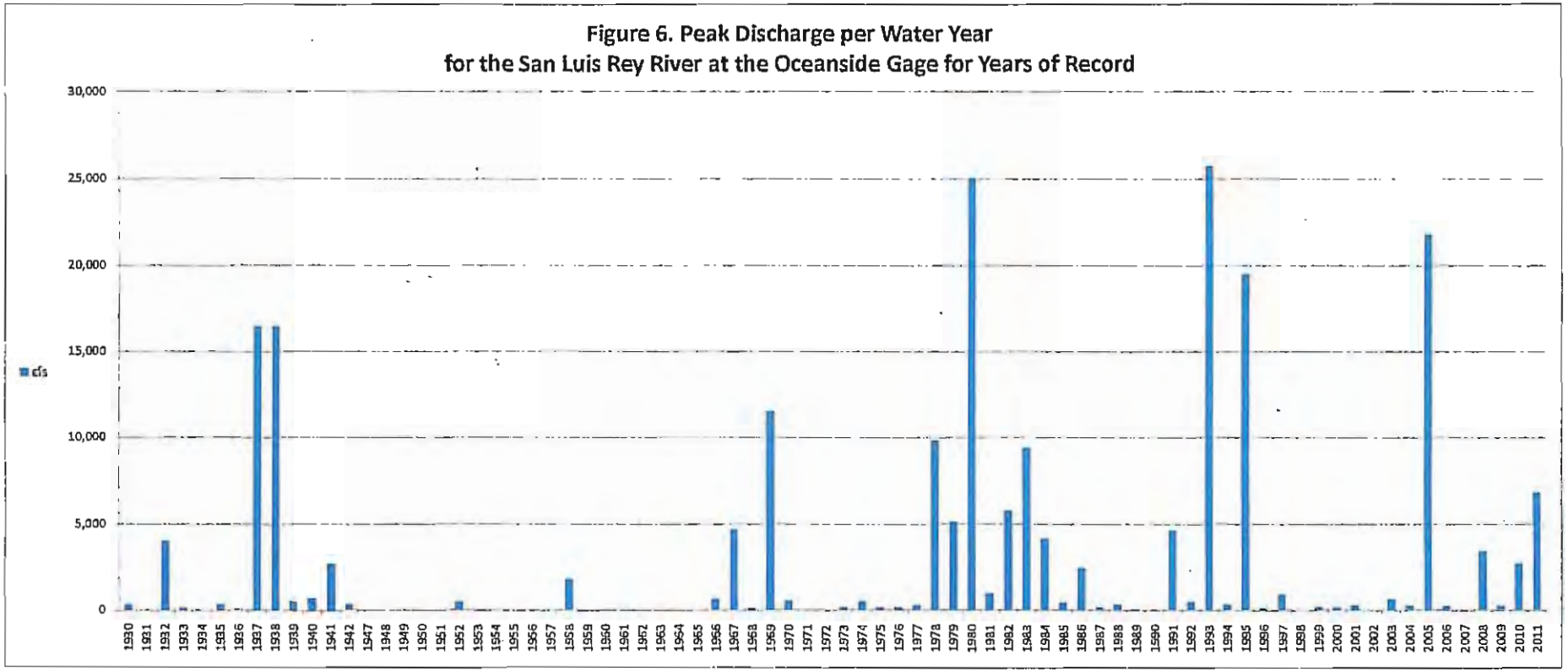


Figure 6. Peak Discharge per Water Year
for the San Luis Rey River at the Oceanside Gage for Years of Record
cfs
30,000
25,000
20,000
15,000
10,000
5,000
0
1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

Figure 7. Ranked Peak Discharge per Water Year in Declining Order for the San Luis Rey River at the Oceanside Gage for Years of Record

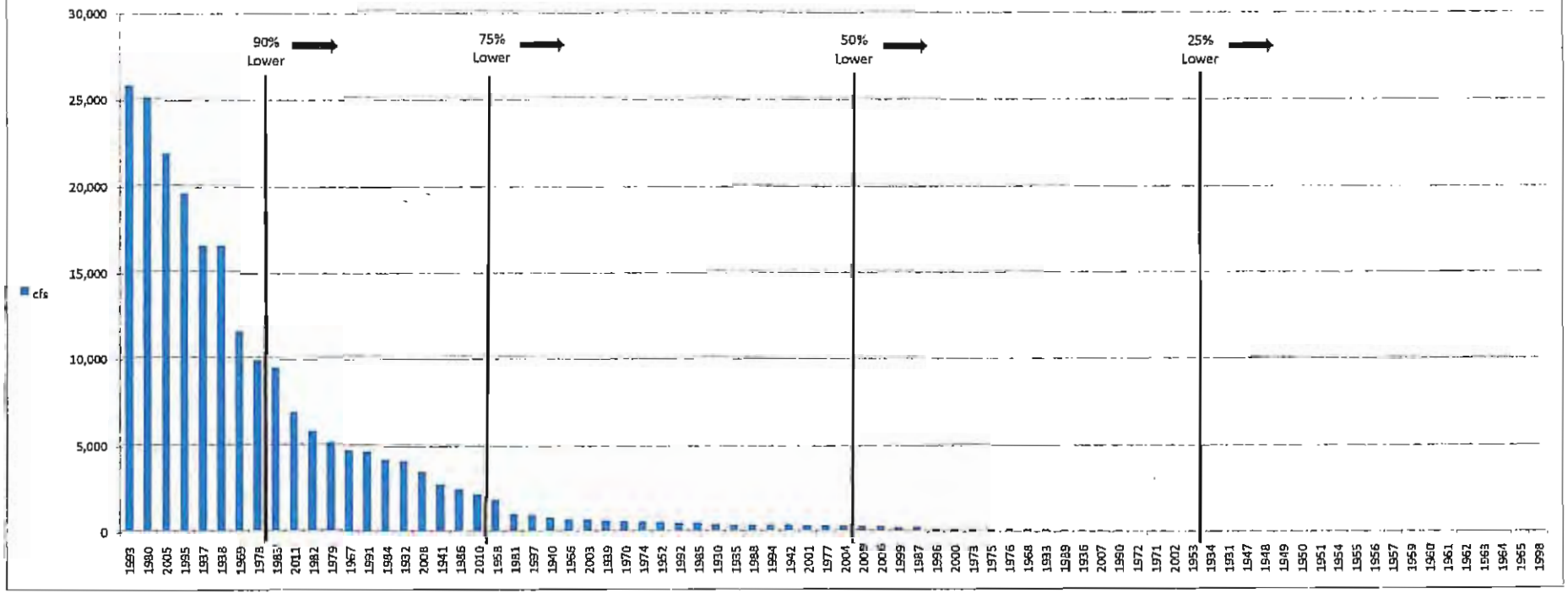


Figure 8. Mean Daily Discharge for the San Luis Rey River at the Oceanside Gage for Years of Record between 1930 and 2011

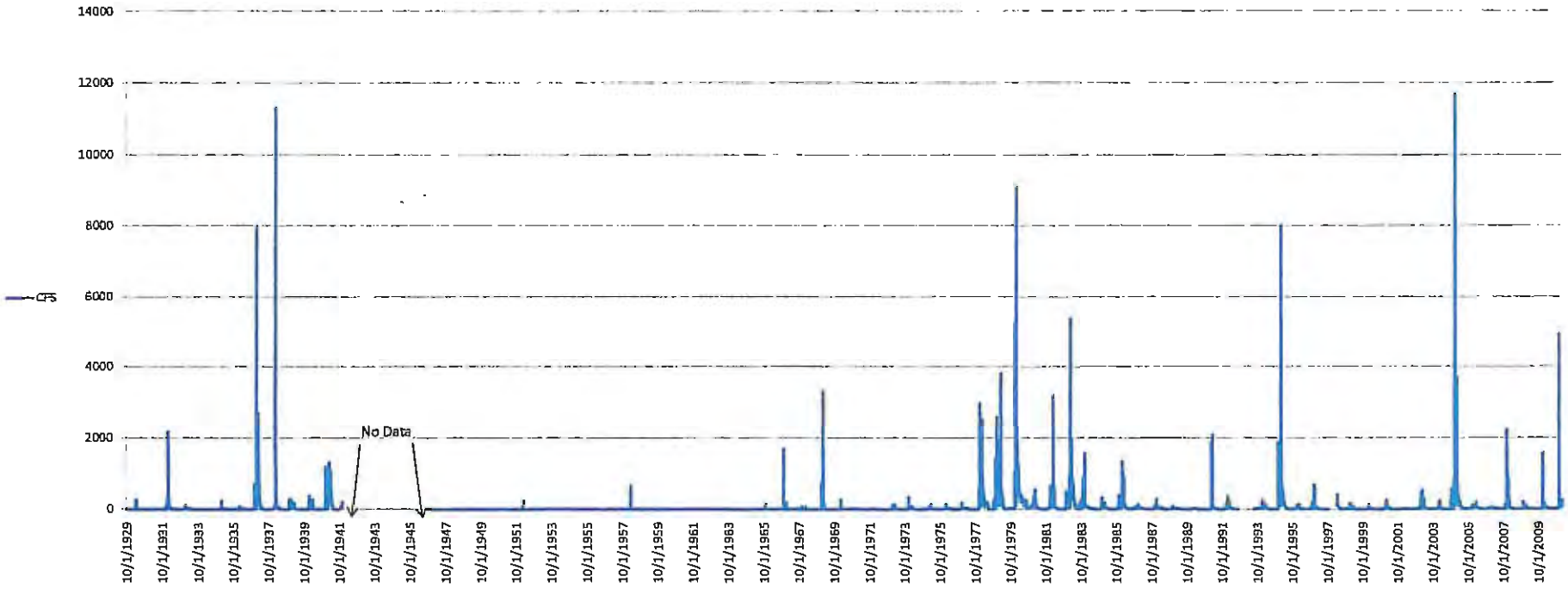


Figure 9. Peak Discharge per Water Year for the San Luis Rey River at the Monserate Narrows (1936 to 1986) and Couser (1987 to 1992) Gages for Years of Record

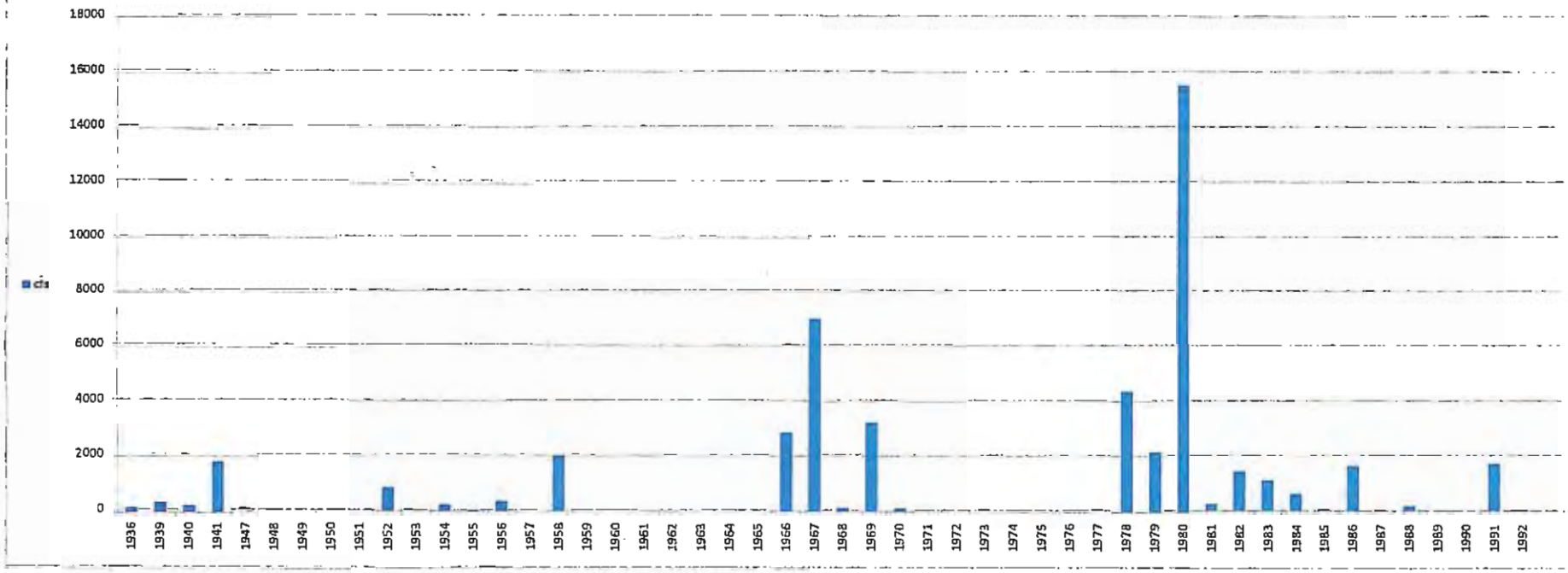


Figure 10. Ranked Peak Discharge per Water Year in Declining Order for the San Luis Rey River at the Monserate Narrows (1936 to 1986) and Couser (1987 to 1992) Gages for Years of Record

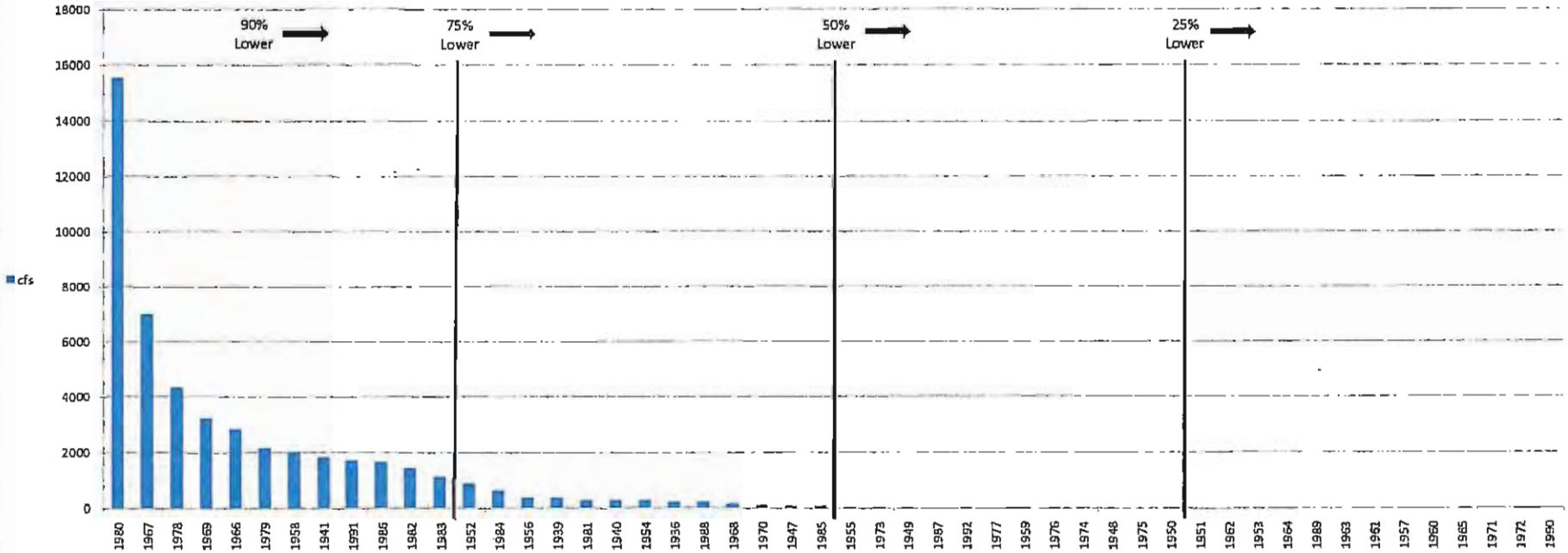


Figure 11. Flood levels observed at the low flow crossing on the GCL property in 1993, 2005, 2010, and 2011

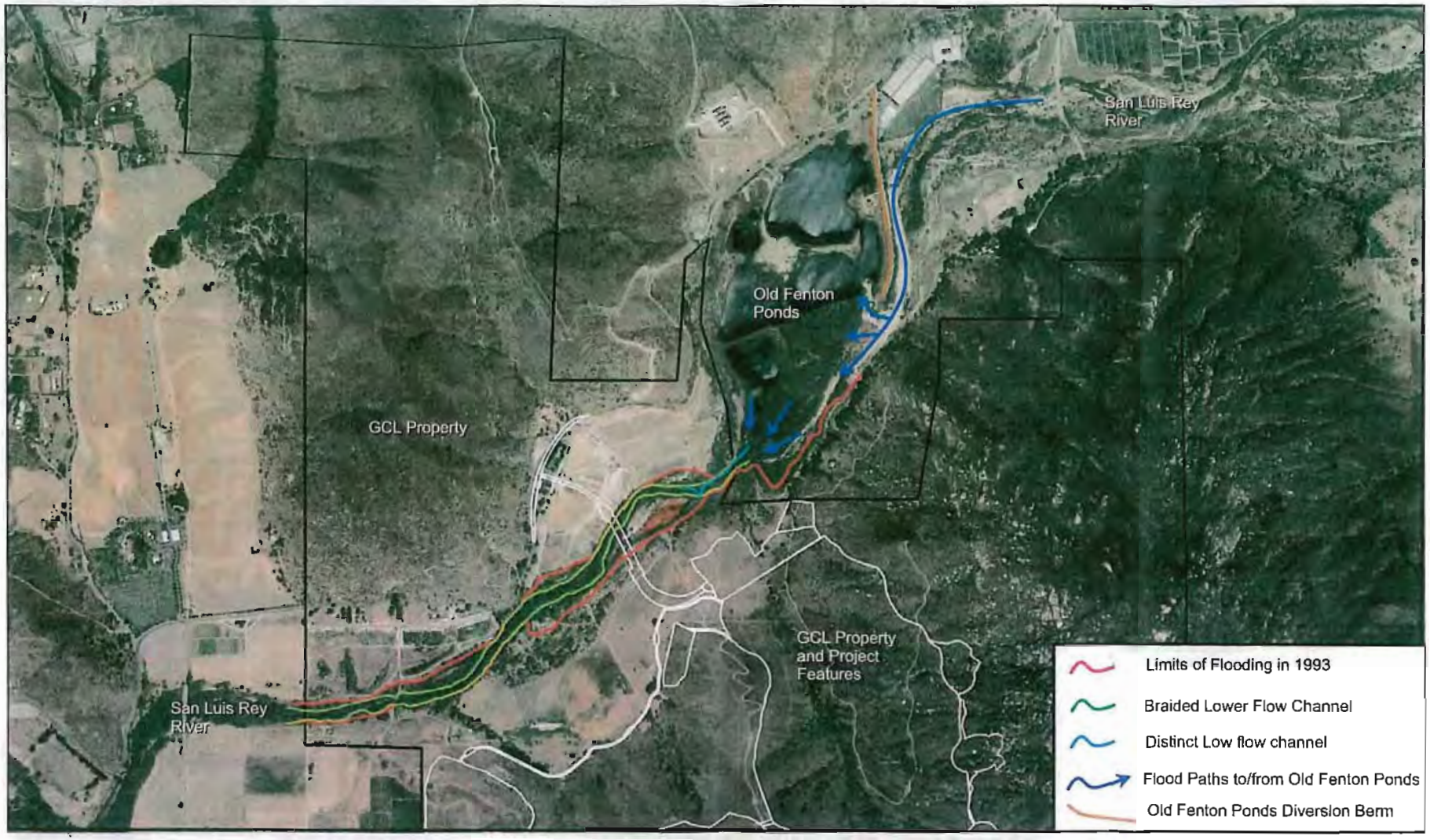
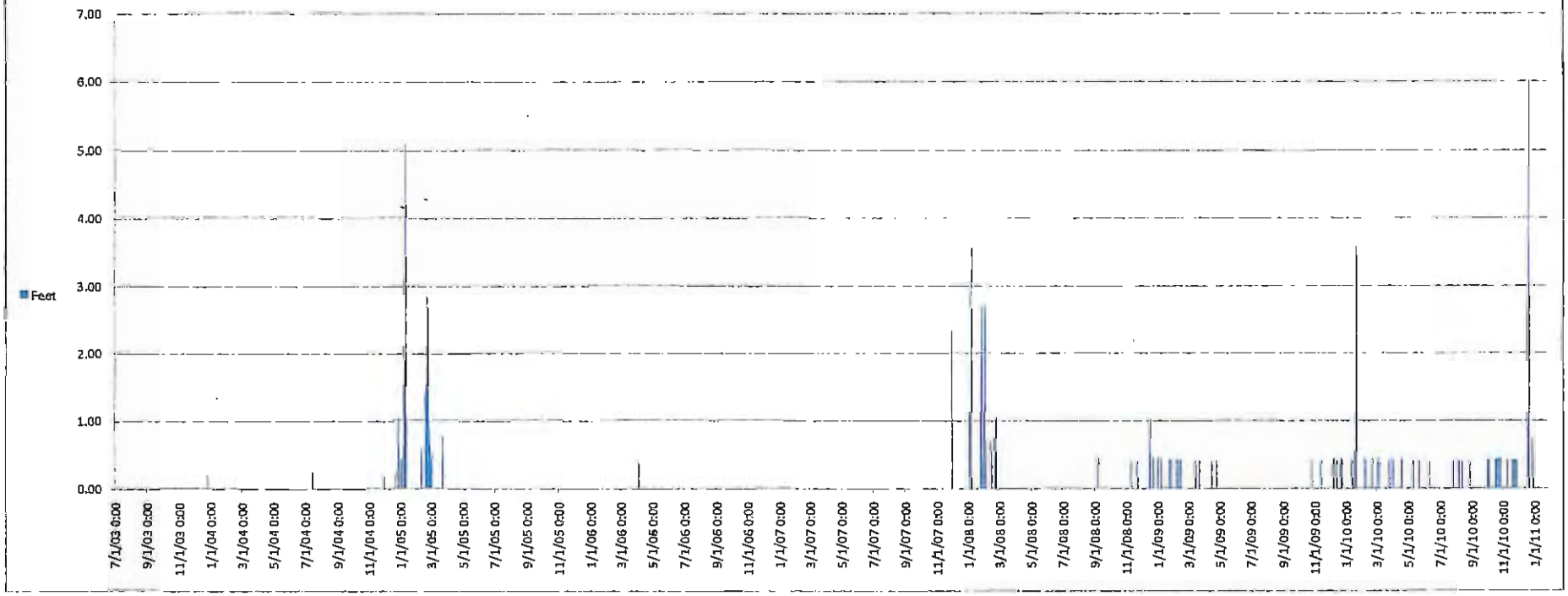


Figure 12. Flow patterns in the San Luis Rey River on the GCL Property

Figure 13. Daily Stage Height in Feet for the San Luis Rey River at the Shearer Crossing Gage for Years of Record 2004 to 2011



LIST OF TABLES

Table 1. Steelhead Surveyors, Observers, and Survey Dates

Table 2. Steelhead Survey Summary

Table 3. Summary of Other Site Observations

Table 1. Steelhead Surveyors, Observers, and Survey Dates

Survey Date	Surveyors	Observers
March 5, 2010	Keegan, Warburton, Magdych	Bantilan-Smith
March 19, 2010	Warburton, Magdych	Bantilan-Smith
April 16, 2010	Warburton, Magdych	Bantilan-Smith, Bartels
May 18, 2010	Magdych	None
July 5, 2010	Magdych	None
July 19, 2010	Magdych	None
July 21, 2010	Magdych	None
July 23, 2010	Magdych	None
August 2, 2010	Magdych	None
August 5, 2010	Magdych	None
September 3, 2010	Magdych	None
October 1, 2010	Keegan, Magdych	None
October 15, 2010	Magdych	None
October 21, 2010	Magdych	None

Table 2. Steelhead Survey Summary

Date	Time of Survey	Fish Observed	Water Temperature	Notes
3/5/2010	9:30AM to 2:00PM	8 largemouth bass 3 green sunfish Many mosquitofish	12-13C 53.6-55.4F	< 10 cfs on GCL property.
3/19/2010	9:30AM to 3:00PM	9 largemouth bass 4 green sunfish Many mosquitofish	14-15C 57.2-59F	< 7 cfs flow on GCL property. Minor flow at Wilderness Gardens Park. No flow at Pala. Light flow at Couser Canyon Rd. Light flow at Shearer Rd.
4/16/2010	8:30AM to 2:50PM	18 largemouth bass 7 green sunfish Many mosquitofish Many crayfish	16C 60.8F	< 5 cfs flow on GCL property. Very minor flow at Wilderness Gardens Park. No flow at Pala. Diminished flow at Couser Canyon Rd. Diminished Flow at Shearer Rd. Flow present in SLR from Fallbrook downstream. Substantial flow in Santa Margarita River.

Table 3. Summary of Other Site Observations

Date	Time of Survey	Fish Observed	Water Temperature	Notes
5/18/2010	No Fish Survey	Not Applicable	Not Applicable	No flow at downstream end of GCL. No flow at Pala. Trickle flow at Couser Canyon Rd. Very reduced flow at Shearer Rd.
7/5/2010	No Fish Survey	Not Applicable	Not Applicable	Minor flow at upstream end of GCL property from Fenton Ponds, further diminishing towards the bridge. Minor trickle to 'low flow crossing pool'. No flow off GCL property at western, downstream end. No flow at Couser Canyon Road or Shearer Road bridges.
7/19, 21, 23/2010	No Fish Survey	Not Applicable	Not Applicable	Less than 1 cfs at east edge of GCL property. Trickle flow at proposed GCL bridge. Trickle flow at 'pipe pool'. Old low flow crossing on GCL dry. 'low flow crossing pool' drying up. West end of GCL dry. Shearer Crossing Dry.
8/2,5/2010	No Fish Survey	Not Applicable	Not Applicable	Trickle at east edge of GCL property. Trickle flow at proposed GCL bridge. 'pipe pool' drying up. Old low flow crossing on GCL dry. 'low flow crossing pool' dry except for puddle at plunge pool below culverts. West end of GCL dry.
9/3/2010	No Fish Survey	Not Applicable	Not Applicable	Trickle at east edge of GCL property. Trickle flow at proposed GCL bridge. 'pipe pool' on GCL dry. Old low flow crossing on GCL dry. 'low flow crossing pool' dry except for puddle at plunge pool below culverts. West end of GCL dry.

Table 3. Summary of Other Site Observations (Continued)

Date	Time of Survey	Fish Observed	Water Temperature	Notes
10/1/2010	No Fish Survey	Not Applicable	Not Applicable	Trickle at east edge of GCL property. Trickle flow at proposed GCL bridge. 'pipe pool' on GCL dry. Old low flow crossing on GCL dry. 'low flow crossing pool' dry except for puddle at plunge pool below culverts. West end of GCL dry. Shearer Crossing dry. Pala dry. Wilderness Gardens dry. Gomez Creek dry.
10/15/2010	No Fish Survey	Not Applicable	Not Applicable	Trickle at east edge of GCL property. Trickle flow at proposed GCL bridge. 'pipe pool' on GCL dry. Old low flow crossing on GCL dry. 'low flow crossing pool' dry except for puddle at plunge pool below culverts. West end of GCL dry.
10/21/2010	No Fish Survey	Not Applicable	Not Applicable	Less than 1 cfs at east edge of GCL property. Less than 1 cfs at proposed GCL bridge. 'pipe pool' on GCL had some water from a slight rise of groundwater, no through flow. Old low flow crossing on GCL dry. 'low flow crossing pool' had a slight rise from groundwater, no through flow. West end of GCL dry.

LIST OF ATTACHMENTS

Attachment A – Site Photographs

Attachment B – Photographs from 2009

Attachment C – GPS Coordinates by Photo Number for Attachments A and B

ATTACHMENT A

Site Photographs

A-1: Photos from March 5, 2010

A-2: Photos from March 19, 2010

A-3: Photos from April 16, 2010

A-4: Photos from May 18, 2010

A-5: Photos from July 5, 2010

A-1: Gregory Canyon Limited Property - 1 (33.341238, -117.122033, March 5, 2010)

A-2: Gregory Canyon Limited Property - 2 (33.341530, -117.121106, March 5, 2010)

A-3: Gregory Canyon Limited Property - 3 (33.341661, -117.120796, March 5, 2010)

A-4: Gregory Canyon Limited Property - 4 (33.341926, -117.120520, March 5, 2010)

A-5: Gregory Canyon Limited Property - 5 (33.342996, -117.119765, March 5, 2010)

A-6: Gregory Canyon Limited Property - 6 (33.347216, -117.114970, March 5, 2010)

A-7: Gregory Canyon Limited Property - 1 (33.340738, -117.126620, March 19, 2010)

A-8: Gregory Canyon Limited Property - 2 (33.340821, -117.125428, March 19, 2010)

A-9: Gregory Canyon Limited Property - 3 (33.340775, -117.125435, March 19, 2010)

A-10: Gregory Canyon Lirnited Property - 4 (33.341125, -117.124121, March 19, 2010)

A-11: Gregory Canyon Limited Property - 5 (33.341271, -117.123101, March 19, 2010)

A-12: Gregory Canyon Limited Property - 6 (33.341378, -117.121608, March 19, 2010)

A-13: Gregory Canyon Limited Property - 7 (33.341418, -117.121553, March 19, 2010)

A-14:. Gregory Canyon Limited Property - 8 (33.341483, -117.121275, March 19, 2010)

A-15: Gregory Canyon Limited Property - 9 (33.341585, -117.121118, March 19, 2010)

A-16: Gregory Canyon Limited Property - 10 (33.341740, -117.120768, March 19, 2010)

A-17: Gregory Canyon Limited Property - 11 (33.345350, -117.116055, March 19, 2010)

A-18: Gregory Canyon Limited Property - 12 (33.346900, -117.115203333, March 19, 2010)

A-19: Gregory Canyon Limited Property - 13 (33.347410, -117.114703, March 19, 2010)

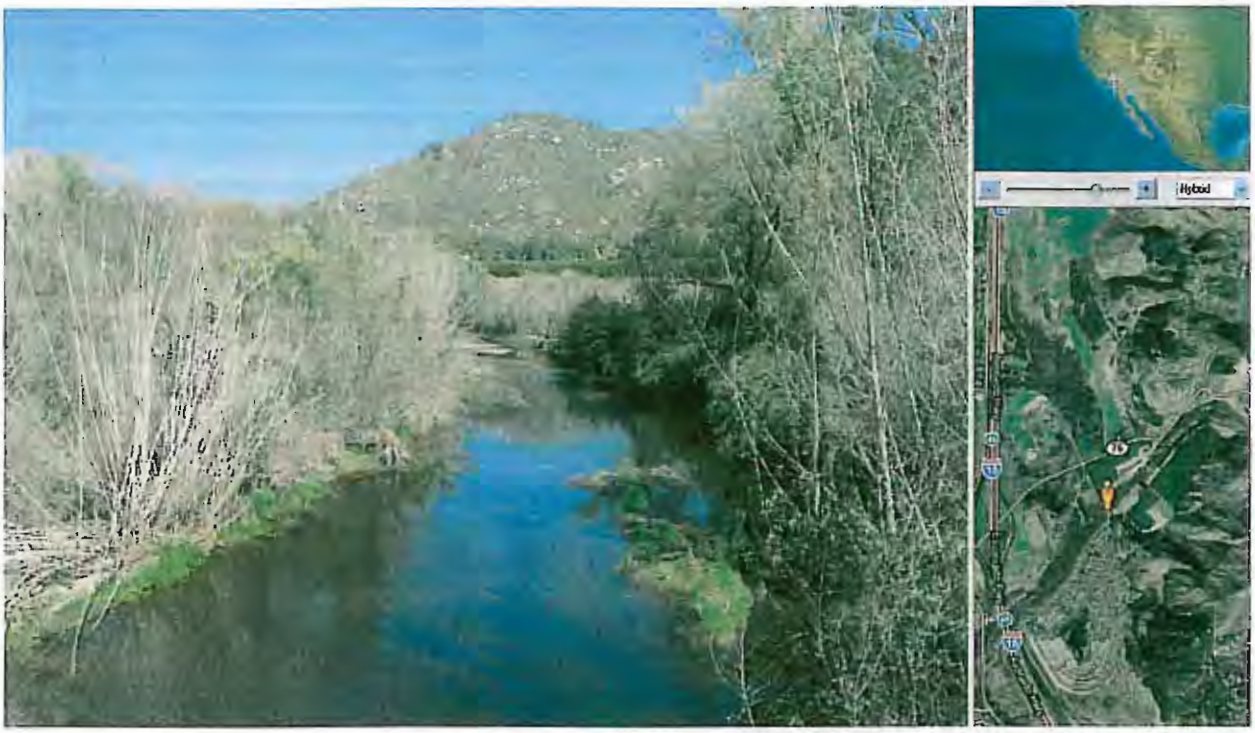
A-20: Gregory Canyon Limited Property - 14 (33.347680, -117.113916, March 19, 2010)

A-21: Wilderness Gardens - 1 (33.348576, -117.027795, March 19, 2010)

A-22: Wilderness Gardens - 2 (33.348801, -117.027776, March 19, 2010)

A-23: Pala - 1 (33.364203, -117.069546, March 19, 2010)

A-24: Pala - 2 (33.363920, -117.072985, March 19, 2010)

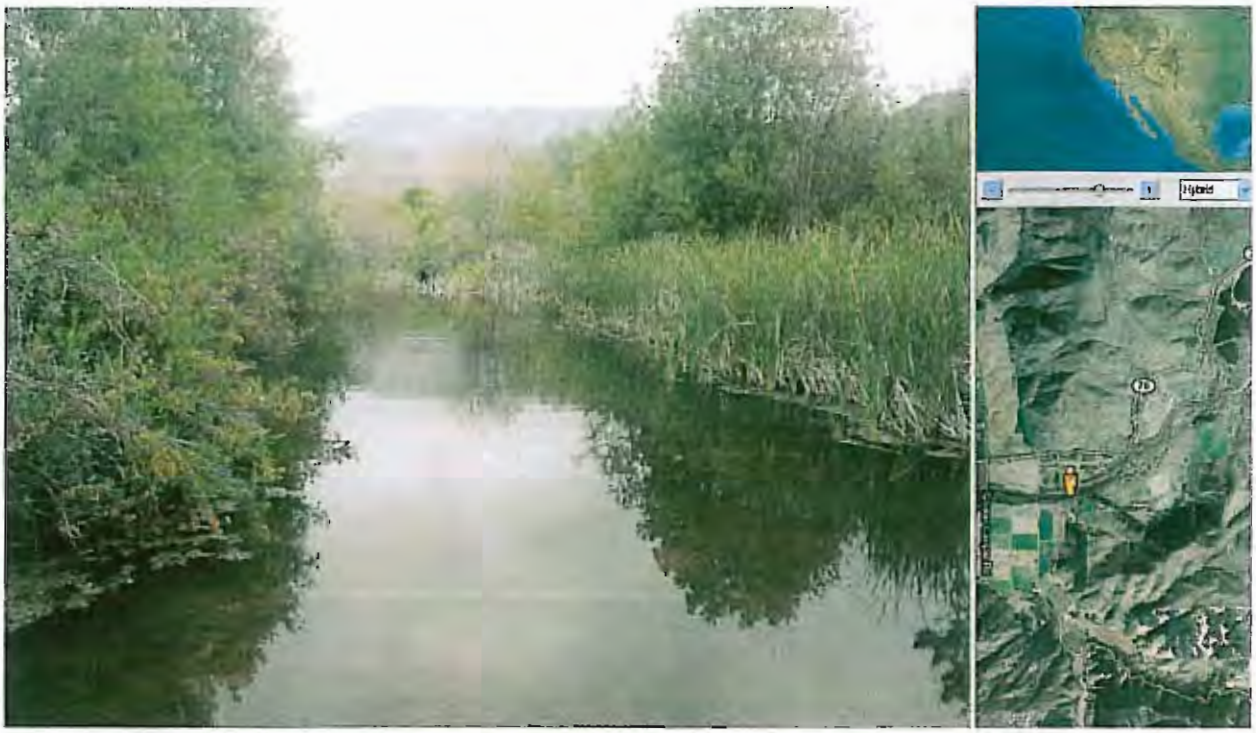


A-25:. Shearer Crossing - 1 (33.332715, -117.149430, March 19, 2010)

A-26: Gregory Canyon Limited Property - 1 (33.340761, -117.126618, April 16, 2010)

A-27:. Gregory Canyon Limited Property - 2 (33.340651, -117.126323, April 16, 2010)

A-28: Gregory Canyon Limited Property - 3 (33.340816, -117.125436, April 16, 2010)



A-29: Gregory Canyon Limited Property - 4 (33.341160, -117.124135, April 16, 2010)

A-30: Gregory Canyon Limited Property - 5 (33.341283, -117.122753, April 16, 2010)

A-31: Gregory Canyon Limited Property - 6 (33.344505, -117.117523, April 16, 2010)

A-32: Gregory Canyon Limited Property - 7 (33.344475, -117.117318, April 16, 2010)

A-33: Gregory Canyon Limited Property - 8 (33.344593, -117.117253, April 16, 2010)

A-34: Gregory Canyon Limited Property - 9 (33.345330, -117.116111, April 16, 2010)

A-35: Gregory Canyon Limited Property - 10 (33.345943, -117.115973, April 16, 2010)

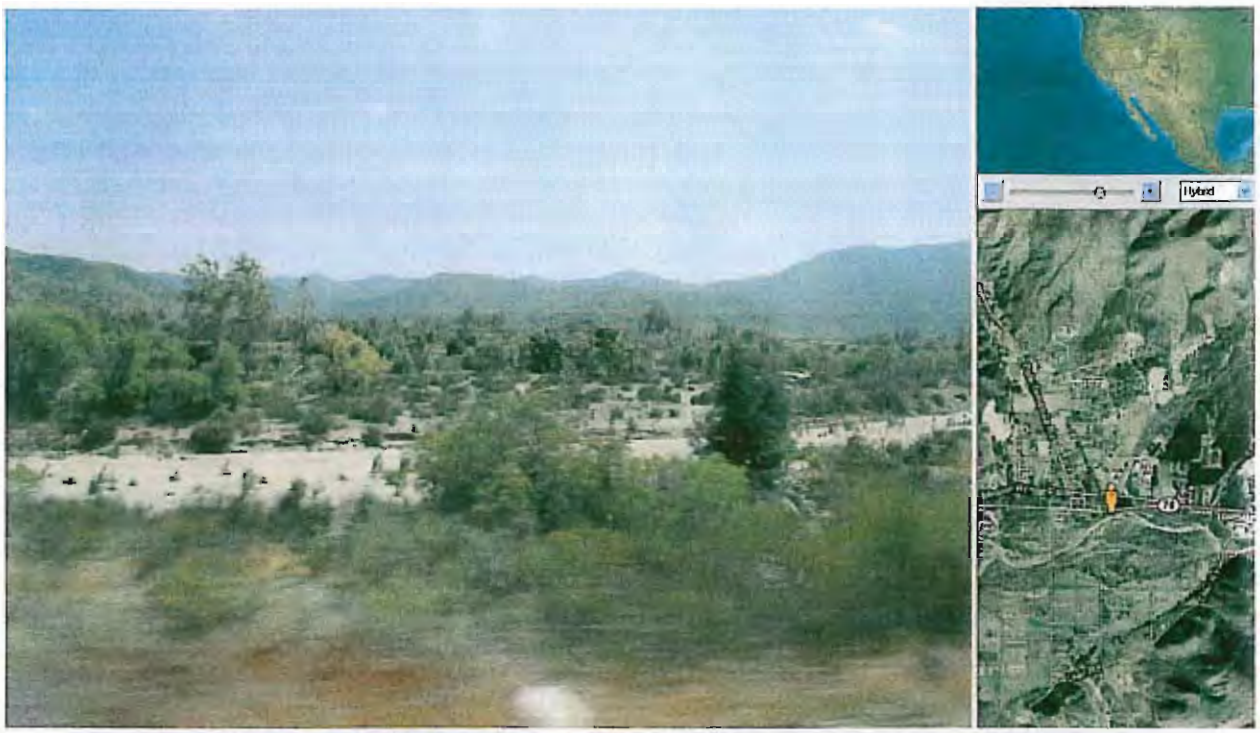
A-36: Gregory Canyon Limited Property - 11 (33.346950, -117.115228, April 16, 2010)

A-37: Gregory Canyon Limited Property - 12 (33.346978, -117.115131, April 16, 2010)

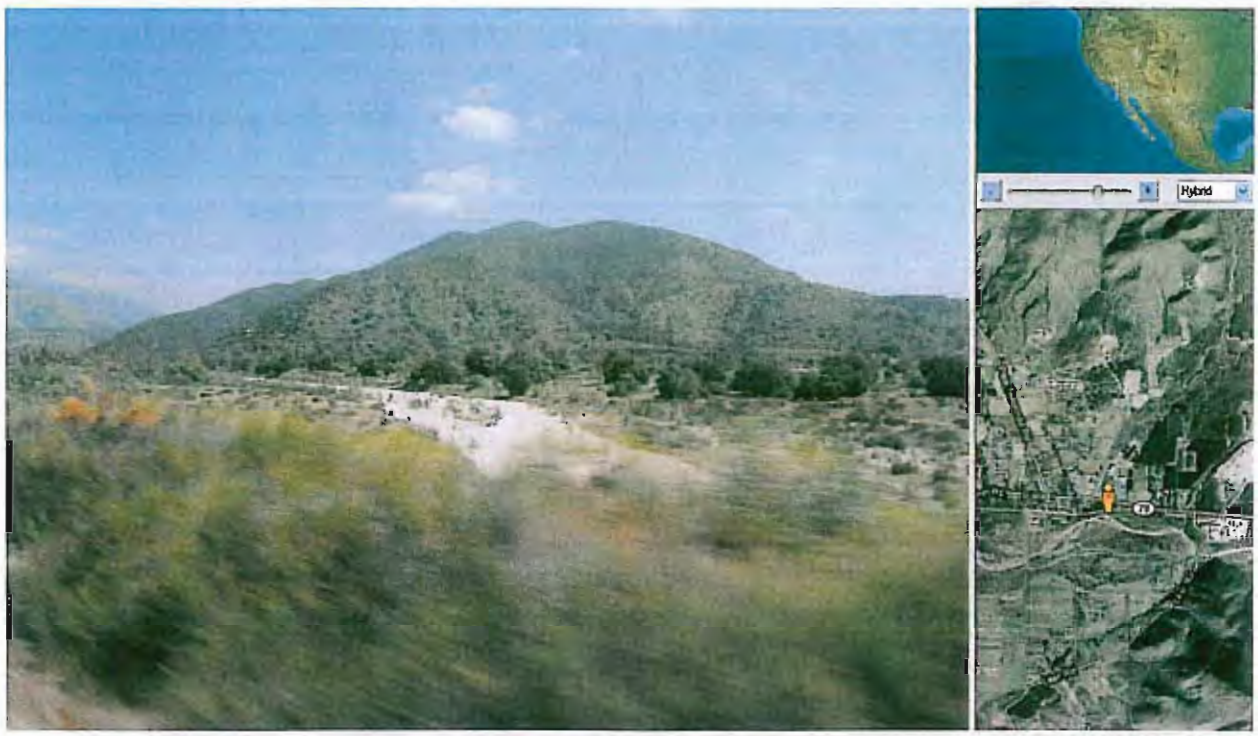
A-38: Gregory Canyon Limited Property - 13 (33.347628, -117.114460, April 16, 2010)

A-39: Wilderness Gardens - 1 (33.348655, -117.027653, April 16, 2010)

A-40: Wilderness Gardens - 2 (33.348870, -117.027765, April 16, 2010)

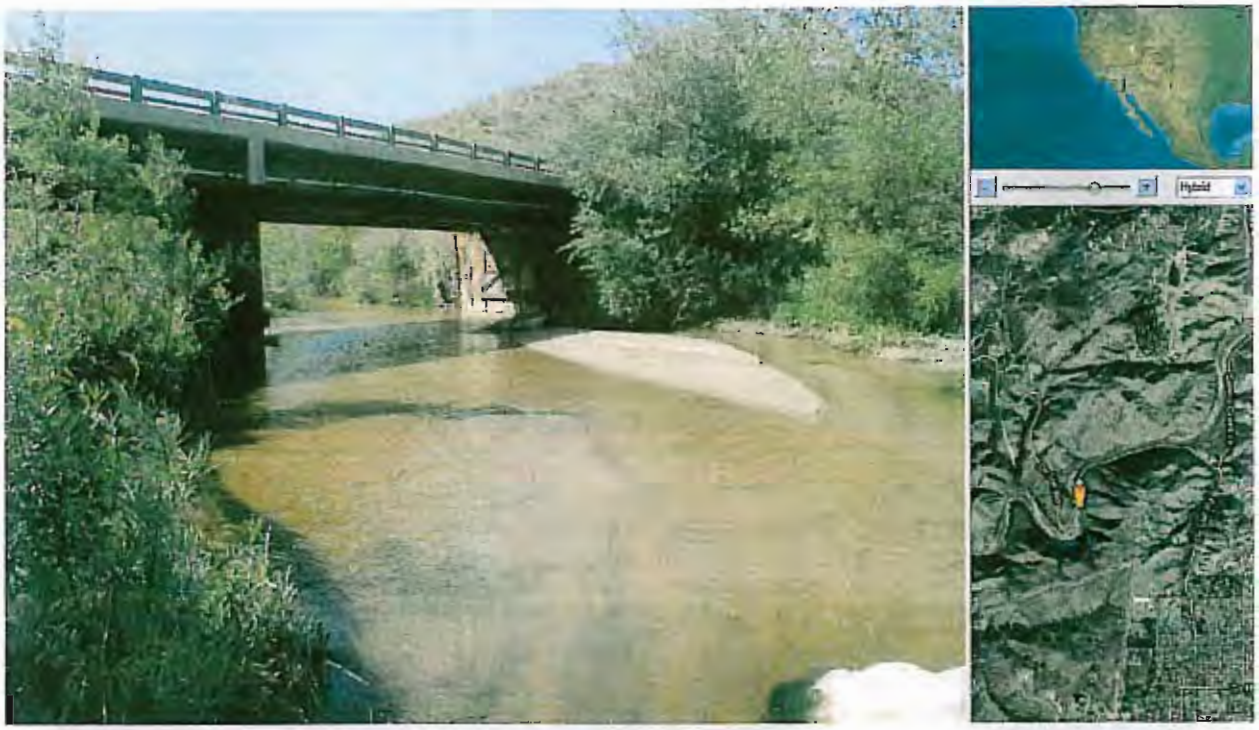


A-41: Pala - 1 (33.363931, -117.072181, April 16, 2010)



A-42: Pala - 2 (33.364123, -117.070311, April 16, 2010)

A-43: Shearer Crossing - 1 (33.332741, -117.149505, April 16, 2010)



A-44: Santa Margarita River - 1 (33.397880, -117.262583, April 16, 2010)

A-45: Santa Margarita River - 2 (33.398256, -117.262831, April 16, 2010)

A-46: Shearer Crossing - 1 (33.332745, -117.149571, May 18, 2010)

A-47: Gregory Canyon Limited Property - 1 (33.347777, -117.112691, July 5, 2010)

A-48: Gregory Canyon Limited Property - 2 (33.346447, -117.115544, July 5, 2010)

A-49: Gregory Canyon Limited Property - 3 (33.341186, -117.123522, July 5, 2010)

A-50: Gregory Canyon Limited Property - 4 (33.340666, -117.126816, July 5, 2010)

A-51: Couser Canyon Road Bridge - 1 (33.341005, -117.131338, July 5, 2010)

A-52: Shearer Crossing - 1 (33.332725, -117.149491, July 5, 2010)

1 A-53: Dry river channel on the west end of the Gregory Canyon Limited Property

2 A-54: Dry channel at original low flow crossing on Gregory Canyon Limited Property

3 A-55: Isolated pool downstream of original low flow crossing on the Gregory Canyon Limited Property

4 A-56: Minor flow downstream of proposed bridge on the Gregory Canyon Limited Property

5 A-57: Minor flow upstream of proposed bridge on the Gregory Canyon Limited Property

6 A-58: Dry channel at the Shearer Road Bridge Crossing

7 A-59: Minor flow at former pool at the PVC pipe on the Gregory Canyon Limited Property

8 A-60: Isolated, stagnant remnant of pool at PVC pipe on the Gregory Canyon Limited Property

9 A-61: Minor flow downstream of proposed bridge on the Gregory Canyon Limited Property

10 A-62: Minor flow upstream of the proposed bridge on the Gregory Canyon Limited Property

11 A-63: Murky, small hole in channel upstream of the proposed bridge on the Gregory Canyon Lmitied Property

12 A-64: Trickle of flow downstream of the proposed bridge on the Gregory Canyon Limited Property

13 A-65: Dry channel at the west end of the Gregory Canyon Limited Property

14 A-66: Dry channel at the original low flow crossing on the Gregory Canyon Limited Property

15 A-67: Dry channel at the original low flow crossing on the Gregory Canyon Limited Property

16 A-68: Isolated, remnant pool downstream of the low flow crossing on the Gregory Canyon Limited Property

17 A-69: Isolated, remnant pool downstrem of the low flow crossing on the Gregory Canyon Limited Property

18 A-70: Dry channel downstream of the low flow crossing on the Gregory Canyon Limited Property

19 A-71: Dry channel at the former PVC pipe pool on the Gregory Canyon Limited Property

20 A-72 Isolated, remnant pool at the PVC pipe on the Gregory Canyon Limited Property

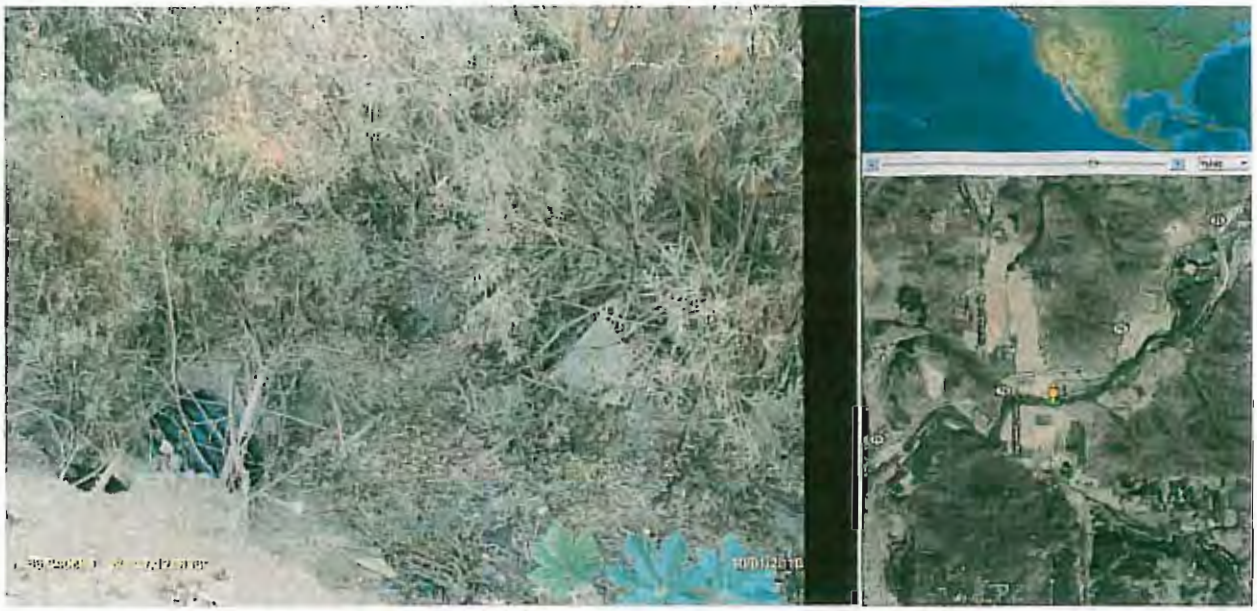
21 A-73: View upstream of dry channel at PVC pipe on the GCL Property

22 A-74: Dry channel upstream of the former PVC pipe pool on the GCL Property

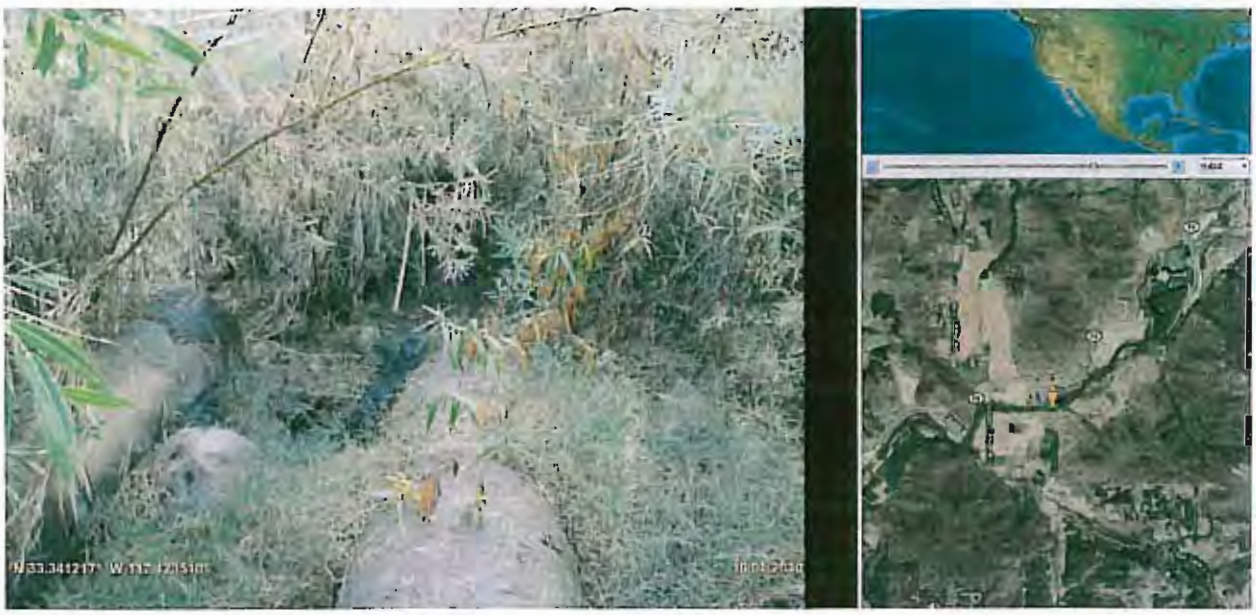
23 A-75: High flow scour line at base of trees on bank near the PVC pipe on the GCL Property

24 A-76: TBS

25 A-77: Minor flow at the proposed bridge on the GCL Property

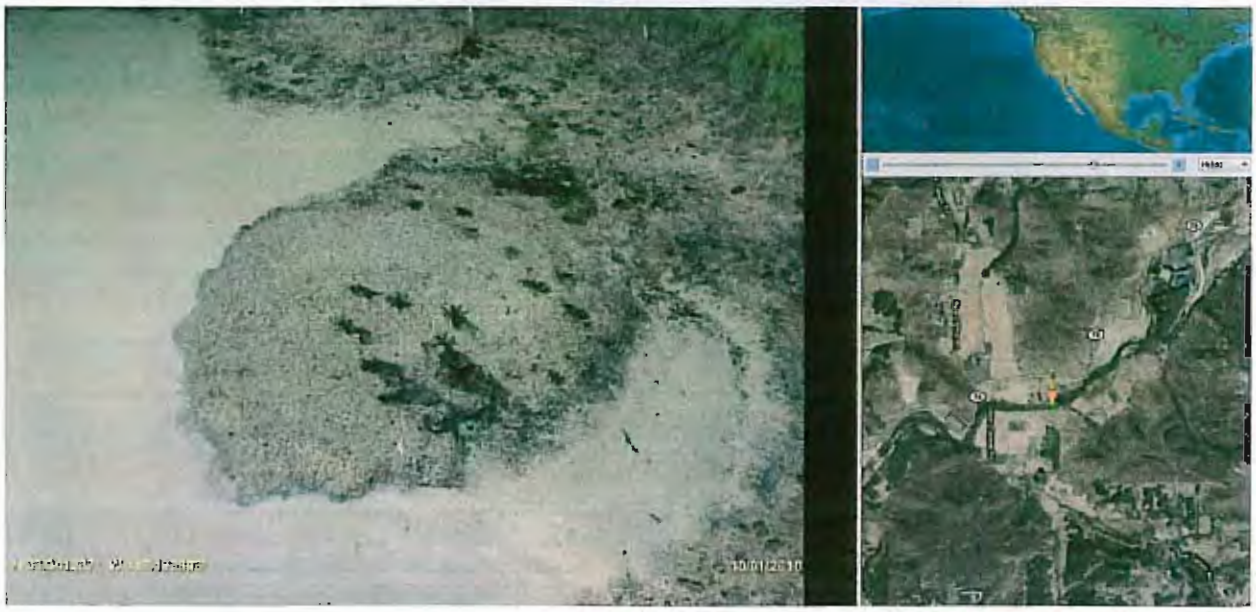


26 A-78: Dry channel at the west end of the GCL Property



27 A-79: Dry channel at the original low flow crossing on the GCL Property

28 A-80: Drying isolated remnant pool downstream of the low flow crossing on the GCL Property



29 A-81: Racoon tracks downstream of the low flow crossing on the GCL Property

30 A-82: Dry channel downstream of the low flow crossing on the GCL Property

31 A-83: Dry channel at the PVC pipe on the GCL Property

32 A-84: Isolated, remnant pool at PVC pipe on the GCL Property

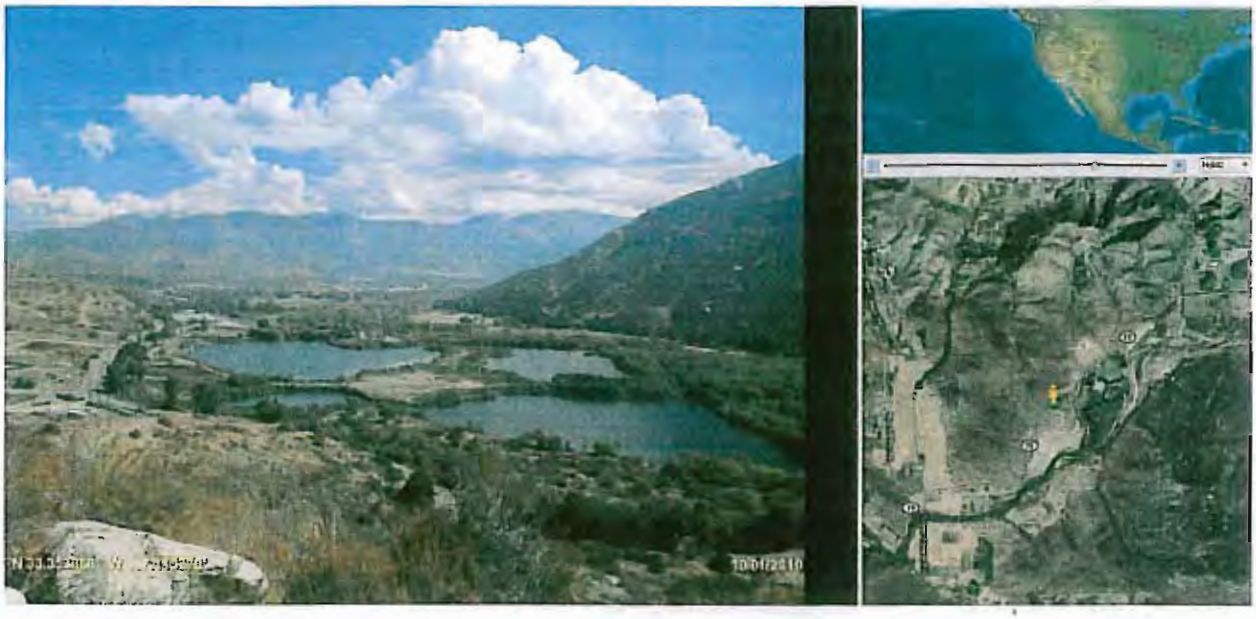
33 A-85: Dry channel at the PVC pipe on the GCL Property

34 A-86: Dry channel upstream of the former PVC Pipe pool on the GCL Property

35 A-87: High flow scour line at base of trees near the PVC pipe on the GCL Property

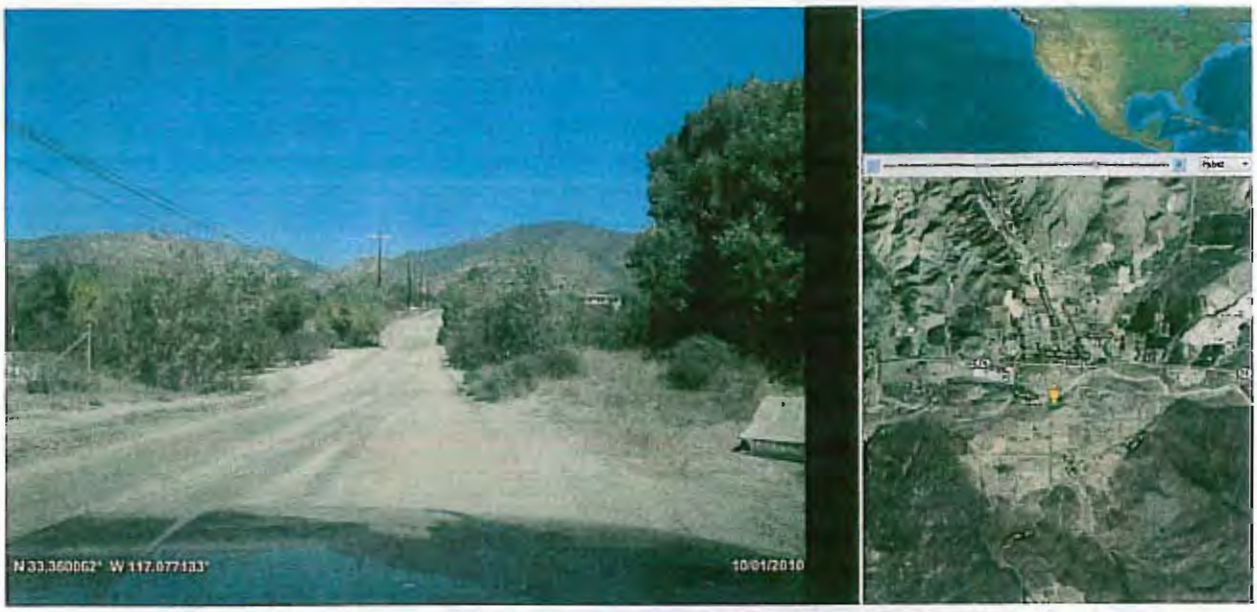
36 A-88: Trickle flow at the proposed bridge on the GCL Property

37 A-89: Dry channel at the Shearer Road Crossing Bridge

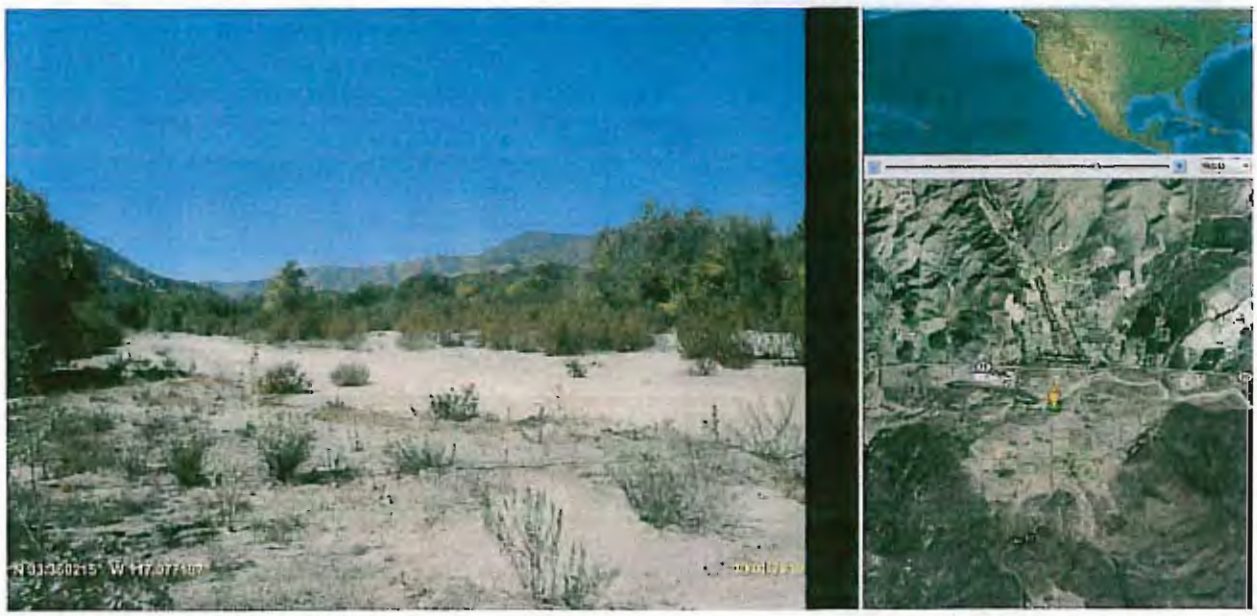


38 A-90: View upstream, off site of old Fenton Ponds and dry river channel from GCL Property

39 A-91: Dry channel in Gomez Creek from SR76



40 A-92: Dry Arizona road crossing of San Luis Rey upstream of the GCL Property



41 A-93: View of dry San Luis Rey River channel from Arizona road crossing upstream of the GCL Property

42 A-94: Dry San Luis Rey River channel at Wilderness Gardens Park

43 A-95: Dry San Luis Rey River Channel at Wilderness Gardens Park

44 A-96: Flowing water in the Santa Margarita River at the De Luz Road crossing

45 A–97: Dry channel at the original low flow crossing on the GCL Property

46 A-98: Dry channel at the original low flow crossing on the GCL Property

47 A-97: Isolated, remnant pool downstream of the low flow crossing on the GCL Property

48 A-98: Isolated, remnant pool downstream of the low flow crossing on the GCL Property

49 A-99: Isolated, remnant pool downstream of the low flow crossing on the GCL Property

50 A-100: Dry channel at the PVC pipe on the GCL property

51 A-101: Dry channel at the PVC pipe on the GCL property

52 A-102: Isolated, remnant pool at PVC pipe on the GCL Property

53 A-103: Dry channel at PVC pipe on the GCL property

54 A-104: Isolated, remnant pool and dry channel at PVC pipe on the GCL Property

55 A-105: Dry channel at the west end of the GCL property

56 A106: Dry channel at the original low flow crossing on the GCL property

57 A-107: Dry channel at original low flow crossing on the GCL Property

58 A-108: Isolated, remnant pool downstream of the low flow crossing on the GCL Property

59 A-109: Dry channel downstream of the low flow crossing on the GCL Property

60 A-110: Dry channel downstream of the low flow crossing on the GCL Property

61 A-111: Dry channel at the PVC pipe on the GCL property

62 A-112: Isolated, remnant pool at the PVC pipe on the GCL property

63 A-113: Dry channel at the PVC pipe on the GCL Property

64 A-114: Isolated, remnant pool at the PVC pipe on the GCL Property

65 A-115: Minor flow at the proposed bridge on the GCL Property

66 A-116: Minor flow upstream of the proposed bridge on the GCL Property

67 A-117: Dry channel at the Shearer Crossing Road Bridge

68 A-118: Dry channel at the Shearer Crossing Road Bridge

ATTACHMENT B

Photographs from 2009

B-1: Photo at low flow crossing of San Luis Rey River on Gregory Canyon Limited property on September 29, 2009 with no surface flow (33.341255, -117.123516)

B-2: Photo at low flow crossing of San Luis Rey River on Gregory Canyon Limited property on December 10, 2009 with no surface flow (33.341206, -117.123535)

B-3: Photo at low flow crossing San Luis Rey River on Gregory Canyon Limited property on December 10, 2009 with no surface flow (33.341223, -117.123518)

ATTACHMENT C

GPS Coordinates by Photo Number for Attachments A and B

GPS coordinates by Photo number for Steelhead Report Attachments A and B (A-1 to A-5, and B-1 to B3).

Explanation of listing:

1. Ignore first part of each line, such as "C:10/8/2010 22:26"
2. "A1-001" refers to Attachment A-1 and photo 1
3. "8325" refers to the photo number applied by the camera
4. The Lat/Long coordinates in decimal degrees is shown in parentheses
5. The numbering system described in item 2 above breaks down a little off the Gregory Property, so extra descriptive text is added to refer to the caption in the report, such as "Wilderness Gardens -1"
6. Note that the gps coordinates are based on readings from a consumer grade Locosys BGT-31 gps unit running WAAS (SBAS).

C:10/8/2010 22:26 A1-001 8325.jpg (33.341238, -117.122033)
C:10/8/2010 22:26 A1-002 8328.jpg (33.341530, -117.121106)
C:10/8/2010 22:26 A1-003 8334.jpg (33.341661, -117.120796)
C:10/8/2010 22:26 A1-004 8337.jpg (33.341926, -117.120520)
C:10/8/2010 22:26 A1-005 8838.jpg (33.342996, -117.119765)
C:10/8/2010 22:26 A1-006 8342.jpg (33.347216, -117.114970)
C:10/8/2010 22:26 A2-001 8408.jpg (33.340738, -117.126620)
C:10/8/2010 22:26 A2-002 8414.jpg (33.340821, -117.125428)
C:10/8/2010 22:26 A2-003 8415.jpg (33.340775, -117.125435)
C:10/8/2010 22:26 A2-004 8424.jpg (33.341125, -117.124121)
C:10/8/2010 22:26 A2-005 8431.jpg (33.341271, -117.123101)
C:10/8/2010 22:26 A2-006 8454.jpg (33.341378, -117.121608)
C:10/8/2010 22:26 A2-007 8457.jpg (33.341418, -117.121553)
C:10/8/2010 22:26 A2-008 8463.jpg (33.341483, -117.121275)
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C:10/8/2010 22:26 A5-005 7050095.JPG (33.341005, -117.131338) Couser Canyon - 1
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C:10/8/2010 22:26 B1-002 6951.jpg (33.341206, -117.123535)
C:10/8/2010 22:26 B1-003 6954.jpg (33.341223, -117.123518)
C:10/8/2010 22:26 Figure 1 aerial with project boundary.jpg Coor'd at approximate center of figure (33.339548°, -117.127472°)

HELIX environmental planning, inc.

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October 10, 2000 GCL-02

Mr. Richard Chase
Gregory Canyon Ltd.
212 North Cedros Avenue
Solana Beach, CA 92075

Subject: Arroyo Southwestern Toad Survey Report for the Gregory Canyon Landfill

Dear Mr. Chase:

This letter presents a U.S. Fish and Wildlife Service protocol survey report for the proposed Gregory Canyon Landfill project in northeastern San Diego County just south of Highway 76 and approximately three and one-half miles east of Interstate 15[1]. The site includes portions of the San Luis Rey River and surrounding floodplain areas, the western half of Gregory Mountain, and two other prominent unnamed peaks (Figure 1). The Gregory Canyon Landfill project consists of a Class III municipal refuse-disposal facility, landfill support facilities, and associated access improvements.

INTRODUCTION

HELIX Environmental Planning, inc. (HELIX) performed U.S. Fish and Wildlife Service protocol surveys for the arroyo southwestern toad (*Bufo microscaphus californicus*)[2] on the project site. An approximate 1½-mile reach of the San Luis Rey River occurs within the site boundaries, currently consisting of approximately 62.1 acres of riparian habitats (i.e., southern willow scrub, cottonwood-willow riparian forest, and mule fat scrub), 0.4 acre of pond habitat, and 12.5 acres of open channel. The San Luis Rey River is a large river that conducts high flows in the rainy season. Based on historic aerial photographs (circa 1928), the riparian habitat on site was historically very wide, with multiple shallow, braided channels. The riparian areas on site have been narrowed and altered due to changes up and downstream and construction and maintenance of dairies, berms, road crossings, and bridges. During a previous survey[3] HELIX biologists identified arroyo southwestern toads on site, and they were known on site from other survey efforts as well[4]. A copy of this report will be submitted to the U.S. Fish and Wildlife Service (USFWS) to be consistent with the USFWS Survey Protocol for the Arroyo Toad (May 19, 1999).

METHODS

Since arroyo southwestern toad presence had been documented previously, our 2000 survey was focused on finding out more about arroyo southwestern toad use of the project site. To this end, the survey area included the entire reach of San Luis Rey River on site, and upland areas to a surveyable distance out of the floodplain (not including, for example, steep, densely vegetated slopes). Our survey area also extended off site to just west of the Couser Canyon bridge area. Survey methods consisted of both daytime and nighttime components, as described below. Six total

nighttime surveys were conducted, with three surveys in April, two surveys in May, and one survey in June.

Scott Taylor, Greg Mason, Justin Fischbeck, and Peter Allen of HELIX conducted the six nighttime surveys for the arroyo southwestern toad. These surveys were conducted according to the latest (1999) USFWS protocol for presence/absence of the species. The daytime component was conducted prior to the outset of the nighttime surveys. Survey information is provided in Table 1.

Table 1
SURVEY INFORMATION

Date of Survey	Personnel*	Start/Stop Times	Moon	Weather Conditions
April 4, 2000	ST, JF	1945/0000	New	Clear, turning foggy by 2200, 62-69°F, wind 0-2 mph. High humidity.
April 12, 2000	ST, GM, PA, JF	2000/0000	First quarter	Clear, 64°F, wind 0-5 mph
April 19, 2000	ST, JF	2000/2300	Day after full	Clear, 56-63°F, wind 0-2 mph
May 8, 2000	ST, JF	2000/2345	First quarter	Mostly cloudy, 70-74°F, wind 2-4 mph
May 23, 2000	GM, JF	2010/2245	Last quarter	Overcast, becoming partly cloudy, 68-70°F, wind 0 mph
June 7, 2000	GM, JF	2000/2330	First quarter	Clear, 64-70°F, wind 0-3 mph

*ST=Scott Taylor, JF=Justin Fischbeck, GM=Greg Mason, PA=Peter Allen

The daytime component consisted of assessing the entire site during daylight hours and determining the areas to survey. In addition, the technique included searching for eggs and larvae along the stream in areas that appeared suitable. Care was taken when walking in the stream and open channel areas to not disturb potential burrowed toads or toads at any other life history stage. Identification of the best survey routes was also part of the daytime component.

The nighttime component was conducted between the period one hour after dusk and midnight. Surveyors avoided surveying on nights of a full or nearly full moon as much as possible, or during inclement weather or temperature conditions. Surveys consisted of walking identified survey routes, listening for arroyo southwestern toad calls in the riparian areas, and recording toads observed. Dirt roads in particular were searched carefully during the surveys because toads are more highly visible in these open areas. Transects were also walked through fallow agricultural fields, dairies, open channel areas, disturbed habitat, and annual grasslands. Observed toads were photographed, mapped, and the habitat where they were found was noted. Flashlights were used during the surveys to detect toad eye-shine and to "avoid disturbing, injuring, or killing toads" as stated in the protocol.

Biologists conducting the surveys also visually estimated the snout-vent length (SVL) of the toads without touching them by using a 10-centimeter ruler or equivalent held near the toads. These measurements were made to determine the approximate age of toads observed. Some SVLs were visually estimated without aid of a ruler. Note that toads could have been naturally compressed or extended laterally when measured. For this reason, the measurements only represent an estimate the actual size of observed toads. In this report we are assuming that all toads greater than or equal to 6.0 cm SVL are adults. Our analysis did not include marking or sexing of toads, so we could not accurately track which toads observed were unique and which had been observed during previous surveys.

SURVEY RESULTS

From three to nine arroyo southwestern toads were documented per night during protocol survey nights for the species (Table 2). Most of the toads were observed during April and early May (average eight toads per night). No toads were observed during the June survey and no toads were heard calling during the survey period.

Of the 35 toads observed, 17 percent were in the impact areas while 83 percent were in areas not impacted by the project. Toad SVLs ranged between 2.5 to 7.5 centimeters, with most in the 4-4.5 centimeter range. We estimate that, based on these measurements, approximately 11 percent of the toads observed (four toads) were adults while the remaining 89 percent were immature subadults or juveniles. As discussed under the methods section, the measurement techniques used likely slightly overestimated or underestimated the actual size of toads observed. Within Gregory Canyon itself, two toads were observed, both of which were under 3.5 cm SVL and are assumed to be first-year individuals. All adults observed were along the aqueduct road.

Toads were consistently observed on or near two roads on the south side of the San Luis Rey River; the San Diego County Water Authority aqueduct road and a local road (cowpen road) running approximately 800 feet to the southwest of the aqueduct road passing through fallow agricultural areas and a cowpen before entering the riparian habitat (Figure 2). Individual arroyo southwestern toads were also observed in disjunct areas. Toads within the impact areas for the project include an individual toad in the Landfill Access Road footprint, two toads within the mouth of Gregory Canyon in the landfill footprint, one sighting along the existing dirt road to be used as the internal haul road to Borrow/Stockpile Area A, and two toads within the excavation area for the proposed bridge. No arroyo southwestern toads were observed to the north of the river in either the active (i.e., Verboom) or inactive (i.e., Lucio) dairies, nor were they observed near the Couser Canyon Road bridge area or within the fallow agricultural fields, except on dirt roads.

The lack of calling toads is almost certainly due to a scarcity of suitable breeding areas in the river caused by low rainfall. Almost all of the smaller rivulets in open channel areas were dry by mid-April, leaving a main channel through more thickly vegetated reaches that had occasional ponds and few openings. Other surveyors within upstream portions of the San Luis Rey River at known toad population areas

were also reporting a lack of calling toads (John Konecny, pers. comm.)[5]. Since no toads were calling, it is possible that no toad breeding took place on the project site this year.

Table 2
ARROYO TOAD SURVEY RESULTS

Survey Date	Number of Toads @ Measurement	Comments
4/4/00	6 @ 4.5 cm SVL 2 @ 7.5 cm SVL	Toads were seen along the aqueduct road (six toads), Gregory Canyon (one toad) and near a dirt road (cowpen road) in riparian habitat to the west (one toad)
4/12/00	6 @ 4 cm SVL 2 @ 3.5-4.5 cm SVL 1 @ 4.5 cm SVL	Most toads (eight toads) were on and near the cowpen road, while a single toad was observed along the aqueduct road.
4/19/00	1 @ 2.5 cm SVL 1 @ 3 cm SVL 1 @ 3.5 cm SVL 1 @ 3.5-4 cm SVL 3 @ 5 cm SVL	Toads were more scattered across the site, in Gregory Canyon (one toad), the aqueduct road (two toads), along an open channel just to the west (two toads), and on or near the cowpen road (two toads).
5/8/00	3 @ 3.5 cm SVL 1 @ 4 cm SVL 2 @ 4.5 cm SVL 2 @ 5 cm SVL	Toads were again more scattered, along the aqueduct road (five toads), along the existing dirt road proposed for access to Borrow/Stockpile Area A (one toad), and in riparian habitat near the cowpen road (two toads).
5/23/00	1 @ 4 cm SVL 1 @ 6 cm SVL 1 @ 7.5 cm SVL	Two toads were observed along the aqueduct road while a third toad was observed along the cowpen road, away from the riparian area.
6/7/00	N/A	No toads observed.

DISCUSSION

Toad observations on site have varied throughout the years. In previously completed surveys by Dudek and Associates, numerous tadpoles and newly emerged toadlets were observed along the San Luis Rey River and its banks on site. Dudek biologists estimated approximately 25 male toads calling in an approximately six-mile segment of the San Luis Rey River between Pala and Interstate 15 in a single night. Their observations included a breeding population in the Fenton sand mine bordering the site to the east and a male calling from the river at the current low-flow crossing on the landfill site. In 1998 surveys by HELIX, three calling male toads were observed along the San Luis Rey River on the landfill site. The data collected by HELIX in 2000 represented more toads than were observed in 1998 or reported

earlier by Dudek, although most of the toads observed in 2000 appear to be immature. There have been other incidental observations of toads calling along this section of the river for many years including at the Couser Canyon bridge (Scott Taylor, pers. obs.; John Stephensen, pers. comm.)[6].

In 2000 we observed a diverse age range of toads, based on the measurements. Our results indicate an apparent mixture of immature first-year and second-year individuals, and mature adult toads at an assumed proportion of seven to eight immature toads per adult toad. As the immature toads grow to maturity they will likely perpetuate the on-site population. Whether the immature individuals observed in 2000 originated on site or emigrated to the site from other breeding areas off site is unclear. For example, some of the toads observed in 2000 may have originated from the Fenton site or other adjacent areas.

The riparian areas that most consistently support toads now are between the proposed low-flow crossing area and the boundary with Fenton to the east. An examination of historical aerial photographs of the site (taken in 1928 and 1973) suggest that this area has consistently had extensive open channel areas, which probably consistently supported breeding toads. It is important to consider that the breeding areas on site are dynamic due to changing conditions associated mainly with rainfall. For example, after a year of scouring floods, riparian areas that currently support dense vegetation may open up and become more suitable as breeding habitat.

The upland toad use areas at this time appear to primarily include terraces along the south side of the San Luis Rey River that have been used in the past for agriculture and now support grassland. Our data also suggest that toads often use dirt roads on site. As could be expected, areas on site that are highly disturbed, such as the Verboom or Lucio dairies do not appear to be preferred toad upland habitat because no toads were observed in these areas. Note that we were not able to effectively survey thickly vegetated slopes on site.

Our data and that collected previously suggest that the toad population on site ranges between 12 and 16 adult toads and at any time a larger number of immature individuals. Arroyo toad population sizes are difficult to estimate because toad habitat tends to change in response to changing yearly environmental conditions at a given site[7]. For instance, a lack of toads or apparent low toad density during a single year of poor conditions would not relay an accurate picture of toad use of a site. According to Sweet[8], the toads have a sex ratio of approximately 1:1, and only about half of the males would be expected to call on any given night. Based on Dudek's data then, the actual population over the six-mile reach they studied may have included as many as 50 or more male toads. However on the Gregory Canyon site Dudek reported only one calling male toad but saw several developing toads. Using Sweet's conclusions and extrapolating, HELIX data indicate a minimum of six male adults (12 total adults) in 1998. No calling toads were heard on site in 2000. However if we assume that the adult toads observed were all male and accounted for only 50 percent of the adult male toads present, a maximum of eight male adults (16 total adults) may have been present on site in 2000.

Toad data for the site has been collected over a period of several years and below are three inferences that may be made from the data:

1) The toad population on site is persistent and prospectively will be present in years to come although the actual population size, based on the data, may fluctuate from year to year.

2) Toads use the site as both breeding and post-breeding habitat. This statement is supported by observations of calling toads, immature toads, and tadpoles on site in previous years and because data collected in 2000 shows evidence of recent recruitment of young toads.

3) Toads use certain discrete upland and riverine areas of the site at this time but these use areas are expected to change regularly and potentially change annually or even multiple times during any given year.

Please contact Kim Baranek or me if you have any questions about the surveys or the contents of this letter.

Sincerely,

Scott Taylor
Wildlife Biologist

Enclosures: Figure 1 Regional Location Map
Figure 2 Gregory Canyon Landfill Vegetation/Impacts Map with Year 2000 Arroyo southwestern toad Survey Results

c. Jerry Riessen, Gregory Canyon Limited, without enclosures
Doug Krofta, U.S. Fish and Wildlife Service, including enclosure

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[1] Sections 29, 30, 31, 32, and 33, Township 9 South, Range 2 West and Sections 4, 5, and 6, Township 10 South, Range 2 West,USGS 7.5 Minute Quadrangles Bonsall and Pala

[2] In Collins et. al 1997. Standard Common and Current Scientific Names for North American Amphibians and Reptiles.Society for the Study of Amphibians and Reptiles, Herpetological Circular No. 25, now recognized as a full species, *Bufo californicus*,

[3] HELIX Environmental Planning, Inc. 1999. *Biological Technical Report for the Gregory Canyon Landfill.* December 1, 1999

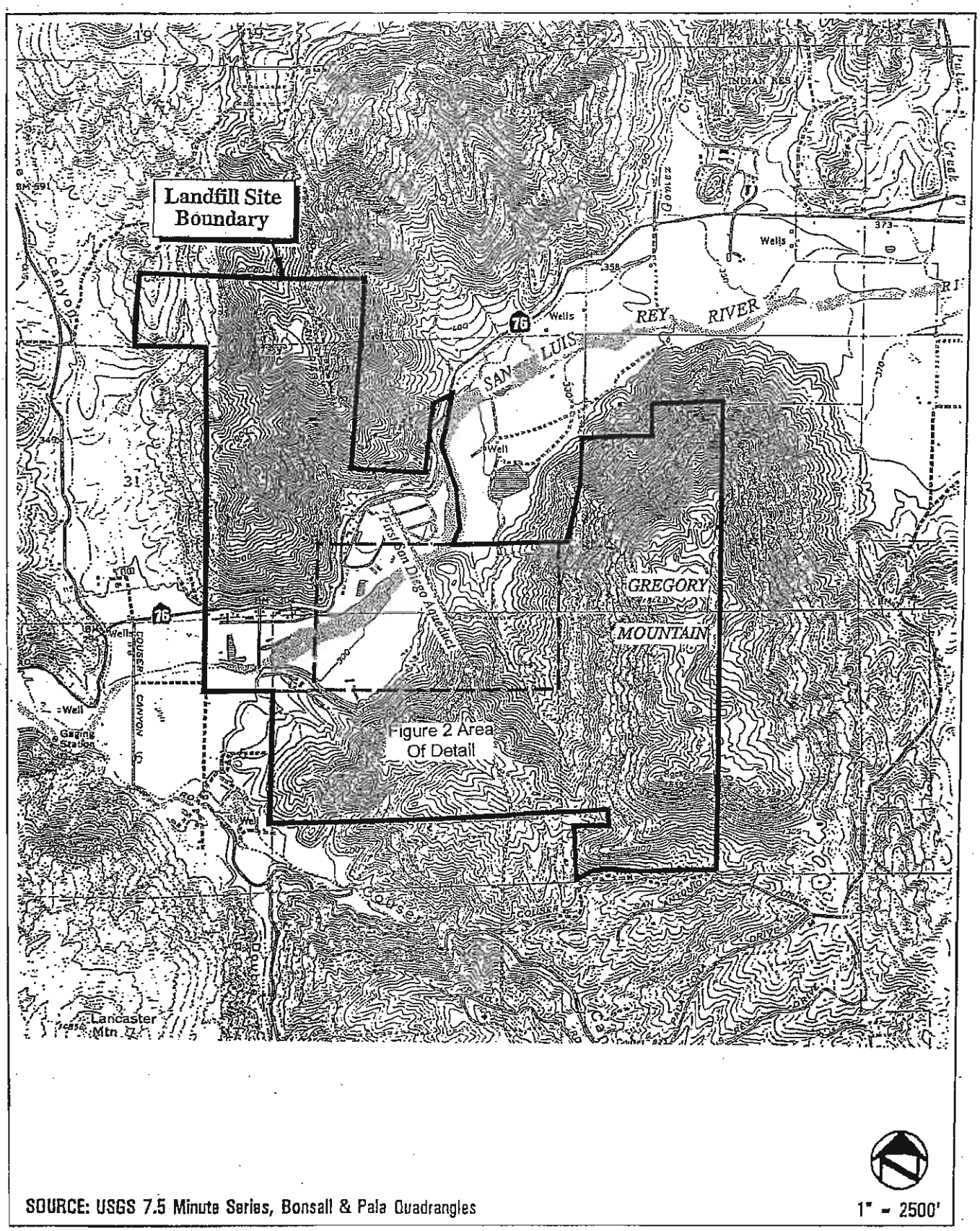
[4] Dudek and Associates. 1995. *Biological Resources Report for the Gregory Canyon Landfill Project, San Diego County, California.* August.

[5] John Konecny, Konecny Biological Services

[6] Scott Taylor, HELIX Environmental Planning, Inc.; John Stephenson, USFWS, Carlsbad, CA

[7] USFWS.. 1999. Arroyo southwestern toad (*Bufo microscaphus californicus*) recovery plan. U.S. Fish and Wildlife Service, Portland, Oregon. Vi + 119 pp.

[8] Sweet, Samuel S. 1992 (revised). Initial report on the ecology and status of the arroyo southwestern toad (*Bufo microscaphus californicus*) on the Los Padres National Forest of southern California with management recommendations. Department of Biological Sciences, University of California Santa Barbara.

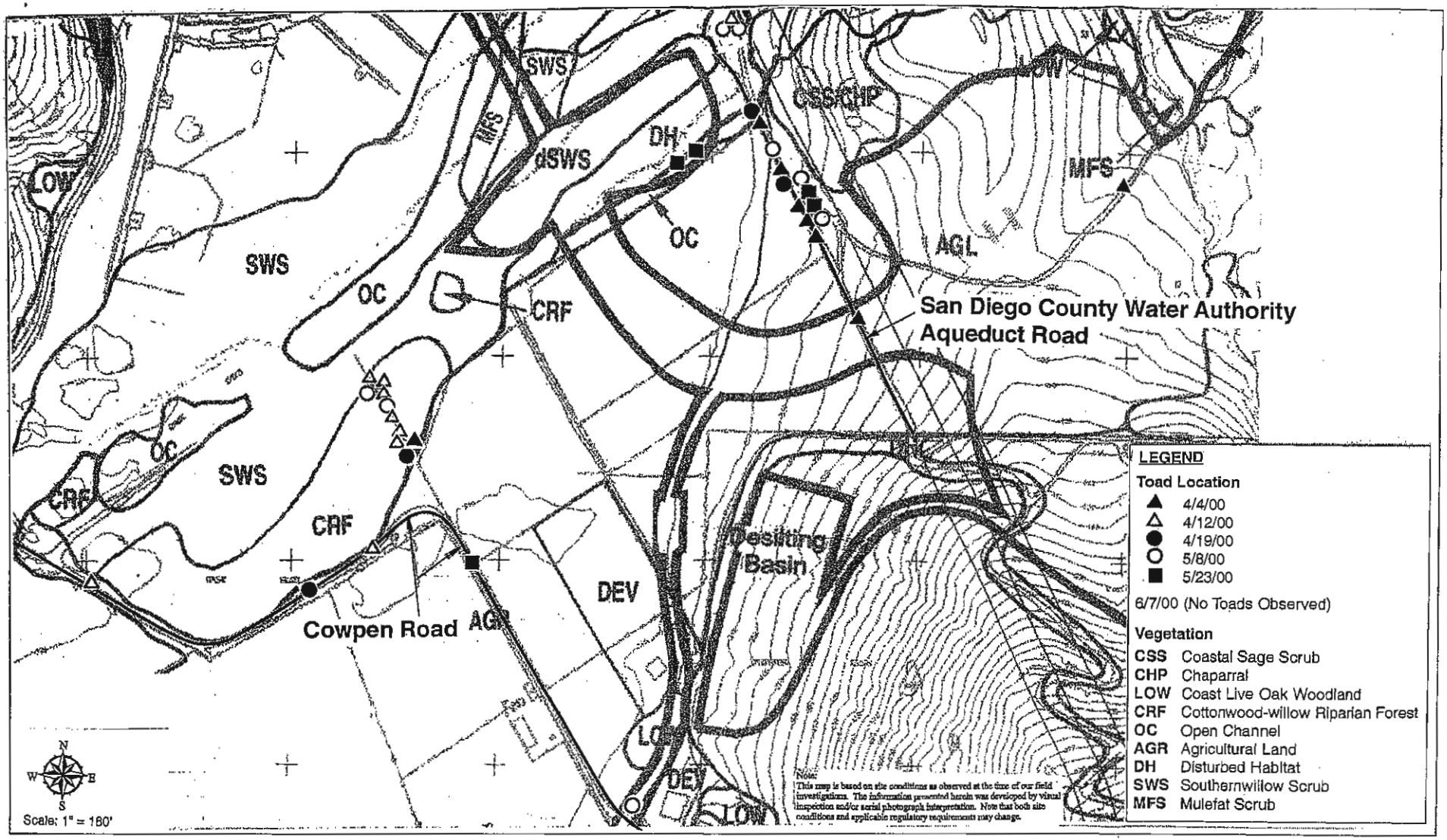


HELIX

Vicinity Map

GREGORY CANYON LANDFILL PROJECT

Figure 1



Arroyo Southwestern Toad Locations

GREGORY CANYON LANDFILL-PROJECT

Figure 2

HELIX

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January 15, 2004 GCL-05

Mr. Richard Chase
Gregory Canyon Ltd.
991-C 404 Lomas Santa Fe Drive
Solana Beach, CA 92075

Subject: Year 2003 Arroyo Southwestern Toad Survey Report for the Gregory Canyon Landfill

Dear Mr. Chase:

In spring 2003, HELIX Environmental Planning, Inc. (HELIX) performed U.S. Fish and Wildlife Service (USFWS) protocol surveys for the arroyo southwestern toad (*Bufo microscaphus californicus*)[1] on the Gregory Canyon Landfill site. This letter presents the results of these surveys. A copy of this report will be submitted to the USFWS as required by the USFWS Survey Protocol for the Arroyo Toad dated May 19, 1999.

The proposed Gregory Canyon Landfill project site is located in northeastern San Diego County just south of Highway 76 and approximately 3.5 miles east of Interstate 15[2]. The site includes portions of the San Luis Rey River and surrounding floodplain areas, the western half of Gregory Mountain, and two other prominent unnamed peaks (Figure 1).

The San Luis Rey River is a large river that conducts high flows in the rainy season. Based on historic aerial photographs (circa 1928), the riparian habitat on site was historically very wide, with multiple shallow, braided channels. Over time, the riparian areas on site have been narrowed and altered due to changes up and downstream, including construction and maintenance of dairies, berms, road crossings, and bridges. Currently, approximately a 1.5-mile stretch of the San Luis Rey River occurs within the site boundaries, consisting of approximately 62.1 acres of riparian habitats (i.e., southern willow scrub, cottonwood-willow riparian forest, and mule fat scrub), 0.4 acre of pond habitat, and 12.5 acres of open channel.

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[1]In Collins et al. 1997. Standard Common and Current Scientific Names for North American Amphibians and Reptiles Society for the Study of Amphibians and Reptiles, Herpetological Circular No. 25. The toad is now recognized as a full species, *Bufo californicus*.

[2]Sections 29, 30, 31, 32, and 33, Township 9 South, Range 2 West, and Sections 4, 5, and 6, Township 10 South, Range 2 West, U.S. Geological Survey 7.5-minute Quadrangles Bonsall and Pala.

METHODS

The arroyo southwestern toad has been observed on site by Dudek and Associates in 1995 and HELIX in 1999 and 2000. To this end, the on-site survey area included the entire 1.5-mile stretch of the San Luis Rey River and adjacent accessible upland areas out of the floodplain (not including steep, densely vegetated slopes, for example). The survey area also extended off site to just west of the Couser Canyon bridge area. See Figure 1 for the entire survey area. HELIX biologists Scott Taylor, Brian Parker, Patrick McNicholas and Dale Ritenour conducted the 2003 surveys. As noted above, these surveys were conducted according to the latest (1999) USFWS protocol for presence/absence of the species. Survey statistics are provided in Table 1.

Table 1
SURVEY INFORMATION

Survey Date	Personnel*	Start/Stop Times	Moon	Weather Conditions
Daytime Assessment				
March 31, 2003	ST	1800/1900	N/A	Clear, 62°F, wind 0 mph
Nighttime Surveys				
March 31, 2003	ST, BP, DR, PM	2000/2245	New	Clear, 52-56°F, wind 0 mph.
April 8, 2003	ST, BP, DR, PM	2010/2240	First quarter	Clear, 55-63°F, wind 0-2 mph
May 8, 2003	ST, BP, DR, PM	2035/2208	First quarter	Partly cloudy, 55-58°F, wind 2-3 mph
June 9, 2003	ST, BP, DR, PM	2100/2230	First quarter	Overcast, 57-62°F, wind 0 mph
June 12, 2003	ST, BP, DR, PM	2117/2315	Two days before full	Overcast, 62°F, wind 0 mph
June 24, 2003	ST, BP, DR, PM	2100/2320	New	Clear, 57-61°F, wind 0 mph

*ST=Scott Taylor, BP=Brian Parker, DR=Dale Ritenour, PM=Patrick McNicholas

Survey methods consisted of both daytime and nighttime components. The daytime component consisted of assessing the entire site during daylight hours prior to the first survey day and determining survey routes and areas with the best likelihood for toads. In addition, the technique included searching for eggs and larvae along the stream in areas that appeared suitable. Care was taken when walking in the stream and open channel areas so as not to disturb potential burrowed toads or toads at any other life history stage.

The nighttime component was conducted between the period one hour after dusk and midnight. Surveyors avoided surveying on nights of a full/nearly full moon or during inclement weather or temperature conditions. On the one survey night closest to the full moon (June 12), the overcast sky compensated for the light conditions. Nighttime surveys consisted of walking along the perimeter of the floodplain areas, listening for arroyo southwestern toad calls within the riparian areas, and recording toads observed (Figure 2). Flashlights and/or headlamps were used during the surveys to detect toad eye-shine and to "avoid disturbing, injuring, or killing toads" as stated in the survey protocol. Opportunistic observations of toads, such as along dirt access roads, were also made. Transects were walked through fallow agricultural fields, dairies, open channel areas, disturbed habitat, and annual grasslands adjacent to the floodplain. Observed toads were noted on the vegetation map (Figure 2) for the project.

Biologists conducting surveys also visually estimated the snout-vent length (SVL) of the toads without touching them by using a 10-centimeter ruler (or equivalent) held near the toads. These measurements were made to determine the approximate age of toads observed. Some SVLs were visually estimated without the aid of a ruler. Note that toads could have been naturally compressed or extended laterally when measured; for this reason, the measurements only represent an estimate of the actual size of observed toads. In this report, we have assumed that all toads equal to or greater than 6.0 centimeters SVL are adults. Our analysis did not include marking or sexing of toads, so we were limited in our ability to track which toads observed were unique and which had been observed during previous surveys.

SURVEY RESULTS

Four arroyo southwestern toads were observed during the entire survey period (Table 2). Of the four toads observed, one was within the proposed bridge crossing area, while the other three were in areas proposed for open space preservation (Figure 2). A single toad was seen along the dirt aqueduct road, another was observed on the sandy floodplain south of the riverbed, the third on a dirt road crossing Gregory Canyon, and the fourth toad was observed in sandy alluvium in the floodplain areas south of the San Luis Rey River (Figure 2). No arroyo southwestern toads were observed to the north of the river in either the active (i.e., Verboom) or inactive (i.e., Lucio) dairies, nor were they observed near the Couser Canyon Road bridge area or within the fallow agricultural fields.

Table 2 ARROYO TOAD SURVEY RESULTS		
Survey Date	Number of Toads @ Measurement	Comments
March 31, 2003	Not applicable	No toads observed
April 8, 2003	1 @ 3.5 centimeters SVL	A single toad was seen along the dirt aqueduct road.
May 8, 2003	N/A	No toads observed
June 9, 2003	2 @ 3.5 centimeters SVL	A single road was observed on the sandy floodplain north of the riverbed and another on a dirt road crossing Gregory Canyon.
June 12, 2003	1 @ 3.5 centimerers SVL	A single toad was observed along the aqueduct road.
June 24, 2003	Not applicable	No toads observed

Toad SVLs were all around 3.5 centimeters, most likely indicating that the observations tepresented immature subadults or juveniles. As discussed under the Methods section of this report, the measurement techniques used slightly overestimated or underestimated the actual size of toads observed.

No arroyo toads were heard calling at any time during the survey period. Since no toads were calling, it is possible that no toad breeding took place on the project site this year.

DISCUSSION

During last toad survey period (2000) conducted by HELIX, 35 toads were observed, whereas only four were observed in 2003. The reasons are unclear, since the water level in the river seemed to be sufficient to provide suitable bteeding areas. It could be that the habitats along the river have become unsuitable for breeding due to increased canopy density and/or due to recent droughts or other disturbances. Possibly other recent developments upstream have contributed to a decrease in toads on site as well.

Upland toad use areas at this time appear to include primarily terraces along the south side of the San Luis Rey River that have been used in the past for agriculture and now support grassland. This is consistent with our 2000 data, which also suggested that toads often use ditt roads on site. However, these upland areas have undergone considerable changes in the past three years. As a result of the removal of cattle from the site, grassland areas are more dense. Dirt roads that were formerly kept clear of vegetation by local residents and farmers are now

overgrown with vegetation. Some areas that were fairly open in 2000 now support such thick vegetation that they were not practical to survey.

A lack of toads or apparent low toad density this year compared to 2000 does not necessary relay an accurate picture of breeding toad use of the site. Similar low numbers were reported by Dudek in 1995 (one calling male toad was observed on site, but there were several developing toads). However, HELIX historic data indicate a minimum of six male adults (12 total adults) in 1998 and a maximum of eight male adults (16 total adults) may have been present on site in 2000. It warrants consideration that a lack of calling toads in both 2000 and 2003 may be explained by unsuitable site conditions (drought in 2000 and thick vegetation in 2003).

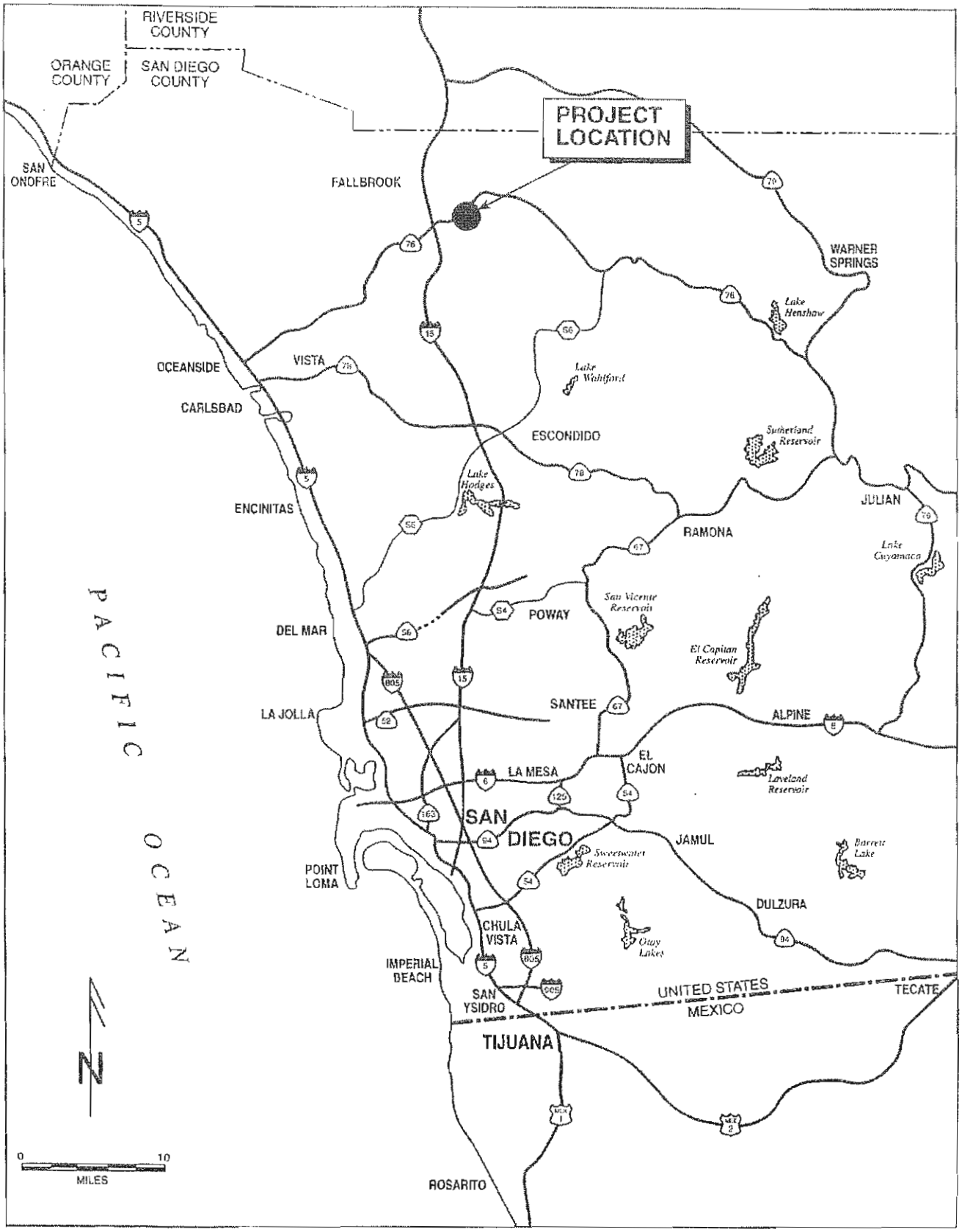
Please contact me or Kim Baranek if you have any questions about the surveys or the contents of this letter.

Sincerely,

Scott Taylor
Wildlife Biologist

Enclosures: Figure 1 Regional Location Map
Figure 2 Gregory Canyon Landfill Vegetation/Impacts Map with Year 2003 Arroyo Southwesrern Toad Survey Results

copy: Daniel Marquez, U.S. Fish and Wildlife Service, including enclosures

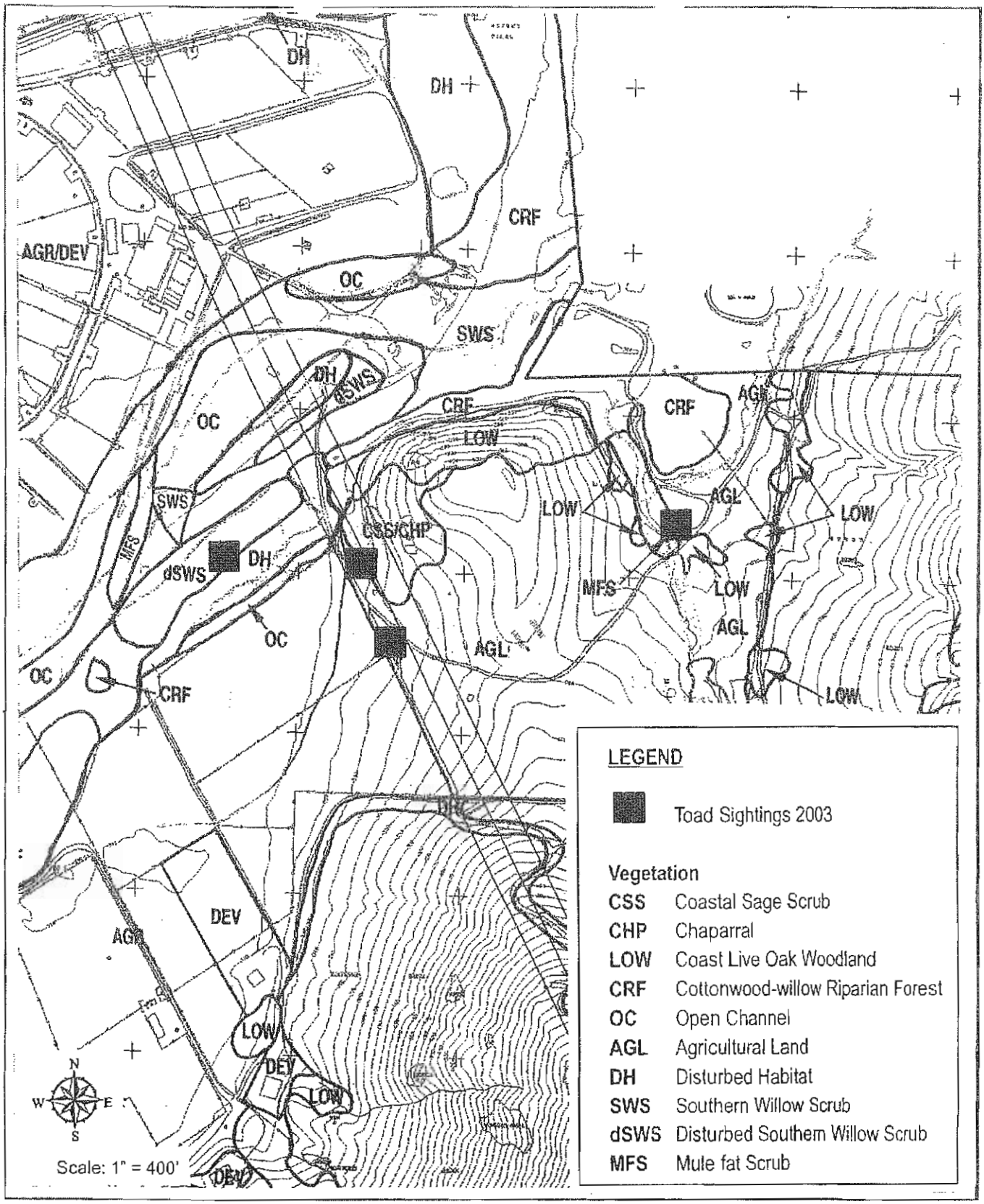


Regional Location Map

HELIX

GREGORY CANYON LANDFILL PROJECT

Figure 1



Arroyo Southwestern Toad Locations

GREGORY CANYON LANDFILL PROJECT

HELIX

Figure 2

HELIX environmental planning, inc.

8100 La Mesa Blvd., Suite 150

La Mesa, CA 91941-6476

e-mail:admin@helixepi.com

fax (619) 462-0552

phone (619) 462-1515

July 31, 2000

Mr. Richard Chase
Gregory Canyon Ltd.
212 North Cedros Avenue
Solana Beach, CA 92075

Subject: Least Bell's vireo survey report for Gregory Canyon Landfill

Dear Mr. Chase:

This letter presents the results of spring 2000 surveys for the least Bell's vireo (*Vireo bellii pusillus*) for the Gregory Canyon Landfill project which consists of a Class III municipal refuse disposal facility, landfill support facilities, and associated access improvements. The project site is in northeastern San Diego County approximately three and one-half miles east of Interstate 15 (Figure 1).

INTRODUCTION

HELIX Environmental Planning, Inc. (HELIX) performed surveys for the least Bell's vireo in two proposed project impact areas (existing low-flow crossing and landfill access road bridge) and a subjective, approximate 400-foot buffer surrounding those areas (Figure 2).

The existing low-flow crossing would only be used during initial project construction (approximately nine to twelve months) by construction equipment and vehicles. The crossing would not be improved. Construction equipment would cross the river and would remain on the south side of the river. Once the landfill access road bridge is built (during initial project construction), construction traffic would be directed to use the new bridge, and the low-flow crossing would be contained in permanent open space. The low-flow crossing and buffer area were surveyed because of the potential for significant indirect noise impacts to the vireo created by equipment and vehicles using the low-flow crossing during the breeding season.

The landfill access road bridge involves the temporary impact of clearing approximately 2.5 acres of vireo habitat (southern willow scrub and mule fat scrub) for bridge construction. In addition, construction and long-term traffic noise from the bridge could impact the vireo. The landfill access road bridge and buffer area were surveyed because of the significance of direct habitat removal and the potential for significant impacts to the vireo from construction and long-term traffic noise.

The spring 2000 surveys provide supplementary information to that gathered in years past and demonstrate how many territorial male vireos currently occupy the two proposed project impact areas on site.

Within the two proposed project impact areas (and buffers) surveyed there are approximately 25 acres of potential vireo habitat consisting of southern willow scrub, mule fat scrub, and cottonwood-willow riparian forest. In addition, a single survey was completed in the remainder of these habitats (approximately 37 acres) that occur outside the previously mentioned survey areas on the 1,783-acre landfill site (Figure 2) to determine where other vireos occur on site. A copy of this report will be submitted to the U.S. Fish and Wildlife Service (USFWS) as a condition of HELIX's Threatened and Endangered Species Permit TE778195-5 under which the spring 2000 surveys were performed.

METHODS

The surveys took into account the guidelines for vireo surveys prepared by the USFWS[1] and included eight surveys between the hours of dawn and 11:00 am. The surveys were conducted by Deborah Pudoff and Scott Taylor of HELIX. Survey information is provided in Table 1.

Table 1
SURVEY INFORMATION

Date of Survey	Personnel*	Start/Stop Times	Acres Surveyed/ Coverage Rate	Weather Conditions
May 3, 2000**	DP, ST	0700/1100	62 acres/7.75 acres per biologist per hour	Foggy then clear, 58°F-76°F, wind 0-5 mph
May 11, 2000	DP, ST	0800/0945	25 acres/7.1 acres per biologist per hour	Partly cloudy, 60°F-63°F, wind 0-2 mph
May 22, 2000	DP, ST	0800/1000	25 acres/6.25 acres per biologist per hour	Overcast then clear, 58°F-75°F, wind 0-4 mph
June 1, 2000	ST	0700/1100	25 acres/6.25 acres per hour	Hazy sun to clear, 64°F-68°F, wind 2-5 mph
June 12, 2000	DP, ST	0900/1100	25 acres/6.25 acres per biologist per hour	Clear, 74°F-79°F, wind 2-5 mph
June 22, 2000	ST	0700/1100	25 acres/6.25 acres per hour	Overcast then clear, 63°F-75°F, wind 0-5 mph
June 30, 2000	DP,ST	0800/1100	25 acres/4.1 acres per biologist per hour	Partly cloudy then clear, 72°F-76°F, wind 0-5 mph
July 13, 2000	DP, ST	0900/1100	25 acres/6.25 acres per biologist per hour	Clear, 73°F-79°F, wind 0-5 mph

*DP=Deborah Pudoff, ST=Scott Taylor
**This survey included the on-site riparian habitat outside the proposed project impact areas and buffers.

Surveys were conducted on foot. Survey routes included travel along the edges of riparian habitat as well as travel through it where there was open river channel, or the vegetation was not too dense. Taped vocalizations were not necessary because all of the territorial males were vocal. A vireo was mapped in the location in which it was first found, and care was taken to confirm that the next vireo detected was not the same as the previously mapped individual. The number of territorial male vireos present in the two proposed project impact areas and buffers was reconfirmed during subsequent visits.

A single survey was conducted of the remaining riparian habitat on site, and vireos, again, were mapped as described above. The number of these birds was not reconfirmed.

SURVEY RESULTS AND CONCLUSION

Five territorial male vireos were detected in the two proposed project impact areas and buffers. Two additional territorial male vireos were detected in the remaining riparian habitat on the landfill site (Figures 1 and 2). These numbers are higher than those detected during earlier surveys in 1993[2], 1995[3], and 1998[4] and are not surprising because the riparian habitat has filled in and matured since those surveys. In 1993 and 1995, three to four pairs of vireos were found on site. In 1998, four territorial male vireos were identified on site. In 2000, seven territorial male vireos were detected along the San Luis Rey River on the landfill site.

Although brown-headed cowbirds (*Molothrus ater*), a nest parasite of the vireo, were not mapped during the vireo surveys, cowbirds were observed in the riparian habitat on site, particularly near the Verboom Dairy. Two cowbird traps are currently being operated on site by TW Biological Services to catch cowbirds. Removal of the dairy as part of the landfill project would eliminate this significant cowbird attractant and would improve the reproductive success of the least Bell's vireo on site and potentially within a 7-kilometer radius from the dairy.[5]

Please contact me if you have any questions about the surveys or the contents of this letter.

Sincerely,

Deborah Pudoff
Biologist

Enclosures: Figure 1 Vicinity Map
Figure 2 Vegetation Map/Impacts

c: Jerry Riessen, Gregory Canyon Ltd., without enclosures
Doug Krofta, U.S. Fish and Wildlife Service, including enclosures

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[1] U.S. Fish and Wildlife Service. 1999. Least Bell's Vireo Survey Guidelines. April 8.

[2] Ogden Environmental and Energy Services Co, Inc. (Ogden). 1993. Unpublished field work conducted on the Gregory Canyon Landfill Site for the County of San Diego's North County Landfill Project.

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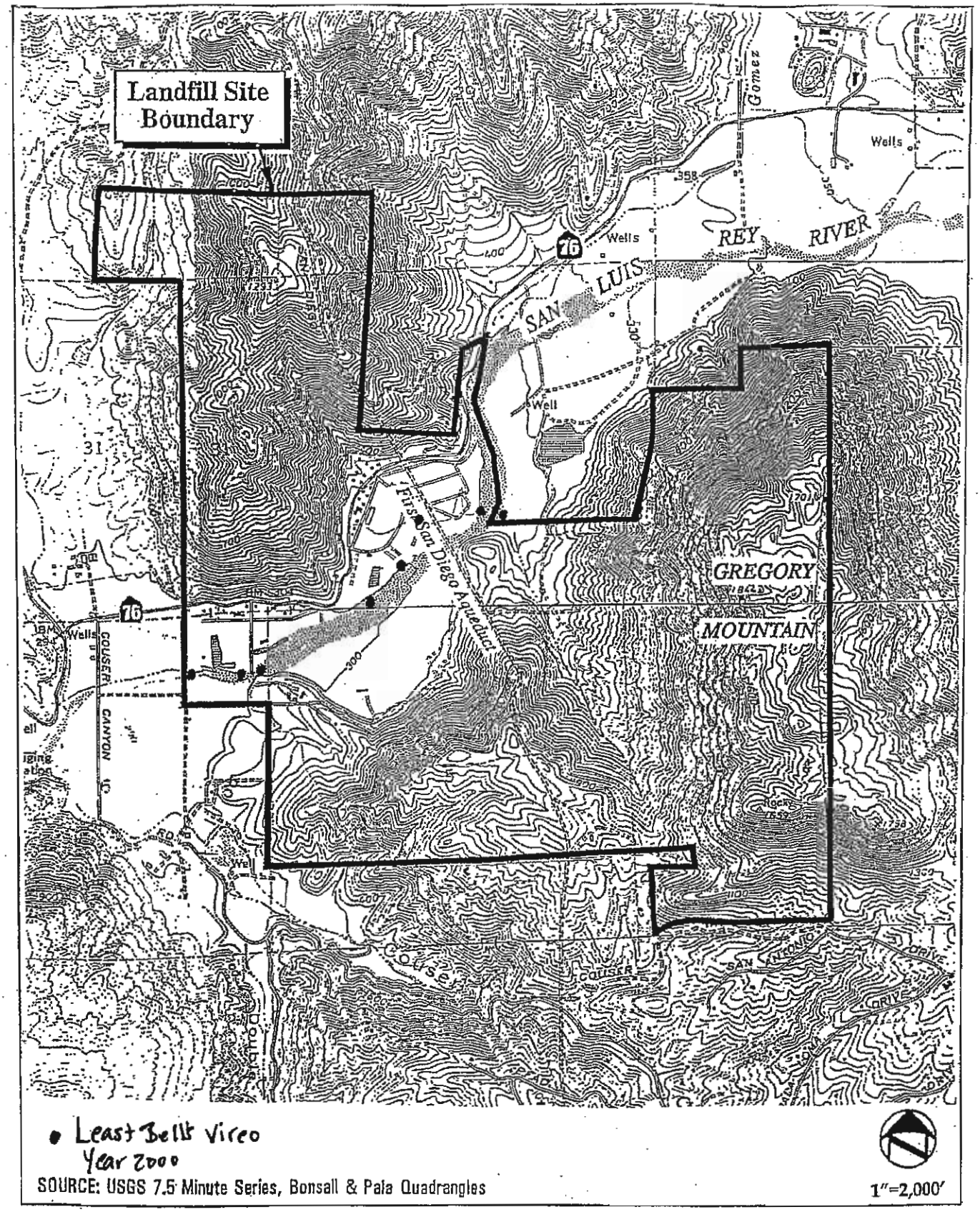
[3] Dudek & Associates (Dudek). 1995. Biological Resources Report for the Gregory Canyon landfill project San Diego County, California. Prepared for Gregory Canyon LTD. August.

[4] HELIX Environmental Planning, Inc. 1999. Biological Technical Report for Gregory Canyon Landfill. December 1.

[5] Rothstein, S.L., J. Verner, and E. Stevens. 1984. Radio-tracking confirms a unique diurnal pattern of spatial occurrence in the parasitic brown-headed cowbird. Ecology 65: 77-88.

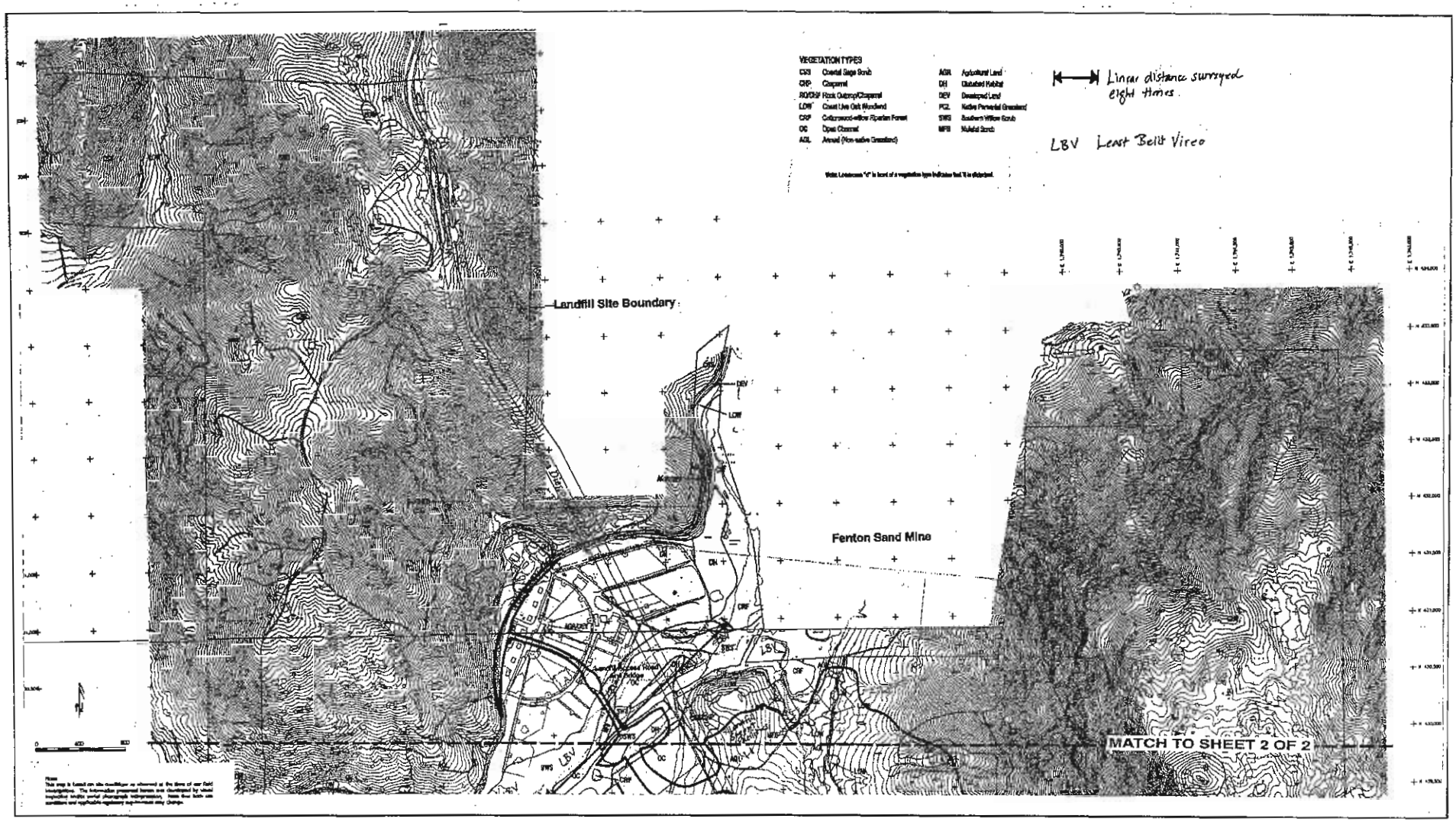


HELIX

Vicinity Map

GREGORY CANYON LANDFILL PROJECT

Figure 1

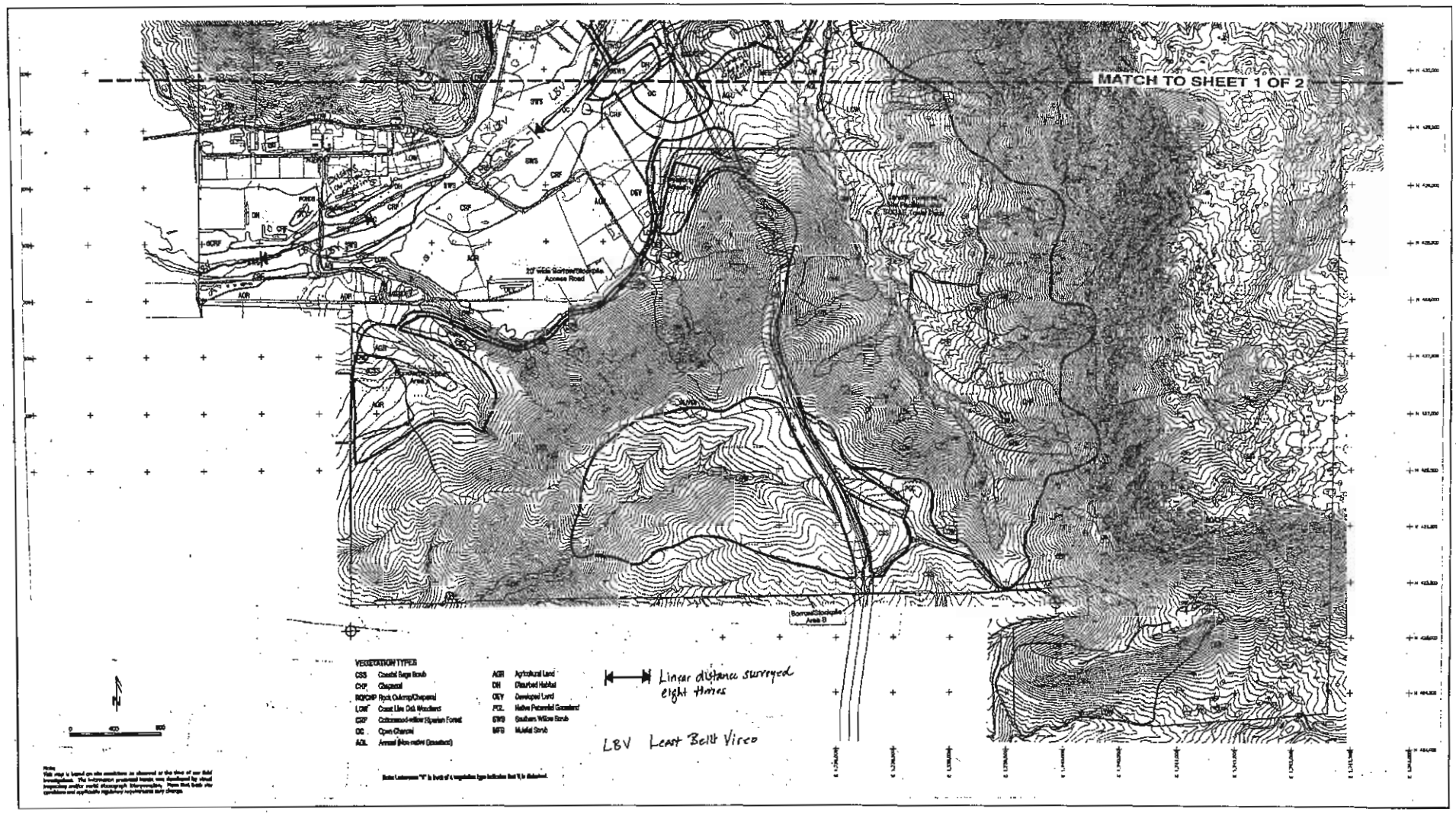


Vegetation Map/Impacts with Least Bell's Vireo Survey

GREGORY CANYON LANDFILL

Sheet 1 of 2

HELIX



Vegetation Map/Impacts with Least Bell's Vireo Survey

GREGORY CANYON LANDFILL

Sheet 2 of 2

HELIX

2003 Least Bell's Vireo, Southwestern Willow Flycatcher Survey Results for the Gregory Canyon Landfill Project, San Diego County, California.

Prepared for:

Helix Environmental Planning Inc.
8100 La Mesa Blvd., Suite 150
La Mesa, California 91941-6476

Prepared by:

Jennifer Turnbull
TW Biological Services
802 N. Main Avenue
Fallbrook, California 92028

October 5, 2003

Introduction

The following report summarizes the results of surveys conducted for the Least Bell's Vireo (*Vireo bellii pusillus*), and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) for the Gregory Canyon Landfill Project located within northern San Diego County, California. Project work was performed by Jennifer Turnbull of TW Biological Services.

Least Bell's Vireo

The least Bell's vireo (*Vireo bellii pusillus*) is a small migratory songbird which is an obligate summer resident of riparian habitat within southern California and northwestern Baja California, Mexico. Historically considered a common breeding resident within lowland riparian habitat areas throughout California from the northern Sacramento Valley south into northwestern Baja California, Mexico (Franzreb 1989), the least Bell's vireo began to experience widespread declines during the mid 1900's from extensive habitat destruction and brood parasitism by the brown-headed cowbird (*Molothrus ater*). With the loss of over 90 percent of California's riparian habitat and persistent pressure from brood parasitism, the least Bell's vireo was found in only small localized populations within 7 California counties during survey efforts conducted in 1978 (Goldwasser et al. 1980). First listed as an endangered species by the state of California in 1980, the species was listed as federally endangered in 1986 when the estimated statewide population was approximately 300 breeding pairs. After receiving endangered species status, intensive management and conservation efforts including habitat protection and restoration, cowbird control, and nest monitoring programs were instituted to reverse the decline of the vireo population within California. These efforts, coupled with the protection and subsequent natural recovery of riparian habitat, have lead to a dramatic increase in the vireo population, and by 1999 there were approximately 1800 territorial males documented in California (L.Hays,U.S. Fish and Wildlife Service, pers. comm.).

Southwestern Willow Flycatcher

The southwestern willow flycatcher is one of four willow flycatcher subspecies in North America. Similar to the least Bell's vireo, it is also a small, migratory, insectivorous songbird which is an obligate summer breeding resident of riparian habitat. Suffering from habitat loss and disturbance, and to a lesser degree cowbird brood parasitism, the southwestern willow flycatcher population has declined dramatically in recent decades (Unitt 1987, Whitfield and Sogge 1999). The total population is currently estimated at approximately 900 breeding territories within limited portions of California, Nevada, Arizona, Utah, Colorado, and New Mexico (Sogge et al. 2000). In California there are approximately 160 known breeding territories distributed within 32 locations in nine counties (Kus et al. 2000), with the majority of the population concentrated at three sites, including the South Fork of the Kern River in Kern County (Whitfield and Sogge), the Santa Margarita River on Camp Pendleton, and the upper San Luis Rey River below Lake Henshaw (Kus et al. 1999, Winter and McKelvey 1999). The remaining sites (82%) where southwestern willow flycatchers are known to occur are small, isolated populations of less than

five breeding pairs (Kus et al. 2000). Listed by the state of California as endangered in 1991, the southwestern willow flycatcher was listed as a federally endangered species in February of 1995.

Project Area

Located within the northeastern portion of San Diego County, the project area occurs within the San Luis Rey river, approximately 3.5 miles east of Interstate 15 (Figure 1). Approximately 39 acres in size, the survey area consists of 2 survey locations, roughly 1,600 feet apart. Habitat within the survey area consists of willow/cottonwood riparian woodland, mulefat scrub and freshwater marsh.

Methods

Eight least Bell's vireo surveys were conducted at least ten days apart between May 2nd and July 26th (Table 1). Five willow flycatcher surveys were conducted, including one between May 15 - 31, one between June 1-21, and three at least five days apart between June 21- July 17. Survey efforts for least Bell's vireos and southwestern willow flycatchers were initiated in the early morning hours when vireo and flycatcher behavior and weather conditions are the most conducive to species detection. Surveys were conducted by slowly walking through all suitable habitat, observing and listening for each species' distinctive song and/or vocalizations. A taped playback of each species' song was also utilized to aid in detection or confirmation of species' presence. All surveys were conducted in accordance with established U.S. Fish and Wildlife Service protocol.

Results

Least Bell's Vireo

A total of six least Bell's vireo pairs were present within the survey area (Figure 2 and 3). Four of the six pairs were observed with juveniles during the survey period. Four additional territories were detected within habitat directly adjacent to the survey areas.

Southwestern Willow Flycatcher

There were no southwestern willow flycatchers present within the survey area.

Brown-headed Cowbird

Cowbirds were observed on three occasions during the survey period. No evidence of cowbird parasitism was observed within the survey area.

Table 1. Survey schedule for Gregory Canyon Landfill project

Date	Survey Time	Species Surveyed	Comments
2-May	0600-0930	Least Bell's Vireo	2 confirmed vireo pairs and 4 males
17-May	0615-1045	Least Bell's Vireo	5 pairs and 1 male observed
24-May	0546-1045	Willow Flycatcher	No flycatchers present
28-May	0630-1100	Least Bell's Vireo	6 pairs present, 2 of these observed with fledges
11-Jun	0700-1130	Least Bell's Vireo	6 pairs present
17-Jun	0630-1100	Willow Flycatcher	No flycatchers present
23-Jun	0715-1145	Least Bell's Vireo	1 pair observed with juvenile and 4 males heard
1-Jul	0600-1030	Least Bell's Vireo	4 pairs with young and 2 males heard
5-Jul	0545-1030	Willow Flycatcher	No flycatchers present
11-Jul	0600-1000	Willow Flycatcher	No flycatchers present
13-Jul	0645-1100	Least Bell's Vireo	3 adults observed w/ juveniles, and 2 males heard
17-Jul	0600-1015	Willow Flycatcher	No flycatchers present
26-Jul	0700-1045	Least Bell's Vireo	2 adults observed w/ juveniles, and 2 males heard

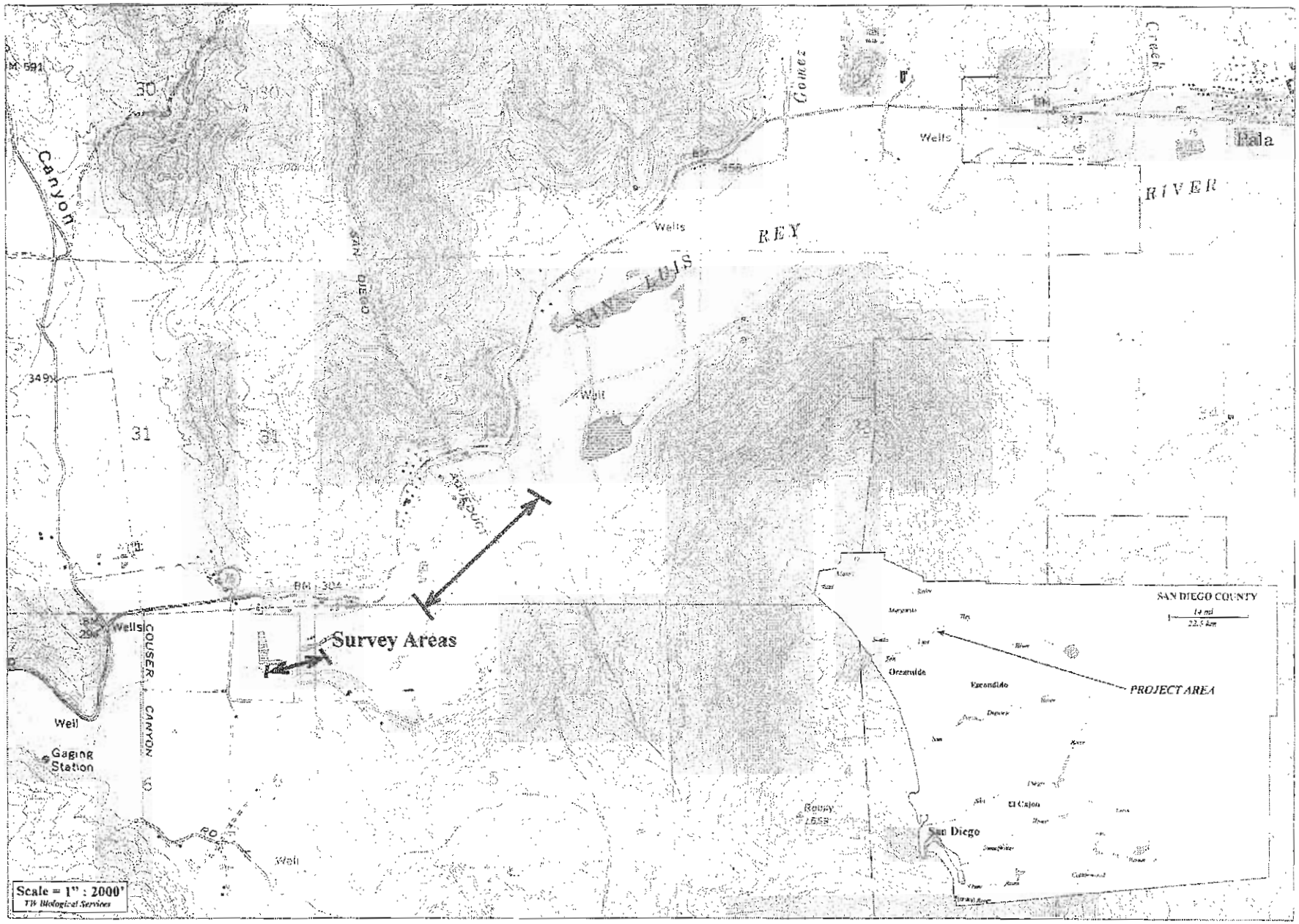


Figure 1. Gregory Canyon Landfill project area and survey locations, San Luis Rey River, San Diego County, 2003.

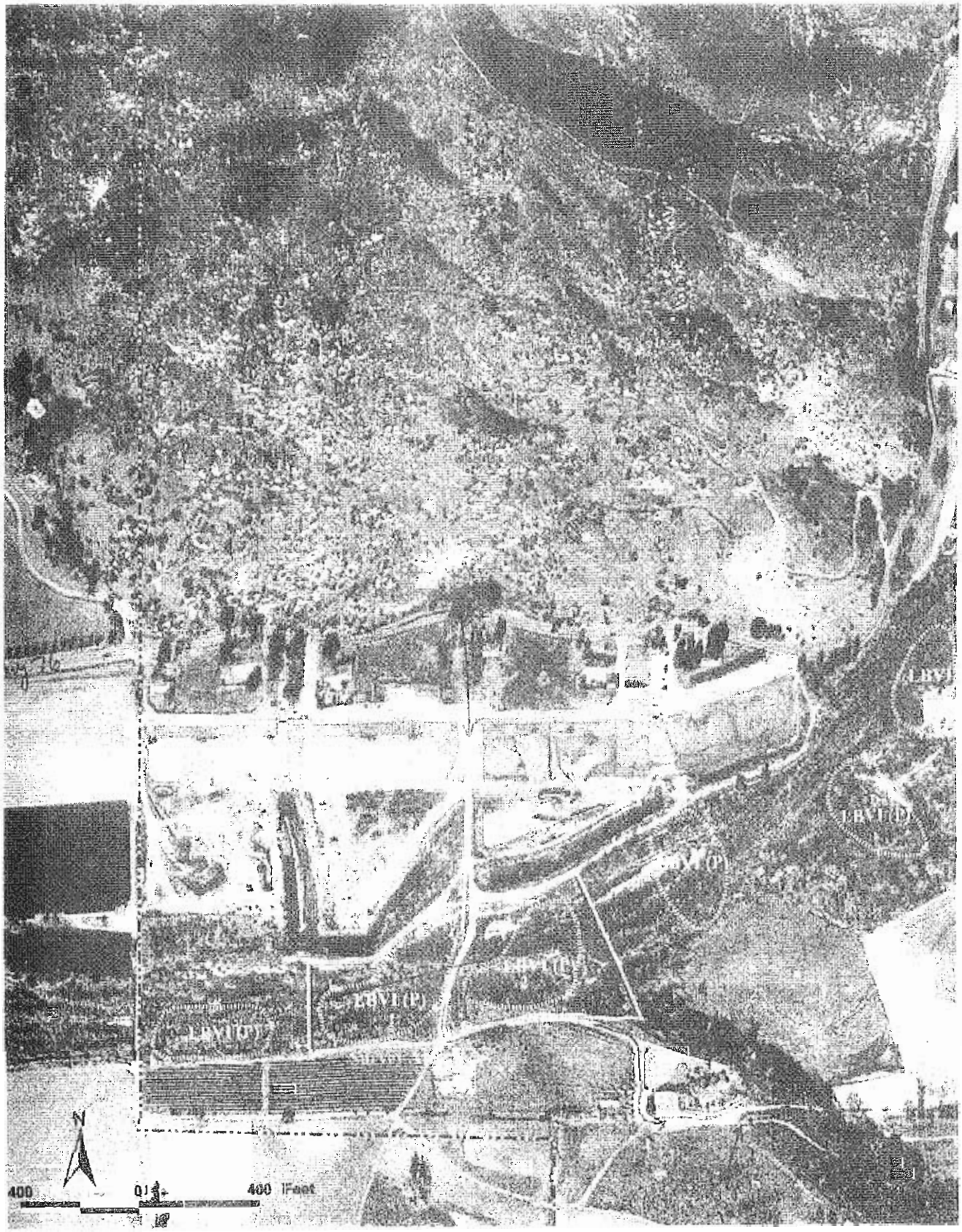


Figure 2. Least Bell's Vireo Locations within the Gregory Canyon Landfill Project Survey Area, 2003.

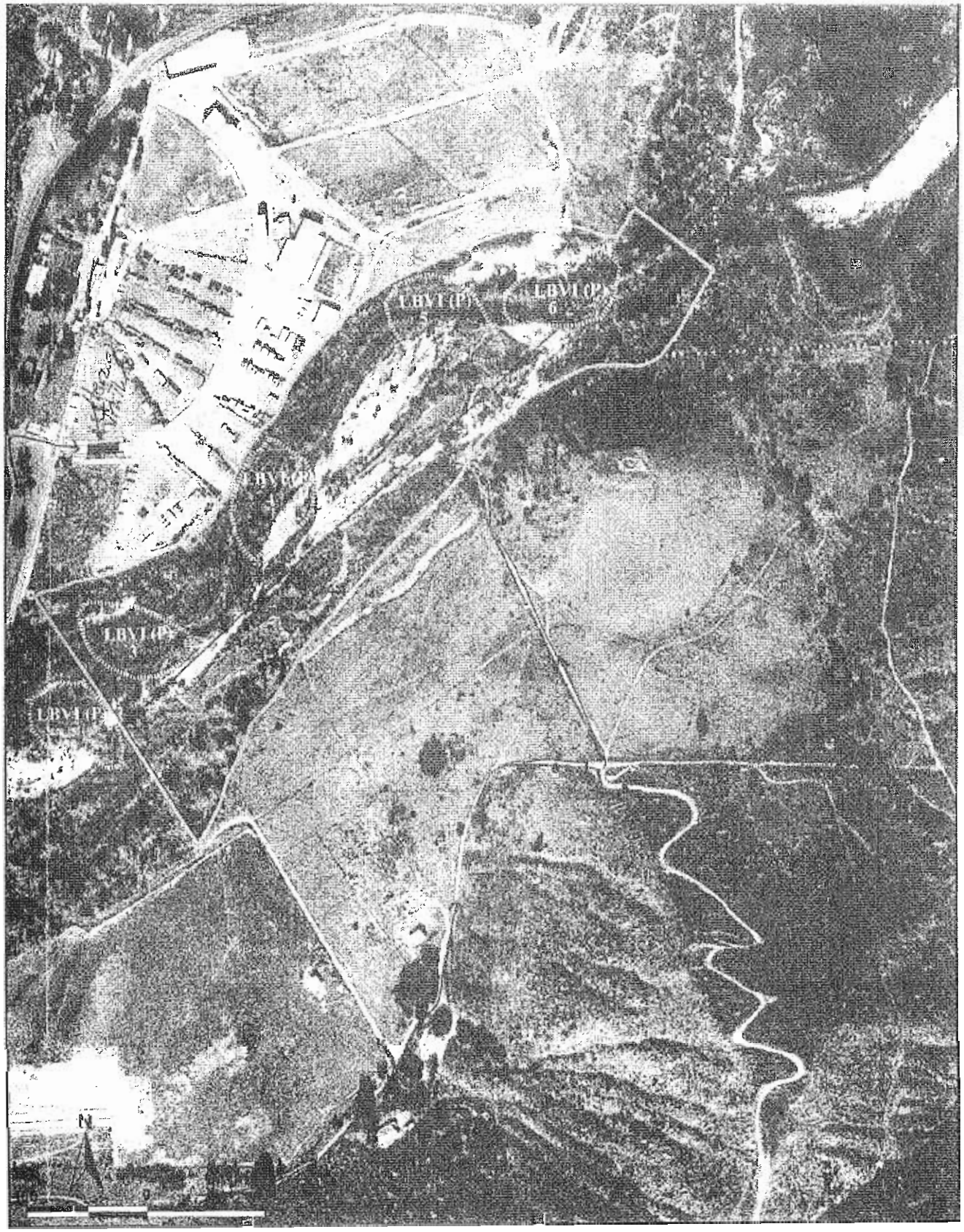


Figure 3. Least Bell's Vireo Locations within the Gregory Canyon Landfill Project Survey Area, 2003.

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September 20, 2010

Spencer D. MacNeil
U.S. Army Corps of Engineers
Los Angeles District Regulatory Division
2151 Alessandro Drive, Suite 110
Ventura, California 93001

Subject: Results of the 2010 Least Bell's Vireo and Southwestern Willow Flycatcher Surveys: Gregory Canyon Landfill Project

Dear Mr. MacNeil:

This letter provides the results of modified presence/absence surveys for the federally listed endangered least Bell's vireo (*Vireo bellii pusillus,* LBVI) and southwestern willow flycatcher (*Empidonax traillii extimus*, SWFL) along a segment of the San Luis Rey River near Pala in northern San Diego County, California. The survey area is located approximately 2.5 miles west of Pala, and approximately three miles east of the intersection of SR-76 and Interstate 15 (Figure 1). These surveys were conducted on behalf of U.S. Army Corps of Engineers (ACOE) in support of the Environmental Impact Statement (EIS) to assess potential impacts resulting from the proposed Gregory Canyon Landfill.

Summary

A total of eight pairs and one solitary individual LBVI were detected onsite in 2010, with four pairs confirmed nesting during the survey period. Of the nesting LBVI pairs, two were observed to nest successfully, with one pair supporting two offspring and the second pair supporting one offspring. A detailed discussion of the LBVI survey results is provided below and LBVI locations are displayed in Figure 2. No SWFL or migrant willow flycatchers were detected during the 2010 surveys.

Least Bell's Vireo Surveys

Methods

Biologists followed a modified survey protocol for LBVI which involved a total of six survey visits that focused on determining nesting status (nine total visits were made to the Project site during the LBVI and SWFL surveys combined). This modified protocol was used because LBVI are known to occur on the Gregory Canyon Ltd. (GCL) property (San Diego County Department of Environmental Health 2003, 2007), and therefore the U.S. Fish and Wildlife Service (USFWS) presence/absence survey protocol (USFWS 2001) is not necessary. However, other aspects of the USFWS protocol methodology were followed, including survey visits at least 10 days apart between April 10 and July 31, fieldwork conducted between dawn and 11:00 a.m., and survey of no more than 50 hectares (123.6 acres) or 3 linear kilometers of habitat per visit. LBVI and SWFL surveys were combined on two survey visits (8 and 28 June). The number of surveys and proposed survey dates were approved by the USFWS prior to initiating the surveys (see Attachment 1).

Other goals of these surveys (as requested by USFWS and ACOE) were to determine nesting status and map habitat use of any LBVI detected onsite. Nest searching was not conducted during these surveys. However, breeding status was determined based on incidental observations of breeding behavior (*e.g.*, paired status, nest building/tending, copulation, *etc.*), nests, and/or fledglings. Care was taken to avoid exposing nests to depredation (by corvids, for example) or parasitism by brown-headed cowbirds (*Molothrus ater*). Incidentally detected nests were not approached and any brown-headed cowbird eggs observed were not removed.

Habitat use was mapped by recording the perceived limits of territories or foraging areas using a handheld global positioning system (GPS) unit with 3 to 5 meter accuracy. Limits were determined by direct observation of primarily vocal male LBVIs as they moved through their territory or foraging area. Surveying biologists recorded GPS points at locations where LBVIs were observed, especially at locations where a bird changed direction and moved back to previous locations within what is assumed to be their respective territory (indicating potential territorial limits). Limits were recorded during observation for up to 20 minutes or longer during a survey visit. Biologists recorded new locations on subsequent survey visits if a LBVI was observed using different areas than those recorded on a previous visit. The resultiug series of GPS locations for each LBVI territory or foraging area were imported to a GIS database for display.

Fieldwork was conducted by biologists Brian Lohstroh and Jason Berkley, with each biologist surveying a specific reach throughout the surveys. Mr. Lohstroh surveyed the upstream reach and Mr. Berkley surveyed the downstream reach. A dirt access road on the south side of the river was used as the primary landmark to divide the survey area (see Figure 2). To ensure adequate coverage of the survey area, each biologist surveyed approximately 50 yards into the adjoining reach at the reach boundary. Including this overlap, the area of the upstream reach totaled approximately 21.3 hectares (52.8 acres) of riparian habitat, and the area of the downstream reach totaled approximately 18.6 hectares (46.1 acres) of riparian habitat. In addition, GPS units uploaded with the GCL property boundary and survey reach dividing boundary aided with providing complete survey area coverage.

Results

A discussion of the LBVI survey results is provided below by reach. Survey dates and conditions are provided in Table 1 and a list of avian species detected is provided in Table 2. Several brown-headed cowbirds were observed during each survey visit, with some evidence of nest parasitism incidentally observed. Western scrub jays (*Aphelocoma californica*) are common throughout the site, and also are possibly negatively affecting LBVI breeding success.

Due to the nature of this passive survey methodology, some aspects of LBVI breeding on the site are unconfirmed and the discussion provided here is a product of the best data available. It should be noted that LBVI are not always detectable, and actively searching for and/or following birds throughout their movements is not always possible and can cause undo harassment, disturbance to their habitat, and potentially damage nests.

Upstream Reach Results

A summary of the survey visits is presented in Table 3, and LBVI locations are provided in Figure 2. Mr. Lohstroh detected a total of nine individual LBVI at six apparent territories during the initial survey on 27 April 2010. Three of these territories supported LBVI pairs, and three territories supported solitary individuals. The territories were numbered 1-6 from west to east,

with territories 1, 3 and 4 supporting LBVI pairs. Nesting was not confirmed during this first survey.

By the second survey in 11 May, the solitary individual at territory 2 was not detected, and this territory remained unoccupied for the rest of the surveys. However, Mr. Lohstroh observed evidence that the solitary individual at territory 5 was paired, and this evidence included "squeak" calls typically associated with pair interaction, infrequent calling, and repeatedly returning to the same location within the respective territory (indicating a potential nest location). Similar evidence of pair interaction and potentially nesting was also detected at territories 1, 4 and 6. Nest building was observed at territory 3 within a sandbar willow (*Salix exigua*).

On the third survey (24 May), a nest with two nestlings was incidentally observed at territory 4. The first nest at territory 3 was abandoned, and nest building was observed at a new, nearby location. It was also noted that the male at this territory had a single blue anodized band on its right leg. Territory 5 was found to be unoccupied during this survey, and no LBVIs were detected at this location for the remainder of the surveys. The situation at territories 1 and 6 remained similar to that of the previous survey.

On 8 June, two fledglings were detected near the formerly active nest at territory 4, and these fledglings were observed through the end of the surveys. Also on this date, the second nest at territory 3 was observed to be abandoned, and only the male was detected at this location for the rest of surveys. In addition, only the male LBVI was detected at territory 6 on this date, with its paired status unconfirmed. The pair at territory 1 became quiet and was only detected by Mr. Berkley at the end of his survey.

Little changed with the status of the LBVIs within the upstream reach until 21 June, when a new LBVI was heard farther upstream and just offsite during the third SWFL survey (see Figure 2). This calling individual was only detected on this date. There is a possibility that this individual was the same bird as the one detected earlier at territory 5, and it was dispersing to new location.

On the last survey visit on July 5, fledgling calls were detected in the vicinity of territory 6, strong evidence that it successfully nested. One fledgling was confirmed at this location.

Upstream Reach Habitat Disturbance

As documented in a letter to the California Department of Fish and Game dated 24 May 2010, habitat disturbance in the form of some unauthorized vegetation clearing related to the project occurred within the upstream survey reach. During the second LBVI survey on 11 May, three approximately ten foot wide transects of cleared understory riparian vegetation perpendicular to the San Luis Rey River were observed at the east end of the upstream survey reach. These disturbance areas were located in the vicinity of LBVI territories 5 and 6.

It was noted during the second survey that the birds associated with territories 5 and 6 moved to new areas in the vicinity of their originally observed territories. Female LBVI were not directly observed with these males in the new locations, however there was some evidence that females were possibly in the vicinity, as indicated in the above results section. By the next survey, territory 5 was unoccupied and remained so for the rest of the surveys. As mentioned above, these birds may have moved to another location outside of the survey area. It is difficult to conclude that its departure was a direct result of the habitat disturbance because it did initially

remain onsite and territorial after the disturbance occurred. However, the LBVI at territory 6 remained onsite and successfully nested.

Downstream Reach Results

A summary of the survey visits is presented in Table 3, and LBVI locations are provided in Figure 2. Mr. Berkley detected a total of four individual LBVI at two apparent territories during the initial survey on 27 April 2010. The territories were designated as A and B in alphabetical order from west to east, with both territories supporting LBVI pairs. A nest in a mulefat (*Baccarhis salicifolia*) was found with one egg in territory B.

By the second survey in 11 May, a third pair (designated as territory C) was observed foraging between territory A and territory B on the northern side of the river. The territory B nest found during the previous survey was still intact, but had no eggs. The male was vocal within the area and was moving around within the territory, not just near the nest. The pair in territory A was observed foraging together.

On the third survey (24 May), the first nest at territory B was abandoned, and a new nest with two LBVI eggs and two brown-headed cowbird eggs was observed at a nearby location. The situation at territory A remained relatively similar to that of the previous survey, but with only the male being observed and not being as vocal. The birds in territory C were very quiet and the male was heard very infrequently.

On 8 June, the birds in territory A were fairly quiet during the survey, but still seemed to be spending most of their time near the downstream road crossing. The territory C birds were observed in a ditch on the northern side of the berm on the old dairy. The second nest in territory B was still intact, but no eggs were present. The male was observed within the area, but he was not very vocal. At the end of Mr. Berkley's survey, he detected Mr. Lohstroh's bird at his territory 1, and only the male was heard.

On 18 June, birds in territories A and B were only seen and heard a couple of times during the survey. Only the male was observed in each territory. Territory C was completely silent and no birds were seen.

On the last survey visit on July 5, all of Mr. Berkley's territories were absent of vireos.

Southwestern Willow Flycatcher Surveys

Methods

Surveys for SWFL followed the latest protocol established by the USFWS for permitted biologists (Sogge *et. al.* 2010). Five SWFL survey visits were conducted by permitted biologists Brian Lohstroh (TE-063608-4) and Jason Berkley (TE-009015-3), with each biologist surveying the same reach of the San Luis Rey River as described above for the LBVI surveys. SWFL and LBVI surveys were combined on two survey visits (8 and 28 June). Proposed survey dates were approved by the USFWS prior to initiating the surveys. GPS units uploaded with the GCL property boundary and survey reach dividing boundary aided with providing complete survey area coverage. As with the LBVI survey methods, nesting status and habitat use mapping was planned for any SWFL observed.

Results

No SWFLs or migrant willow flycatchers were detected during these surveys. Several brown-headed cowbirds were observed during each survey visit. Survey dates and conditions are provided in Table 1 and a list of avian species detected is provided in Table 2. Please also find the Willow Flycatcher Survey and Detection form as Attachment 2 and surveyor signatures in Attachment 3.

This report also fulfills the 45-day reporting requirements. If you have any questions about these surveys, please contact Mr. Lohstroh at 858.750.9300.

Sincerely,

Brian Lohstroh
Principal
Lohstroh Biological Consulting
brian@lohstrohbio.com

Jason Berkley
Cereus Environmental
jberkley@cereusenvironmental.com

Attachments:

Figure 1: Project Location Map
Figure 2: 2010 Least Bell's Vireo Survey Results
Attachment 1: USFWS Approval of Modified LBVI Survey Protocol
Attachment 2: Willow Flycatcher Survey and Detection Form
Attachment 3: Surveyor Signature Page

cc: Sandra Marquez, USFWS
Michelle Moreno, USFWS
Gregory Canyon Ltd.

Literature Cited

San Diego County Department of Environmental Health. 2003. Gregory Canyon Landfill EIR. State Clearinghouse No. 1995061007.

San Diego County Department of Environmental Health. 2007. Gregory Canyon Landfill Revised Final EIR. State Clearinghouse No. 1995061007.

Sogge, M.K., Ahlers, Darrell, and Sferra, S.J., 2010, A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 p.

U.S. Fish and Wildlife Service. 2001. Least Bell's Vireo Survey Guidelines. United States Department of the Interior. Ecological Services, Carlsbad Fish and Wildlife Office. Carlsbad, CA.

Table 1
Survey Dates and Conditions
Gregory Canyon Least Bell's Vireo and Southwestern Willow Flycatcher Surveys

Date	Survey Type, No.	Time on site	Temp (°F)	Sky Cover (%)	Wind Speed (MPH)	Personnel
27-Apr-10	LBVI 1	0600-1100	65-68	100-0%	0-3	BL, JB
11-May-10	LBVI 2	0530-1115	55-73	90-50%	0-3	BL, JB
20-May-10	SWFL 1	0550-1030	65-75	100%	0-3	BL, JB
24-May-10	LBVI 3	0530-1000	47-67	Clear	0-3	BL, JB
8-Jun-10	SWFL 2 / LBVI 4	0615-0930	52-72	Clear	0-3	BL, JB
18-Jun-10	LBVI 5	0630-1000	60-67	100-30%	0-5	BL, JB
21-Jun-10	SWFL 3	0630-0930	63-68	100-30%	0-3	BL, JB
28-Jun-10	SWFL 4 / LBVI 6	0630-1000	63-69	100%	0-2	BL, JB
5-Jul-10	SWFL 5	0630-0930	62-66	100%	0-1	BL, JB

LBVI=Least Bell's Vireo; SWFL=Southwestern Willow Flycatcher
BL=Brian Lohstroh; JB=Jason Berkley

Table 2
Avian Species Detected
Gregory Canyon Least Bell's Vireo and Southwestern Willow Flycatcher Surveys

Species Common Name	*Species Scientific Name*
green heron	*Butorides virescens*
white-faced ibis (WL)	*Plegadis chihi*
mallard	*Anas platyrhynchos*
white-tailed kite (FP)	*Elanus leucurus*
Cooper's hawk (WL)	*Accipiter cooperii*
red-shouldered hawk	*Buteo lineatus*
red-tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
California quail	*Callipepla californica*
common moorhen	*Gallinula chloropus*
American coot	*Fulica americana*
mourning dove	*Zenaida macroura*
greater roadrunner	*Geococcyx californianus*
barn owl	*Tyto alba*
Anna's hummingbird	*Calypte anna*
Costa's hummingbird	*Calypte costae*
black-chinned hummingbird	*Archilochus alexandri*
Nuttall's woodpecker	*Picoides nuttallii*
downy woodpecker	*Picoides pubescens*
northern flicker	*Colaptes auratus*
Pacific-slope flycatcher	*Empidonax difficilis*

Table 2 (Continued)
Avian Species Detected

olive-sided flycatcher	*Contopus cooperi*
western wood-pewee	*Contopus sordidulus*
Say's phoebe	*Sayornis saya*
black phoebe	*Sayornis nigricans*
ash-throated flycatcher	*Myiarchus cinerascens*
western kingbird	*Tyrannus verticalis*
least Bell's vireo (SE, FE)	*Vireo bellii pusillus*
Hutton's vireo	*Vireo huttoni*
warbling vireo	*Vireo gilvus*
western scrub-jay	*Aphelocoma californica*
American crow	*Corvus brachyrhynchos*
common raven	*Corvus corax*
phainopepla	*Phainopepla nitens*
cedar waxwing	*Bombycilla cedrorum*
western bluebird	*Sialia mexicana*
Swainson's thrush	*Catharus ustulatus*
european starling	*Sturnus vulgaris*
northern mockingbird	*Mimus polyglottos*
California thrasher	*Toxostoma redivivum*
white-breasted nuthatch	*Sitta carolinensis*
Bewick's wren	*Thryomanes bewickii*
house wren	*Troglodytes aedon*
oak titmouse	*Baeolophus inornatus*
bushtit	*Psaltriparus minimus*
violet-green swallow	*Tachycineta thalassina*
northern rough-winged swallow	*Stelgidopteryx serripennis*
barn swallow	*Hirundo rustica*
cliff swallow	*Petrochelidon pyrrhonota*
wrentit	*Chamaea fasciata*
American goldfinch	*Carduelis tristis*
lesser goldfinch	*Carduelis psaltria*
house finch	*Carpodacus mexicanus*
song sparrow	*Melospiza melodia*
Lincoln's sparrow	*Melospiza lincolnii*
spotted towhee	*Pipilo maculatus*
California towhee	*Pipilo crissalis*
orange-crowned warbler	*Vermivora celata*
yellow warbler (SSC)	*Dendroica petechia*
common yellowthroat	*Geothlypis trichas*
Wilson's warbler	*Wilsonia pusilla*
yellow-breasted chat (SSC)	*Icteria virens*
western tanager	*Piranga ludoviciana*
black-headed grosbeak	*Pheucticus melanocephalus*

Table 2 (Continued)
Avian Species Detected

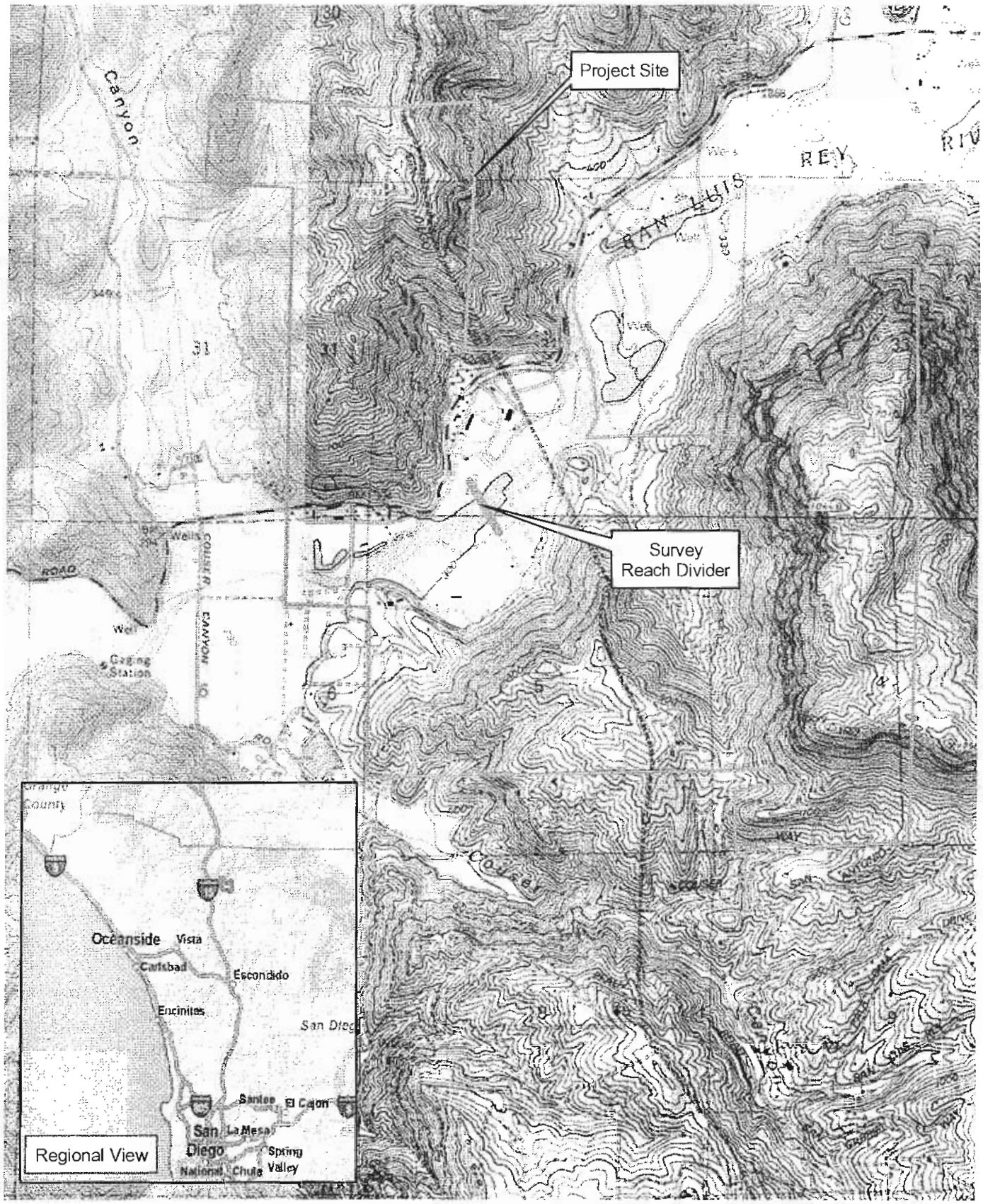
blue grosbeak	*Guiraca caerulea*
hooded oriole	*Icterus cucullatus*
Bullock's oriole	*Icterus bullockii*
red-winged blackbird	*Agelaius phoeniceus*
great-tailed grackle	*Cassidix mexicanus*
brown-headed cowbird	*Molothrus ater*

WL=California Watch List Species
FP=California Fully Protected
SE=California Listed as Endangered
FE=Federally listed as Endangered
SSC=California Species of Special Concern

Table 3
Least Bell's Vireo Survey Results Summary

		Survey Date							
		27-Apr-10	11-May-10	24-May-10	8-Jun-10	18-Jun-10	21-Jun-10	28-Jun-10	5-Jul-10
Upstream LBVI Territory	1	Pair observed, potentially nesting	Pair interaction, potentially nesting	Pair interaction, potentially nesting	Male and female observed foraging together	Male observed singing	Pair observed foraging	Male detected calling on north side of river	Not detected.
	2	Solitary male observed	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected
	3	Pair observed, potentially nesting	Pair observed nest building	First nest abandoned, pair nest building at new location within territory	Male calling Infrequently, second nest abandoned, paired status unconfirmed	Apparently solitary, male calling and then falling silent for long periods	Male calling Infrequently, apparently solitary	Male calling Infrequently, moving close to territories 1 and 3	Male calling Infrequently, apparently solitary
	4	Pair observed, potentially nesting	Pair interaction, potentially nesting	Pair observed, nest with 2 nestlings	At least 2 fledges present. One adult feeding fledges	One adult foraging with 2 fledges, movement outside of territory	One adult foraging with 2 fledges, movement outside of territory	One adult foraging with 2 fledges, movement outside of territory	One adult foraging with 2 fledges, movement outside of territory
	5	Solitary male detected	Pair interaction, potentially nesting, moved to new location	Not detected	Not detected	Not detected	Male calling offsite, possibly Territory 5 male?	Not detected	Not detected
	6	Solitary male detected	Pair interaction, potentially nesting, moved to new location	Male calling sporadically, paired status unconfirmed	Male calling Infrequently, paired status unconfirmed	Male calling frequently, paired status unconfirmed	Male calling Infrequently, paired status unconfirmed	Male calling Infrequently, silent upon approach	Male and fledgling calls detected, at least one confirmed
Downstream LBVI Territory	A	Pair observed, potentially nesting	Pair interaction, potentially nesting	Male detected Infrequently calling	Male detected Infrequently calling	Male detected Infrequently calling	Male detected Infrequently calling	Male detected calling upstream near territory C	Not detected
	B	Pair observed, nest with 1 egg	First nest abandoned, male calling in territory, female observed	Pair with second nest supporting 2 BHCO eggs and 2 LBVI eggs	Second nest abandoned, male calling infrequently	Not detected	Not detected	Male detected calling	Not detected
	C	Not Detected	Pair observed, potentially nesting	Male detected Infrequently calling	Not detected	Male detected Infrequently calling	Male detected Infrequently calling.	Male detected calling	Not detected
# LBVI		**13**	**16**	**13**	**9**	**8**	**10**	**9**	**6**

LBVI= Combined total number of LBVI detected, including nestlings and fledglings



PCR

0 2,000 4,000 Feet

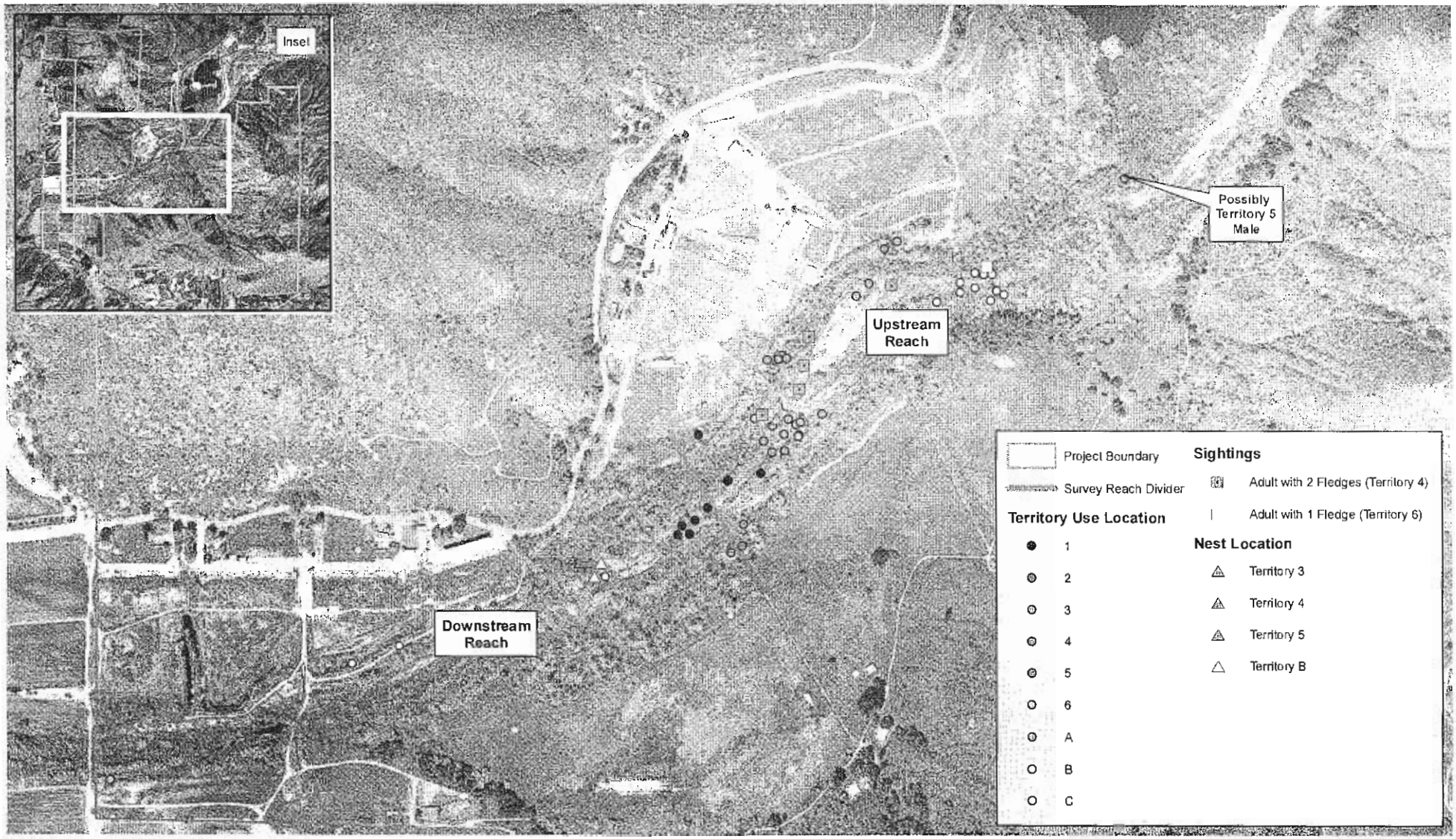
Project Location Map

Gregory Canyon

Source: USGS Topographic Series (Bonsall, Pala, CA); Lohstroh Biological Consulting, 2010; Cereus Environmental, 2010; PCR Services Corporation, 2010.

FIGURE

1



PCR

0 450 900 Feet

2010 Least Bell's Vireo Survey Results

Gregory Canyon

Source: Aerial, 2009; Lohstroh Biological Consulting, 2010; Cereus Environmental, 2010; PCR Services Corporation, 2010.

FIGURE 2

Spencer D. MacNeil
U.S. Army Corps of Engineers
September 20, 2010

Attachment 1
USFWS Approval of Modified LBVI Survey Protocol

From: Michelle Moreno
Sent: 4/12/2010 2010 10:59 AM
To: Bill Magdych
Cc: Spencer MacNeil
Subject: Fw: LBV surveys for Gregory Canyon

Bill,

Attached is the email that I sent earlier. I thought that I cc'd you, but it looks like I didn't...I apologize. I am not available to talk today...my day is completely booked. I could talk tomorrow morning (I'm not sure of Peter's schedule, so I would have to check with him). As you can see in the email below, the last two LBV surveys could occur during the June 18 and June 28 SWFL surveys provided that adequate time can be devoted to both species. Peter is familiar with the work that has been conducted.
At this point, we are trying to get the most up-to-date information regarding the number of birds that are utilizing the area, their approximate use areas, and nesting status. This information is important for any future section 7 consultation to ensure that our environmental baseline, effects analysis and take statement all accurately reflect the current situation within the project area.

Michelle

Michelle C. Moreno
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92011
(760) 431-9440 ext. 356

----- Forwarded by Michelle Moreno/CFWO/R1/FWS/DOI on 04/12/2010 10:55 AM-----

From: Michelle Moreno/CFWO/R1/FWS/DOI
Sent: 04/12/2010 10:00 AM
To: Spencer MacNeil
Cc:
Subject: LBV surveys for Gregory Canyon

Spencer,

I talked to our LBV expert this morning regarding the LBV surveys for the Gregory Canyon project area. Based on my conversation with him I recommend the following for the LBV surveys:

1. Six LBV survey visit should be conducted with a focus on detecting the number of LBV, their nesting status, and a rough sketch of their use areas.
The first four surveys can follow the schedule previously proposed with the last two surveys occurring either on or close to the SWFL surveys scheduled for June 18 and June 28;

and

2. We recommend that the same biologist conduct all of the LBV surveys.
If this is not possible, and two surveyors will be used we recommend that the survey area be split into two reaches with each surveyor assigned to one reach.

Thank you.

Michelle Moreno

Michelle C. Moreno
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92011
(760) 431-9440 ext. 356

From: Brian Lohstroh
Sent: 05/18/2010 10:11 AM
To: Michelle Moreno
Cc: Jason Berkley; Bill Magdych; Steve Nelson; Spencer MacNeil
Subject: Re: LBVI and SWFL surveys Gregory Canyon

Hi Michelle,
Thanks for getting back to me about the the SWFL/LBVI schedule at Gregory Canyon. Here's what we've come up for a schedule that preserves the original number of field days (9) and follows the new SWFL protocol, let us know what you think:

LBVI 1:	4/27 (complete)
LBVI2:	5/11 (complete)
SWFL1:	S/20
LBVI3:	5/24
SWFL2/LBVI4:	6/8
LBVI5:	6/18 (changed to just a LBVI survey)
SWFL3:	6/21 (new date, dedicated SWFL survey)
SWFL4/LBVI6:	6/28
SWFL5:	7/5

Thanks!
Brian

From: Michelle Moreno
Sent: 5/18/2010 11:02 AM
To: Brian Lohstroh
Cc: Bill Magdych; Jason Berkley; Spencer MacNeil; Steve Nelson
Subject: Re: LBVI and SWFL surveys Gregory Canyon

That looks good Brian. Thank you!

Michelle C. Moreno
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92011
(760) 431-9440 ext. 356

Attachment 2
Willow Flycatcher Survey and Detection Form

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Gregory Canyon Landfill Project State CA County San Diego
USGS Quad Name Bonsall, Pala, CA Elevation 95 (meters)
Creek, River, Wetland, or Lake Name San Luis Rey River

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? ***Yes*** X ***No*** ___

Survey Coordinates: Start: N33.34140 W117.12680 Datum WGS84 (See instructions)
Stop: N33.35132 W117.11166

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

***** Fill in additional site information on back of this page *****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
Survey # 1 Observer(s) B. Lohstroh J. Berkley	Date 5/20/10 Start 0600 Stop 0930 Total hrs 3.5	0	0	0	N	Several Brown-headed cowbirds observed. No WIFL detected.	# Birds	Sex	UTM E	UTM N
Survey # 2 Observer(s) B. Lohstroh J. Berkley	Date 8/8/10 Start 0530 Stop 1030 Total hrs 5	0	0	0	N	Several Brown-headed cowbirds observed. No WIFL detected.	# Birds	Sex	UTM E	UTM N
Survey # 3 Observer(s) B. Lohstroh J. Berkley	Date 6/21/10 Start 0630 Stop 0930 Total hrs 3	0	0	0	N	Several Brown-headed cowbirds observed. No WIFL detected.	# Birds	Sex	UTM E	UTM N
Survey # 4 Observer(s) B. Lohstroh J. Berkley	Date 6/28/10 Start 0630 Stop 1000 Total hrs 3.5	0	0	0	N	Several Brown-headed cowbirds observed. No WIFL detected.	# Birds	Sex	UTM E	UTM N
Survey # 5 Observer(s) B. Lohstroh J. Berkley	Date 7/5/10 Start 0630 Stop 0930 Total hrs 3	0	0	0	N	Several Brown-headed cowbirds observed. No WIFL detected.	# Birds	Sex	UTM E	UTM N
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs 18	Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers color-banded? Yes___ No ___ If yes, report color combination(s) in the comments section on back of form and report to USFWS.					
	0	0	0	0						

Reporting Individual Brian Lohstroh Date Report Completed 9/20/2010
US Fish and Wildlife Service Permit # TE-063608-4 State Wildlife Agency Permit # 801197-03

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian Lohstroh Phone # (858) 750-9300
Affiliation Lohstroh Biological Consulting, under contract with PCR E-mail brian@lohstrohbio.com
Site Name Gregory Canyon Landfill Project Date Report Completed 9/20/2010
Was this site surveyed in a previous year? Yes___ No X Unknown ____
Did you verify that this site name is consistent with that used in previous years? Yes X No _____ Not Applieable ___
If site name is different, what name(s) was used in the past?_____
If site was surveyed last year, did you survey the same general area this year? Yes ____ No ____ If no, summarize below.
Did you survey the same general area during each visit to this site this year? Yes X No ____ If no, summarize below.

Management Authority for Survey Area: Federal____ Municipal/County ____ State ____ Tribal ____ Private X
Name of Management Entity or Owner (e.g., Tonto National Forest) Gregory Canyon, Ltd.

Length of area surveyed: 2.0 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

X Native broadleaf plants (entirely or almost entirely, > 90% native)

_____ Mixed native and exotic plants (mostly native, 50 - 90% native)

_____ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

_____ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.

_____

Average height of canopy (Do not include a range): 10 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

Upstream reach surveyed by Brian Lohstroh, downstream reach surveyed by Jason Berkley (TE-009015-3).

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Spencer D. MacNeil
U.S. Army Corps of Engineers
September 20, 2010

Attachment 3
Surveyor Signature Page

2010 Least Bell's Vireo and Southwestern Willow Flycatcher Surveys
Gregory Canyon Landfill Project

We certify that the information contained in this survey report and attached exhibits fully and accurately represents our work.

Jason Berkley
TE-009015-3
Cereus Environmental

Brian Lohstroh
TE-063608-4
Principal
Lohstroh Biological Consulting

Konecny Biological Services
Biological Assessment, Monitoring, Research

00-6-B
July 16, 2000

Helix Environmental Planning, Inc.
8100 La Mesa Blvd., Suite 290
La Mesa, CA 91941-6476

Attn: Ms. Debra Pudoff

Re: Results of a Year 2000 Focused Survey for the Southwestern Willow Flycatcher at the Gregory Canyon Landfill Site, San Diego County, California.

Dear Ms. Pudoff:

This letter report presents the results of focused surveys for the southwestern willow flycatcher (*Empidonax trailii extimus*)(flycatcher), in the San Luis Rey River valley at the Gregory Canyon landfill site in northern San Diego County, California. The flycatcher is listed as an endangered species by the United States Fish and Wildlife Service (USFWS). The California Department of Fish and Game (CDFG) has listed the willow flycatcher (*E. trailii*) as an endangered species, but has no sub-specific designation for *E.t. extimus*.

Surveys for the flycatcher were conducted following protocol approved by the USFWS, dated May, 1997 (NPS 1997). The surveys were conducted by wildlife biologist John Konecny. This activity is authorized by USFWS section 10(a) permit number TE837308-1, and a CDFG Memorandum of Understanding.

INTRODUCTION

The flycatcher is a small, insectivorous passerine that migrates in the spring from South America, Mexico, and Central America, to breed in the southwestern desert riparian habitats of California, Arizona, New Mexico, and Texas. The flycatcher has a grayish-green back, whitish throat, pale yellowish belly, and two white wingbars.

The flycatcher occurs in riparian woodland habitat that is characterized by a dense growth of willows (*Salix* sp.), mulefat (*Baccharis salicifolia*), arrowweed (*Pluchea* sp.), buttonbush (*Cephalanthus* sp.) and tamarisk (*Tamarix* sp.). The flycatcher typically prefers riparian areas dominated by willows of mixed age composition. These areas frequently include other trees such as cottonwood (*Populus freemontii*), tamarisk, and California sycamore (*Platanus racemosa*). In addition to riparian woodland, the flycatcher will also nest in coast live oak woodland (*Quercus agrifolia*) on the upper San Luis Rey River. Surface water or saturated soils are usually present in or adjacent to nesting thickets.

Loss and degradation of breeding habitat, in addition to nest parasitism by the brown-headed cowbird (*Molothrus ater*), have resulted in a severe decline of the flycatcher in California. Habitat conversion for agricultural purposes has removed much of the

1501 East Grand Avenue #2403, Escondido, California, 92027
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original riparian woodlands required for nesting by the flycatcher. Flood control measures and channilization have further depleted the riparian habitats used by this species, as well as other riparian birds. Cattle grazing has also impacted habitats by removing understory vegetation that is necessary for many nesting riparian birds, including the flycatcher. The significant reduction in the population size and range of the flycatcher resulted in it being listed as a federally endangered species on February 17, 1995 (USFWS 1995).

PROJECT LOCATION

The Gregory Canyon landfill project site is located on the north and south side of State Route 76 and the San Luis Rey River. The downstream terminus begins just east of Couser Canyon Road, and the project site continues upstream to the Fenton sand mine in northern San Diego County (Figure 1.). The Verboom dairy occupies much of the project site along the San Luis Rey River. Specifically, the referenced parcel is located within Township 10 South, Range 2 West, in Sections 4, 5, 31, 32, and 33 of the United States Geological Survey Pala 7.5 minute quadrangle. The riparian woodland surveyed and presented in this report is located on the south side of State Route 76.

PROJECT SITE DESCRIPTION

Willow riparian habitat in the floodplain of the San Luis Rey River occurs throughout an approximate mile-and-a-quarter stretch beginning just upstream of Couser Canyon Road, and continuing upstream to the Fenton sand mine. The dominant tree species in this area are Goodding's black willow (*Salix gooddingii*), arroyo willow (*S. lasiolepis*), and Fremont cottonwood (*Populus fremontii*). Other less common tree species include California sycamore. Understory species were dominated by mulefat, with less common species including sandbar willow (*S. hindsiana*), and poison oak (*Toxicodendron diversilobum*). A large-scale cattle operation is present at the Verboom dairy. The elevation of the riparian woodland onsite varies from 272 feet to 312 feet.

METHODS

Three focused surveys were conducted on May 29, June 20, and July 10, 2000, to determine presence or absence of the flycatcher at the Gregory Canyon landfill site. Surveys were conducted in all appropriate willow riparian habitat at two areas along the San Luis Rey River. Willow riparian habitat was surveyed at the downstream site for approximately four hundred feet upstream and downstream of the dirt road and old wooden bridge that runs south of State Route 76 at Bench Mark 304. The upstream site, which corresponds to the future landfill access road, was surveyed for approximately one-thousand feet upstream and downstream of the First San Diego Aqueduct crossing.

Surveys were begun as soon as there was enough light in the area to safely walk the survey route, typically around 0530. The surveys were conducted by walking slowly

along the riparian habitat and stopping at approximately 50-foot intervals and listening for flycatchers for approximately two minutes. If flycatchers were not detected, a tape-recorded vocalization of the species was played for 15-30 seconds. A response was listened for in the next two-minute interval. If flycatchers were not detected, this procedure was repeated again before proceeding to the next station. Surveys were concluded by approximately 1030. A list of avian species detected is provided in Table 1. Survey dates, survey personnel, times, and environmental conditions are summarized below:

Survey #	Date	Surveyor	Time	Weather Conditions
1	May 29, 2000	JK	0530-1000	0% overcast, 65F, wind 1-3 mph
2	June 20, 2000	JK	0540-1020	100% overcast, 65F, wind 1-3 mph
3	July 10, 2000	JK	0600-1030	100% overcast, 70F, wind 1-3 mph

JK=John Konecny

RESULTS

Flycatchers were detected during two of the three surveys. Flycatchers are known breeders in the San Luis Rey River valley in the vicinity of the La Jolla Indian Reservation, upstream to Lake Henshaw (San Diego Natural History Museum 1995). A maximum of two territorial male flycatchers were detected on the project site (Figure 2). These sighting can minimally be described as territorial males. As this was a presence /absence survey, no attempt was made to provide information on the breeding status of these males or on their reproductive success. A single singing male flycatcher was detected in the downstream area, west of the dirt road on June 20, 2000. This or another male flycatcher was singing at the same location on July 10, 2000. While observing this singing male, a second male flycatcher approached from the north side of the river channel and began singing. No flycatchers were detected in the upstream area.

A minimum of six least Bell's vireos (*Vireo bellii pusillus*)(vireo) were detected while conducting the focused flycatcher surveys. These vireos were detected on each of the three surveys. Two singing male vireos were found in the downstream area, and four singing males were detected in the upstream area.

CONCLUSION

A maximum of two territorial male flycatchers were detected on the Gregory Canyon landfill project site. Both of these individuals were located in the downstream survey area. No flycatchers were detected in the upstream survey area. A minimum of six territorial male vireos were detected during the

focused flycatcher surveys. Two of these were in the downstream area, and four were detected in the upstream area.

Brown-headed cowbirds were frequently observed in the survey area, as a result of the operation of the Verboom Dairy. The potential for cowbirds to impact the reproductive success of riparian birds in this area is high. Other potential impacts to nesting riparian birds include areas disturbed by human-related activities.

The results of focused surveys for listed species are typically considered valid for one year by the USFWS and CDFG. If you have any questions or require additional information, please call me at (760) 489-5276.

Sincerely,

John K. Konecny
Wildlife Biologist
TE837308-1

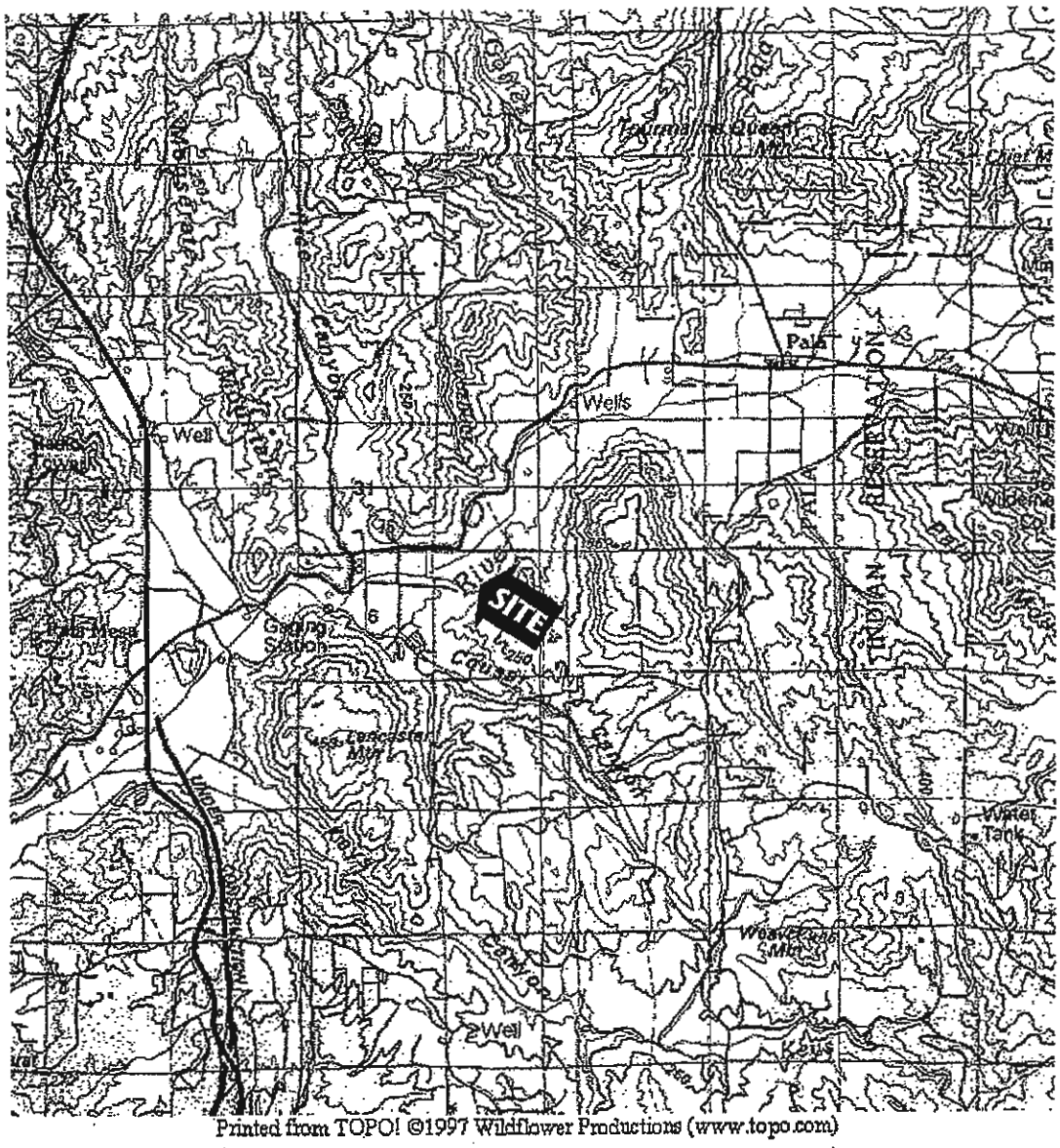

Figure 1. Regional Location of the Gregory Canyon Landfill Site, San Diego County, California.

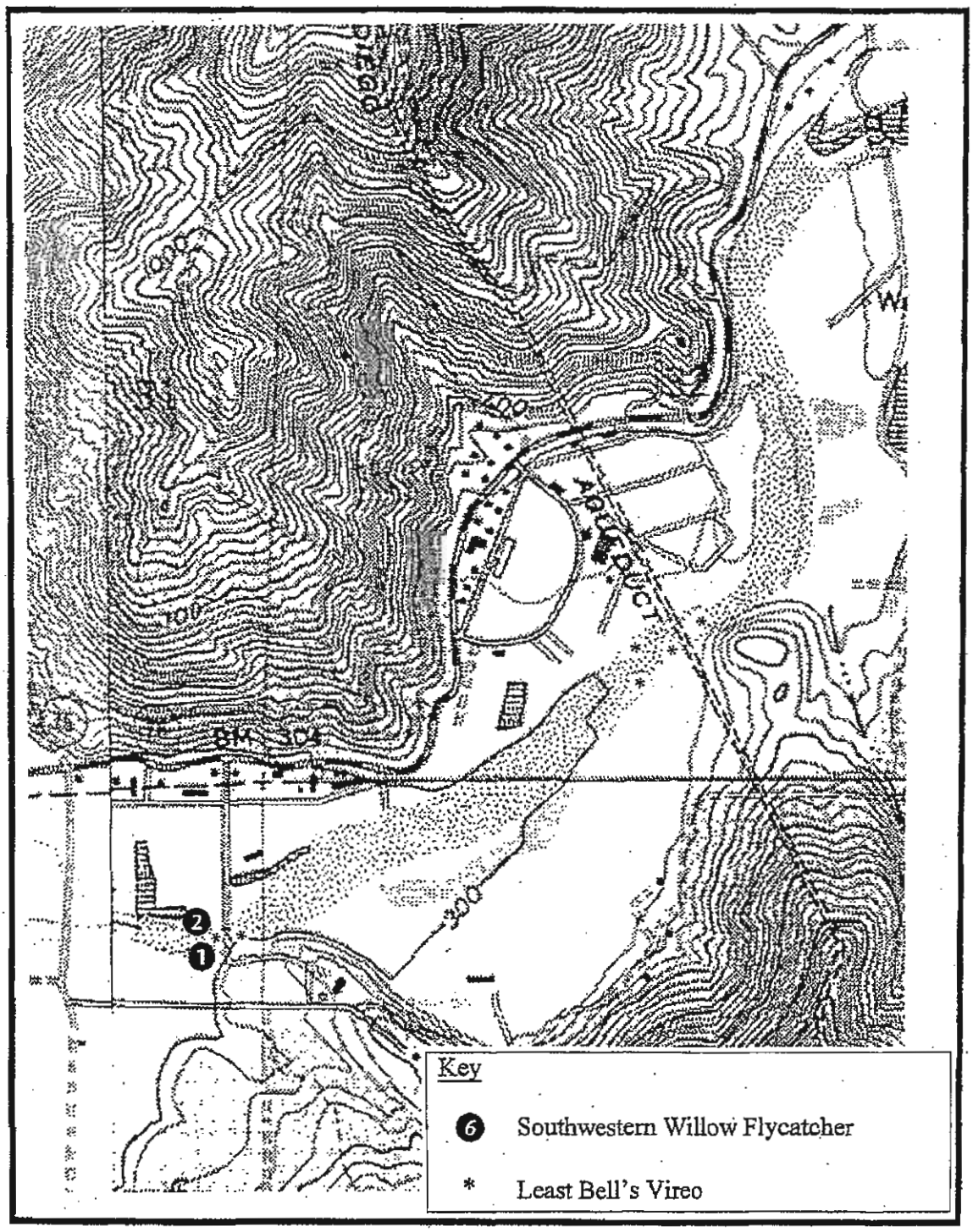

Figure 2. Location of Southwestern Willow Flycatchers and Least Bell's Vireos at the Gregory Canyon Landfill Site, San Diego County, California.

Table 1. Wildlife Species Detected at the Gregory Canyon Landfill Site

Class Mammalia		
Family Procyonidae		
Raccoon	*Procyon lotor*	rw
Family Sciuridae		
Beechy Ground Squirrel	*Spermophilus beecheyi*	rw
Family Leporidae		
Audubon Cottontail	*Sylvilagus auduboniii*	rw
Class Aves		
Family Ardeidae		
Great Blue Heron	*Ardea herodias*	fo
Green Heron	*Butorides virescens*	fwm
Family Rallidae		
American Coot	*Fulica americana*	fwm
Family Charadridae		
Killdeer	*Charadrius vociferus* bss,	fwm, fo
FamilyAccipitridae		
Golden Eagle	*Aquila chrysaetos*	fo
Red-shouldered Hawk	*Buteo lineatus*	rw
Cooper's Hawk	*Accipiter cooperii*	rw
Red-tailed Hawk	Buteo jamaicensis	fo
Family Columbidae		
Rock Dove	*Columba livia*	fo
Mourning Dove	*Zenaida macroura*	fo, rw
Family Trochilidae		
Anna's Hummingbird	*Calypte anna*	rw
Family Picidae		
Downy Woodpecker	*Picoides pubescens*	rw
Nuttall's Woodpecker	*Picoides nuttallii*	rw
Family Tyrannidae		
Black Phoebe	*Sayornis nigricans*	rw
Ash-throated Flycatcher	*Myiarchus cinerascens*	rw

Willow Flycatcher (Southwestern)	*Empidonac traillii*	rw
Pacific-slope Flycatcher	*Empidonax difficilis*	rw
Western Kingbird	*Tyrannus verticalis*	rw
Family Hirundinidae		
Cliff Swallow	*Hirundo pyrrhonota*	fo
Family Corvidae		
American Crow	*Corvus brachyrhynchos*	fo
Western Scrub Jay	*Aphelocoma californica*	rw
Family Aegithalidae		
Common Bushtit	*Psaltriparus minimus*	rw
Family Timaliidae		
Wrentit	*Chamaea fasciata*	rw
Family Troglodytidae		
House Wren	*Troglodytes aedon*	rw
Family Mimidae		
Sage Thrasher	*Oreoscoptes montanus*	rw
Northern Mockingbird	*Mimus polyglottis*	rw
Family Vireonidae		
Bell's Vireo	*Vireo bellii*	rw
Family Parulidae		
Common Yellowthroat	*Geothlypis trichas*	fwm, rw
Orange-crowned Warbler	*Vermivora celata*	rw
Yellow-breasted Chat	*Icterus vivens*	rw
Family Emberizidae		
Spotted Towhee	*Pipilo erythrophthalmus*	rw
California Towhee	*Pipilo fuscus*	rw
Song Sparrow	*Melospiza melodia*	rw, fwm
Family Cardinalidae		
Black-headed Grosbeak	*Pheucticus melanocephalus*	rw
Blue Grosbeak	*Guiraca caerulea*	rw
Family Icteridae		
Red-winged Blackbird	*Agelaius phoeniceus*	fwm
Brown-headed Cowbird	*Molothrus ater*	rw

Bullock's Oriole	*Icterus bullockii*	rw
Family Fringillidae		
Lesser Goldfinch	*Carduelis psaltria*	css, rw
House Finch	*Carpodactus mexicanus*	css, rw, fo
American Goldfinch	*Carduelis tristis*	rw
Class Reptilia		
Family Iguanidae		
Western Fence Lizard	*Sceloporus occidentalis*	rw
Class Amphibia		
Family Ranidae		
Bullfrog	*Rana catesbeiana*	rw
Family Hylidae		
Pacific Treefrog	*Hyla regilla*	rw
California Treefrog	*Hyla cadaverina*	rw

Habitat Key

fwm	fresh-water marsh
fo	flying overhead
rw	riparian woodland

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2003 Least Bell's Vireo, Southwestern Willow Flycatcher Survey Results for the Gregory Canyon Landfill Project, San Diego County, California.

Prepared for:

Helix Environmental Planning Inc.
8100 La Mesa Blvd., Suite 150
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Prepared by:

Jennifer Turnbull
TW Biological Services
802 N. Main Avenue
Fallbrook, California 92028

October 5, 2003

Introduction

The following report summarizes the results of surveys conducted for the Least Bell's Vireo (*Vireo bellii pusillus*), and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) for the Gregory Canyon Landfill Project located within northern San Diego County, California. Project work was performed by Jennifer Turnbull of TW Biological Services.

Least Bell's Vireo

The least Bell's vireo (*Vireo bellii pusillus*) is a small migratory songbird which is an obligate summer resident of riparian habitat within southern California and northwestern Baja California, Mexico. Historically considered a common breeding resident within lowland riparian habitat areas throughout California from the northern Sacramento Valley south into northwestern Baja California, Mexico (Franzreb 1989), the least Bell's vireo began to experience widespread declines during the mid 1900's from extensive habitat destruction and brood parasitism by the brown-headed cowbird (*Molothrus ater*). With the loss of over 90 percent of California's riparian habitat and persistent pressure from brood parasitism, the least Bell's vireo was found in only small localized populations within 7 California counties during survey efforts conducted in 1978 (Goldwasser et al. 1980). First listed as an endangered species by the state of California in 1980, the species was listed as federally endangered in 1986 when the estimated statewide population was approximately 300 breeding pairs. After receiving endangered species status, intensive management and conservation efforts including habitat protection and restoration, cowbird control, and nest monitoring programs were instituted to reverse the decline of the vireo population within California. These efforts, coupled with the protection and subsequent natural recovery of riparian habitat, have lead to a dramatic increase in the vireo population, and by 1999 there were approximately 1800 territorial males documented in California (L.Hays,U.S. Fish and Wildlife Service, pers. comm.).

Southwestern Willow Flycatcher

The southwestern willow flycatcher is one of four willow flycatcher subspecies in North America. Similar to the least Bell's vireo, it is also a small, migratory, insectivorous songbird which is an obligate summer breeding resident of riparian habitat. Suffering from habitat loss and disturbance, and to a lesser degree cowbird brood parasitism, the southwestern willow flycatcher population has declined dramatically in recent decades (Unitt 1987, Whitfield and Sogge 1999). The total population is currently estimated at approximately 900 breeding territories within limited portions of California, Nevada, Arizona, Utah, Colorado, and New Mexico (Sogge et al. 2000). In California there are approximately 160 known breeding territories distributed within 32 locations in nine counties (Kus et al. 2000), with the majority of the population concentrated at three sites, including the South Fork of the Kern River in Kern County (Whitfield and Sogge), the Santa Margarita River on Camp Pendleton, and the upper San Luis Rey River below Lake Henshaw (Kus et al. 1999, Winter and McKelvey 1999). The remaining sites (82%) where southwestern willow flycatchers are known to occur are small, isolated populations of less than

five breeding pairs (Kus et al. 2000). Listed by the state of California as endangered in 1991, the southwestern willow flycatcher was listed as a federally endangered species in February of 1995.

Project Area

Located within the northeastern portion of San Diego County, the project area occurs within the San Luis Rey river, approximately 3.5 miles east of Interstate 15 (Figure 1). Approximately 39 acres in size, the survey area consists of 2 survey locations, roughly 1,600 feet apart. Habitat within the survey area consists of willow/cottonwood riparian woodland, mulefat scrub and freshwater marsh.

Methods

Eight least Bell's vireo surveys were conducted at least ten days apart between May 2nd and July 26th (Table 1). Five willow flycatcher surveys were conducted, including one between May 15 - 31, one between June 1-21, and three at least five days apart between June 21- July 17. Survey efforts for least Bell's vireos and southwestern willow flycatchers were initiated in the early morning hours when vireo and flycatcher behavior and weather conditions are the most conducive to species detection. Surveys were conducted by slowly walking through all suitable habitat, observing and listening for each species' distinctive song and/or vocalizations. A taped playback of each species' song was also utilized to aid in detection or confirmation of species' presence. All surveys were conducted in accordance with established U.S. Fish and Wildlife Service protocol.

Results

Least Bell's Vireo

A total of six least Bell's vireo pairs were present within the survey area (Figure 2 and 3). Four of the six pairs were observed with juveniles during the survey period. Four additional territories were detected within habitat directly adjacent to the survey areas.

Southwestern Willow Flycatcher

There were no southwestern willow flycatchers present within the survey area.

Brown-headed Cowbird

Cowbirds were observed on three occasions during the survey period. No evidence of cowbird parasitism was observed within the survey area.

Table 1. Survey schedule for Gregory Canyon Landfill project

Date	Survey Time	Species Surveyed	Comments
2-May	0600-0930	Least Bell's Vireo	2 confirmed vireo pairs and 4 males
17-May	0615-1045	Least Bell's Vireo	5 pairs and 1 male observed
24-May	0546-1045	Willow Flycatcher	No flycatchers present
28-May	0630-1100	Least Bell's Vireo	6 pairs present, 2 of these observed with fledges
11-Jun	0700-1130	Least Bell's Vireo	6 pairs present
17-Jun	0630-1100	Willow Flycatcher	No flycatchers present
23-Jun	0715-1145	Least Bell's Vireo	1 pair observed with juvenile and 4 males heard
1-Jul	0600-1030	Least Bell's Vireo	4 pairs with young and 2 males heard
5-Jul	0545-1030	Willow Flycatcher	No flycatchers present
11-Jul	0600-1000	Willow Flycatcher	No flycatchers present
13-Jul	0645-1100	Least Bell's Vireo	3 adults observed w/ juveniles, and 2 males heard
17-Jul	0600-1015	Willow Flycatcher	No flycatchers present
26-Jul	0700-1045	Least Bell's Vireo	2 adults observed w/ juveniles, and 2 males heard

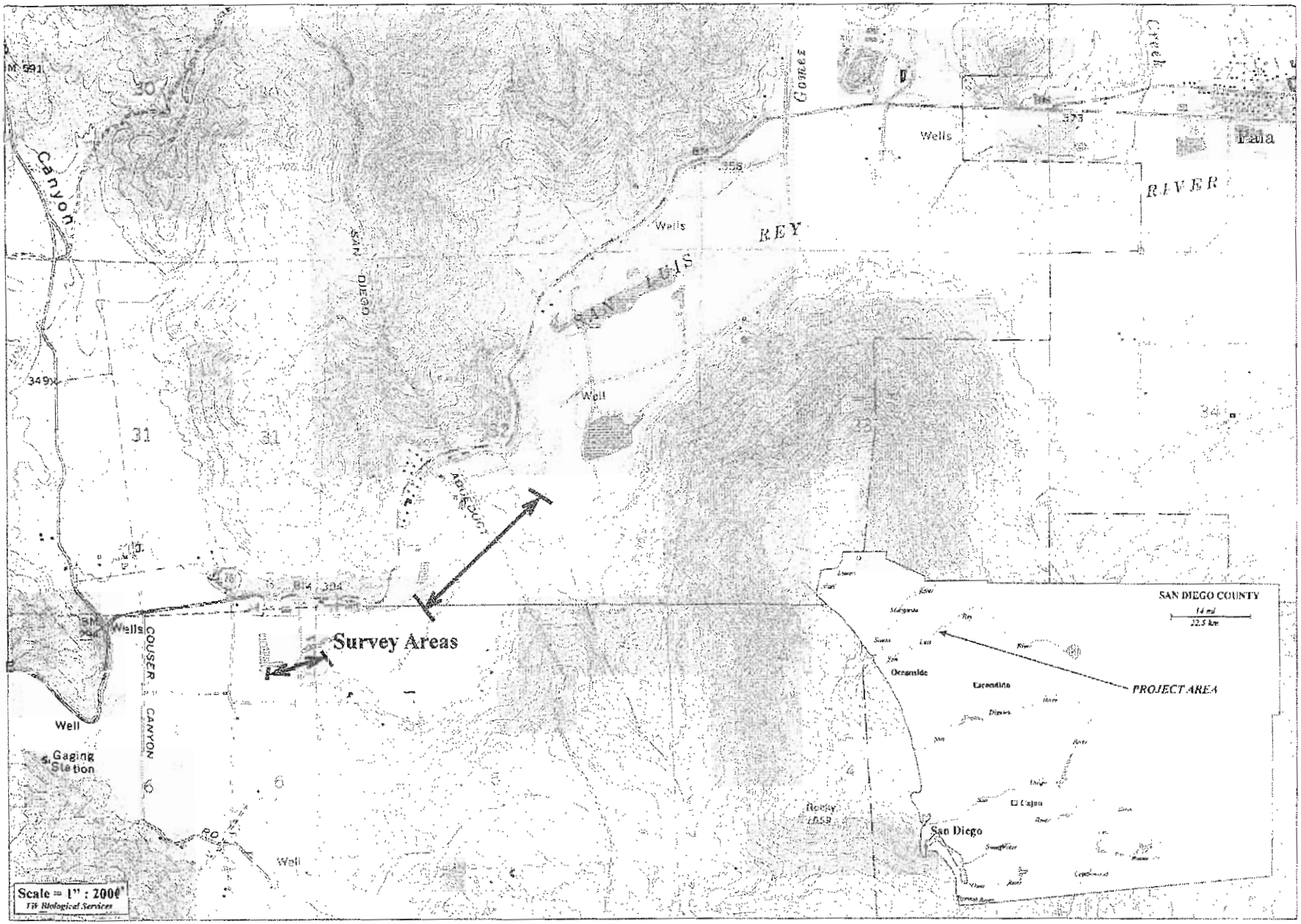

Figure 1. Gregory Canyon Landfill project area and survey locations, San Luis Rey River, San Diego County, 2003.

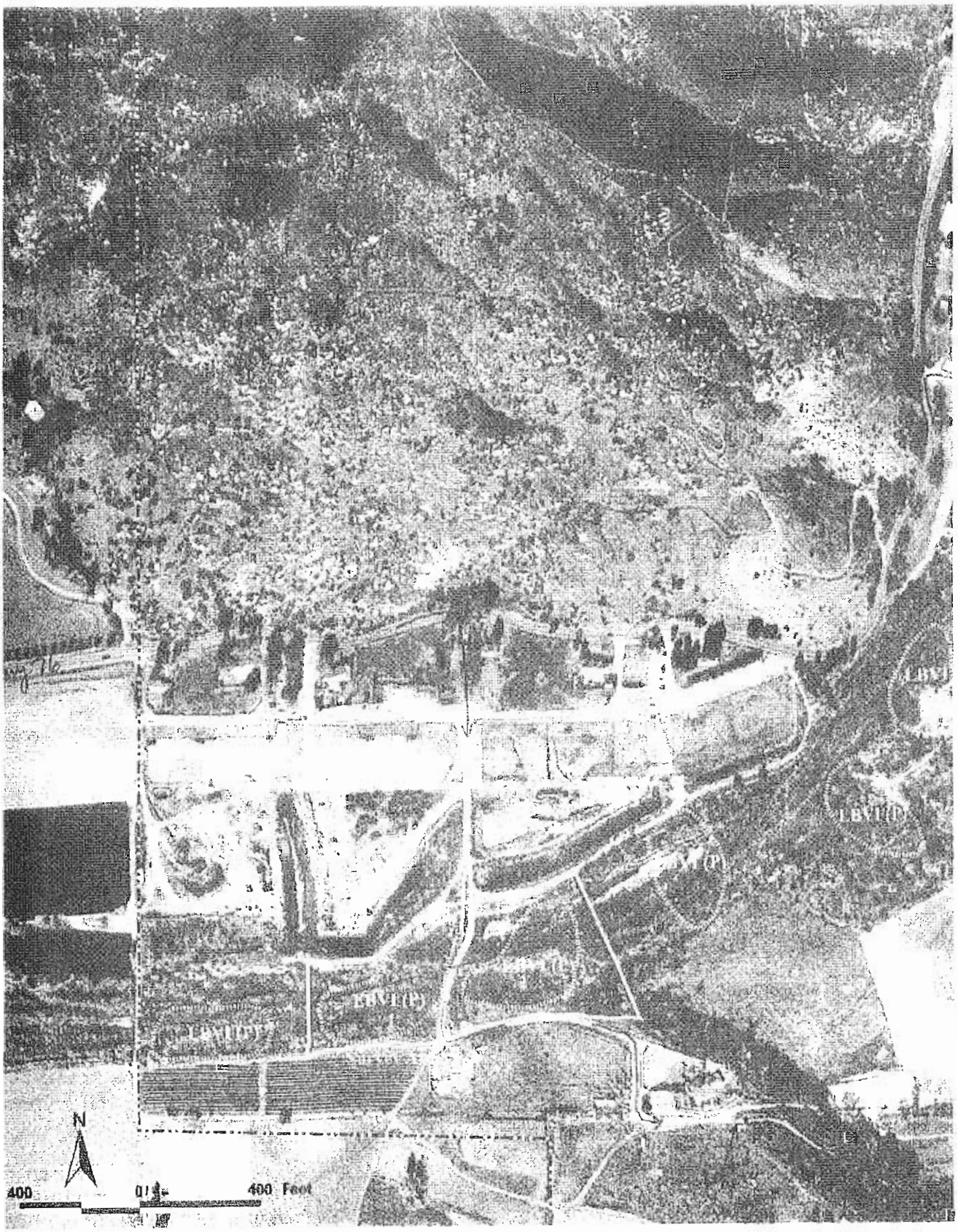

Figure 2. Least Bell's Vireo Locations within the Gregory Canyon Landfill Project Survey Area, 2003.

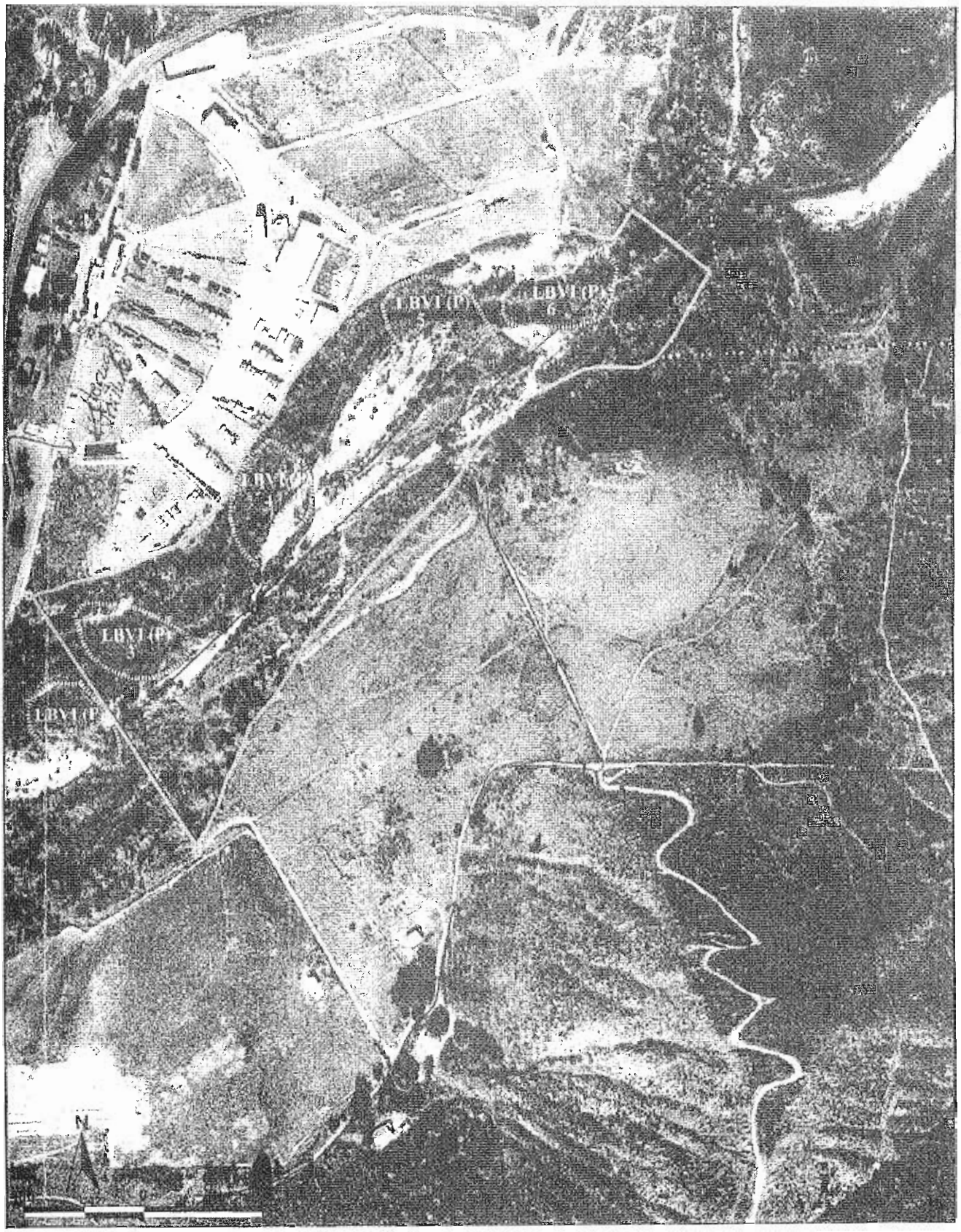

Figure 3. Least Bell's Vireo Locations within the Gregory Canyon Landfill Project Survey Area, 2003.

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September 20, 2010

Spencer D. MacNeil
U.S. Army Corps of Engineers
Los Angeles District Regulatory Division
2151 Alessandro Drive, Suite 110
Ventura, California 93001

Subject: Results of the 2010 Least Bell's Vireo and Southwestern Willow Flycatcher Surveys: Gregory Canyon Landfill Project

Dear Mr. MacNeil:

This letter provides the results of modified presence/absence surveys for the federally listed endangered least Bell's vireo (*Vireo bellii pusillus,* LBVI) and southwestern willow flycatcher (*Empidonax traillii extimus*, SWFL) along a segment of the San Luis Rey River near Pala in northern San Diego County, California. The survey area is located approximately 2.5 miles west of Pala, and approximately three miles east of the intersection of SR-76 and Interstate 15 (Figure 1). These surveys were conducted on behalf of U.S. Army Corps of Engineers (ACOE) in support of the Environmental Impact Statement (EIS) to assess potential impacts resulting from the proposed Gregory Canyon Landfill.

Summary

A total of eight pairs and one solitary individual LBVI were detected onsite in 2010, with four pairs confirmed nesting during the survey period. Of the nesting LBVI pairs, two were observed to nest successfully, with one pair supporting two offspring and the second pair supporting one offspring. A detailed discussion of the LBVI survey results is provided below and LBVI locations are displayed in Figure 2. No SWFL or migrant willow flycatchers were detected during the 2010 surveys.

Least Bell's Vireo Surveys

Methods

Biologists followed a modified survey protocol for LBVI which involved a total of six survey visits that focused on determining nesting status (nine total visits were made to the Project site during the LBVI and SWFL surveys combined). This modified protocol was used because LBVI are known to occur on the Gregory Canyon Ltd. (GCL) property (San Diego County Department of Environmental Health 2003, 2007), and therefore the U.S. Fish and Wildlife Service (USFWS) presence/absence survey protocol (USFWS 2001) is not necessary. However, other aspects of the USFWS protocol methodology were followed, including survey visits at least 10 days apart between April 10 and July 31, fieldwork conducted between dawn and 11:00 a.m., and survey of no more than 50 hectares (123.6 acres) or 3 linear kilometers of habitat per visit. LBVI and SWFL surveys were combined on two survey visits (8 and 28 June). The number of surveys and proposed survey dates were approved by the USFWS prior to initiating the surveys (see Attachment 1).

Other goals of these surveys (as requested by USFWS and ACOE) were to determine nesting status and map habitat use of any LBVI detected onsite. Nest searching was not conducted during these surveys. However, breeding status was determined based on incidental observations of breeding behavior (*e.g.*, paired status, nest building/tending, copulation, *etc.*), nests, and/or fledglings. Care was taken to avoid exposing nests to depredation (by corvids, for example) or parasitism by brown-headed cowbirds (*Molothrus ater*). Incidentally detected nests were not approached and any brown-headed cowbird eggs observed were not removed.

Habitat use was mapped by recording the perceived limits of territories or foraging areas using a handheld global positioning system (GPS) unit with 3 to 5 meter accuracy. Limits were determined by direct observation of primarily vocal male LBVIs as they moved through their territory or foraging area. Surveying biologists recorded GPS points at locations where LBVIs were observed, especially at locations where a bird changed direction and moved back to previous locations within what is assumed to be their respective territory (indicating potential territorial limits). Limits were recorded during observation for up to 20 minutes or longer during a survey visit. Biologists recorded new locations on subsequent survey visits if a LBVI was observed using different areas than those recorded on a previous visit. The resulting series of GPS locations for each LBVI territory or foraging area were imported to a GIS database for display.

Fieldwork was conducted by biologists Brian Lohstroh and Jason Berkley, with each biologist surveying a specific reach throughout the surveys. Mr. Lohstroh surveyed the upstream reach and Mr. Berkley surveyed the downstream reach. A dirt access road on the south side of the river was used as the primary landmark to divide the survey area (see Figure 2). To ensure adequate coverage of the survey area, each biologist surveyed approximately 50 yards into the adjoining reach at the reach boundary. Including this overlap, the area of the upstream reach totaled approximately 21.3 hectares (52.8 acres) of riparian habitat, and the area of the downstream reach totaled approximately 18.6 hectares (46.1 acres) of riparian habitat. In addition, GPS units uploaded with the GCL property boundary and survey reach dividing boundary aided with providing complete survey area coverage.

Results

A discussion of the LBVI survey results is provided below by reach. Survey dates and conditions are provided in Table 1 and a list of avian species detected is provided in Table 2. Several brown-headed cowbirds were observed during each survey visit, with some evidence of nest parasitism incidentally observed. Western scrub jays (*Aphelocoma californica*) are common throughout the site, and also are possibly negatively affecting LBVI breeding success.

Due to the nature of this passive survey methodology, some aspects of LBVI breeding on the site are unconfirmed and the discussion provided here is a product of the best data available. It should be noted that LBVI are not always detectable, and actively searching for and/or following birds throughout their movements is not always possible and can cause undo harassment, disturbance to their habitat, and potentially damage nests.

Upstream Reach Results

A summary of the survey visits is presented in Table 3, and LBVI locations are provided in Figure 2. Mr. Lohstroh detected a total of nine individual LBVI at six apparent territories during the initial survey on 27 April 2010. Three of these territories supported LBVI pairs, and three territories supported solitary individuals. The territories were numbered 1-6 from west to east,

with territories 1, 3 and 4 supporting LBVI pairs. Nesting was not confirmed during this first survey.

By the second survey in 11 May, the solitary individual at territory 2 was not detected, and this territory remained unoccupied for the rest of the surveys. However, Mr. Lohstroh observed evidence that the solitary individual at territory 5 was paired, and this evidence included "squeak" calls typically associated with pair interaction, infrequent calling, and repeatedly returning to the same location within the respective territory (indicating a potential nest location). Similar evidence of pair interaction and potentially nesting was also detected at territories 1, 4 and 6. Nest building was observed at territory 3 within a sandbar willow (*Salix exigua*).

On the third survey (24 May), a nest with two nestlings was incidentally observed at territory 4. The first nest at territory 3 was abandoned, and nest building was observed at a new, nearby location. It was also noted that the male at this territory had a single blue anodized band on its right leg. Territory 5 was found to be unoccupied during this survey, and no LBVIs were detected at this location for the remainder of the surveys. The situation at territories 1 and 6 remained similar to that of the previous survey.

On 8 June, two fledglings were detected near the formerly active nest at territory 4, and these fledglings were observed through the end of the surveys. Also on this date, the second nest at territory 3 was observed to be abandoned, and only the male was detected at this location for the rest of surveys. In addition, only the male LBVI was detected at territory 6 on this date, with its paired status unconfirmed. The pair at territory 1 became quiet and was only detected by Mr. Berkley at the end of his survey.

Little changed with the status of the LBVIs within the upstream reach until 21 June, when a new LBVI was heard farther upstream and just offsite during the third SWFL survey (see Figure 2). This calling individual was only detected on this date. There is a possibility that this individual was the same bird as the one detected earlier at territory 5, and it was dispersing to new location.

On the last survey visit on July 5, fledgling calls were detected in the vicinity of territory 6, strong evidence that it successfully nested. One fledgling was confirmed at this location.

Upstream Reach Habitat Disturbance

As documented in a letter to the California Department of Fish and Game dated 24 May 2010, habitat disturbance in the form of some unauthorized vegetation clearing related to the project occurred within the upstream survey reach. During the second LBVI survey on 11 May, three approximately ten foot wide transects of cleared understory riparian vegetation perpendicular to the San Luis Rey River were observed at the east end of the upstream survey reach. These disturbance areas were located in the vicinity of LBVI territories 5 and 6.

It was noted during the second survey that the birds associated with territories 5 and 6 moved to new areas in the vicinity of their originally observed territories. Female LBVI were not directly observed with these males in the new locations, however there was some evidence that females were possibly in the vicinity, as indicated in the above results section. By the next survey, territory 5 was unoccupied and remained so for the rest of the surveys. As mentioned above, these birds may have moved to another location outside of the survey area. It is difficult to conclude that its departure was a direct result of the habitat disturbance because it did initially

remain onsite and territorial after the disturbance occurred. However, the LBVI at territory 6 remained onsite and successfully nested.

Downstream Reach Results

A summary of the survey visits is presented in Table 3, and LBVI locations are provided in Figure 2. Mr. Berkley detected a total of four individual LBVI at two apparent territories during the initial survey on 27 April 2010. The territories were designated as A and B in alphabetical order from west to east, with both territories supporting LBVI pairs. A nest in a mulefat (*Baccarhis salicifolia*) was found with one egg in territory B.

By the second survey in 11 May, a third pair (designated as territory C) was observed foraging between territory A and territory B on the northern side of the river. The territory B nest found during the previous survey was still intact, but had no eggs. The male was vocal within the area and was moving around within the territory, not just near the nest. The pair in territory A was observed foraging together.

On the third survey (24 May), the first nest at territory B was abandoned, and a new nest with two LBVI eggs and two brown-headed cowbird eggs was observed at a nearby location. The situation at territory A remained relatively similar to that of the previous survey, but with only the male being observed and not being as vocal. The birds in territory C were very quiet and the male was heard very infrequently.

On 8 June, the birds in territory A were fairly quiet during the survey, but still seemed to be spending most of their time near the downstream road crossing. The territory C birds were observed in a ditch on the northern side of the berm on the old dairy. The second nest in territory B was still intact, but no eggs were present. The male was observed within the area, but he was not very vocal. At the end of Mr. Berkley's survey, he detected Mr. Lohstroh's bird at his territory 1, and only the male was heard.

On 18 June, birds in territories A and B were only seen and heard a couple of times during the survey. Only the male was observed in each territory. Territory C was completely silent and no birds were seen.

On the last survey visit on July 5, all of Mr. Berkley's territories were absent of vireos.

Southwestern Willow Flycatcher Surveys

Methods

Surveys for SWFL followed the latest protocol established by the USFWS for permitted biologists (Sogge *et. al.* 2010). Five SWFL survey visits were conducted by permitted biologists Brian Lohstroh (TE-063608-4) and Jason Berkley (TE-009015-3), with each biologist surveying the same reach of the San Luis Rey River as described above for the LBVI surveys. SWFL and LBVI surveys were combined on two survey visits (8 and 28 June). Proposed survey dates were approved by the USFWS prior to initiating the surveys. GPS units uploaded with the GCL property boundary and survey reach dividing boundary aided with providing complete survey area coverage. As with the LBVI survey methods, nesting status and habitat use mapping was planned for any SWFL observed.

Results

No SWFLs or migrant willow flycatchers were detected during these surveys. Several brown-headed cowbirds were observed during each survey visit. Survey dates and conditions are provided in Table 1 and a list of avian species detected is provided in Table 2. Please also find the Willow Flycatcher Survey and Detection form as Attachment 2 and surveyor signatures in Attachment 3.

This report also fulfills the 45-day reporting requirements. If you have any questions about these surveys, please contact Mr. Lohstroh at 858.750.9300.

Sincerely,

Brian Lohstroh
Principal
Lohstroh Biological Consulting
brian@lohstrohbio.com

Jason Berkley
Cereus Environmental
jberkley@cereusenvironmental.com

Attachments:

Figure 1: Project Location Map
Figure 2: 2010 Least Bell's Vireo Survey Results
Attachment 1: USFWS Approval of Modified LBVI Survey Protocol
Attachment 2: Willow Flycatcher Survey and Detection Form
Attachment 3: Surveyor Signature Page

cc: Sandra Marquez, USFWS
Michelle Moreno, USFWS
Gregory Canyon Ltd.

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Table 1
Survey Dates and Conditions
Gregory Canyon Least Bell's Vireo and Southwestern Willow Flycatcher Surveys

Date	Survey Type, No.	Time on site	Temp (°F)	Sky Cover (%)	Wind Speed (MPH)	Personnel
27-Apr-10	LBVI 1	0600-1100	65-68	100-0%	0-3	BL, JB
11-May-10	LBVI 2	0530-1115	55-73	90-50%	0-3	BL, JB
20-May-10	SWFL 1	0550-1030	65-75	100%	0-3	BL, JB
24-May-10	LBVI 3	0530-1000	47-67	Clear	0-3	BL, JB
8-Jun-10	SWFL 2 / LBVI 4	0615-0930	52-72	Clear	0-3	BL, JB
18-Jun-10	LBVI 5	0630-1000	60-67	100-30%	0-5	BL, JB
21-Jun-10	SWFL 3	0630-0930	63-68	100-30%	0-3	BL, JB
28-Jun-10	SWFL 4 / LBVI 6	0630-1000	63-69	100%	0-2	BL, JB
5-Jul-10	SWFL 5	0630-0930	62-66	100%	0-1	BL, JB

LBVI=Least Bell's Vireo; SWFL=Southwestern Willow Flycatcher
BL=Brian Lohstroh; JB=Jason Berkley

Table 2
Avian Species Detected
Gregory Canyon Least Bell's Vireo and Southwestern Willow Flycatcher Surveys

Species Common Name	*Species Scientific Name*
green heron	*Butorides virescens*
white-faced ibis (WL)	*Plegadis chihi*
mallard	*Anas platyrhynchos*
white-tailed kite (FP)	*Elanus leucurus*
Cooper's hawk (WL)	*Accipiter cooperii*
red-shouldered hawk	*Buteo lineatus*
red-tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
California quail	*Callipepla californica*
common moorhen	*Gallinula chloropus*
American coot	*Fulica americana*
mourning dove	*Zenaida macroura*
greater roadrunner	*Geococcyx californianus*
barn owl	*Tyto alba*
Anna's hummingbird	*Calypte anna*
Costa's hummingbird	*Calypte costae*
black-chinned hummingbird	*Archilochus alexandri*
Nuttall's woodpecker	*Picoides nuttallii*
downy woodpecker	*Picoides pubescens*
northern flicker	*Colaptes auratus*
Pacific-slope flycatcher	*Empidonax difficilis*

Table 2 (Continued)
Avian Species Detected

olive-sided flycatcher	*Contopus cooperi*
western wood-pewee	*Contopus sordidulus*
Say's phoebe	*Sayornis saya*
black phoebe	*Sayornis nigricans*
ash-throated flycatcher	*Myiarchus cinerascens*
western kingbird	*Tyrannus verticalis*
least Bell's vireo (SE, FE)	*Vireo bellii pusillus*
Hutton's vireo	*Vireo huttoni*
warbling vireo	*Vireo gilvus*
western scrub-jay	*Aphelocoma californica*
American crow	*Corvus brachyrhynchos*
common raven	*Corvus corax*
phainopepla	*Phainopepla nitens*
cedar waxwing	*Bombycilla cedrorum*
western bluebird	*Sialia mexicana*
Swainson's thrush	*Catharus ustulatus*
european starling	*Sturnus vulgaris*
northern mockingbird	*Mimus polyglottos*
California thrasher	*Toxostoma redivivum*
white-breasted nuthatch	*Sitta carolinensis*
Bewick's wren	*Thryomanes bewickii*
house wren	*Troglodytes aedon*
oak titmouse	*Baeolophus inornatus*
bushtit	*Psaltriparus minimus*
violet-green swallow	*Tachycineta thalassina*
northern rough-winged swallow	*Stelgidopteryx serripennis*
barn swallow	*Hirundo rustica*
cliff swallow	*Petrochelidon pyrrhonota*
wrentit	*Chamaea fasciata*
American goldfinch	*Carduelis tristis*
lesser goldfinch	*Carduelis psaltria*
house finch	*Carpodacus mexicanus*
song sparrow	*Melospiza melodia*
Lincoln's sparrow	*Melospiza lincolnii*
spotted towhee	*Pipilo maculatus*
California towhee	*Pipilo crissalis*
orange-crowned warbler	*Vermivora celata*
yellow warbler (SSC)	*Dendroica petechia*
common yellowthroat	*Geothlypis trichas*
Wilson's warbler	*Wilsonia pusilla*
yellow-breasted chat (SSC)	*Icteria virens*
western tanager	*Piranga ludoviciana*
black-headed grosbeak	*Pheucticus melanocephalus*

Table 2 (Continued)
Avian Species Detected

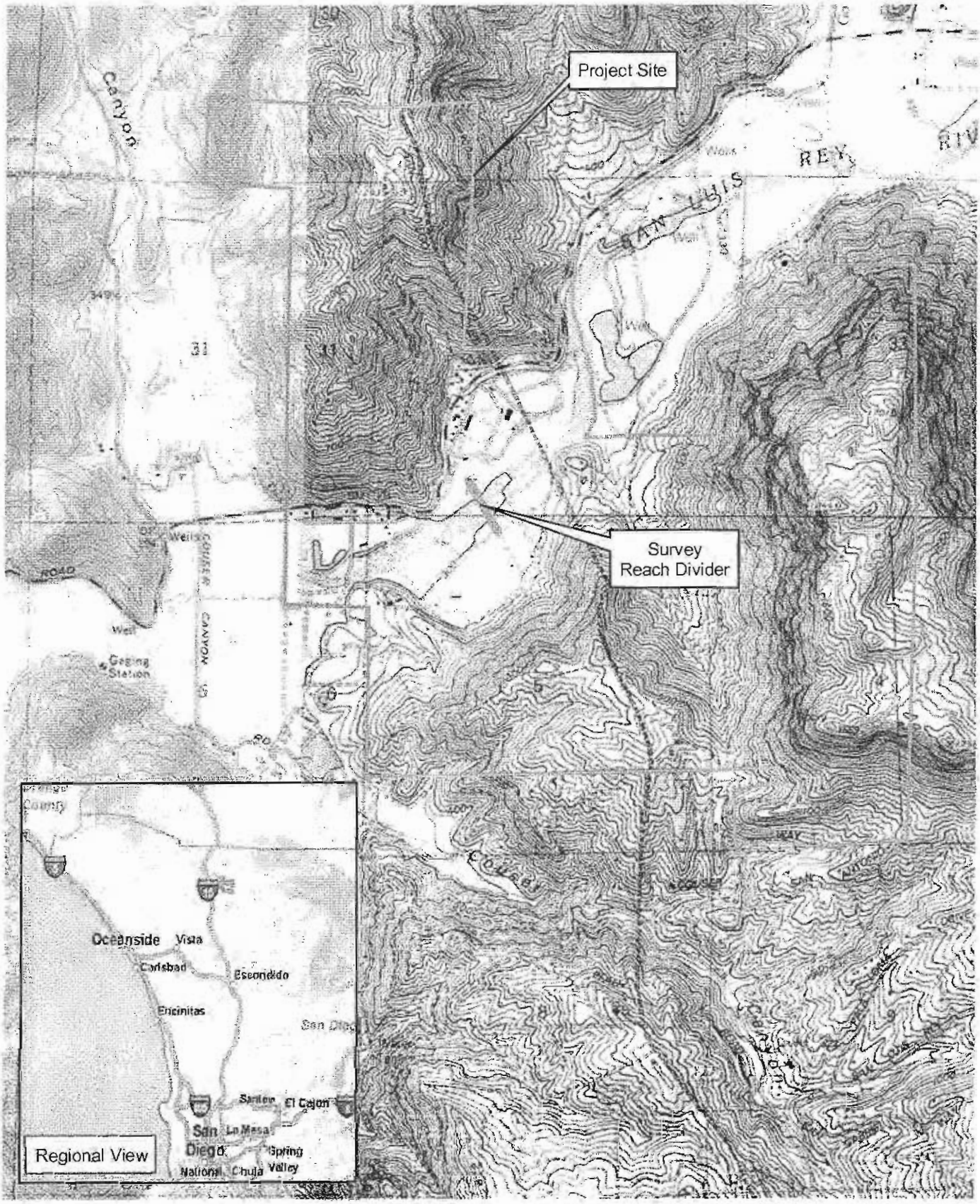
blue grosbeak	*Guiraca caerulea*
hooded oriole	*Icterus cucullatus*
Bullock's oriole	*Icterus bullockii*
red-winged blackbird	*Agelaius phoeniceus*
great-tailed grackle	*Cassidix mexicanus*
brown-headed cowbird	*Molothrus ater*

WL=California Watch List Species
FP=California Fully Protected
SE=California Listed as Endangered
FE=Federally listed as Endangered
SSC=California Species of Special Concern

Table 3
Least Bell's Vireo Survey Results Summary

		Survey Date							
		27-Apr-10	11-May-10	24-May-10	8-Jun-10	18-Jun-10	21-Jun-10	28-Jun-10	5-Jul-10
Upstream LBVI Territory	1	Pair observed, potentially nesting	Pair interaction, potentially nesting	Pair interaction, potentially nesting	Male and female observed foraging together	Male observed singing	Pair observed foraging	Male detected calling on north side of river	Not detected.
	2	Solitary male observed	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected
	3	Pair observed, potentially nesting	Pair observed nest building	First nest abandoned, pair nest building at new location within territory	Male calling Infrequently, second nest abandoned, paired status unconfirmed	Apparently solitary, male calling and then falling silent for long periods	Male calling Infrequently, apparently solitary	Male calling Infrequently, moving close to territories 1 and 3	Male calling Infrequently, apparently solitary
	4	Pair observed, potentially nesting	Pair interaction, potentially nesting	Pair observed, nest with 2 nestlings	At least 2 fledges present. One adult feeding fledges	One adult foraging with 2 fledges, movement outside of territory	One adult foraging with 2 fledges, movement outside of territory	One adult foraging with 2 fledges, movement outside of territory	One adult foraging with 2 fledges, movement outside of territory
	5	Solitary male detected	Pair interaction, potentially nesting, moved to new location	Not detected	Not detected	Not detected	Male calling offsite, possibly Territory 5 male?	Not detected	Not detected
	6	Solitary male detected	Pair interaction, potentially nesting, moved to new location	Male calling sporadically, paired status unconfirmed	Male calling Infrequently, paired status unconfirmed	Male calling frequently, paired status unconfirmed	Male calling Infrequently, paired status unconfirmed	Male calling Infrequently, silent upon approach	Male and fledgling calls detected, at least one confirmed
Downstream LBVI Territory	A	Pair observed, potentially nesting	Pair interaction, potentially nesting	Male detected Infrequently calling	Male detected Infrequently calling	Male detected Infrequently calling	Male detected Infrequently calling	Male detected calling upstream near territory C	Not detected
	B	Pair observed, nest with 1 egg	First nest abandoned, male calling in territory, female observed	Pair with second nest supporting 2 BHCO eggs and 2 LBVI eggs	Second nest abandoned, male calling infrequently	Not detected	Not detected	Male detected calling	Not detected
	C	Not Detected	Pair observed, potentially nesting	Male detected Infrequently calling	Not detected	Male detected Infrequently calling	Male detected Infrequently calling.	Male detected calling	Not detected
# LBVI		**13**	**16**	**13**	**9**	**8**	**10**	**9**	**6**

LBVI= Combined total number of LBVI detected, including nestlings and fledglings



0 2,000 4,000 Feet

Project Location Map

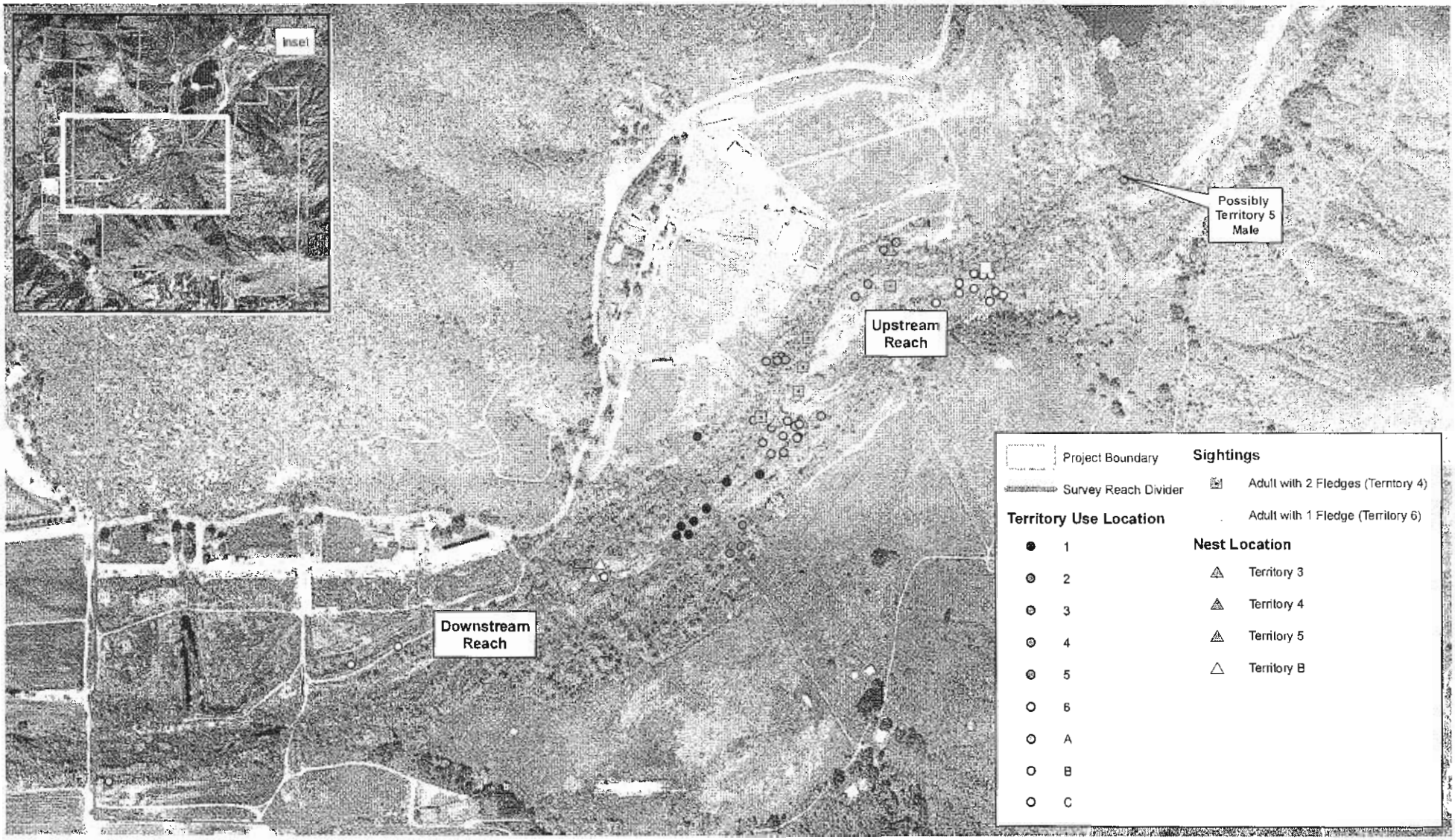
Gregory Canyon

Source: USGS Topographic Series (Bonsall, Pala, CA), Johnson Biological Consulting, 2010; Cereus Environmental, 2010; PCR Services Corporation, 2010.

FIGURE

1

PCR



PCR

0 450 900 Feet

2010 Least Bell's Vireo Survey Results

Gregory Canyon

Source: Aerial, 2009; Lehstroh Biological Consulting, 2010; Cereus Environmental, 2010; PCR Services Corporation, 2010

FIGURE 2

Spencer D. MacNeil
U.S. Army Corps of Engineers
September 20, 2010

Attachment 1
USFWS Approval of Modified LBVI Survey Protocol

From: Michelle Moreno
Sent: 4/12/2010 2010 10:59 AM
To: Bill Magdych
Cc: Spencer MacNeil
Subject: Fw: LBV surveys for Gregory Canyon

Bill,

Attached is the email that I sent earlier. I thought that I cc'd you, but it looks like I didn't...I apologize. I am not available to talk today...my day is completely booked. I could talk tomorrow morning (I'm not sure of Peter's schedule, so I would have to check with him). As you can see in the email below, the last two LBV surveys could occur during the June 18 and June 28 SWFL surveys provided that adequate time can be devoted to both species. Peter is familiar with the work that has been conducted.
At this point, we are trying to get the most up-to-date information regarding the number of birds that are utilizing the area, their approximate use areas, and nesting status. This information is important for any future section 7 consultation to ensure that our environmental baseline, effects analysis and take statement all accurately reflect the current situation within the project area.

Michelle

Michelle C. Moreno
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92011
(760) 431-9440 ext. 356

----- Forwarded by Michelle Moreno/CFWO/R1/FWS/DOI on 04/12/2010 10:55 AM-----

From: Michelle Moreno/CFWO/R1/FWS/DOI
Sent: 04/12/2010 10:00 AM
To: Spencer MacNeil
Cc:
Subject: LBV surveys for Gregory Canyon

Spencer,

I talked to our LBV expert this morning regarding the LBV surveys for the Gregory Canyon project area. Based on my conversation with him I recommend the following for the LBV surveys:

1. Six LBV survey visit should be conducted with a focus on detecting the number of LBV, their nesting status, and a rough sketch of their use areas.
The first four surveys can follow the schedule previously proposed with the last two surveys occurring either on or close to the SWFL surveys scheduled for June 18 and June 28;

and

2. We recommend that the same biologist conduct all of the LBV surveys.
If this is not possible, and two surveyors will be used we recommend that the survey area be split into two reaches with each surveyor assigned to one reach.

Thank you.

Michelle Moreno

Michelle C. Moreno
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92011
(760) 431-9440 ext. 356

From: Brian Lohstroh
Sent: 0S/18/2010 10:11 AM
To: Michelle Moreno
Cc: Jason Berkley; Bill Magdych; Steve Nelson; Spencer MacNeil
Subject: Re: LBVI and SWFL surveys Gregory Canyon

Hi Michelle,
Thanks for getting back to me about the the SWFL/LBVI schedule at Gregory Canyon. Here's what we've come up for a schedule that preserves the original number of field days (9) and follows the new SWFL protocol, let us know what you think:

LBVI 1:	4/27 (complete)
LBVI2:	5/11 (complete)
SWFL1:	5/20
LBVI3:	5/24
SWFL2/LBVI4:	6/8
LBVI5:	6/18 (changed to just a LBVI survey)
SWFL3:	6/21 (new date, dedicated SWFL survey)
SWFL4/LBVI6:	6/28
SWFL5:	7/5

Thanks!
Brian

From: Michelle Moreno
Sent: 5/18/2010 11:02 AM
To: Brian Lohstroh
Cc: Bill Magdych; Jason Berkley; Spencer MacNeil; Steve Nelson
Subject: Re: LBVI and SWFL surveys Gregory Canyon

That looks good Brian. Thank you!

Michelle C. Moreno
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92011
(760) 431-9440 ext. 3S6

Attachment 2
Willow Flycatcher Survey and Detection Form

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Gregory Canyon Landfill Project State CA County San Diego
USGS Quad Name Bonsall, Pala, CA Elevation 95 (meters)
Creek, River, Wetland, or Lake Name San Luis Rey River
Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? ***Yes*** X ***No*** ____

Survey Coordinates: Start: N33.34140 W117.12680 Datum WGS84 (See instructions)
Stop: N33.35132 W117.11166

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

***** Fill in additional site information on back of this page *****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) B. Lohstroh J. Berkley	Date 5/20/10 Start 0600 Stop 0930 Total hrs 3.5	0	0	0	N	Several Brown-headed cowbirds observed. No WIFL detected.				
Survey # 2 Observer(s) B. Lohstroh J. Berkley	Date 6/8/10 Start 0530 Stop 1030 Total hrs 5	0	0	0	N	Several Brown-headed cowbirds observed. No WIFL detected.				
Survey # 3 Observer(s) B. Lohstroh J. Berkley	Date 6/21/10 Start 0630 Stop 0930 Total hrs 3	0	0	0	N	Several Brown-headed cowbirds observed. No WIFL detected.				
Survey # 4 Observer(s) B. Lohstroh J. Berkley	Date 6/28/10 Start 0630 Stop 1000 Total hrs 3.5	0	0	0	N	Several Brown-headed cowbirds observed. No WIFL detected.				
Survey # 5 Observer(s) B. Lohstroh J. Berkley	Date 7/5/10 Start 0630 Stop 0930 Total hrs 3	0	0	0	N	Several Brown-headed cowbirds observed. No WIFL detected.				

Overall Site Summary	Total Adult Residents	Total Pairs	Total Territories	Total Nests	
Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs 18	0	0	0	0	Were any Willow Flycatchers color-banded? Yes___ No ___ If yes, report color combination(s) in the comments section on back of form and report to USFWS.

Reporting Individual Brian Lohstroh Date Report Completed 9/20/2010
US Fish and Wildlife Service Permit # TE-063608-4 State Wildlife Agency Permit # 801197-03

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian Lohstroh Phone # (858) 750-9300
Affiliation Lohstroh Biological Consulting, under contract with PCR E-mail brian@lohstrohbio.com
Site Name Gregory Canyon Landfill Project Date Report Completed 9/20/2010
Was this site surveyed in a previous year? Yes___ No X Unknown ___
Did you verify that this site name is consistent with that used in previous years? Yes X No ___ Not Applicable ___
If site name is different, what name(s) was used in the past?___
If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below.
Did you survey the same general area during each visit to this site this year? Yes X No ___ If no, summarize below.

Management Authority for Survey Area: Federal___ Municipal/County State ___ Tribal ___ Private X
Name of Management Entity or Owner (e.g., Tonto National Forest) Gregory Canyon, Ltd.

Length of area surveyed: 2.0 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

X Native broadleaf plants (entirely or almost entirely, > 90% native)

___ Mixed native and exotic plants (mostly native, 50 - 90% native)

___ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

___ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.

___

Average height of canopy (Do not include a range): 10 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

Upstream reach surveyed by Brian Lohstroh, downstream reach surveyed by Jason Berkley (TE-009015-3).

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Spencer D. MacNeil
U.S. Army Corps of Engineers
September 20, 2010

Attachment 3
Surveyor Signature Page

2010 Least Bell's Vireo and Southwestern Willow Flycatcher Surveys
Gregory Canyon Landfill Project

We certify that the information contained in this survey report and attached exhibits fully and accurately represents our work.

Jason Berkley
TE-009015-3
Cereus Environmental

Brian Lohstroh
TE-063608-4
Principal
Lohstroh Biological Consulting

HELIX environmental planning, inc.

8100 La Mesa Blvd., Suite 150

La Mesa, CA 91941-6476

e-mail: admin@helixepi.com

fax (619) 462-0552

phone (619) 462-1515

July 31, 2000

Mr. Richard Chase
Gregory Canyon Ltd.
212 North Cedros Avenue
Solana Beach, CA 92075

Subject: Gnatcatcher survey report for Gregory Canyon Landfill

Dear Mr. Chase:

This letter presents a U.S. Fish and Wildlife Service (USFWS) protocol survey report for the Gregory Canyon Landfill project which consists of a Class III municipal refuse disposal facility, landfill support facilities, and associated access improvements. The project site is in northeastern San Diego County approximately three and one-half miles east of Interstate 15 (Figure 1).

INTRODUCTION

HELIX Environmental Planning, Inc. (HELIX) performed USFWS protocol surveys for the coastal California gnatcatcher (*Polioptila californica californica*) within the proposed project impact areas (Figures 1 and 2). Within these areas there are approximately 223 acres of coastal sage scrub and coastal sage scrub/chaparral. A copy of this report will be submitted to the USFWS as a condition of HELIX's Threatened and Endangered Species Permit TE778195-5 under which these surveys were performed.

METHODS

Three complete gnatcatcher surveys were conducted every seven to ten days by Deborah Pudoff and Scott Taylor of HELIX. Survey information is provided in Table 1. The surveys were conducted according to the latest (1997) USFWS protocol for presence/absence of the species.

Table 1
SURVEY INFORMATION

Date of Survey	Personnel*	Start/Stop Times	Acres Surveyed/ Coverage Rate	Weather Conditions
May 3, 2000 part 1 of 2	DP, ST	1100/1200	33 acres/16.5 acres per biologist per hour	Clear, 76°F-77°F, wind 3-5 mph
May 4, 2000 part 2 of 2	DP, ST	0600/1200	190 acres/15.8 acres per biologist per hour	Foggy then clear, 56°F-74°F, wind 0-5 mph

Table 1
continued

Date of Survey	Personnel*	Start/Stop Times	Acres Surveyed/ Coverage Rate	Weather Conditions
May 11, 2000 part 1 of 2	DP, ST	1000/1200	66 acres/16.5 acres per biologist per hour	Partly cloudy, 63°F-66°F, wind 0-2 then 3-8 mph
May 12, 2000 part 2 of 2	DP, ST	0700/1200	157 acres/15.7 acres per biologist per hour	Clear, 55°F-74°F, wind 0-2 then 3-5 mph
May 18, 2000 part 1 of 2	DP, ST	0700/1200	157 acres/15.7 acres per biologist per hour	Clear, 56°F-68°F, wind 0-2 then 2-4 mph
May 22, 2000 part 2 of 2	DP, ST	1000/1200	66 acres/16.5 acres per biologist per hour	Clear, 75°F-76°F, wind 2-4 then 3-5 mph

*DP=Deborah Pudoff, ST=Scott Taylor

Appropriate gnatcatcher habitat (223 acres of coastal sage scrub and coastal sage scrub/chaparral) within the project impact areas (approximately 309 acres) was surveyed. In addition, appropriate habitat immediately adjacent to the impact areas was surveyed as best as possible. Due to the dense vegetation on site and the rugged terrain, survey routes consisted of all existing dirt roads and trails that could be found within and surrounding the project impact areas (Figure 2). Survey routes did not cut through undisturbed habitat because the vegetation is too dense and on very steep slopes (Figure 2). Taped vocalizations were played approximately every 10 minutes and were focused especially on those areas that could not be reached on foot.

PLANT COMMUNITY DESCRIPTIONS

Coastal sage scrub in the impact areas on site is of high quality and is characterized by shrubs such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and red bush monkey-flower (*Mimulus aurantiacus*) with scattered evergreen shrubs such as laurel sumac (*Malosma laurina*). Coastal sage scrub/chaparral in the impact areas on site is also of high quality and is characterized by shrubs such as mission manzanita (*Xylococcus bicolor*), chamise (*Adenostoma fasciculatum*), mountain mahogany (*Cercocarpus minutiflorus*), and redberry (*Rhamnus* spp.). The impact areas are surrounded by similar vegetation. Other native vegetation communities on the 1,783-acre landfill site consist of rock outcrop/chaparral, native perennial grassland, coast live oak woodland, cottonwood-willow riparian forest, mule fat scrub, and southern willow scrub (Figure 2).

SURVEY RESULTS AND CONCLUSION

The coastal California gnatcatcher was not detected during the protocol surveys for the species. The gnatcatcher has been observed only twice on the landfill site; a single male was seen in late July 1995, north of Highway 76 and well outside the project impact areas.[1] A single male was also observed on site on one occasion in April 1998 by HELIX during protocol gnatcatcher surveys. The single bird was observed in the footprint of Borrow/Stockpile Area B. In addition, a biologist permitted to perform gnatcatcher surveys was on site in gnatcatcher habitat during

the breeding season on five occasions for surveys for the quino checkerspot butterfly (*Euphydryas editha quino*), and no gnatcatchers happened to be observed or detected. Previous surveys for the gnatcatcher in 1989, 1991, 1992, and 1993 on the landfill site were negative.[2,3,4,5] The limited sightings and the absence of nearby core populations[6] suggest the project area is of low to marginal value for gnatcatchers.[7]

Please contact me if you have any questions about the surveys or the contents of this letter.

Sincerely,

Deborah Pudoff
Biologist

Enclosures: Figure 1 Vicinity Map
Figure 2 Vegetation Map/Impacts

c: Jerry Riessen, Gregory Canyon Ltd., without enclosures
Doug Krofta, U.S. Fish and Wildlife Service, including enclosures

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[1] Dudek & Associates (Dudek). 1995. Biological Resources Report for the Gregory Canyon landfill project, San Diego County, California. Prepared for Gregory Canyon LTD. August.

[2] Butler Roach Group. 1990. Draft Environmental Impact Report/Environmental Impact Statement for the proposed North County Class III landfill. Prepared for the County of San Diego Dept. of Public Works and Bureau of Land Management, California Desert District. January.

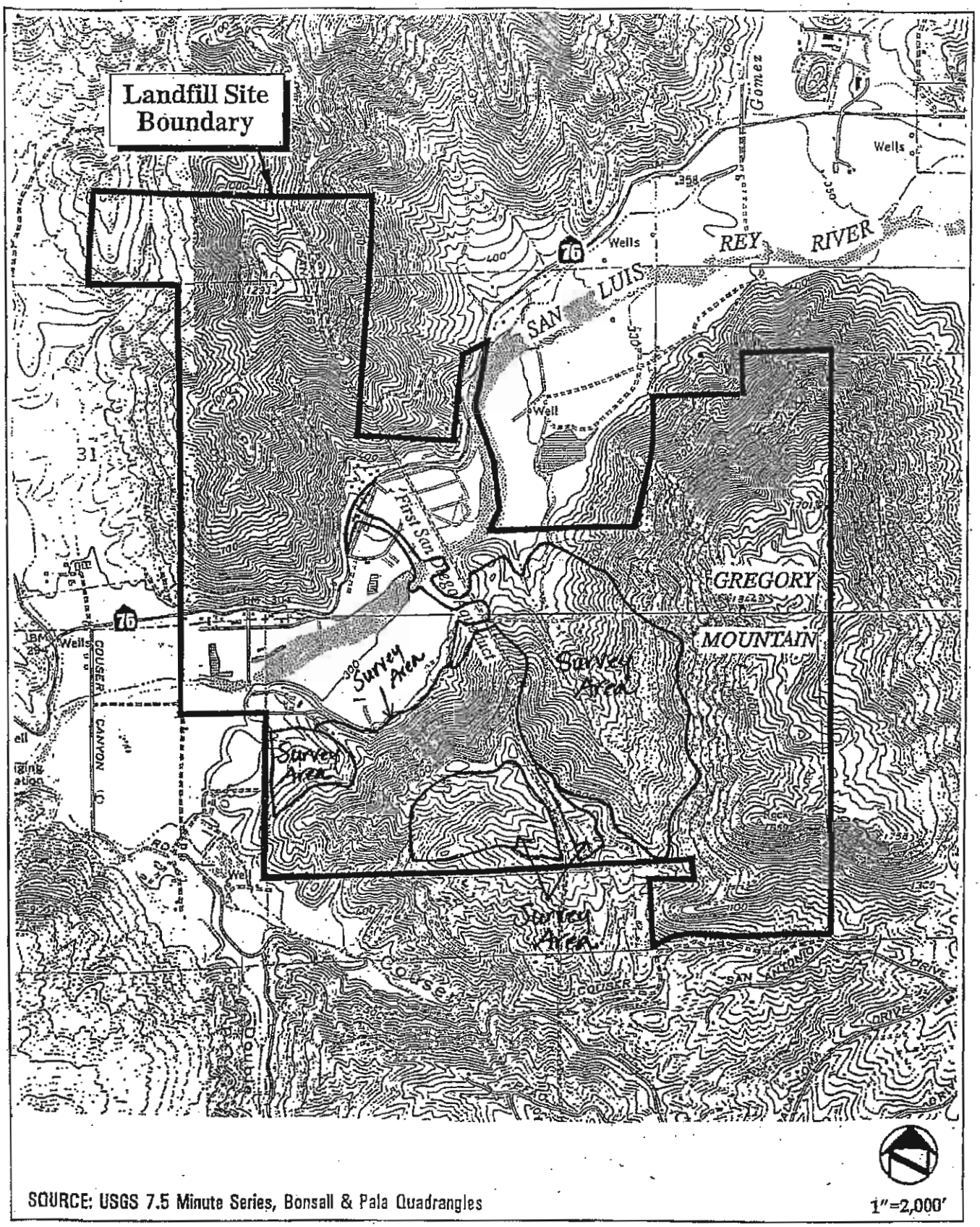
[3] Pacific Southwest Biological Services (PSBS). 1991. Report of a biological assessment of the Gregory Canyon landfill site Pala region, San Diego County, California. Prepared for Woodward Clyde Consultants. December.

[4] Michael Brandman Associates (MBA). 1992. Draft Biological Resources Evaluation, Aspen Road and Gregory Canyon proposed landfill sites. Prepared for: Butler Roach Group. September.

[5] Ogden Environmental and Energy Services Co., Inc. (Ogden) 1993. Unpublished field work conducted on the Gregory Canyon Landfill Site for the County of San Diego's North County Landfill Project.

[6] Mock, Pat. 1999. Personal Communication with Dames and Moore. January 13.

[7] HELIX Environmental Planning, Inc. 1999. Biological Technical Report for Gregory Canyon Landfill. December.

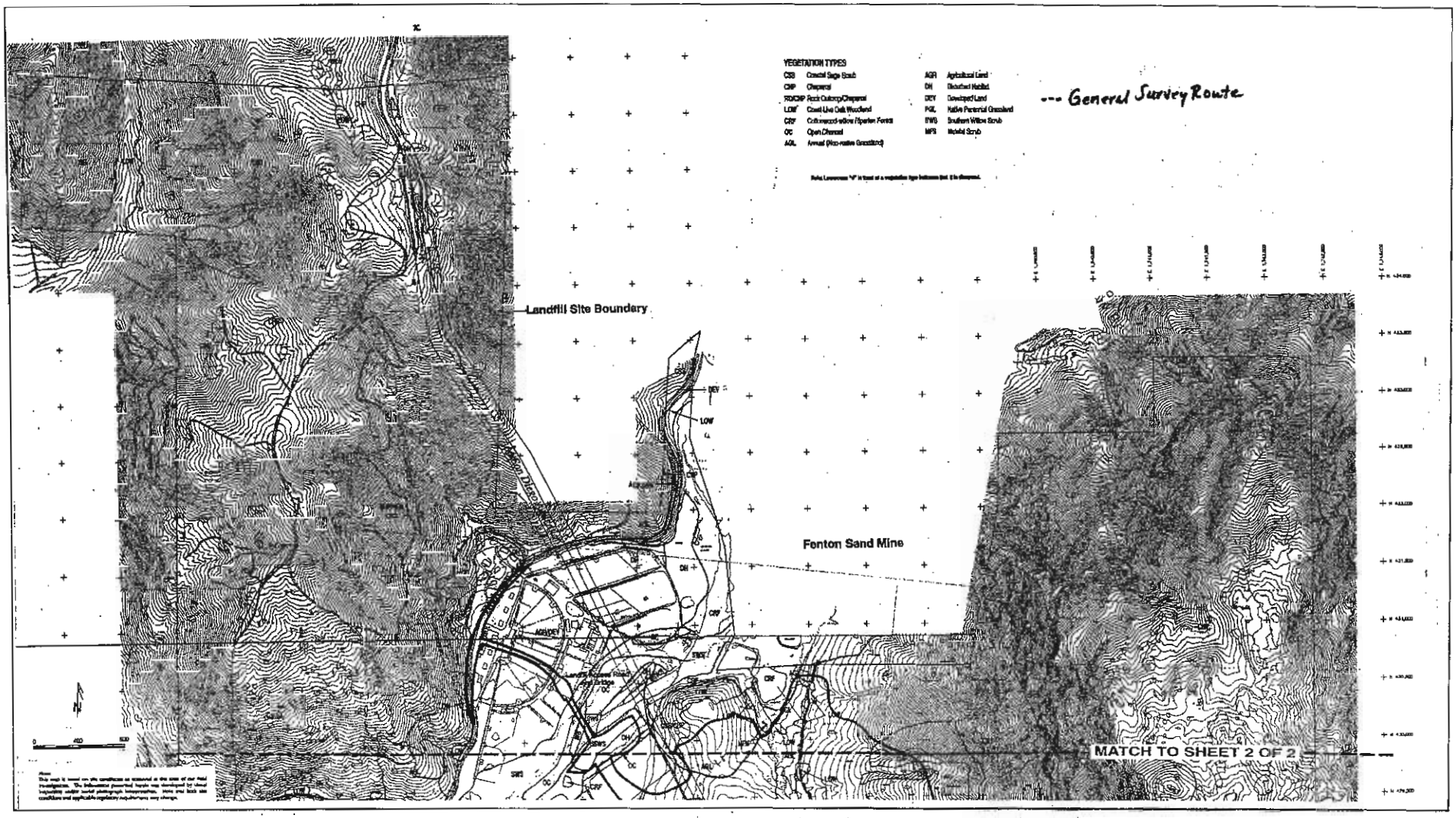


HELIX

Vicinity Map

GREGORY CANYON LANDFILL PROJECT

Figure 1

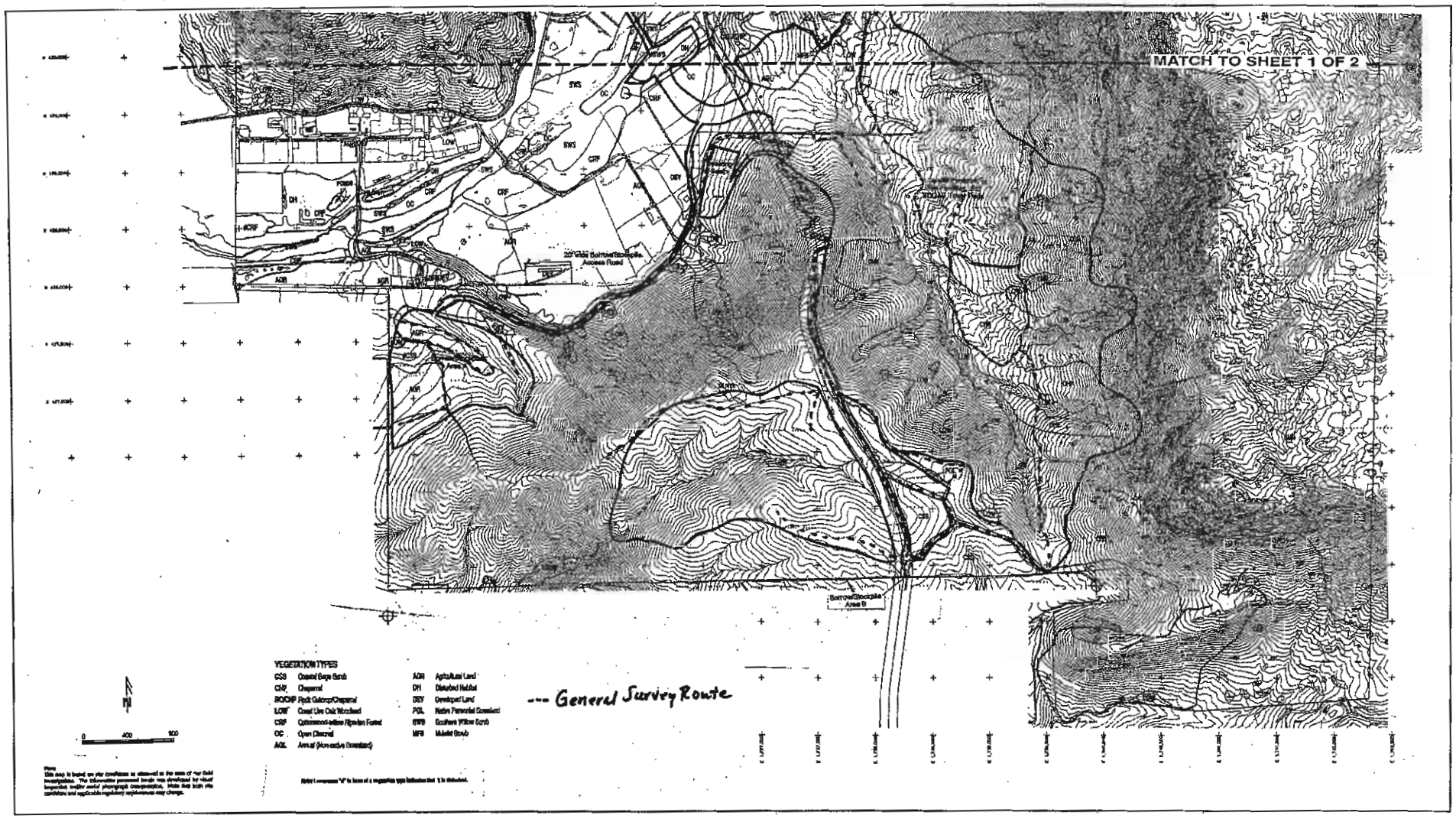


Vegetation Map/Impacts with Year 2000 Coastal California Gnatcatcher Survey

GREGORY CANYON LANDFILL

Sheet 1 of 2

HELIX



Vegetation Map/Impacts with Year 2000 Coastal California Gnatcatcher Survey

GREGORY CANYON LANDFILL

Sheet 2 of 2

HELIX

LOHSTROH BIOLOGICAL CONSULTING

4120 Via Mar De Delfinas ~ San Diego, CA 92130
Phone: (858) 750-9300 Fax: (858) 794-7355 Email: lbiological@gmail.com

July 8, 2010

Spencer D. MacNeil
U.S. Army Corps of Engineers
Los Angeles District Regulatory Division
2151 Alessandro Drive, Suite 110
Ventura, California 93001

Subject: Results of the 2010 California Gnatcatcher Surveys for the Gregory Canyon Landfill Project

Dear Mr. MacNeil:

This letter provides the results of the presence/absence surveys for the federally listed Threatened coastal California gnatcatcher (*Polioptila californica californica*, CAGN) at the proposed Gregory Canyon Landfill project location. The survey area included suitable coastal sage scrub habitat adjacent the San Luis Rey River and State Route 76 (SR-76), and is located approximately 2.5 miles west of Pala, and approximately three miles east of the intersection of SR-76 and Interstate 15 (Figure 1). It is estimated that there is up to approximately 1,200 acres of potential CAGN habitat on the Gregory Canyon Ltd. (GCL) property. These surveys were conducted on behalf of U.S. Army Corps of Engineers in support of the Environmental Impact Statement (EIS) to assess potential impacts resulting from the proposed landfill.

Surveys for CAGN adhered to the latest protocol established by the U.S. Fish and Wildlife Service (USFWS) for permitted biologists (rev. 28 July 1997). The project area is located within the draft North County Multiple Species Conservation Program (MSCP) planning area (a qualifying Natural Community Conservation Plan [NCCP]), which requires a total of three protocol surveys during the period between 15 February and 30 August for projects that support gnatcatcher-suitable habitat.

The 1,200 acres of potential CAGN habitat was divided into 13 survey zones, each containing no more than approximately 100 acres of potential CAGN habitat (Figure 2). These survey zones are based on the relative topography of the site, and provided discrete areas for biologist(s) to survey on three occasions at least one week apart. Some survey zones are much less than 100 acres, as indicated in Figure 2. In most cases, survey zones do not represent entire patches of suitable habitat, rather they supported habitat of varying quality and suitability. In addition to coastal sage scrub, some survey zones support chaparral, oak woodland, non-native grassland, and disturbed habitat.

Fieldwork was conducted by biologists Jason Berkley (TE-009015-3), Crysta Dickson (TE-067347-3), Marcus England (TE-082233-0), Brian Lohstroh (TE-063608-4), Linda Robb (TE-093591-0), Jim Rocks (TE-063230-3) and Jenni Snibbe (TE-044520-0). Survey dates and conditions are provided in Table 1, and a list of avian species detected is provided in Table 2.

No CAGN were detected in the project area during the survey effort in March and April 2010. The potential CAGN habitat onsite is of good quality, with a high incidence of California

sagebrush (*Artemisia californica*), and therefore it is not immediately clear why the area does not support CAGN.

The upland habitat in the project area is primarily composed of coastal sage scrub, with areas of non-native grassland, chaparral, and oak woodland. Dominant species present within the coastal sage scrub include California sagebrush, buckwheat (*Eriogonum fasciculatum*), deerweed (*Lotus scoparius*), goldenbush (*Isocoma menziesii*), laurel sumac (*Malosma laurina*), white sage (*Salvia apiana*), monkeyflower (*Mimulus aurantiacus*), and wishbone bush (*Mirabilis californica*).

A copy of this report will be submitted to the USFWS, and GCL upon your approval. The signatures of all the participating permitted biologists are provided in Attachment 1. Please contact me at (858) 750-9300 if you have any questions about these surveys.

Sincerely,

Brian Lohstroh
Principal
Lohstroh Biological Consulting

Tables 1 and 2
Figures 1 and 2
Attachment 1

CC: Sandy Marquez and Michelle Moreno, USFWS
Gregory Canyon Ltd.

Table 1
Survey Dates, Conditions and Personnel
Gregory Canyon California Gnatcatchers Surveys 2010

	Date	Time on site	Temp (°F)	Est. Sky Cover (%)	Wind Speed (MPH)	Personnel	Survey Zone(s) Covered
Survey 1	8-Mar-10	1000-1200	55-60	90%	2-5	LR, CD, JS, JR	2, 3a*, 3b
	9-Mar-10	0600-1200	47-69	50%	2-10	BL, CD, LR	1, 3a*, 4*, 7
	10-Mar-10	0630-1200	40-58	0-40%	0-6	LR, CD, JS	4*, 9, 10*, 13
	12-Mar-10	0630-1150	55-72	0%	0-3	BL, JS	8*, 10*, 11, 12
	13-Mar-10	0645-1300	41-67	5-95%	0-1	JB	5
	14-Mar-10	0730-1200	41-73	0%	0	JB	6
	17-Mar-10	0710-0900	50-67	0%	0-3	BL	8*
Survey 2	22-Mar-10	0715-1200	45-73	5-95%	0-5	JS, ME, CD	2*, 3a, 3b,
	23-Mar-10	0700-1200	59-69	80-0%	0-3	BL, CD, JB, ME	1, 2*, 4, 5, 7
	24-Mar-10	0730-1200	46-72	0-5%	0-4	JS, CD	8*, 9, 13
	25-Mar-10	0700-1145	50-67	20-0%	0-5	BL, JB	6, 11*
	26-Mar-10	0730-1200	48-76	30-0%	2-6	JS, JB	10, 11*
	31-Mar-10	0745-1200	54-70	90%	1-6	JS, EC	8*, 12
Survey 3	6-Apr-10	0645-1200	39-74	0%	0-1	CD, ME	2, 3
	7-Apr-10	0645-1145	42-82	0%	0	CD, ME	4, 5
	8-Apr-10	0645-1150	40-72	0%	0-5	CD, ME	8*, 9
	10-Apr-10	0630-1200	56-69	100-20%	0-3	JB	6
	11-Apr-10	0630-1200	59-56	80-100%	0-6	JB	7
	14-Apr-10	0730-1200	48-76	90-20%	0-5	JS, CD	10, 11
	16-Apr-10	0700-1200	57-67	100%	0-1	JS, CD	1, 8*, 12, 13

LR= Linda Robb, CD= Crysta Dickson, JS=Jenni Snibbe, JR=Jim Rocks, BL=Brian Lohstroh, JB=Jason Berkley, ME=Marcus England, EC=Zeke Cooly (survey safety partner)
*Partial Survey Zone Completed

Table 2
Avian Species Detected
Gregory Canyon California Gnatcatchers Surveys 2010

Species Common Name	*Species Scientific Name*
turkey vulture	*Cathartes aura*
Canada goose	*Branta canadensis*
mallard	*Anas platyrhynchos*
osprey (WL)	*Pandion haliaetus*
white-tailed kite (FP)	*Elanus leucurus*
northern harrier (SSC)	*Circus cyaneus*
sharp-shinned hawk (WL)	*Accipiter striatus*
Cooper's hawk (WL)	*Accipiter cooperii*
red-shouldered hawk	*Buteo lineatus*
Swainson's Hawk (ST)	*Buteo swainsoni*

Table 2
Avian Species Detected (Continued)

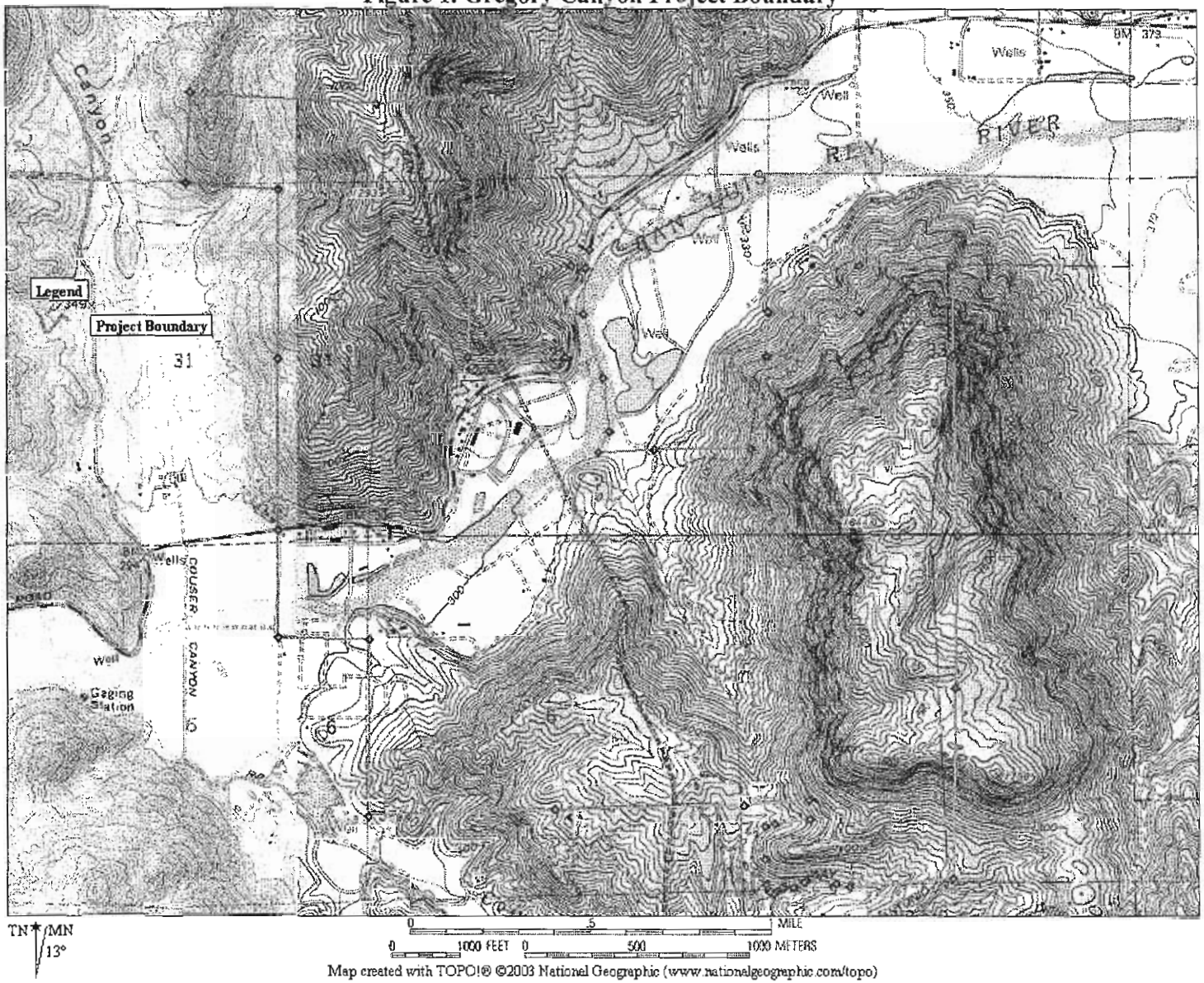
red-tailed hawk	*Buteo jamaicensis*
golden eagle (FP, WL)	*Aquila chrysaetos*
American kestrel	*Falco sparverius*
merlin (WL)	*Falco columbarius*
American peregrine falcon (SE, FP)	*Falco peregrinus anatum*
California quail	*Callipepla californica*
American coot	*Fulica americana*
mourning dove	*Zenaida macroura*
greater roadrunner	*Geococcyx californianus*
white-throated swift	*Aeronautes saxatalis*
Anna's hummingbird	*Calypte anna*
Costa's hummingbird	*Calypte costae*
Allen's hummingbird	*Selasphorus sasin*
Rufous hummingbird	*Selasphorus rufous*
belted kingfisher	*Ceryle alcyon*
acorn woodpecker	*Melanerpes formicivorus*
Nuttall's woodpecker	*Picoides nuttallii*
downy woodpecker	*Picoides pubescens*
northern flicker	*Colaptes auratus*
Pacific-slope flycatcher	*Empidonax difficilis*
Say's phoebe	*Sayornis saya*
black phoebe	*Sayornis nigricans*
Cassin's kingbird	*Tyrannus vociferans*
western kingbird	*Tyrannus verticalis*
Hutton's vireo	*Vireo huttoni*
gray vireo (SSC)	*Vireo vicinior*
warbling vireo	*Vireo gilvus*
western scrub-jay	*Aphelocoma californica*
American crow	*Corvus brachyrhynchos*
common raven	*Corvus corax*
phainopepla	*Phainopepla nitens*
cedar waxwing	*Bombycilla cedrorum*
western bluebird	*Sialia mexicana*
hermit thrush	*Catharus guttatus*
American robin	*Turdus migratorius*
northern mockingbird	*Mimus polyglottos*
California thrasher	*Toxostoma redivivum*
rock wren	*Salpinctes obsoletus*
canyon wren	*Catherpes mexicanus*
Bewick's wren	*Thryomanes bewickii*
house wren	*Troglodytes aedon*
blue-gray gnatcatcher	*Polioptila caerulea*
oak titmouse	*Baeolophus inornatus*

Table 2
Avian Species Detected (Continued)

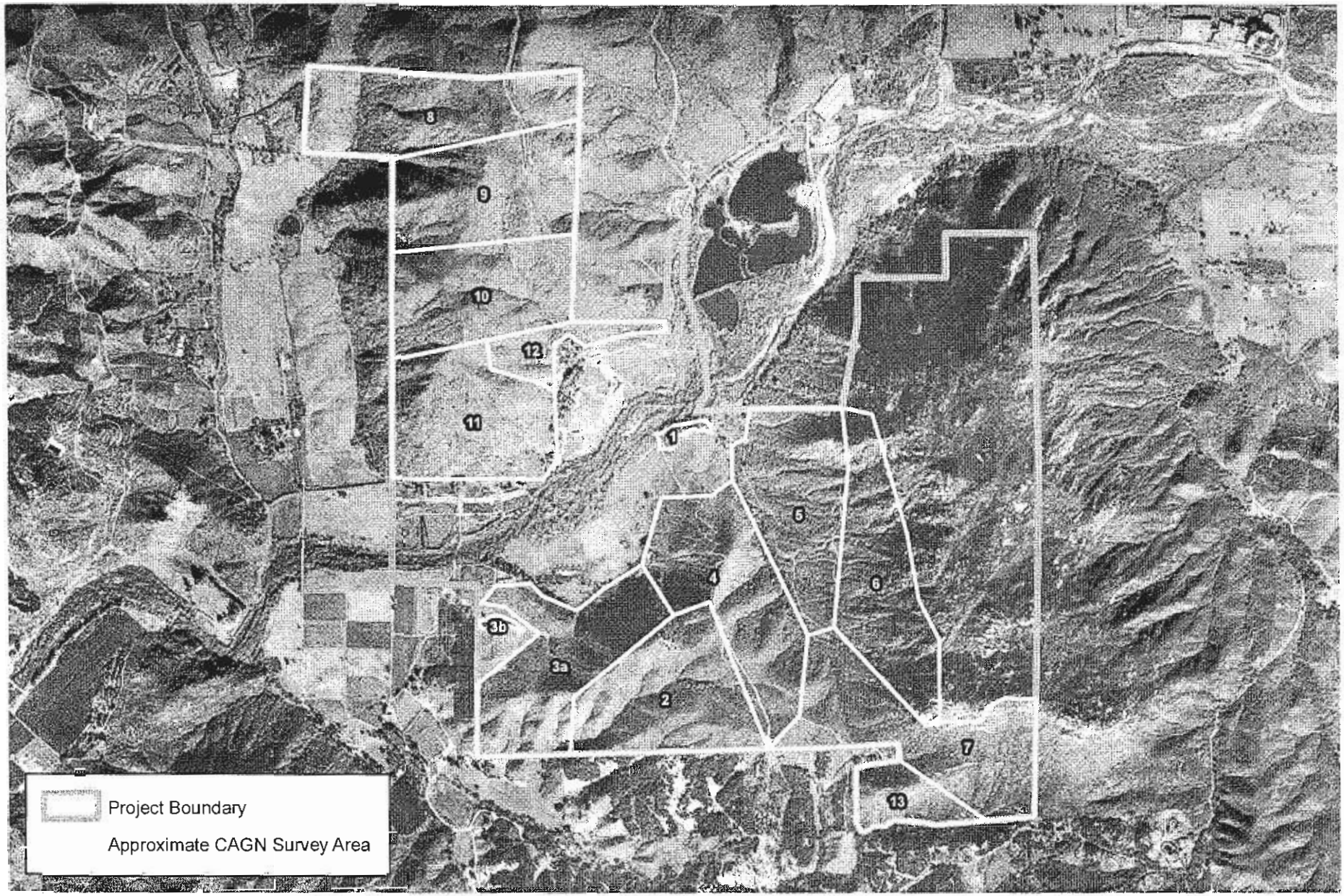
bushtit	*Psaltriparus minimus*
violet-green swallow	*Tachycineta thalassina*
northern rough-winged swallow	*Stelgidopteryx serripennis*
cliff swallow	*Petrochelidon pyrrhonota*
ruby-crowned kinglet	*Regulus calendula*
wrentit	*Chamaea fasciata*
American goldfinch	*Carduelis tristis*
lesser goldfinch	*Carduelis psaltria*
house finch	*Carpodacus mexicanus*
song sparrow	*Melospiza melodia*
Lincoln's sparrow	*Melospiza lincolnii*
white-crowned sparrow	*Zonotrichia leucophrys*
golden-crowned sparrow	*Zonotrichia atricapilla*
chipping sparrow	*Spizella passerina*
black-chinned sparrow	*Spizella atrogularis*
so. Cal. rufous-crowned sparrow (WL)	*Aimophila ruficeps canescens*
spotted towhee	*Pipilo maculatus*
California towhee	*Pipilo crissalis*
orange-crowned warbler	*Vermivora celata*
yellow-rumped warbler	*Dendroica coronata*
Nashville warbler	*Vermivora ruficapilla*
common yellowthroat	*Geothlypis trichas*
Wilson's warbler	*Wilsonia pusilla*
black-headed grosbeak	*Pheucticus melanocephalus*
lazuli bunting	*Passerina amoena*
hooded oriole	*Icterus cucullatus*
Bullock's oriole	*Icterus bullockii*
red-winged blackbird	*Agelaius phoeniceus*
western meadowlark	*Sturnella neglecta*

WL=California Watch List Species
FP=California Fully Protected Species
SSC=California Species of Special Concern
SE=California Listed as Endangered

Figure 1. Gregory Canyon Project Boundary



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



PCR

0 2,000 4,000 Feet

Survey Areas

Gregory Canyon

Source: Aerial Express, 2008; PCR Services Corporation, 2010.

FIGURE

2

Attachment 1
Surveyor Signature Page

We certify that the information contained in this survey report and attached exhibits fully and accurately represents our work.

Jason Berkley
TE-009015-3
Cereus Environmental

Crysta Dickson
TE-067347-3
PCR Services Corporation

Marcus England
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SJM BIOLOGICAL CONSULTANTS

General and Focused Biological Surveys
Endangered/Threatened Species Studies
Project Impact Analyses

29 December 1997 SJMBC.467

David Claycomb
Helix Environmental Planning
8100 La Mesa Blvd., Suite 290
La Mesa, CA 91941
(619) 462-1515

SUBJECT: Results of a field check for presence/absence/potential presence of the Stephens' kangaroo rat (*Dipodomys stephensi* - SKR) on the approximately 1800-acre Gregory Canyon Landfill Project Site, located in portions of Sections 29, 30, 31, 32, 33 in Township 9 South, and portions of Sections 4, 5 and 6, in Township 10 South, Range 2 West, on the Bonsall and Pala USGS 7.5' Quadrangles, in San Diego County, California (Figures 1 and 2). Portions of the property will be developed into a landfill.

Dear Mr. Claycomb:

Following are the results of a field survey to determine the presence/absence/potential presence of Stephens' kangaroo rats on the property described above.

SITE DESCRIPTION

The project site encompasses the low elevation floodplain of the San Luis Rey River and adjacent steeper lands to the north and south (Figures 1 and 2). Topography varies from level to steep. The level to gently sloping lowlands in the west-central portion of the site exhibit some potential for SKR. Remaining portions of the property are characterized by steep mountainous terrain, which is generally unsuitable for the species. Soils occurring in the lowland portions of the property include: riverwash (sands), Tujunga sand, different rocky and coarse sandy loams, and Visalia sandy loams (Bowman 1973). Of these soil types, the sandy loams are those most suitable for SKR.

Primary habitat/vegetation types on the property include disturbed annual grassland, riparian woodland and scrub, coastal sage scrub, chaparral, live oak woodland, agricultural and disturbed land, open water with or without freshwater marsh vegetation, and developed land (Figure 3). Much of the mountainous terrain on site is covered by dense (100%) coastal sage scrub and chaparral, with scattered pockets of live oak woodland. However, large sections of the steep slopes in the northern portion of the property were recently burned and presently exhibit open

Stephen J. Montgomery
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disturbed grassland. These areas are generally unsuitable for SKR, due to their steepness and dense scrub cover.

Low elevational portions of the site exhibit extensive areas of disturbed annual grassland, agricultural lands, and riparian or open sand habitats. Open agricultural lands include foraging, corral areas or pastures for dairy cattle, and cultivated and disced lands. Several lowland areas also are developed into residences and dairy farming operations that encompass barns, sheds and other buildings, as well as feed lots. The feed lots are heavily trampled and entirely devoid of vegetation, while the fenced pastures are either heavily trampled and exhibit minimal vegetative cover or exhibit dense disturbed annual grassland. The only habitat types exhibiting any potential for SKR include recently undisturbed annual grasslands, some of which are apparently cultivated, and possibly some of the less severely trampled agricultural lands. The higher sandy terraces at the edge of the San Luis Rey River are even less likely to harbor SKR. Recently undisturbed annual grasslands on the property, which very likely were cultivated some time in the past, are generally densely covered in deep (approx. 20cm or higher) grass that is entirely unsuitable for use by SKR. The main floodplain of the San Luis Rey River is regularly flooded during periods of winter rain, and is composed of deep sandy soils. Both of these conditions would exclude SKR.

In the lowland disturbed annual grasslands with some potential for SKR, dominant observed plant species include: filaree (*Erodium spp.*), mustard (*Hirschfeldia incana*), fiddleneck (*Amsinckia sp.*), dove weed (*Eremocarpus setigerus*), telegraph weed (*Heterotheca grandiflorum*), tar plant (*Hemizonia sp.*), sand aster (*Lessingia filaginifolia*), Russian thistle (*Salsola sp.*), and brome grasses (*Bromus spp.*). Those agricultural fields that do contain vegetation typically exhibit a sparse cover of largely trampled grasses and/or forbs.

Disturbances observed on the property are extensive and, in addition to those described above, include: paved and dirt roads, areas used for refuse dumping or abandoned equipment storage, paved pads used by the dairy farming operations, rip rap along the edges of the western reach of the San Luis Rey River channel within the property boundary, extensive fencing, power lines and poles, and graded and disced areas. Botta's pocket gophers (*Thomomys bottae*) and California ground squirrels (*Spermophilus beecheyi*) are common throughout the property.

The nearest known extant population of SKR occurs on the Fallbrook Naval Weapons Station, approximately 10 miles to the northwest. The nearest known historic SKR population occurred in Bonsall, approximately 4.5 miles to the southwest, to the south of the San Luis Rey River (see O'Farrell and Uptain 1989).

METHODS

The project site was visited on 26 December 1997. It was immediately determined that Stephens' kangaroo rats were only potential in the lowland portions of the site, due to the steepness and/or dense shrub cover of the steep mountainous terrain on site. All grasslands and agricultural lands in

the lowland sections of the site were inspected on foot for such diagnostic signs of kangaroo rats as burrows, fecal pellets, tracks, and dust bathing sites. Surrounding lands also were generally assessed for their suitability for SKR.

The field survey was conducted by S.J. Montgomery, a biologist permitted by the U.S. Fish and Wildlife Service and California Department of Fish and Game to trap and handle SKR.

RESULTS

Weather conditions during the field survey included clear skies, low wind speeds (1-3 mph), and air temperatures in the 60's (F).

As mentioned above, the initial site inspection confirmed that only the low elevational sections of the property have any potential for harboring SKR. Within the lowland area, the few extant patches of relatively low-density disturbed annual grassland exhibit the highest potential for the species. However, close inspection confirmed that kangaroo rats are not present in any of these habitat patches. Cultivated or other agricultural lands presently in use were found to be heavily trampled by cattle, or otherwise unsuitable for SKR, and are not occupied by kangaroo rats. The floodplain of the San Luis Rey River, which encompasses both the current sandy river bed and adjacent sandy terraces, was found to be unsuitable for SKR. Although signs of kangaroo rats were not observed in these floodplain habitats, the Pacific kangaroo rat (*D. agilis* - PKR) could occur in this habitat area at low densities; PKR not infrequently inhabit sandy stream terraces (S.J. Montgomery, personal observation).

Lands surrounding the property either definitely are or appear to be unoccupied by SKR. The steep mountainous terrain to the north, east and south is generally unsuitable for SKR, due to the steep topography and/or dense scrub/chaparral cover. The lowlands to the west and southwest are and long have been heavily cultivated and are either very likely or definitely not occupied by the species. The lowlands to the east encompass sandy riverwash soils that are heavily disturbed by a sand mining operation, or are covered in dense disturbed annual grassland or riparian vegetation; none of these habitats are suitable for SKR.

In summary, no kangaroo rat sign was detected in the lowland, potentially suitable, portions of the surveyed property. Thus, SKR are currently absent on the Gregory Canyon Landfill Project Site. Much of the habitat on the property is considered to have little or no potential for SKR, due to unsuitable habitat conditions, the historic and on-going intensive human disturbance, development and activity, and the distance to known areas of occupied SKR habitat. Thus, there is little to no potential for future colonization of the site by SKR.

Please contact me if you have any questions regarding the field survey or this assessment.

Sincerely,

Stephen J. Montgomery
Permitted SKR Biologist

Literature Cited

Bowman, R.H. 1973. Soil survey of the San Diego Area, California. U.S. Dept. Of Agric., Soil Conservation Service.

O'Farrell, M.J. and C. Uptain. 1989. Assessment of population and habitat status of the Stephens' kangaroo rat (*Dipodomys stephensi*). California Department of Fish and Game, Nongame Bird and Mammal Section Report (July 1989).

Gregory Mountain Golden Eagle Territory in San Diego County, California:

A Compilation of Historical Data

for

Army Corps of Engineers
Arizona Branch, Regulatory Division
3636 N. Central Avenue, Suite 900
Phoenix, AZ 85012-1936

by

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February 14, 2012

CONFIDENTIAL

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CONFIDENTIALITY STATEMENT

The Wildlife Research Institute, Inc. (WRI) cares deeply about the fate of the population of Golden Eagles in San Diego County. That is why this report is marked "Confidential." Documentation of this territory goes back to the 1930s and is part of a research database on Golden Eagles that includes the longest studied Golden Eagle population in the Western Hemisphere. The clear and compelling evidence is that man has caused a 56 percent reduction in this population since the 1800s. A reduction of over 40% has been documented in this population over the last 60 years and the rate has increased 3-fold in the last 15 years from 0.5% per year to 1.5% per year. (Bittner et al. 2011)

Golden Eagles are a top predator and survive today only by nesting in remote inaccessible places where they are subject to minimal human disturbance. Eagles often have to flee from humans if they are to survive. Around their nest sites, Golden Eagles are most sensitive to the presence of humans and will fly off the nest when approached from distances as far as half a mile. Therefore, releasing the enclosed information to the public or to persons who might use the information to visit the nests for climbing, photography, or curiosity could cause the nest to fail (see Background for justification).

Human disturbance is one of the main factors negatively affecting Golden Eagles. WRI offers this report with detailed information about Golden Eagles and their nest sites for the sole purpose of protecting remaining or potential breeding pairs from human-derived encroachment and development in and near this Golden Eagle territory. We hope and trust that the agencies that use and share this information will be sensitive to the confidential nature of the following data and work towards the common goal of protecting Golden Eagles near Gregory Mountain and elsewhere.

SUMMARY

The Golden Eagle is a meaningful umbrella species, which reflects the health of many other species that occupy the same territories but are harder to monitor. When we lose Golden Eagles, the reason is often that we are degrading the habitat to such a great extent that we are also affecting hundreds of other species.

Gregory Mountain territory has been monitored consistently by WRI since 1988. Historical records at Gregory Mountain date back to 1930, and WRI's records continue through 2011. Golden Eagle success in this territory is an exception to most others impeded by nearby land development and use by humans. A Golden Eagle tagged as a nestling in 1998 on San Miguel Mountain in San Diego County became part of the Gregory Mountain breeding pair 7 years later. Patagial markers on that bird confirmed its identity on Gregory Mountain when observed by biologists in 2005 (Photo 5). That nest site has been surprisingly productive albeit with high levels of human activity in the area, possibly indicating this breeding pair is acquiring a level of desensitization to human activity.

Generally, territory habitat changes have been dramatic over time, resulting in a 55 percent decrease in the San Diego County Golden Eagle population. The population has dropped from 104 breeding pairs in 1800 to 47 breeding pairs in 2011. Golden Eagles' behaviors and their ability to survive and produce young, factors that contribute to the overall success of the species itself, are being directly affected. In general, tolerance of human activity is not being adopted by the eagles, and the effects of the incompatibility are distinct. There is an inverse correlation between land development and Golden Eagle productivity, one that is not isolated to San Diego County or California. There also exists a positive correlation between available foraging area and the health & reproductive success of eagles, but note that foraging habitat is only a part of the contributing factors that encourage overall health of Golden Eagles. WRI research of Golden Eagles via satellite transmission indicates the constraining effects that human encroachment is having on Golden Eagles in their territories. Golden Eagle flight paths are distributed to areas void of human disturbance, areas which are becoming less and less available. Territories are becoming formally listed as extirpated and most commonly due to human impact within territorial or foraging boundaries. There is the possibility that gradual and strategically-timed introduction of human activity may potentially desensitize wildlife, namely Golden Eagles, conditioning them to tolerate disturbance much like the happenings at Gregory Mountain. However, ensuring that lands used by Golden Eagles for foraging and nesting remain unaltered is an effective way to avoid extirpation. This report is an attempt to recognize the historical significance of the Gregory Mountain Golden Eagle territory and its established breeding pair. Continued monitoring of the territory pre- and post-construction of Gregory Canyon Landfill is essential.

BACKGROUND

In 1987, a group of eight biologists gathered at the home of Dan Brimm, in La Jolla, to discuss the obvious decline of the Golden Eagle population in San Diego County. Tom Scott and John Oakley were among those eight. In subsequent years, after an initial survey of all the old known Golden Eagle nest sites to determine if they were extirpated or active, efforts turned to fully documenting the entire San Diego population. The Golden Eagle Project, co-directed by Dave Bittner and John Oakley, funded mainly by Dave Bittner, and maintained purely by volunteer efforts, became active in this effort in 1988 and in 1992 assumed full responsibility for the project. In 1996, the Wildlife Research Institute, Inc. became incorporated as a self-funded non-profit research institute and further expanded the Golden Eagle Project's study of the San Diego Golden Eagle population.

Beginning in 1989, as many as 50 volunteers have helped each year to document and band nesting pairs of Golden Eagles in San Diego and neighboring counties. Currently, WRI is using orange patagial tags with alpha-numeric identifiers (1997-2011), along with US Fish and Wildlife Service (USFWS) leg bands to mark the eagles. WRI began utilizing satellite and VHF telemetry technologies in 2005. During this 22 year period, WRI has tracked over 520 Golden Eagles to determine their home ranges, migrations, mortality and wanderings of the floater population. WRI has invested over 2.2 million dollars in internal funding, grants, and contracts to learn what we have about Golden Eagles.

WRI has gained extensive insight about behavioral adaptations exhibited by Golden Eagles. Senior biologist, Dave Bittner, has over 40 years of research experience with Golden Eagles. WRI staff has been studying San Diego's Golden Eagle population, including Gregory Mountain, for over 25 years. Thousands of hours of ground and aerial surveys allow WRI to anticipate certain circumstances from which outcomes can be extrapolated. Golden Eagles will return to their nests after people leave the area, but if it is cool weather or raining their return might be in vain because the eggs will have been chilled or the young will have died from exposure or predation, often by ravens. As a typical example, in 2010 a nest site being monitored that was designated as a non-climbing cliff by the US Forest Service was compromised when a group of recreational climbers on the cliff refused to come down when confronted by authorities. Because this occurred during incubation and the climbers remained on their ropes until after dark, the female Golden Eagle remained flushed from her eggs into the night. This single instance of disturbance caused the eggs to fail to hatch. Weather is not the only threat; nest predators, like the raven, stand ready to move in and steal the eggs or kill the young as soon as the attending adult eagle is flushed by human activity. Given the incredible investment of time and energy that is required to successfully produce even one young, this is a serious impact on the eagle population.

Furthermore, interpretation of data collected using seven years of satellite and VHF transmitter technology on over 160 Golden Eagles has provided WRI with information on the flight and nesting behavior of Golden Eagles of all ages, data which can be compared to the terrain, weather patterns, and areas of development. Data from these satellite transmitters have demonstrated a broad picture of flight patterns adopted by Golden Eagles that we can generalize at least throughout the local population. Several Golden Eagle pairs have changed territory usage as human development encroaches on their established territories. Golden Eagles in the Gregory Mountain territory have not been equipped with satellite transmitter backpacks, but several VHF transmitters were placed on young Golden Eagles from the

Gregory Mountain pair. Data from field observations and historic egg collections (Dixon 1937*)* also help us estimate their productivity (ability to produce young) and activity within their territory. Included in James Dixon's 40 years of studies is the Gregory Mountain Golden Eagle territory, The data from his 41 years in the early 1900s have allowed WRI biologists to accurately determine the decline in the breeding Golden Eagle population of Northwestern San Diego County.

According to the USFWS Interim Golden Eagle Guidance (Pagel et al. 2010), to be finalized in 2012, all nest sites within a breeding territory are deemed occupied while raptors are demonstrating pair bonding activities and developing affinity to a given area. A Golden Eagle territory may be determined to be "active" (or more specifically "occupied") for the current breeding season if either of the following observations is made: (1) one or both of a Golden Eagle pair is explicitly observed demonstrating pair bonding activity, such as nest building or courtship behavior (active with confirmed occupancy) or (2) if *evidence* of pair bonding activities is observed, such as observing a decorated nest, (active with implied occupancy). A Golden Eagle territory is determined to be inactive if occupancy or breeding cannot be confirmed. This occurs if no Golden Eagle pair bonding or evidence of nest building is observed for the current breeding season during the surveys. Golden Eagles sometimes take a year or two off from breeding and may still be living in the territory even in the absence of breeding. Inactive territories may become active again. WRI protocol requires that five years pass from the last recorded breeding and/or sighting of the pair or single eagle on the territory, in order to make the determination of "extirpated." Two examples of why we wait for at least five years is one, Iron Mountain nesting pair in San Diego, CA, which hadn't successfully raised a single young in 11 years (1997-2008) due to constant human disturbance by climbers and hikers during breeding season. Eagles still remained on the territory and in 2008 began to breed again. This may have been as a result of fires opening up additional foraging habitat which supported reproduction, but coincided more directly with climbing restrictions in the area. In this case, Iron Mountain's eagle pair had to rely on a change in habitat and a change in human behavior to compensate for imposed human disturbance. Second is Lyons Peak, also in San Diego County, which was listed as extirpated in 2005 and became active in 2007 when the Dulzura pair subsumed the Lyons Peak nest and foraging area. This shift to Lyons Peak was a result of continuous disturbance by illegal immigrants within the core nesting territory at Dulzura and the loss of a breeding bird due to electrocution. The net result is a reactivation of one territory and the loss of another.

WRI's research of San Diego County's Golden Eagles includes present-day analysis of data collected historically. This data is subsequently compiled with research formally performed by WRI for the most comprehensive dataset available for Golden Eagles in San Diego County, including the territory on Gregory Mountain. This territory's historical name was different among Oologists (egg collectors) of the 1930s, referred to as "Cosy Nook" by J.B. Dixon or "Pala Mountain" by R. Quigley. The core nest site of this territory varied over time, and is currently occupied by a breeding pair showing relatively consistent productivity for a nest immediately adjacent to high levels of human activity and land development.

OBJECTIVES

Objectives of WRI's Long-Term Study of Golden Eagles

1. To document past and present Golden Eagle nests and their territories.
2. To provide documentation on the primary foraging areas, which may be critical to the success of future Golden Eagle pairs.
3. To monitor over succeeding years the use of nesting territories, cliffs, trees, etc., that may be central to the nesting territory and its success.
4. To monitor and document the pairs of Golden Eagles, their life history, and other data which may help evaluate the future success or lack thereof for the species in San Diego County and environs.
5. To track, with bands and telemetry, as many Golden Eagles as possible to determine movements, migration, pair exchanges and feeding areas for each pair.
6. To provide baseline data for city, county, state, federal and private land planners to help evaluate the merit of construction permitting in certain areas.
7. To provide statements of facts that will assist in mitigating land development, which might destroy nesting territories in the future.
8. To document the level of adaptation of Golden Eagles to human encroachment so that eagles can be saved before the entire or a significant portion of the population of Golden Eagles in San Diego County is extirpated.
9. To determine, by regular documentation, the fledging success of Golden Eagles over time and the varying weather conditions that affect that success.
10. To determine Golden Eagle nesting history by documenting chronological information for extended time periods.
11. To determine the effects of major fires on the Golden Eagle; both short and long term.

Objectives of This Report

1. To provide information necessary for understanding the history of the Gregory Mountain Golden Eagle territory.
2. To illustrate the variability in productivity of the Gregory Mountain territory over time.
3. To provide a statement of facts that can be used to identify impacts and mitigation strategies to better manage the Golden Eagle pair at Gregory Mountain territory.

METHODS

WRI has an established team of Golden Eagle Biologists and volunteer observers that have been active since 1988. Historic information for Temecula Gorge and Rainbow territories dates back to 1931 and comes from a compilation of museum records made by Oologists who collected and traded eggs, dating back to 1931. Historical data was collected from the Western Museum of Vertebrate Zoology, Los Angeles, California, University researchers and educators with an interest in eagles, egg collectors and their helpers still living, and WRI's ongoing Golden Eagle studies. Contributors on record from private collections pertaining to the territories in question include early egg collectors J. B. Dixon and Raymond Quigley (both deceased). Additionally, several young assistants who worked for egg collectors and did the climbing into the nests were interviewed about their personal accounts of the collections and nest sites. Most of the personal interviews were about eggs and nests collected in the 1920s-1940s. John Oakley met and spoke with J. B. Dixon, a well-known egg collector, who collected eggs from 1895-1936, and also spoke with and befriended several of his young assistants. John Oakley, Professor Emeritus, started studying Golden Eagles in San Diego County in the 1930s and has been associated with WRI's Golden Eagle research efforts since 1988.

Ground observations of the Gregory Mountain Golden Eagle territory from 1988 to 2011 were also utilized. Field surveys were conducted from December through May of each year. Ground observers used binoculars and 20x60 zoom scopes to make observations. WRI's protocol disallows making ground observations that require approaching a Golden Eagle nest any closer than ½ mile during incubation or during the first four weeks after hatching. All eagle bandings occurs after the eagles are 4 weeks of age and before 8 weeks.

Starting in 1996, WRI has used helicopters in addition to ground surveys to determine the productivity of the Golden Eagles in California. Our methods have been adopted by the US Fish and Wildlife Service and integrated into the 2009 Golden Eagle interim guidelines for surveys. WRI utilizes aerial survey opportunities via helicopter and pays out-of-pocket to add onto contracted routes in an effort to obtain information via aerial surveys on territories that exist but are not part of a specific project outline. WRI uses Hughes 500 helicopters for these surveys because they are small and stable. Their stability allows a close approach (to within a couple hundred feet) thereby making counts of young or eggs possible using stabilizing binoculars and cameras equipped with long-focal-length lenses.

In over 600 Golden Eagle nests we have checked with a helicopter, we have flushed only one adult eagle off young and never off eggs. However, that particular eagle with 4-week old young in its nest may not have flown as a result of the helicopter, but may have coincidentally been ready to depart as we approached. The eagles will stand or sit in the nest and defy the helicopter observers to come closer. We have actually observed adult eagles flying under the hovering helicopter and landing on their nest while we take pictures of the young. Similar results with helicopters have been documented at over 500 nest visits by other Golden Eagle researchers like Carol McIntyre (in Alaska) and Mike Kochert (in Idaho), and has been documented in a recent study (Grubb 2010). In contrast, a person on foot will flush the same eagles at 1/2 mile. In 2011, WRI documented 24 helicopter flights within 30 minutes immediately above a perched Golden Eagle within 300 feet of its nest. The eagle only took brief glances in the direction of the helicopters as they first appeared in its field of vision then immediately resumed looking about its territory.

Using helicopters allows nest site areas to be checked efficiently and allows our biologists a unique vantage point from which new nests may be located that would most likely be missed from a ground position. Furthermore, due to the unobstructed view down into the nests, we can document the age and number of young that facilitates the scheduling of subsequent banding and helps document nesting success. Twenty to thirty territories can be surveyed in a day from a helicopter; while a comparable survey via ground observation would take a month or more.

Ground observers complete the picture by spending more time observing in a territory to gain information about the feeding areas and habits of the individual pairs. This allows us to infer what types of activities could disrupt the incubation and/or disturb the adults. Ground observations highlight behaviors otherwise missed during the short duration of an aerial survey of a single nest. Usually, WRI observers will spend an hour or more in each territory on each visit. Commonly, our observers will visit a nest area once a week until they can confirm incubation (and later hatching and fledging).

WRI spends a great deal of effort training volunteers and new biologists extensively, as identifying Golden Eagles is not an innate or common skill. This is accomplished by taking each individual into the field with one or more of our experienced Eagle Biologists numerous times during their first year. Most new WRI biologists also undergo an intensive 4-week training regimen during Golden Eagle migration in Montana. All WRI Golden Eagle volunteers sign a non-disclosure agreement that binds them to not reveal any of the information they obtain from our work. This is to protect the information and prevent disturbance of Golden Eagle nest sites. Without this non-disclosure, acquaintances of volunteers who may learn of nest site locations may accidentally cause nest site disturbance resulting in loss of eggs or young.

DATA

Table 1: Historic Golden Eagle Record of Gregory Mountain Territory in San Diego County, California

Date	Time	Observer	# of Young	# of Adults Observed	Nest Note	Notes
1930 Mar 01	-	J. B. Dixon	2 eggs	-	large granite boulder pile side of rocky mountainside (old nest)	-
1936	-	Dixon, J. Oakley	-	-	-	nest located by Dixon, although he knew of pair much earlier
1937	-	J. Oakley	-	-	-	on territory
1978-1982		Dr. Tom Scott	-	-		data collected, not immediately available
1974	-	J. Oakley	2	-		fledged young
1975	-	J. Oakley	-	-	-	on territory
1975 Jan 19	-	-	-	-	cliff nest	old Peregrine falcon site and now Golden Eagle nest here where Dixon took a number of duck hawk [egg] sets. Ed Harrison got to take a set in 1934.
1978	-	J. Oakley	-	-	-	on territory
1979	-	J. Oakley	-	-	-	on territory
1980	-	J. Oakley	1	-	-	-
1982	-	J. Oakley	-	-	-	on territory
1983	-	J. Oakley	-	-	-	on territory
1984	-	J. Oakley	2	-	-	fledged young
1985	-	J. Oakley	-	-	-	on territory
1988	-	J. Oakley	-	-	-	on territory
1989	-	-	2	-	-	-
1990	-	-	1	-	-	banded by Pete Bloom
1991	-	-	2	-	cliff nest	-
1991	-	J.D. Bittner for Helix	-	1+	-	observed in Gregory Canyon landfill project area; report of species observed
1993	-	J.D. Bittner and J. Oakley	1	-	-	-
1995	-	J.D. Bittner and J. Oakley	1	-	-	-
1996	-	J.D. Bittner and J. Oakley	1	-	-	-
1997	-	J.D. Bittner and J. Oakley	1	-	-	-

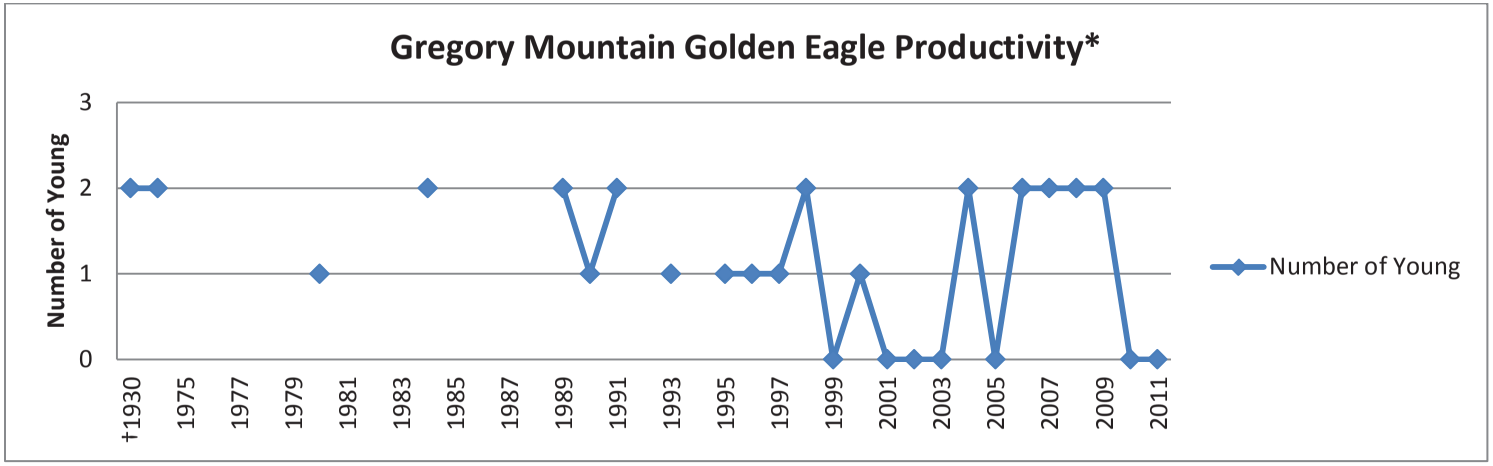
Date	Time	Observer	# of Young	# of Adults Observed	Nest Note	Notes
1997 Feb 14	1400-1530	J. Oakley	-	2	landed at several locations on big cliff	good wind- lots of flying and landing on cliff nest side of mtn. above San Luis Rey River
1997 Feb 25	-	Tom Scott	-	2	adult on lower cliff nest	eagle in nest in an incubating position- 2nd adult flying in cliff area
1997 Apr 16	1530	J. Oakley	-	2	adult on nest- big cliff	adult flew back and forth over nest to land on rock.
1997 Apr 23	1530	J. Oakley	-	1	adult standing toward front of nest	Adult moving around. Have to be breeding
1997 Apr 30	-	J. D. Bittner	1	1	[redacted]	F stayed on nest. Photos taken
1997 Jun 10	1615	J. Oakley	0	-	-	nest vacant. Young eagle probably fledged
1998	-	J. D. Bittner for Helix	-	1+	-	observed in Gregory Canyon landfill project area; report of species observed
1998	-	J.D. Bittner, J. Oakley	2	-	-	-
Spring 1998	-	J.D. Bittner for Helix	2	2	-	on nest
1998 May 12	-	J. D. Bittner	2	-	-	banded and tagged
1998 Nov 30	-	J.D. Bittner	-	2	-	on electric pole N side of Pala Rd above old dairy farm on RT 76. on bird on highest centermost point and other on lowest wire attachment to right.
1998 Dec 19	1010	J.D. Bittner and L. Bittner	1	2	-	flew back and forth, E<-->W. On a pole 100m N of Pala Rd. Flew to hill and hunted, young eventually followed
1999	-	J.D. Bittner, J. Oakley	0	-	-	-
1999 Mar 21	1045-1145	J. Oakley, Kathy Aldern and husband	-	2	-	flying all over. both adults flew, soared, perched on rocks. No attempt to go to a nest
2000	-	J.D. Bittner, J. Oakley	1	-	-	-
2000 Feb 04	1300-1400	Seals	-	1	-	westward flight. located two nests. Lone eagle soars over nest then heads west to the foraging grounds
2000 May 21	-	J.D. Bittner	1	-	-	banded and tagged
2001	-	J.D. Bittner, J. Oakley	0	-	-	-

Date	Time	Observer	# of Young	# of Adults Observed	Nest Note	Notes
2001 Feb 22	1245-1315	J. Oakley	-	2	2000 nest on cliff. Both on nest at same time	one adult soaring w/ long stick. Dropped it and caught it in the air several times. Both soared together. One adult, probably female was arranging nest material
2001 Mar 22	1130-1140	J.D. Bittner	0	-	new nest material on nest- no sign of eagle	-
2002 Jan 17	1215-1300	J. Oakley	-	1	-	single adult perched on top of power pole where road ends
2002 Jan 30	-	Marryanne Bache and Kathy Aldern	-	2	phone call to Marryanne Bache	both adults perched in oak tree west of cliff nest. No other activity on this visit
2002 Mar 22	1300-1330	J. Oakley	-	2	no attention paid to cliff nest site; both adults	east and west flight. both adults soaring above ridge and along cliff. No seeming interest in nest. May not be breeding.
2003 Mar 18	1600	J. Oakley	-	2	-	Male perched on telephone pole by dairy. Female flew from hunting area to perch on top of nest cliff
2004 May 01	-	J.D. Bittner	2	-	-	banded and tagged
2005	-	J. D. Bittner	-	1	-	Tag B-03 documented on female in territory by helicopter
2005	-	J. Oakley	0	-	-	on territory, no known breeding attempt
2006	-	J. Oakley	-	-	-	on territory
2006 Apr 06	-	J. D. Bittner	-	1	-	incubating on territory
2006 May 20	-	J.D. Bittner	2	-	-	banded and tagged, 6.5 weeks old
2007 May 20	-	J.D. Bittner	2	-	-	banded and tagged, 6.5-7 weeks old
2008 May 10	-	J.D. Bittner	2	1	-	banded and tagged, 5-6 weeks old; adult observed in nest or on territory
2009	-	J.D. Bittner	2	1	-	helicopter survey, adult observed in nest or on territory
2010	-	J.D. Bittner	0	-	-	-
2011	-	J.D. Bittner	0	-	-	no chicks
2011 Mar 30	-	J. D. Bittner	-	1	decorated	aerial survey; SW facing, good condition, rock substrate at 1293ft

Table 2. Gregory Mountain Banding and Tagging Information.

Date	# of Young	# Female	# Male	Age (weeks)	Patagial Tag (Alphanumeric)	Band# (Sex or Foot Size*)	VHF frequency
1998 May 12	2	1	1	-	A09 A10	629-42809(F) 629-42810(M?)	-
2000 May 21	1	1	0	-	C03	629-42835	-
2004 May 01	2	1	1	-	C43 C44	629-46119(5.25", M) 629-46118(4.75", M)	-
2006 May 20	2	-	-	6.5	C74	629-30629(5", M)	-
2007 May 20	2	-	1	6.5-7	E16 E17	629-46154(5", M) 629-46155(4.75", M)	016/162.334 030/162.884
2008 May 10	2	0	2	5-6	E46 E47	629-46158(5.2", M) 629-46159(4.8", M)	162.692

Figure 1. Gregory Mountain Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1930-2011).



* Data only included for confirmed numbers of young; confirmation unavailable for years showing gaps in data
† 1930 data represents number of eggs collected from nest

Table 3. Frequency of Confirmed Number of Golden Eagle Young Produced at Gregory Mountain (1930-2011).

Number of Young in a Year	Frequency of Number of Young
0	7
1	7
2	11
Total	**25**

Figure 2. Approximated territory outline based on visual observations from ground.

Figure 3. Gregory Mountain Golden Eagle Nest Sites, 1930-2011.

DISCUSSION

The Gregory Mountain territory has been observed by WRI via helicopter survey consistently since 1999 and annually by ground survey since 1988. WRI ground and helicopter data currently classify this territory as active. The current core nest area on Gregory Mountain is [redacted] (Figure 3. Gregory Mountain Golden Eagle Nest Sites, 1930-2011.). The currently active Gregory Mountain Golden Eagle cliff nest is located at [redacted] and at approximately [redacted] feet in elevation. The [redacted] today is in a location different than historical nests; multiple other nests may have been used over years where observation records are limited. However, the core nest area has remained the same with all known breeding taking place on [redacted] Gregory Mountain whether in a tree nest or cliff nest (Figure 3. Gregory Mountain Golden Eagle Nest Sites, 1930-2011.).

Productivity in this territory is relatively consistent and high considering the amount of human and industry activity in and around Gregory Mountain. Neighboring territories, however, have become extirpated. Golden Eagles in the Gregory Mountain territory have accepted the equipment, traffic or trucks, loaders, and excavating cranes that are constantly operating. The eagles have continued breeding regardless of the surrounding activity for the past 22 years [redacted] (J.D. Bittner, pers. comm., 2011). We have still seen recent years with zero productivity (Table 1: Historic Golden Eagle Record of Gregory Mountain Territory in San Diego County, California; Figure 1. Gregory Mountain Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1930-2011).), but the fact that these eagles are still on territory and breeding at all reflects the slow introduction of the said nearby human activity. The female Golden Eagle of the Gregory Mountain breeding pair is one who was tagged and banded by J.D. Bittner and WRI in 1998 on San Miguel Mountain (Photo 5). The eagle was equipped with patagial markers displaying a unique alphanumeric code, "B-03," which were observed and photographed on the eagle while flying on Gregory Mountain seven years after her initial tagging, confirming the eagle's identity (Photo 5).

WRI has not conducted a detailed study of the everyday activity of the adult pair nor have we tracked the young with satellite telemetry. Therefore, what we know of the pair's territory is from direct observation of foraging activity over many years. While all of our observations are accurate, they are also limited because the eagles may venture well beyond visual sight distance and have a much larger territory or other important foraging areas not currently documented. Further study is needed and recommended to truly be able to predict the full impact of the Gregory Canyon Landfill on these Golden Eagles. These studies should begin immediately so that full documentation can be made prior to and after development of the landfill.

Potential Impacts from Construction of Gregory Canyon Landfill

Gregory Canyon Landfill project proponents propose to keep intact a significant amount of open space (approximately 1,600 acres) that is an important part of the foraging habitat used by the Gregory Mountain Golden Eagles. This is a critical first step. If development in the area continues at the current rate, then the surrounding habitat that is not a part of the preserve will

probably change significantly based on historical development in the area. This will make the preserve even more important for the eagles than it would be today. The proposed preserve is 2.6 square miles, whereas the entire territory of a Golden Eagle is 20-25 square miles (25 years of unpublished WRI data, Dave Bittner). It is possible that with this open space preserved during construction, the Golden Eagles could survive on Gregory Mountain as a breeding pair beyond the life of the landfill project because open land for foraging will not be completely unavailable. Furthermore, the open space must also be protected and not opened to public recreation or other activities mostly because eagles will not use the same land that humans are frequenting. Ignoring extracurricular use of these lands would negatively impact the ability of the Golden Eagles to forage, thus limiting their productivity or even survival. The protection and preservation of this open space during construction along with proper management of the land is essential to the success of the pair.

Most of the concern and monitoring effort should be placed in the first three years of the construction and operation of the land fill. This is when the eagles will be encountering new events, disturbance and noise in their territory. New sounds and events that might startle the eagles during incubation should be appropriately planned for if not avoided. Even a single significant event during the Golden Eagle incubation period, February through March, could cause the loss of breeding for the entire year. Doing new or noisy projects in the off-season or after incubation will aid in breeding success each year. Once the young are hatched, the bond to attend to the young will keep the adult eagles close and near the nest thus preventing desertion, except in the most extreme cases. This pair successfully tolerated years of activity gravel quarry below the nest cliffs. They learned how to use the ponded water as a hunting area for ducks and were often seen perched on cranes and other man-made objects on the site. We would expect the same behavior to occur at the landfill if the proper precautions are taken.

Potential Effects from Long-Term Operation of Gregory Canyon Landfill

Due to WRI's longest-running study of Golden Eagles in the Western Hemisphere, San Diego County has a well-documented history. A reduction of over 40% has been documented in this population over the last 60 years and the rate has increased 3-fold in the last 15 years from 0.5% per year to 1.5% per year. (Bittner et al. 2011) Most of these eagle losses have occurred in the western portion of San Diego County; Gregory Canyon is currently one of the western-most surviving nesting pairs. The only other two pairs nesting further west are both on Camp Pendleton Marine Base. According to current development plans and trends in San Diego County, we can deduce that a continued adverse effect on this regional population of protected eagles will occur. Studying and doing everything we can to protect this Gregory Mountain Golden Eagle pair while we move ahead to develop and operate this landfill will give developers, agencies and biologists a template to develop and work toward future management plans to protect other similar eagle pairs with large scale development in their territories.

The landfill will have control of regulating access to the [redacted] and will be able to shut off public hiking and climbing on the [redacted] mountain, activities which have historically been

destructive to Golden Eagle breeding. This alone protects the eagles from the worst impact of all: human access and encroachment on the nesting area. Human disturbance near the nest [redacted] has been documented to be the most serious reason for nest abandonment and failure in San Diego County (Scott 1985). This can result in flushing the female from the nest causing eggs to chill or making them available to ravens flying in and eating the eggs or small young while the adult is away. Extensive disturbance over time and especially early in the nesting cycle can also prevent the female from building a nest or laying eggs in the first place.

The eagles are predicted to continue to be habituated to the everyday activities such as truck, equipment and traffic noise during operation. Similar to appropriate timing of loud or significant events during construction, there should be awareness during the entire life of operation of the landfill to avoid any noises that may distract or deter the Gregory Mountain Golden Eagles from successful breeding February through March.

This species is the most visible and most likely species on site to be impacted by the landfill project development and probably the only species with only a single pair present. Annual monitoring will be essential to properly evaluate the long-term impacts of the project on this pair of Golden Eagles. The new US Fish and Wildlife Service guidelines for monitoring (Pagel et al. 2010) should be used and followed to comply with current concerns by USFWS on the effects of new projects on Golden Eagle populations and possible take.

This is a unique opportunity to assess the long-term survival of a well-studied pair of Golden Eagles living on the edge of human habitat and development. WRI has a long historical study on this pair dating back to 1988 along with other reported history from James Dixon's egg collection dating back to 1936. Knowing the baseline of success of this pair and continued observations will allow a complete documentation of the landfill's effects on the pair. No amount of speculation as of 2012 can guarantee whether the landfill in its 25-30 years of operation will have a significant or negative impact on the Golden Eagles' future use of the area. However, the alternative development of homes, avocado groves or other high-density land uses make the landfill and its associated protected lands look like the least impactful of the many alternatives that have been suggested. All other anticipated land use will be more detrimental to the future of the Golden Eagles nesting on Gregory Mountain. With over 175 years of accumulated research on Golden Eagles, we have concluded that with proper precautions and good management, the best chance for the long-term survival of the Gregory Mountain Golden Eagles is to preserve open habitat and develop the landfill.

PHOTOGRAPHS

Photo 1. Adult Golden Eagle carrying stick to live oak tree nest with 2 eaglets less than 5 weeks old. Photo taken by J. Oakley near Pala Mountain on April 9, 1974.

Photo 2. Adult Golden Eagle and 2 eaglets with ground squirrel prey item in live oak tree nest. Photo taken by J. Oakley near Pala Mountain on April 9, 1974.

Photo 3. Adult with 2 eaglets approximately 8 weeks old and prey item in live oak tree nest. Photo taken by John Oakley near Pala Mountain on April 28, 1974.

Photo 4. Immature and adult Golden Eagles in flight. Photo taken by Ray Quigley at territory in August 1974; territory named "Cosy Nook" at that time.

Photo 5. Golden Eagle "B-03" tagged on San Miguel Mountain in 1998 (Top) and flying 7 years later on Gregory Mountain, 2005 (Bottom).

Photo 6. Adult female Golden Eagle "B-03" on Gregory Mountain nest with new material in 2006.

Photo 7. Adult female Golden Eagle "B-03" incubating on Gregory Mountain nest in 2006. Two chicks hatched that year, tagged and banded by J.D. Bittner, WRI.

Photo 8. Adult female Golden Eagle "B-03" with 2 chicks on Gregory Mountain nest in 2007.

Photo 9. Gregory Mountain cliff nest active but not productive, decorated with new material in 2011. Observed via aerial survey March 30, 2011.

Photo 10. Adult male Golden Eagle flying near active Gregory Mountain cliff nest. Taken via aerial survey March 30, 2011.

PRECAUTIONS FOR FUTURE SURVEYS

Golden Eagles are very bold in their courtship. In early December thru January, they will exhibit aerial displays and can be heard calling to each other. However, these displays may take place several miles from the nesting area. Most good field biologists that spend time in Golden Eagle country will be able to observe eagles soaring or even hunting. Interpreting what is seen and translating that into nesting data, such as where the nest is, whether they are incubating, whether they have hatched young, or what the fledging success of a pair is, is much more complicated.

Around the nest site, adult Golden Eagles are very secretive and quiet until after the young are several weeks old. The young eagles will become vocal if they are hungry and, after four weeks, the adult female will leave the young for extended periods of time to help the male hunt. When the young in the nest see the adults with prey in their talons they will begin to food-beg until the adult brings the food to the nest. This vocalization has, on some occasions, been the *only* mechanism available to locate nests hidden from view.

Normally, the adults will approach the nest with great caution so as not to reveal where the nest is. They will follow the terrain (where they literally disappear against the background) and then drop into the nest at the last second, easily unnoticed. The male will drop food and then immediately depart; appearing to not even have stopped if viewed from a long distance. The female does all of the feeding of the young so the male spends very little time on or at the nest and helps incubate for only short periods of time. During incubation the male will land on the nest and the incubating female will immediately depart. Therefore, the entrance of one eagle to the nest is quickly accompanied by the departure of another leaving. This can cause a casual or inexperienced observer to believe they are seeing the same eagle still soaring along the mountainside. Golden Eagles are very observant and if there is a person or vehicle in the area that they are not accustomed to seeing, they will avoid approaching the nest altogether. However, if the local rancher is out in the same truck that the eagles see every day they may fly right by his truck to hunt. Males will notify an incubating female of approaching people either by vocalization or visual signals and both will depart from the area, leaving the young or eggs exposed. Frequently, climbers do not even know they are climbing near a Golden Eagle cliff nest, though the results are the same.

Another difficulty with monitoring Golden Eagles is that an adult pair may live in a territory for years, even after all reproduction has stopped due to human-caused stress factors. Unless someone qualified is monitoring their reproduction cycle annually, the Golden Eagles could be heading for extirpation while untrained biologists are still seeing eagles and reporting that "we see them all the time so they must be OK." This species is sometimes difficult and time consuming to study and, like any species, requires specially trained people to do so. It is worth the effort, because using the Golden Eagle as an umbrella species allows other species monitoring to occur less often. The presence of successful nesting Golden Eagles almost always means that the local ecosystem is intact and functioning, thus making the Golden Eagle a great indicator species.

Using biologists who are not well trained in Golden Eagle biology and fieldwork to monitor Golden Eagles, will yield very erroneous results. Because nesting eagles are sometimes initially difficult to find and monitor, maintaining an annual survey assures continuity and accuracy. Surveys that are done every

three years, on the other hand, will require each survey team to start from square one. A lot can happen and change in three years. In addition, Golden Eagles may not nest every year, giving additional opportunity to misinterpret observations.

Biologists are not born with the ability to study Golden Eagles. Golden Eagles, like many large predators, are unique to study because they find the most remote areas in which to nest and they are surprisingly secretive around the nest area. Golden Eagle territories may be more than 30 square miles in good habitat and over 100 square miles in poor habitat. Unless it's a fortunate discovery, a person is far more likely to be several miles from the nest area when they see an eagle. Many people who live close to eagle nests are often not even aware that they have Golden Eagles nesting nearby. Monitoring an entire population of Golden Eagles then becomes a compounded problem of time, skill, and luck since the annual window of observation time is limited to several months a year.

Habitat changes prompt Golden Eagles to expend increased amounts of energy in an effort to survive. There are fewer eagles with larger territories to accommodate developmental infringements. Although the eagles at Gregory Mountain are seemingly adapted to the nearby and constant activity, further intensive studies are recommended by WRI; a 2012 formal survey should be conducted beginning January 2012 to gain a clear picture of what is happening in this territory as a pre-study to document activity prior to construction of the landfill and as long as operation of the landfill exists near Gregory Mountain.

ACKNOWLEDGEMENTS

Many individuals, including those egg collectors like Dixon, who contributed their egg collections and notes to research institutions, helped make this project a success. Historical data was kindly shared by the Western Museum of Vertebrate Zoology, Los Angeles, California, university researchers, and educators with an interest in eagles, egg collectors and their helpers still living and other WRI Golden Eagle studies. Contributors on record for our comprehensive report of Golden Eagle history from private collections include early egg collectors J. B. Dixon, A.M. Ingersoll, Harry L. Heaton, Raymond Quigley, E.E. SeChrist, Maurice Burns, N. K. and B.P. Carpenter, and Ed N. Harrison.

In addition to current WRI observers, the following observers and contributors deserve special recognition for their recent efforts:

John Oakley, John gave graciously of his time, field experience and money for over 40 years to help us and others learn about the San Diego County Golden Eagles

Mary Anne Bache, Mary Anne provided observations at several nest sites including Gregory Mountain.

Jeff Wells, US Forest Service Biologist and WRI Research Associate and Board Member. Jeff makes regular observations at Gregory Mountain and has helped document several new nest sites for at least three other pairs of eagles.

Dr. Tom Scott, Professor, UC Riverside. Tom conducted research on Golden Eagles in San Diego County from 1978-1982 for a Masters' Thesis. Tom has continued to help on this project and is on WRI's Board of Advisors.

We would also like to thank all the kind people who allowed us access to their property or provided keys to their locked gates so that we could drive instead of walk all those miles. Since "time" is our most valuable commodity during breeding season surveys, every saved step contributes to the success of a project like this one. The Bureau of Land Management, California State Parks, City of San Diego Water District, US Fish and Wildlife Refuges, Miramar Marine Air Station, Camp Pendleton, San Diego Parks and Recreation Department, and many private ranchers helped by allowing access to their lands for these surveys.

Without the help of the above individuals and organizations, and at least 100 other volunteers, who for over 22 years have helped WRI gather the data necessary to present this report, we could not have presented so much information or as complete a report. To them we extend a very special "Thank you."

WRI, through its members and private donations contributed over $1,450,000 and thousands of volunteer hours, toward the gathering of the data used in this report. Without their contributions, this project could not have been undertaken.

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DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
PO BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF:

February 13, 2012

Office of the Chief
Regulatory Division

Mr. Jim Simmons
Consultants Collaborative Incorporated
160 Industrial Street, Suite 200
San Marcos, CA 92078

SUBJECT: Approved Jurisdictional Determination regarding presence/absence of geographic jurisdiction

Dear Mr. Simmons:

Reference is made to your approved jurisdictional determination (JD) dated November 2, 2011 for the proposed Gregory Canyon Landfill project (SPL-2010-00354), your previous approved JDs dated July 8, 2011 and January 13, 2010, your request for reconsideration of the July 8, 2011 approved JD [per 33 CFR 331.6(c)] dated August 31, 2011, and your request for reconsideration of the November 2, 2011 approved JD [per 33 CFR 331.6(c)] dated December 22, 2011.

As you know and as stated in your January 13, 2010 approved JD, the United States (U.S.) Army Corps of Engineers (Corps) had not delineated all wetlands within the entire property in efforts "to focus on the Gregory Canyon drainage area and the area of your proposed bridge crossing over the San Luis Rey River and to provide you with an expeditious decision." We conducted field visits on June 7, 2010 and January 5-7, January 11-12, January 18, March 2-3, and April 29, 2011 to complete the delineation of the entire property, resulting in the July 8, 2011 approved JD. Your July 8, 2011 approved JD stated, "Please note that a previous JD on the Gregory Canyon property, finalized on January 13, 2010, verified the jurisdictional status of other waters on the property, including the Gregory Canyon mainstem. The LAD is reverifying the 2010 JD in order to have one jurisdictional determination on the entire property with the same expiration date. The LAD has made no changes to the 2010 JD, which is incorporated into this approved JD by reference." Your request for reconsideration dated August 31, 2011 stated that the July 8, 2011 approved JD was not consistent with two areas previously delineated in your January 13, 2010 approved JD: 1) at the south side of the San Luis Rey River proposed bridge crossing; 2) on the eastern half of the south side of the San Luis Rey River. We reviewed your request and subsequently produced a revised approved JD, dated November 2, 2011, for the Gregory Canyon Landfill proposed project site. In the November 2, 2011 approved JD, we determined that the ordinary high water mark (OHWM) boundary on the south side of the proposed bridge crossing along the San Luis Rey River in the July 8, 2011 approved JD was not consistent with the January 13, 2010 approved JD of this area. We therefore made the appropriate adjustments to this area and updated all figures and the associated JD Form accordingly in the November 2, 2011 approved JD. We did not, however, change the OHWM boundary on the eastern half of the south side of the San Luis Rey River per your request.

The information provided in your December 22, 2011 JD reconsideration submittal does not warrant changes to your November 2, 2011 approved JD. However, we would like to provide you details with respect to our decision to maintain the OHWM boundary on the eastern half of the south side of the San Luis Rey River in the November 2, 2011 approved JD.

Your JD reconsideration submittals request the Corps to change the OHWM boundary on the eastern half of the south side of the San Luis Rey River to be consistent with the 2010 approved JD. The 2010 approved JD specifically states that the Corps intended to: "focus on the Gregory Canyon drainage area and the area of your proposed bridge crossing over the San Luis Rey River ..." Therefore, the area requested for reconsideration in the eastern half of the south side of the San Luis Rey River was not previously delineated as a part of the 2010 approved JD.

Your JD reconsideration submittals also refer to several data points collected and recorded as a part of Engineer Research and Development Center (ERDC) technical report which was included as Enclosure 3 of the 2010 approved JD. The ERDC technical report was a supplemental document to the 2010 approved JD, not the actual 2010 approved JD, and states the following to further clarify this point: "Using these results, the final extent of wetlands and 'waters' and their jurisdictional status would be the responsibility of the District." The Los Angeles District Regulatory Division made the final determination of the 2010 approved JD only within the Gregory Canyon drainage area and the area of your proposed bridge crossing over the San Luis Rey River with some support from the ERDC technical report. During the 2011 field effort, the Corps focused its delineation efforts on areas within the Gregory Canyon Landfill property that were not previously delineated in the approved JD of 2010.

The Corps determined the OHWM on the south side of the San Luis Rey River (within the eastern half of the proposed project boundary) by identifying OHWM field indicators including drift lines, debris racks, and impressions along the banks of the San Luis Rey River within the area in question during the 2011 field effort. The Corps field team observed these OHWM field indicators up to the property boundary to the east. The Corps field team also observed these OHWM field indicators until they reached the base of the hill just south of the San Luis Rey River, at which point OHWM field indicators were not present. Given the potential for inaccuracies when using an aerial map in the field to designate an OHWM in densely vegetated areas, the Corps then used topography and the property boundary line to digitize the OHWM boundary within the area in question (at the base of the hill to the south and the property boundary line to the east) in the July 8, 2011 approved JD figures based on observation of the above-listed OHWM field indicators. Subsequent versions of the approved JD figures for the proposed project remained the same within the area in question.

The JD reconsideration submittals also states that the southern boundary of the OHMW is "five to seven feet higher in elevation than the corresponding OHWM boundary on the north side" of the San Luis Rey River within the area in question. The enclosed figure (Enclosure 1) shows the elevation contour along the northeastern OHWM boundary [highlighting 311 mean sea level (msl)] and the highest elevation contour that follows the southeastern OHMW boundary [314 msl] of the San Luis Rey River within the project area. As shown in this figure, there are segments of the eastern portion of the San Luis Rey River OHWM that differ in elevation on the north and south sides. However, both the north and south banks of the San Luis Rey River OHWM at this location receive hydrologic inputs from tributaries (adjacent ponds to the north and Gregory Canyon to the south) associated with distinct flow conditions and velocities that are not likely the same. Stream confluences are highly dynamic, particularly in alluvial systems such as the San Luis Rey River floodplain. Therefore, there is potential for variations of the OHMW elevations on opposite sides of the river due to tributary flows and the dynamic San Luis Rey River system.

The Corps hereby reissues the November 2, 2011 approved JD with no changes. This letter constitutes our third approved JD determination for this area after your two requests for reconsideration under 33 CFR 331.6(c). Because we have limited staff resources in our regulatory program, and high workload, and so as not to divert the staff resources we have devoted to developing an Environmental

Impact Statement for your permit application, if you continue to object to this approved JD, you have the option to request a formal administrative appeal under Corps regulations at 33 CFR Part 331 which would allow an independent review by the Appeals Review Officer at our regional office in San Francisco. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet (Appendix A) and Request for Appeal (RFA) form. If you request to appeal this decision you must submit a completed RFA form to the Corps South Pacific Division Office (Division Office) at the following address:

Mr. Tom Cavanaugh
Administrative Appeal Review Officer,
U.S. Army Corps of Engineers
South Pacific Division, CESPD-PDS-O, 2042B
1455 Market Street, San Francisco, California 94103-1399

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date on the NAP. Should you decide to submit an RFA form, it must be received at the above address by April 13, 2012. It is not necessary to submit an RFA form to the Division office if you do not object to the decision in this letter.

This verification is valid for five years from the date of this letter.

Please be advised that you can now comment on your experience with Regulatory Division by accessing the Corps web-based customer survey form at: http://per2.nwp.usace.army.mil/survey.html.

If you have any questions, please contact me at (213) 452-3406.

Sincerely,

David J. Castanon
Chief, Regulatory Division

Enclosure
1. Figure 1: San Luis Rey Topography (East)

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Mr. Jim Simmons, Consultants Collaborative Incorporated	File Number: SPL-2010-00354	Date: February 13, 2012

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

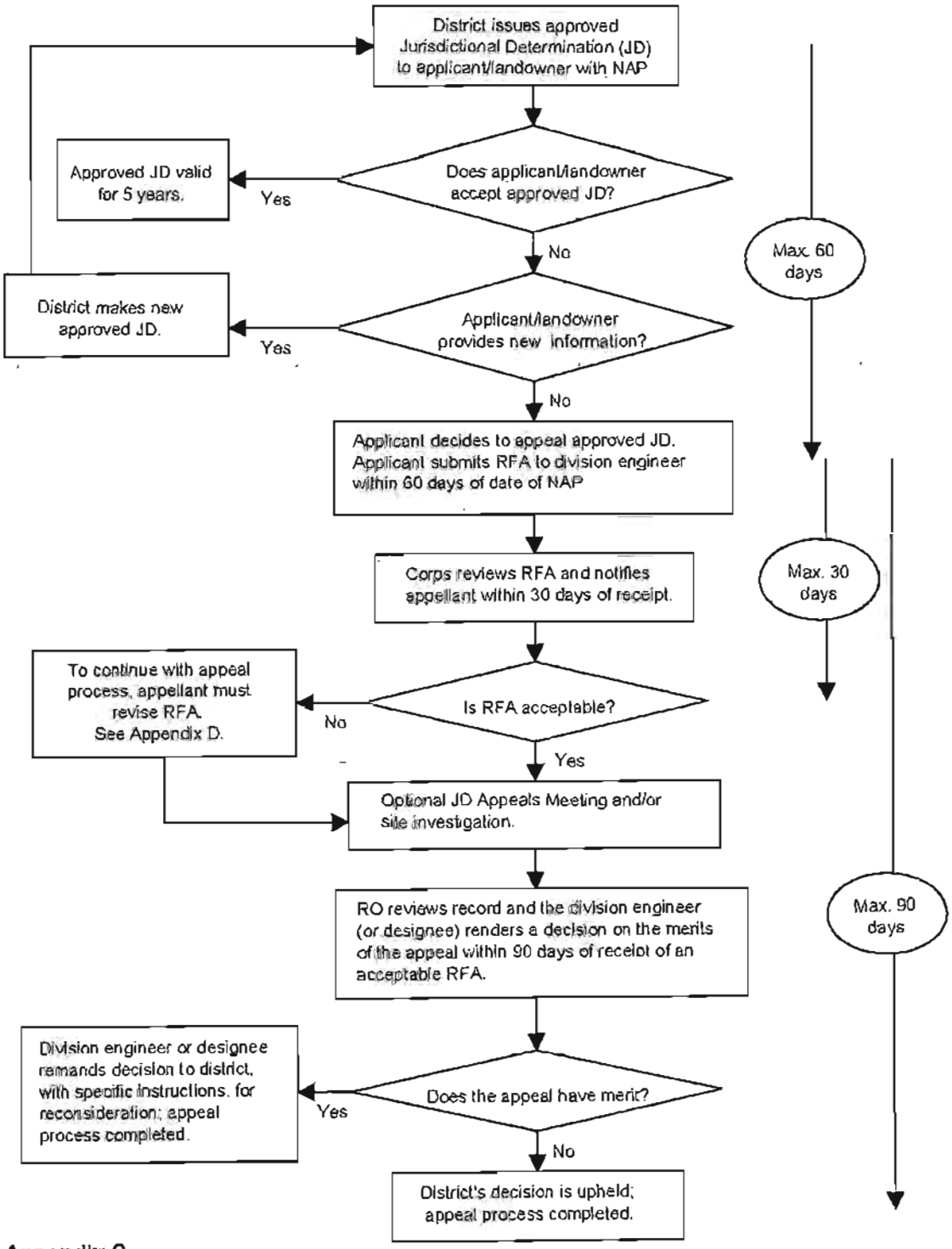
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
DISTRICT ENGINEER Los Angeles District, Corps of Engineers ATTN: Chief, Regulatory Division P.O. Box 532711 Los Angeles, CA 90053-2325 Tel. (213) 452-3406	DIVISION ENGINEER South Pacific Division, Corps of Engineers ATTN: Tom Cavanaugh Administrative Appeal Review Officer, South Pacific Division, CESPD-PDS-O, 2042B 1455 Market Street, San Francisco, California 94103-1399 Tel. (415) 503-6574

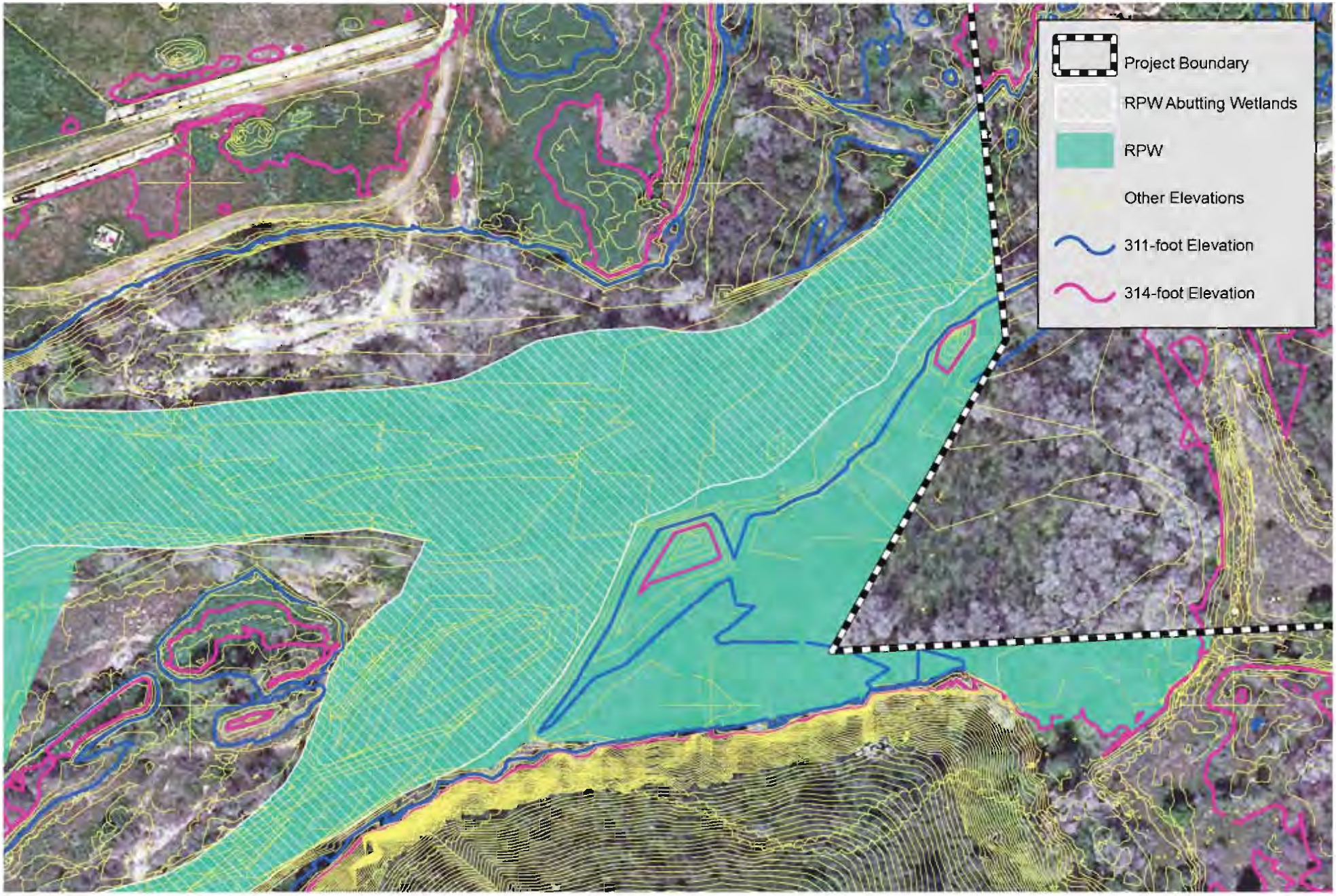
RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
Signature of appellant or agent.		

Administrative Appeal Process for Approved Jurisdictional Determinations



Appendix C



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San Luis Rey Topography (East)

Gregory Canyon

Source: Aerial Express, 2009; Excel Engineering, 2010; PCR Services Corporation, 2012.

FIGURE

1

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
PO BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF:

November 2, 2011

Office of the Chief
Regulatory Division

Mr. Jim Simmons
CCI
160 Industrial Street Suite 200
San Marcos, CA 92078

SUBJECT: Approved Jurisdictional Determination regarding presence/absence of geographic jurisdiction

Dear Mr. Simmons:

Reference is made to your approved jurisdictional determination (JD) dated July 8, 2011 for the proposed Gregory Canyon Landfill (SPL-2010-00354), your previous approved JD dated January 13, 2010, and your request for reconsideration of the July 8, 2011 approved JD [per 33 CFR 331.6(c)] dated August 31, 2011 (received on September 2, 2011). As stated in your January 13, 2010 approved JD, the United States (U.S.) Army Corps of Engineers (Corps) had not delineated all wetlands within the entire property in efforts "to focus on the Gregory Canyon drainage area and the area of your proposed bridge crossing over the San Luis Rey River and to provide you with an expeditious decision." We conducted field visits on June 7, 2010 and January 5-7, January 11-12, January 18, March 2-3, and April 29, 2011 to complete the delineation of the entire property, resulting in the July 8, 2011 approved JD. Your July 8, 2011 approved JD stated, "Please note that a previous JD on the Gregory Canyon property, finalized on January 13, 2010, verified the jurisdictional status of other waters on the property, including the Gregory Canyon mainstem. The LAD is reverifying the 2010 JD in order to have one jurisdictional determination on the entire property with the same expiration date. The LAD has made no changes to the 2010 JD, which is incorporated into this approved JD by reference." Your request for reconsideration, received on September 2, 2011, stated that the July 8, 2011 approved JD was not consistent with two areas previously delineated in your January 13, 2010 approved JD: 1) at the south side of the San Luis Rey River proposed bridge crossing; 2) on the eastern half of the south side of the San Luis Rey River. We have reviewed your request and revised the approved JD, discussed further below, for the Gregory Canyon Landfill proposed project site at approximate center points latitude 33.34430°N and longitude -117.11314°W near the city of Pala, San Diego County, California (Enclosure 1 – Figure 1a).

As you may know, the Corps' evaluation process for determining whether or not a Department of the Army permit is needed involves two tests. If both tests are met, then a permit is required. The first test determines whether or not the proposed project is located in a water of the U.S. (i.e., it is within the Corps' geographic jurisdiction). The second test determines whether or not the proposed project is a regulated activity under Section 10 of the River and Harbor Act or Section 404 of the Clean Water Act. As part of the evaluation process, pertaining to the first test only, we have made the jurisdictional determination below.

Based on available information, we have determined there are waters of the U.S. on the project site as well as non-jurisdictional aquatic resources in the locations depicted on the enclosed aerial photographs (Enclosures 1 and 2). The basis for our determination can be found in the enclosed JD forms (Enclosure 3). After careful review of your JD reconsideration submittal, we determined that the ordinary

high water mark (OHWM) boundary on the south side of the proposed bridge crossing along the San Luis Rey River in the July 8, 2011 approved JD was not consistent with the January 13, 2010 approved JD of this area. We have made the appropriate adjustments to this area and have updated all figures and the associated JD Form accordingly. We did not change the OHWM boundary on the eastern half of the south side of the San Luis Rey River per your JD reconsideration submittal.

The aquatic resources identified as E, E1, F, H, H1, H2, H3, H4, M, and N on the figures in Enclosure 2 and on the "ISOLATED FEATURES" JD form in Enclosure 3 are intrastate isolated waters with no apparent interstate or foreign commerce connection. As such, these waters are not currently regulated by the Corps. This disclaimer of jurisdiction is only for Section 404 of the Clean Water Act. Other Federal, State, and local laws may apply to your activities.

This letter contains an approved JD for the proposed Gregory Canyon Landfill proposed project site. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet (Appendix A) and Request for Appeal (RFA) form. If you request to appeal this decision you must submit a completed RFA form to the Corps South Pacific Division Office at the following address:

Mr. Tom Cavanaugh
Administrative Appeal Review Officer,
U.S. Army Corps of Engineers
South Pacific Division, CESPD-PDS-O, 2042B
1455 Market Street, San Francisco, California 94103-1399

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. Part 331.5, and that it has been received by the Division Office within 60 days of the date on the NAP. Should you decide to submit an RFA form, it must be received at the above address by January 2, 2012. It is not necessary to submit an RFA form to the Division office if you do not object to the decision in this letter.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. If you wish to submit new information regarding the approved jurisdictional determination for this site, please submit this information to me at the letterhead address by January 2, 2012. The Corps will consider any new information so submitted and respond within 60 days by either revising the prior determination, if appropriate, or reissuing the prior determination. A revised or reissued JD can be appealed as described above.

This determination has been conducted to identify the extent of the Corps' Clean Water Act jurisdiction on the particular proposed project site identified above. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Please be advised that you can now comment on your experience with Regulatory Division by accessing the Corps web-based customer survey form at: http://per2.nwp.usace.army.mil/survey.html.

If you have any questions, please contact me at (760) 602-4850.

Sincerely,

Therese O'Rourke Bradford
South Coast Branch Chief

Enclosures
1. Overall Approved JD Figures
2. Isolated Features Figures
3. JD Forms
4. Representative Photographs

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: Mr. Jim Simmons, CCI	File Number: SPL-2010-00354	Date: November 2, 2011

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

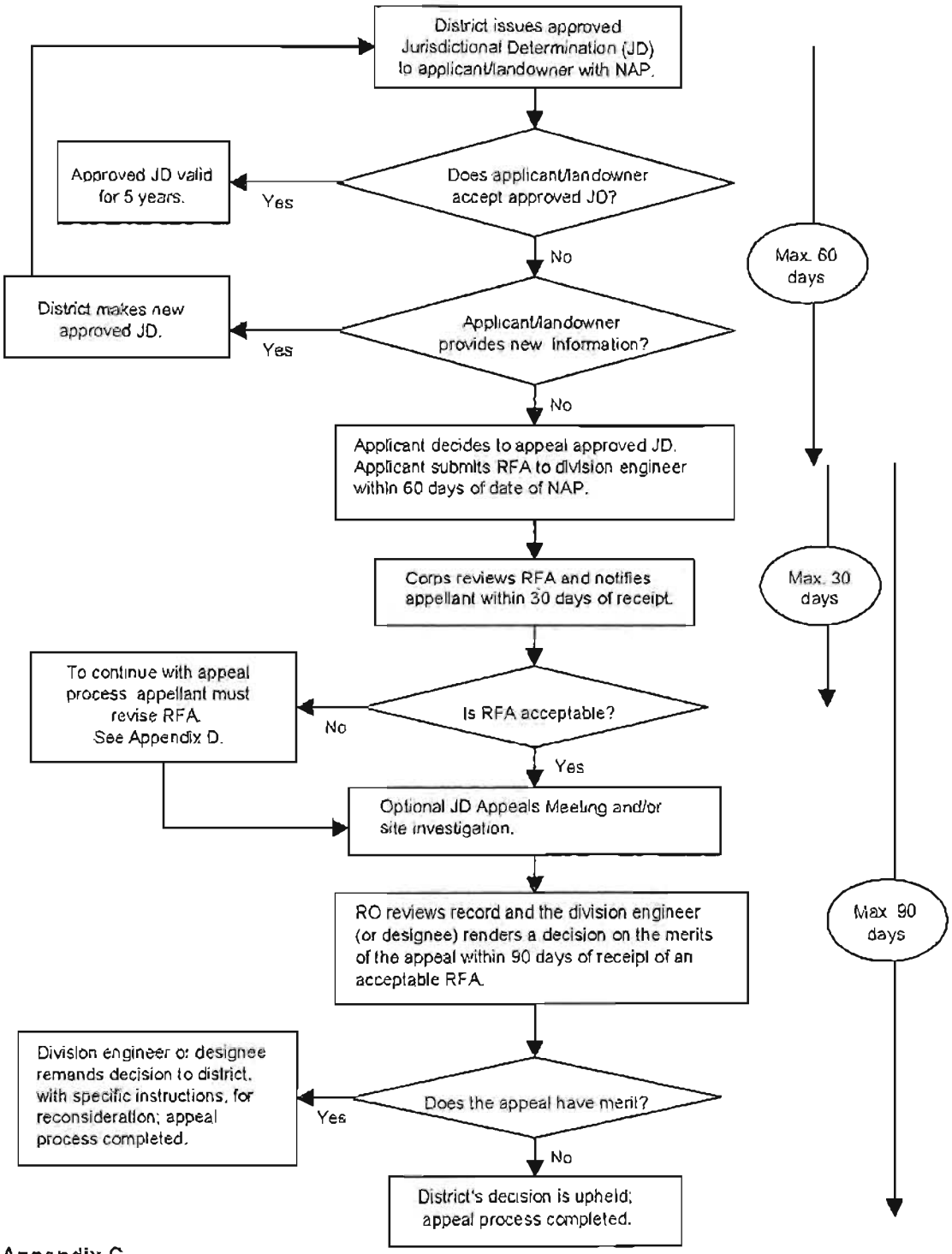
SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:	
If you have questions regarding this decision and/or the appeal process you may contact: DISTRICT ENGINEER Los Angeles District, Corps of Engineers ATTN: Chief, Regulatory Division P.O. Box 532711 Los Angeles, CA 90053-2325 Tel. (213) 452-3406	If you only have questions regarding the appeal process you may also contact: DIVISION ENGINEER South Pacific Division, Corps of Engineers ATTN: Tom Cavanaugh Administrative Appeal Review Officer, South Pacific Division, CESPD-PDS-O, 2042B 1455 Market Street, San Francisco, California 94103-1399 Tel. (415) 503-6574

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

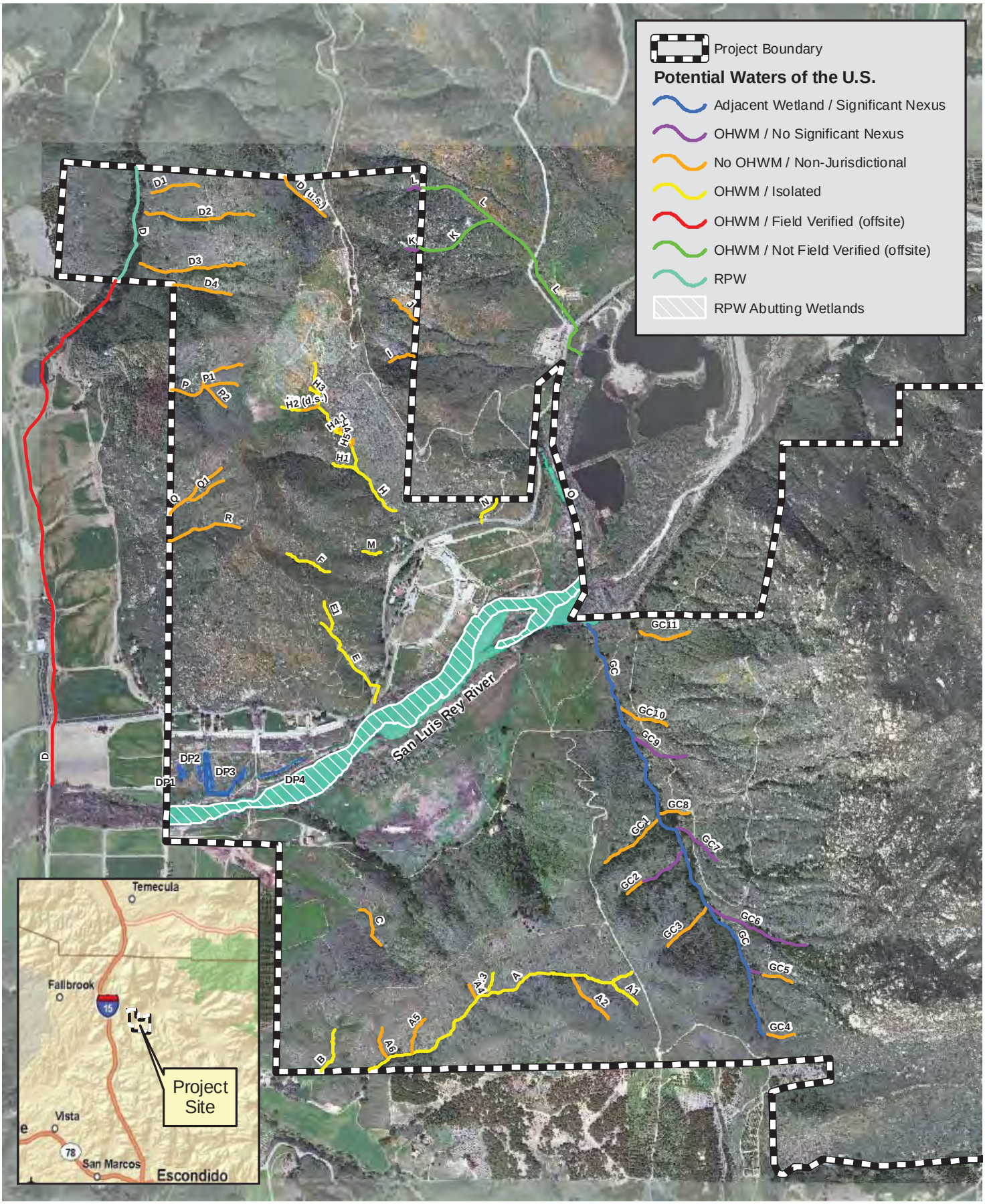
	Date:	Telephone number:
_____ Signature of appellant or agent.		

Administrative Appeal Process for Approved Jurisdictional Determinations



Appendix C

ENCLOSURE 1



PCR

N

0 1,500 3,000 Feet

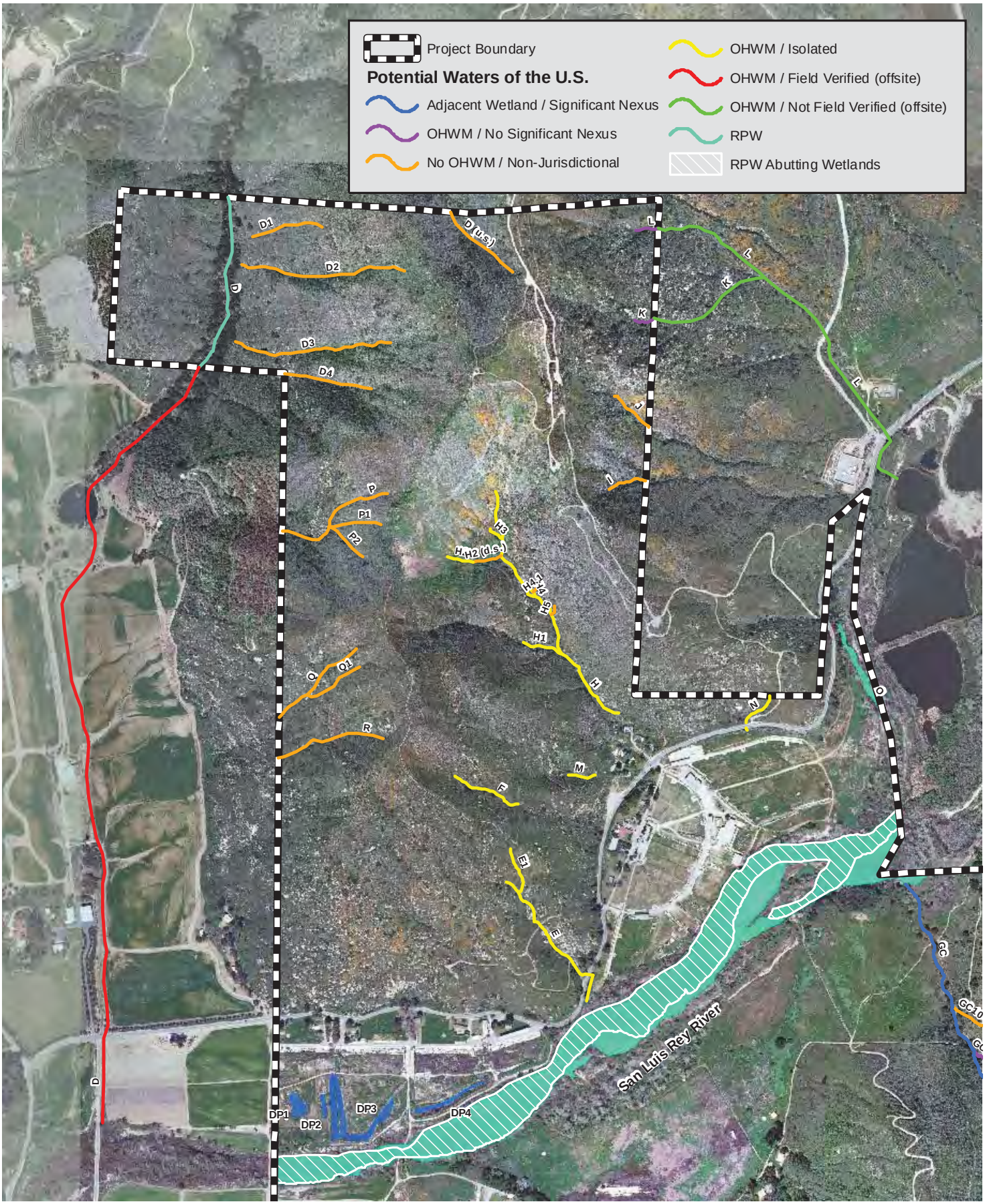
Potential Waters of the U.S.

Gregory Canyon

Source: Aerial Express, 2009; PCR Services Corporation, 2011.

FIGURE

1a



PCR

0 1,000 2,000 Feet

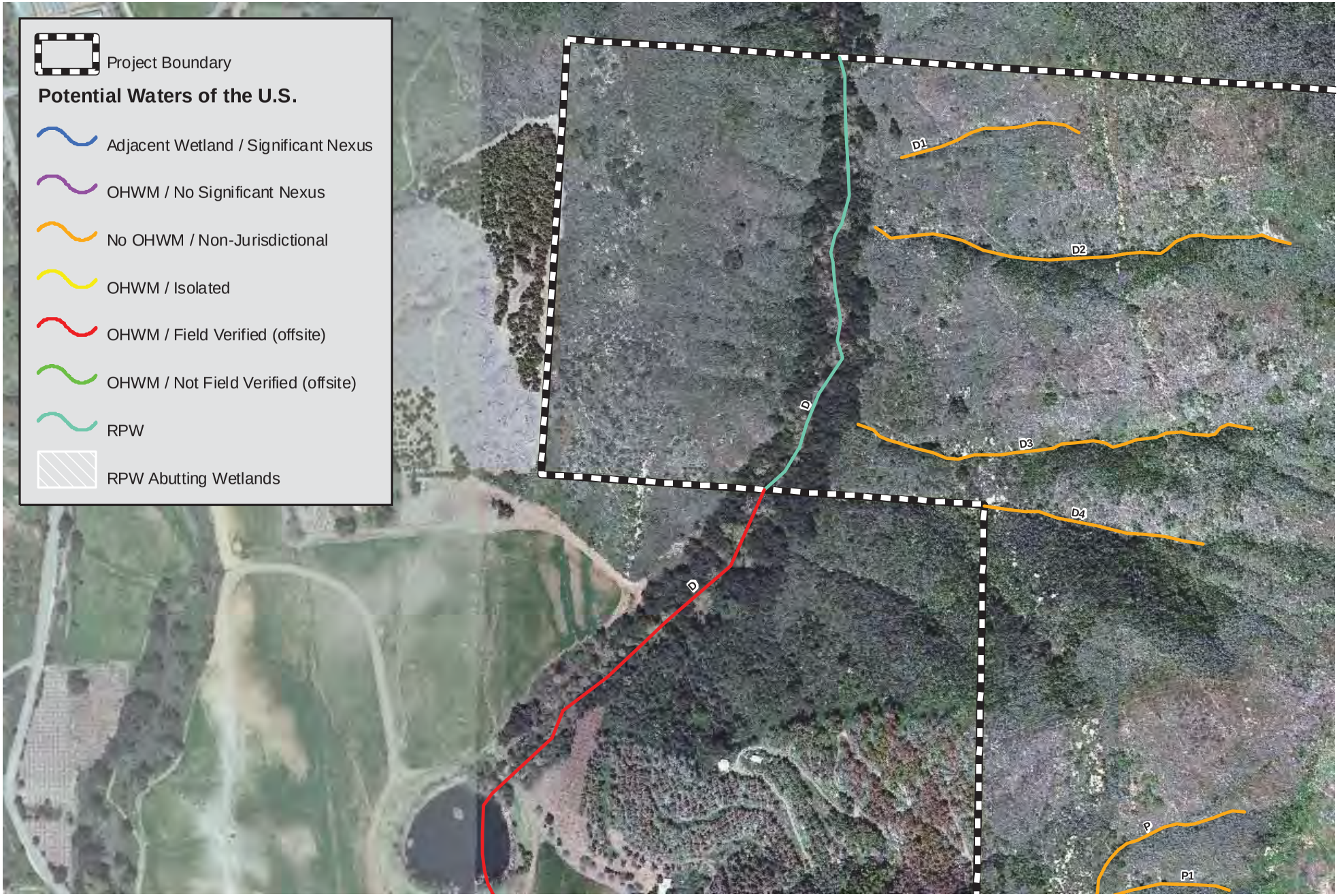
Potential Waters of the U.S.

Gregory Canyon

Source: Aerial Express, 2009; PCR Services Corporation, 2011.

FIGURE

1b



PCR

N

0 400 800 Feet

Note: 2-foot interval contour lines not available for all areas.

Topography

Gregory Canyon

Source: Aerial Express, 2009; Excel Engineering, 2010; PCR Services Corporation, 2011.

FIGURE

2a

N

0 400 800 Feet

Note: 2-foot interval contour lines not available for all areas.

Topography

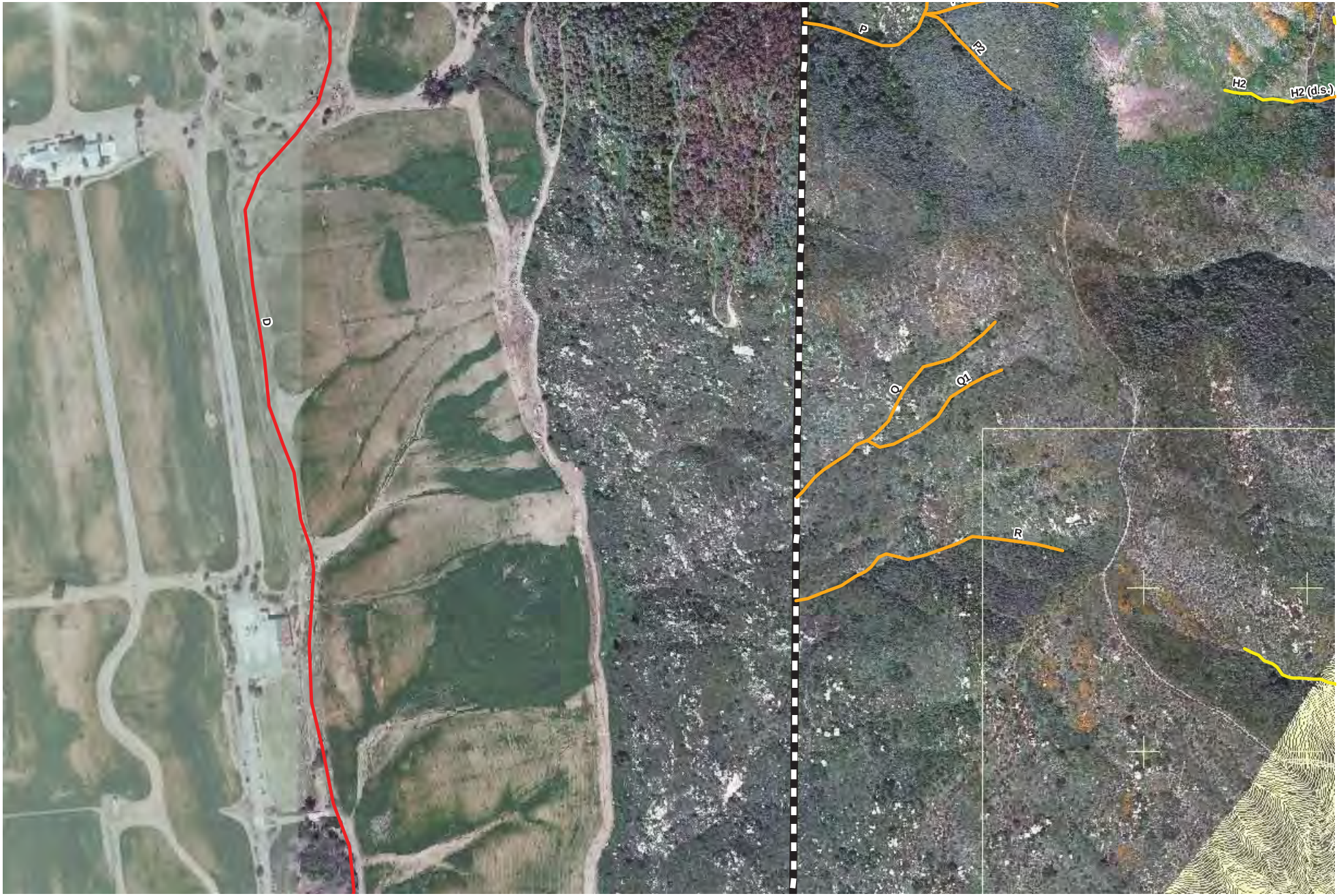
Gregory Canyon

Source: Aerial Express, 2009; Excel Engineering, 2010; PCR Services Corporation, 2011.

FIGURE

2b

P C R



PCR

N

0 400 800 Feet

Note: 2-foot interval contour lines not available for all areas.

Topography

Gregory Canyon

Source: Aerial Express, 2009; Excel Engineering, 2010; PCR Services Corporation, 2011.

FIGURE

2c

N

0 400 800 Feet

Note: 2-foot interval contour lines not available for all areas.

Topography

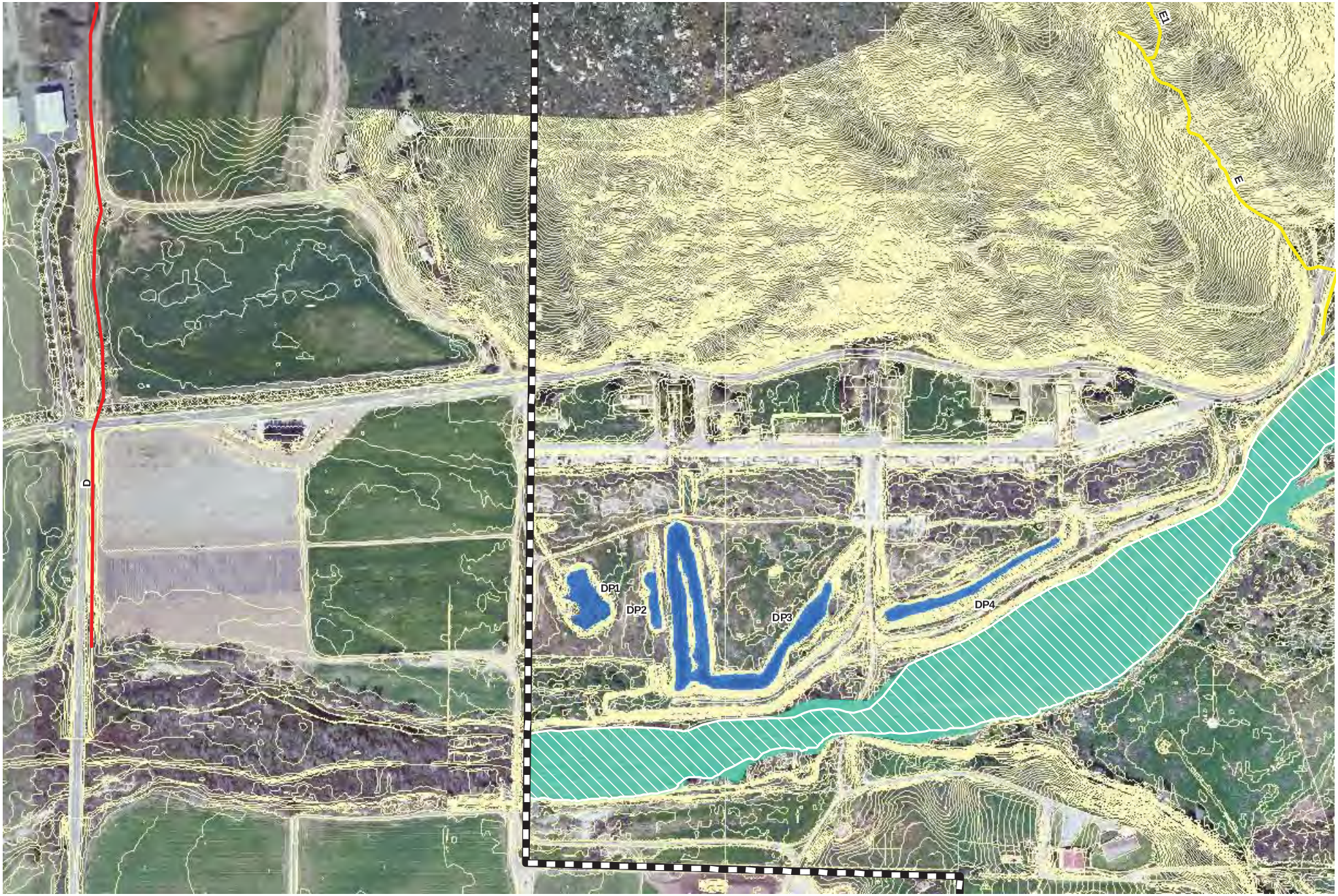
Gregory Canyon

Source: Aerial Express, 2009; Excel Engineering, 2010; PCR Services Corporation, 2011.

FIGURE

2d

PCR



PCR

N

0 400 800 Feet

Note: 2-foot interval contour lines not available for all areas.

Topography

Gregory Canyon

Source: Aerial Express, 2009; Excel Engineering, 2010; PCR Services Corporation, 2011.

FIGURE

2e

N

0 400 800 Feet

Note: 2-foot interval contour lines not available for all areas.

Topography

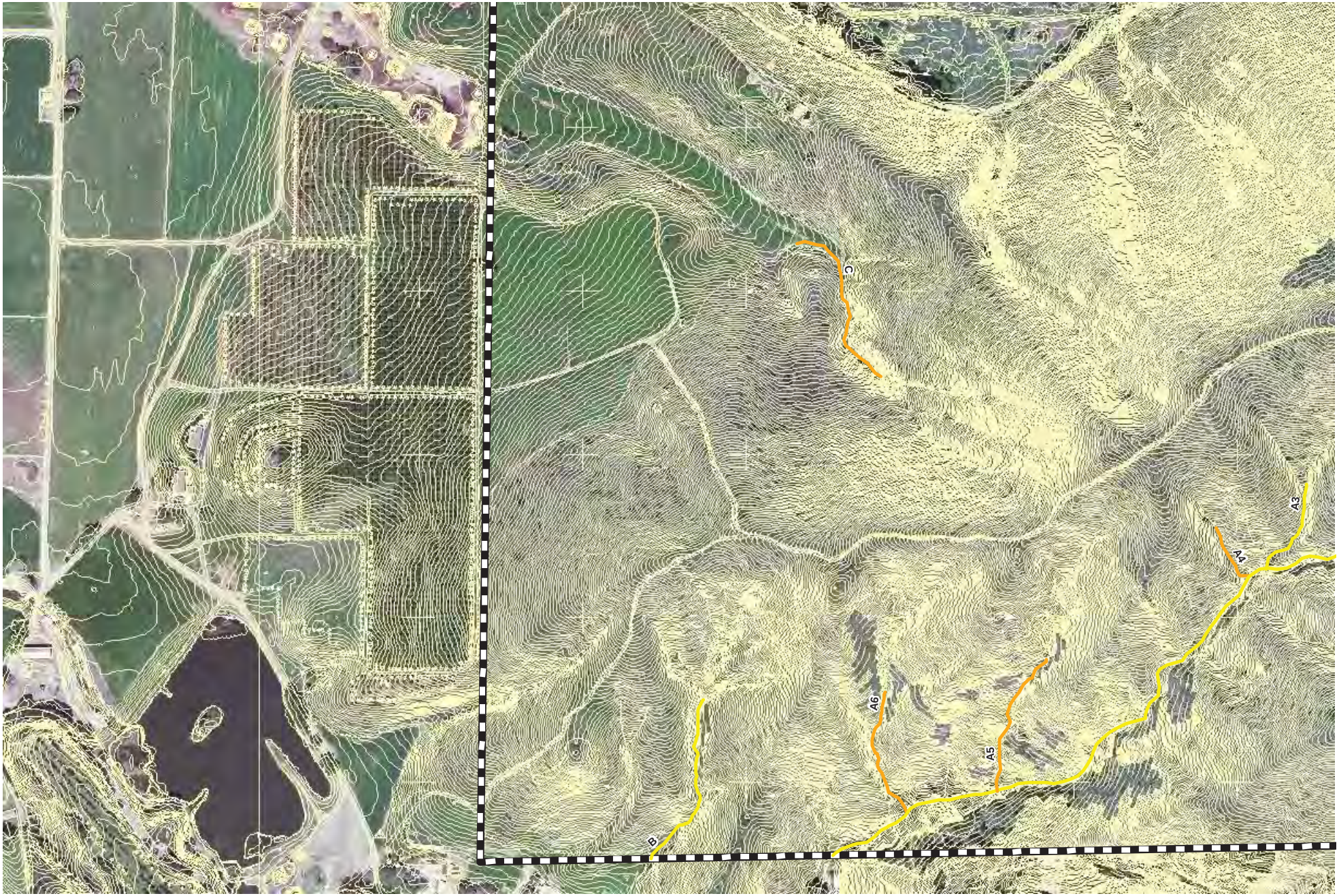
Gregory Canyon

Source: Aerial Express, 2009; Excel Engineering, 2010; PCR Services Corporation, 2011.

FIGURE

2f

P C R



N

0 400 800 Feet

Note: 2-foot interval contour lines not available for all areas.

Topography

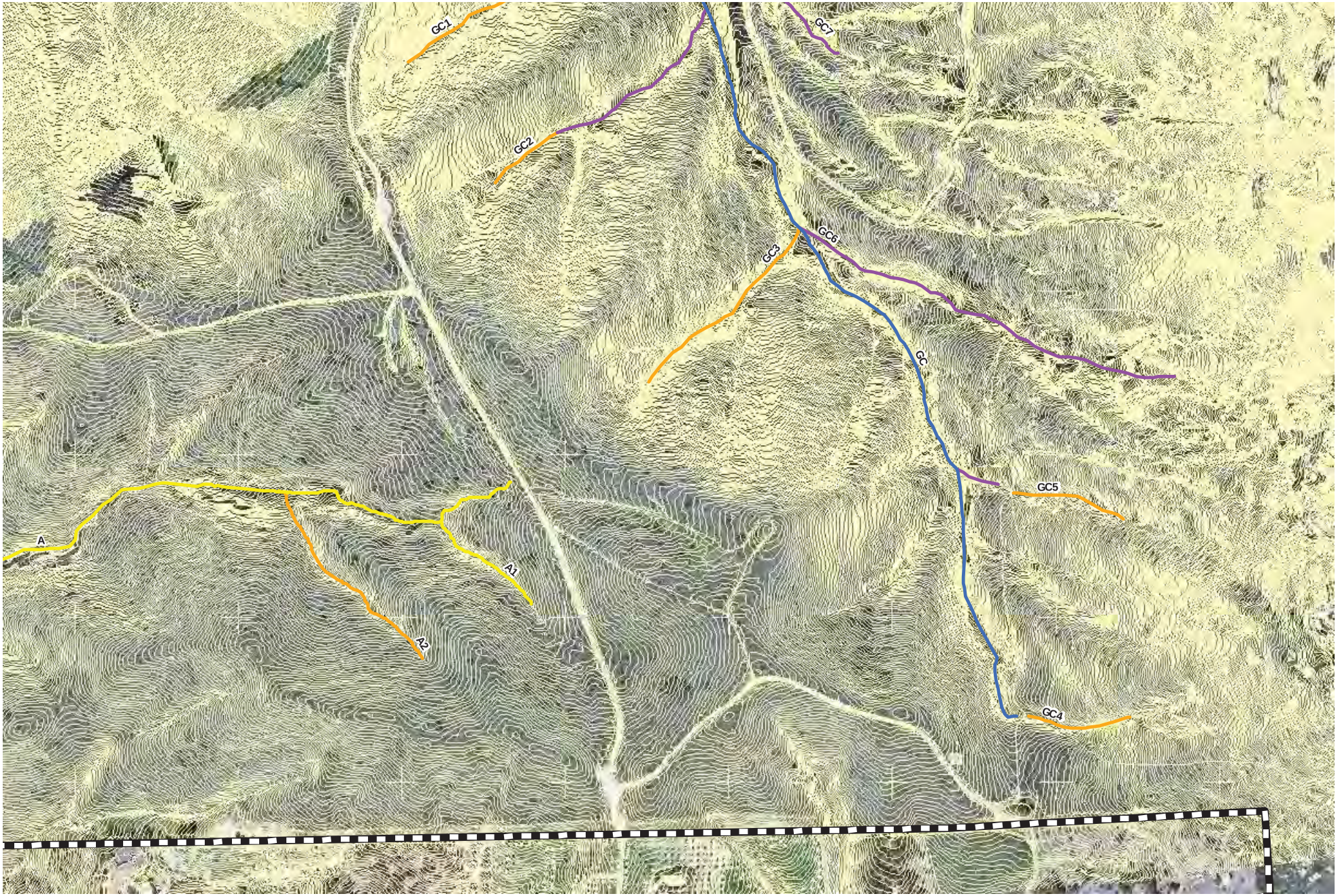
Gregory Canyon

Source: Aerial Express, 2009; Excel Engineering, 2010; PCR Services Corporation, 2011.

FIGURE

2g

PCR



N

0 400 800 Feet

Note: 2-foot interval contour lines not available for all areas.

Topography

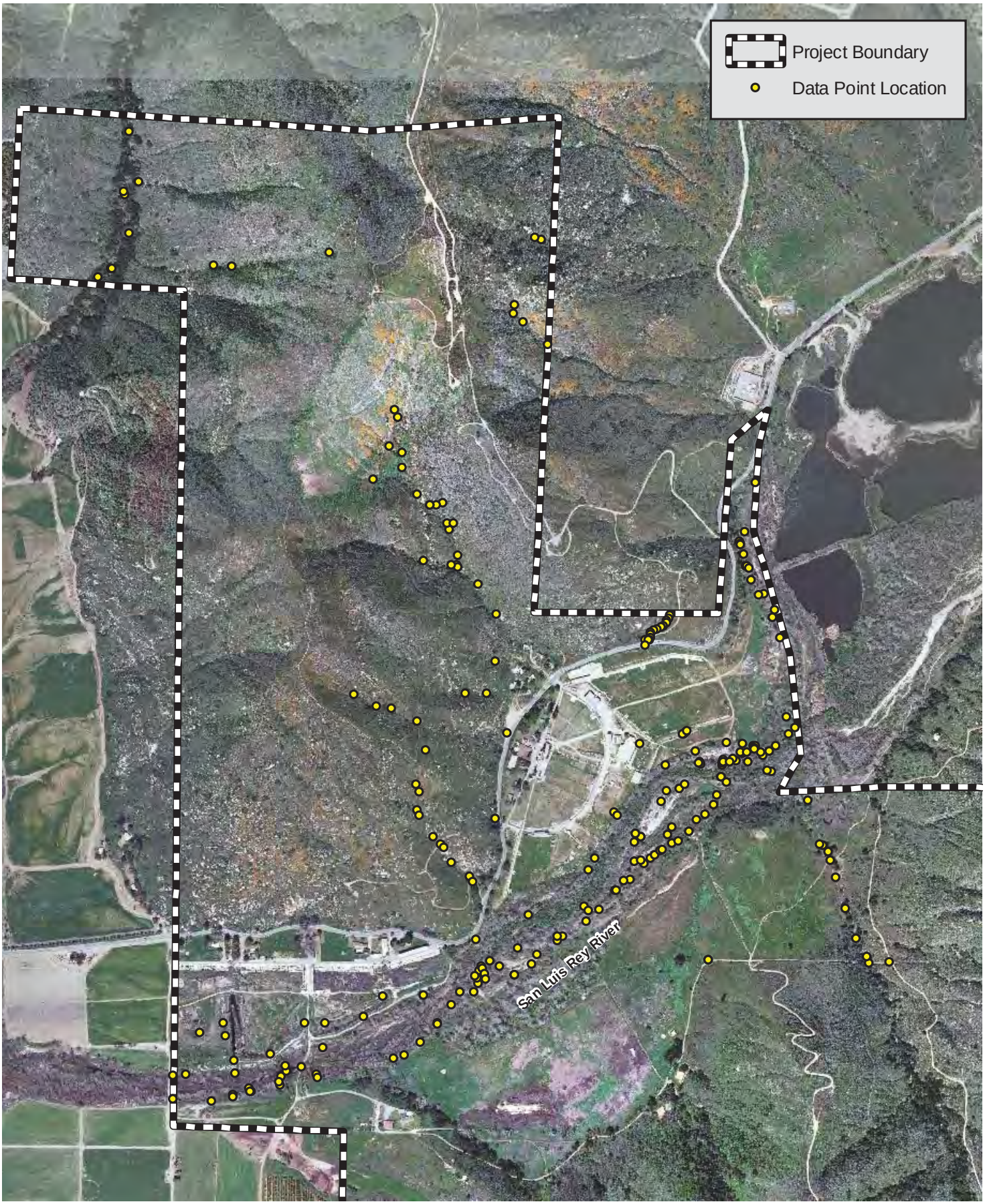
Gregory Canyon

Source: Aerial Express, 2009; Excel Engineering, 2010; PCR Services Corporation, 2011.

FIGURE

2h

P C R



N

0 1,000 2,000 Feet

Data Point Location Map

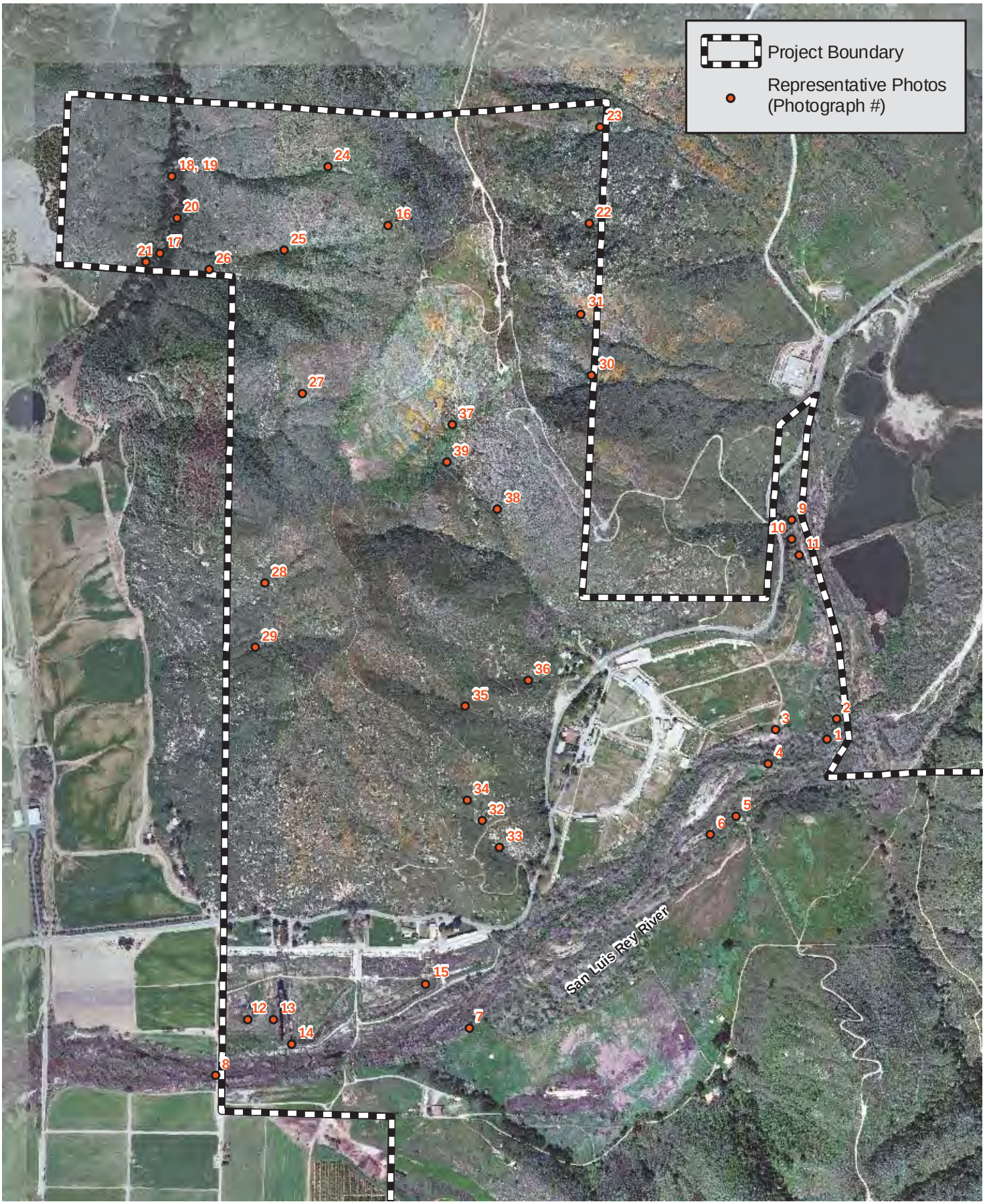
Gregory Canyon

Source: Aerial Express, 2009; ACOE, 2009; PCR Services Corporation, 2011.

FIGURE

3

PCR



PCR

N

0 1,000 2,000 Feet

Representative Photos Location Map

Gregory Canyon

Source: Aerial Express, 2009; ACOE, 2009; PCR Services Corporation, 2011.

FIGURE

4

PCR

N

0 800 1,600 Feet

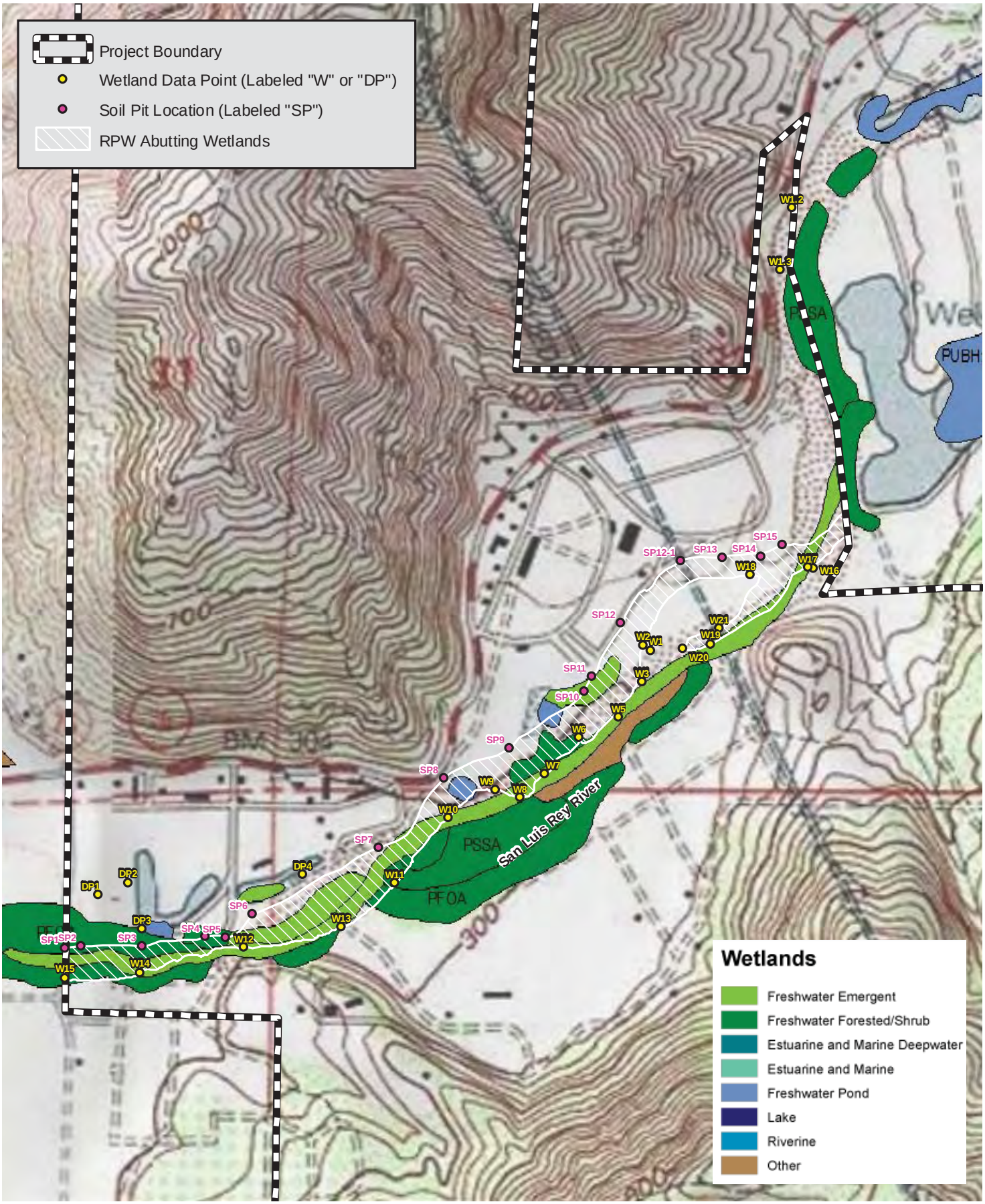
Wetland Delineation

Gregory Canyon

Source: Aerial Express, 2009; PCR Services Corporation, 2011.

FIGURE

5a



PCR

N

0 800 1,600 Feet

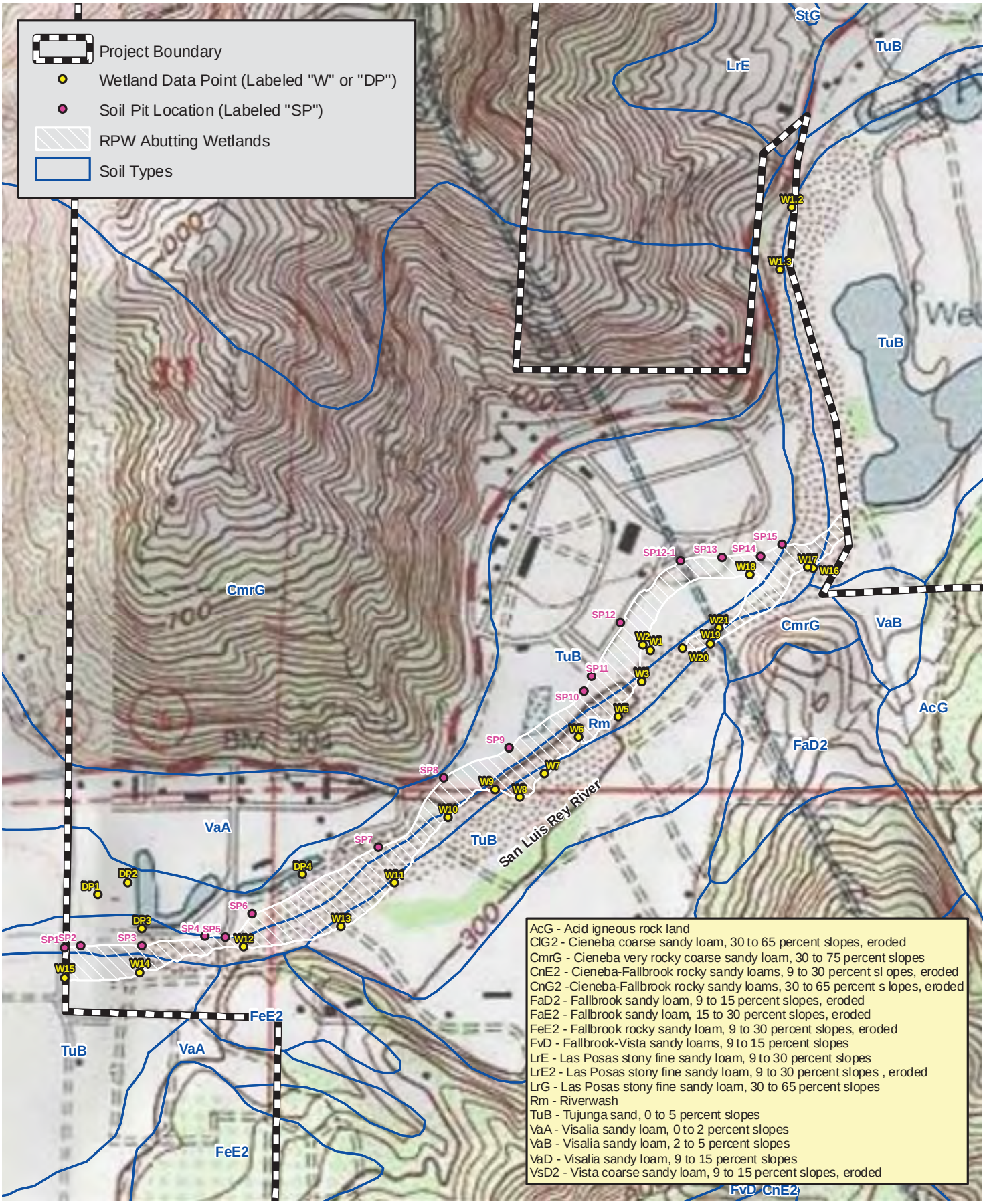
NWI & Wetland Delineation

Gregory Canyon

Source: USGS Topographic Series (Bonsall, Pala, CA); FWS, 2011; PCR Services Corporation, 2010.

FIGURE

5b



PCR

N

0 800 1,600 Feet

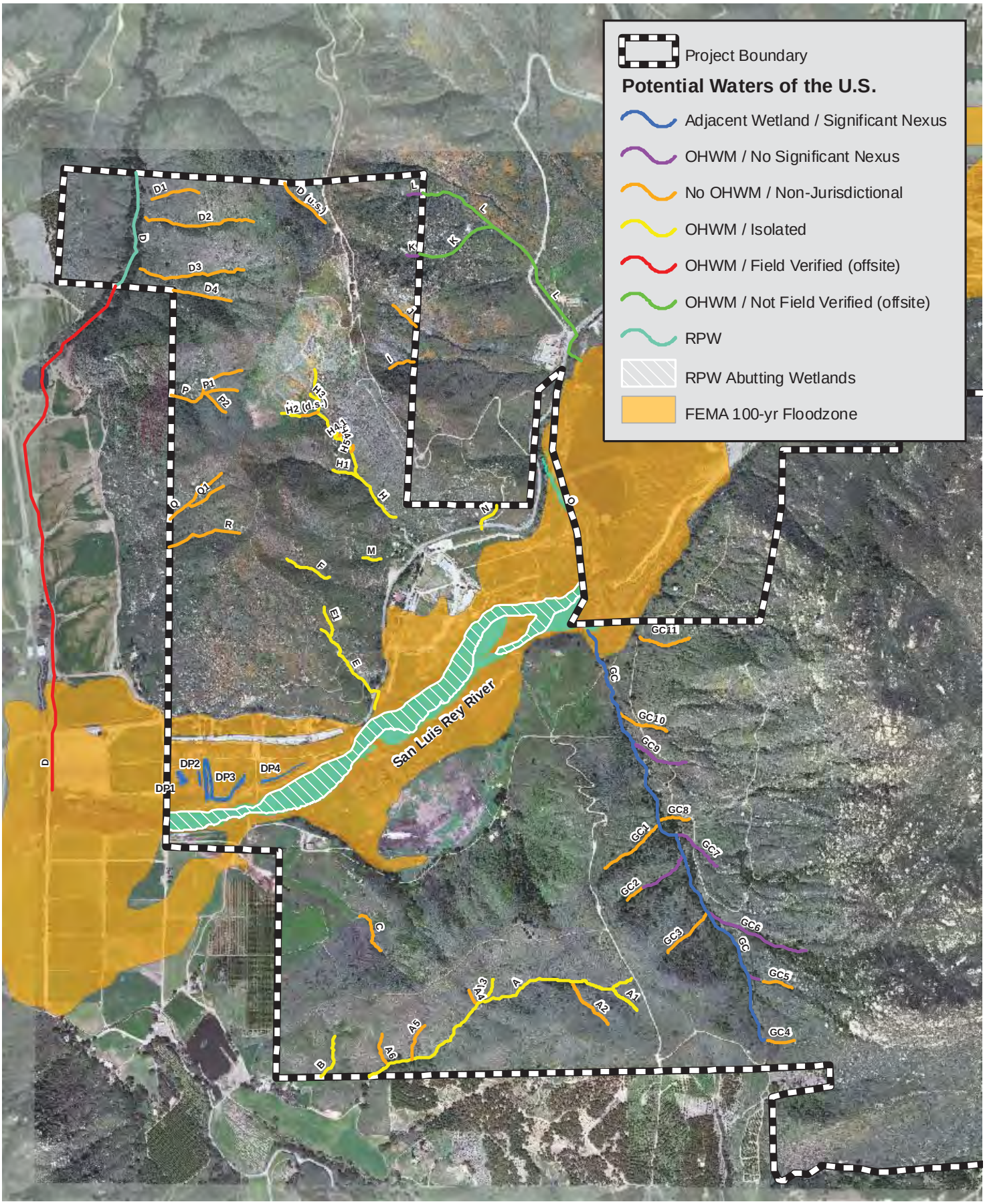
Soils Map & Wetland Delineation

Gregory Canyon

Source: USGS Topographic Series (Bonsall, Pala, CA); SSURGO, 2004; PCR Services Corporation, 2010.

FIGURE

5c



PCR

N

0 1,500 3,000 Feet

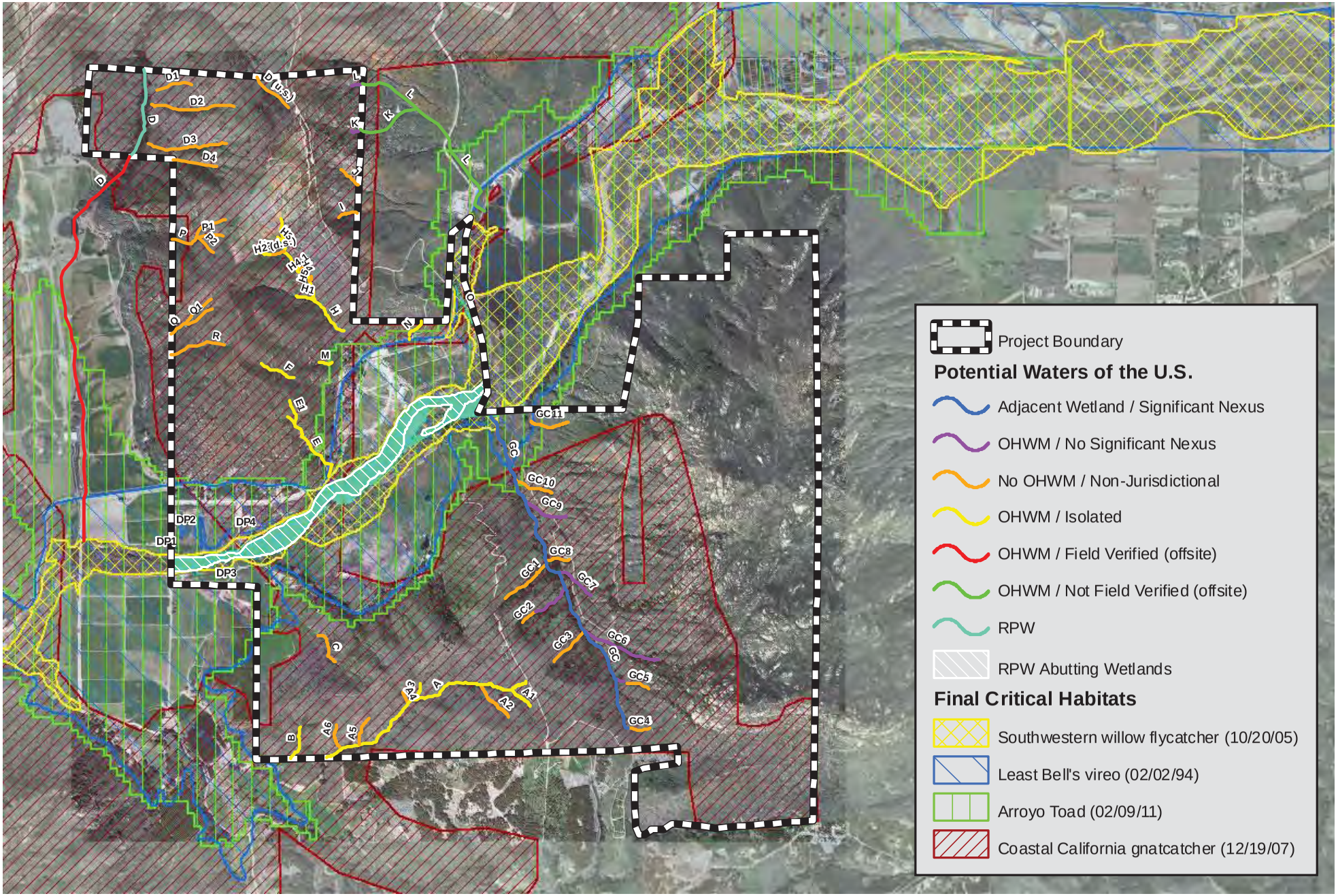
FEMA 100-yr Floodzone

Gregory Canyon

Source: Aerial Express, 2009; FEMA, 2006; PCR Services Corporation, 2011.

FIGURE

6



N

0 2,000 4,000 Feet

USFWS Final Critical Habitat Designations

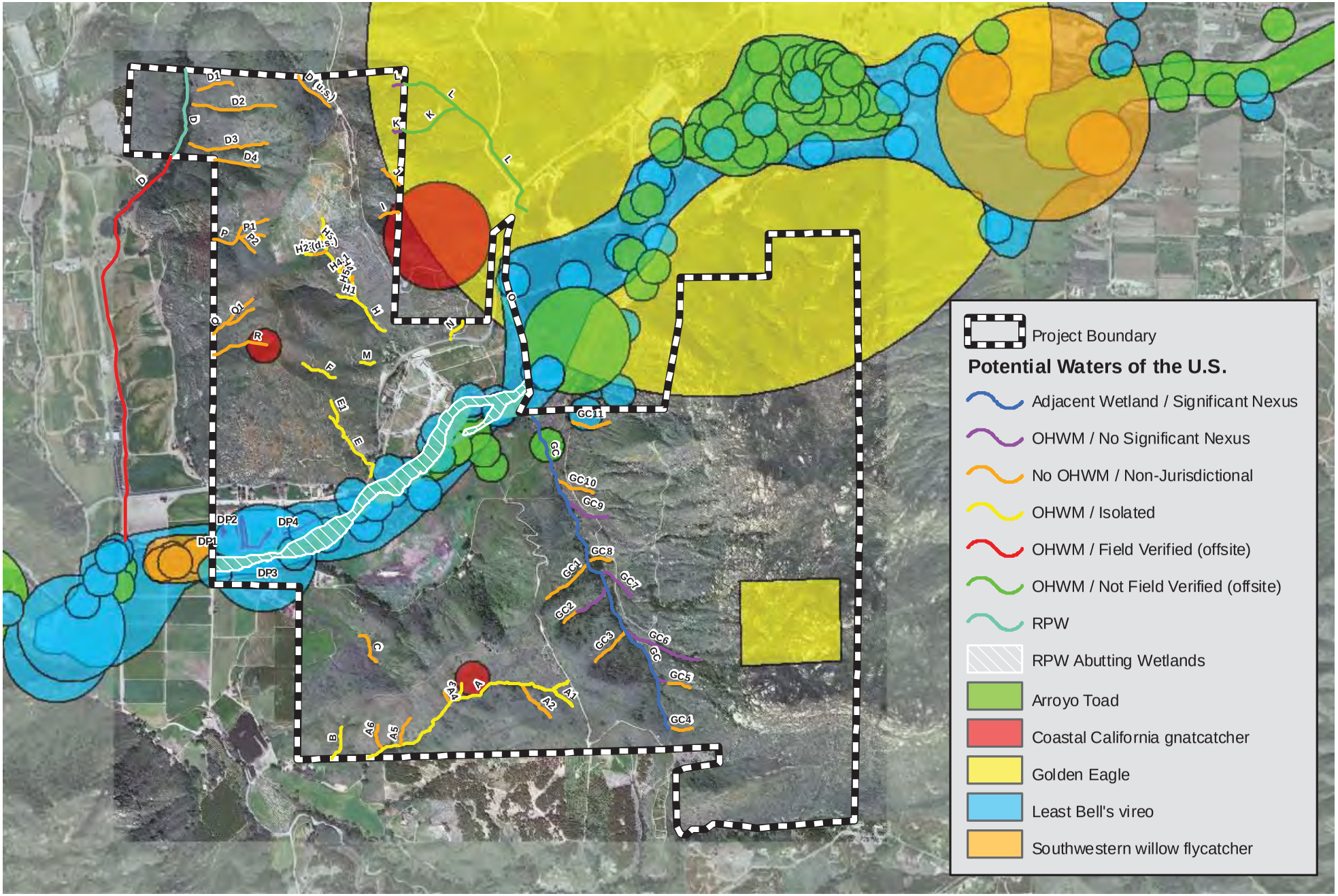
Gregory Canyon

Source: Aerial Express, 2009; USFWS, 2011; PCR Services Corporation, 2011.

FIGURE

7

PCR



PCR

N

0 2,000 4,000 Feet

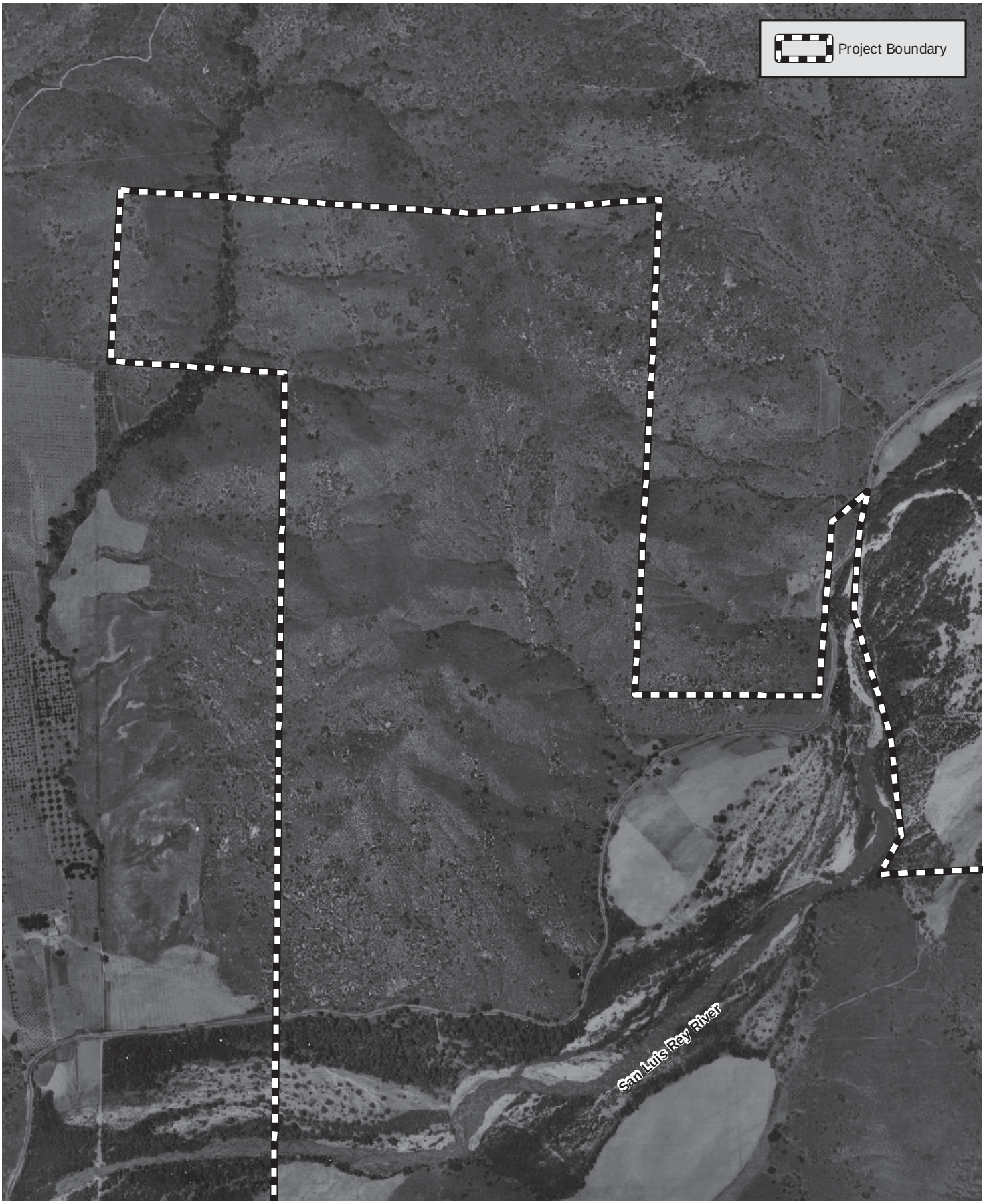
Special Status Species Locations

Gregory Canyon

Source: Aerial Express, 2009; USFWS, 2011; CNDDB, 2011; PCR Services Corporation, 2011.

FIGURE

8



N

0 1,000 2,000 Feet

1938 Historic Aerial

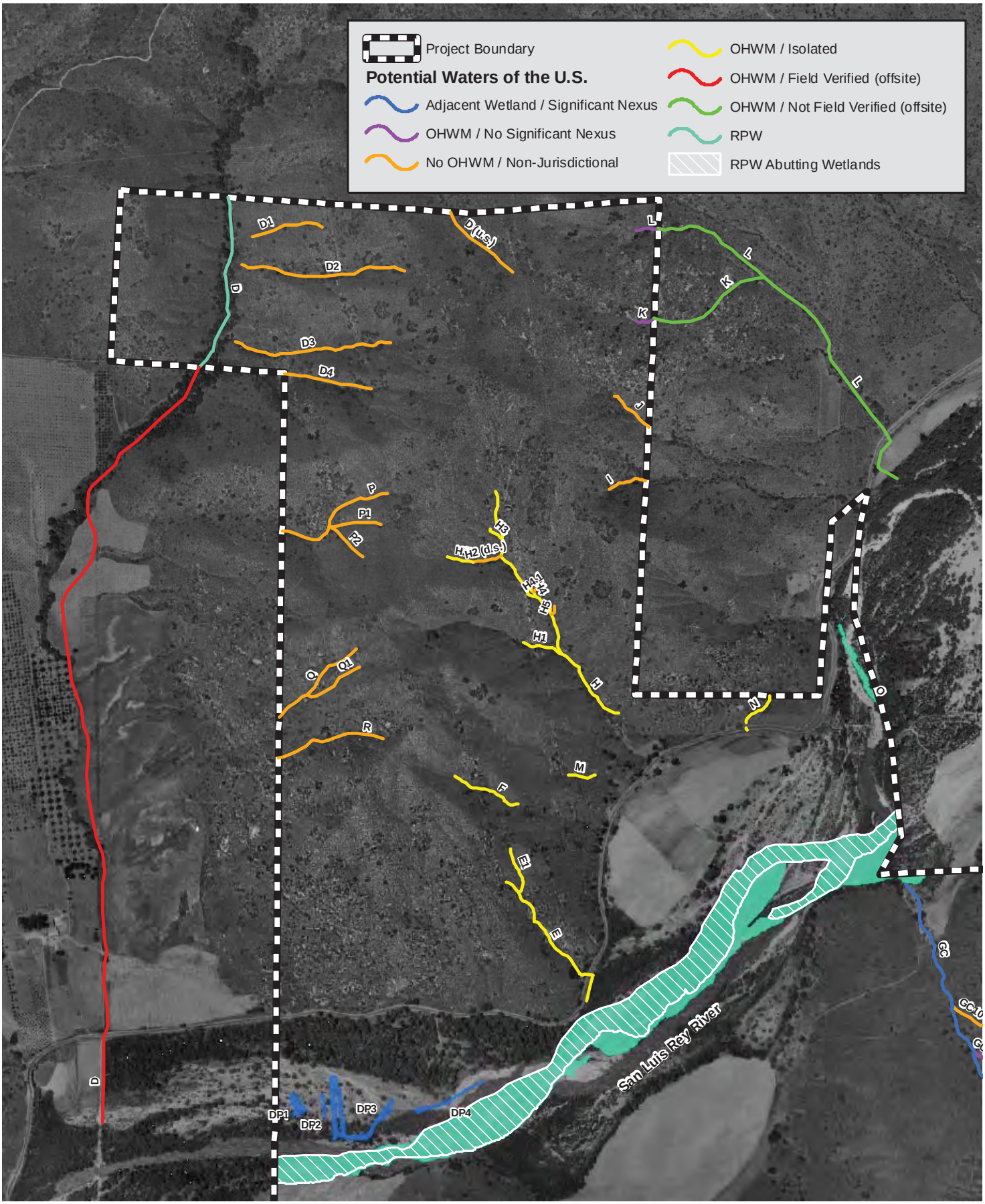
Gregory Canyon

Source: HistoricAerials.com, 1938; PCR Services Corporation, 2011.

FIGURE

9a

PCR



PCR

N

0 1,000 2,000 Feet

1938 Historic Aerial & Potential Waters of the U.S.

Gregory Canyon

Source: HistoricAerials.com, 1938; PCR Services Corporation, 2011.

FIGURE

9b

PCR

N

0 1,000 2,000 Feet

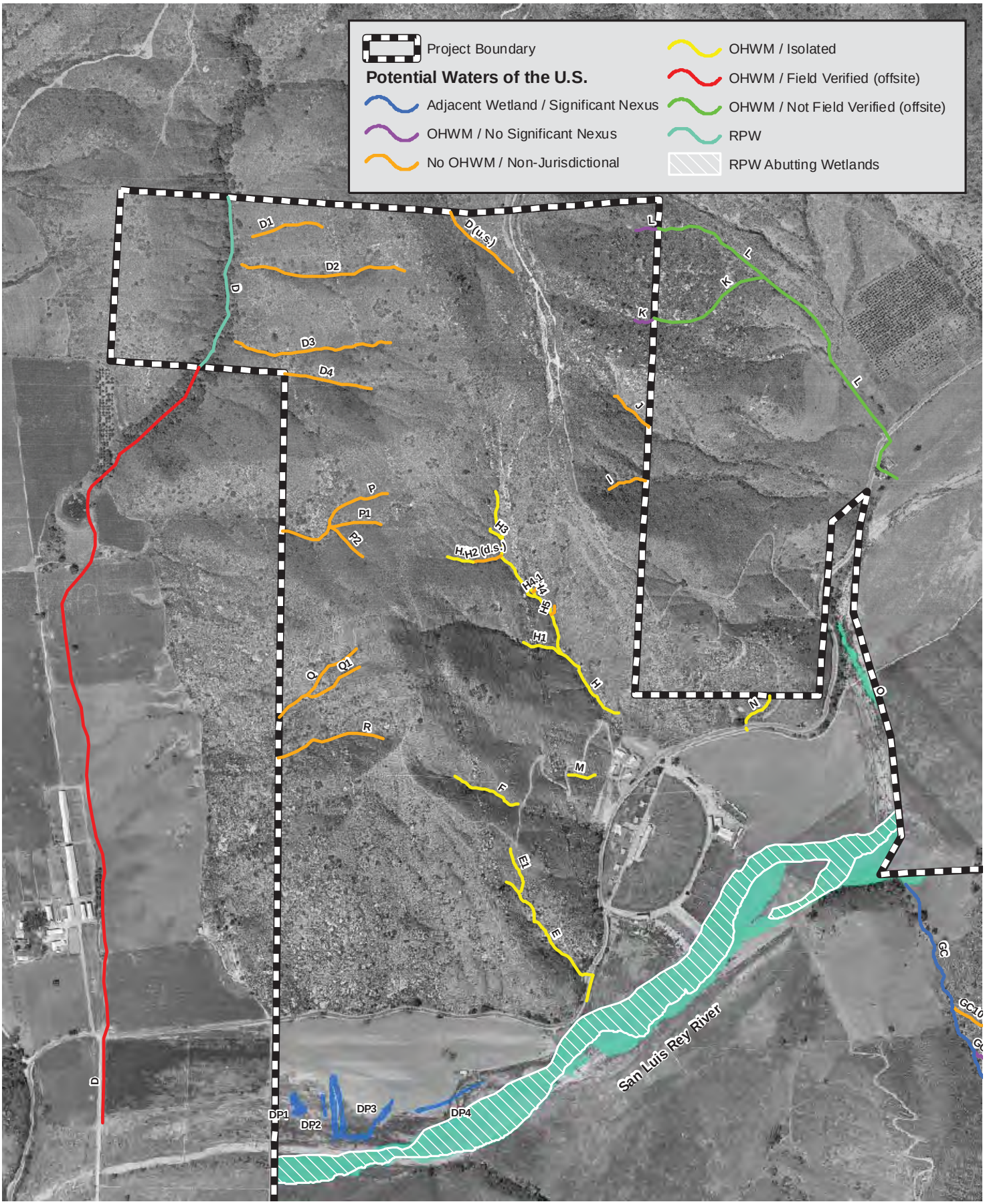
1964 Historic Aerial

Gregory Canyon

Source: HistoricAerials.com, 1964; PCR Services Corporation, 2011.

FIGURE

9c



PCR

N

0 1,000 2,000 Feet

1964 Historic Aerial & Potential Waters of the U.S.

Gregory Canyon

Source: HistoricAerials.com, 1964; PCR Services Corporation, 2011.

FIGURE

9d

N

0 1,000 2,000 Feet

1981 Historic Aerial

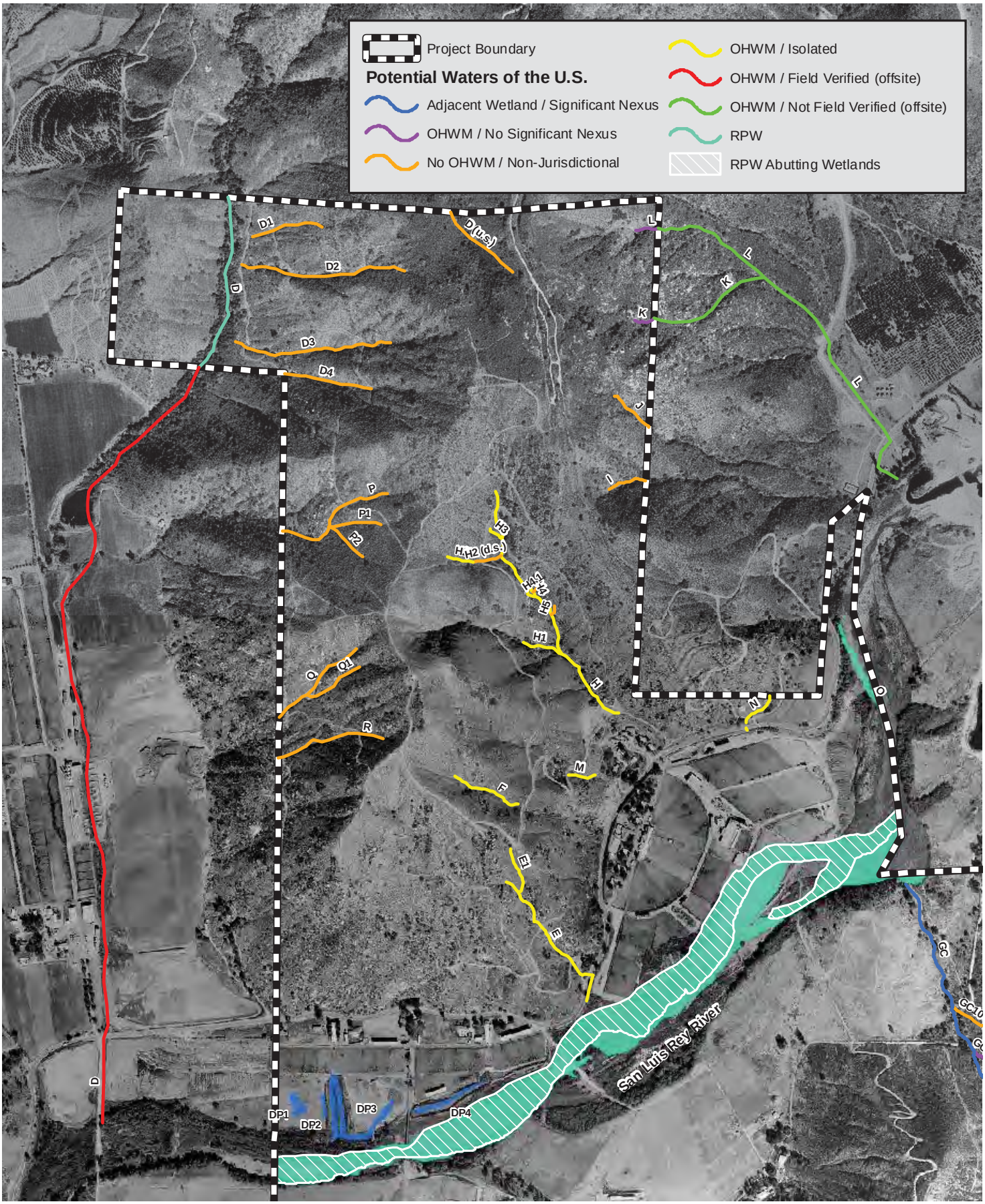
Gregory Canyon

Source: HistoricAerials.com, 1981; PCR Services Corporation, 2011.

FIGURE

9e

PCR



PCR

N

0 1,000 2,000 Feet

1981 Historic Aerial & Potential Waters of the U.S.

Gregory Canyon

Source: HistoricAerials.com, 1981; PCR Services Corporation, 2011.

FIGURE

9f

ENCLOSURE 2

PCR

N

0 600 1,200 Feet

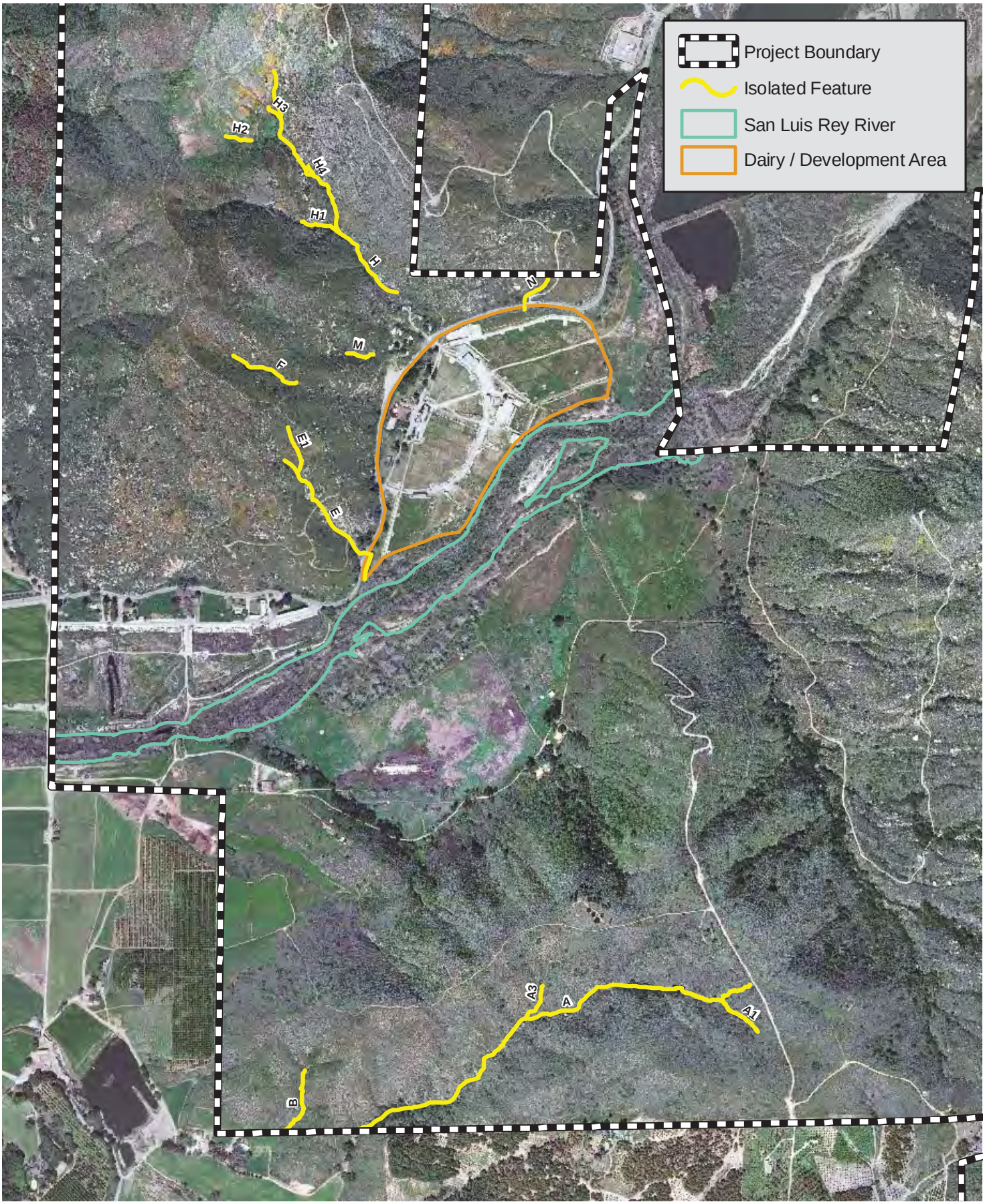
Isolated Features

Gregory Canyon

Source: Aerial Express, 2009; PCR Services Corporation, 2011.

FIGURE

1



PCR

N

0 1,000 2,000 Feet

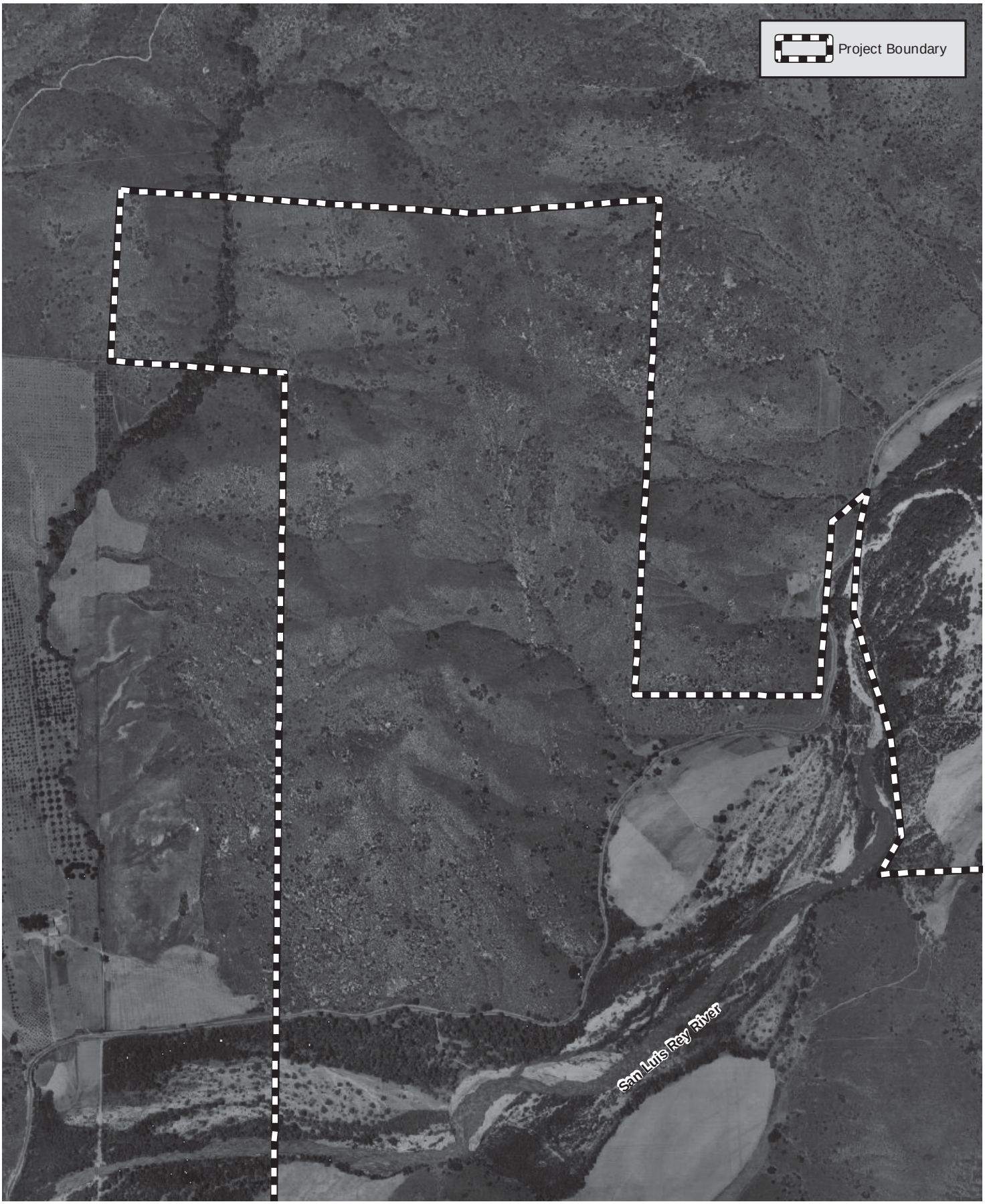
Isolated Features & Development Area

Gregory Canyon

Source: Aerial Express, 2009; PCR Services Corporation, 2011.

FIGURE

2



N

0 1,000 2,000 Feet

1938 Historic Aerial

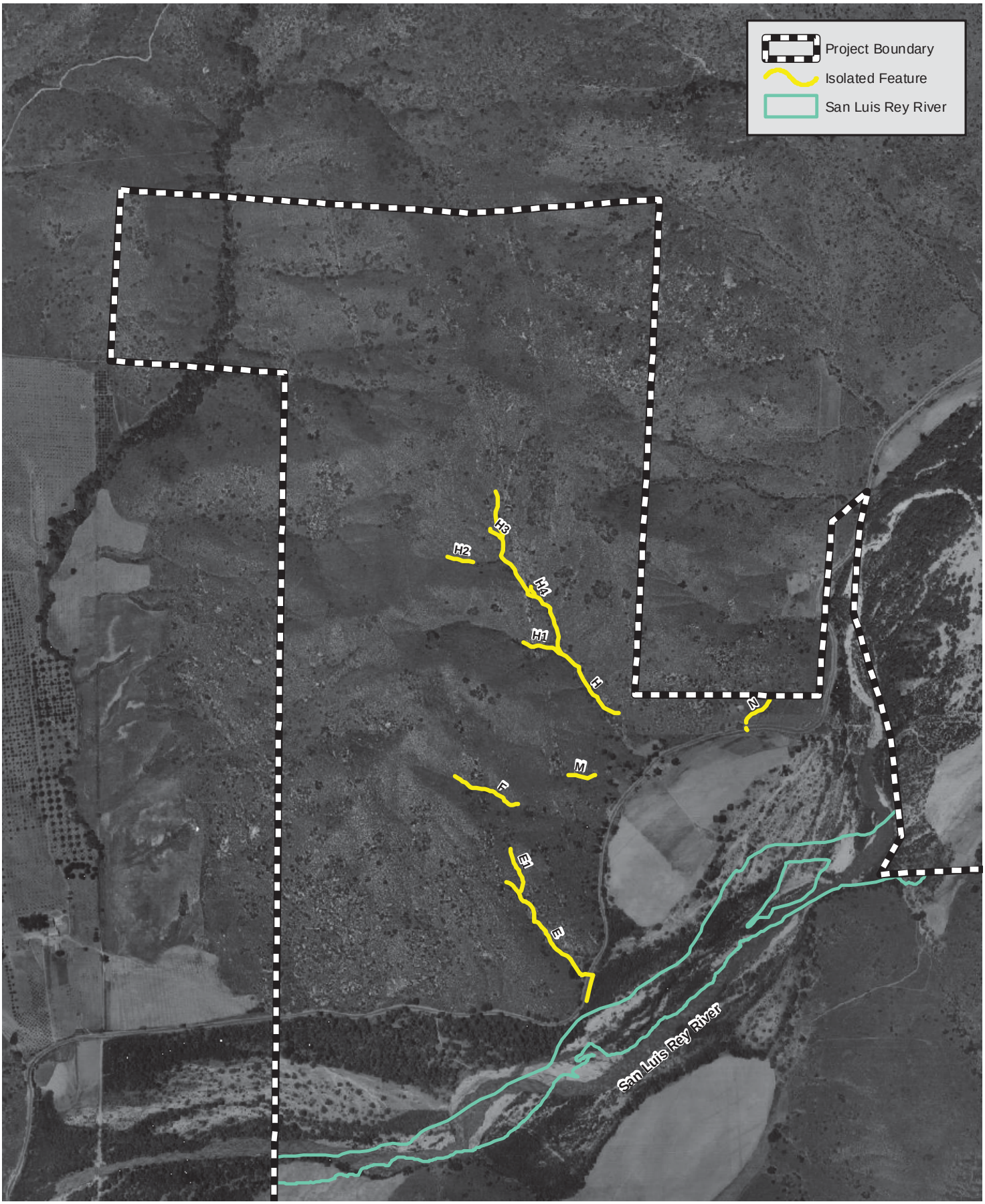
Gregory Canyon

Source: HistoricAerials.com, 1938; PCR Services Corporation, 2011.

FIGURE

3a

PCR



PCR

N

0 1,000 2,000 Feet

1938 Historic Aerial & Potential Waters of the U.S.

Gregory Canyon

Source: HistoricAerials.com, 1938; PCR Services Corporation, 2011.

FIGURE

3b

N

0 1,000 2,000 Feet

1964 Historic Aerial

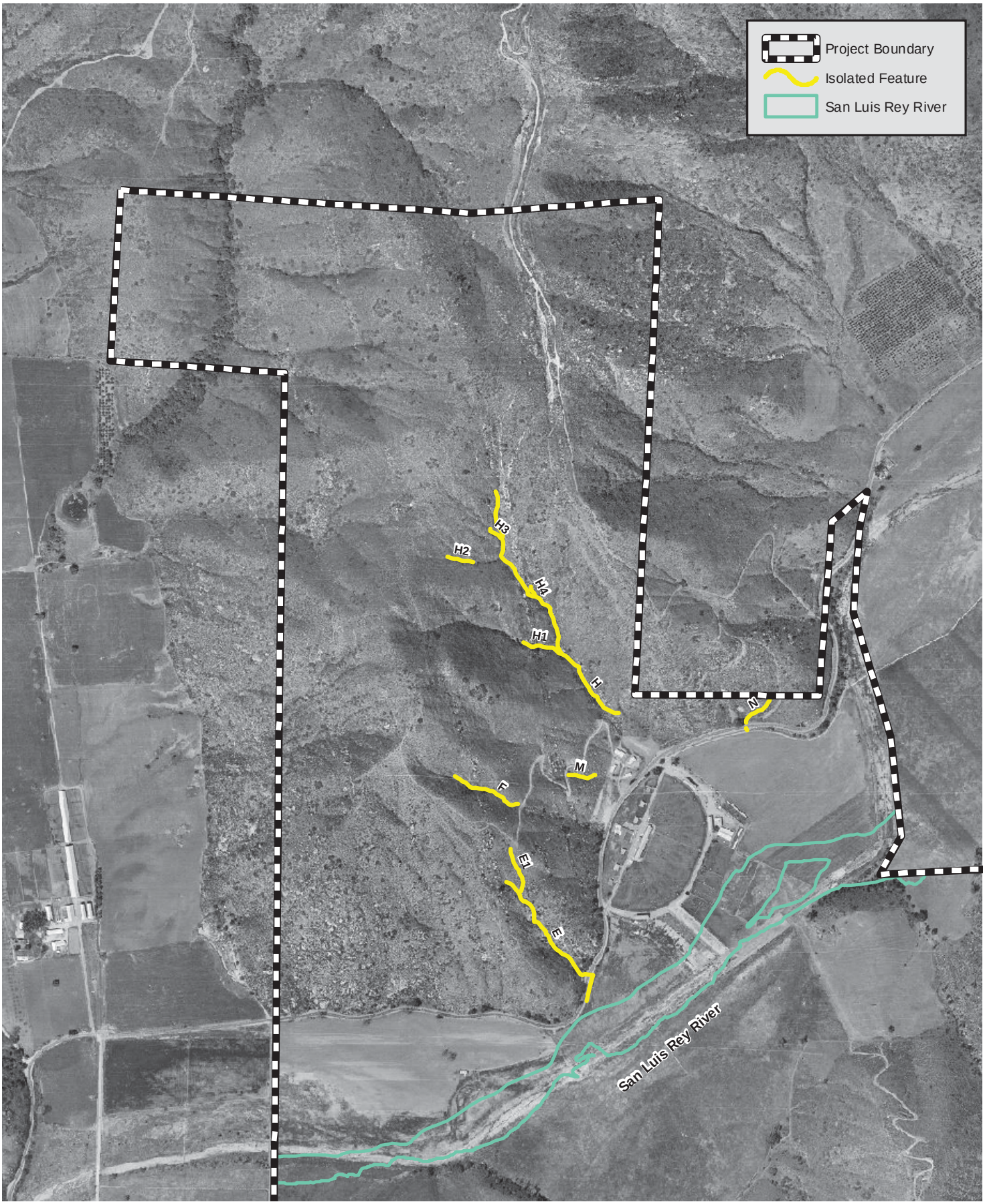
Gregory Canyon

Source: HistoricAerials.com, 1964; PCR Services Corporation, 2011.

FIGURE

3c

PCR



PCR

N

0 1,000 2,000 Feet

1964 Historic Aerial & Potential Waters of the U.S.

Gregory Canyon

Source: HistoricAerials.com, 1964; PCR Services Corporation, 2011.

FIGURE

3d

N

0 1,000 2,000 Feet

1981 Historic Aerial

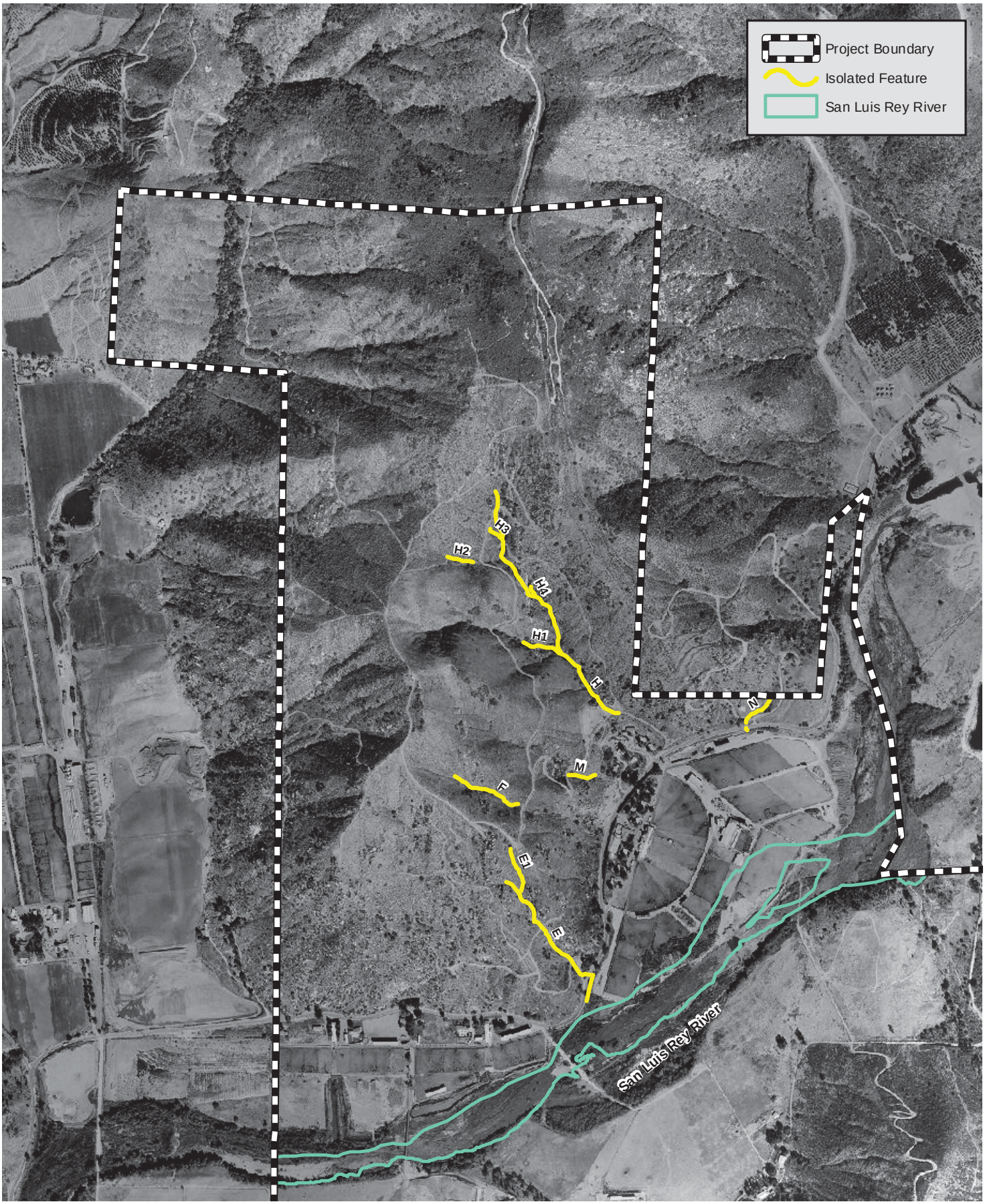
Gregory Canyon

Source: HistoricAerials.com, 1981; PCR Services Corporation, 2011.

FIGURE

3e

PCR



PCR

N

0 1,000 2,000 Feet

1981 Historic Aerial & Potential Waters of the U.S.

Gregory Canyon

Source: HistoricAerials.com, 1981; PCR Services Corporation, 2011.

FIGURE

3f

ENCLOSURE 3

JD Form 1 - San Luis Rey River, Abutting Wetlands, and Adjacent Wetlands (DP1, DP2, DP3, DP4)

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 15-June-2011

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-2010-00354

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State :	CA - California
County/parish/borough:	San Diego
City:	Unincorporated/west of Pala
Lat:	33.34430 N
Long:	-117.11314 W
Universal Transverse Mercator	Folder UTM List *UTM list determined by folder location* NAD83 / UTM zone 11N
	Waters UTM List *UTM list determined by waters location* NAD83 / UTM zone 11N
Name of nearest waterbody: San Luis Rey River	
Name of nearest Traditional Navigable Water (TNW):	San Luis Rey River Estuary
Name of watershed or Hydrologic Unit Code (HUC):	San Luis Rey-Escondido Watershed -- 18070303

☑ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date:	18-May-2011
☑ Field Determination Date(s):	☐ 5-Jan-2011 ☐ 6-Jan-2011 ☐ 7-Jan-2011 ☐ 11-Jan-2011 ☐ 12-Jan-2011 ☐ 18-Jan-2011 ☐ 2-Mar-2011 ☐ 3-Mar-2011 ☐ 29-Apr-2011

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There	[ARE NO] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.
	☐ Waters subject to the ebb and flow of the tide.
	☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:	

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There	[ARE] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-2010-00354 San Luis Rey River Wetlands	Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
SPL-2010-00354 San Luis Rey River	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs
SPL-2010-00354 DP1	Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
SPL-2010-00354 DP2	Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
SPL-2010-00354 DP3	Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
SPL-2010-00354 DP4	Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on:
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size:
Drainage area:
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☐ Tributary flows through [ ] tributaries before entering TNW.

:Number of tributaries

Project waters are river miles from TNW.
Project waters are river miles from RPW.
Project Waters are aerial (straight) miles from TNW.
Project waters are aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:

Identify flow route to TNW:[5]

Tributary Stream Order, if known:

Order	Tributary Name
6	SPL-2010-00354 San Luis Rey River

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-2010-00354 San Luis Rey River	X	-	-	-	-

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-2010-00354 San Luis Rey River	475	10	2:1

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-2010-00354 San Luis Rey River	X	X	-	X	-	-	-	X	-

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-2010-00354 San Luis Rey River	Banks on north side are approximately 2:1 exhibiting more erosion; bank slope on south varies.	None noted within project area.	Meandering	3

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-2010-00354 San Luis Rey River	Perennial flow	20 (or greater)	perennial flow	Flow is perennial; volume and flow vary seasonally.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-2010-00354 San Luis Rey River	Confined	-

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-2010-00354 San Luis Rey River	Unknown	-	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-2010-00354 San Luis Rey River	X	X	-	-

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other

SPL-2010-00354 San Luis Rey River	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-2010-00354 San Luis Rey River	impaired water as designated by state; water is sometimes turbid	Impaired water based on total dissolved solids and chlorides; local pollutants are fertilizers, manure, pesticides, herbicides, etc.

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-2010-00354 San Luis Rey River	X	Riparian consisting of various willow (Salix) species, mule fat with shrub/sapling understory and some areas of grassland and/or herb stratum.	X	Wetlands occur within the OHWM of the San Luis Rey River, but are limited to specific areas and are not along the entire length of the river in the project area.	X

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\ Wildlife Diversity	Explain Findings
SPL-2010-00354 San Luis Rey River	X	X	Designated Critical Habitat of the southwestern willow flycatcher, least Bell's vireo, coastal California gnatcatcher, and arroyo toad	X	Fish are present in the SLRR; evidence of steelhead trout upstream of the project area within the SLRR	X	State sensitive species	X	-

			(Figure 7). Federally listed species occurrences along the relevant reach of the San Luis Rey (Figure 8).						

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:

Wetland Name	Size (Acres)	Wetland Type	Wetland Quality	Cross or Serve as State Boundaries. Explain
SPL-2010-00354 San Luis Rey River Wetlands	28.32	Riparian consisting of various willow (Salix) species, cottonwood, mule fat with shrub/sapling understory and some areas of grassland and/or herb stratum. Within RPW.	Very Good	NA
SPL-2010-00354 DP1	0.33	Depressional pond with riparian vegetation consisting of various willow (Salix) species, mule fat with shrub/sapling understory and some areas of grassland and/or herb stratum.	Good	NA
SPL-2010-00354 DP2	0.12	Depressional pond with riparian vegetation consisting of various willow (Salix) species, mule fat with shrub/sapling understory and some areas of grassland and/or herb stratum.	Good	NA
SPL-2010-00354 DP3	1.46	Depressional pond with riparian vegetation consisting of various willow (Salix) species, mule fat with shrub/sapling understory and	Good	NA

		some areas of grassland and/or herb stratum.		
SPL-2010-00354 DP4	0.33	Depressional pond with riparian vegetation consisting of various willow (Salix) species, mule fat with shrub/sapling understory and some areas of grassland and/or herb stratum.	Good	NA

(b) General Flow Relationship with Non-TNW:
Flow is:

Wetland Name	Flow	Explain
SPL-2010-00354 San Luis Rey River Wetlands	Perennial flow.	-
SPL-2010-00354 DP1	No flow.	DP1 has a shallow subsurface connection to the San Luis Rey River but no detectable surface connection.
SPL-2010-00354 DP2	No flow.	DP2 has a shallow subsurface connection to the San Luis Rey River but no detectable surface connection.
SPL-2010-00354 DP3	No flow.	DP3 has a shallow subsurface connection to the San Luis Rey River but no detectable surface connection.
SPL-2010-00354 DP4	No flow.	DP4 has a shallow subsurface connection to the San Luis Rey River but no detectable surface connection.

Surface flow is:

Wetland Name	Flow	Characteristics
SPL-2010-00354 San Luis Rey River Wetlands	Confined	-
SPL-2010-00354 DP1	Confined	-
SPL-2010-00354 DP2	Confined	-
SPL-2010-00354 DP3	Confined	-
SPL-2010-00354 DP4	Confined	-

Subsurface flow:

Wetland Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-2010-00354 San Luis Rey River Wetlands	Yes	Field observation: Water table present all along San Luis Rey River Wetlands sampling points.	-
SPL-2010-00354 DP1	Yes	Field observation: ponded water at same elevation as San Luis Rey River active channel, and no surface connection present. Groundwater/shallow subsurface flow and accumulation of precipitation are the water source,	-
SPL-2010-00354 DP2	Yes	Field observation: ponded water at same elevation as San Luis Rey River active channel, and no surface connection present. Groundwater/shallow subsurface flow and accumulation of precipitation are the water source,	-
SPL-2010-00354 DP3	Yes	Field observation: ponded water at same elevation as San Luis Rey River active channel, and no surface connection present. Groundwater/shallow subsurface flow and accumulation of precipitation are the water source,	-

SPL-2010-00354 DP4	Yes	Field observation: ponded water at same elevation as San Luis Rey River active channel, and no surface connection present. Groundwater/shallow subsurface flow and accumulation of precipitation are the water source,	-

(c) Wetland Adjacency Determination with Non-TNW:

Wetland Name	Directly Abutting	Discrete Wetland Hydrologic Connection	Ecological Connection	Separated by Berm/Barrier
SPL-2010-00354 San Luis Rey River Wetlands	Yes	Yes	Yes	No
SPL-2010-00354 DP1	No	Yes	Yes	Yes
SPL-2010-00354 DP2	No	Yes	Yes	Yes
SPL-2010-00354 DP3	No	Yes	Yes	Yes
SPL-2010-00354 DP4	No	Yes	Yes	Yes

(d) Proximity (Relationship) to TNW:

Wetland Name	River Miles From TNW	Aerial Miles From TNW	Flow Direction	Within Floodplain
SPL-2010-00354 San Luis Rey River Wetlands	15-20	15-20	Wetland to navigable waters	5 - 10-year
SPL-2010-00354 DP1	15-20	15-20	No flow	50 - 100-year
SPL-2010-00354 DP2	15-20	15-20	No flow	50 - 100-year
SPL-2010-00354 DP3	15-20	15-20	No flow	50 - 100-year
SPL-2010-00354 DP4	15-20	15-20	No flow	50 - 100-year

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Wetland Name	Explain	Identify specific pollutants, if kr
SPL-2010-00354 San Luis Rey River Wetlands	-	-
SPL-2010-00354 DP1	Oily film on surface; water discolored	-
SPL-2010-00354 DP2	Oily film on surface; water discolored	-
SPL-2010-00354 DP3	Oily film on surface; water discolored	-
SPL-2010-00354 DP4	Oily film on surface; water discolored	-

(iii) Biological Characteristics. Wetland supports:

Wetland Name	Riparian Buffer	Characteristics	Vegetation	Explain
SPL-2010-00354 San Luis Rey River Wetlands	X	Same as RPW findings.	X	Same as RPW findings.
SPL-2010-00354 DP1	X	Same as RPW findings.	X	Same as RPW findings.
SPL-2010-00354 DP2	X	Same as RPW findings.	X	Same as RPW findings.
SPL-2010-00354 DP3	X	Same as RPW findings.	X	Same as RPW findings.
SPL-2010-00354 DP4	X	Same as RPW findings.	X	Same as RPW findings.

Habitat for:

Wetland Name	Habitat	Federally Listed Species	Explain Findings	Spawn Area	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\ Wildlife Diversity	Explain Findings
SPL-2010-00354 San Luis Rey River Wetlands	X	X	Same as RPW findings.	X	Same as RPW findings.	X	Same as RPW findings.	X	Same as RPW findings.
SPL-2010-00354 DP1	X	X	Same as RPW findings. Approximately 100 feet of the relevant reach of the San Luis Rey River.	-	-	X	Same as RPW findings.	X	Same as RPW findings.
SPL-2010-00354 DP2	X	X	Same as RPW findings. Approximately 300 feet of the relevant reach of the San Luis Rey River.	-	-	X	Same as RPW findings.	X	Same as RPW findings.
SPL-2010-00354 DP3	X	X	Same as RPW findings. Approximately 100 feet of the relevant reach of the San Luis Rey River.	-	-	X	Same as RPW findings.	X	Same as RPW findings.
SPL-2010-00354 DP4	X	X	Same as RPW findings. Approximately 300 feet of the relevant reach of the San Luis Rey River.	-	-	X	Same as RPW findings.	X	Same as RPW findings.

3. Characteristics of all wetlands adjacent to the tributary (if any):
All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and/or biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: DP1 (including open water), DP2, DP3 (including open water), and DP4 may have been constructed partially in uplands between 1964 and 1981 in association with the dairy, within and adjacent to an area that was likely cleared for agricultural purposes between 1938 and 1964 [See historic aerial photographs (Figures 3a-3f)]. DP1, DP2, DP3, and DP4 are adjacent wetlands that are approximately 100-300 feet from the San Luis Rey River (Attachment A: Figure 1b)**.** DP1 (including open water), DP2, DP3 (including open water), and DP4 do not appear to have surface connection to the San Luis Rey River based on field verification, aerial imagery, and topographic maps (see Attachment A: Figures). However, all DPs are located within the FEMA 100-year floodplain (Attachment A; Figure 6), and within the 100-year floodplain estimated per the Water Surface Analysis Study (Excel Engineering, 2011), have a shallow, subsurface hydrologic connection to the San Luis Rey River, and are therefore not considered isolated. In evaluating the physical, chemical, and biological functions of DPs to determine whether or not there is a significance nexus the nearest TNW (San Luis Rey River estuary), the Los Angeles District has determined that in conjunction with other San Luis Rey River wetlands, DP1, DP2, DP3, and DP4 have more than an insubstantial or speculative effect on the chemical, physical, and/or biological integrity of the San Luis Rey River estuary, the closest TNW, based upon findings in this form of chemical and biological characteristics, as summarized below. There are no physical characteristic benefits to the TNW since there was no determined surface connection between the DPs and the San Luis Rey River.

Biological characteristics: The DPs are within designated critical habitat for three endangered species (least Bell's vireo, arroyo toad, and California gnatcatcher)(Attachment A; Figure 7). Designated critical habitat for the southwestern willow flycatcher and least Bell's vireo continues from the project site downstream to the San Luis Rey River estuary (TNW). Furthermore, the endangered southwestern willow flycatcher, least Bell's vireo, and arroyo toad and threatened coastal California gnatcatcher within project area, and least Bell's vireo and southwestern willow flycatcher occur in proximity to DPs (Attachment A; Figure 8). The riparian/wetland habitat within the DPs serve as buffer habitat and can provide nesting and foraging habitat for the least Bell's vireo and southwestern willow flycatcher. Hydrological benefits include flood attenuation during the 100-year event.

Chemical Characteristics: Historically, the DPs were built for and likely served as treatment ponds for cow manure and runoff from the surrounding agricultural areas associated with the dairy operation which would have otherwise been deposited directly into the San Luis Rey River (Bill Magdych Associates, 2011). Other than cow waste, other potential contaminants present that are associated with diary/agricultural activities include sediments, nutrients such as phosphorus and nitrogen, and pesticides. The DPs currently provide the same historic chemical/water quality benefits to the San Luis Rey River and downstream estuary by treating remnant contaminants in the runoff from the surrounding dairy/agricultural areas.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:

Wetland Name	Flow	Explain
SPL-2010-00354 San Luis Rey River	PERENNIAL	San Luis Rey River flows approximately 11 months of year and most likely contains ponded water during the 12th month within the project area and downstream. The San Luis Rey River meets the definition of a relatively permanent water in accordance with the Rapanos guidance as it has flow more than 3 months of the year.

Provide estimates for jurisdictional waters in the review area:

Wetland Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-2010-00354 San Luis Rey River	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs	-	148504.40
Total:		**-**	148504.40

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

Wetland Name	Flow	Explain
SPL-2010-00354 San Luis Rey River Wetlands	PERENNIAL	Wetlands abutting the SLRR in project area evidence ponding water most of the year.

Provide acreage estimates for jurisdictional wetlands in the review area:

Wetland Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-2010-00354 San Luis Rey River Wetlands	Wetlands directly abutting RPWs that flow directly or indirectly into TNWs	-	114585.10 (within RPW)
Total:		-	114585.10 (within RPW)

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:

Wetland Name	Flow	Explain
SPL-2010-00354 DP1	NO FLOW	See Significant Nexus evaluation in Section 3C.
SPL-2010-00354 DP2	NO FLOW	See Significant Nexus evaluation in Section 3C.
SPL-2010-00354 DP3	NO FLOW	See Significant Nexus evaluation in Section 3C.
SPL-2010-00354 DP4	NO FLOW	See Significant Nexus evaluation in Section 3C.

Provide acreage estimates for jurisdictional wetlands in the review area:

Wetland Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-2010-00354 DP1	Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs	-	1315.23
SPL-2010-00354 DP2	Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs	-	481.91
SPL-2010-00354	Wetlands adjacent to but not directly abutting RPWs that flow	-	5892.22

DP3	directly or indirectly into TNWs		
SPL-2010-00354 DP4	Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs	-	1344.12
Total:		-	9033.48

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):

☐ Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Field Data	Attachment A: Figure 3	Trimble GPS/Ricoh GPS Camera data points.
--Data sheets prepared by Corps	Wetland Delineation Data Forms	Corps Wetland Delineation Forms from 2011 field effort. Figures 5a-5c display wetland delineation sampling points.
--FEMA/FIRM maps	Attachment A: Figure 6	FEMA 100-yr Floodzone.
--Photographs	Aerial photos	Google Earth.
----Aerial	Attachment A: Figures	Attachment A contains current and historic aerials of the area in question.
----Other	Attachment B: Representative Photos	Photographs taken with digital GIS camera.
--Other information	Water Surface Analysis Study (Excel Engineering, 2011)	Excel Engineering. April 4, 2011.*Water Surface Analysis Study for Gregory Canyon*. Escondido, CA. 328 p.
	Characterization of Surface Water Flow in the San Luis Rey River Near Gregory Canyon (Bill Magdych Associates, 2011)	Bill Magdych Associates. May 18, 2011.*Characterization of Surface Water Flow in the San Luis Rey River Near Gregory Canyon*. Reference No. GCL2011. San Diego, CA. 57 p.
	ERDC technical report (Enclosure 3 of the 2010 approved JD for SPL-1998-2007000)	Engineer Research and Development Center (ERDC). November 2, 2009.
--Previous determination(s).	SPL-1998-2007000: 2010 Approved JD	2010 approved JD for the same project identified jurisdictional areas within the San Luis Rey River near the proposed bridge crossing and the Gregory Canyon mainstem only.

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.
[9] -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction

Following Rapanos.

JD Form 2 – K and L

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 15-June-2011

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-2010-00354

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State :	CA - California
County/parish/borough:	San Diego
City:	Unincorporated/west of Pala
Lat:	33.34430 N
Long:	-117.11314 W
Universal Transverse Mercator	Folder UTM List *UTM list determined by folder location* NAD83 / UTM zone 11N
	Waters UTM List *UTM list determined by waters location* NAD83 / UTM zone 11N
Name of nearest waterbody: San Luis Rey River	
Name of nearest Traditional Navigable Water (TNW):	San Luis Rey River Estuary
Name of watershed or Hydrologic Unit Code (HUC):	San Luis Rey-Escondido Watershed -- 18070303

☑ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date:	18-May-2011
☑ Field Determination Date(s):	☐ 5-Jan-2011 ☐ 6-Jan-2011 ☐ 7-Jan-2011 ☐ 11-Jan-2011 ☐ 12-Jan-2011 ☐ 18-Jan-2011 ☐ 2-Mar-2011 ☐ 3-Mar-2011

	☐ 29-Apr-2011

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There	[ARE NO] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.
	☐ Waters subject to the ebb and flow of the tide.
	☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:	

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There	[ARE NO] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-2011-00354 K	Non-RPWs that flow directly or indirectly into TNWs
SPL-2011-00354 L	Non-RPWs that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on:
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:
Drainages K and L have been found by the Corps to have no significant nexus to the San Luis Rey River estuary.
.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size:	557 square miles
Drainage area:	.52 square miles
Average annual rainfall:	14 inches
Average annual snowfall:	0 inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☑ Tributary flows through [ ] tributaries before entering TNW.

:Number of tributaries

Project waters are 20-25 river miles from TNW.
Project waters are 1 (or less) river miles from RPW.
Project Waters are 20-25 aerial (straight) miles from TNW.
Project waters are 1 (or less) aerial (straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:

Identify flow route to TNW:[5]
Unnamed drainage K and L flow under SR-76 (culvert) into a diversion channel to perennial off-site ponds (approximately 1 mile to San Luis Rey River total), 21.5 RM to TNW San Luis Rey River Estuary (located .5 miles upstream from San Luis Rey River mouth). See Section IIC (“SIGNIFICANT NEXUS DETERMINATION”) for more details.

Tributary Stream Order, if known:

Order	Tributary Name
1	SPL-2010-00354 K
1	SPL-2010-00354 L

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-2010-00354 K	X	-	-	-	-
SPL-2010-00354 L	X	-	-	-	-

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-2010-00354 K	1	0.5	Vertical (1:1 or less)
SPL-2010-00354 L	1	0.5	Vertical (1:1 or less)

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-2010-00354 K	-	X	-	-	-	-	X	-	-
SPL-2010-00354 L	-	X	-	-	-	-	X	-	-

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-2010-00354 K	Steep slopes dominated by sandy loam soils and granite bedrock outcroppings.	None identified.	Relatively straight	40
SPL-2010-00354 L	Steep slopes dominated by sandy loam soils and granite bedrock outcroppings.	None identified.	Relatively straight	40

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-2010-00354 K	Ephemeral flow	2-5	flows in response to rainfall events	No information available.
SPL-2010-00354 L	Ephemeral flow	2-5	flows in response to rainfall events	No information available.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-2010-00354 K	Discrete and confined	Drainage supports the headwaters of an established low-flow channel that initiates on-site and extends for approximately 150 linear feet to the east before exiting the eastern site boundary. The ordinary flows remain in the channel; No evidence of higher flows present onsite.
SPL-2010-00354 L	Discrete and confined	Drainage supports the headwaters of an established low-flow channel that initiates on-site and extends for approximately 150 linear feet to the east before exiting the eastern site boundary. The ordinary flows remain in the channel; No evidence of higher flows present onsite.

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-2010-00354 K	Unknown	Subsurface flow is unknown; subsurface flows may occur considering the presence of fractured granitic bedrock.	-
SPL-2010-00354 L	Unknown	Subsurface flow is unknown; subsurface flows may occur considering the presence of fractured granitic bedrock.	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-2010-00354 K	X	X	-	Clear OHWM is present within project area; majority of drainage offsite, See Section IIC ("SIGNIFICANT NEXUS DETERMINATION") for more details.
SPL-2010-00354 L	X	X	-	Clear OHWM is present within project area; majority of drainage offsite. See Section IIC ("SIGNIFICANT NEXUS DETERMINATION") for more details.

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other
SPL-2010-00354 K	X	X	-	-	-	-	X	-	-	-	X	-	-	-	-	-
SPL-2010-00354 L	X	X	-	-	-	-	X	-	-	-	X	-	-	-	-	-

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-2010-00354 K	unknown	unknown
SPL-2010-00354 L	unknown	unknown

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-2010-00354 K	-	The channel supports patches of upland scrub communities on the banks but is primarily unvegetated.	-	-	X
SPL-2010-00354 L	-	The channel supports patches of upland scrub communities on the	-	-	X

		banks but is primarily unvegetated.			

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic \Wildlife Diversity	Explain Findings
SPL-2010-00354 K	X	-	-	-	-	-	-	X	Several species of reptiles, birds, and mammals use the site and most likely use washes as corridors.
SPL-2010-00354 L	X	-	-	-	-	-	-	X	Several species of reptiles, birds, and mammals use the site and most likely use washes as corridors.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:
Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:

Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):
All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and/or biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Findings for: SPL-2010-00354 K and L
Based on topography and aerial photographs, drainages K and L were estimated to be within the same drainage area of approximately .52 square miles (333 acres). These first order tributaries do not appear to have a significant nexus to the TNW, the San Luis Rey River estuary. Both tributaries are very small, erosional features within the property boundary. Approximately 166 feet (0.004 acre) of drainage K and 179 feet (0.024 acre) of drainage L occur within the project area; the majority of both K and L occur offsite. Tributary connection was estimated based on Google Earth and aerial photography (See Figure 1a and 1b of Attachment A). Following the estimated path of drainages K and L as shown of Figure 1 of Attachment A, both drainages likely outlet under SR-76, flowing into a created diversion channel (OHWM = approximately 2-feet wide) that runs parallel to the south side of SR-76. The diversion channel flows west and eventually south into the large ponds off-site. There is no flow data or information and no information regarding channel morphology. Neither of these minor tributaries currently provide habitat for any endangered species.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):

☑ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain): **Drainages K and L do not have more than an insubstantial or speculative effect on the chemical, physical, and/or biological integrity of the TNW (San Luis Rey River estuary). K and L are non-navigable, non-RPWs, as identified by 33 CFR 328.3 (a)(5), with no significant nexus to a TNW.**

☐ Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.

Tributary Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-2010-00354 K	Non-RPWs that flow directly or indirectly into TNWs	50.71	16.19
SPL-2010-00354 L	Non-RPWs that flow directly or indirectly into TNWs	54.53	97.12
Total:		105.24	113.31

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Field Data	Attachment A; Figure 3	Trimble GPS/Ricoh GPS Camera data points.
--Photographs	-	-
----Aerial	Attachment A:Figures	Attachment A contains current and historic aerials of the area in question.
----Other	Attachment B:Representative Photographs	Photographs taken with digital GIS camera.

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.
[9] -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

JD Form 3 – O

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 15-June-2011

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-2010-00354

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State :	CA - California
County/parish/borough:	San Diego
City:	Unincorporated/west of Pala
Lat:	33.34430 N
Long:	-117.11314 W
Universal Transverse Mercator	Folder UTM List *UTM list determined by folder location* NAD83 / UTM zone 11N
	Waters UTM List *UTM list determined by waters location* NAD83 / UTM zone 11N
Name of nearest waterbody: San Luis Rey River	
Name of nearest Traditional Navigable Water (TNW):	San Luis Rey River Estuary
Name of watershed or Hydrologic Unit Code (HUC):	San Luis Rey-Escondido Watershed -- 18070303

☑ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc.) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date:	18-May-2011
☑ Field Determination Date(s):	☐ 5-Jan-2011 ☐ 6-Jan-2011 ☐ 7-Jan-2011 ☐ 11-Jan-2011 ☐ 12-Jan-2011 ☐ 18-Jan-2011 ☐ 2-Mar-2011 ☐ 3-Mar-2011 ☐ 29-Apr-2011

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There	[ARE NO] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.
	☐ Waters subject to the ebb and flow of the tide.
	☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:	

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There	[ARE] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-2010-00354 O	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on:
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size:
Drainage area:
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☐ Tributary flows through [ ] tributaries before entering TNW.
:Number of tributaries

Project waters are river miles from TNW.
Project waters are river miles from RPW.
Project Waters are aerial (straight) miles from TNW.
Project waters are aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.
Explain:

Identify flow route to TNW:[5]

Tributary Stream Order, if known:

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-2010-00354 O	X	-	-	X	Drainage O is within the historic channel/floodplain of the San Luis Rey River (Attachment A: Figures 9a-9f: Bill Magdych Associates, 2011). Disturbances to the drainage O area associated with the adjacent mining ponds to the east deviated the river's flow path to south of the current large mining pond area.

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-2010-00354 O	40	2	2:1

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-2010-00354 O	X	X	-	-	-	-	-	X	-

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-2010-00354 O	Stable	None	Relatively straight	0.5

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-2010-00354 O	Seasonal flow	6-10	Seasonal flow	Flow present onsite (slower upstream, where a series of excavated impoundments connected through small channel breakouts occur); flow is seasonal, at minimum, based on field observations of flow/surface water over the course of 3 months. A culvert from SR-76 outputs north of the beginning of the OHWM of drainage O; however, no detectable surface connection exists between the OHWM from the drainage feature offsite at the culvert outlet and upstream portion of drainage O. Shallow subsurface flow from a seep/spring initiates the OHWM of drainage O. Drainage O is located within the historic San Luis Rey River channel within an area that was likely filled/manipulated in association with the adjacent mining ponds.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-2010-00354 O	Confined	-

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-2010-00354 O	Yes	Shallow subsurface flow from a seep/spring initiates the OHWM of drainage O.	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-2010-00354 O	X	X	-	-

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other

SPL-2010-00354 O	X	-	-	-	X	-	X	X	-	X	-	-	-	X	-	-

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-2010-00354 O	Turbid/discolored water based on field observation	-

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-2010-00354 O	X	Riparian canopy consisting of various willow (Salix) species, mule fat with shrub/sapling understory and some areas of grassland and/or herb stratum. One wetland delineation sampling point was taken where the OHWM initiates, which exhibited hydrophytic vegetation and hydrology parameters within a 15-foot radius of the sampling point. A restrictive cobble layer at 2 inches prohibited a conclusive determination of hydric soils. A majority of drainage O was unvegetated (lacked hydrophytic vegetation) throughout the channel during the jurisdictional determination site visit on March 2, 2011, and therefore drainage O was not classified as having a jurisdictional abutting wetland within drainage O (RPW).	-	-	X

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\ Wildlife Diversity	Explain Findings
SPL-2010-00354 O	X	X	Designated Critical Habitat of the southwestern	X	Unidentified fish species present	State listed species	-	X	Unidentified fish were present; Several species

			willow flycatcher, least Bell's vireo, coastal California gnatcatcher, and arroyo toad (Figure 7). Federally listed species occurrences along the relevant reach of the San Luis Rey (Figure 8).						of reptiles, birds, and mammals use the site.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:

Not Applicable.

(b) General Flow Relationship with Non-TNW:
Flow is:

Not Applicable.

Surface flow is:

Not Applicable.

Subsurface flow:

Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:

Not Applicable.

(d) Proximity (Relationship) to TNW:

Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Not Applicable.

(iii) Biological Characteristics. Wetland supports:

Not Applicable.

Habitat for:

Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):
All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and/or biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: Not Applicable

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:

Wetland Name	Flow	Explain
SPL-2010-00354 O	SEASONAL	Drainage O flows, at minimum, 3 months of the year based on field evidence. Drainage O meets the definition of a relatively permanent water in accordance with the Rapanos guidance as it flows at least 3 months of the year. Drainage O flows offsite and follows the eastern side of the project boundary to its confluence with the San Luis Rey River.

Provide estimates for jurisdictional waters in the review area:

Wetland Name	Type	Size (Linear) (m)	Size (Area) (m²)

SPL-2010-00354 O	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs	252.46	2606.16
Total:		252.46	2606.16

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:

Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:

Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):

☐ Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Field Data	Attachment A: Figure 3	Trimble GPS/Ricoh GPS Camera data points.
--Photographs	Aerial photos.	Google Earth.
----Aerial	Attachment A: Figures	Attachment A contains current and historic aerials of the area in question.
----Other	Attachment B: Representative Photographs	Photographs taken with digital GIS camera.
--Other information	Characterization of Surface Water Flow in the San Luis Rey River Near Gregory Canyon (Bill Magdych Associates, 2011)	Bill Magdych Associates. May 18, 2011.*Characterization of Surface Water Flow in the San Luis Rey River Near Gregory Canyon*. Reference No. GCL2011. San Diego, CA. 57 p.

B. ADDITIONAL COMMENTS TO SUPPORT JD:

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features

generally and in the arid West.

[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

[7]-Ibid.

[8]-See Footnote #3.

[9] -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

JD Form 4 – D

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 15-June-2011

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-2010-00354

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State :	CA - California
County/parish/borough:	San Diego
City:	Unincorporated/west of Pala
Lat:	33.34430 N
Long:	-117.11314 W
Universal Transverse Mercator	Folder UTM List *UTM list determined by folder location* NAD83 / UTM zone 11N
	Waters UTM List *UTM list determined by waters location* NAD83 / UTM zone 11N
Name of nearest waterbody: San Luis Rey River	
Name of nearest Traditional Navigable Water (TNW):	San Luis Rey River Estuary
Name of watershed or Hydrologic Unit Code (HUC):	San Luis Rey-Escondido Watershed -- 18070303

☑ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date:	18-May-2011
☑ Field Determination Date(s):	☐ 5-Jan-2011 ☐ 6-Jan-2011 ☐ 7-Jan-2011 ☐ 11-Jan-2011 ☐ 12-Jan-2011 ☐ 18-Jan-2011 ☐ 2-Mar-2011 ☐ 3-Mar-2011 ☐ 29-Apr-2011

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There	[ARE NO] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.
	☐ Waters subject to the ebb and flow of the tide.
	☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:	

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There	[ARE] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-2010-00354 D	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on:
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size:
Drainage area:
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☐ Tributary flows through [ ] tributaries before entering TNW.
:Number of tributaries

Project waters are river miles from TNW.
Project waters are river miles from RPW.
Project Waters are aerial (straight) miles from TNW.
Project waters are aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.
Explain:

Identify flow route to TNW:[5]

Tributary Stream Order, if known:

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-2010-00354 D	X	-	-	-	-

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-2010-00354 D	6	1.5	2:1

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-2010-00354 D	-	X	-	X	-	-	-	-	Boulders

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-2010-00354 D	Stable	Approximately 10 riffle/pool complexes occur within the project area	Relatively straight	11

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-2010-00354 D	Intermittent flow	11-20	Intermittent flow	Flow present onsite; flow is intermittent, at minimum, based on field observations of flow and offsite accounts from an adjacent landowner that flows occur from drainage D onto their property annually during rain events; a site visit to the adjacent property to the southwest of the relevant onsite reach of drainage D was performed on June 7, during which flows were observed from the impoundment, located southwest of the relevant reach of drainage D, into a small creek that runs parallel to Couser Canyon Road (which then flows directly into the San Luis Rey River) (Attachment A; Figure1). A Memorandum for the Record dated June 7, 2011 is in the administrative file and documents the offsite connection to the RPW (San Luis Rey River) of the onsite relevant tributary reach of drainage D.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-2010-00354 D	Confined	-

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-2010-00354 D	Unknown	-	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-2010-00354 D	X	X	-	-

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other
SPL-	X	X	-	-	-	X	X	-	-	-	X	-	-	X	-	-

2010-00354 D																

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-2010-00354 D	Clear water based on field observation	-

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-2010-00354 D	X	Mature coast live oak woodland, dominated by mature coast live oak (Quercus agrifolia). Poison oak present (Toxicodendron diversilobum) within the shrub layer. Little to no herbaceous layer within this plant community.	-	-	X

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\Wildlife Diversity	Explain Findings
SPL-2010-00354 D	X	-	-	X	Unidentified fish species present	-	-	X	Unidentified fish species were present; Several species of reptiles, birds, and mammals use the site.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:

Not Applicable.

(b) General Flow Relationship with Non-TNW:
Flow is:

Not Applicable.

Surface flow is:

Not Applicable.

Subsurface flow:

Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:

Not Applicable.

(d) Proximity (Relationship) to TNW:

Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Not Applicable.

(iii) Biological Characteristics. Wetland supports:

Not Applicable.

Habitat for:

Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):
All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and/or biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: Not Applicable

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:

Wetland Name	Flow	Explain
SPL-2010-00354 D	INTERMITTENT	Drainage D flows more than 3 months of the year (more than seasonally), based on field evidence and anecdotal evidence obtained from an adjacent landowner. Drainage D meets the definition of a relatively permanent water in accordance with the Rapanos guidance as it has flow more than 3 months of the year.

Provide estimates for jurisdictional waters in the review area:

Wetland Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-2010-00354 D	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs	431.68	764.86
Total:		431.68	764.86

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:

Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:

Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:

Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):

☐ Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Field Data	Attachment A: Figure 3	Trimble GPS/Ricoh GPS Camera data points.
--Photographs	Aerial Photos.	Google Earth.
----Aerial	Attachment A: Figures	Attachment A contains current and historic aerials of the area in question.
----Other	Attachment B: Representative Photographs	Photographs taken with digital GIS camera.

B. ADDITIONAL COMMENTS TO SUPPORT JD:
A Memorandum for the Record dated June 7, 2011 is in the administrative file and documents the offsite connection to the RPW (San Luis Rey River) of the onsite relevant tributary reach of Drainage D.

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.
[9] -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

JD Form 5 – D(upstream), D1, D2, D3, D4, H2(downstream), H4.1, H5, I, J, P, P1, P2, Q, Q1, R

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 15-June-2011

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-2010-00354

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State :	CA - California
County/parish/borough:	San Diego
City:	Unincorporated/west of Pala
Lat:	33.34430 N
Long:	-117.11314 W
Universal Transverse Mercator	Folder UTM List *UTM list determined by folder location* NAD83 / UTM zone 11N
	Waters UTM List *UTM list determined by waters location* NAD83 / UTM zone 11N
Name of nearest waterbody: San Luis Rey River	
Name of nearest Traditional Navigable Water (TNW):	San Luis Rey River Estuary
Name of watershed or Hydrologic Unit Code (HUC):	San Luis Rey-Escondido Watershed -- 18070303

☑ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑	Office Determination Date:	18-May-2011
☑	Field Determination Date(s):	☐ 5-Jan-2011 ☐ 6-Jan-2011 ☐ 7-Jan-2011 ☐ 11-Jan-2011 ☐ 12-Jan-2011 ☐ 18-Jan-2011 ☐ 2-Mar-2011

	☐ 3-Mar-2011 ☐ 29-Apr-2011

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ARE NO] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ARE NO] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-2010-00354 D (upstream)	Uplands
SPL-2010-00354 D1	Uplands
SPL-2010-00354 D2	Uplands
SPL-2010-00354 D3	Uplands
SPL-2010-00354 D4	Uplands
SPL-2010-00354 H2 (downstream)	Uplands
SPL-2010-00354 H4.1	Uplands
SPL-2010-00354 H5	Uplands
SPL-2010-00354 I	Uplands
SPL-2010-00354 J	Uplands
SPL-2010-00354 P	Uplands
SPL-2010-00354 P1	Uplands
SPL-2010-00354 P2	Uplands
SPL-2010-00354 Q	Uplands
SPL-2010-00354 Q1	Uplands
SPL-2010-00354 R	Uplands

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on:
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:
Drainages D (upstream), D1, D2, D3, D4, H2 (downstream), H4.1, H5, I, J, P, P1, P2, Q, Q1, R do not have an OHWM or indicators of flow and are therefore non-jurisdictional features.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size:
Drainage area:
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☐ Tributary flows through [ ] tributaries before entering TNW.
:Number of tributaries

Project waters are river miles from TNW.
Project waters are river miles from RPW.

Project Waters are aerial (straight) miles from TNW.
Project waters are aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.
Explain:

Identify flow route to TNW:[5]

Tributary Stream Order, if known:
Not Applicable.

(b) General Tributary Characteristics:
Tributary is:
Not Applicable.

Tributary properties with respect to top of bank (estimate):
Not Applicable.

Primary tributary substrate composition:
Not Applicable.

Tributary (conditions, stability, presence, geometry, gradient):
Not Applicable.

(c) Flow:
Not Applicable.

Surface Flow is:
Not Applicable.

Subsurface Flow:
Not Applicable.

Tributary has:
Not Applicable.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).
Not Applicable.

(iv) Biological Characteristics. Channel supports:
Not Applicable.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:
Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):
All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and/or biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: Not Applicable

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):

☑ Other (Explain):

Drainages D (upstream), D1, D2, D3, D4, H2 (downstream), H4.1, H5, I, J, P, P1, P2, Q, Q1, R are small swale features which do not exhibit an OHWM and, in accordance with the Rapanos Guidance, are not jurisdictional.

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Field Data	Attachment A: Figure 3	Trimble GPS/Ricoh GPS Camera data points.
--Photographs	Aerial photos	Google Earth.
----Aerial	Attachment A: Figures	Attachment A contains current and historic aerials of the area in question.
----Other	Attachment B: Representative Photographs	Photographs taken with digital GIS camera.

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.
[9] -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

ISOLATED FEATURES - JD Form – E, E1, F, H, H1, H2, H3, H4, M, and N

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 15-June-2011

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-2010-00354

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State :	CA - California
County/parish/borough:	San Diego
City:	Unincorporated/west of Pala
Lat:	33.34430 N
Long:	-117.11314 W
Universal Transverse Mercator	Folder UTM List *UTM list determined by folder location* NAD83 / UTM zone 11N
	Waters UTM List *UTM list determined by waters location* NAD83 / UTM zone 11N
Name of nearest waterbody: San Luis Rey River	
Name of nearest Traditional Navigable Water (TNW):	San Luis Rey River Estuary
Name of watershed or Hydrologic Unit Code (HUC):	San Luis Rey-Escondido Watershed -- 18070303

☑ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date:	18-May-2011
☑ Field Determination Date(s):	☐ 5-Jan-2011 ☐ 6-Jan-2011 ☐ 7-Jan-2011 ☐ 11-Jan-2011 ☐ 12-Jan-2011 ☐ 18-Jan-2011 ☐ 2-Mar-2011 ☐ 3-Mar-2011

	☐ 29-Apr-2011

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There	[ARE NO] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.
	☐ Waters subject to the ebb and flow of the tide.
	☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:	

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There	[ARE NO] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-2010-00354 E	Isolated (interstate and intrastate) waters, including isolated wetlands
SPL-2010-00354 E1	Isolated (interstate and intrastate) waters, including isolated wetlands
SPL-2010-00354 F	Isolated (interstate and intrastate) waters, including isolated wetlands
SPL-2010-00354 H	Isolated (interstate and intrastate) waters, including isolated wetlands
SPL-2010-00354 H1	Isolated (interstate and intrastate) waters, including isolated wetlands
SPL-2010-00354 H2	Isolated (interstate and intrastate) waters, including isolated wetlands
SPL-2010-00354 H3	Isolated (interstate and intrastate) waters, including isolated wetlands
SPL-2010-00354 H4	Isolated (interstate and intrastate) waters, including isolated wetlands
SPL-2010-00354 M	Isolated (interstate and intrastate) waters, including isolated wetlands
SPL-2010-00354 N	Isolated (interstate and intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on:

OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:
Unnamed drainages E, E1, F, H, H1, H2, H3, H4, M, and N have characteristics of an OHWM including debris wracks, scour, water staining, and destruction of vegetation (on H only); drainages E and M may have seeps associated with fractured granitic bedrock (not conclusively determined). However, hydrologic connectivity between the drainages and the San Luis Rey River could not be detected in the field and review of current aerial photography does not indicate connectivity (Figure 1).The OHWMs of these drainages do not continue south of the drainages, and any potential flows from these drainages flow into the active dairy/developed areas where there is currently no evidence of an existing watercourse or OHWM (Figure 2). The dairy/developed area is between approximately 950 and 1700 feet wide between the downstream extent of drainages F, H, H1, H2, H3, H4, M, and N and the OHWM of the San Luis Rey River (RPW). The downstream extent of drainage E is approximately 80 feet from the OHWM of the San Luis Rey River (RPW) and is isolated from the San Luis Rey River by a developed/filled area associated with the dairy/residence (Figure 2). There is no apparent interstate commerce connection for all above features.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size:
Drainage area:
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☐ Tributary flows through [ ] tributaries before entering TNW.

:Number of tributaries

Project waters are river miles from TNW.
Project waters are river miles from RPW.
Project Waters are aerial (straight) miles from TNW.
Project waters are aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:

Identify flow route to TNW:[5]

Tributary Stream Order, if known:
Not Applicable.

(b) General Tributary Characteristics:
Tributary is:
Not Applicable.

Tributary properties with respect to top of bank (estimate):
Not Applicable.

Primary tributary substrate composition:
Not Applicable.

Tributary (conditions, stability, presence, geometry, gradient):
Not Applicable.

(c) Flow:
Not Applicable.

Surface Flow is:
Not Applicable.

Subsurface Flow:
Not Applicable.

Tributary has:
Not Applicable.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).
Not Applicable.

(iv) Biological Characteristics. Channel supports:
Not Applicable.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:
Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):
All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and/or biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: Not Applicable

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]

Water Name	Interstate/Foreign Travelers	Fish/Shellfish Commerce	Industrial Commerce	Interstate Isolated	Explain	Other Factors	Explain
	-	-	-	-		-	
	-	-	-	-		-	
SPL-2010-00354 E	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-2010-00354 E1	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-2010-00354 F	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-2010-00354 H	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.

SPL-2010-00354 H1	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-2010-00354 H2	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-2010-00354 H3	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-2010-00354 H4	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-2010-00354 M	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-2010-00354 N	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.

Identify water body and summarize rationale supporting determination:

Water Name	Adjacent to TNW Rationale	TNW Rationale
	-	-
	-	-
SPL-2010-00354 E	-	-
SPL-2010-00354 E1	-	-
SPL-2010-00354 F	-	-
SPL-2010-00354 H	-	-
SPL-2010-00354 H1	-	-
SPL-2010-00354 H2	-	-
SPL-2010-00354 H3	-	-
SPL-2010-00354 H4	-	-
SPL-2010-00354 M	-	-
SPL-2010-00354 N	-	-

Provide estimates for jurisdictional waters in the review area:

Water Name	Type	Size (Linear) (m)	Size (Area) (m^2)
		-	
		-	

SPL-2010-00354 E	Isolated (interstate and intrastate) waters, including isolated wetlands	386.84	286.49
SPL-2010-00354 E1	Isolated (interstate and intrastate) waters, including isolated wetlands	117.91	71.56
SPL-2010-00354 F	Isolated (interstate and intrastate) waters, including isolated wetlands	567.74	93.08
SPL-2010-00354 H	Isolated (interstate and intrastate) waters, including isolated wetlands	2166.37	594.89
SPL-2010-00354 H1	Isolated (interstate and intrastate) waters, including isolated wetlands	323.66	76.89
SPL-2010-00354 H2	Isolated (interstate and intrastate) waters, including isolated wetlands	213.34	20.32
SPL-2010-00354 H3	Isolated (interstate and intrastate) waters, including isolated wetlands	127.65	28.33
SPL-2010-00354 H4	Isolated (interstate and intrastate) waters, including isolated wetlands	88.09	36.42
SPL-2010-00354 M	Isolated (interstate and intrastate) waters, including isolated wetlands	216.89	52.61
SPL-2010-00354 N	Isolated (interstate and intrastate) waters, including isolated wetlands	330.39	60.70

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:

☑ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:
Unnamed Drainages E, E1, F, H, H1, H2, H3, H4, M, and N are isolated as described above. These features were analyzed in accordance with 33 CFR 328.3(a)(i-iii) and were determined to be isolated with no interstate commerce connection. They are not nor could be used for interstate or foreign travelers for recreational or other purposes as they are located on private lands. In addition, E, E1, F, H, H1, H2, H3, H4, M, and N are ephemeral in nature. All features do not support shellfish; and they are not nor could be used for industrial purpose by industries in interstate commerce.

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):

☐ Other (Explain)

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:

Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Photographs	Aerial photos	Google Earth.
----Aerial	Figure 1: Isolated features	Isolated features digitized based on field verification of features in question.
	Figure 2: Isolated features & Developed Areas	Isolated features digitized based on field verification of features in question, including developed area which isolates features from SLRR.
	Figures 3a-3h: Historic Aerials	

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.
[9] -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

ENCLOSURE 4

Attachment B: Representative Photographs

SAN LUIS REY RIVER AND WETLANDS

Photo 1: San Luis Rey River OHWM looking northeast (33.34803 N, 117.11138 W; 1/7/11 #RIMG0221)

Photo 2: San Luis Rey River debris racks looking southwest (33.34846 N, 117.11116 W; 1/7/11 #RIMG0217)

Photo 3: San Luis Rey River sediment deposits (33.34823 N, 117.11271 W; 1/5/11 #RIMG0111)

Photo 4: San Luis Rey River wetlands (33.34749 N, 117.11289 W; 3/3/11 #RIMG0392)

Photo 5: San Luis Rey River wetlands and OHWM (33.34636 N, 117.11369 W; 3/3/11 #RIMG0387)

Photo 6: San Luis Rey River OHWM looking east (33.34596 N, 117.11434 W; 1/5/11 #RIMG0122)

Photo 7: San Luis Rey River wetlands/OHWM looking north (33.34179 N, 117.12045 W; 1/6/11 #RIMG0176)

Photo 8: San Luis Rey River western project boundary (33.34073 N, 117.1269 W; 3/3/11 #RIMG0384)

DRAINAGE O

Photo 9: Drainage O looking south (33.35272 N, 117.11233 W; 3/2/11 #RIMG0358)

Photo 10: Drainage O looking south looking south (33.35231 N, 117.1123 W; 3/2/11 #RIMG0359)

Photo 11: Drainage O looking south looking south (33.35196 N, 117.1121 W; 3/2/11 #RIMG0361)

DEPRESSIONAL PONDS (DPs)

Photo 12: DP1 looking north (33.34191 N, 117.1261 W; 1/6/11 #RIMG0192)

Photo 13: DP 2 looking north (33.34192 N, 117.1255 W; 1/6/11 #RIMG0188)

Photo 14: DP3 looking north (33.3414 N, 117.12498 W; 1/6/11 #RIMG0190)

Photo 15: DP4 looking southwest (33.34272 N, 117.12156 W; 4/29/11 #DSC_00111)

DRAINAGE D

Photo 16: Drainage D, overview, flows to impoundment downstream (33.35894 N, 117.12268 W; 1/12/11 #RIMG260)

Photo 17: Drainage D looking north (33.35830 N, 117.12850 W; 1/12/11 #IMG_1717)

Photo 18: Drainage D looking north (33.35995 N, 117.12820 W; 1/12/11 #IMG_1721)

Photo 19: Drainage D looking west (33.35995 N, 117.12820 W; 1/12/11 #IMG_1720)

Photo 20: Drainage D looking north (33.35907 N, 117.12807 W; 1/12/11 #IMG_1718)

Photo 21: Drainage D looking northeast (33.35812 N, 117.12884 W; 1/12/11 #IMG_1713)

DRAINAGES K AND L

Photo 22: Drainage K – Looking southwest at OHWM (33.35902 N, 117.11757 W; 3/3/11 #RIMG0376)

Photo 23: Drainage L looking west (water stains on rocks) (33.36109 N, 117.1173 W; 3/3/11 #RIMG0375)

REPRESENTATIVE PHOTOGRAPHS OF DRAINAGES WITHOUT AN OHWM

Photo 24: Drainage D2 looking east (33.36018 N, 117.12424 W; 1/12/11 #RIMG0262)

Photo 25: Drainage D3 looking west (33.3584 N, 117.12533 W; 1/12/11 #RIMG0266)

Photo 26: Drainage D4 looking east (33.35798 N, 117.12724 W; 1/12/11 #RIMG0264)

Photo 27: Drainage P looking east (33.35533 N, 117.12483 W; 1/12/11 #RIMG0267)

Photo 28: Drainage Q looking southwest (33.35126 N, 117.12575 W; 1/12/11 #RIMG0270)

Photo 29: Drainage R looking southwest (33.3499 N, 117.12598 W; 1/12/11 #RIMG0273)

Photo 30: Drainage I looking northwest (33.35577 N, 117.11746 W; 1/11/11 #RIMG0251)

Photo 31: Drainage J overview looking east (33.35709 N, 117.11774 W; 1/11/11 #RIMG0249)

REPRESENTATIVE PHOTOGRAPHS OF ISOLATED FEATURES

Photo 32: Drainage E looking north (33.3462 N, 117.1202 W; 1/11/11 #IMG_1680)

Photo 33: Drainage E looking north (33.34566 N, 117.11970 W; 1/11/11 #IMG_1685)

Photo 34: Drainage E1 looking south (33.34665 N, 117.12054 W; 1/11/11 #IMG_1679)

Photo 35: Drainage F looking southeast (33.34866 N, 117.12060 W; 1/11/11 #IMG_1671)

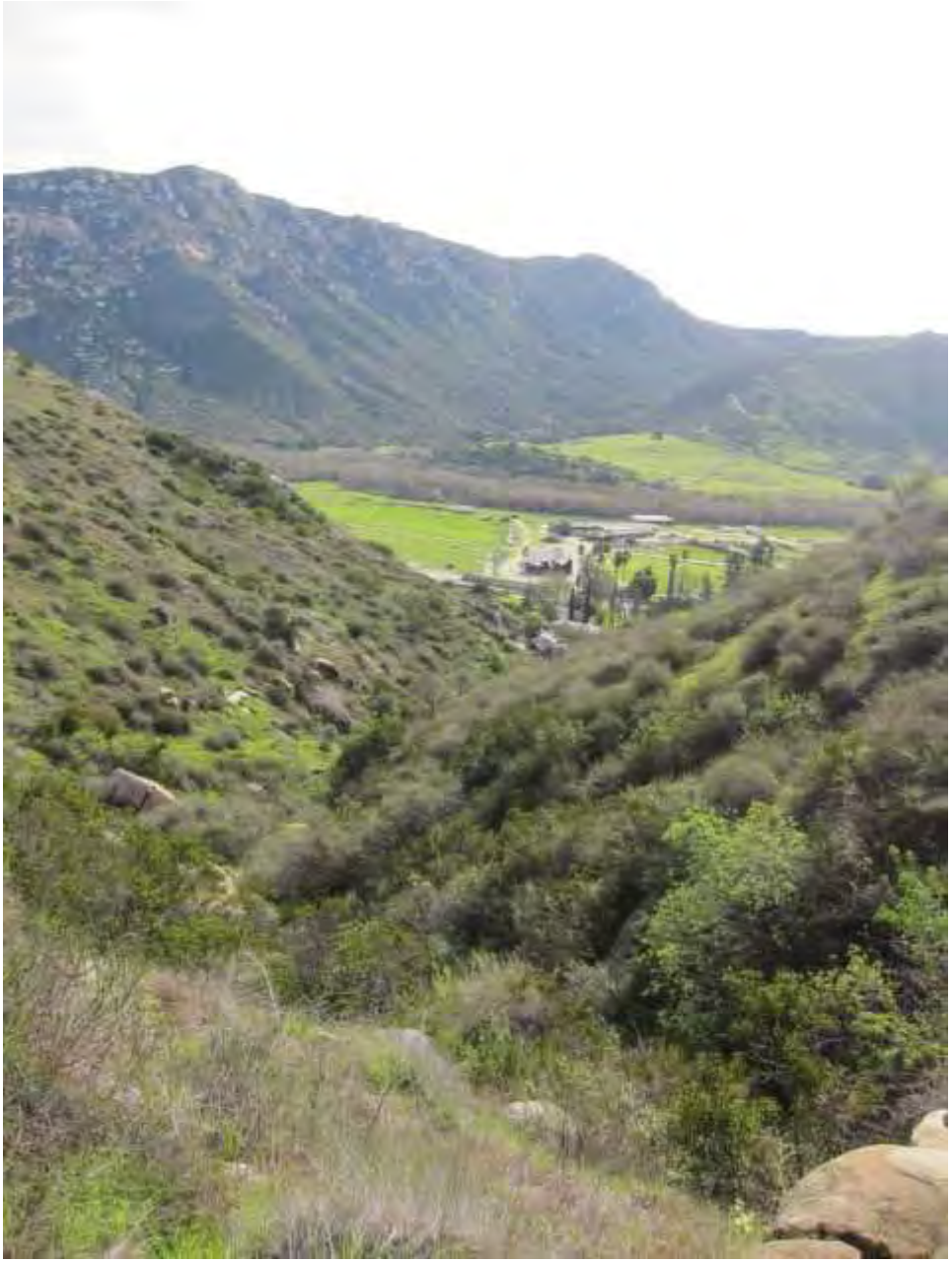


Photo 36: Drainage M looking east (33.3492 N, 117.119 W; 1/11/11 #IMG_1683)

Photo 37: Drainage H overview (33.35469 N; 117.12101 W; 1/11/11 #IMG_1671)

Photo 38: Drainage H looking downstream (33.35289 N; 117.11983 W; 1/11/11 #RIMG0240)

Photo 39: Drainage H2 looking west (33.35389 N; 117.12114 W; 1/11/11 #IMG_1673)

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
PO BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF:

January 13, 2010

Office of the Chief
Regulatory Division

Mr. Jerry Riessen
Gregory Canyon, Limited
3 Embarcadero Center, Suite 2360
San Francisco, California 94111-4026

SUBJECT: Approved Jurisdictional Determination regarding presence/absence of geographic jurisdiction

Dear Mr. Riessen:

Reference is made to the revised jurisdictional delineation (JD) dated October 9, 2009 completed by URS on your behalf for the proposed Gregory Canyon Landfill (SPL-1998-2007000-TOR). In order to verify the above-referenced JD, we conducted field visits on October 20-21, 2009 and November 20, 23-25, 2009 to support an approved Department of the Army JD for the Gregory Canyon Landfill proposed project site at approximate center points latitude 33.34430°N and longitude -117.11314°W near the city of Pala, San Diego, California (Enclosure 1a).

The field team for the October 20-21, 2009 site visit consisted of senior, technical expert regulatory project managers within the Los Angeles District (LAD) and a team from the U.S. Army Engineer Research and Development Center (ERDC) headed by Robert Lichvar. The field team for the second site visit consisted of senior, technical expert regulatory project managers within the LAD.

As you may know, the Corps' evaluation process for determining whether or not a Department of the Army permit is needed involves two tests. If both tests are met, then a permit is required. The first test determines whether or not the proposed project is located in a water of the United States (i.e., it is within the Corps' geographic jurisdiction). The second test determines whether or not the proposed project is a regulated activity under Section 10 of the River and Harbor Act or Section 404 of the Clean Water Act. As part of the evaluation process, pertaining to the first test only, we have made the jurisdictional determination below.

Based on available information, we have determined there are waters of the United States on the project site as well as non-jurisdictional aquatic resources in the locations depicted on the enclosed aerial photograph (Enclosure 1b). The basis for our determination can be found in the enclosed JD form(s) (Enclosure 2), the technical report from ERDC (Enclosure 3) and the LAD Corps' significant nexus determination (Enclosure 4). Please note: in our goal to focus on the Gregory Canyon drainage area and the area of your proposed bridge crossing over the San Luis Rey River and to provide you with an expeditious decision, we did not delineate all wetlands within your entire property. In the near future and with your cooperation, our field teams will complete the wetland delineation for the remainder of the proposed project site as needed to ensure an efficient permit application review process.

The aquatic resources identified as "Tributary A and Tributary B" on the Enclosure 1 are intrastate isolated waters with no apparent interstate or foreign commerce connection. As such, these waters are not currently regulated by the Corps of Engineers. This disclaimer of jurisdiction is only for Section 404 of the Clean Water Act. Other Federal, State, and local laws may apply to your activities. In particular, you may need authorization from the California State Water Resources Control Board and/or the U.S. Fish and Wildlife Service.

This letter contains an approved jurisdictional determination for the proposed Gregory Canyon Landfill proposed project site. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet (Appendix A) and Request for Appeal (RFA) form. If you request to appeal this decision you must submit a completed RFA form to the Corps South Pacific Division Office at the following address:

Mr. Tom Cavanaugh
Administrative Appeal Review Officer,
U.S. Army Corps of Engineers
South Pacific Division, CESPD-PDS-O, 2042B
1455 Market Street, San Francisco, California 94103-1399

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. Part 331.5, and that it has been received by the Division Office within 60 days of the date on the NAP. Should you decide to submit an RFA form, it must be received at the above address by March 13, 2010. It is not necessary to submit an RFA form to the Division office if you do not object to the decision in this letter.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. If you wish to submit new information regarding the approved jurisdictional determination for this site, please submit this information to me at the letterhead address by March 13, 2010. The Corps will consider any new information so submitted and respond within 60 days by either revising the prior determination, if appropriate, or reissuing the prior determination. A revised or reissued jurisdictional determination can be appealed as described above.

This determination has been conducted to identify the extent of the Corps' Clean Water Act jurisdiction on the particular proposed project site identified above. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Please be advised that you can now comment on your experience with Regulatory Division by accessing the Corps web-based customer survey form at: http://per2.nwp.usace.army.mil/survey.html.

If you have any questions, please contact me at (213) 452-3406.

Sincerely,

David J. Castanon
Chief, Regulatory Division

Enclosures
1. Approved JD Aerial Photo
2. *Rapanos* Approved JD Sheets
3. ERDC technical report
4. Corps' Significant Nexus Determination

Copy furnished (w/enc):
Mr. Jim Simmons, Project Manager

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Mr. Jerry Riessen, Gregory Canyon Limited	File Number: SPL-1998-2007000-TGR	Date: January 13, 2010

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

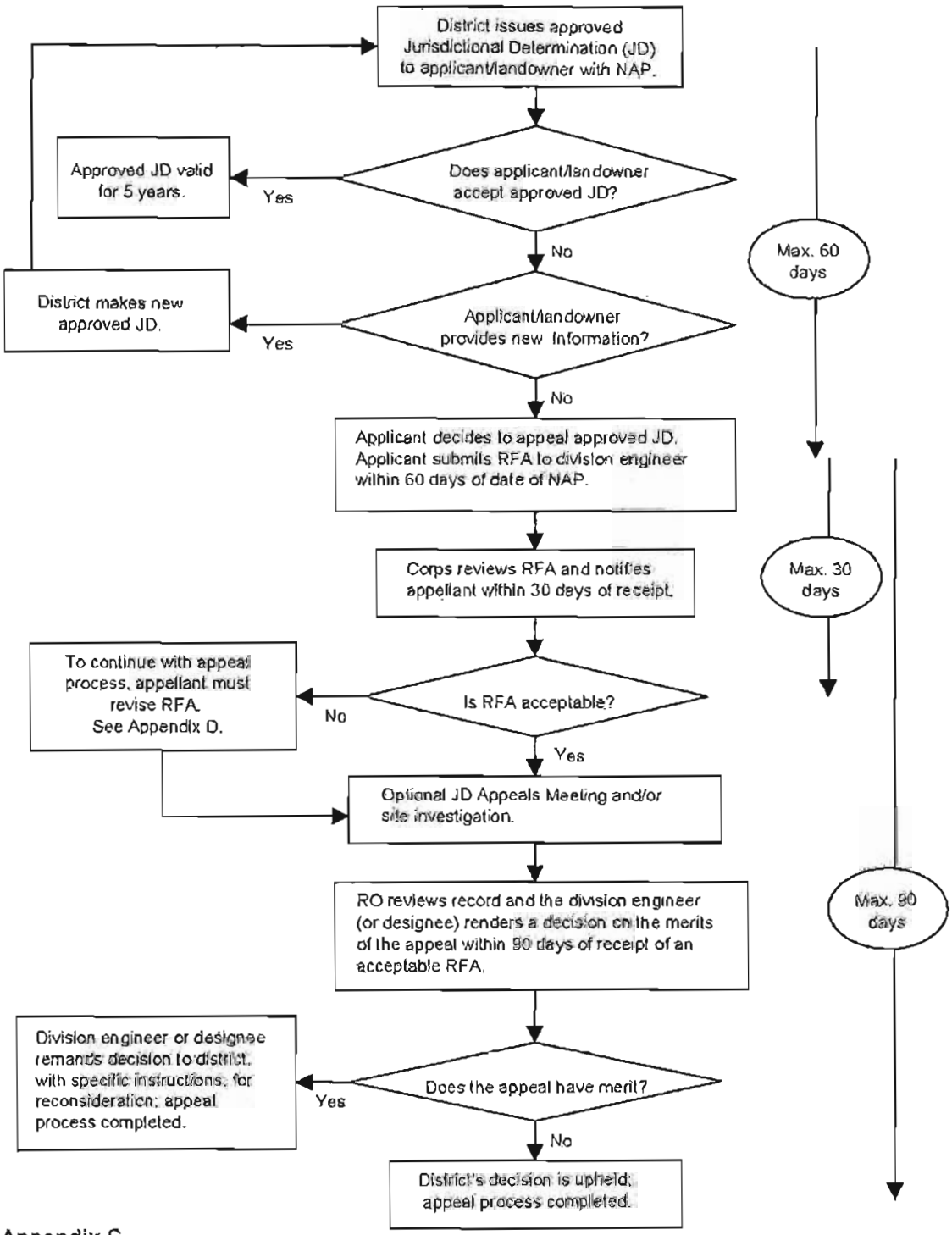
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
DISTRICT ENGINEER Los Angeles District, Corps of Engineers ATTN: Chief, Regulatory Division P.O. Box 532711 Los Angeles, CA 90053-2325 Tel. (213) 452-3406	DIVISION ENGINEER South Pacific Division, Corps of Engineers ATTN: Tom Cavanaugh Administrative Appeal Review Officer, South Pacific Division, CESPD-PDS-O, 2042B 1455 Market Street, San Francisco, California 94103-1399 Tel. (415) 503-6574

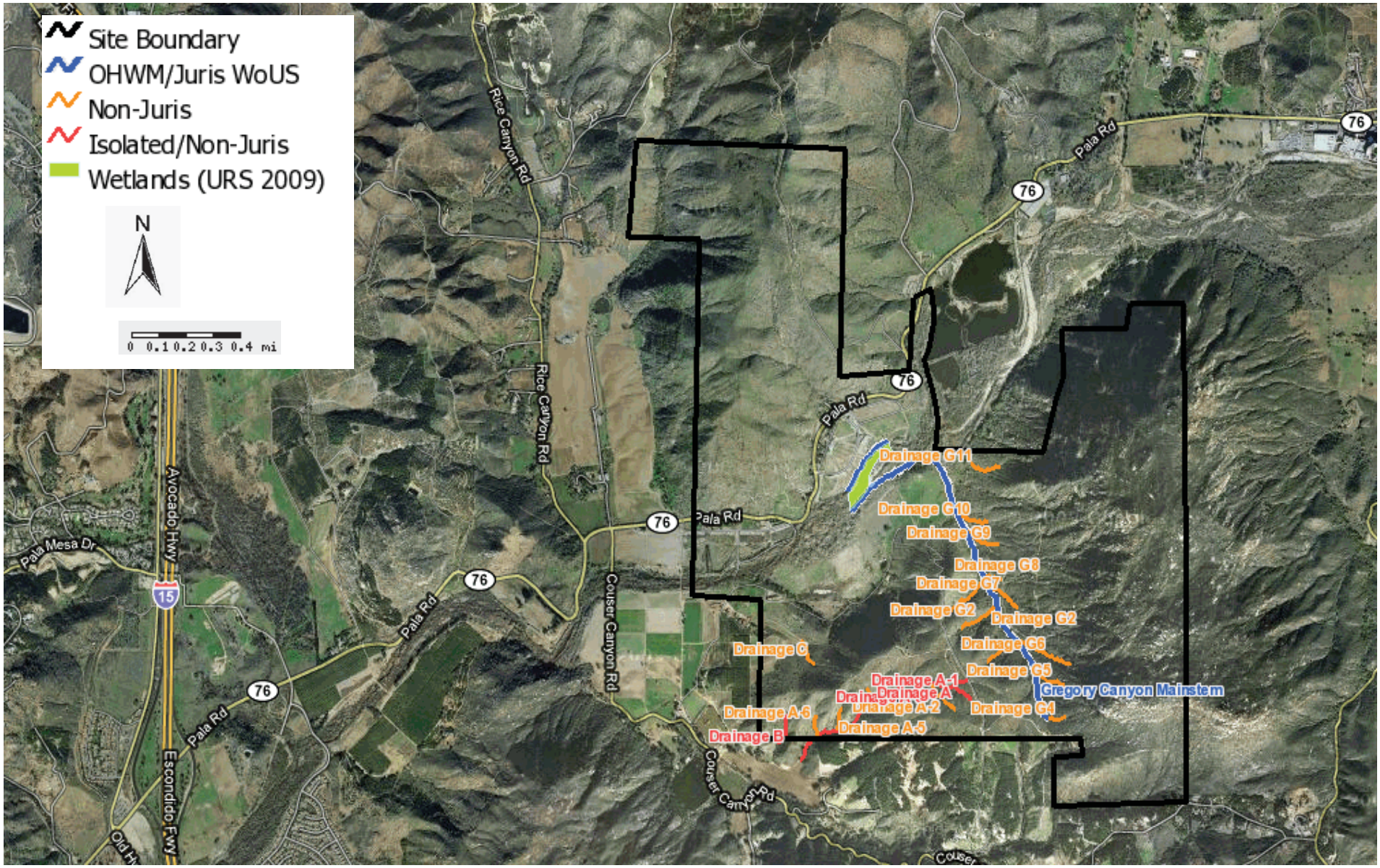
RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
Signature of appellant or agent.		

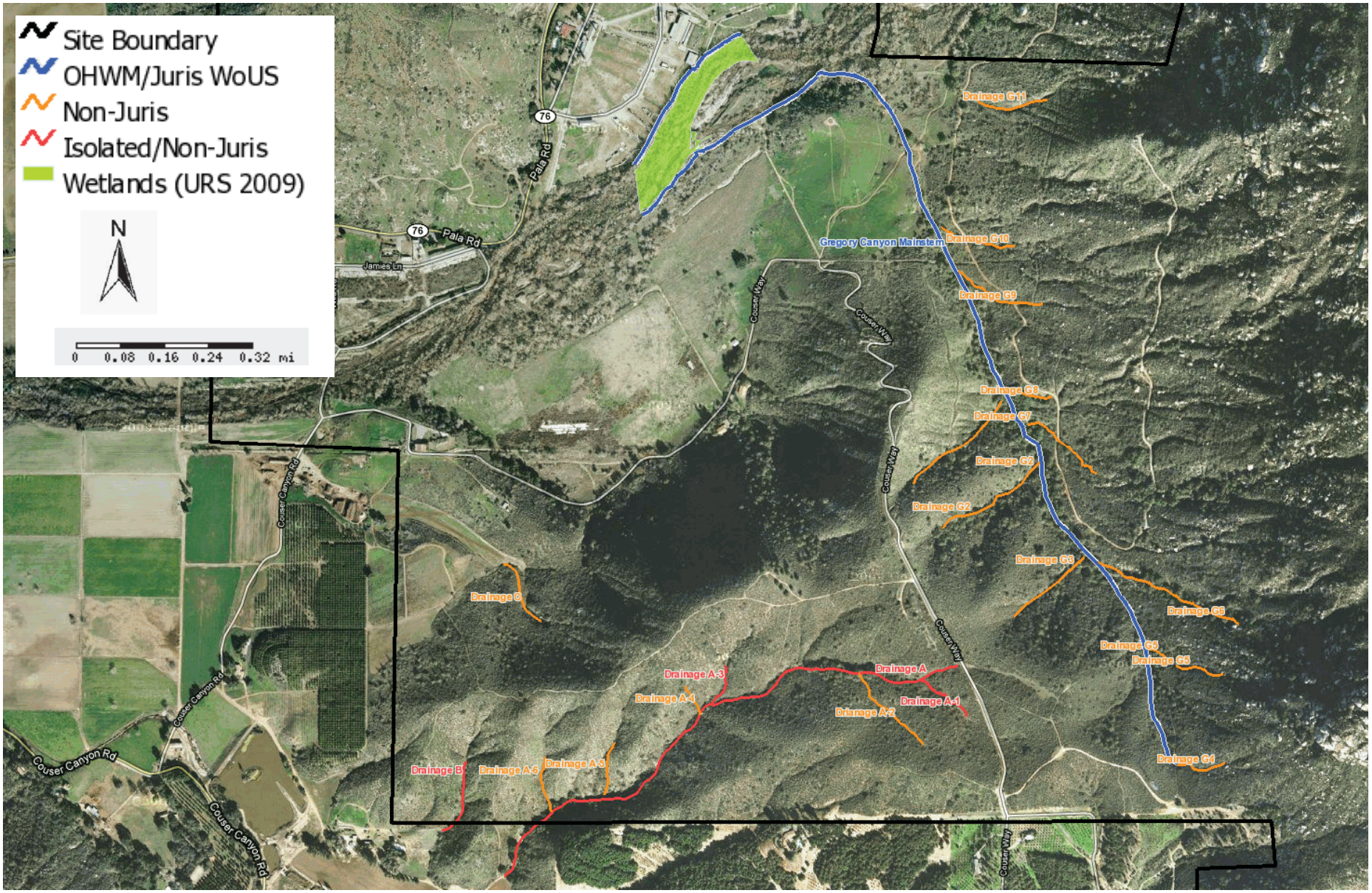
Administrative Appeal Process for Approved Jurisdictional Determinations



Appendix C



Enclosure 1a.
Proposed Project Area



Enclosure 1b.
Gregory Canyon Landfill Jurisdictional Delineation

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 29-Nov-2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-1998-20070-JD8

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State :	CA - California
County/parish/borough:	San Diego
City:	Pala
Lat:	
Long:	
Universal Transverse Mercator	Folder UTM List *UTM list determined by folder location* • NAD83 / UTM zone 36S Waters UTM List *UTM list determined by waters location* • NAD83 / UTM zone 36S

Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW):
Name of watershed or Hydrologic Unit Code (HUC):

☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date: 29-Nov-2009

☑ Field Determination Date(s): ☐ 20-Nov-2009

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ ] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ ] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-1998-2007000-TO Unnamed Drainage B	Isolated (interstate or intrastate) waters, including isolated wetlands
SPL-1998-2007000-TO Unnamed Drainage A3	Isolated (interstate or intrastate) waters, including isolated wetlands
SPL-1998-2007000-TO Unnamed Drainage A1	Isolated (interstate or intrastate) waters, including isolated wetlands
SPL-1998-2007000-TO Unnamed Drainage A	Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on: [ ]
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: Unnamed Drainages A, A1, A3, and B had characteristics of an OHWM including debris and silt along edges of drainages; however, the drainages flow into an agricultural area where the watercourse fans out, is very disturbed, and becomes bare ground vegetated with annual grasses with no OHWM. The agricultural area is approximately 600' wide before the appearance of a perennial watercourse which is possibly maintained through agricultural activities. The perennial watercourse flows into a stock pond with an outlet and then through a channelized watercourse and into the San Luis Rey River. There is active agriculture and ranching on adjacent properties which are private with locked gates. Hydrologic connectivity between the drainages within the project area and the perennial watercourse is difficult to establish and review of current and 2002 aerial photography does not indicate connectivity. There is no apparent interstate commerce connection

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: [ ]
Drainage area: [ ]
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.
☐ Tributary flows through [ ] tributaries before entering TNW.
:Number of tributaries

Project waters are [ ] river miles from TNW.
Project waters are [ ] river miles from RPW.
Project Waters are [ ] aerial (straight) miles from TNW.
Project waters are [ ] aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:

Identify flow route to TNW:[5]

Tributary Stream Order, if known:
Not Applicable.

(b) General Tributary Characteristics:

Tributary is:
Not Applicable.

Tributary properties with respect to top of bank (estimate):
Not Applicable.

Primary tributary substrate composition:
Not Applicable.

Tributary (conditions, stability, presence, geometry, gradient):
Not Applicable.

(c) Flow:
Not Applicable.

Surface Flow is:
Not Applicable.

Subsurface Flow:
Not Applicable.

Tributary has:
Not Applicable.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).
Not Applicable.

(iv) Biological Characteristics. Channel supports:
Not Applicable.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:

Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: Not Applicable

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Not Applicable.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:

Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]

Waters Name	Interstate\Foreign Travelers	Fish/Shellfish Commerce	Industrial Commerce	Interstate Isolated	Explain	Other Factors	Explain
SPL-1998-2007000-TO Unnamed Drainage B	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-1998-2007000-TO Unnamed Drainage A3	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-1998-2007000-TO Unnamed Drainage A1	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.
SPL-1998-2007000-TO Unnamed Drainage A	-	-	-	-	The waters are all intrastate with none of the above factors.	-	The waters are intrastate waters.

Identify water body and summarize rationale supporting determination:

Water Name	Adjacent To TNW Rationale	TNW Rationale
SPL-1998-2007000-TO Unnamed Drainage B	-	-
SPL-1998-2007000-TO Unnamed Drainage A3	-	-
SPL-1998-2007000-TO Unnamed Drainage A1	-	-
SPL-1998-2007000-TO Unnamed Drainage A	-	-

Provide estimates for jurisdictional waters in the review area:

Water Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-1998-2007000-TO Unnamed Drainage B	Isolated (interstate or intrastate) waters, including isolated wetlands	152.4	-
SPL-1998-2007000-TO Unnamed Drainage A3	Isolated (interstate or intrastate) waters, including isolated wetlands	86.868	-
SPL-1998-2007000-TO Unnamed Drainage A1	Isolated (interstate or intrastate) waters, including isolated wetlands	117.348	-
SPL-1998-2007000-TO Unnamed Drainage A	Isolated (interstate or intrastate) waters, including isolated wetlands	1097.28	-
Total:		**1453.896**	**0**

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:

- [x] Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:
- [ ] Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):
- [ ] Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):
- [x] Other (Explain):

Unnamed Drainages A, A1, A3, and B are isolated as described above. These drainages were analyzed in accordance with 33 CFR 328.3(a)(i-iii) and were determined to be isolated with no interstate commerce connection. They are not nor could be used for interstate or foreign travellers for recreational or other purposes as they are located on private lands and are ephemeral in nature; they do not support shellfish; and they are not nor could be used for industrial purpose by industries in interstate commerce.

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):
Not Applicable.

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

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[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.

[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

[3]-Supporting documentation is presented in Section III.F.

[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

[7]-Ibid.

[8]-See Footnote #3.

[9] -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 29-Nov-2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-1998-20070-JD1

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State : CA - California
County/parish/borough: San Diego
City: Pala
Lat:
Long:
Universal Transverse Mercator

Folder UTM List
UTM list determined by folder location
- NAD83 / UTM zone 36S

Waters UTM List
UTM list determined by waters location
- NAD83 / UTM zone 36S

Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW):
Name of watershed or Hydrologic Unit Code (HUC):

☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date: 29-Nov-2009
☑ Field Determination Date(s):
☐ 20-Oct-2009
☐ 21-Oct-2009
☐ 20-Nov-2009
☐ 23-Nov-2009
☐ 24-Nov-2009
☐ 25-Nov-2009

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ ] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ ] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	Non-RPWs that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on: [ ]
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 557 square miles
Drainage area: .716 square miles
Average annual rainfall: 14 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.
☑ Tributary flows through [ ] tributaries before entering TNW.
:Number of tributaries

Project waters are 20-25 river miles from TNW.
Project waters are 1 (or less) river miles from RPW.
Project Waters are 20-25 aerial (straight) miles from TNW.
Project waters are 1 (or less) aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:
Gregory Canyon does not cross any state boundary or serve as a state boundary

Identify flow route to TNW:[5]
Gregory Canyon to RPW San Luis Rey, 21.2 miles to TNW San Luis Rey River Estuary; the Corps determined the San Luis Rey River Estuary upstream of the I-5 crossing (3900 feet upstream of Pacific Ocean) is the closest TNW; the area from the mouth of the river upstream to above I-5 is under tidal influence from the Pacific Ocean.

Tributary Stream Order, if known:

Order	Tributary Name
2	SPL-1998-2007000-TO Gregory Canyon Mainstem (G)

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	X	-	-	-	-

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	9	1	2:1

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	X	X	-	X	-	-	-	-	X

Other Explained:

Tributary Name	Other Explained
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	The channel in the steeper slopes is comprised by a series of stepped pools of approximately 1-2 feet in height over boulders progressing into pools composed of an exposed sand deposit. Onsite observations indicated a defined bed and bank with drift/debris and sand deposits in upper Gregory Canyon. Lower Gregory Canyon becomes more braided and exhibits silt and coarse sand deposits.

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	The incised channel lacks eroded "wall" sides but is actively scowled along the base of the channel. Onsite observations indicated a defined bed and bank with drift/debris and sand deposits. Average side slopes are 45% but vary from 15% to 95% in upper Gregory Canyon. Lower Gregory Canyon side slopes average 20% but also vary.	Upper Gregory Canyon exhibited several step pool complexes with wide pools. Some areas along the channel also exhibited boulder waterfalls.	Relatively straight	10

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	Ephemeral flow	2-5	In small watersheds the flow regime is strongly affected by catchment characteristics: land surface condition, topography, and relative uniformity of the watershed. For Gregory Canyon, the estimated peak runoff ranges from very low in small storm events (1-2 year return events) to approx 423 cfs for a 50-year event. It appears the steeper slopes in upper Gregory Canyon allow for erosion along the stream channel during low to moderate events resulting in sediment deposition in lower Gregory Canyon where the slope decreases. In arid systems, antecedent soil moisture conditions are critical as stream runoff is closely linked to the soil saturation level. Modeling the flow is extremely difficult in a system such as Gregory Canyon unless detailed information relating to soil properties and previous storm events is available (which it is not). there have been no detailed or extensive surveys regarding channel width, depth, or roughness. In this instance, the field observations of OHWM and associated evidence of flow and sediment transport are critical to demonstrate that water has flowed through the system even though it cannot be tied to a specific historical event.	There are no rain or flow gauges to provide duration and volume information. In addition, antecedent soil moisture in arid systems influences duration of flow. If there have been no to few short duration precipitation events, runoff would simulate a lower return event; however, the more saturated the soils become, the higher the runoff event would appear to be for even low subsequent precipitation events.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	Discrete and confined	It appears the majority of the water in a lower flow event stays within the channel based on its appearance. However, in higher flow events, the water can exceed the channel width. Water in lower Gregory Canyon tends to "braid out" more.

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	Yes	There is a large boulder to rocky surface or subsurface due to deposited colluvium; the exposed colluvium has many open holes and pores for surface water to infiltrate into weathered material (Lichvar, 2009). This may support some subsurface flow in upper Gregory Canyon.	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	X	X	-	-

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	X	X	X	X	-	-	-	X	X	X	X	X	-	X	-	X

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	Gregory Canyon is ephemeral. Flows appear to transport sand and/or gravel-sized particles which do not result in high suspended sediments; therefore, the water appears to be fairly clear. As the Canyon slope decreases, sediment depositions and sorting are evident which would also indicate that the water which enters the San Luis Rey River is most likely clear.	GC is in a relatively undeveloped area; however, there are abandoned agricultural fields and areas which have supported and may still support ranching/grazing activities adjacent to lower GC. Most of the area within the 500-year floodplain south of the river is dominated by non-native grassland which is a remnant of dairy operations that have been onsite since at least the 1920s (URS, 2007). Though the Corps did not uncover direct evidence of use of fertilizers, pesticides, or other chemicals within the drainage area, modern agriculture is based on the extensive use of applied chemicals such as fertilizers, pesticides and herbicides to obtain high crop yields. The improper use of these applied chemicals may lead to serious degradation of surface water quality. Surface waters are primarily contaminated by the runoff of irrigated agriculture containing sediments, nutrients such as phosphorus and nitrogen, pesticides, and other pollutants. Erosion from agriculture uses can result in the loss of agricultural production, and degrade important aquatic habitat. Eroded soils can bury benthic (e.g., bottom dwelling) communities, cover spawning grounds, destabilize channel banks and fill sensitive wetland areas. Furthermore, other pollutants are often bound to eroded soils. Under certain conditions, these pollutants may be remobilized into the water column causing problems for human health, wildlife and aquatic resources (County of San Diego, 2002). With the Corps¿ established peak discharge flow 508 cfs in GC, agricultural pollutants or pollutants associated with ranching/grazing (fertilizer, manure) would be transported into the SLRR and then downstream to the Pacific Ocean. The SLRR has been listed as a 303(d) impaired water by the San Diego Regional Water Quality Control Board (SDRWQCB) in 2002, 2004, and 2006 beginning at its mouth and proceeding upstream into the Southern Subbasin (as previously defined). Currently, the SLRR is listed in the draft 2008 303(d) impaired waters list (SDRWQCB, 2008).

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	X	Varies. At some locations it is sage scrub and others becomes dense oak woodland in upper Gregory Canyon. Some areas adjacent to the watercourse in the upper canyon consist of annual and native grasses. The width varies. Lower Gregory Canyon riparian corridor consists of mulefat, southern willow scrub, black, yellow, and sandbar willow, and some cottonwood at varying widths.	X	Gregory Canyon becomes confluent with the San Luis Rey River within the river's 100-year floodplain. At this location, a wetland fringe was noted by the field crews. This wetland area extended from the confluence to the west (downstream) along the San Luis Rey River but outside of the alignment of the proposed bridge.	X

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\Wildlife Diversity	Explain Findings
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	X	X	The project area is within designated critical habitat for Least Bell's Vireo (Vireo bellii pusillus), Southwestern Willow Flycatcher (Empidonax traillii extimus), and Coastal California Gnatcatcher (Polioptila californica californica), and arroyo toad (Bufo californicus). All four of these species have been documented on site. The draft Biological Opinion submitted to the Corps in April, 2009 states that the San Luis Rey River is one of the few remaining areas with habitat to support a "large, robust population" and toads have been documented on site. The proposed project area	-	-	X	Field surveys of the project area have indicated several sensitive species in addition to the endangered species previously described. The additional sensitive species include the western spadefoot toad, southwestern pond turtle, San Diego horned lizard, Coronado Island skink, orangethroat whiptail, coastal western whiptail, coastal rosy boa, coast patch-nosed snake, northern red diamond rattlesnake, snowy egret, green heron, great blue heron, black-crowned night heron, white-faced ibis, double-crested cormorant, whiteptailed kite, northern harrier, sharp-shinned hawk, Cooper's hawk, red-shouldered hawk, golden eagle, barn owl, great-horned owl, western screech owl, short-eared owl, downy woodpecker, cactus wren, blue-gray gnatcatcher, loggerhead shrike, yellow	X	The project area is undeveloped and supports habitat for the endangered and sensitive species mentioned previously as well as foraging habitat for three species of bats.

			contains suitable breeding and upland terrestrial habitats conducive to the toad moving between the San Luis Rey River and upland areas along Gregory Canyon.				warbler, yellow-breasted chat, blue grosbeak, southern California rufous-crowned sparrow, and tricolored blackbird. Three species of plant recognized as sensitive by the California Native Plant Society were detected in the landfill site area: Engelmann oak, Rainbow manzanita, and prostrate spineflower.		

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:

Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Findings for: SPL-1998-2007000-TO Gregory Canyon Mainstem (G)
The Corps of Engineers has determined that the potentially jurisdictional water, Gregory Canyon, in evaluating its water flow characteristics with its functions and values, has more than an insubstantial or speculative effect on the chemical, physical, and/or biological integrity of the San Luis Rey River estuary, the closest Traditionally Navigable Water (TNW). This decision is based upon findings in this document: a. Physical Characteristics: ¿ observed OHWM indicators in the field within upper and lower GC ¿ observed riffle/pool complexes in upper GC ¿ observed wetland and secondary channel at confluence with SLRR and GC ¿ Corps-calculated flow rates using the Rational Method. b. Chemical Characteristics: ¿ past agricultural activities adjacent to lower GC ¿ flow rates which are significant enough to move pollutants from lower GC into the SLRR. Though actual presence of agriculture and ranching chemicals is inconclusive, cow manure in the SLRR floodplain adjacent to but outside of the GC drainage area was observed. c. Biological Characteristics: ¿ presence of designated critical habitat for three endangered species within project area at confluence of lower GC and the SLRR ¿ presence of endangered southwestern willow flycatcher, least Bell¿s vireo, and arroyo toad and threatened coastal California gnatcatcher within project area ¿ presence of southwestern willow flycatcher and least Bell¿s vireo along the SLRR riparian habitat to SLRR estuary ¿ Use by steelhead of the downstream TNW (SLRR estuary and Pacific Ocean). See Memo for Record dated 10 Dec 2009 for detailed analysis with supporting figures.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Tributary Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-1998-2007000-TO Gregory Canyon Mainstem (G)	Non-RPWs that flow directly or indirectly into TNWs	1712.976	2873.26776
Total:		**1712.976**	**2873.26776**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

- [ ] If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:
- [ ] Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):

☐ Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Data sheets prepared by the Corps	Field Data Sheets	Field Data Sheets prepared by the Corps based on field site visits. Data Sheets are in Excel chart.
--FEMA/FIRM maps	-	-
--Photographs	-	-
----Aerial	aerial photos	1928 historical photos 1964 historical photos Google Earth photos
----Other	Site photos	Digital GIS site photos taken during field visits
--Previous determination(s).	Helix and URS delineations	Helix 1998 URS 2004 URS Oct 6, 2009 URS Oct 19, 2009
--Other information	Biological Assessment	URS BA

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

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[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.
[9] -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 29-Nov-2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-1998-20070-JD2

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State :	CA - California
County/parish/borough:	San Diego
City:	Pala
Lat:	
Long:	
Universal Transverse Mercator	Folder UTM List *UTM list determined by folder location* • NAD83 / UTM zone 36S Waters UTM List *UTM list determined by waters location* • NAD83 / UTM zone 36S

Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW):
Name of watershed or Hydrologic Unit Code (HUC):

☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date: 29-Nov-2009

☑ Field Determination Date(s): ☐ 20-Nov-2009

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ ] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ ] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-1998-2007000-TO Unnamed Drainage C	Uplands
SPL-1998-2007000-TO Unnamed Drainage A6	Uplands
SPL-1998-2007000-TO Unnamed Drainage A5	Uplands
SPL-1998-2007000-TO Unnamed Drainage A4	Uplands
SPL-1998-2007000-TO Unnamed Drainage A2	Uplands

SPL-1998-2007000-TO Gregory Canyon Trib G8	Uplands
SPL-1998-2007000-TO Gregory Canyon Trib G4	Uplands
SPL-1998-2007000-TO Gregory Canyon Trib G3	Uplands
SPL-1998-2007000-TO Gregory Canyon Trib G11	Uplands
SPL-1998-2007000-TO Gregory Canyon Trib G10	Uplands
SPL-1998-2007000-TO Gregory Canyon Trib G1	Uplands

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on: [ ]
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:
Drainages A2, A4, A5, A6, C, G1, G3, G4, G8, G10, and G11 do not have an OHWM or indications of flow and are, therefore, nonjurisdictional.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: [ ]
Drainage area: [ ]
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☐ Tributary flows through [ ] tributaries before entering TNW.

:Number of tributaries

Project waters are [ ] river miles from TNW.
Project waters are [ ] river miles from RPW.
Project Waters are [ ] aerial (straight) miles from TNW.
Project waters are [ ] aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:

Identify flow route to TNW:[5]

Tributary Stream Order, if known:

Not Applicable.

(b) General Tributary Characteristics:

Tributary is:
Not Applicable.

Tributary properties with respect to top of bank (estimate):
Not Applicable.

Primary tributary substrate composition:
Not Applicable.

Tributary (conditions, stability, presence, geometry, gradient):
Not Applicable.

(c) Flow:
Not Applicable.

Surface Flow is:
Not Applicable.

Subsurface Flow:
Not Applicable.

Tributary has:
Not Applicable.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).
Not Applicable.

(iv) Biological Characteristics. Channel supports:
Not Applicable.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:

Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: Not Applicable

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Not Applicable.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:

Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):

☐ Other (Explain):

Drainages A2, A$, A5, A6, C, G1, G3, G4, G8, G10, and G11 are small swale features which do not exhibit an OHWM and, in accordance with the Rapanos Guidance, are not jurisdictional.

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Data sheets prepared by the Corps	Gregory Canyon Excel Chart	Excel chart including all field data, measurements, OHWM indicators or lack of, etc.
--Photographs	-	-
----Aerial	-	-
----Other	On Site photos	On site photos taken with GIS camera and keyed into Excel chart description of drainages

--Previous determination (s).	URS and Helix Environmental studies	Helix Environmental JD dated July 28, 1998 and revised December 23, 1999 and February 16, 2000; URS JDs dated May 18, 2004, October 6, 2009, and October 19, 2009

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

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[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.

[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

[3]-Supporting documentation is presented in Section III.F.

[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

[7]-Ibid.

[8]-See Footnote #3.

[9] -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 29-Nov-2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-1998-20070-JD3

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State : CA - California
County/parish/borough: San Diego
City: Pala
Lat:
Long:
Universal Transverse Mercator

Folder UTM List
UTM list determined by folder location
- NAD83 / UTM zone 36S

Waters UTM List
UTM list determined by waters location
- NAD83 / UTM zone 36S

Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW):
Name of watershed or Hydrologic Unit Code (HUC):

☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date: 29-Nov-2009
☑ Field Determination Date(s):
☐ 20-Oct-2009
☐ 21-Oct-2009
☐ 20-Nov-2009
☐ 23-Nov-2009
☐ 24-Nov-2009
☐ 25-Nov-2009

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ ] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ ] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-1998-2007000-TO Gregory Canyon Trib G2	Non-RPWs that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on: [ ]
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 557 square miles
Drainage area: .71 square miles
Average annual rainfall: 14 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.
☑ Tributary flows through [ ] tributaries before entering TNW.
:Number of tributaries

Project waters are 20-25 river miles from TNW.
Project waters are 1-2 river miles from RPW.
Project Waters are 15-20 aerial (straight) miles from TNW.
Project waters are 1-2 aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:

Identify flow route to TNW:[5]
Unnamed GC trib 2 to Gregory Canyon, +1 mile to San Luis Rey River, 21.5 RM to TNW San Luis Rey River Estuary (located .5 miles upstream from San Luis Rey River mouth).

Tributary Stream Order, if known:

Order	Tributary Name
1	SPL-1998-2007000-TO Gregory Canyon Trib G2

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-1998-2007000-TO Gregory Canyon Trib G2	X	-	-	-	-

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-1998-2007000-TO Gregory Canyon Trib G2	3	.87	Vertical (1:1 or less)

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-1998-2007000-TO Gregory Canyon Trib G2	-	X	-	-	-	-	X	-	-

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-1998-2007000-TO Gregory Canyon Trib G2	Fairly steep slopes occur (approximately 1:1) with highly erodable granitic material.	None identified.	Relatively straight	20

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-1998-2007000-TO Gregory Canyon Trib G2	Ephemeral flow	2-5	flows in response to rainfall events	No information available.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-1998-2007000-TO Gregory Canyon Trib G2	Discrete and confined	The lower flows remain in the channels; however, higher flows exceed channel banks.

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-1998-2007000-TO Gregory Canyon Trib G2	Unknown	Due to the presence of boulders, rocky outcrops, and some small fissures, subsurface flows may occur.	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-1998-2007000-TO Gregory Canyon Trib G2	X	X	X	Clear OHWM is present in some areas but then is not as well defined in other areas along drainage corridor.

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other
SPL-1998-2007000-TO Gregory Canyon Trib G2	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-1998-2007000-TO Gregory Canyon Trib G2	unknown	unknown

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-1998-2007000-TO Gregory Canyon Trib G2	X	The predominant riparian type is oak woodland; the width varies but is relatively narrow.	-	-	X

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\Wildlife Diversity	Explain Findings
SPL-1998-2007000-TO Gregory Canyon Trib G2	X	-	-	-	-	-	-	X	Several species of reptiles, birds, and mammals use the site and most likely use washes as corridors.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:

Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Findings for: SPL-1998-2007000-TO Gregory Canyon Trib G2
There is no information regarding the drainage area of the first order tributaries. The drainage area of Gregroy Canyon is .71 square miles (458 acres). The first order tributaries of Gregory Canyon do not appear to have a significant

nexus to the TNW, the San Luis Rey River estuary. All are very small tributaries, highly erosional, and with very small watersheds. There is no flow data or information and no information regarding channel morphology. None of these minor tributaries provide habitat for any endangered species.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Tributary Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-1998-2007000-TO Gregory Canyon Trib G2	Non-RPWs that flow directly or indirectly into TNWs	-	80.93712
Total:		**0**	**80.93712**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

- [ ] If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:
- [ ] Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:
- [ ] Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):
- [ ] Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):
- [ ] Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Data sheets prepared by the Corps	Gregory Canyon JD Field Data	Excel chart of field data from site visits of Nov 20, 23-25, 2009
--Photographs	-	-
----Aerial	Gregory Canyon Aerial Photo	Aerial photo of proposed project area provided by URS, applicant's consultant.
----Other	On site digital photos	Photographs taken with digital GIS camera on site visits of Nov 2, 23-25, 2009.
--Previous determination(s).	Helix and URS previous JDs	Helix JD 1998 URS JD May 18, 2004 URS JD October 6, 2009 URS JD October 19, 2009

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

1-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
2-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
3-Supporting documentation is presented in Section III.F.
4-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
5-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
6-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
7-Ibid.
8-See Footnote #3.
9 -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
10-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 29-Nov-2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-1998-20070-JD4

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State : CA - California
County/parish/borough: San Diego
City: Pala
Lat:
Long:
Universal Transverse Mercator

Folder UTM List
UTM list determined by folder location
- NAD83 / UTM zone 36S

Waters UTM List
UTM list determined by waters location
- NAD83 / UTM zone 36S

Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW):
Name of watershed or Hydrologic Unit Code (HUC):

☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date: 29-Nov-2009
☑ Field Determination Date(s):
☐ 20-Oct-2009
☐ 21-Oct-2009
☐ 20-Nov-2009
☐ 23-Nov-2009
☐ 24-Nov-2009
☐ 25-Nov-2009

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ ] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ ] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-1998-2007000-TO Gregory Canyon Trib G5	Non-RPWs that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on: [ ]
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 557 square miles
Drainage area: .71 square miles
Average annual rainfall: 14 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.
☑ Tributary flows through [ ] tributaries before entering TNW.
:Number of tributaries

Project waters are 20-25 river miles from TNW.
Project waters are 1-2 river miles from RPW.
Project Waters are 15-20 aerial (straight) miles from TNW.
Project waters are 1-2 aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:
Not applicable

Identify flow route to TNW:[5]
Unnamed GC Trib 5 to Gregory Canyon, 1 mile to San Luis Rey River, 21.5 RM to TNW San Luis Rey River Estuary (located .5 miles upstream from San Luis Rey River mouth).

Tributary Stream Order, if known:

Order	Tributary Name
1	SPL-1998-2007000-TO Gregory Canyon Trib G5

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-1998-2007000-TO Gregory Canyon Trib G5	X	-	-	-	-

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-1998-2007000-TO Gregory Canyon Trib G5	3.1	.9	Vertical (1:1 or less)

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-1998-2007000-TO Gregory Canyon Trib G5	-	X	-	-	-	-	X	-	-

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-1998-2007000-TO Gregory Canyon Trib G5	Fairly steep slopes occur (approximately 1:1) with highly erodable granitic material.	There is a very small rock/riffle present in this drainage.	Relatively straight	25

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-1998-2007000-TO Gregory Canyon Trib G5	Ephemeral flow	2-5	flows in response to rainfall events	No information available.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-1998-2007000-TO Gregory Canyon Trib G5	Discrete and confined	The lower flows remain in the channels; however, higher flows exceed channel banks.

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-1998-2007000-TO Gregory Canyon Trib G5	Unknown	Due to the presence of boulders, rocky outcrops, and some small fissures, subsurface flows may occur.	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-1998-2007000-TO Gregory Canyon Trib G5	X	X	X	Clear OHWM is present in some areas but then is not as well defined in other areas along drainage corridor.

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other
SPL-1998-2007000-TO Gregory Canyon Trib G5	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-1998-2007000-TO Gregory Canyon Trib G5	unknown	unknown

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-1998-2007000-TO Gregory Canyon Trib G5	X	The predominant vegetation is chaparral-scrub and corridor is fairly narrow in width.	-	-	X

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\Wildlife Diversity	Explain Findings
SPL-1998-2007000-TO Gregory Canyon Trib G5	X	-	-	-	-	-	-	X	Several species of reptiles, birds, and mammals use the site and most likely use washes as corridors.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:

Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Findings for: SPL-1998-2007000-TO Gregory Canyon Trib G5
There is no information regarding the drainage area of the first order tributaries. The drainage area of Gregroy Canyon is .71 square miles (458 acres). The first order tributaries of Gregory Canyon do not appear to have a significant

nexus to the TNW, the San Luis Rey River estuary. All are very small tributaries, highly erosional, and with very small watersheds. There is no flow data or information and no information regarding channel morphology. None of these minor tributaries provide habitat for any endangered species.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Tributary Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-1998-2007000-TO Gregory Canyon Trib G5	Non-RPWs that flow directly or indirectly into TNWs	113.0808	80.93712
Total:		**113.0808**	**80.93712**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

- [ ] If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:
- [ ] Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:
- [ ] Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):
- [ ] Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):
- [ ] Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):
Not Applicable.

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

---

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.
[9]-To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 29-Nov-2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-1998-20070-JD5

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State : CA - California
County/parish/borough: San Diego
City: Pala
Lat:
Long:
Universal Transverse Mercator

Folder UTM List
UTM list determined by folder location
- NAD83 / UTM zone 36S

Waters UTM List
UTM list determined by waters location
- NAD83 / UTM zone 36S

Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW):
Name of watershed or Hydrologic Unit Code (HUC):

☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date: 29-Nov-2009
☑ Field Determination Date(s):
☐ 20-Oct-2009
☐ 21-Oct-2009
☐ 20-Nov-2009
☐ 23-Nov-2009
☐ 24-Nov-2009
☐ 25-Nov-2009

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ ] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ ] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-1998-2007000-TO Gregory Canyon Trib G6	Non-RPWs that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on: [ ]
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 557 square miles
Drainage area: .71 square miles
Average annual rainfall: 14 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.
☑ Tributary flows through [ ] tributaries before entering TNW.
:Number of tributaries

Project waters are 20-25 river miles from TNW.
Project waters are 1-2 river miles from RPW.
Project Waters are 15-20 aerial (straight) miles from TNW.
Project waters are 1-2 aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:
Not applicable

Identify flow route to TNW:[5]
Unnamed GC trib 6 to Gregory Canyon, -1 mile to San Luis Rey River, 21.5 RM to TNW San Luis Rey River Estuary (located .5 miles upstream from San Luis Rey River mouth).

Tributary Stream Order, if known:

Order	Tributary Name
1	SPL-1998-2007000-TO Gregory Canyon Trib G6

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-1998-2007000-TO Gregory Canyon Trib G6	X	-	-	-	-

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-1998-2007000-TO Gregory Canyon Trib G6	4.5	.98	Vertical (1:1 or less)

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-1998-2007000-TO Gregory Canyon Trib G6	-	X	-	-	-	-	X	-	-

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-1998-2007000-TO Gregory Canyon Trib G6	Fairly steep slopes occur (approximately 1:1) with highly erodable granitic material.	None identified.	Relatively straight	25

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-1998-2007000-TO Gregory Canyon Trib G6	Ephemeral flow	2-5	flows in response to rainfall events	No information available.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-1998-2007000-TO Gregory Canyon Trib G6	Discrete and confined	The lower flows remain in the channels; however, higher flows exceed channel banks.

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-1998-2007000-TO Gregory Canyon Trib G6	Unknown	Due to the presence of boulders, rocky outcrops, and some small fissures, subsurface flows may occur.	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-1998-2007000-TO Gregory Canyon Trib G6	X	X	-	-

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other
SPL-1998-2007000-TO Gregory Canyon Trib G6	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-1998-2007000-TO Gregory Canyon Trib G6	unknown	unknown

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-1998-2007000-TO Gregory Canyon Trib G6	X	The predominant riparian type is oak woodland; the width varies but is relatively narrow.	-	-	X

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\Wildlife Diversity	Explain Findings
SPL-1998-2007000-TO Gregory Canyon Trib G6	X	-	-	-	-	-	-	X	Several species of reptiles, birds, and mammals use the site and most likely use washes as corridors.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:

Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Findings for: SPL-1998-2007000-TO Gregory Canyon Trib G6
There is no information regarding the drainage area of the first order tributaries. The drainage area of Gregroy Canyon is .71 square miles (458 acres). The first order tributaries of Gregory Canyon do not appear to have a significant

nexus to the TNW, the San Luis Rey River estuary. All are very small tributaries, highly erosional, and with very small watersheds. There is no flow data or information and no information regarding channel morphology. None of these minor tributaries provide habitat for any endangered species.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Tributary Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-1998-2007000-TO Gregory Canyon Trib G6	Non-RPWs that flow directly or indirectly into TNWs	-	485.62272
Total:		**0**	**485.62272**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

- [ ] If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:
- [ ] Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:
- [ ] Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):
- [ ] Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):
- [ ] Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):
Not Applicable.

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

---

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.
[9]-To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 29-Nov-2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-1998-20070-JD6

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State : CA - California
County/parish/borough: San Diego
City: Pala
Lat:
Long:
Universal Transverse Mercator

Folder UTM List
UTM list determined by folder location
- NAD83 / UTM zone 36S

Waters UTM List
UTM list determined by waters location
- NAD83 / UTM zone 36S

Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW):
Name of watershed or Hydrologic Unit Code (HUC):

☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date: 29-Nov-2009
☑ Field Determination Date(s):
☐ 20-Oct-2009
☐ 21-Oct-2009
☐ 20-Nov-2009
☐ 23-Nov-2009
☐ 24-Nov-2009
☐ 25-Nov-2009

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ ] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ ] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-1998-2007000-TO Gregory Canyon Trib G7	Non-RPWs that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on: [ ]
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 557 square miles
Drainage area: .71 square miles
Average annual rainfall: 14 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.
☑ Tributary flows through [ ] tributaries before entering TNW.
:Number of tributaries

Project waters are 20-25 river miles from TNW.
Project waters are 1-2 river miles from RPW.
Project Waters are 15-20 aerial (straight) miles from TNW.
Project waters are 1-2 aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:
Not applicable

Identify flow route to TNW:[5]
Unnamed GC trib 7 to Gregory Canyon, <1 mile to San Luis Rey River, 21.5 RM to TNW San Luis Rey River Estuary (located .5 miles upstream from San Luis Rey River mouth).

Tributary Stream Order, if known:

Order	Tributary Name
1	SPL-1998-2007000-TO Gregory Canyon Trib G7

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-1998-2007000-TO Gregory Canyon Trib G7	X	-	-	-	-

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-1998-2007000-TO Gregory Canyon Trib G7	9	1	Vertical (1:1 or less)

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-1998-2007000-TO Gregory Canyon Trib G7	-	X	-	-	-	-	X	-	-

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-1998-2007000-TO Gregory Canyon Trib G7	Fairly steep slopes occur (approximately 1:1) with highly erodable granitic material.	None identified.	Relatively straight	25

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-1998-2007000-TO Gregory Canyon Trib G7	Ephemeral flow	2-5	flows in response to rainfall events	No information available.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-1998-2007000-TO Gregory Canyon Trib G7	Discrete and confined	The lower flows remain in the channels; however, higher flows exceed channel banks.

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-1998-2007000-TO Gregory Canyon Trib G7	Unknown	Due to the presence of boulders, rocky outcrops, and some small fissures, subsurface flows may occur.	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-1998-2007000-TO Gregory Canyon Trib G7	X	X	-	-

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other
SPL-1998-2007000-TO Gregory Canyon Trib G7	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-1998-2007000-TO Gregory Canyon Trib G7	unknown	unknown

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-1998-2007000-TO Gregory Canyon Trib G7	X	The predominant riparian type is oak woodland; the width varies but is relatively narrow.	-	-	X

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\Wildlife Diversity	Explain Findings
SPL-1998-2007000-TO Gregory Canyon Trib G7	X	-	-	-	-	-	-	X	Several species of reptiles, birds, and mammals use the site and most likely use washes as corridors

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:

Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Findings for: SPL-1998-2007000-TO Gregory Canyon Trib G7
There is no information regarding the drainage area of the first order tributaries. The drainage area of Gregroy Canyon is .71 square miles (458 acres). The first order tributaries of Gregory Canyon do not appear to have a significant nexus to the TNW, the San Luis Rey River estuary. All are very small tributaries, highly erosional, and with very small watersheds. There is no flow data or information and no information regarding channel morphology. None of these

minor tributaries provide habitat for any endangered species.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Tributary Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-1998-2007000-TO Gregory Canyon Trib G7	Non-RPWs that flow directly or indirectly into TNWs	-	485.62272
Total:		**0**	**485.62272**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

- [ ] If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:
- [ ] Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:
- [ ] Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):
- [ ] Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):

- [ ] Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):
Not Applicable.

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

---

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.
[9]-To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 29-Nov-2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-1998-20070-JD7

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State : CA - California
County/parish/borough: San Diego
City: Pala
Lat:
Long:
Universal Transverse Mercator

Folder UTM List
UTM list determined by folder location
- NAD83 / UTM zone 36S

Waters UTM List
UTM list determined by waters location
- NAD83 / UTM zone 36S

Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW):
Name of watershed or Hydrologic Unit Code (HUC):

☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date: 29-Nov-2009
☑ Field Determination Date(s):
☐ 20-Oct-2009
☐ 21-Oct-2009
☐ 20-Nov-2009
☐ 23-Nov-2009
☐ 24-Nov-2009
☐ 25-Nov-2009

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ ] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ ] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-1998-2007000-TO Gregory Canyon Trib G9	Non-RPWs that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on: [ ]
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 557 square miles
Drainage area: .71 square miles
Average annual rainfall: 14 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.
☑ Tributary flows through [ ] tributaries before entering TNW.
:Number of tributaries

Project waters are 20-25 river miles from TNW.
Project waters are 1-2 river miles from RPW.
Project Waters are 15-20 aerial (straight) miles from TNW.
Project waters are 1-2 aerial(straight) miles from RPW.

☐ Project waters cross or serve as state boundaries.

Explain:
Not applicable.

Identify flow route to TNW:[5]
Unnamed GC trib 9 to Gregory Canyon, <1 mile to San Luis Rey River, 21.5 RM to TNW San Luis Rey River Estuary (located .5 miles upstream from San Luis Rey River mouth).

Tributary Stream Order, if known:

Order	Tributary Name
1	SPL-1998-2007000-TO Gregory Canyon Trib G9

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-1998-2007000-TO Gregory Canyon Trib G9	X	-	-	-	-

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-1998-2007000-TO Gregory Canyon Trib G9	2.2	1	Vertical (1:1 or less)

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-1998-2007000-TO Gregory Canyon Trib G9	-	X	-	-	-	-	X	-	-

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-1998-2007000-TO Gregory Canyon Trib G9	Fairly steep slopes occur (approximately 1:1) with highly erodable granitic material.	None identified.	Relatively straight	5

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-1998-2007000-TO Gregory Canyon Trib G9	Ephemeral flow	2-5	flows in response to rainfall events	No information available.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-1998-2007000-TO Gregory Canyon Trib G9	Discrete and confined	The lower flows remain in the channels; however, higher flows exceed channel banks.

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-1998-2007000-TO Gregory Canyon Trib G9	Unknown	Due to the presence of boulders, rocky outcrops, and some small fissures, subsurface flows may occur.	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-1998-2007000-TO Gregory Canyon Trib G9	X	X	X	Clear OHWM is present in some areas but then is not as well defined in other areas along drainage corridor.

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other
SPL-1998-2007000-TO Gregory Canyon Trib G9	X	-	-	X	-	-	-	-	-	-	X	-	-	-	-	-

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-1998-2007000-TO Gregory Canyon Trib G9	unknown	unknown

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-1998-2007000-TO Gregory Canyon Trib G9	X	The predominant vegetation is chaparral scrub and width of corridor is fairly narrow.	-	-	X

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\Wildlife Diversity	Explain Findings
SPL-1998-2007000-TO Gregory Canyon Trib G9	X	-	-	-	-	-	-	X	Several species of reptiles, birds, and mammals use the site and most likely use washes as corridors.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:

Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iii) Biological Characteristics. Wetland supports:
Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Findings for: SPL-1998-2007000-TO Gregory Canyon Trib G9
There is no information regarding the drainage area of the first order tributaries. The drainage area of Gregroy Canyon is .71 square miles (458 acres). The first order tributaries of Gregory Canyon do not appear to have a significant

nexus to the TNW, the San Luis Rey River estuary. All are very small tributaries, highly erosional, and with very small watersheds. There is no flow data or information and no information regarding channel morphology. None of these minor tributaries provide habitat for any endangered species.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Tributary Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-1998-2007000-TO Gregory Canyon Trib G9	Non-RPWs that flow directly or indirectly into TNWs	-	121.40568
Total:		**0**	**121.40568**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

- [ ] If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:
- [ ] Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:
- [ ] Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):
- [ ] Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):
- [ ] Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):
Not Applicable.

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

---

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.
[9]-To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

JD Status: DRAFT

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 29-Nov-2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, SPL-1998-20070-JD9

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State : CA - California
County/parish/borough: San Diego
City: Pala
Lat:
Long:
Universal Transverse Mercator

Folder UTM List
UTM list determined by folder location
- NAD83 / UTM zone 36S

Waters UTM List
UTM list determined by waters location
- NAD83 / UTM zone 36S

Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW):
Name of watershed or Hydrologic Unit Code (HUC):

☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date: 29-Nov-2009
☑ Field Determination Date(s): ☐ 20-Oct-2009
☐ 21-Oct-2009

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ ] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ ] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
SPL-1998-2007000-TO San Luis Rey River Wetlands	Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
SPL-1998-2007000-TO San Luis Rey River	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on: [ ]
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: [ ]
Drainage area: [ ]
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics
(a) Relationship with TNW:

☐ Tributary flows directly into TNW.
☐ Tributary flows through [ ] tributaries before entering TNW.

:Number of tributaries

Project waters are [ ] river miles from TNW.
Project waters are [ ] river miles from RPW.
Project Waters are [ ] aerial (straight) miles from TNW.
Project waters are [ ] aerial(straight) miles from RPW.

Project waters cross or serve as state boundaries.

Explain:

Identify flow route to TNW:[5]

Tributary Stream Order, if known:

Order	Tributary Name
2	SPL-1998-2007000-TO San Luis Rey River

(b) General Tributary Characteristics:
Tributary is:

Tributary Name	Natural	Artificial	Explain	Manipulated	Explain
SPL-1998-2007000-TO San Luis Rey River	X	-	-	-	-

Tributary properties with respect to top of bank (estimate):

Tributary Name	Width (ft)	Depth (ft)	Side Slopes
SPL-1998-2007000-TO San Luis Rey River	475	10	2:1

Primary tributary substrate composition:

Tributary Name	Silt	Sands	Concrete	Cobble	Gravel	Muck	Bedrock	Vegetation	Other
SPL-1998-2007000-TO San Luis Rey River	X	X	-	X	-	-	-	-	-

Tributary (conditions, stability, presence, geometry, gradient):

Tributary Name	Condition\Stability	Run\Riffle\Pool Complexes	Geometry	Gradient (%)
SPL-1998-2007000-TO San Luis Rey River	Banks on north side are approximately 2:1 exhibiting more erosion; bank slope on south varies.	None noted within project area.	Meandering	3

(c) Flow:

Tributary Name	Provides for	Events Per Year	Flow Regime	Duration & Volume
SPL-1998-2007000-TO San Luis Rey River	Perennial flow	20 (or greater)	perennial flow	Flow is perennial; volume and flow vary seasonally.

Surface Flow is:

Tributary Name	Surface Flow	Characteristics
SPL-1998-2007000-TO San Luis Rey River	Confined	-

Subsurface Flow:

Tributary Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-1998-2007000-TO San Luis Rey River	Unknown	-	-

Tributary has:

Tributary Name	Bed & Banks	OHWM	Discontinuous OHWM[7]	Explain
SPL-1998-2007000-TO San Luis Rey River	X	X	-	-

Tributaries with OHWM[6] - (as indicated above)

Tributary Name	OHWM	Clear	Litter	Changes in Soil	Destruction Vegetation	Shelving	Wrack Line	Matted\Absent Vegetation	Sediment Sorting	Leaf Litter	Scour	Sediment Deposition	Flow Events	Water Staining	Changes Plant	Other
SPL-1998-2007000-TO San Luis Rey River	X	X	X	X	X	X	X	X	X	-	X	X	X	X	-	-

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).

Tributary Name	Explain	Identify specific pollutants, if known
SPL-1998-2007000-TO San Luis Rey River	impaired water as designated by state; water is sometimes turbid	Impaired water based on total dissolved solids and chlorides; local pollutants are fertilizers, manure, pesticides, herbicides, etc.

(iv) Biological Characteristics. Channel supports:

Tributary Name	Riparian Corridor	Characteristics	Wetland Fringe	Characteristics	Habitat
SPL-1998-2007000-TO San Luis Rey River	X	-	X	some wetlands but the wetlands are limited to specific areas and are not along the entire length of the river in the project area	X

Habitat for: (as indicated above)

Tributary Name	Habitat	Federally Listed Species	Explain Findings	Fish\Spawn Areas	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\Wildlife Diversity	Explain Findings
SPL-1998-2007000-TO San Luis Rey River	X	X	SW willow flycatcher, least Bell's vireo, coastal California gnatcatcher, and arroyo toad	X	fish are present in the SLRR; evidence of steelhead trout upstream of the project area within the SLRR	X	State sensitive species	X	-

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:

Wetland Name	Size (Acres)	Wetland Type	Wetland Quality	Cross or Serve as State Boundaries. Explain
SPL-1998-2007000-TO San Luis Rey River Wetlands	6.35	Riparian consisting of various willow (Salix) species, cottonwood, mule fat with shrub/sapling understory and some areas of grassland and/or herb stratum.	Very good.	NA

(b) General Flow Relationship with Non-TNW:
Flow is:

Wetland Name	Flow	Explain
SPL-1998-2007000-TO San Luis Rey River Wetlands	Perennial flow.	-

Surface flow is:

Wetland Name	Flow	Characteristics
SPL-1998-2007000-TO San Luis Rey River Wetlands	Confined	-

Subsurface flow:

Wetland Name	Subsurface Flow	Explain Findings	Dye (or other) Test
SPL-1998-2007000-TO San Luis Rey River Wetlands	Unknown	-	-

(c) Wetland Adjacency Determination with Non-TNW:

Wetland Name	Directly Abutting	Discrete Wetland Hydrologic Connection	Ecological Connection	Separated by Berm/Barrier
SPL-1998-2007000-TO San Luis Rey River Wetlands	Yes	-	-	-

(d) Proximity (Relationship) to TNW:

Wetland Name	River Miles From TNW	Aerial Miles From TNW	Flow Direction	Within Floodplain
SPL-1998-2007000-TO San Luis Rey River Wetlands	15-20	15-20	Wetland to navigable waters	5 - 10-year

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Wetland Name	Explain	Identify specific pollutants, if known
SPL-1998-2007000-TO San Luis Rey River Wetlands	-	-

(iii) Biological Characteristics. Wetland supports:

Wetland Name	Riparian Buffer	Characteristics	Vegetation	Explain
SPL-1998-2007000-TO San Luis Rey River Wetlands	X	Same as RPW findings.	X	Same as RPW findings.

Habitat for:

Wetland Name	Habitat	Federally Listed Species	Explain Findings	Spawn Area	Explain Findings	Other Environmentally Sensitive Species	Explain Findings	Aquatic\Wildlife Diversity	Explain Findings
SPL-1998-2007000-TO San Luis Rey River Wetlands	X	X	Same as RPW findings.	X	Same as RPW findings.	X	Same as RPW findings.	X	Same as RPW findings.

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: Not Applicable

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:

Wetland Name	Flow	Explain
SPL-1998-2007000-TO San Luis Rey River	PERENNIAL	San Luis Rey River flows approximately 11 months of year and most likely contains ponded water during the 12th month within the project area and downstream. The SLRR meets the definition of a relatively permanent water in accordance with the Rapanos guidance as it has flow more than 3 months of the year.

Provide estimates for jurisdictional waters in the review area:

Wetland Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-1998-2007000-TO San Luis Rey River	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs	-	56817.85824
Total:		**0**	**56817.85824**

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Not Applicable.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

Wetland Name	Flow	Explain
SPL-1998-2007000-TO San Luis Rey River Wetlands	PERENNIAL	Wetlands adjacent to SLRR in project area evidence ponding water most of the year.

Provide acreage estimates for jurisdictional wetlands in the review area:

Wetland Name	Type	Size (Linear) (m)	Size (Area) (m²)
SPL-1998-2007000-TO San Luis Rey River Wetlands	Wetlands directly abutting RPWs that flow directly or indirectly into TNWs	-	25697.5356
Total:		**0**	**25697.5356**

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

- [ ] If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:
- [ ] Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:
- [ ] Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):
- [ ] Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):
- [ ] Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant	Wetland delineation	URS wetland delineations, 2004 and 2009 with associated maps and wetland delineation sheets
--Data sheets prepared/submitted by or on behalf of the applicant/consultant	Wetland Delineation sheets	URS wetland delineation sheets, 2004, 2009.
--Data sheets prepared/submitted by or on behalf of the applicant/consultant	Delineation Reports	URS delineation reports 2004 and 2009.
----Office concurs with data sheets/delineation report	Delineation Report	URS submitted delineation reports 2004 and 2009.
----Office concurs with data sheets/delineation report	Data Sheets	URS submitted wetland delineations 2004 and 2009. Corps agrees with 2009 wetland delineation. Note: only those wetlands within the bridge alignment were identified. Wetlands exist along the San Luis Rey River in other areas within the proposed project area and have not yet been delineated.
--Data sheets prepared by the Corps	Data Sheets	ERDC data sheets and Rapanos data sheets
--Data sheets prepared by the Corps	Site data sheets	Rapanos data sheets
--FEMA/FIRM maps	-	-
--Photographs	Aerial photos	Google Earth
----Aerial	-	-
----Other	Ground photos	URS, 2009; Corps, 2009
--Previous determination(s).	-	-

B. ADDITIONAL COMMENTS TO SUPPORT JD:
Not Applicable.

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3]-Supporting documentation is presented in Section III.F.
[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]-Ibid.
[8]-See Footnote #3.

[9] -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] -Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

CEERD-R-C 2 November 2009

MEMORANDUM TO: Robert Lazor, CEERD-EM-W

SUBJECT: WRAP request for Los Angeles District for determination of "Waters of the United States" and wetlands at Gregory Canyon project permit site, San Diego County, CA.

1. <u>WRAP Request</u>. On September 9, 2009, a Wetland Regulatory Assistance Program (WRAP) request was received by the U.S. Army Engineer Research and Development Center, Waterways Experiment Station (CEERD-EM-W) from Therese O'Rourke of the Los Angeles District (LA District), Corps of Engineers (Corps). The request was made by the LA District for CRREL to determine as a "third party" the presence of any "Waters of the US" and wetlands for use in jurisdictional determination for the Gregory Canyon landfill project, San Diego County, CA. We visited the Gregory Canyon site and collected data on October 20 and 21, 2009. I was specifically tasked to locate and determine the occurrence of any wetlands or "Waters of the US" on the site. To describe this delineation and my conclusions, I use the term OHW to describe areas that are covered under the Clean Water Act as "Waters of the US" while OHWM is reserved for discussions pertaining to OWH field indicators found during the delineation. Using these results, the final extent of wetlands and "waters" and their jurisdictional status would be the responsibility of the District. The jurisdictional determination would require an assessment and decision by the LA District if any water bodies that we located that qualified as wetland or "Waters of the US" had a significant connection to navigable waters.

2. <u>Background</u>. A series of wetland and "waters" delineation efforts for this project site began in 1998 and have continued until recently in 2009. Delineations on this site have been performed by both private sector consulting firms and the LA District. The initial delineation was performed by Helix Environmental Planning, Inc. on July 28, 1998. Helix concluded that there were 0.834 acres (ac.) of wetlands and 2.251 ac. of "waters" to be excavated or filled within the project area. This initial delineation has been revised twice since then, on December 23, 1999 and February 16, 2000. In 2004, URS Corporation performed a hydrology study of Gregory Canyon using a median annual rainfall analysis. They concluded from rainfall and runoff curves that there would be no flow in the channel during 6-hour storm events under 2- and 5-year storms. Likewise they report an absence of OHWM or field indicators in the channel. They report some scour from higher flows during 1998/1999 rainfall events but concluded that no OHWM or OHW, jurisdictional waters, are present in Gregory Canyon. In 2005 the Huffman-Broadway Group, Inc. performed a technical review of the "Transmittal and reporting of hydrological information, Gregory Canyon Landfill project, URS project No. 27654025.00020." Besides a review of the definitions of "Waters of the US" they evaluated both the model selection and the results developed by URS in 2004. They point out that there was no field calibration of the model (the rain gauge data were from a reporting station in

Fallbrook about 10 miles away) and that the model contradicts the site data collected by URS in 2004. They concluded that “waters” do exist in Gregory Canyon. These reviews are not intended to rebut or review the results, case law and legal interpretations, or conclusions of these cited reports but to establish the occurrence of disagreement of field technical issues.

3. <u>Field Team</u>. I was accompanied in the field by members of both the LA District staff and the Engineer Research and Development Center/Cold Regions Research and Engineering Laboratory (CRREL) team during the site visit. The LA District members were Marjorie Blaine, Jim Mace, Michelle Mattson, Therese O'Rourke, Shannon Pankratz, Gerry Salas, and Steve Estes. Members of the CRREL field team were Katherine Curtis, Lindsey Dixon, and Jennifer Gillrich.

4. <u>Site Topography and Physical Conditions</u>. The proposed landfill site is located on the south side of the San Luis Rey River, San Diego County, CA. The elevations range from a high point of 1,659 feet to about 350 feet at the river bottom within the site. The area is dominated in the upper elevations by a granitic rocky boulder landscape. The slopes are dissected by first order stream channels and are covered with a Diego Shrub plant community type (Photo 1). The lower elevations are composed in part by older geological abandoned floodplains where there are now abandoned farm fields. Along the outer reaches of the San Luis Rey River floodplain and near the abandoned farm fields is an old levee system. Upriver, near the bottom of Gregory Canyon, the toe slope topography is mostly a sand to silt cap-covering colluvium deposited from the slopes adjacent to the canyon. All aspects of the landscape except the floodplain of the San Luis Rey River have a large boulder to rocky surface or subsurface due to the deposited colluvium. Because of a reasonable cover of vegetation, the steep slope is not excessively eroded. Also, the exposed colluvium has many open holes and pores for surface water to infiltrate into the weathered material. The first- and second-order channels are in positions that reflect development over a longer geologic time frame.

Photo 1. A landscape view of Gregory Canyon, Pala, CA, from the top of the watershed taken at sample point 17.

5. <u>Review of Hydrologic Records and Models and Antecedent Conditions prior to Site Visit</u>.

a. Current Climate Conditions. An analysis of general climate conditions for the area was performed using rainfall data from a gauge located in Vista, CA, approximately 10 miles southwest of Gregory Canyon. Data were obtained from the National Climatic Data Center (NCDC) website for station 049378 Vista 2 NNE located at 33°14'N/ 117°14'W. The mean rainfall for 1962-2009 is 12.73 inches and the median is 11.35 inches. Figure 1 (Appendix I) shows record annual rainfall in the 2004/2005 water year (October to September) at 27.61 inches. Since October of 1999, six water years had lower than average total annual precipitation, while three water years had rainfall amounts similar to the mean rainfall. Daily rainfall totals show a trend towards a wet winter in December through March (Figure 2) and dry summers in May through September.

b. Problems with Modeling the Channel. Hydrologic models for both the Gregory Canyon channel and the San Luis Rey River have numerous uncertainties. The two major limitations for modeling Gregory Canyon are: (1) limitations with HEC-1, and (2) accounting for variation of precipitation between gauges. A FEMA floodplain map has been developed for the San Luis Rey, but it lacks field calibration. However, developing future models of the San Luis Rey would be problematic due to the absence of gauge data directly at the site.

i. Gregory Canyon. Because the variables used to model flow in Gregory Canyon are complex and highly variable across space and time, some degree of uncertainty is introduced into the model results. HEC-1 is designed to interpolate precipitation events into stream discharges. However, stream runoff is closely linked to the soil saturation level. If the soil is dry and highly permeable, water will more easily seep into the ground and be retained in the soil for vegetation use or flow as groundwater. However, if the soil is saturated, more water will flow on the surface as overland flow. These antecedent moisture conditions are critical in arid systems. Graf (1988) describes how “a relatively frequent, small storm may not generate runoff at a time when soils are dry, but a storm of the same size might result in flood conditions if it were to occur when soils are saturated.” This leads to the runoff recurrence interval varying from the recurrence interval of the precipitation event (Graf, 1988). Much of the flow in the arid west is overland flow (Fetter, 2001), but directly relating the amount of precipitation to overland flow is challenging without field calibration to determine the infiltration rate. Thus, extensive knowledge of soil properties and previous storm events is required to accurately model flow. HEC-1 is not capable of accounting for these parameters as “simulations are limited to a single storm due to the fact that provision is not made for soil moisture recovery during periods of no precipitation” (HEC-1 Users Manual, 1998). Additionally, understanding the channel properties such as width, depth, and channel roughness is critical to a more realistic understanding of channel flow. To our knowledge, no surveys have been conducted on the Gregory Canyon channel to obtain these parameters. Establishing the lateral

width and location of the OHW is critical, and without an understanding of channel geometry, a model cannot describe the lateral extent of the OHW.

Regardless of these limitations, if modeling is attempted on these channels, it is ideal to have a rain gauge located on site. Due to the numerous hills in the region and the flashy nature of storms in the arid west (high intensity, short duration), significant changes in rainfall amounts occur in small areas (Fetter, 2001). Table 1 (Appendix II) compares the daily rainfall at the Vista station and a station in Temecula, CA, to the top 20 storm events in Fallbrook listed in the URS report. Rain gauge data for Temecula from 1972-2005 were obtained from the NCDC website for station 048844 located at 33°30'N / 117°09'W. Fallbrook is located approximately 8 miles north of Vista and 12 miles southwest of Temecula (Figure 3). Fallbrook, Vista, and Temecula are all approximately 10 miles from Gregory Canyon to the west, southwest, and north, respectively. For the nine largest precipitation events in Fallbrook, Vista recorded lower precipitation amounts for that same day. The largest recorded event at Fallbrook was 4.4 inches on November 22, 1965, compared to 2.14 inches at Vista. On January 16, 1978, the second largest Fallbrook event was recorded at 3.8 inches; for that day, Temecula recorded 1.5 inches and Vista recorded only 0.09 inches of rain. A similarly large discrepancy in rainfall is noted for January 11, 1980, when Fallbrook, Vista, and Temecula recorded precipitation of 3 inches, 2.42 inches, and 0.1 inches, respectively.

To account for these variations, it is ideal to incorporate data from as many stations as possible surrounding the site using isohyetal lines or a weighted average method. Isohyetal lines are contour lines representing varying precipitation amounts, but they must be redrawn for each event. The weighted average method weights the precipitation from each station based on their distance from the site as described in the HEC-1 Users Manual (page 9). These methods help reduce bias from one station and help account for days such as January 16, 1978, when rainfall was 3.7 inches greater at a site only 8 miles away. Thus, to most accurately determine precipitation amounts in mountainous systems, it is ideal to use numerous gauges within 10-15 miles of a site. However, for the stations immediately surrounding Gregroy Canyon, the data observations are not complete, particularly since 2005, and must be used with caution (Brown, personnel comm).

To summarize, modeling flow in Gregory Canyon has numerous uncertainties due to the limitations of converting precipitation data to stream flow and the unreliability of gauge data surrounding the site. Therefore, the most reliable technique for determining the presence of jurisdictional waters, OHW, is to use field indicators, OHWM. If water flowed through the channel, indicators such as drift, silt / sand deposits, and incised channels will be visible and provide physical proof of the actual conditions in the channel. Although the indicators cannot be linked to a particular historic flow event, they do demonstrate that water flowed through the channel.

ii. San Luis Rey River. Flow modeling on the San Luis Rey must also be viewed with caution. A FEMA floodplain map that was developed for the area provides insight into flow on the San Luis Rey (Figure 4). However, the FEMA map is only an approximation of the hundred year floodplain, Zone A. The FEMA website describes Zone A as “areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones” and Zone X is defined as “area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods.” At the most basic level, to model flows on the reach, the channel geometry, Manning’s roughness coefficient, and velocity must be known. Stream surveys to find the channel geometry would need to be conducted to develop a high-resolution topographic map of the channel. Manning’s roughness coefficient is ideally found by taking velocity measurement of the channel and calculating the roughness from the parameters. However, Manning’s roughness coefficient frequently changes with discharge as floodplains with different vegetation characteristics are inundated, and it would have to be estimated for the higher flows that are modeled.

The reliability of modeling this reach is most severely limited by the lack of gauge data. The nearest stream gauge is located in Oceanside, CA, approximately 20 miles from the site. As with precipitation data, to produce the most accurate models, a gauge would need to be located at the site. Many regions have accepted empirical formulas to adjust the discharge at a gauge to an ungauged site by relating their drainage areas. However, the accuracy of these formulas for a particular river is unknown without field calibration. As Leopold (1994) writes, “in the estimation of average discharge from basin areas, strict attention must be given to regional differences due to topography and orographic shielding.” Considering the differences in precipitation data shown in Table 1 that were also related to changes in microclimate, data from gauges not located at the site must be used with caution. Additionally, the site description of the Oceanside gauge notes there are “several diversions for irrigation and domestic use upstream from station” (USGS Water Resources website), further limiting the ability to use Oceanside gauge data to model flow at the site, as the amount of water lost between Gregory Canyon and Oceanside is unknown.

Although flow models are frequently developed under similar circumstances where gauge data and high-resolution topography data are missing, the accuracy of such a model must be questioned. Without knowing the present and historic discharge directly at the site, the results of a flow model on the San Luis Rey would be uncertain.

6. <u>Delineation of Wetlands and “Waters of the US”</u>. The site was delineated as two separate water bodies. One delineation effort focused on Gregory Canyon and the other focused on the San Luis Rey floodplain.

a. Gregory Canyon. Located within Gregory Canyon is a second order stream channel. This channel traverses in south to north flow down a slope of approximately 25 degrees or greater. The channel itself is typically narrow, ranging from about 2 to 5 feet in width along most of its length until it crosses the base of the canyon in the toe slope area, where the slope is about 5 degrees and the width of the channel is about 15 to 30 feet. The channel itself is incised about 2 to 3 feet along most of the steeper slope positions and is contained in an incised channel of about 5 to 6 feet wide. The incised channel lacks eroded "wall" sides but is actively scowled along the base of the channel. The channel in the steeper reaches is made up of a series of stepped dried pools of about 1 to 2 feet in height over boulders and then into pools constructed of an exposed sand deposit. In the sandy pools are deposits of transported materials moved by active water. In the lower stretch of the channel as it crosses the toe slope en route to the San Luis Rey River, the channel is flat bottomed and covered with sandy material. Unlike the steeper portion of the channel in Gregory Canyon, this section has shrubs and trees growing within the channel. These woody species are known to act as phraetophytes in many western US channels and no doubt are rooted deep within the channel (Lichvar and Dixon 2007). Within the channel at various depths within a soil profile are large pieces of partially decomposed wood from tree branches, etc. Some of the old wooden pieces have tree rings and mendulary ray patterns of sycamore, while those lacking the rays with fine and tight rings are probably a willow species. In summary, the upper channel is composed of a stepped pool and boulder "falls" with exposed sand deposits in the pools and a lack of vegetation in the active part of the channel, while the lower and less sloped section is vegetated with trees and shrubs, has sandy fluvial soils that lack boulders, and is covered with a heavy leaf litter.

A series of OHW and wetland sample points were taken along the length of the channel in Gregory Canyon. Wetland samples were taken in accordance with protocols described in the "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)" (U.S. Army Corps Engineers 2008). OHW samples were collected using procedures described in "A field guide to the identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the western United States" (Lichvar and McColley 2008). OHW sample points were located at the northernmost section of the channel that had the appearance of an actively worked channel. Then a series of sample points were taken up the channel in a southerly direction to collect data at various points that had the occurrence of several types of OHWM indicators. Types of OHWM physical evidence were recorded (Table 2) and photographed.

b. OHWM Evidence in Gregory Canyon. Research that included extensive hydrologic modeling (Lichvar et al. 2006) has shown that active channels lacking vegetation but having a distinct soil textural change in the channel are representative of an ordinary active intermittent stream channel in the Arid West. Maintaining an active appearance requires a minimum discharge corresponding to a low to moderate event (5- to 10-year return interval) (Lichvar et al. 2006). In

2008, Lichvar and McColley presented statistical support to a definition of an active OHW channel in the Arid West as a channel that periodically carries flows with a 5- to 10-year return interval to produce a stable field signature that could be used for the purposes of delineation of the OHW. Based on those results, the US Army Corps of Engineers and the US Environmental Protection Agency released the Arid West OHW delineation manual (Lichvar and McColley 2008) for delineating intermittent stream channels in the Arid West regulated under the Clean Water Act. The Arid West OHW field guide also includes the use of other OHWM indicators as supporting evidence. It was shown that these indicators may not always align with the active channel, but they provide evidence that the channel is still active, and they can be used in many instances to help support the establishment of the outermost extent of the active channel.

c. Upper Reaches of Gregory Canyon OHWM Evidence. The upper reach of the channel in Gregory Canyon in the steeper area, in both the first-order and second-order channels, has strong physical evidence of “Ordinary” flow events representing OHW. The main delineation indicators are the lack of vegetation in the active channel and a change in soil texture giving the channel an active appearance in accordance with the “Arid West OHW Delineation Field Guide” (Lichvar and McColley 2008). To further support the occurrence of an OHW channel and its width in the upper section of Gregory Canyon, the following OHWM indicators were observed at sample points 13, 14 and 17: a corroded culvert, drift, and silt/sand deposits (Photos 2a-c).The combination of the physical appearance of an active channel and supportive OHWM indicators provides strong and positive evidence that an OHW channel exists in Gregory Canyon. All the indicators used in this determination are included in the “Arid West OHW manual” and are listed as evidence in 33 CFR Part 328.3 to meet requirements of a “Waters of the US.”

Due to time constraints, not every first-order channel was visited and sampled in Gregory Canyon and verified for having OHWM indicators. The first-order channels could be delineated as needed by the LA District in the future.

Photos 2a-f. The channel in the upper reach of Gregory Canyon watershed and some observed OHW indicators: a) the channel at sample point 10 and water marks on a rock, b) a view of the channel between sample points 12 and 13, c) a rusted culvert containing drift at sample point 13, d) silt deposits on rocks at sample point 14, e) sand deposits on drift at sample point 17, f) a view of the channel downstream from sample point 17.

d. OHWM Evidence in the Lower Reach of Toe Slope Section of Gregory Canyon Channel. The active channel in Gregory Canyon changes characteristics once it crosses the lower toe slope position. In this section, the slope drops to about 5% or less, and during most storm events the stream drops its sediment load in this section. No visible active channel exists as it does upstream of the dirt road that crosses the channel in the lower stretch due to the deposition of sediment material. But there are indicators of surface-flowing water located within the channel. Starting at the road crossing and going north to the San Luis Rey River, we located wooden drift in the shrubs and on the surface within 2 feet of the road edge. We continued to find drift and silt marks down the channel for approximately 50 feet. Then, as the velocity of the water decreases, slowing because of decreasing slope in the channel, the flowing water leaves evidence of shallow flows all the way to the terminus of the channel where it meets the upper edge of the floodplain of the San Luis Rey. In the lowermost parts of the channel, silt was lacking in the leaf litter in the channel but was located on the base of several shrubs and a few trees to a height of about 4 to 6 inches above the mineral surface of the channel. Also, “sand tongues (deposits)” were frequently scattered along most of the lower channel below the road.

Based on the observed distances between OHWM evidence found along the active channel in the upper reaches and the height of the silt marks in the lower

channel, it is estimated that an “ordinary” flow probably measures 6 to 10 inches deep and 8 to 10 feet wide near the road crossing during “ordinary” events. After the initial OHW delineation was performed in the lower section of the canyon, the LA District provided us with a series of photographs that were part of their administrative records. In a photograph taken on January 10, 2005, flowing water is seen crossing the dirt road at a magnitude similar to the extent of OHWM indicators we observed (Photos 3a-c). This event is shown on Figure 2. Precipitation at Vista for that day was 1.4 inches. In the week prior to the January 10 storm, 4.31 inches of rain were measured at Vista, most likely contributing to a soil saturation level higher than normal.

Photos 3a-c. Photographs taken on January 10, 2005 of water flowing across road crossing.

Using current wetland sampling protocols (USACE 2008), we found no wetlands in the lower stretch (sample points 7 and 8), even though some of the vegetation was composed of hydrophytic species (Reed 1988). There were also several upland species recorded in this section of the channel. This mix is reflected in the 50/20 results for ranking dominant hydrophytic vegetation and the Prevalence Index (PI) method reported on the data sheets in Appendix III (plot 7 failed the 50/20 test with only 40.0% wetland plants, and the PI was 3.5; Plot 8 passed the 50/20 test with 66.7% wetland plants but failed the PI with 4.1). The lower channel was sampled in nine locations to verify the presence of OHW (sample points 18 through 26) (Photos 4a-c).

Photos 4a-c. OHWM indicators in the lower reach of the Gregory Canyon watershed. a) Silt deposit on the bottom of a tree at sample point 22, b) a sand “tongue” deposited at sample point 19, c) Drift and sand deposited at sample point 20.

e. Interface between the Gregory Canyon Channel and San Luis Rey Floodplain. No evidence of surface OHWM indicators was observed once the Gregory Canyon channel entered the identified 100-year floodplain of the San Luis Rey River (Figure 4). We observed leaf litter from falling trees captured in the branches of shrubs but no evidence of drift of other OHWM indicators associated with the canyon channel while we walked into or across the river floodplain.

f. OHW Determination for the Gregory Canyon Channel. The entire length of the second-order channel and several feeder first-order channels connected to the main stem have strong evidence of "ordinary" flow and physical evidence to support CRREL's conclusion that the channel meets the technical requirements of a "Waters of the US" (Table 2 (Appendix II), Figures 6 and 7 (Appendix I)).

g. San Luis Rey River. The San Luis Rey River bisects the permit project site in an east to west flow direction about halfway up the north to south axis of the site. The general elevation of the river at this site is about 350 ft. The San Luis Rey's headwaters are located in the Cleveland National Forest near Palomar Mountain. The river drains into the Pacific Ocean near Oceanside. The river is over 55 miles long and drains about 560 square miles. The San Luis Rey is only dammed in one location at Lake Henshaw, which is relatively close to the headwaters. The San Luis Rey has controlled flows through a series of levees on each side along much of its route to prevent flooding, but the river itself is not channelized.

A floodplain map developed by PCR titled "Exhibit 4.4-2, Flood Hazard Areas" which references the source of the floodplain to FEMA in 1997, shows the 100- and 500-year floodplains that cross the project site (Figure 10). PCR overlaid the project boundaries and the proposed river crossing onto the floodplain map. Independently we obtained the original FEMA map from which PCR developed their floodplain map. The FEMA map shows the San Luis Rey floodplain at the base of Gregory Canyon to be connected to the terminus of the canyon channel we delineated. There is a difference between the PCR and FEMA maps for the terminus of the Gregory Canyon channel. The FEMA map shows the 100-year floodplain entering slightly into the channel area of the Gregory Canyon channel. The PCR-modified FEMA map shows the base of the Gregory Canyon channel disjunct from the 100-year floodplain. The PCR map is not labeled as a "stage" modified map based on physically surveying the floodplain, so at this time we cannot explain the differences between the two maps.

The PCR flood hazard map also shows the contour line location of an old levee on the south side of the river near the proposed crossing, which we observed and verified in the field (Figures 4 and 5). Outward or southward from that levee, the PCR floodplain map depicts an area from the edge of the levee into the old farm field as a 500-year floodplain. The FEMA map is not subdivided into a 500-year map unit for this same farm field area. This again maybe due to the PCR map being a "stage" map with established elevations. Likewise, on the north side

of the channel at the proposed crossing is another 500-year segment of a floodplain that is shown on both the PCR and FEMA maps.

A wetland and “Waters of the US” delineation was performed from the low-flow channel of the river southward to the levee along the proposed bridge crossing along this section of the San Luis Rey. Wetlands were located adjacent to the low-flow channel (sample points 3 and 4) and extended southward to sample point 27, where the floodplain was determined to be “Waters of the US”; this designation continued to sample point 5 (Figures 8 and 9). The wetlands in these locations had indicator features including hydrophytic vegetation and hydric soils based on stratified layers and hydrogen sulfide odor, and they met hydrology indicators based on oxidized rhizospheres, water-stained leaves, and water table 3 inches below the soil surface (Table 3). Four sample points (1, 2, 5, 27) were taken in the “waters” area. The purpose of the northernmost OHW sample point was to connect or abut the boundary of the wetlands to the “Waters of the US” area so a contiguous map of an area meeting the criteria for wetland and “waters” could be developed. The southernmost area meeting OHW criteria was located near sample point 5. These areas are not shown as “Waters of the US” on the URS delineation of the site.

The area identified as “Waters of the US” along the San Luis Rey had numerous strong OHWM indicators that were identified and supported by research to be associated with “ordinary” events (Lichvar and McColley 2008). These indicators in this section of the San Luis Rey include bed and bank, drift, silt deposits, active sand and gravel sheets or benches, high-flow channels, and sparse vegetation with changes in texture of depositional materials (Lichvar and McColley 2008) (Photos 5a-c) (Table 3).

Photos 5a-c. OHWM indicators in the active channel of the San Luis Rey River in Gregory Canyon, Pala, CA: a) cobbles line an active channel at sample point 5, b) a silt deposit at sample point 2, c) drift and sand deposits at sample point 27.

h. Extent of Wetlands and “Water of the US” Delineated within the Floodplain of the San Luis Rey. Wetlands were delineated from the point of the low-flow channel of the San Luis Rey and southward for a distance of about 200 feet (Figures 8 and 9). From the southern boundary of the wetlands, “Waters of the US” abutted and continued southward another 300 ft. Both the wetlands and “waters” are located within the 100-year floodplain, but they do not align with the outer edge of the 100-year boundary. At this proposed crossing and north of the

low-flow channel of the San Luis Rey, wetlands continue until they intersect an abrupt change of topography that enters the mapped 500-year floodplain area on the north side. No effort was made to delineate the low-flow channel for wetlands and “waters” on the north side of the San Luis Rey.

7. <u>Conclusions</u>. A series of conclusions are presented here as bullets to avoid repeating items in the above text.

- **Based on OHWM field indicators in and along the channel in Gregory Canyon, the channel meets all the field criteria to be considered a “Waters of the US.”**
- **The wetland delineation of San Luis Rey was extended to include “Waters of the US” south of the low-flow channel.**
- **The PCR and FEMA maps do not match at the point of discharge at Gregory Canyon into the San Luis Rey. The differences cannot be explained using the materials we have reviewed.**
- **The channel in Gregory Canyon extends into the FEMA-mapped 100-year floodplain area.**
- **Prior modeling of precipitation events is limiting due to locations and discrepancies between rain gauges, lack of instrumentation at the site, and lack of channel cross sections for accurate modeling. Therefore, a rain gauge model is not feasible for attempting to evaluate the OHW discharges in this channel.**
- **Wetlands and “waters” were not fully delineated on the San Luis Rey where a bridge crossing is proposed. Both wetlands and “waters” were confirmed to be present at the proposed crossing. The “waters” will need to be added to the URS wetland delineation evaluation.**
- **From the information we reviewed on the floodplain of the San Luis Rey, no field survey has been performed to improve the accuracy of the FEMA map.**

8. This report was coauthored by Katherine Curtis with the assistance of Lindsey Dixon and Jennifer Gillrich from CRREL.

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Research Ecologist

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Appendix I. Figures of "Waters of the United States" and Wetlands at Gregory Canyon, San Diego County, CA.

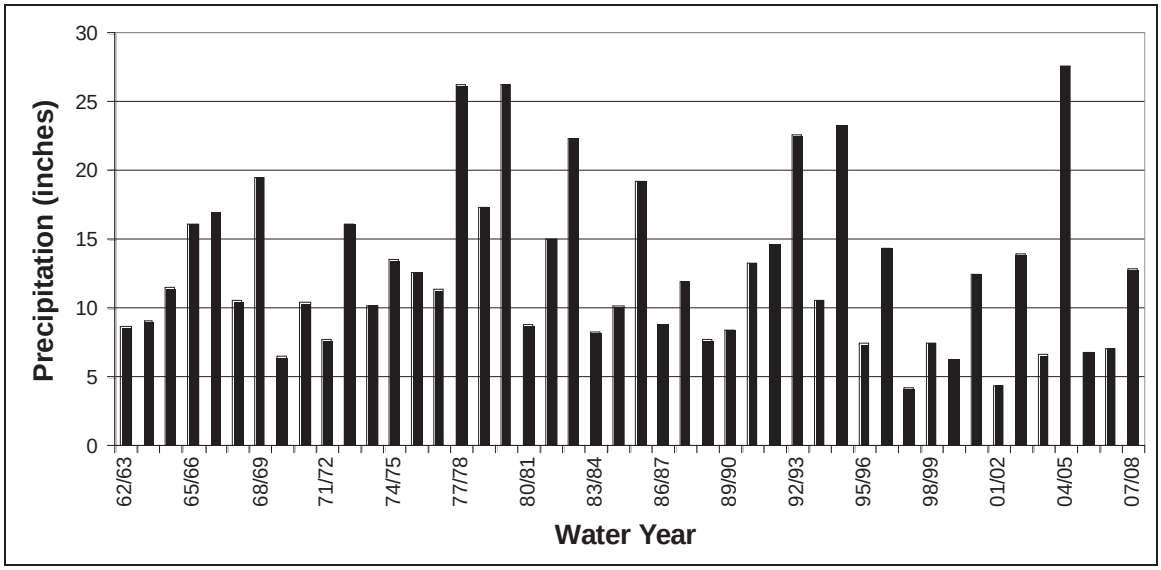

Figure 1. Total annual precipitation for the water year (October to September) from 1962 to 2008 at the Vista weather station. Data from the last three months of water year 2008-2009 have not been confirmed yet and were not included in the analysis.

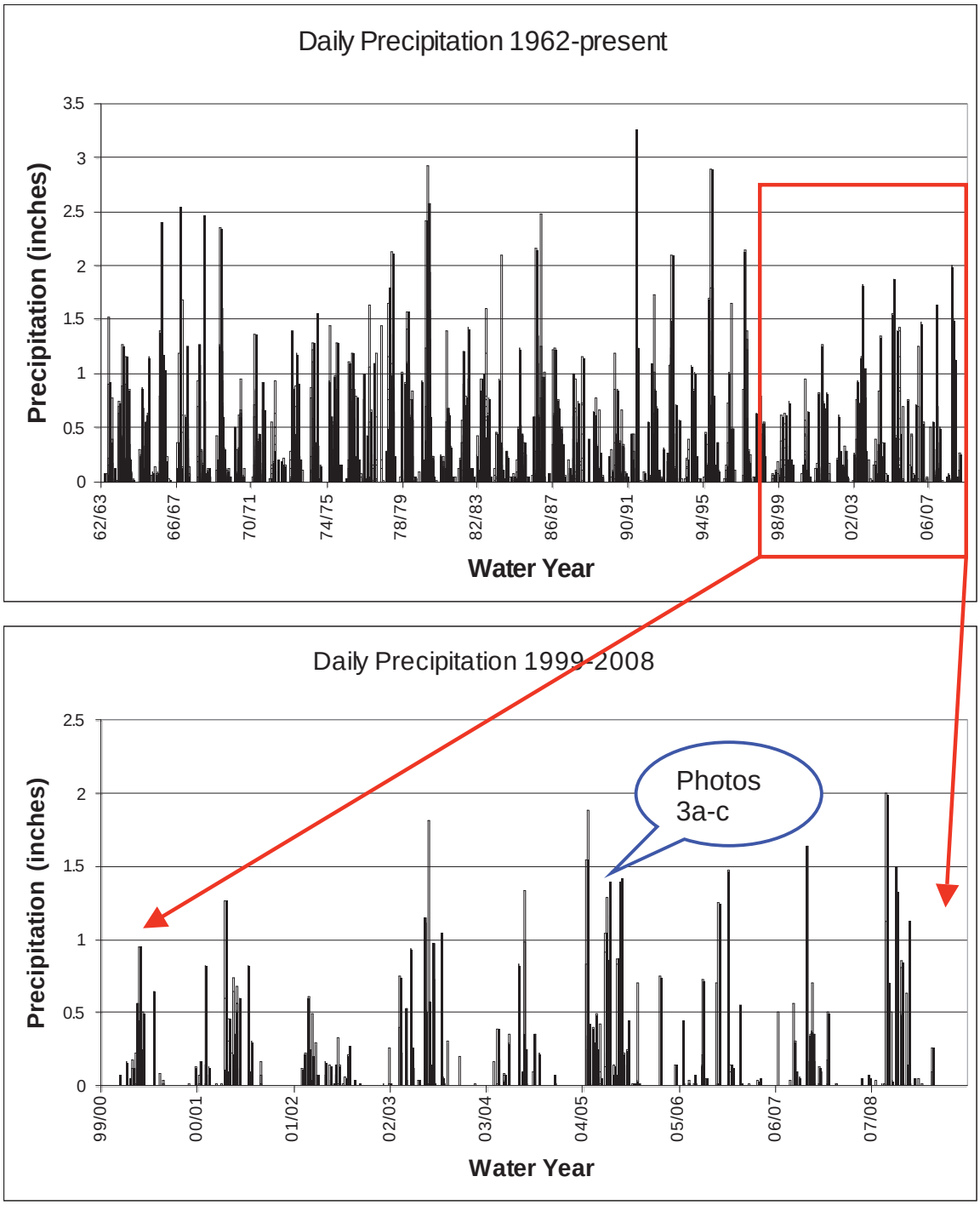

Figure 2. Daily precipitation at Vista weather station, from 1962 to present, highlighting water years since October 1999. Position of the date on the x axis corresponds to the beginning of the water year, not the beginning of the calendar year. Photo 3a-c was taken January 10, 2005, during the wet season. 1.4 inches of rain was recorded at Vista on that day.

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Figure 3. Precipitation gauge site location map.

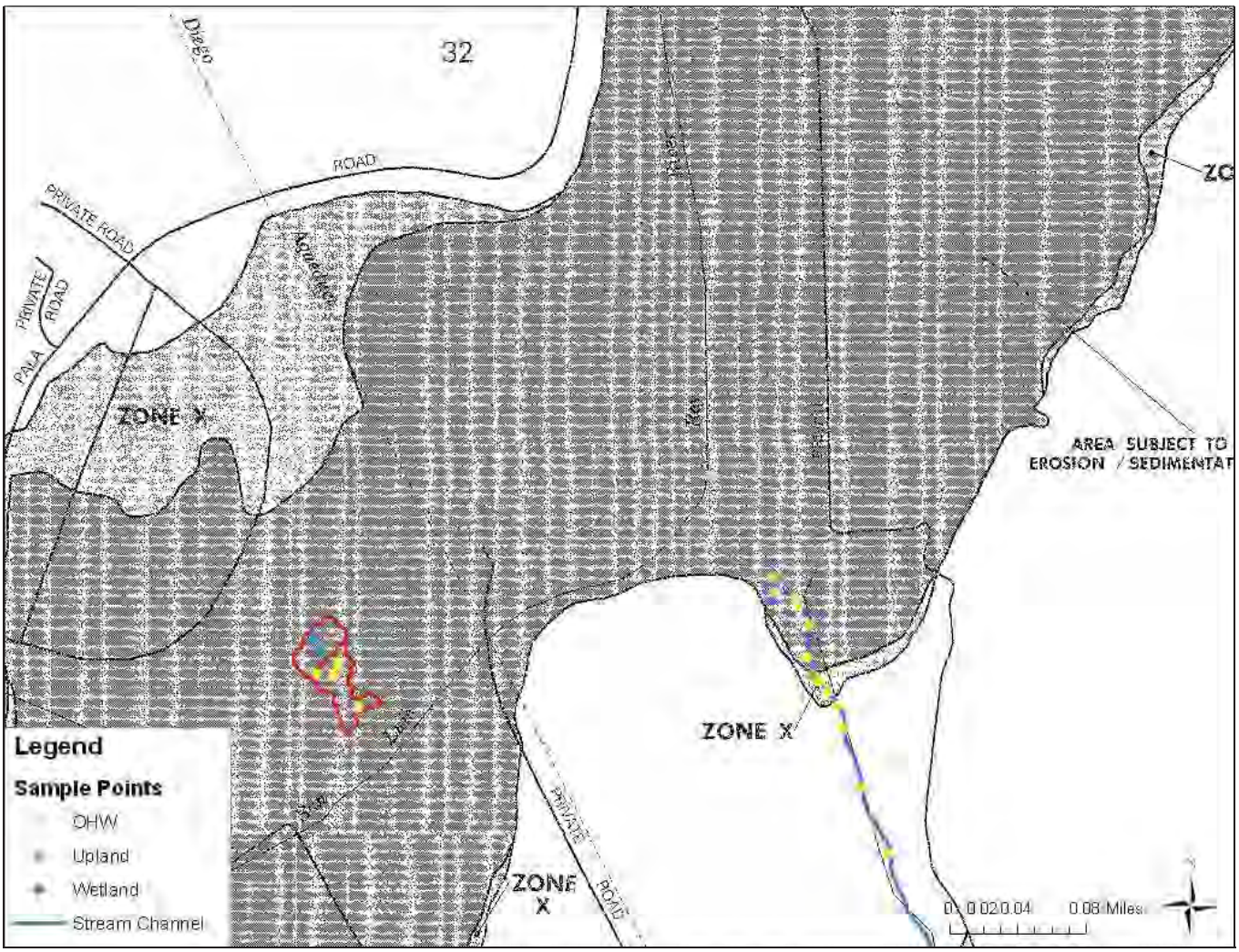


Figure 4. FEMA Flood Insurance Rate Map, June 1997. The red outlined area and the blue line indicate the area sampled within the San Luis Rey floodplain and Gregory Canyon by the field team in 2009. The dark gray area of the floodplain (Zone A) indicates the special flood hazard areas inundated by 100-year flood, but no base flood elevations have been determined. The lighter gray (Zone X) portion are areas of the 500-year flood, areas of 100-year flood with average depths of less than 1 foot or width, drainage areas less than 1 square mile, and areas protected by levees from 100-year flood (FEMA Flood Insurance Rate Map 1997).

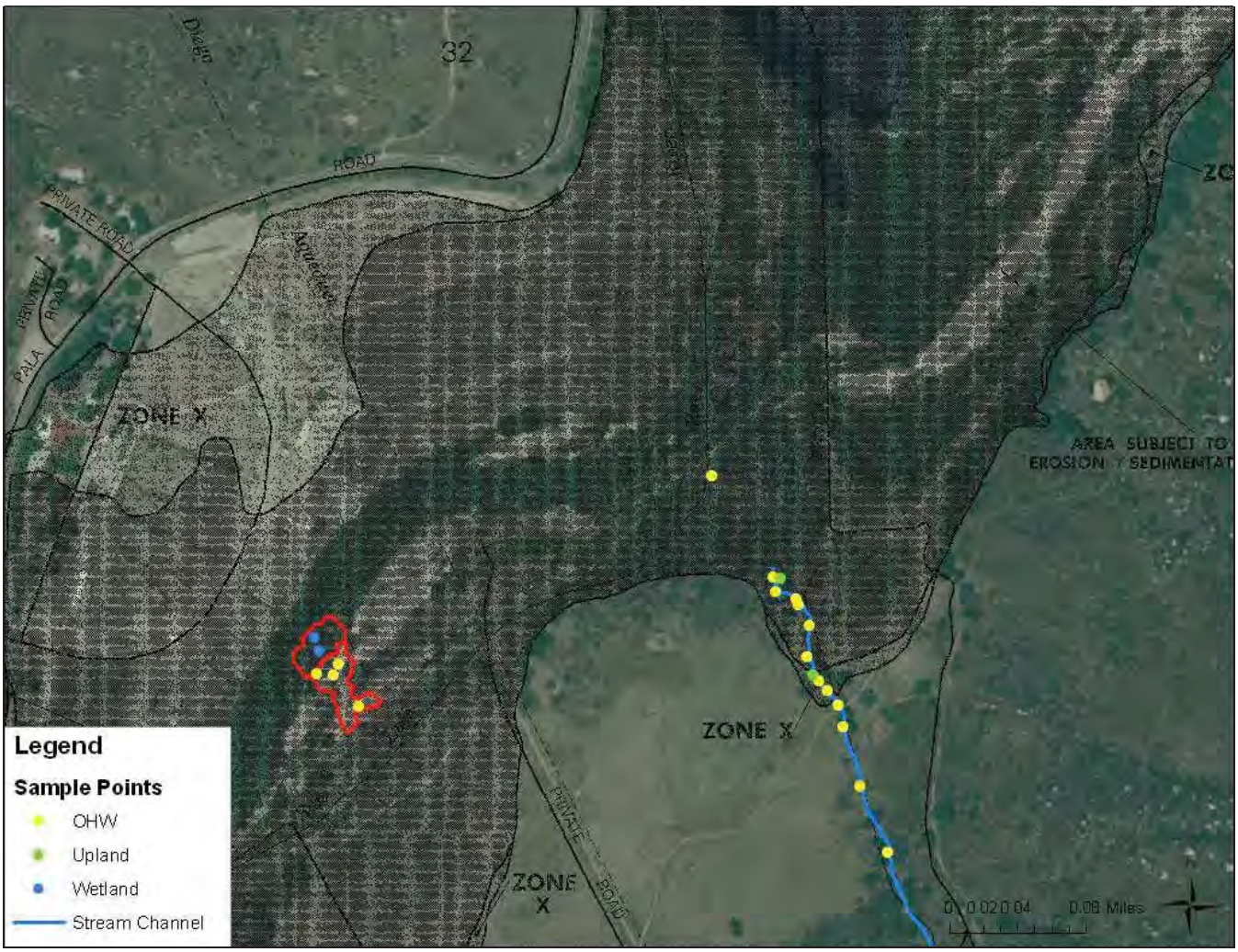


Figure 5. FEMA Flood Insurance Rate Map, June 1997, with Aerial Imagery. The red outlined area and the blue line indicate the area sampled within the San Luis Rey floodplain and Gregory Canyon by the field team in 2009. The dark gray area of the floodplain (Zone A) indicates the special flood hazard areas inundated by 100-year flood, but no base flood elevations have been determined. The lighter gray (Zone X) portion are areas of the 500-year flood, areas of 100-year flood with average depths of less than 1 foot or width, drainage areas less than 1 square mile, and areas protected by levees from 100-year flood (FEMA Flood Insurance Rate Map 1997).

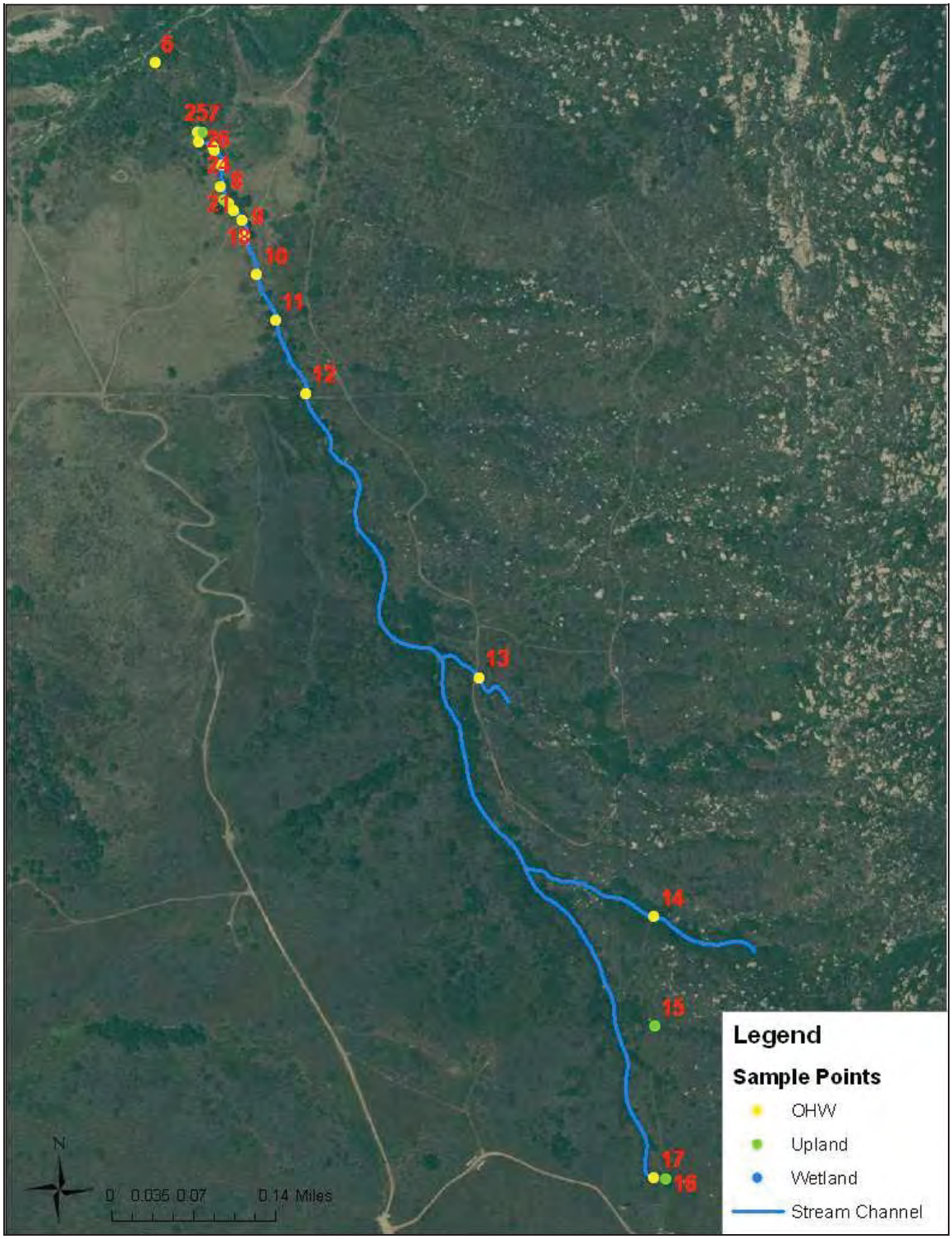


Figure 6. Area Delineated in Gregory Canyon. Sample points represent OHW determinations made in the San Luis Rey and Gregory Canyon and are referenced in Tables 2 and 3.

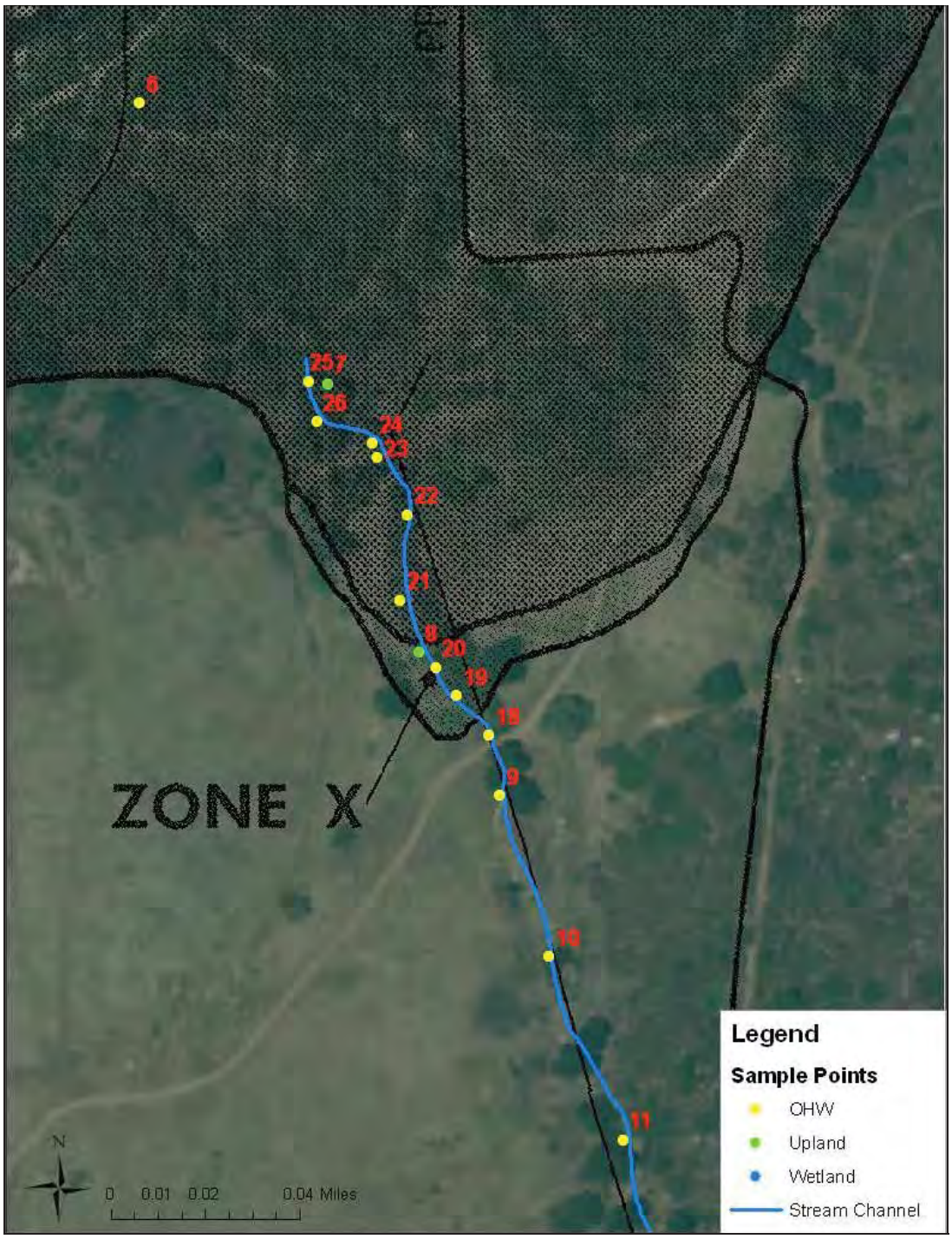


Figure 7. Area Delineated in Gregory Canyon, with FEMA Flood Insurance Map The blue line represents the active channel determined by the field team in 2009. The dark gray area of the floodplain (Zone A) indicates the special flood hazard areas inundated by 100-year flood, but no base flood elevations have been determined. The lighter gray (Zone X) portion are areas of the 500-year flood, areas of 100-year flood with average depths of less than 1 foot or width, drainage areas less than 1 square mile, and areas protected by levees from 100-year flood (FEMA Flood Insurance Rate Map 1997).

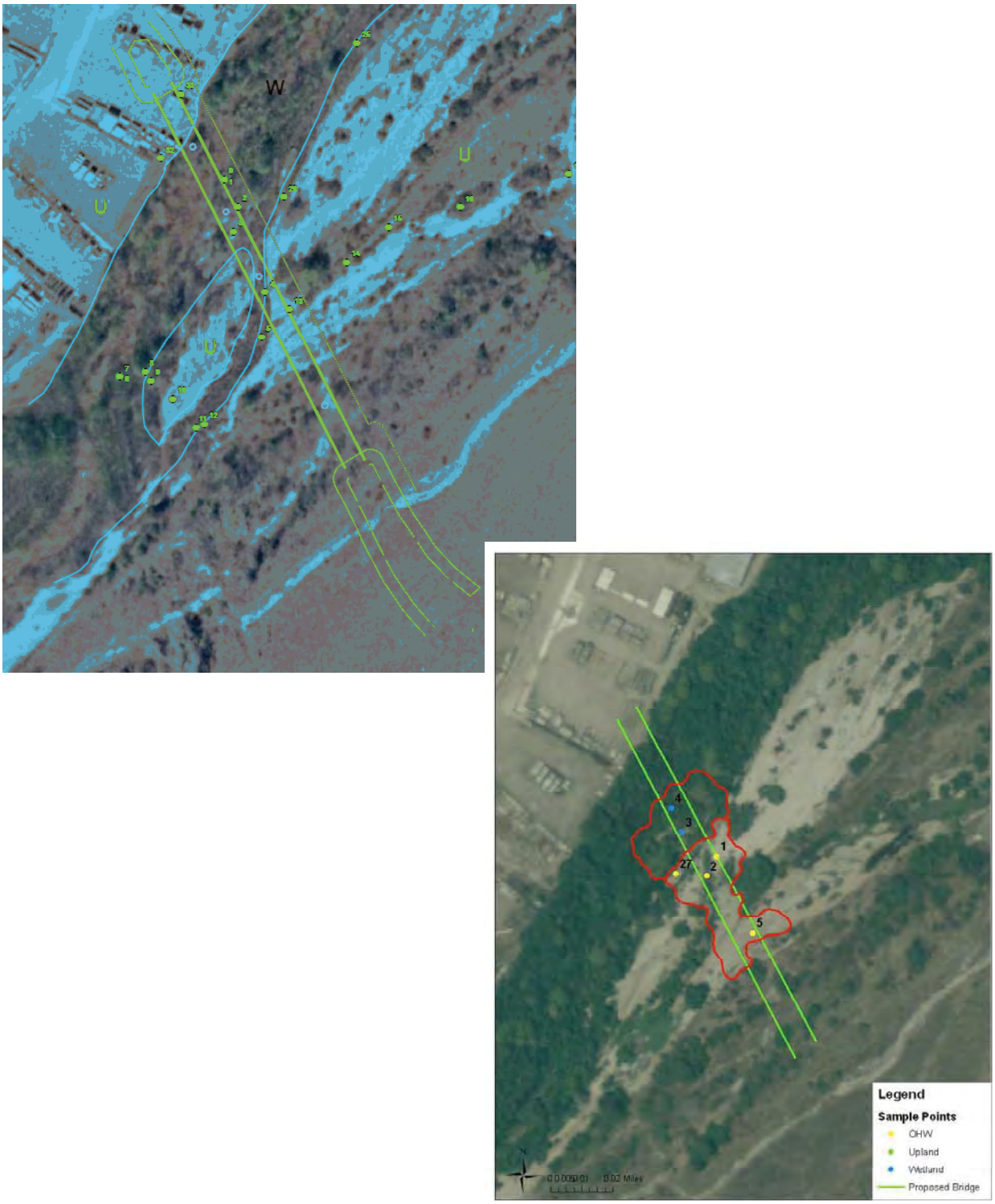


Figure 8. Area delineated in the San Luis Rey Floodplain by PRC (above) and CRREL (below). The red outlined polygons in the lower picture represent areas delineated by the CRREL field team in 2009.The yellow lines represent the proposed bridge. Wetlands were delineated 100 feet southward from a low-flow channel in the San Luis Rey floodplain. The OHW determinations continued from this point for another 200 feet southward. The area abutting the OHW was determined to be upland. Sample points in this figure are referenced in Table 2.

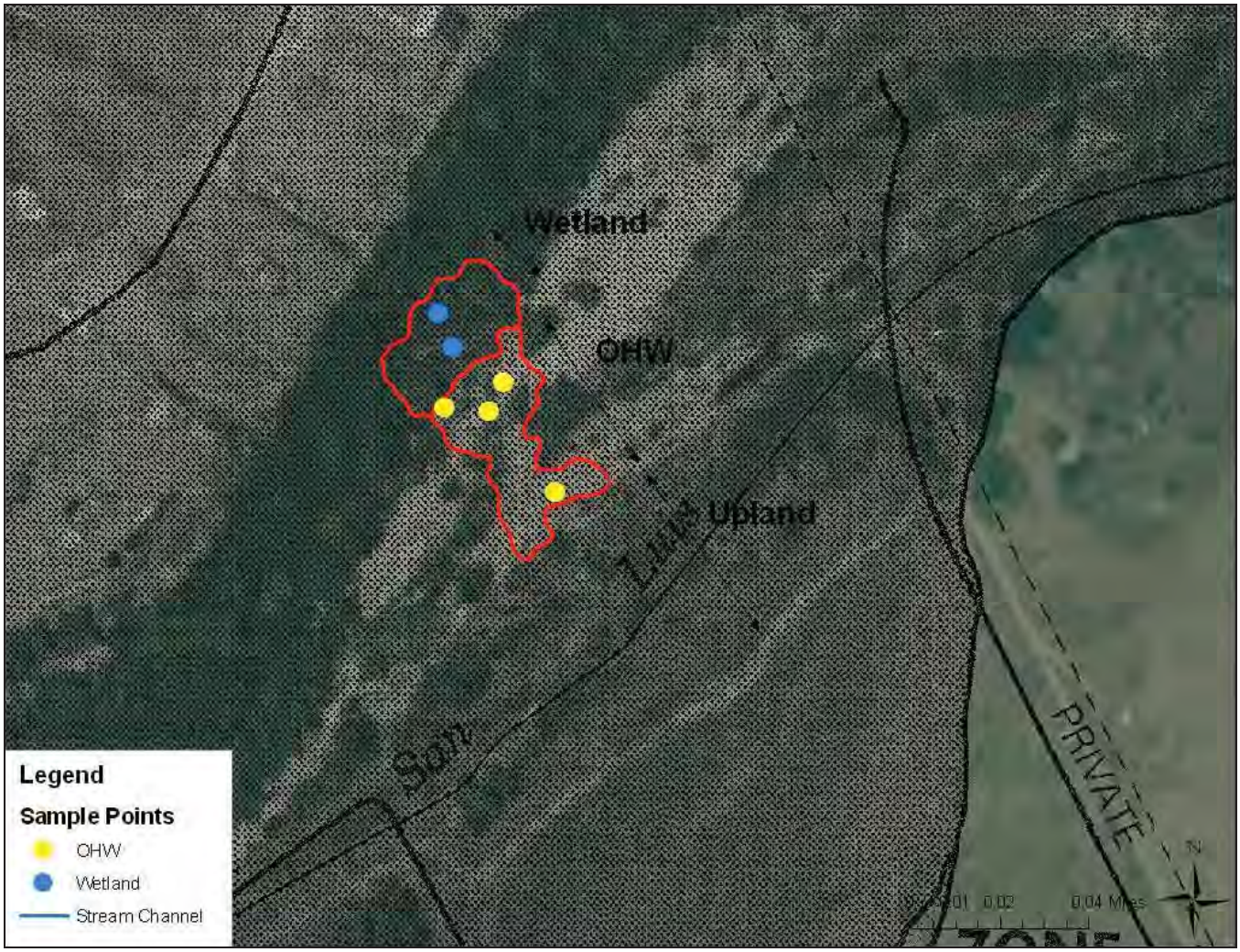
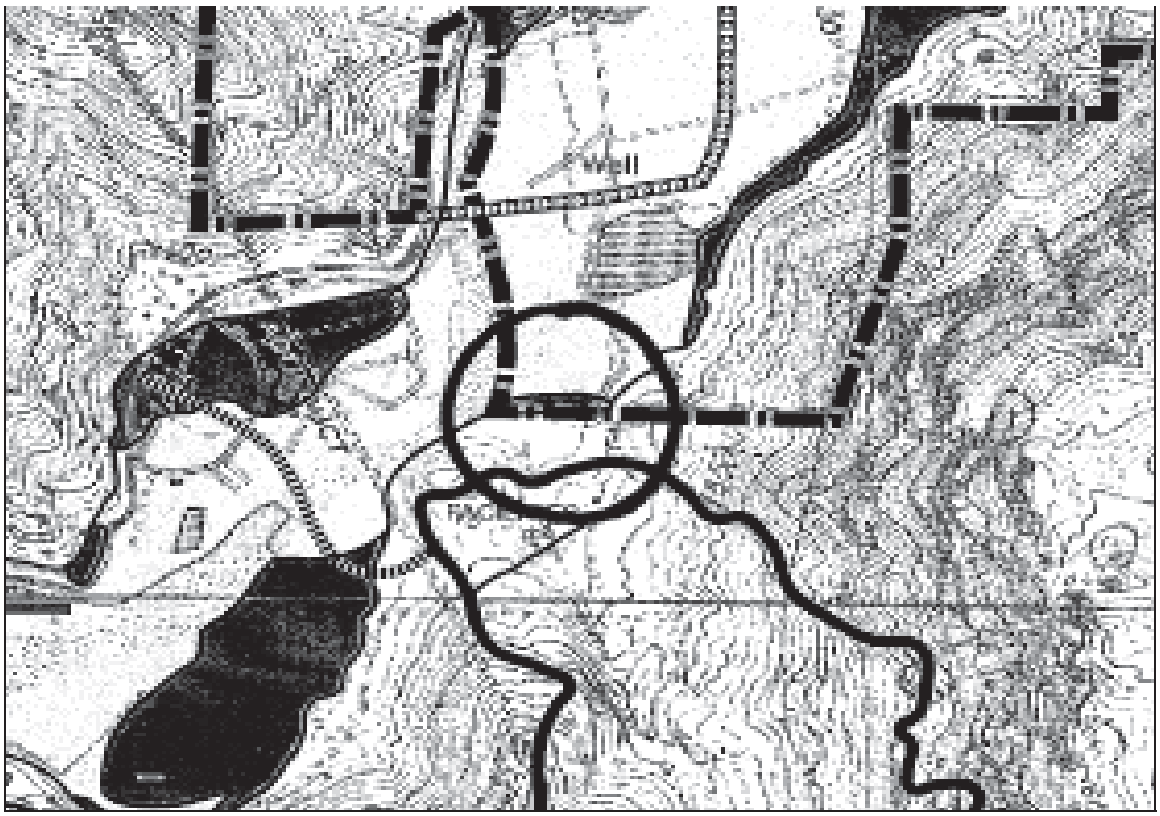


Figure 9. Area delineated in the San Luis Rey Floodplain, with FEMA Flood Insurance Map. The red outlined polygons represent areas delineated by the field team in 2009. The dark gray area of the floodplain (Zone A) indicates the special flood hazard areas inundated by 100-year flood, but no base flood elevations have been determined (FEMA Flood Insurance Map 1997).



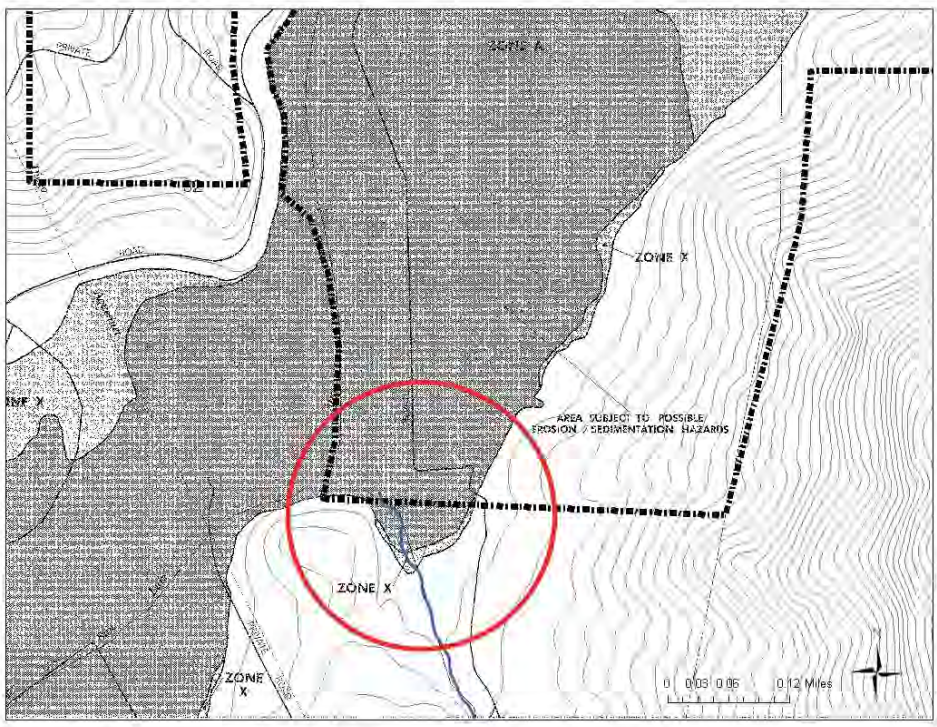


Figure 10. FEMA floodplain map comparison between CRREL and PCR. Both floodplain maps are the FEMA Flood Insurance Rate Map from June 1997. The figure above depicts PCR's map and the figure below depicts CRREL's map. The PCR map is not to scale. Both of the circles indicate the same area on the study site.

Appendix II. Results of the OHW Determinations and Wetland Delineations at Gregory Canyon Project Permit Site, San Diego County, CA

Table 1. Daily peak rainfall (in inches) for the top 20 events at the Fallbrook gauge (from the URS report) and the corresponding rainfall amounts at the Vista and Temecula stations. "No data" refers to dates outside the period of record or days noted as an incomplete measurement in the dataset.

			Daily Peak Rainfall (inches)		
Year	Month	Day	Fallbrook	Vista	Temecula
1965	11	22	4.4	2.14	no data
1978	1	16	3.8	0.09	1.5
1969	1	25	3.4	2.35	no data
1969	2	25	3.4	1.6	no data
1982	3	17	3.2	0.95	3.1
1980	1	11	3	2.42	0.1
1982	1	20	3	0.7	3.5
1978	1	4	2.8	1.15	3.7
1978	3	1	2.8	2.12	1.1
1980	1	29	2.8	2.93	no data
1956	1	26	2.75	no data	no data
1985	11	29	2.7	1.36	2
1963	2	9	2.68	0.22	no data
1967	1	22	2.6	0.46	no data
1962	1	20	2.5	no data	no data
1982	1	1	2.5	1.21	0.9
1979	1	5	2.4	0.55	2.5
1980	1	28	2.4	0.37	3.7
1971	12	22	2.3	0.94	no data
1971	12	24	2.3	0.43	no data

Table 2. Sample Points in Gregory Canyon

OHW Sample Points

Sample Point Number	Ordinary High Water Mark Indicators				
	Change in average sediment texture	Change in total vegetation cover	Change in overall vegetation maturity	Change in dominant species present	Other
7	N	N	N	N	No OHWM Present
8	N	N	N	N	No OHWM present
9	Y	Y-Herb Only	N	N	Presence of bed and bank
10	Y	Y-Herb Only	N	N	Presence of bed and bank, water level mark on rocks
11	Y	Y	N	Y	Presence of bed and bank, drift, silt deposits
12	Y	Y	N	N	Presence of bed and bank, drift
13	Y	Y	N	Y	Presence of bed and bank, drift, corroded culvert, sand deposits
14	Y	Y	N	N	Presence of bed and bank, drift, silt deposits
15	N	N	N	N	No OHWM present
16	N	N	N	N	No OHWM present
17	N	Y	N	N	Presence of bed and bank, drift, head cut, silt on debris, benches
18	Y	Y	N	Y	Presence of bed and bank, drift
19	Y	Y	N	N	Presence of bed and bank, sand deposits
20	Y	Y	N	N	Presence of bed and bank, sand deposits, drift
21	Y	Y	N	N	Presence of bed and bank, sand lens under annual grasses, debris
22	Y	Y	N	N	Presence of bed and bank, silt deposits on trees
23	Y	Y	N	N	Presence of bed and bank, sand and silt deposits on bark and trunks of trees
24	Y	Y	N	N	Presence of bed and bank, sand deposits
25	Y	Y	N	N	Presence of bed and bank, small sand and silt deposits on trees
26	Y	Y	N	N	Presence of bed and bank, coarse sand deposits below litter

Wetland Sample Points

Sample point number	PI value	50/20 value	Hydric soil indicator	Hydrology indicator
7	3.5	40.0%	No Indicator Present	None
8	4.1	66.7%	No Indicator Present	None

Table 3. Sample Points in the San Luis Rey Floodplain

OHW Sample Points

Sample point number	Ordinary High Water Mark indicators				
	Change in average sediment texture	Change in total vegetation cover	Change in overall vegetation maturity	Change in dominant species present	Other
1	NA	NA	NA	NA	General sample point for project
2	N	Y-Shrub Only	Y	Y	Presence of bed and bank, drift, sand benches, silt deposits
5	N	Y	Y	Y	Presence of bed and bank, drift, high flow channels
6	Y	Y-Shrub Only	Y	Y	Presence of bed and bank, silt deposits, drift
27	Y	Y	N	N	Drift, silt deposits

Wetland Sample Points

Sample point number	PI value	50/20 value	Hydric soil indicator	Hydrology indicator
3	1.9	100.0%	A5 – Stratified layers	B9-Water-stained leaves C3-Oxidized rhizospheres B2- Sediment deposits B3- Drift deposits
4	2.0	66.7%	A4- Hydrogen sulfide odor A5- Stratified layers	A2- High water table A3-Saturation B9- Water-stained leaves C3-Oxidized rhizospheres B1-Water marks B3- Drift deposits

APPENDIX III. Datasheets from the Determination of “Waters of the United States” and Wetlands at Gregory Canyon Project Permit Site, San Diego County, CA.

Project: Gregory Canyon
Project Number:
Stream: San Luis Rey River
Investigator(s): Lichvar et al.

Date: 10/20/09
Town: Pala
Photo begin file# SP2a

Time:
State: CA
Photo end file# SP2e

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP2 and SP5

Projection: UTM **Datum:** NAD83
Coordinates: SP2= 489285.127374, 3689658.816846

Notes:

Coordinates SP5: 489308.988113, 3689629.264976

Brief site description:

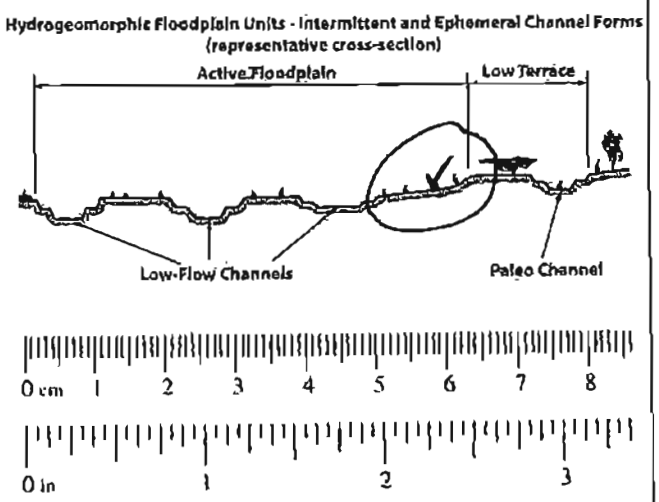
Active channel of the San Luis Rey River-sand deposition with bank, bench and sparse vegetation in active channel (10% or less).

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand ✓	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



☑ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☑ Change in total veg cover ☐ Tree ☑ Shrub ☑ Herb
☑ Change in overall vegetation maturity
☑ Change in dominant species present
☐ Other ☑ Presence of bed and bank
☑ Drift and/or debris
☑ Other: sand bench
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☑ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☑ Change in average sediment texture
- Y ☑ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☑ N ☐ Change in overall vegetation maturity
- Y ☑ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☑ N ☐ Presence of bed and bank
  - Y ☑ N ☐ Drift and/or debris
  - Y ☑ N ☐ Other: silt deposits
  - Y ☑ N ☐ Other: high flow channels-more cobbles in channels

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:

- ☑ SP5- is the boundary of active channel and terrace
- ☑ pic SP2f: is further downstream drift
- ☑ pic SP5a-SP5d: rock texture change at OHW boundary, bed, bank, drift
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____ SP2 SP5

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gregory Canyon City/County: Pala/San Diego Sampling Date: 10/21/09

Applicant/Owner: Gregory Canyon, Ldt. LLC. State: CA Sampling Point: SP3

Investigator(s): Lichvar et al. Section, Township, Range: _____

Landform (hillslope, terrace, etc.): stream channel Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): California Mediterranean (LRRC) Lat: 489765.63982 Long: 3689809.841542 Datum: NAD83

Soil Map Unit Name: TuB Tujunga sand 0 5% slopes-recent alluvium NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes yes No _____ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes yes No _____

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: SP3 is 101.7 ft. northeast of mapped NWI Wetland, PEMCx

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rhombifolia	40.0	yes	FACW
2. Salix lasiolepis	45.0	yes	FACW
3. Salix exigua	5.0	no	OBL
4.			
	90.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Baccharis salicifolia	5.0	yes	FACW
2.			
3.			
4.			
5.			
	5.0	= Total Cover	
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5.0	x 1 =	5.0
FACW species	90.0	x 2 =	180.0
FAC species	0	x 3 =	
FACU species	0	x 4 =	
UPL species	0	x 5 =	
Column Totals:	95.0 (A)		185.00 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes yes No _____

Remarks:

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR 3/1							Silty Loam
4-12"	10YR 2/1							Coarse Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: Hydric soil indicator A5-stratified layers: organic layer-leaf litter, silty loam, coarse sand.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (Riverine)
- ✓ Sediment Deposits (B2) (Riverine)
- ✓ Drift Deposits (B3) (Riverine)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes yes No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology indicators: water stained leaves, oxizided rhizospheres , sediment deposits drift deposits drainage patterns

SP3

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gregory Canyon City/County: Pala/San Diego Sampling Date: 10/21/09

Applicant/Owner: Gregory Canyon, Ltd LLC. State: CA Sampling Point: SP4

Investigator(s): Lichvar et al. Section, Township, Range: _____

Landform (hillslope, terrace, etc.): stream channel Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): California Mediterranean (LRRC) Lat: 189266.940936 Long: 3689693.895284 Datum: NAD83

Soil Map Unit Name: TuB Tujunga sand 0-5% slopes-recent alluvium NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes yes No _____ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes yes No _____

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: The area is 124.7 ft. northeast of mapped NWI Wetland. PEMCx- point is located in the active channel

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides var fremontii	50.0	yes	FACW
2. Salix laevigata	20.0	yes	FACW
3. Salix lasiolepis	10.0	no	FACW
4. Alnus rhombifolia	10.0	no	FACW
	90.0%	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Cyperus, spp.	< 1.0	no	FACW?
2. Polygonum lapathifolium	1.0	yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	~2.0%	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	70.0	x 2 =	140.0
FAC species	0	x 3 =	
FACU species	0	x 4 =	
UPL species	1.0	x 5 =	5.0
Column Totals:	71.0 (A)		145.0 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes yes No _____

Remarks:

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3"	7.5YR 3/1							sand and organic material
3-15"	10YR 2/1							silty loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ✓ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: Hydric soil indicator A5-stratified layers: organic layer-leaf litter, silty loam, coarse sand. Strong odor of Hydrogen sulfide.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ✓ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ___
Water Table Present?	Yes ✓	No ___	Depth (inches): 3.0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 2.5"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils saturated at 2.5 " water table at 3.0" -numerous indicators of wetland hydrology: water stained lvs, drift deposits, oxidized rhizospheres.

SP4

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP6a

Time: 10.45 a.m.
State: CA
Photo end file# SP6b

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP6

Projection: UTM **Datum:** NAD83
Coordinates: 489642.459538, 3689846.215233

Notes: GPS SP6 = OHWM

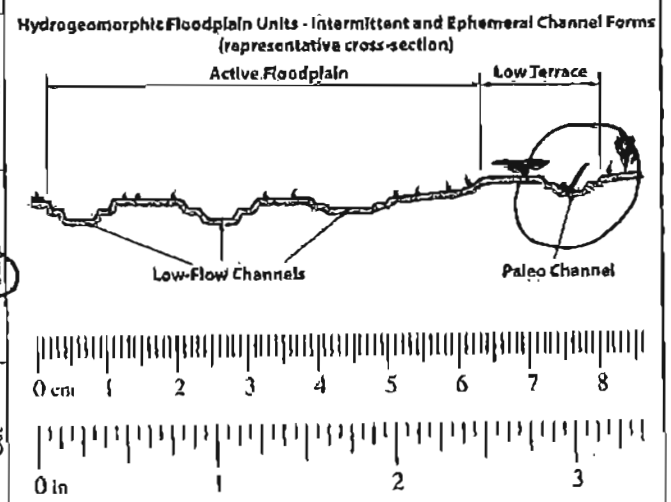
Brief site description: shrubs/trees(willow riparian scrub)on floodplain at break in slope to lower terrace. High flow channels (on & off again, very minor description). Fine sand in areas with minor vegetation.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
		Boulder	Gravel
10.08	256	Cobble	
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	Sand
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand ✓	
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	Silt
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: ____ % Tree: ____ % Shrub: ____ % Herb: ____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☑ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: silt

Total veg cover: 95.0 % Tree: 40.0 % Shrub: 50.0 % Herb: 5.0 %

Community successional stage:

☐ NA ☑ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: Populus deltoides var. fremontii, Salix laevigata, Cyperus spp.

Other: ☑ break in slope
☑ drift in trees below (pic# SP6a)
☐ _____
☐ _____

SP6

☑ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☑ Change in average sediment texture
- ☑ Change in total veg cover ☐ Tree ☑ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☑ Change in dominant species present
- ☐ Other
  - ☑ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☑ Other: silt deposits
  - ☐ Other: SP6 = plot# SP6b

☑ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☑ N ☐ Change in average sediment texture
- Y ☑ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☑ N ☐ Change in overall vegetation maturity
- Y ☑ N ☐ Change in dominant species present
- Y ☑ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☑ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: medium sand

Total veg cover: 90.0 % Tree: 30.0 % Shrub: 50.0 % Herb: 90.0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: Populus deltoides var. fremontii, Tamarix spp.,Avena spp.

Other:
- ☑ discarded flower pots on few high flow channels
- ☐
- ☐
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

SP6

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed/San Luis Rey River
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP7a

Time: 11:21 a.m.
State: CA
Photo end file# SP7j

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP7

Projection: UTM **Datum:** NAD83
Coordinates: 489706.874799, 3689750.322878

Notes: Soil pit location- see wetland delineation form. Leaf/duff layer 3" thick with organic interface of decomposing leaves. No evidence of OHW indicators. Sample point within channel.

Brief site description:

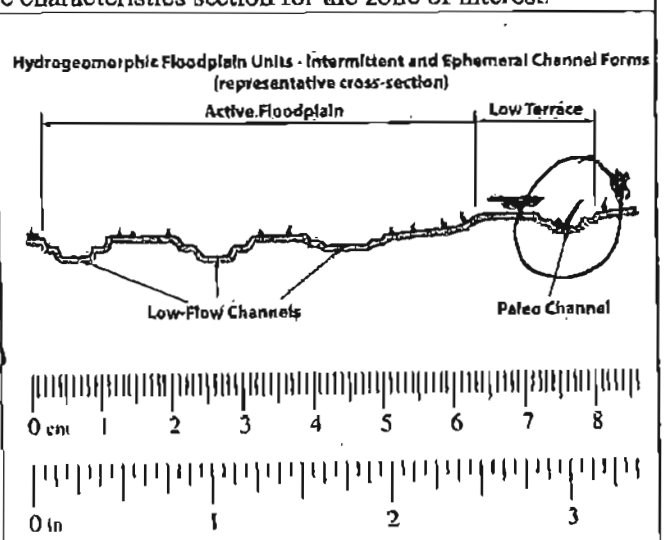
Confluence of the canyon and the San Luis Rey River

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
		Granule	Gravel
0.079	2.00		
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand ✓	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00016	0.0039	Very fine silt	Silt
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☑ no OHW indicators
☐ _____
☐ _____
☐ _____

SP7

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☑ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: fine sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☑ see wetland delineation sheet
- ☐
- ☐
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

SP7

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gregory Canyon City/County: Pala/San Diego Sampling Date: 10/21/09

Applicant/Owner: Gregory Canyon, Ltd. LLC. State: CA Sampling Point: SP7 (soil pit)

Investigator(s): Lichvar et al. Section, Township, Range: _____

Landform (hillslope, terrace, etc.): stream channel Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): California Mediterranean (LRRC) Lat: 489706.874799 Long: 3889750.322878 Datum: NAD83

Soil Map Unit Name: VaB Visalia sandy loam 2-5% slopes NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes yes No _____ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes yes No _____

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: Soil pit for OHW investigation- sample point 7

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides var. fremontii	35.0	yes	FACW
2. Salix laevigata	25.0	yes	FACW
3.			
4.			
	60.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Rhus integrifolia	25.0	yes	UPL
2.			
3.			
4.			
5.			
	25.0	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Datura wrightii	4.0	no	UPL
2. Cirsium vulgare	15.0	yes	FACU
3. Heliotropium amplexicaule	20.0	yes	UPL
4. Bromus diandrus	3.0	no	UPL
5.			
6.			
7.			
8.			
	42.0	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = _____
FACW species	60.0	x 2 = 120.0
FAC species	0	x 3 = _____
FACU species	15.0	x 4 = 60.0
UPL species	52.0	x 5 = 260.0
Column Totals:	127.0 (A)	440.0 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No no

Remarks:

pic SP7a-SP7j

SOIL

Sampling Point _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2"							organic-partially decomposed leaf litter	
2-4"	10YR 2/2						fine sand	C horizon - not much structure
4-8"								debris horizon-coarse wood
8-14"	10YR 2/2						fine sand	C horizon - poor structure
14-16"								woody debris horizon

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks: leaf-duff layer 3" thick-organic interface of decomposing leaves pic# SP7j

darkened and decaying Populus leaves with no silt sitting right on mineral interface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SP7

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP8a

Time: 11.37 a.m.
State: CA
Photo end file# SP8k

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP8

Projection: UTM **Datum:** NAD83
Coordinates: 489737.896815, 3689658.799434

Notes:

Brief site description: channel with incised banks, no OHW signatures, soil pit info. on wetland delineation form

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ Clinometer / level
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

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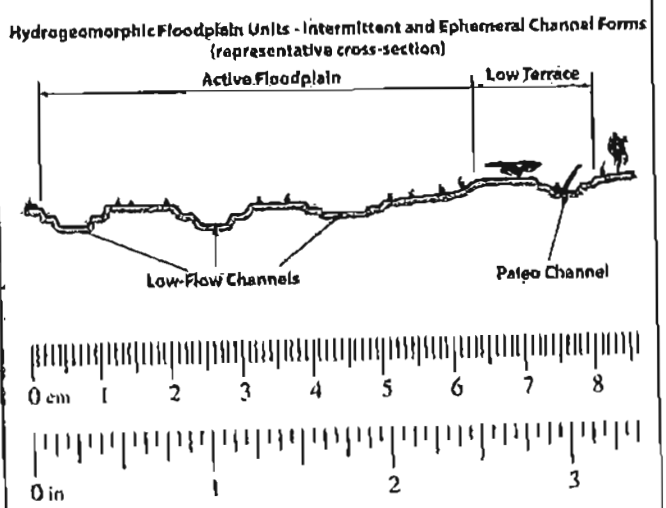
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other: Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☑ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☑ soil pit description on wetland delineation form
- ☐
- ☐
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

SP8

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Gregory Canyon City/County: Pala/San Diego Sampling Date: 10/21/09

Applicant/Owner: Gregory Canyon, Ldt. LLC. State: CA Sampling Point: SP8 (soil pit)

Investigator(s): Lichvar et al. Section, Township, Range: _____

Landform (hillslope, terrace, etc.): stream channel Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): California Mediterranean (LRRC) Lat: 489737.896615 Long: 3689858.799434 Datum: NAD83

Soil Map Unit Name: VaB Visalia sandy loam 2-5% slopes NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes yes No _____ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes yes No _____

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

KC photos: SP8a-SP8c / LD pics SP8g-SP8k: silt on rock by road in channel lateral silt across road

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	25.0	yes	FACW
2.			
3.			
4.			
	25.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix laevigata	15.0	yes	FACW
2.			
3.			
4.			
5.			
	15.0	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	90.0	yes	UPL
2. Datura wrightii	3.0	no	UPL
3. Heliotropium amplexicaule	1.0	no	UPL
4.			
5.			
6.			
7.			
8.			
	94.0	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	40.0	x 2 =	80.0
FAC species	0	x 3 =	
FACU species	0	x 4 =	0
UPL species	94.0	x 5 =	470.0
Column Totals:	134.0 (A)		550.0 (B)

Prevalence Index = B/A = 4.1

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

✓ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No no

Remarks: Vegetation is problematic-fails PI test/passes dominance test.

Perennial veg. with deeper root systems may access water table. UPL annuals (B. diandrus, D. wrightii) with shallower root systems cannot.

SOIL

Sampling Point _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
A: 0-4"	10YR 2/2						coarse sand	weak granular structure
B: 4-16"	10YR 2/2						sandy loam	consolidated angular blocks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

pics# SP8e and 296f

pic #SP8d interface of decomposed organic material and mineral layer -oak leaves layer 1/2 in fragments lack any silt deposits on leaves

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Drift Deposits (B3) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SP8

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP9a

Time: 12:00 p.m.
State: CA
Photo end file# SP9c

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP9- OHW end

Projection: UTM **Datum:** NAD83
Coordinates: 489765.63982, 3689609.841542

Notes: end of OHW at bottom of the channel

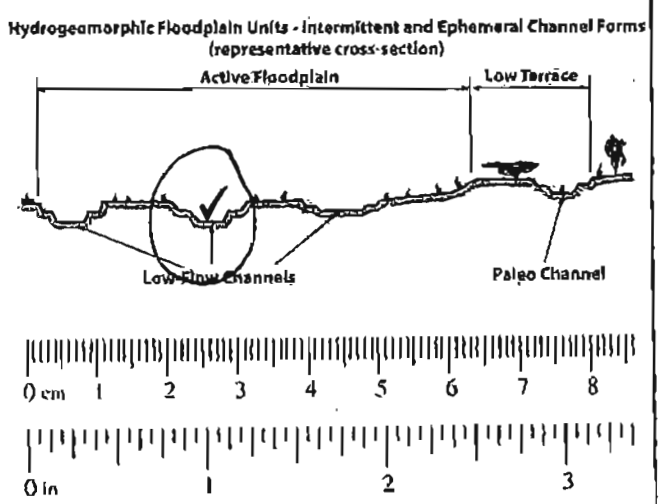
Brief site description: very narrow (approximately 2') incised channel with large boulders (basketball size).

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
		Granule	
0.079	2.00		
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand ✓	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☑ Change in average sediment texture
- ☑ Change in total veg cover ☐ Tree ☐ Shrub ☑ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☑ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☑ Other: textural change (active sand layer deposited in channel))
  - ☐ Other: _____

☑ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☑ N ☐ Change in average sediment texture
- Y ☑ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☑ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☑ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP10

Time:
State: CA
Photo end file# SP10

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP10

Projection: UTM **Datum:** NAD83
Coordinates: 489782.35964, 3689554.916812

Notes: Washed out look on rock(water line)

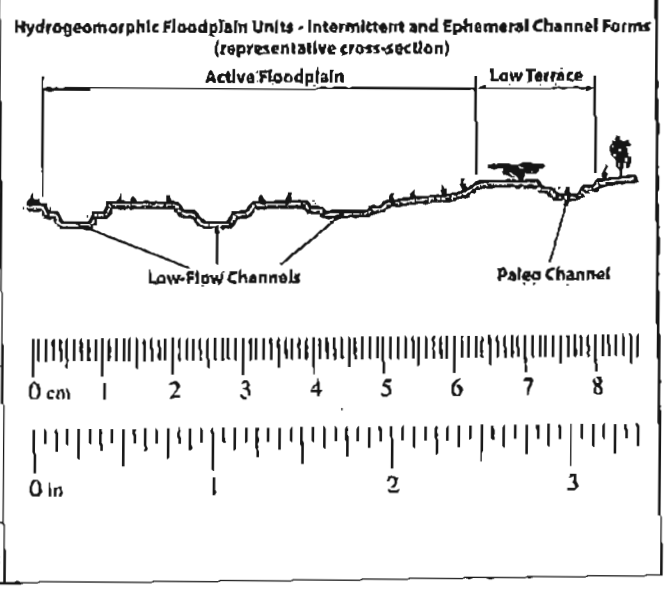
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☑ Change in average sediment texture
- ☑ Change in total veg cover ☐ Tree ☐ Shrub ☑ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☑ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☑ Other: minimal herbs in active channel
  - ☑ Other: water line

☑ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☑ N ☐ Change in average sediment texture
- Y ☑ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☑ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☑ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09 **Time:** 1:00 pm
Town: Pala **State:** CA
Photo begin file# SP11a **Photo end file#** SP11d

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP11

Projection: UTM **Datum:** NAD83
Coordinates: 489807.793144,3689492 431556

Notes: Silt on rock within OHW

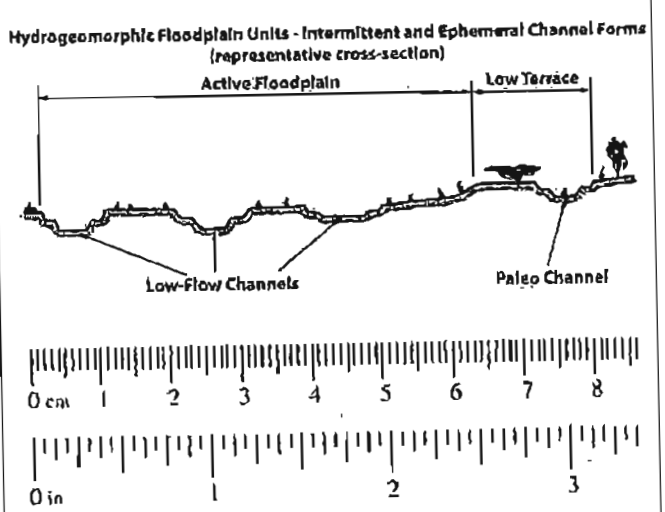
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)		Millimeters (mm)	Wentworth size class	
	10.08	256	Boulder	
	2.56	64	Cobble	Gravel
	0.157	4	Pebble	
	0.079	2.00	Granule	
	0.039	1.00	Very coarse sand	
	0.020	0.50	Coarse sand	
1/2	0.0098	0.25	Medium sand	Sand
1/4	0.005	0.125	Fine sand	
1/8	0.0025	0.0625	Very fine sand	
1/16	0.0012	0.031	Coarse silt	
1/32	0.00061	0.0156	Medium silt	Silt
1/64	0.00031	0.0078	Fine silt	
1/128	0.00015	0.0039	Very fine silt	
			Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA
☐ Early (herbaceous & seedlings)
☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other
- ☐ Presence of bed and bank
- ☐ Drift and/or debris
- ☐ Other: _____
- ☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA
☐ Early (herbaceous & seedlings)
☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☑ Change in average sediment texture
- ☑ Change in total veg cover ☑ Tree ☑ Shrub ☑ Herb
- ☑ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☑ Presence of bed and bank
  - ☑ Drift and/or debris
  - ☑ Other: silt deposits
  - ☐ Other: _____

☑ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☑ N ☐ Change in average sediment texture
- Y ☑ N ☐ Change in total veg cover ☑ Tree ☑ Shrub ☑ Herb
- Y ☑ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☑ N ☐ Other: silt deposits
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP12

Time: 1:10 pm
State: CA
Photo end file# SP12

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP12

Projection: UTM
Datum: NAD83
Coordinates: 489848.779936, 3689392.392458

Notes: Drift in channel

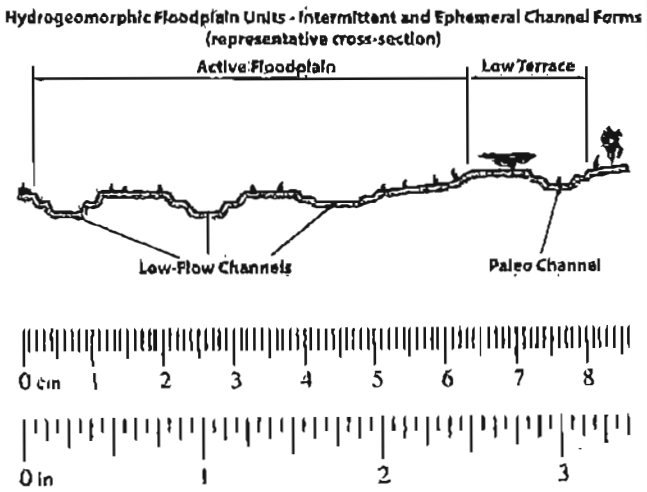
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☑ Change in average sediment texture
- ☑ Change in total veg cover ☑ Tree ☑ Shrub ☑ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☑ Presence of bed and bank
  - ☑ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☑ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☑ N ☐ Change in average sediment texture
- Y ☑ N ☐ Change in total veg cover ☑ Tree ☑ Shrub ☑ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☑ N ☐ Presence of bed and bank
  - Y ☑ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP13a

Time: 1:30 p.m.
State: CA
Photo end file# SP13e

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP13

Projection: UTM
Datum: NAD83
Coordinates: 490086.859871,3689002.2084

Notes: tributary
drift/corroded culvert

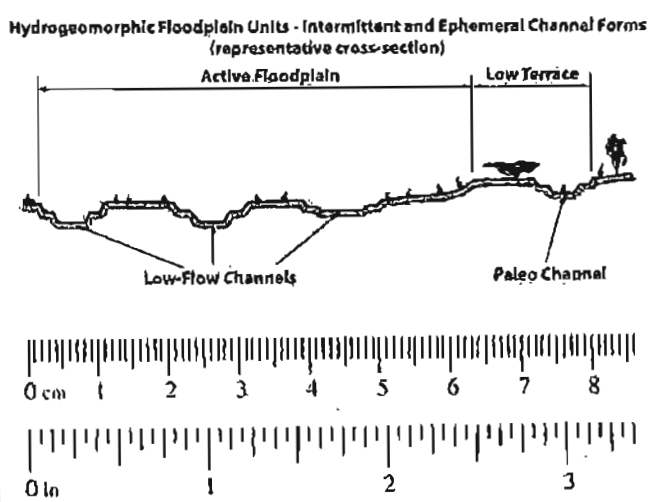
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ Clinometer / level
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☑ Change in average sediment texture
- ☑ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☑ Change in dominant species present
- ☐ Other
  - ☑ Presence of bed and bank
  - ☑ Drift and/or debris
  - ☑ Other: corroded culvert
  - ☑ Other: sand deposit

☑ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☑ N ☐ Change in average sediment texture
- Y ☑ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☑ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☑ N ☐ Presence of bed and bank
  - Y ☑ N ☐ Drift and/or debris
  - Y ☑ N ☐ Other: sand deposit
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP14a

Time: 2:15 p.m.
State: CA
Photo end file# SP14b

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP14

Projection: UTM **Datum:** NAD83
Coordinates: 490326.753627, 3688673.85165

Notes:

Silt on rocks

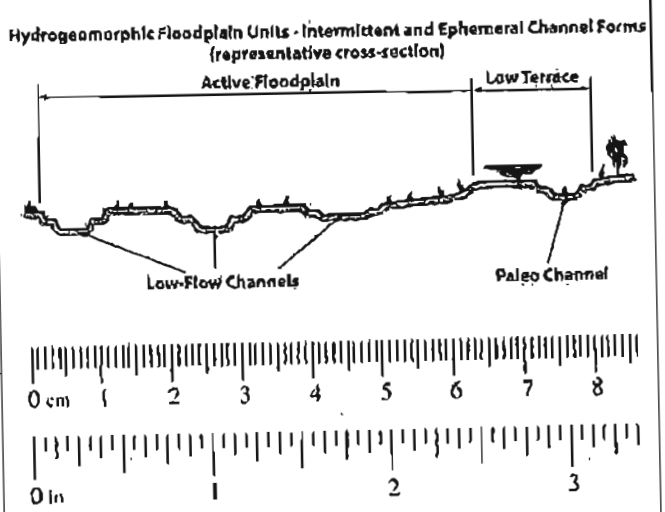
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)		Millimeters (mm)	Wentworth size class	
	10.08	256	Boulder	
	2.56	64	Cobble	Gravel
	0.157	4	Pebble	
	0.079	2.00	Granule	
	0.039	1.00	Very coarse sand	
	0.020	0.50	Coarse sand	
1/2	0.0098	0.25	Medium sand	Sand
1/4	0.005	0.125	Fine sand	
1/8	0.0025	0.0625	Very fine sand	
1/16	0.0012	0.031	Coarse silt	
1/32	0.00061	0.0156	Medium silt	Silt
1/64	0.00031	0.0078	Fine silt	
1/128	0.00015	0.0039	Very fine silt	
			Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☑ Change in average sediment texture
- ☑ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☑ Presence of bed and bank
  - ☑ Drift and/or debris
  - ☑ Other: silt deposit
  - ☐ Other: _____

☑ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☑ N ☐ Change in average sediment texture
- Y ☑ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☑ N ☐ Presence of bed and bank
  - Y ☑ N ☐ Drift and/or debris
  - Y ☑ N ☐ Other: silt deposit
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP15

Time: 2:25 p.m.
State: CA
Photo end file# SP15

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP15

Projection: UTM **Datum:** NAD83
Coordinates: 490328.100888, 3688523.715036

Notes:

No OHW present within the channel

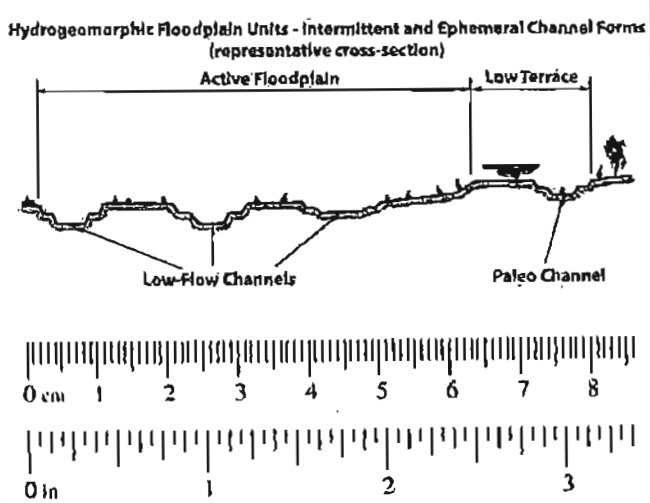
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ Clinometer / level
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)		Millimeters (mm)	Wentworth size class	
	10.08	256	Boulder	
	2.56	64	Cobble	Gravel
	0.157	4	Pebble	
	0.079	2.00	Granule	
	0.039	1.00	Very coarse sand	
	0.020	0.50	Coarse sand	
1/2	0.0098	0.25	Medium sand	Sand
1/4	0.005	0.125	Fine sand	
1/8	0.0025	0.0625	Very fine sand	
1/16	0.0012	0.031	Coarse silt	
1/32	0.00061	0.0156	Medium silt	Silt
1/64	0.00031	0.0078	Fine silt	
1/128	0.00015	0.0039	Very fine silt	
			Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP16

Time: 2:30
State: CA
Photo end file# SP16

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP16

Projection: UTM **Datum:** NAD83
Coordinates: 490344.060832, 3688314.299293

Notes:

No evidence of OHW within channel

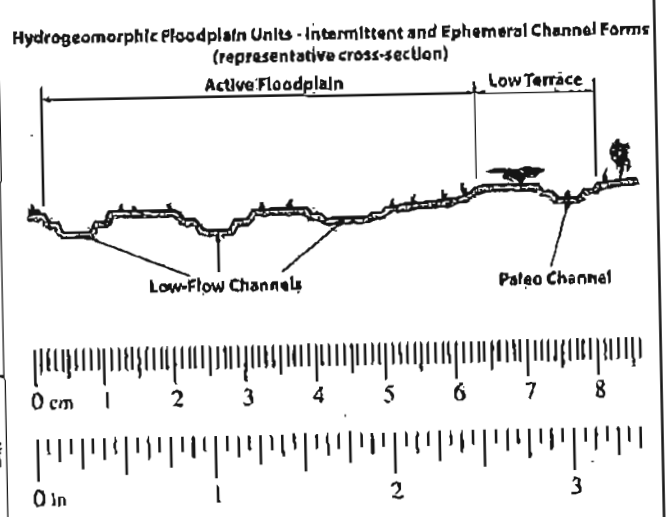
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ Clinometer / level
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)		Millimeters (mm)	Wentworth size class	
	10.08	256	Boulder	Gravel
	2.56	64	Cobble	
	0.157	4	Pebble	
	0.079	2.00	Granule	
	0.039	1.00	Very coarse sand	Sand
	0.020	0.50	Coarse sand	
1/2	0.0098	0.25	Medium sand	
1/4	0.005	0.126	Fine sand	
1/8	0.0025	0.0625	Very fine sand	
1/16	0.0012	0.031	Coarse silt	Silt
1/32	0.00061	0.0156	Medium silt	
1/64	0.00031	0.0078	Fine silt	
1/128	0.00015	0.0039	Very fine silt	
			Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP17a

Time: 2:45 p.m.
State: CA
Photo end file# SP17e

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP17

Projection: UTM **Datum:** NAD83
Coordinates: 490327.071108, 3688315.782124

Notes:

benching. sand deposit on branches/drift

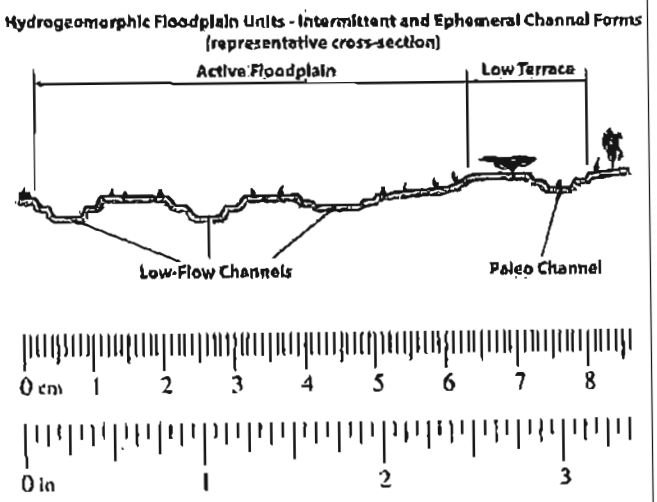
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
		Granule	
0.079	2.00		
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00081	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☑ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☑ Presence of bed and bank
  - ☑ Drift and/or debris
  - ☑ Other: silt on debris
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☑ Change in average sediment texture
- Y ☑ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☑ N ☐ Presence of bed and bank
  - Y ☑ N ☐ Drift and/or debris
  - Y ☑ N ☐ Other: headcut
  - Y ☑ N ☐ Other: silt on debris

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP18a

Time: 3:10 p.m.
State: CA
Photo end file# SP18b

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP18

Projection: UTM **Datum:** NAD83
Coordinates: 489761.843125, 3689630.350433

Notes: drift, OHW across road

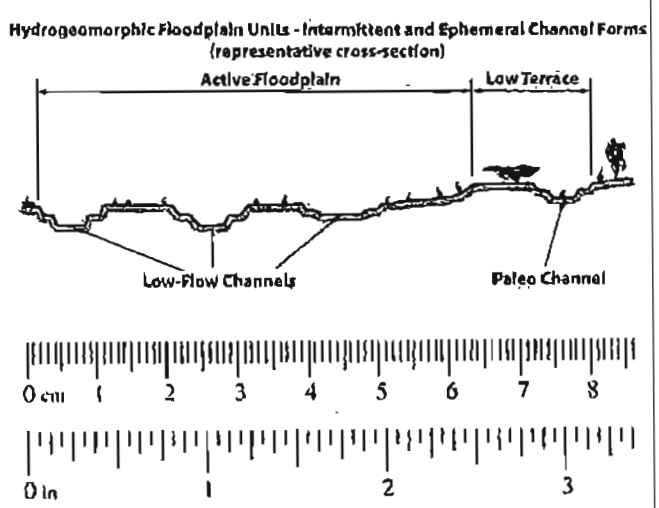
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: textural change- active sand layer deposited in channel
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☑ Change in average sediment texture
- ☑ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☑ Change in dominant species present
- ☐ Other
  - ☑ Presence of bed and bank
  - ☑ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☑ N ☐ Change in average sediment texture
- Y ☑ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☑ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☑ N ☐ Presence of bed and bank
  - Y ☑ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP19a

Time: 3:11 p.m.
State: CA
Photo end file# SP19e

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP19

Projection: UTM **Datum:** NAD83
Coordinates: 489750.914849, 3689643.973229

Notes:

sand deposits

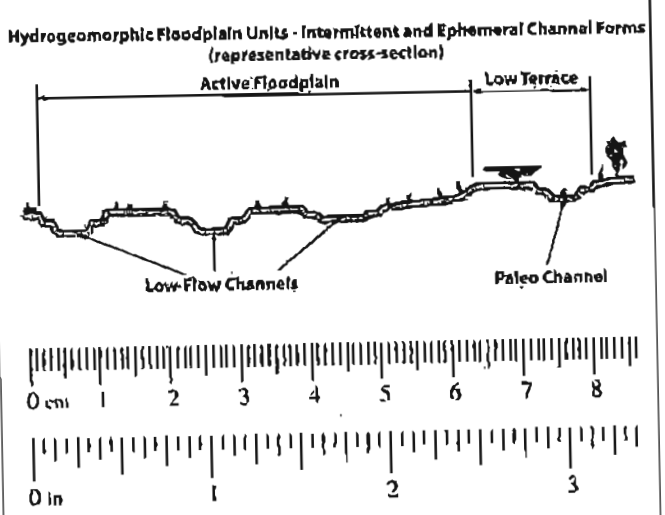
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☑ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☑ Other: sand deposits
  - ☐ Other: _____

☑ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☑ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☑ N ☐ Other: sand deposits
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP20a

Time: 3:17 p.m.
State: CA
Photo end file# SP20d

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP20

Projection: UTM
Datum: NAD83
Coordinates: 489743.578536, 3689653.627633

Notes: pile of sand
small drift

Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ Clinometer / level
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

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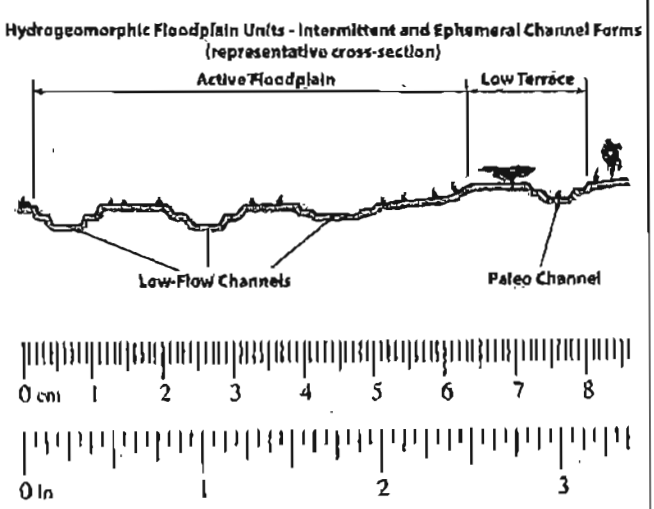
	2.58	64	Cobble	Gravel
	0.157	4	Pebble	Gravel
			Granule	Gravel
	0.079	2.00		
	0.039	1.00	Very coarse sand	Sand
	0.020	0.50	Coarse sand	Sand
1/2	0.0098	0.25	Medium sand	Sand
1/4	0.005	0.125	Fine sand	Sand
1/8	0.0025	0.0625	Very fine sand	Sand
1/16	0.0012	0.031	Coarse silt	Silt
1/32	0.00061	0.0156	Medium silt	Silt
1/64	0.00031	0.0078	Fine silt	Silt
1/128	0.00015	0.0039	Very fine silt	Silt
			Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☑ Drift and/or debris
  - ☑ Other: sand deposits
  - ☐ Other: _____

☑ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☑ N ☐ Drift and/or debris
  - Y ☑ N ☐ Other: sand deposits
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP21a

Time: 3:19 p.m.
State: CA
Photo end file# SP21e

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP21

Projection: UTM **Datum:** NAD83
Coordinates: 489731.650692, 3689676.509037

Notes: sand lens under annual grasses and debris

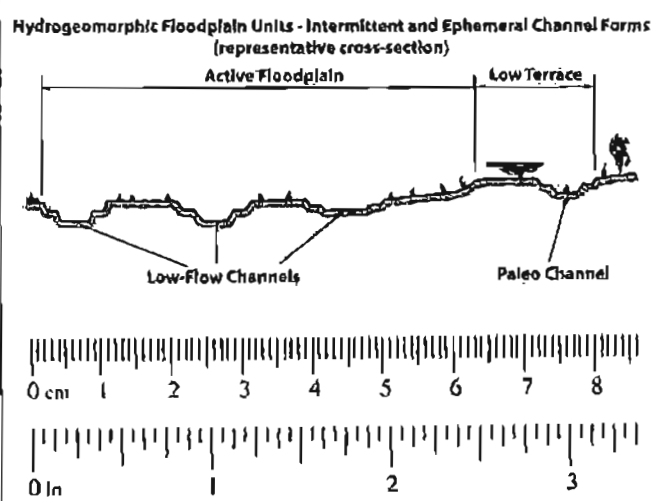
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ Clinometer / level
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00031	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☑ Drift and/or debris
  - ☑ Other: sand lens under annual grasses and debris
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09 **Time:** 3:25 p.m.
Town: Pala **State:** CA
Photo begin file# SP22a **Photo end file#** SP22d

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP22

Projection: UTM **Datum:** NAD83
Coordinates: 489733.887518, 3689705.703402

Notes: silt on bottom of tree

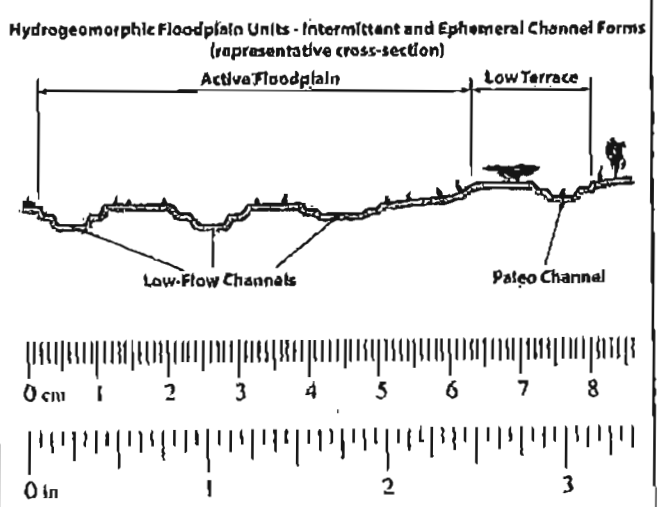
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☑ Other: silt on bottom of tree
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09 **Time:** 3:30 p.m.
Town: Pala **State:** CA
Photo begin file# SP23a **Photo end file#** SP23c

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP23

Projection: UTM **Datum:** NAD83
Coordinates: 489723.633211, 3689725.371178

Notes:

sand in bark furrow, silt on shrub trunk

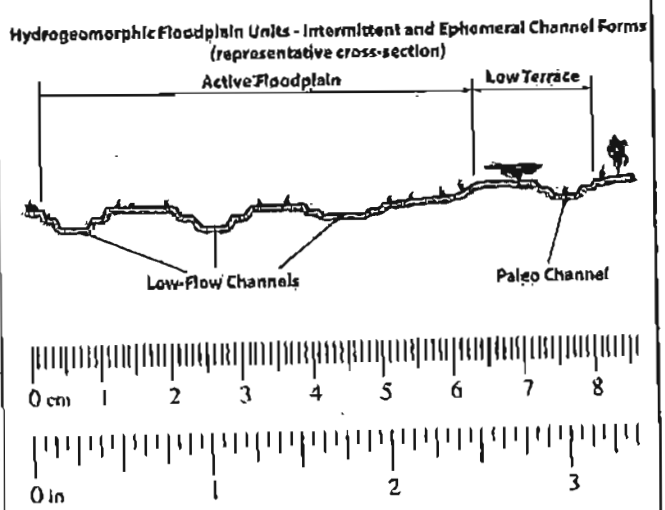
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ Clinometer / level
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☑ Other: sand in bark furrow
  - ☑ Other: silt on shrub trunk

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP24

Time: 3:35 p.m.
State: CA
Photo end file# SP24

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP24

Projection: UTM **Datum:** NAD83
Coordinates: 489721.923131, 3689730.16664

Notes:

sand deposit

Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
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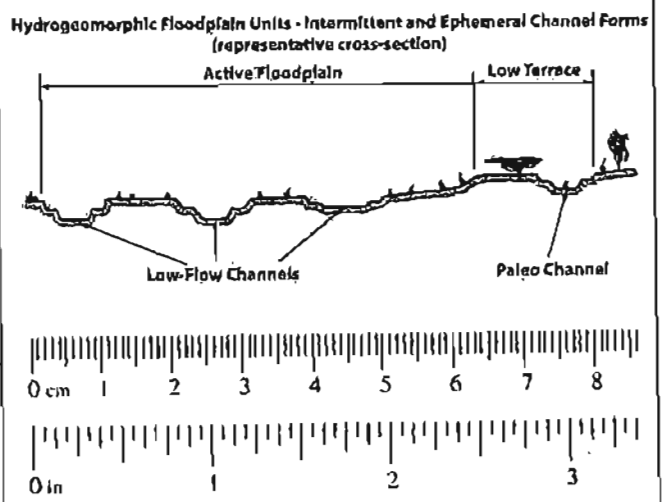
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☑ Other: sand deposit
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP25a

Time: 3:40 p.m.
State: CA
Photo end file# SP25d

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP25

Projection: UTM
Datum: NAD83
Coordinates: 489700.295384, 3689751.128422

Notes: sandy material in soil
with hand lens see silt/sand grains on tree

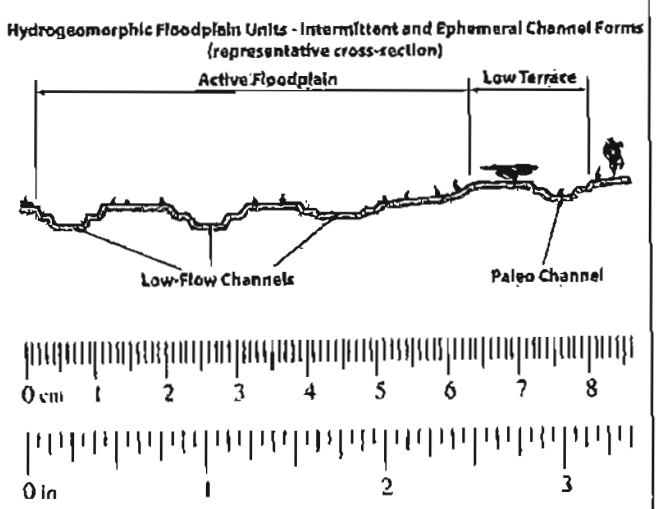
Brief site description: Start of floodplain

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ Clinometer / level
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☑ Other: silt/sand grains on tree
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09 **Time:** 3:47
Town: Pala **State:** CA
Photo begin file# SP26a **Photo end file#** SP26d

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP26

Projection: UTM **Datum:** NAD83
Coordinates: 489702.973069, 3689737.553343

Notes: Coarse sand on top
-below litter

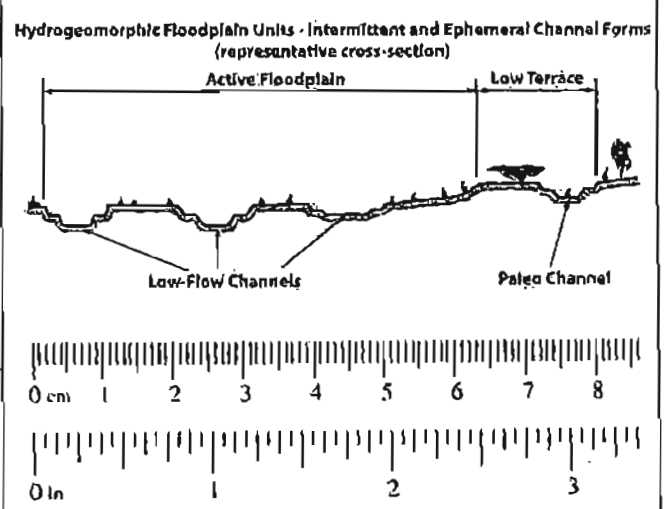
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ Clinometer / level
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)		Millimeters (mm)	Wentworth size class	
	10.08	256	Boulder	
	2.56	64	Cobble	Gravel
	0.157	4	Pebble	
	0.079	2.00	Granule	
	0.039	1.00	Very coarse sand	
	0.020	0.50	Coarse sand	
1/2	0.0098	0.25	Medium sand	Sand
1/4	0.005	0.125	Fine sand	
1/8	0.0025	0.0625	Very fine sand	
1/16	0.0012	0.031	Coarse silt	
1/32	0.00061	0.0156	Medium silt	Silt
1/64	0.00031	0.0078	Fine silt	
1/128	0.00015	0.0039	Very fine silt	
			Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☐ Other ☐ Presence of bed and bank
☐ Drift and/or debris
☐ Other: _____
☐ Other: _____

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☑ Other: coarse sand below litter
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

Project: Gregory Canyon
Project Number:
Stream: Gregory Canyon Watershed
Investigator(s): Lichvar et al.

Date: 10/21/09
Town: Pala
Photo begin file# SP27a

Time: 4:14 p.m.
State: CA
Photo end file# SP27c

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: SP27

Projection: UTM **Datum:** NAD83
Coordinates: 489269.148326, 3689659.947811

Notes:

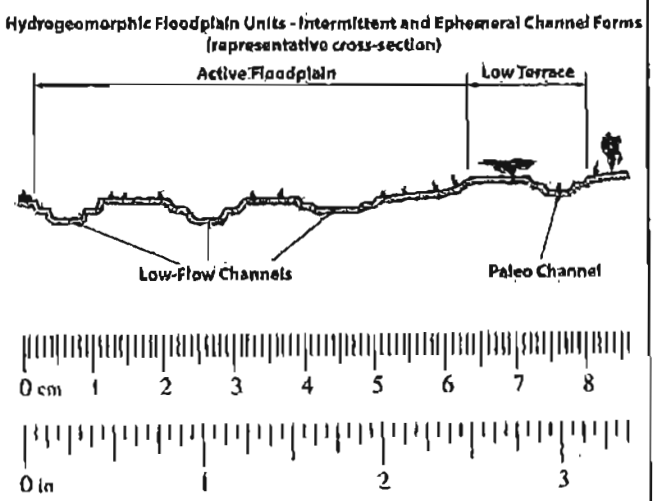
Brief site description:

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
  Scale:
- ☐ Geologic maps
- ☐ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☑ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ Clinometer / level
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Inches (in)		Millimeters (mm)	Wentworth size class	
	10.08	256	Boulder	
	2.56	64	Cobble	Gravel
	0.157	4	Pebble	
	0.079	2.00	Granule	
	0.039	1.00	Very coarse sand	
	0.020	0.50	Coarse sand	
1/2	0.0098	0.25	Medium sand	Sand
1/4	0.005	0.125	Fine sand	
1/8	0.0025	0.0625	Very fine sand	
1/16	0.0012	0.031	Coarse silt	
1/32	0.00061	0.0156	Medium silt	Silt
1/64	0.00031	0.0078	Fine silt	
1/128	0.00015	0.0039	Very fine silt	
			Clay	Mud



☐ **Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.**

☐ **Locate the low-flow channel (lowest part of the channel). Record observations.**

Characteristics of the low-flow channel:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☑ **Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.**

Characteristics used to delineate the low-flow/active floodplain boundary:

☑ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
☐ Change in overall vegetation maturity
☐ Change in dominant species present
☑ Other ☐ Presence of bed and bank
☑ Drift and/or debris
☑ Other: silt
☑ Other: change in texture

☐ **Continue walking the channel cross-section. Record observations below.**

Characteristics of the active floodplain:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA ☐ Mid (herbaceous, shrubs, saplings)
☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other: ☐ _____
☐ _____
☐ _____
☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other
  - ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☐ Change in average sediment texture
- Y ☐ N ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☐ Change in overall vegetation maturity
- Y ☐ N ☐ Change in dominant species present
- Y ☐ N ☐ Other:
  - Y ☐ N ☐ Presence of bed and bank
  - Y ☐ N ☐ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Dominant species present: _____

Other:
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph
- ☐ Digitized on computer
- ☐ GPS
- ☐ Other: _____

CESPL-RG-A 14 December 2009

MEMORANDUM FOR RECORD

SUBJECT: Significant Nexus (SN) Determination of Gregory Canyon to the San Luis Rey River Estuary (TNW) for the proposed Gregory Canyon Landfill project (SPL-1998-2007000-TO)

1. Background: A series of wetland and "waters" delineation efforts for this project site began in 1998 and have continued until recently in 2009. Delineations on this site have been performed by both private sector consulting firms and the Los Angeles District (LAD). The initial delineation was performed by Helix Environmental Planning, Inc. on July 28, 1998. Helix concluded that there were 0.834 acres (ac.) of wetlands and 2.251 ac. of "waters" to be excavated or filled within the project area. This initial delineation has been revised twice since then, on December 23, 1999 and February 16, 2000. In 2004, URS Corporation reported an absence of OHWM or field indicators in within the project area with the exception of the San Luis Rey River (SLRR). In 2005, the Huffman-Broadway Group, Inc. performed a technical review of the "Transmittal and reporting of hydrological information, Gregory Canyon Landfill project, URS project No. 27654025.00020." They concluded that "waters" do exist in Gregory Canyon (GC) (Lichvar, 2009). With the expiration of the 2004 URS delineation, the subsequent development of a field guidance manual for determining the ordinary high water mark (OHWM) in arid areas {*A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual*}(Lichvar and McColley, 2008)}, and guidance regarding implementation of the *Rapanos* Supreme Court decision, the LAD has collected field evidence and other information in support of this current jurisdictional delineation.

From June, 2001 to the publication of *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual* (Lichvar and McColley, 2008), the LAD used the protocol entitled *Final Summary Report: Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest* (USACE, 2001) for jurisdictional delineations (JDs). The methodology in this manual included the use of a matrix to document the presence of an OHWM. In August, 2008, *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual* (Lichvar and McColley, 2008) was published. The methodology in this delineation manual employs aerial photography and maps (geologic, soils, vegetation,etc), rainfall data and stream gage data (if available), review of any existing delineations, and field observations to determine the OHWM and identify OHW indicators. "OHW" refers to the presence of areas that are "waters of the U.S." as defined in the Clean Water Act and Corps' implementing regulations and "OHWM" refers to the OHW field indicators annotated during a field delineation (Lichvar, 2009).

Lichvar and McColley (2008) stated the limit of the active floodplain is "...the only repeatable feature that can be reliably used to delineate the position of a non-wetland water's OHWM." Lichvar *et al.* (2006) determined modeling indicates that slightly larger events in the 5- to 10-year recurrence may be necessary to "...engage the active floodplain in arid

systems". Lichvar and McColley (2008) presented statistical information to support a definition of an active ordinary high water (OHW) channel in the Arid West as a channel that periodically carries flows with a 5- to 10-year return interval to produce a stable field signature that could be used for the purposes of delineation of the OHWM.

2. Determination: The GC drainage area is approximately 458 acres in size and the mainstem channel conveys water and sediment to its confluence with the SLRR within the project area. The amount of water and sediment being conveyed in the GC mainstem is evidenced by the strong OHWM indicators found in the majority of GC as well as within five first order GC tributaries. OHWM indicators observed in GC include defined bed and banks (e.g. break in bank slopes), sand and gravel deposits, silt and sediment transport and sorting, debris, racking, and scour. The OHWM was identified in the GC mainstem in accordance with the Lichvar and McColley (2008) delineation manual.

Based on the relatively large size and discharge capacity of the GC mainstem (Figure 1), the Corps of Engineers has determined that this potentially jurisdictional water, in evaluating its water flow characteristics with its functions and values, does have more than an insubstantial or speculative effect on the chemical, physical, and/or biological integrity of the SLRR estuary which is the closest Traditionally Navigable Water (TNW). According to the California Environmental Resources Evaluation System (CERES) (1997), the SLRR estuary extends upstream to approximately the I-5 crossing which is approximately .55 mile upstream of the mouth of the SLRR with the Pacific Ocean. According to the *State of the Coast Report San Diego Region* (USACE, 1991), the highest high tide is approximately 7.8 feet mean lower low water (MLLW). Using the *1988 San Luis Rey River Flood Control Project* contract drawings, the calculated highest high tide is approximately 1,000 feet east of the I-5 bridge and 3,900 feet east of the Pacific Ocean (Joe Ryan, U.S. Army Corps of Engineers, LAD, Coastal Engineering Section, written communication, Dec 8, 2009). Therefore, the upstream limit of the SLRR TNW is approximately 21.2 miles downstream of the confluence of GC and the SLRR. The above SN determination is based on the following:

a. Physical Characteristics: The GC watershed is approximately 0.71 square miles (458 acres) and constitutes 0.1% of the entire SLRR watershed which is approximately 50 miles long to its headwaters. GC is located at approximate River Mile (RM) 22 of the SLRR. Elevations on the GC site range from approximately 300 feet above mean sea level (amsl) at the mouth of the canyon in the SLRR drainage to 1,200 feet amsl at the head of the canyon at the south. Much of the canyon is steep, rugged terrain containing numerous boulder outcrops on the eastern side with only a few isolated boulders on the western canyon wall. The canyon flattens somewhat at the mouth where it meets the alluvial deposits of the SLRR drainage (County of San Diego, 2002). Ten-foot topographic contours are displayed in Figures 2a and 2b (County of San Diego, 2002).

GC is located in the central portion of the Peninsular Ranges geomorphic province, an area characterized by northwesterly trending mountains and intervening valleys. Regional topography in the Peninsular Range is characterized by considerable relief with relatively moderate to steep slopes. Most of the area is undergoing erosion and mass wasting, but the major river valleys have thick accumulations of sediments, technically referred to as alluvium. The alluvium undergoes cycles of deposition and erosion, depending on the water

flow in the drainage system. Typically, the rivers are at low flows during the summer months and have variable flows during the winter rainy season. The existing thalweg slopes on the lower area of GC are about 5:1 (horizontal-to-vertical ratio), become 2:1 upstream to the east, and are 1:1 and steeper on the upper part drainage further east. The western flank of the canyon is defined by a rounded ridgeline with rather uniform side slopes at inclinations of 2:1 to 3:1. The topsoil units encountered in the area vary in thickness from about six inches to three feet, and are composed of silty sand, silty sand with clay, and silty sand with cobbles and boulders. In general, the steeper, upper slope areas of the canyon are expected to have slightly thinner soil accumulations than the intermediate or lower slope areas. Underlying the topsoil are residual soil horizons or weathered rocks. Colluvium[1] forms a veneer over most of the surface of the project site. In most instances it is formed by silty sand with rock fragments that range in size from gravel to very large boulders. Finer-grained deposits, largely devoid of rock fragments are located at the southern end of the canyon. In this area, the older colluvium consists of clayey sand to sandy clay with varying contents of rock fragments and slight to moderate cementation. Two alluvial units have been mapped at lower elevations near the mouth of GC. The younger subunit (Qal-1) consists of overbank deposits from the active SLRR channel, interbedded with channel deposits from the GC drainage. These deposits are relatively thin and contain gravels, cobbles and boulders, supported by a sandy silt matrix. The older alluvial subunit (Qal-2) is a terrace remnant of older alluvium in the GC drainage. The alluvial wedge pinches out to the south. The wedge thickens to the north until it eventually merges with the channel deposits of the SLRR (County of San Diego, 2002).

The soils on the site are derived from the alluvium and colluvium, or from in-place weathering of the bedrock (residual soils). Acid igneous rock (AcG) is generally exposed along the easterly slope of the site and soil, if present, generally consists of silty coarse sand. Since this soil type is generally composed of large boulders and rock outcrops, it is likely to have a high runoff potential. Erodibility will vary with soil development but is likely to be high to very high. Two upland residual soils, Las Posas stony fine sandy loam (LrG) and Cieneba coarse sandy loam (CIG2), are exposed on the westerly slope of the canyon. Runoff in these areas can be rapid to very rapid, and the erosion potential can be high to very high. Sandy loam of the Fallbrook series (FaD2) has been mapped at the north end of the canyon. The runoff in this area is medium and the erosion hazard moderate (County of San Diego, 2002). The Coastal Watershed Planning and Assessment Program divided the SLRR into five subregions based on the significant diversity within the SLRR basin (Downie and Kajtaniak, 2009). Within the Southern Subbasin (which is located south of Hwy 76 from Bonsall upstream to Pauma Valley and then extends further upstream to a point south of Hwy 76 and Palomar Mountain), sediment erodes from the steeper hillsides and is brought by tributaries to the mainstem of the SLRR which has flow most of the year (Downie and Kajtaniak, 2009). While the Corps' field data noted this erosion, the determination of OHWM was made based on the presence of other physical indicators as well and not solely on erosion.

Previous hydrology studies conducted by URS (2005a and 2007) using rainfall data from the Fallbrook rain gauge located ten miles from GC and modeling with HEC-1 and the NRCS hydrologic method indicated no flow in GC during the 5-year, 6-hour event. Lichvar (2009)

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[1] Colluvium is a general term applied to any loose soil material or rock fragments deposited by rainwash, sheetwash, or slow downslope creep under the influence of gravity.

stated there are two major limitations with using these models for GC: (1) limitations with HEC-1 and (2) variation of precipitation between gauges. HEC-1 was not designed for use in small watersheds and the most appropriate methodology for these small watersheds (one square mile or less) is the Rational Method (RM) (Kerry Casey, U.S. Army Corps of Engineers, LAD, Hydrology and Hydraulics Branch, Hydraulics Section, personal communication). Graf (1988) states that use of the RM in dryland areas has limitations but "..the advantages of simplicity and wide acceptance of the method may outweigh the reservations." The Corps recognizes these limitations; however, in consideration of the limitations of other available methodologies, for this specific determination for GC, the RM is the most appropriate methodology.

A pre-development surface water analysis using the RM computer program (in accordance with the County of San Diego Regional Flood Control criteria) was conducted to estimate the peak flows discharged from the GC watershed [Bryan A. Stirrat & Assoc (BAS), 1998]. Using this computer modeling, the watershed was divided into six sub-basins. The model simulated a 100-year recurrence, 24-hour storm to obtain a peak discharge rate. A runoff coefficient of 0.4 was used for the pre-development analysis because the area is in a mostly natural state. The resulting peak flow rate (as calculated by BAS) for the pre-developed condition is 765 cubic feet per second (cfs) (County of San Diego, 2002).

Using the RM and the County of San Diego Hydrology Manual (2003), the Corps determined flow rates for the pre-developed condition but used different assumptions than BAS. The Corps made the following assumptions (which resulted in more conservative flow rates than computed by BAS): (1) soil not saturated and (2) landscape in unburned condition. The Corps used the same runoff coefficient as the County (.4) to determine the following flows:

Q_{100} = 696.16 cfs
Q_{25} = 604.56 cfs
Q_{10} = 512.96 cfs
Q_5 = 458.00 cfs

Using the above two assumptions, the Corps also calculated flows using the following parameters: (1) average stream gradient of 15% for upper GC and 3.5% for lower GC (based on field-measured conditions), (2) stream length of 5,620 feet (4,765 feet for upper GC and 855 feet for lower GC), and (3) Tc = 16 minutes (Tt = 5 minutes in upper GC and Tt = 11 minutes in lower GC) (4) soil maps to determine the hydrologic group rating of "C" and (5) runoff coefficient of .3 based on undeveloped land and the hydrologic group rating "C" (Forrest Vanderbilt, U.S. Army Corps of Engineers, LAD, Regulatory Division, written communication, Dec 9, 2009). The Corps' determined flow rates for GC for the six-hour storm using the more conservative parameters are:

Q_{100} = 522.12 cfs
Q_{25} = 453.42 cfs
Q_{10} = 384.72 cfs
Q_5 = 343.50 cfs

The above flow rates estimated by the Corps correlate with the presence of the OHWM indicators noted in the field as described in the following paragraphs.[2] It is important to note that the current determination regarding the presence/absence of flow, while taking into consideration the estimated RM flow rates, is primarily based on the physical characteristics observed in multiple field visits to the site including the OHW indicators, OHWM measurements, soils, and channel morphology in GC.

The SLRR at its confluence with GC flows a minimum of 11 months of the year and is, therefore, considered to be a Relatively Permanent Water (RPW). However, it has been observed to be perennial by Corps personnel and was flowing within the proposed project area during the October/November, 2009 site visits following a dry summer (Michelle Mattson, U.S. Army Corps of Engineers, LAD, Regulatory Division, personal communication). The 100-year peak discharge for the SLRR in the project area is 30,000 cfs based on a 1997 Federal Emergency Management Agency (FEMA) Flood Insurance Study. FEMA has designated 100- and 500-year flood hazard zones for the SLRR within the project area. While there is no recent US Geologic Survey (USGS) flow data for the SLRR near the project area (the most recent is 1992 at the Couser Canyon Bridge, approximately .73 miles downstream of the project area), the applicant's consultant (URS, 2005a) provided data including a "Summary of Discharges" table (FEMA, 2006) indicating the peak discharge of the SLRR in a 10-year event at Pauma, approximately eight miles upstream of the project area, is 4,000 cfs.

Field surveys were conducted by a field team from the Engineer Research and Development Center (ERDC) and the LAD Corps October 20-21, 2009 and November 20, 23, 24, and 25, 2009. Photographs and associated data points were taken throughout the project area (Figure 3). Representative photographs of GC and its tributaries are attached (Attachment A) and georeferenced in Figure 4. Based on field evidence collected from site visits, the OHWM was clearly identified in upper and lower GC. In upper GC (above the lower road), the OHWM defined a channel varying 1-8 feet wide with an average width of four feet and average depth of approximately one foot. Indicators included defined stream bed and banks through scour, sediment sorting and transport, debris, and sediment deposition. In addition, step/pool complexes of boulders, exposed bedrock, and large cobbles were identified in upper GC. The OHWM in lower GC defined a channel varying 2-34 feet wide with an average width of 12 feet and average depth of one foot. OHW indicators in lower GC included sediment deposition including coarse sand deposits, debris and drift deposits, and vertical deposition of organic litter, and numerous, measurable low-flow channel widths consistent with a sandy, braided channel morphology. As indicated on Figure 5, OHWM and OHW indicators representing flow from GC downstream into the SLRR were observed throughout the reach, including at the downstream-most sample points from 306 to 323 where the stream widens into a sandy braided system supporting a dense willow riparian forest. Due to the timing of field data collection it could not be determined whether or not the defined channel and OHWM measured at sample point 314 is acting as a secondary channel of the SLRR, the lowest downstream confluence of GC with the SLRR, or both. Extended drought conditions and hot dry years have supported growth of thick understory vegetation and accumulation of

[2] The higher flow values for the Q_5 calculated by the Corps using the RM do not take into account transmission losses and infiltration rates specifically at the lower end of GC.

leaf litter and debris, which would typically be washed downstream during ordinary flow events. These accumulations obscured OHWM and OHW indicators such that intense field investigation was necessary, Therefore, utilizing historical and current aerial photographs, 10-foot contour topographic map, and compiled field data, it is likely that the most regular confluence is near sample point 321/322. Either potential confluence location is estimated to be within the 5-10-year floodplain of the SLRR based on OHWM evidence found by Robert Lichvar on October 20 and 21, 2009 and by LAD Corps personnel on November 23, 2009. Evidence includes the width of the OHWM of the SLRR as measured downstream at the proposed bridge crossing, the location of a secondary channel exhibiting wetland characteristics including standing water and emergent vegetation located immediately downstream of the confluence of the SLRR and GC, and a defined bed and bank at or immediately downstream of GC measuring 34 feet wide and approximately 1 foot deep. It is important to note that sandy braided systems within the arid west are highly variable. Low flow channels can move between years and rain events. The characteristics identified during the site visit indicate that GC conveys flows and sediment to the SLRR. In addition, a 10-foot contour topographic map and historic aerial photography of GC from 1928 and 1964 indicate a clearly defined channel confluent with the SLRR prior to and following agricultural and ranching disturbances (Figures 6a and 6b).

b. Chemical Characteristics: GC is in a relatively undeveloped area; however, there are abandoned agricultural fields and areas which have supported ranching/grazing activities in the past and may still support grazing activities. Most of the area within the 500-year floodplain south of the river is dominated by non-native grassland which is a remnant of dairy operations that have been onsite since at least the 1920s (URS, 2007). Though the Corps did not uncover direct evidence of use of fertilizers, pesticides, or other chemicals within the drainage area, the presence of dried cow manure within the SLRR floodplain west of the GC floodplain indicates that grazing continues to occur within the project area. Since the area is not fenced to exclude cattle, the most likely scenario is cattle grazing from adjacent properties. Modern agriculture is based on the extensive use of applied chemicals such as fertilizers, pesticides and herbicides to obtain high crop yields. Surface waters are primarily contaminated by the runoff of irrigated agriculture containing sediments, nutrients such as phosphorus and nitrogen, pesticides, and other pollutants. Erosion from agriculture uses can result in the loss of agricultural production, and degrade important aquatic habitat. Eroded soils can bury benthic (e.g., bottom dwelling) communities, cover spawning grounds, destabilize channel banks and fill sensitive wetland areas. Furthermore, other pollutants are often bound to eroded soils. Under certain conditions, these pollutants may be remobilized into the water column causing problems for human health, wildlife and aquatic resources (County of San Diego, 2002). With the Corps' established peak discharge flow of 522 cfs in GC, if any agricultural pollutants or pollutants associated with ranching/grazing (fertilizer, manure) exist, they would be transported into the SLRR and downstream to the TNW segment of the SLRR. The SLRR has been listed as a 303(d) impaired water by the San Diego Regional Water Quality Control Board (SDRWQCB) in 2002, 2004, and 2006 beginning at its mouth and proceeding upstream into the Southern Subbasin (as previously defined). Currently, the SLRR is listed in the draft 2008 303(d) impaired waters list

(SDRWQCB, 2008). According to Scott Norris (personal communication), County of San Diego watershed department, which compiles the County reports for the SDRWQCB, the anthropogenic sources of fertilizers and salts exacerbate the TDS and chlorides in the SLRR.

c. Biological Characteristics: Lower GC and the SLRR within the proposed project area support federally-designated critical habitat for the southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), coastal California gnatcatcher (*Polioptila californica californica*), and the arroyo toad (*Bufo californicus*) (URS, 2005b). Surveys indicated the presence of the southwestern willow flycatcher, least Bell's vireo, and arroyo toad in the floodplain of the SLRR within the project area (County of San Diego, 2002) and the coastal California gnatcatcher within GC (URS, 2005b). Designated critical habitat for the southwestern willow flycatcher and least Bell's vireo exists along the SLRR through the project site to the SLRR TNW segment (Figure 7a). In addition, the arroyo toad is a good bioindicator of the integrity of aquatic, riparian, and adjacent upland habitat due to its sensitivity to environmental changes. The proposed project area also supports habitat for the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*) although no individuals of this species were identified during the protocol surveys (URS, 2005b). Special status species locations within the project area are shown on Figure 7b.

The SLRR is important for the recovery of the Southern California steelhead trout (*Oncorhynchus mykiss*) Core 1 populations [National Marine Fisheries Service (NMFS), 2009]. The SLRR has the highest intrinsic potential rating in the Santa Catalina Gulf Coast Biogeographic Population Group to support an independent viable population of steelhead trout. Steelhead trout are anadromous (spend portions of their life cycle in the Pacific Ocean and swim upstream in freshwaters to spawn). Tidal influences appear to reach upstream within the SLRR to the Hwy 5 crossing. Sightings of steelhead trout have occurred in the SLRR in 2005 and 2007 (NMFS, 2009). The 2005 sightings were upstream of the project area in Gomez Creek and were verified by California Department of Fish and Game (CDFG) as most likely steelhead (as opposed to rainbow) trout. The fish was an approximate 15-inch (38 cm) *O. mykiss* with a pale pink lateral band, no spots below the lateral line and all fins intact. CDFG determined that given the existing conditions within Gomez Creek (low seasonal water levels, few deep pools capable of supporting fish of this size, lack of other size and/or age classes of the same or different fish species), it was unlikely the fish were resident (rainbow) trout. In 2007, CDFG confirmed a sighting of a steelhead trout approximately 7 miles upstream of the mouth of the SLRR.

The Southern California Steelhead (SCS) Recovery Planning Area is characterized by geologically young mountainous topography with a number of inland valleys and coastal terraces. The geomorphology (*i.e.*, the shape and composition of the land) is strongly influenced by tectonic activity and various other signs of stress (*e.g.*, highly folded and faulted rocks of varying types) including metamorphic granite formations (*i.e.*, igneous rock formed from cooled magma) in the southern Peninsular Ranges. The legacy of tectonic activity and other physical stresses has created the steep slopes and unconsolidated rock formations that characterize this region. These geologic factors combined with an active, annual fire cycle and intense winter storms have created spatially complex and frequently unstable river and stream habitats where anadromous fishes and other aquatic species live

(NMFS, 2009). In addition, steelhead trout rely on flow inputs from high gradient side streams, such as GC, which provide rainfall runoff. The decreased slopes found in lower GC allow for the velocities to decrease thus depositing sands/silts near the confluence of the two watercourses as evidenced by field observations. Therefore, as sediment is deposited at/near the confluence, the water flow to the SLRR from GC would tend to be less turbid and thus more conducive to steelhead habitat requirements.

3. Summary: The Corps of Engineers has determined the potentially jurisdictional water, Gregory Canyon, in evaluating its water flow characteristics with its functions and values, has more than an insubstantial or speculative effect on the chemical, physical, and/or biological integrity of the San Luis Rey River estuary, the closest Traditionally Navigable Water (TNW). This decision is based upon findings in this document:

a. Physical Characteristics:

- observed OHWM indicators in the field within upper and lower GC
- observed riffle/pool complexes in upper GC
- observed wetland and secondary channel at confluence with SLRR and GC
- Corps-calculated flow rates using the Rational Method.

b. Chemical Characteristics:

- past agricultural activities adjacent to lower GC
- flow rates which are significant enough to move pollutants from lower GC into the SLRR.
- though actual presence of agriculture and ranching chemicals is inconclusive, cow manure in the SLRR floodplain adjacent to but outside of the GC drainage area was observed.

c. Biological Characteristics:

- presence of designated critical habitat for three endangered species within project area at confluence of lower GC and the SLRR
- presence of endangered southwestern willow flycatcher, least Bell's vireo, and arroyo toad and threatened coastal California gnatcatcher within project area
- presence of southwestern willow flycatcher and least Bell's vireo designated critical habitat along the SLRR riparian habitat to SLRR estuary
- use by steelhead in the SLRR upstream of GC and of the downstream TNW (SLRR estuary and Pacific Ocean).

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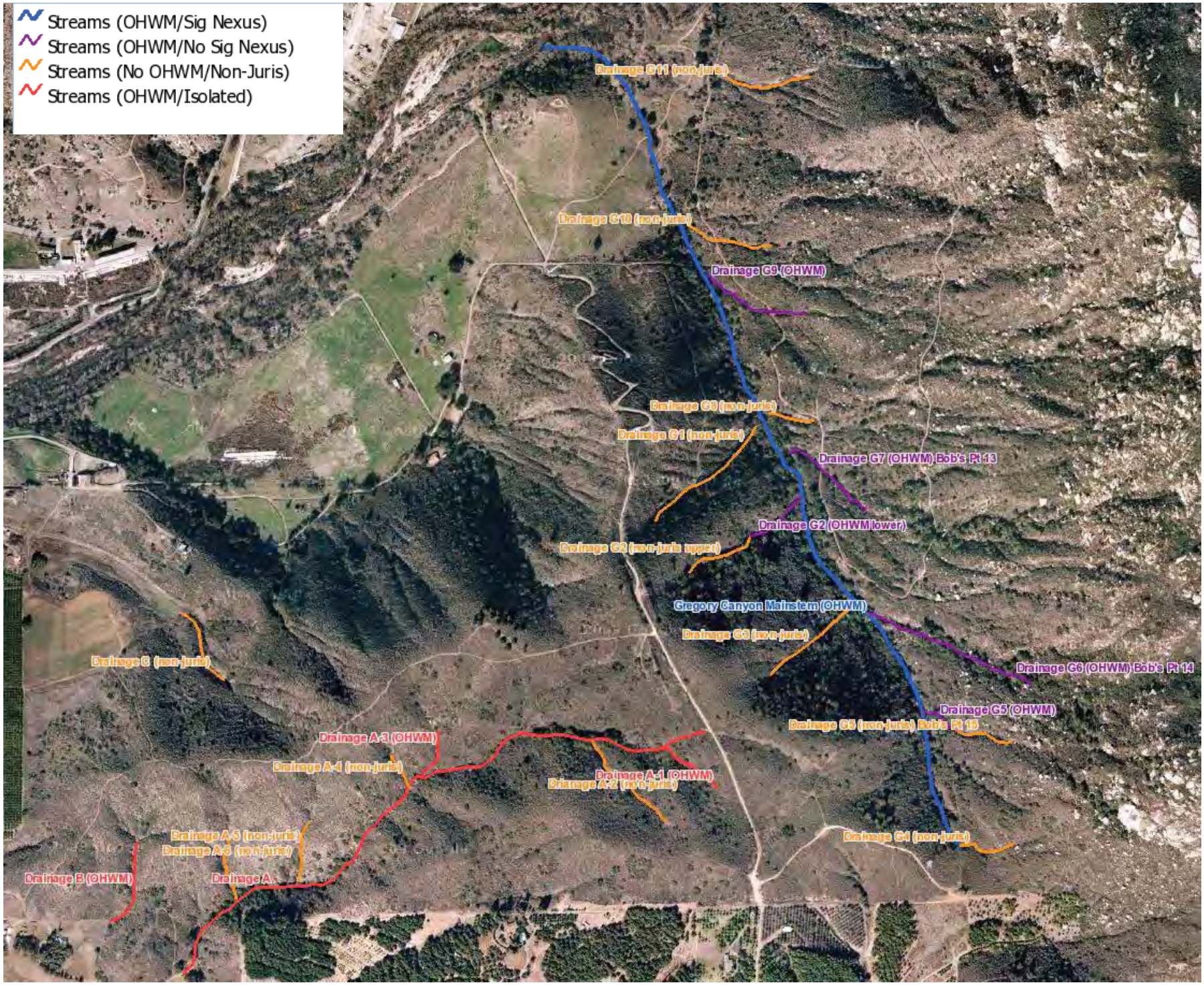
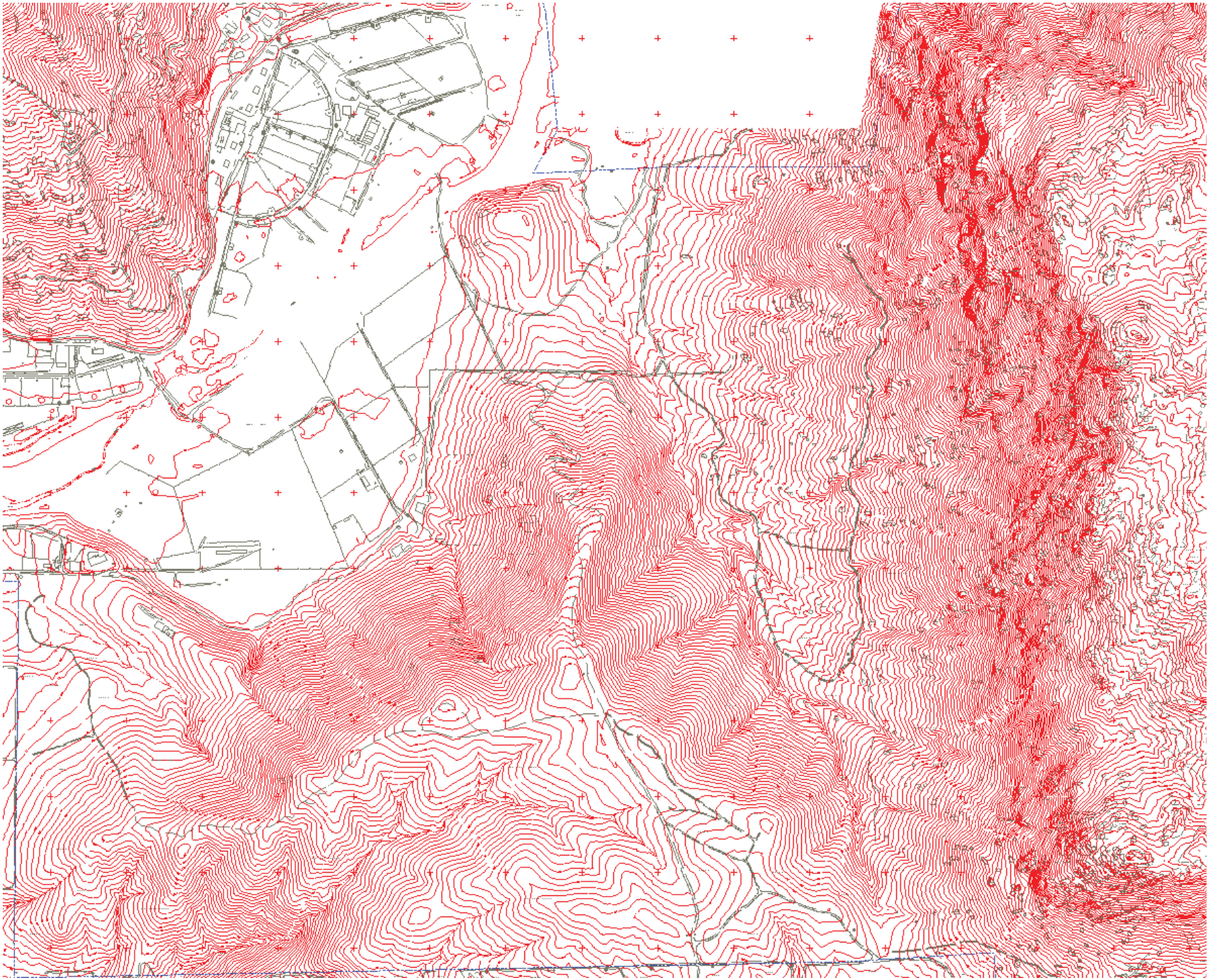
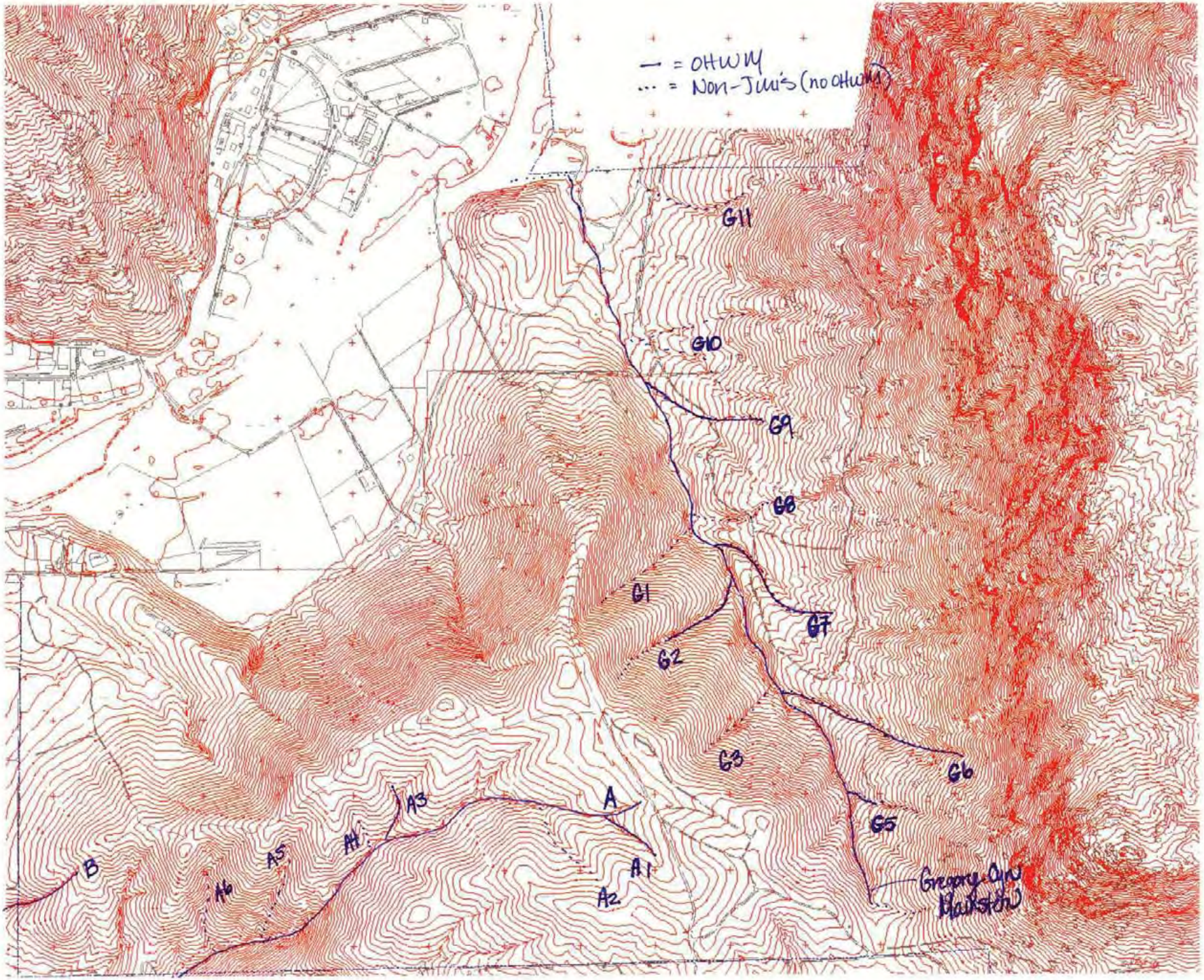


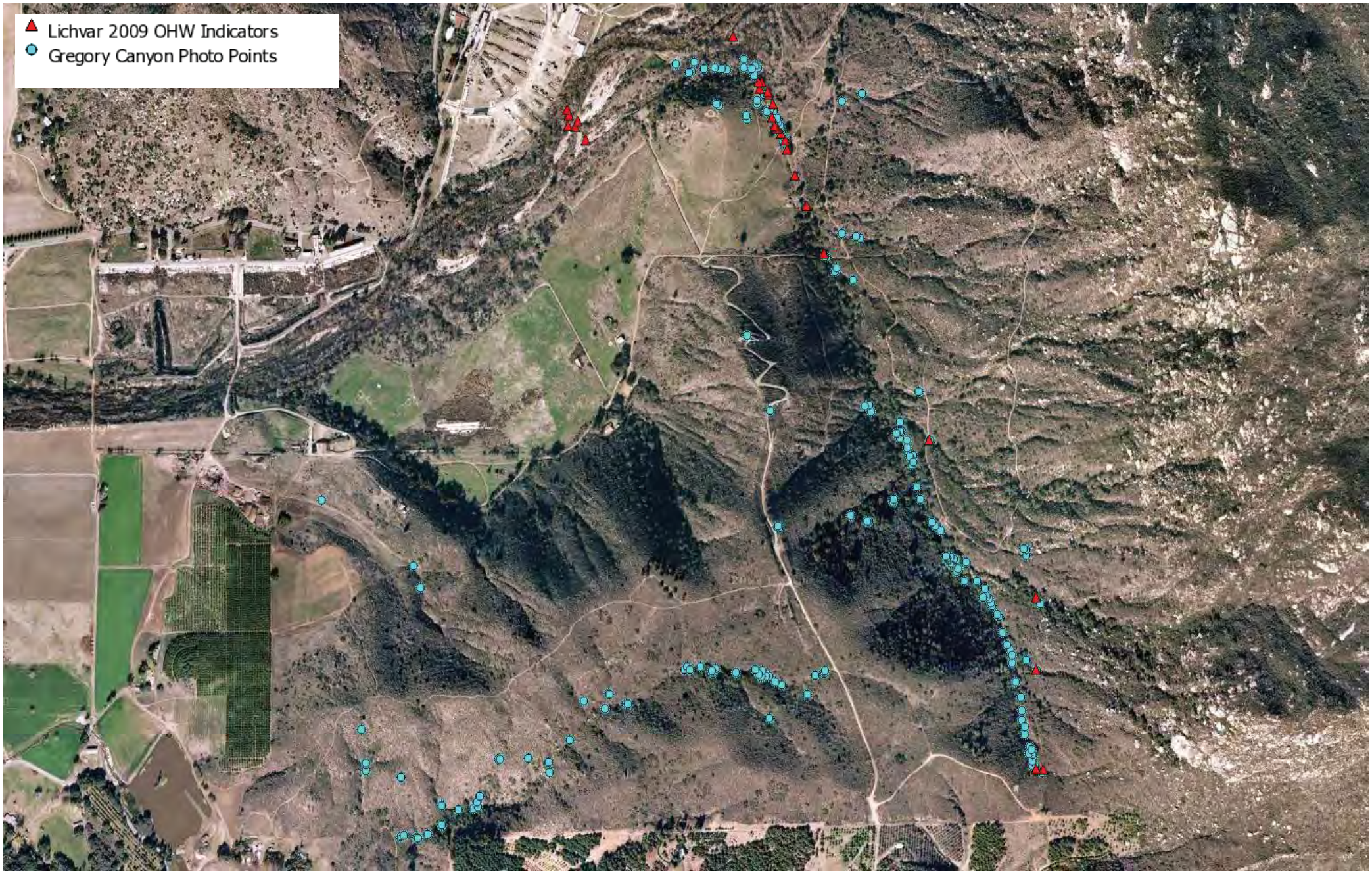
GC SN Figure 1. Significant Nexus Determination



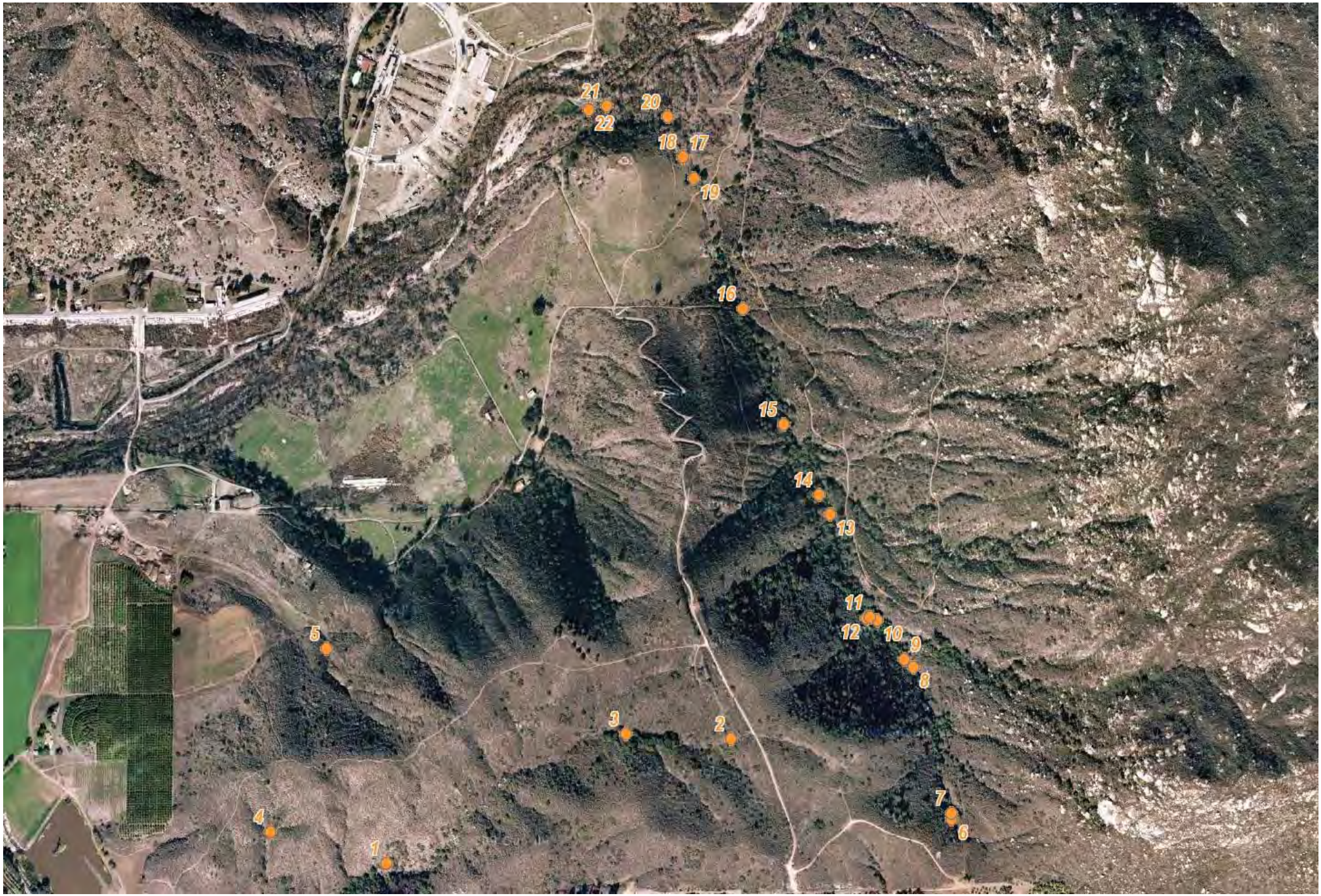
GC SN Figure 2a. Topography



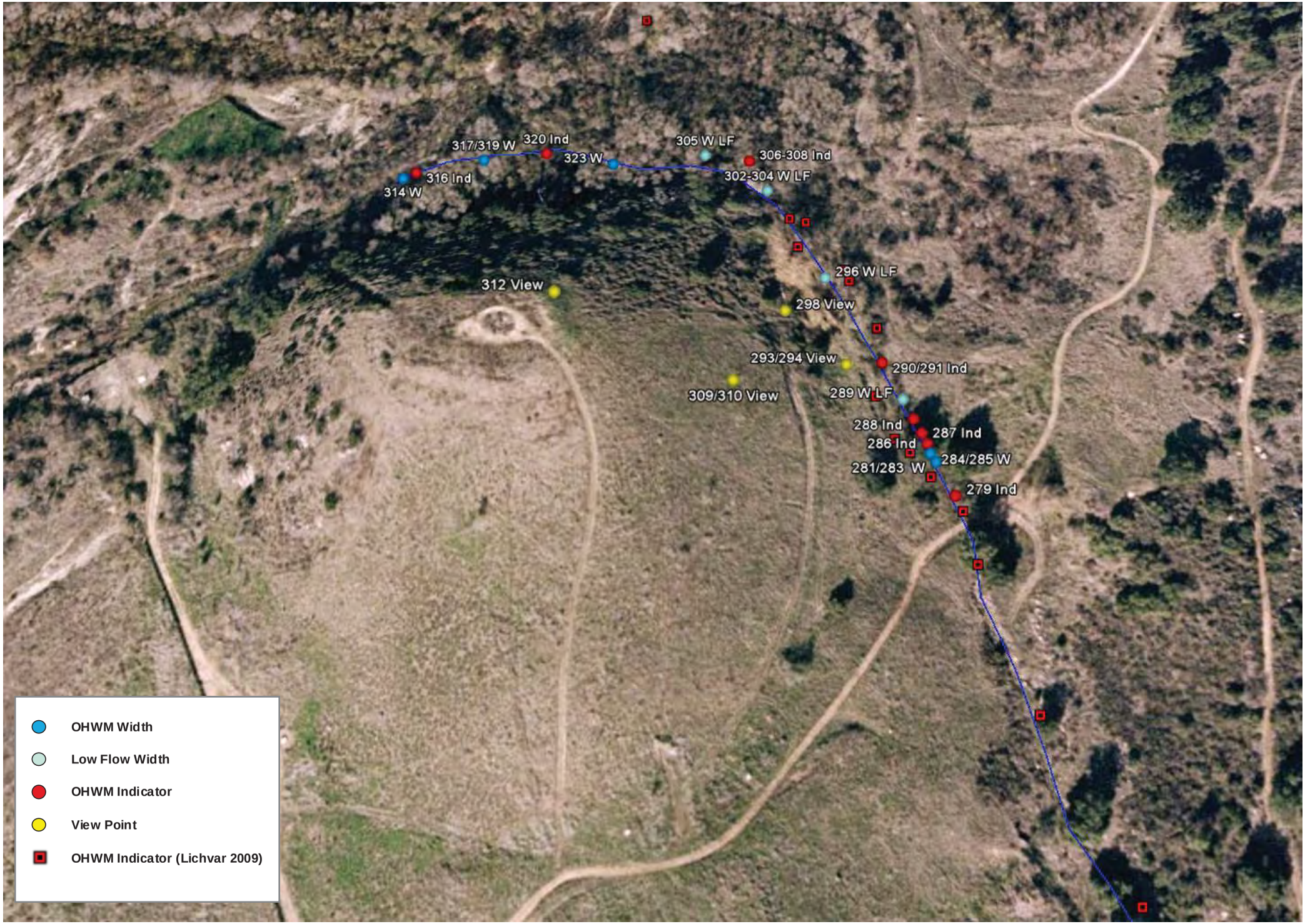
GC SN Figure 2b. Topography with Drainage Features



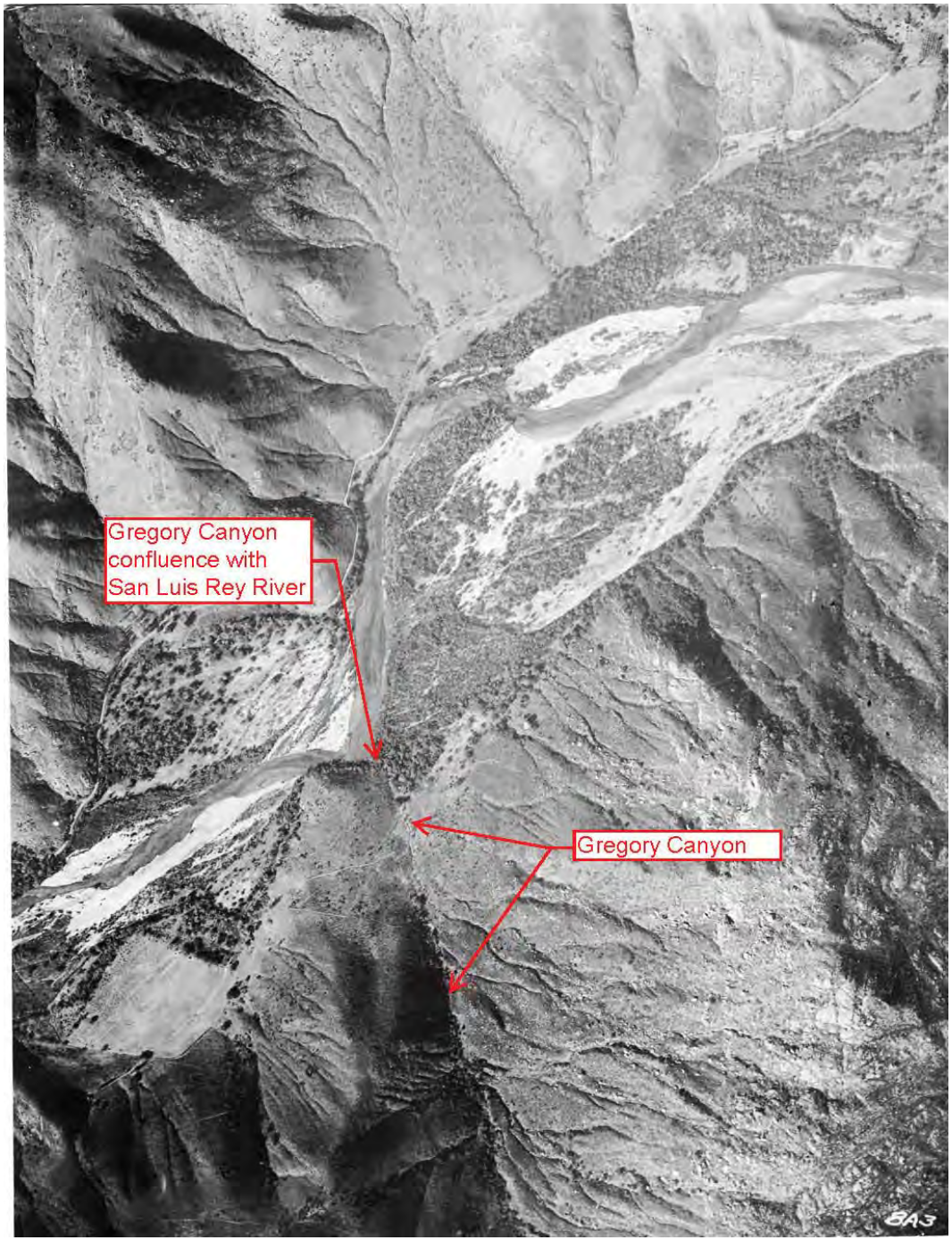
GC SN Figure 3. Data Locations from Site Visits – November 20, 23, 24, and 25, 2009



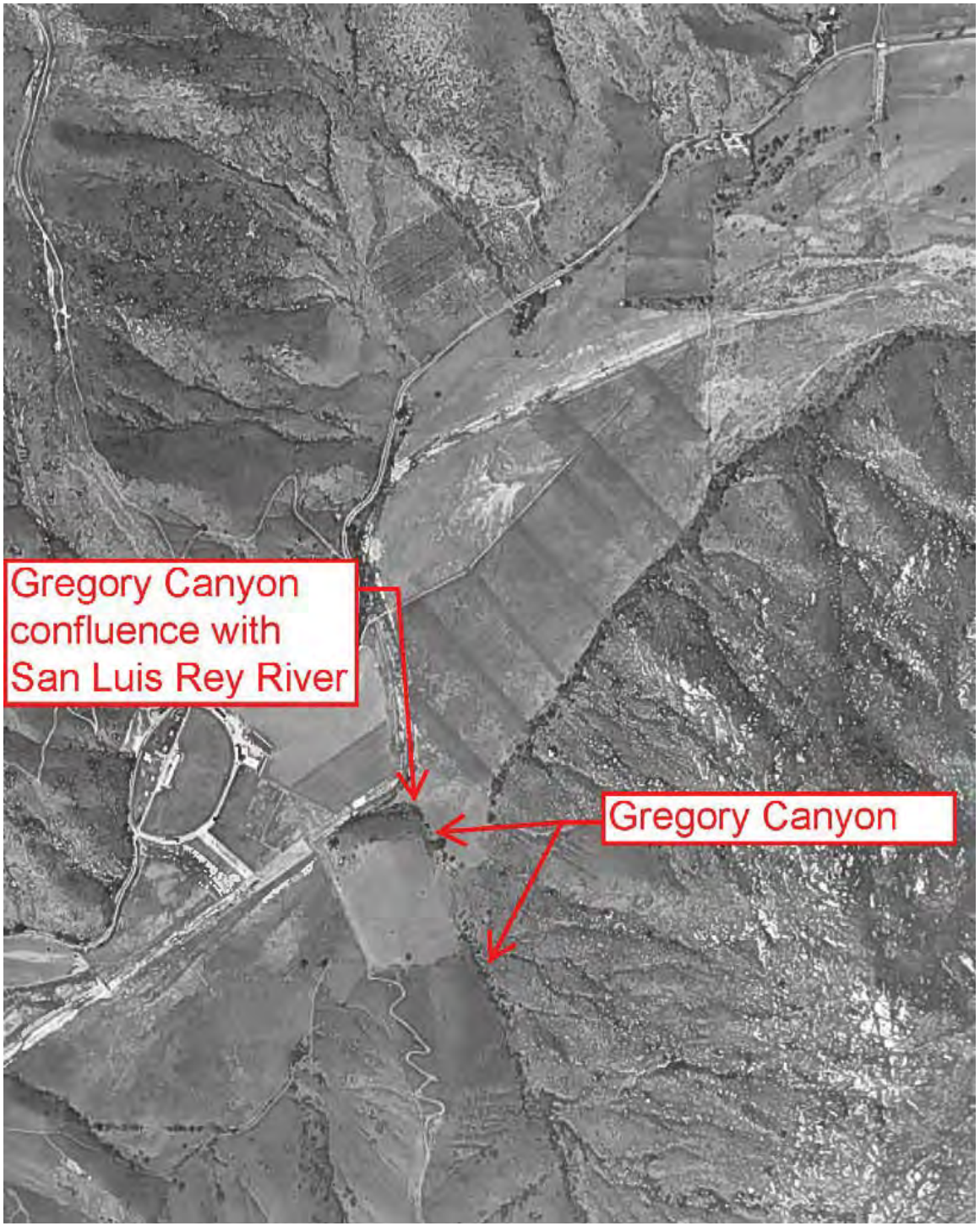
GC SN Figure 4. Representative Photos (Attachment A)



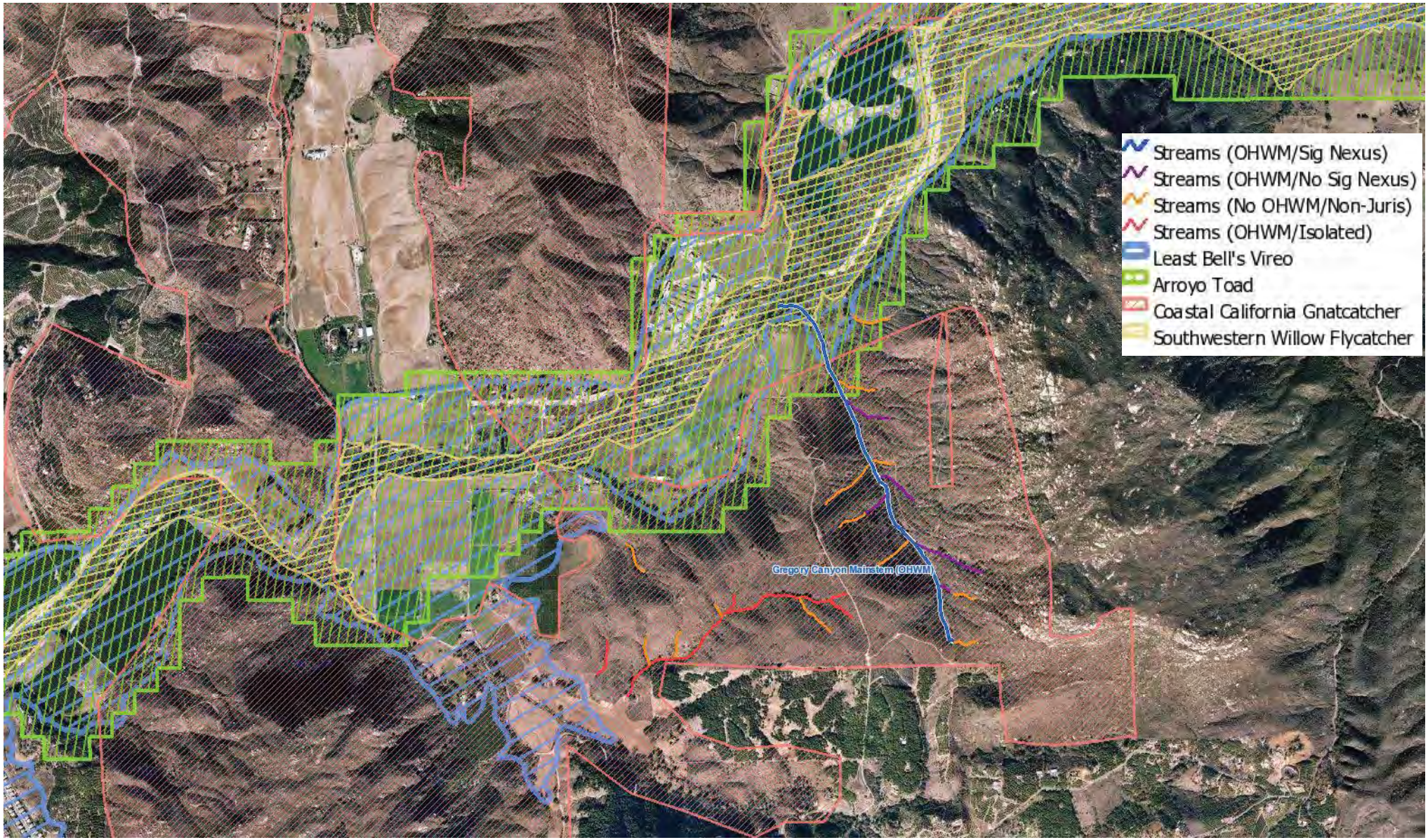
GC SN Figure 5. Lower Gregory Canyon Confluence



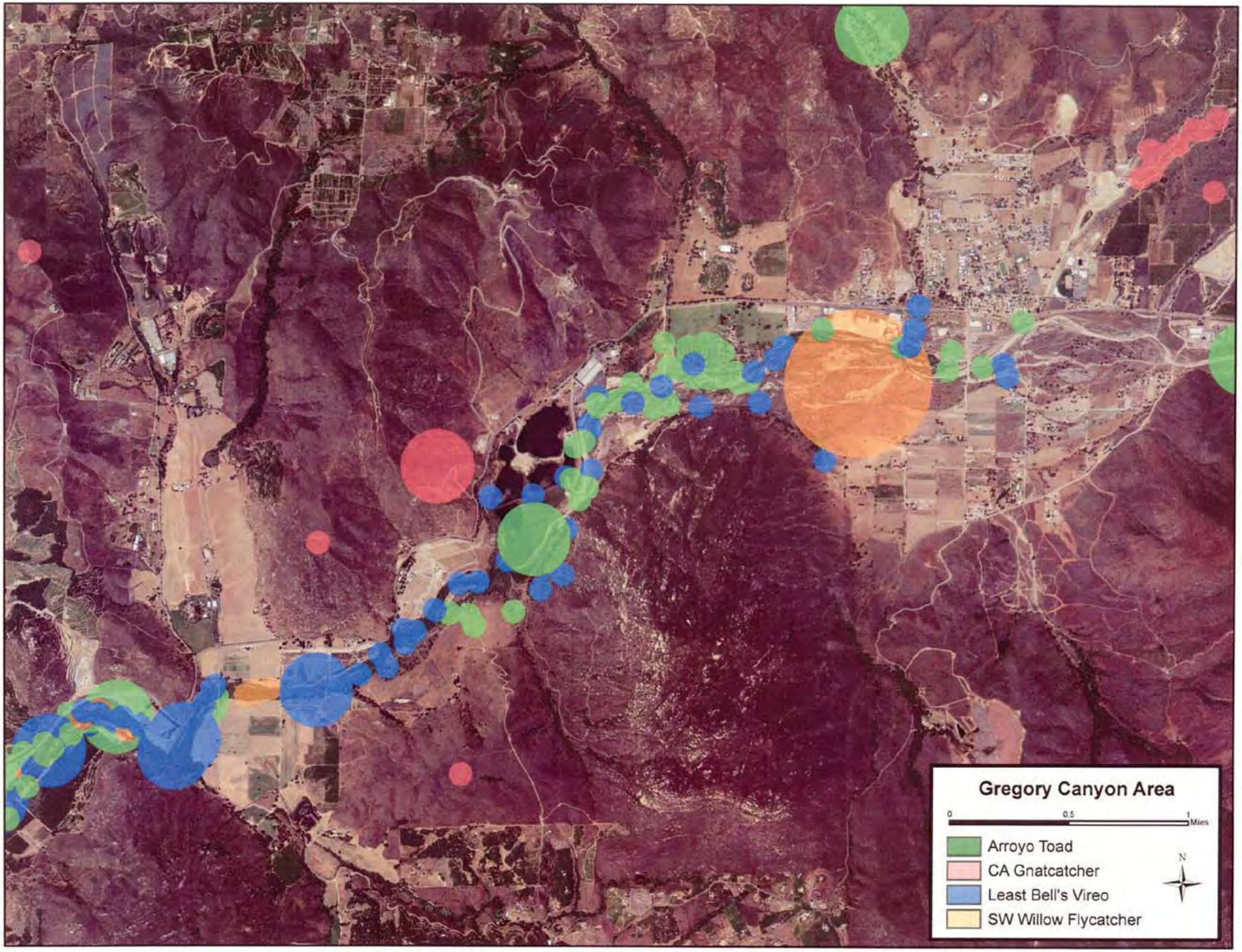
GC SN Figure 6a. Historic Aerial of Gregory Canyon – 1928



GC SN Figure 6b. Historic Aerial of Gregory Canyon – 1964



GC SN Figure 7a. Designated Critical Habitat



GC SN Figure 7b. Special Status Species Locations

Attachment A: Representative Photographs

Photograph 1: Drainage A Overview (33º20’00.36”N; 117º07’02.92”W; 11/20 #51 LA)

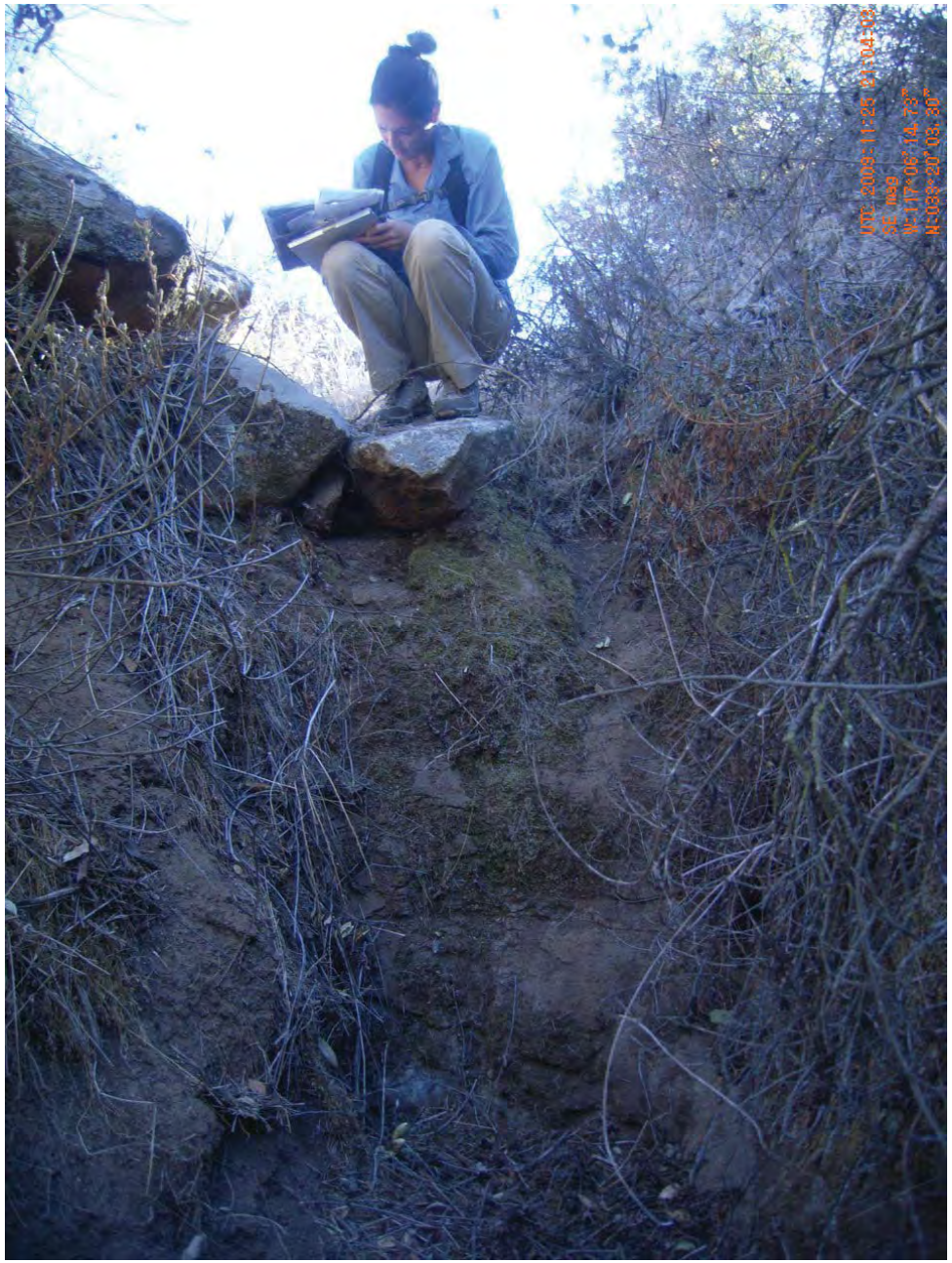
Photograph 2: Drainage A (33º20’8.61”N; 117º6’33.52”W; 11/20 #19 LA)

Photograph 3: Drainage A Oak Woodland (33º20’8.90”N; 117º6’42.54”W; 11/20 #30 LA)

Photograph 4: Drainage B (33º20’2.49”N; 117º7’12.84”W; 11/20 #77 LA)

Photograph 5: Drainage C (33º20’14.53”N; 117º7’08.04”W; 11/24 #59 SD)

Photograph 6: Gregory Canyon (33º20’3.30”N; 117º6’14.73”W; 11/25 #3 SD)



Photograph 7: Gregory Canyon (33º20’3.72”N; 117º6’14.73”W; 11/25 #6 SD)

Photograph 8: Gregory Canyon (33º20’13.29”N; 117º6’18.03”W; 11/24 #50 SD)

Photograph 9: Gregory Canyon (33º20’13.86”N; 117º6’18.81”W; 11/24 #47 SD)

Photograph 10: Gregory Canyon (33º20’16.43”N; 117º6’21.13”W; 11/24 #37 SD)

Photograph 11: Gregory Canyon (33º20’16.63”N; 117º6’21.69”W; 11/24 #34 SD)

Photograph 12: Gregory Canyon (33º20’16.52”N; 117º6’22.02”W; 11/24 #30 SD)

Photograph 13: Gregory Canyon (33º20’23.38”N; 117º6’25.15”W; 11/20 #261 SD)

Photograph 14: Gregory Canyon (33º20’24.68”N; 117º6’26.06”W; 11/24 #20 SD)

Photograph 15: Gregory Canyon (33º20’29.31”N; 117º6’29.04”W 11/24 #5 SD)

Photograph 16: Gregory Canyon (33º20’36.96”N; 117º6’32.53”W; 11/25 #32 SD)

Photograph 17: LOWER Gregory Canyon (facing south at channel located downstream from dirt road crossing) (33º20’46.80”N; 117º6’37.72”W; 11/23 #293 SD)

Photograph 18: LOWER Gregory Canyon (facing north at channel located downstream from dirt road crossing) (33º20’46.80”N; 117º6’37.72”W; 11/23 #294 SD)

Photograph 19: LOWER Gregory Canyon (33º20’46.13”N; 117º6’36.72”W; 11/23 #288 SD)

Photograph 20: LOWER Gregory Canyon (33º20’36.96”N; 117º6’32.53”W; 11/23 #302)

Photograph 21: LOWER Gregory Canyon (33º20’49.27”N; 117º6’38.83”W; 11/23 #317)

Photograph 22: LOWER Gregory Canyon (33º20’49.47”N; 117º6’44.54W; 11/23 #314)

Action Area (includes area potentially affected by indirect impacts)

Project Boundary

Plant Communities

AGR - Agricultural Land

AGR/DEV - Agricultural Land / Developed

CHP - Chaparral

CRF - Cottonwood-willow Riparian Forest

CSS - Coastal Sage Scrub

CSS/CHP - Coastal Sage Scrub / Chaparral

CSS/NNG - Coastal Sage Scrub / Non-Native Grassland

DCRF - Disturbed Cottonwood-willow Riparian Forest

DCSS - Disturbed Coastal Sage Scrub

DCSS/NNG - Disturbed Coastal Sage Scrub / Non-Native Grassland

DEV - Developed

DH - Disturbed Habitat

DIS - Disturbed

DSWS - Disturbed Southern Willow Scrub

LOW - Coast Live Oak Woodland

MFS - Mulefat Scrub

NG - Native Perennial Grassland

NNG - Non-Native Grassland

NNG/CSS - Non-Native Grassland / Coastal Sage Scrub

OC - Open Channel

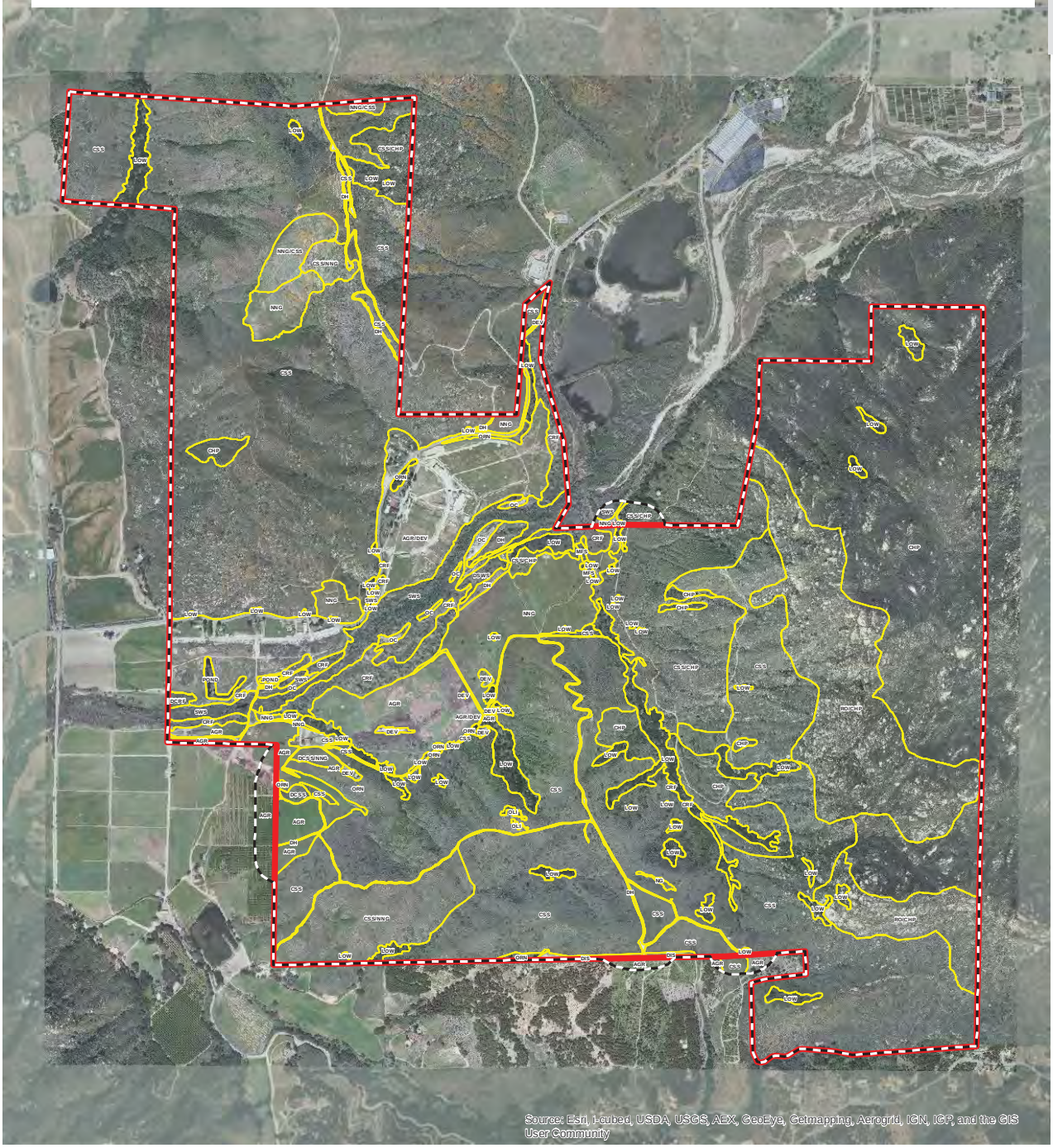
OLI - Olives

ORN - Ornamental

POND - Pond

RO/CHP - Rock Outcrop / Chaparral

SWS - Southern Willow Scrub



- PRELIMINARY WORKING DRAFT -

N

0 1,250 2,500 Feet

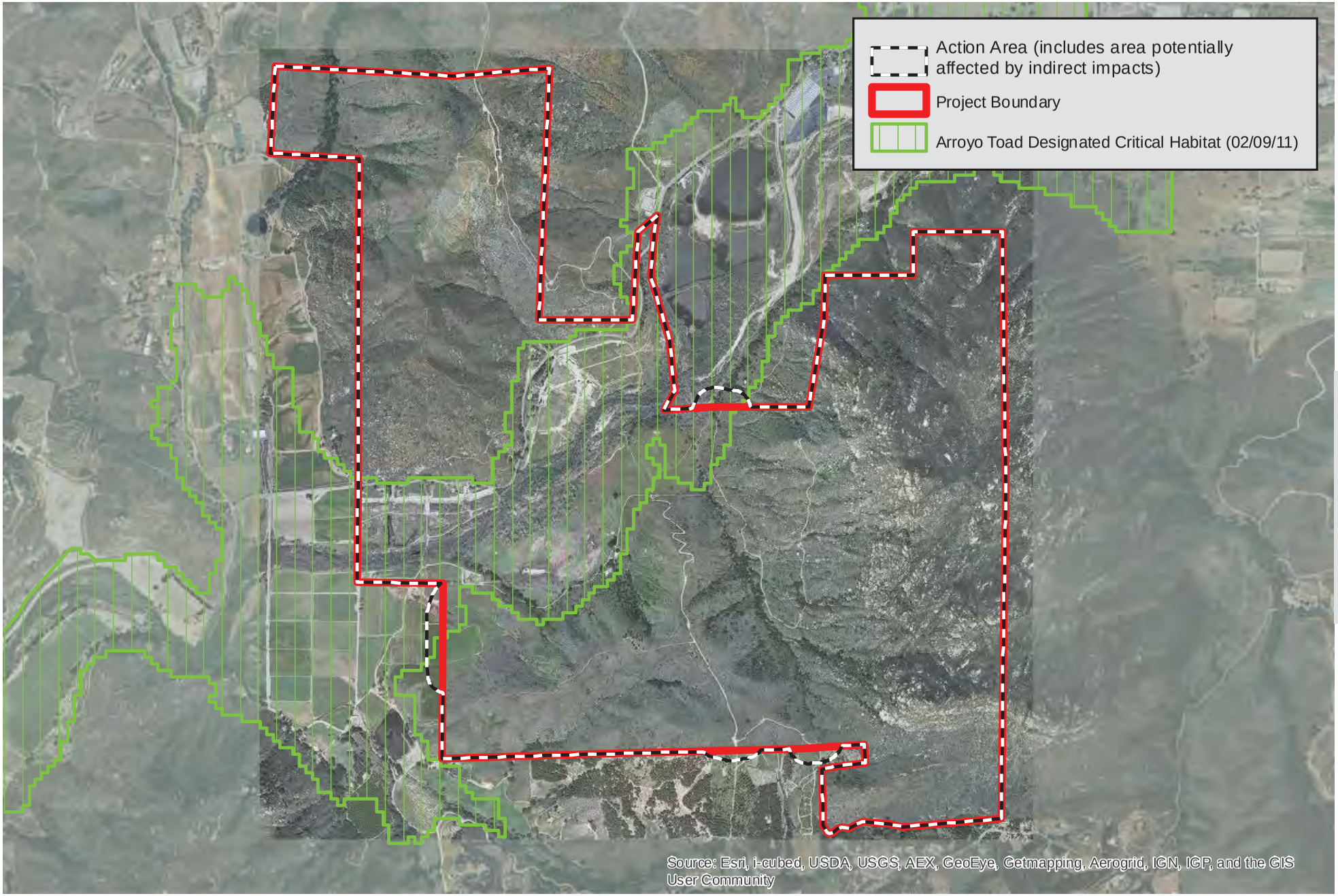
Plant Communities

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-1



N

0 2,000 4,000 Feet

Arroyo Toad Designated Critical Habitat

Gregory Canyon

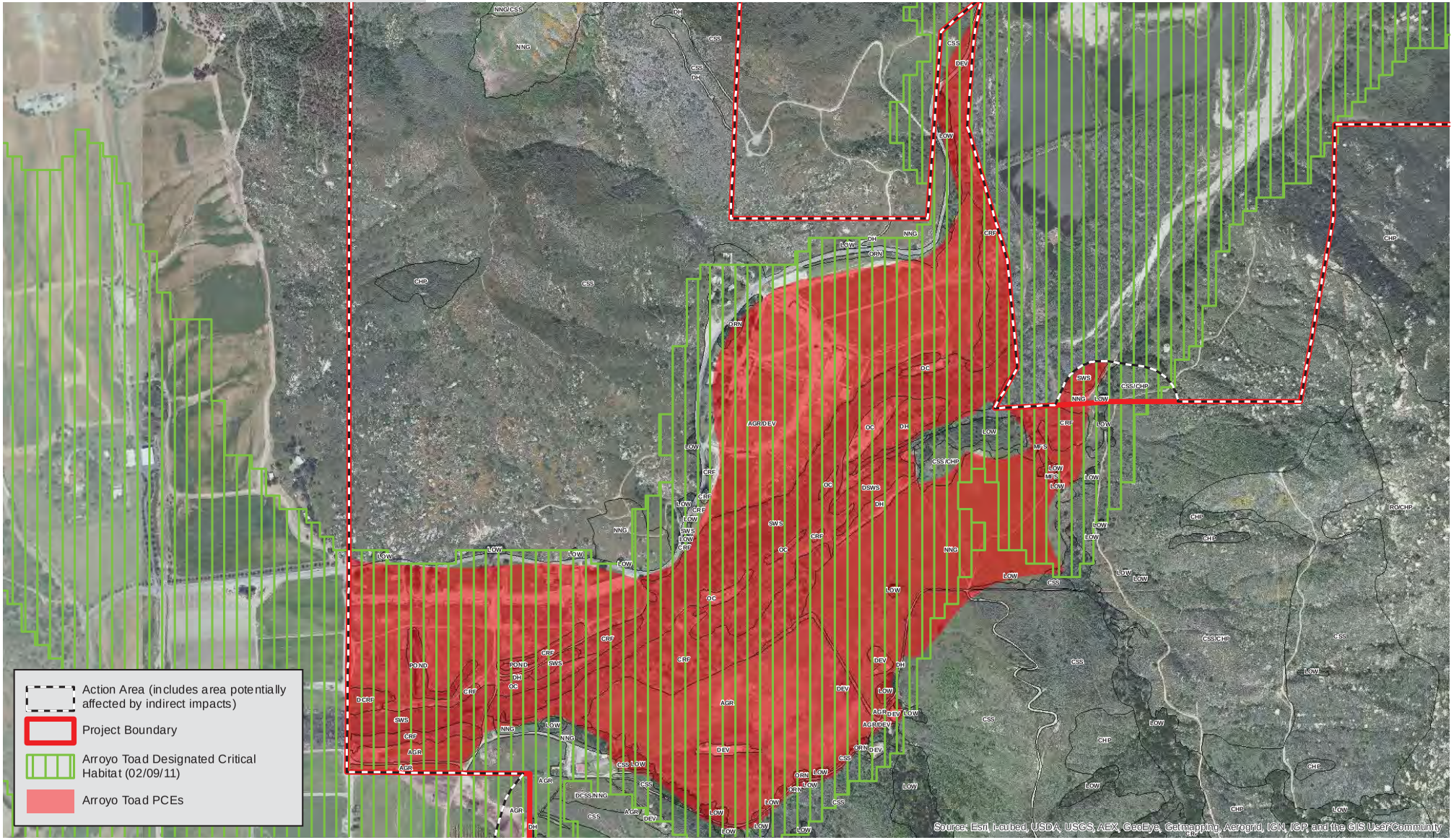
Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-2

- PRELIMINARY WORKING DRAFT -

- PRELIMINARY WORKING DRAFT -



N

0 600 1,200 Feet

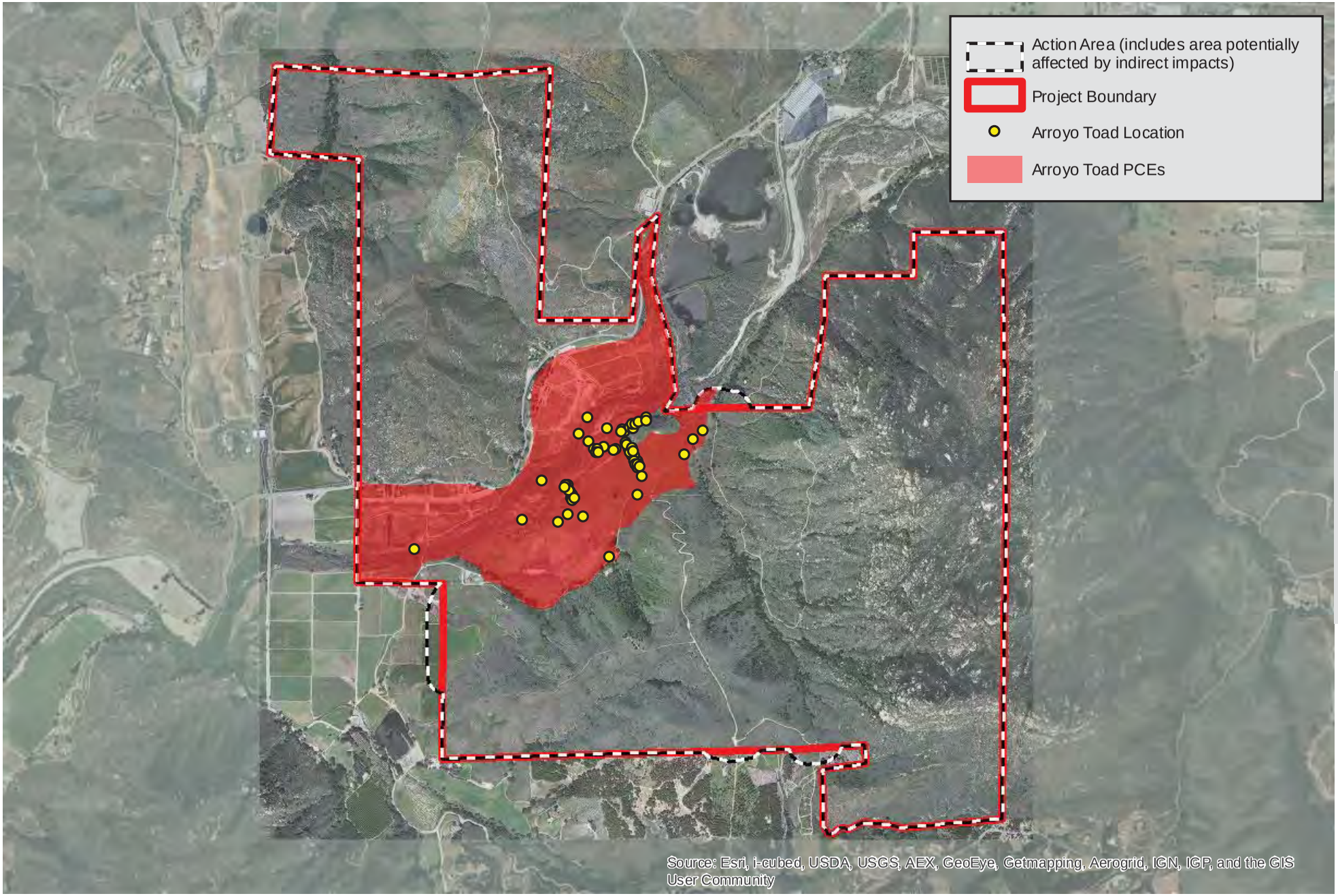
Designated Critical Habitat Supporting Arroyo Toad PCEs

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-3



N

0 2,000 4,000 Feet

Years 1998, 2000 and 2003 Arroyo Toad Locations

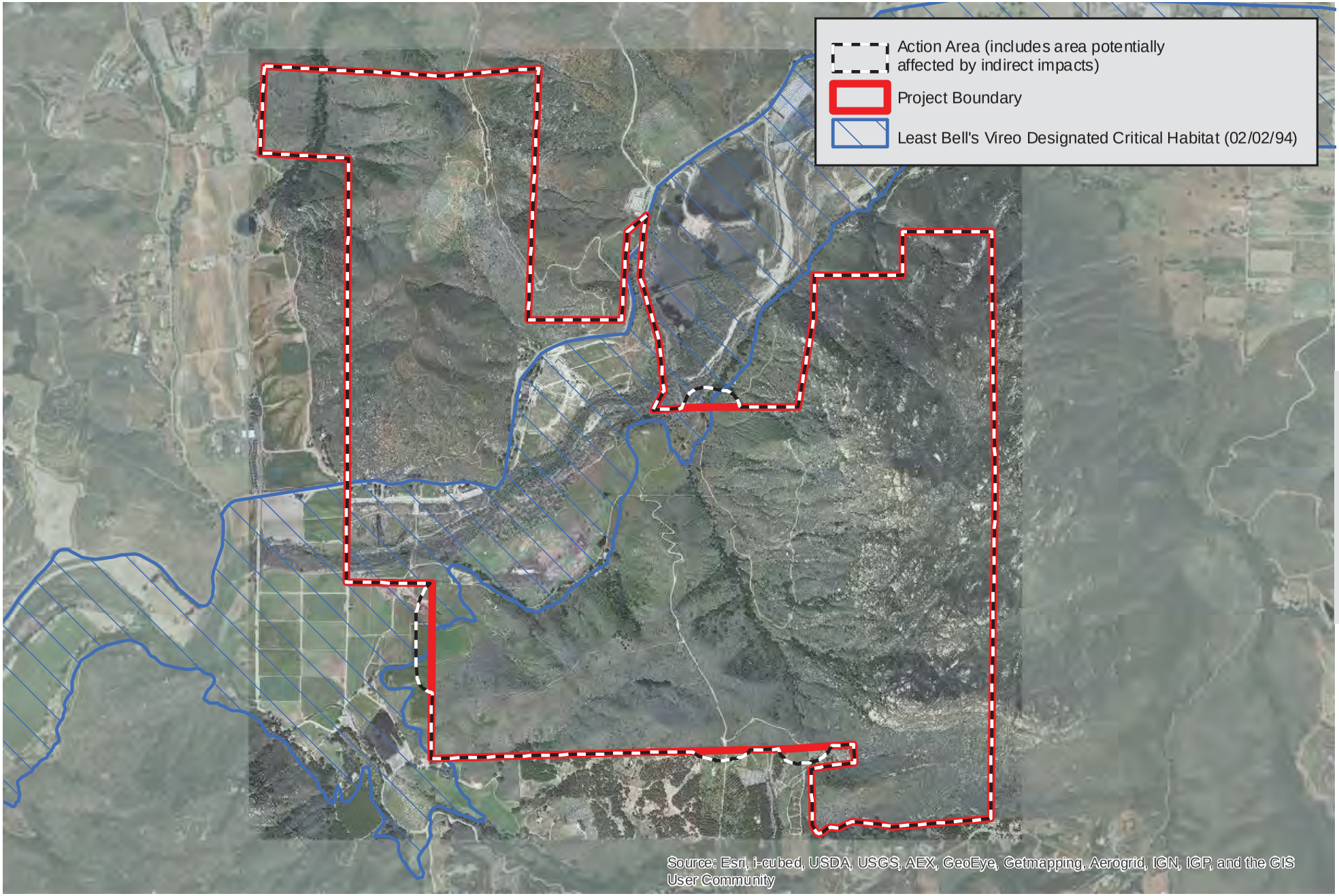
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-4

- PRELIMINARY WORKING DRAFT -



N

0 2,000 4,000 Feet

Least Bell's Vireo Designated Critical Habitat

Gregory Canyon

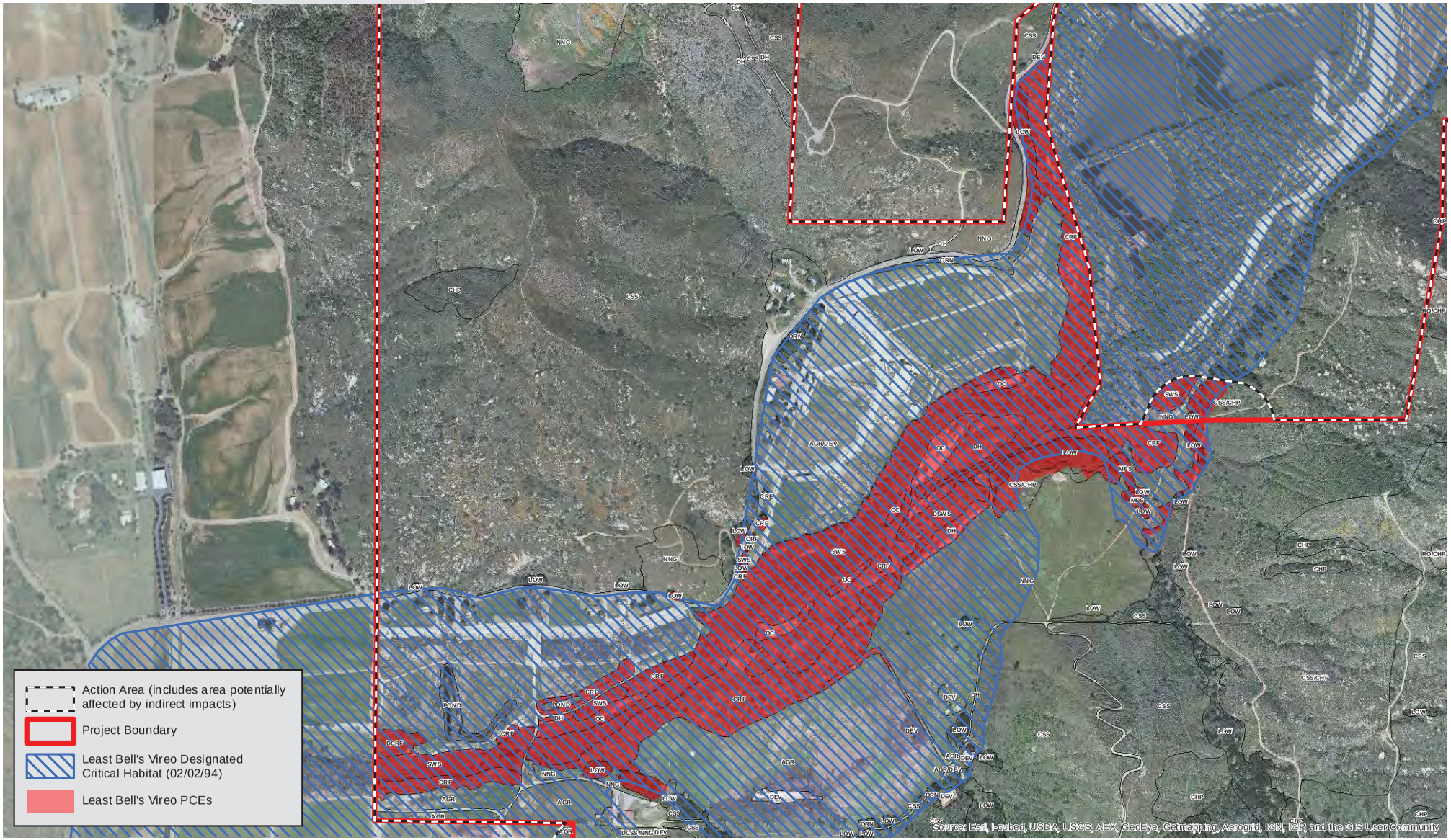
Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-5

- PRELIMINARY WORKING DRAFT -

- PRELIMINARY WORKING DRAFT -



N

0 600 1,200 Feet

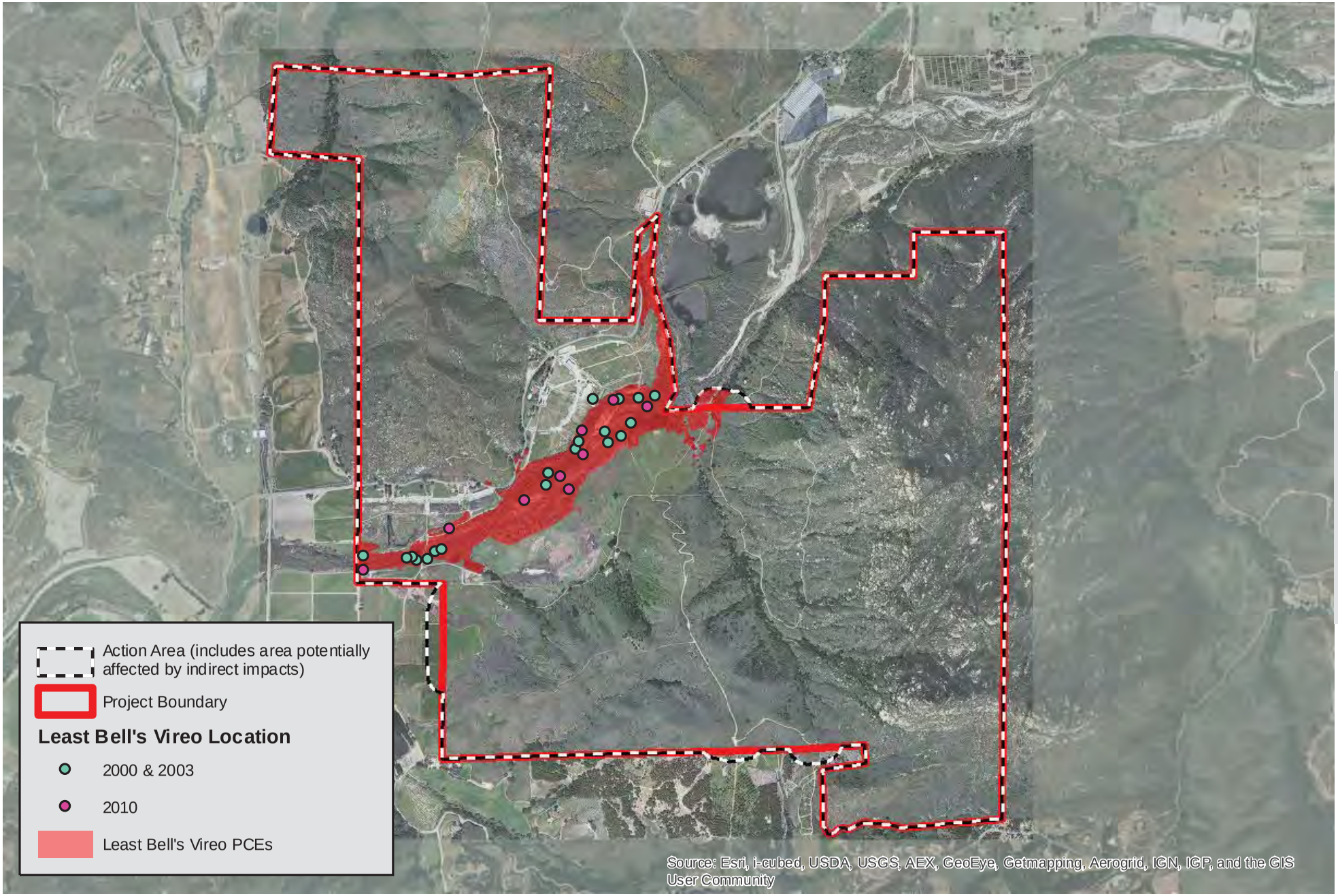
Designated Critical Habitat Supporting Least Bell's Vireo PCE's

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-6



N

0 2,000 4,000 Feet

Years 2000, 2003 and 2010 Least Bell's Vireo Locations

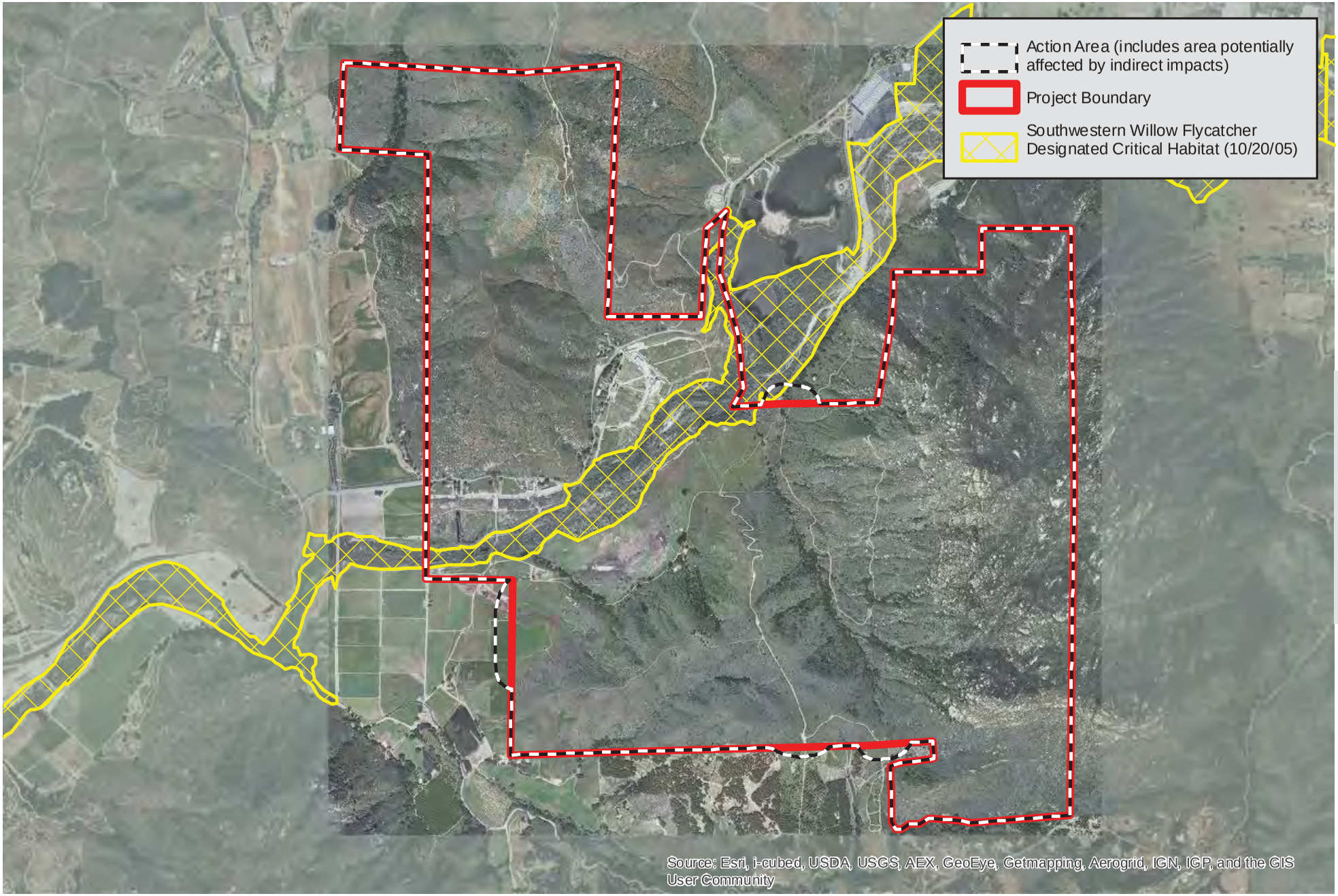
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-7

- PRELIMINARY WORKING DRAFT -



N

0 2,000 4,000 Feet

Southwestern Willow Flycatcher Designated Critical Habitat

Gregory Canyon

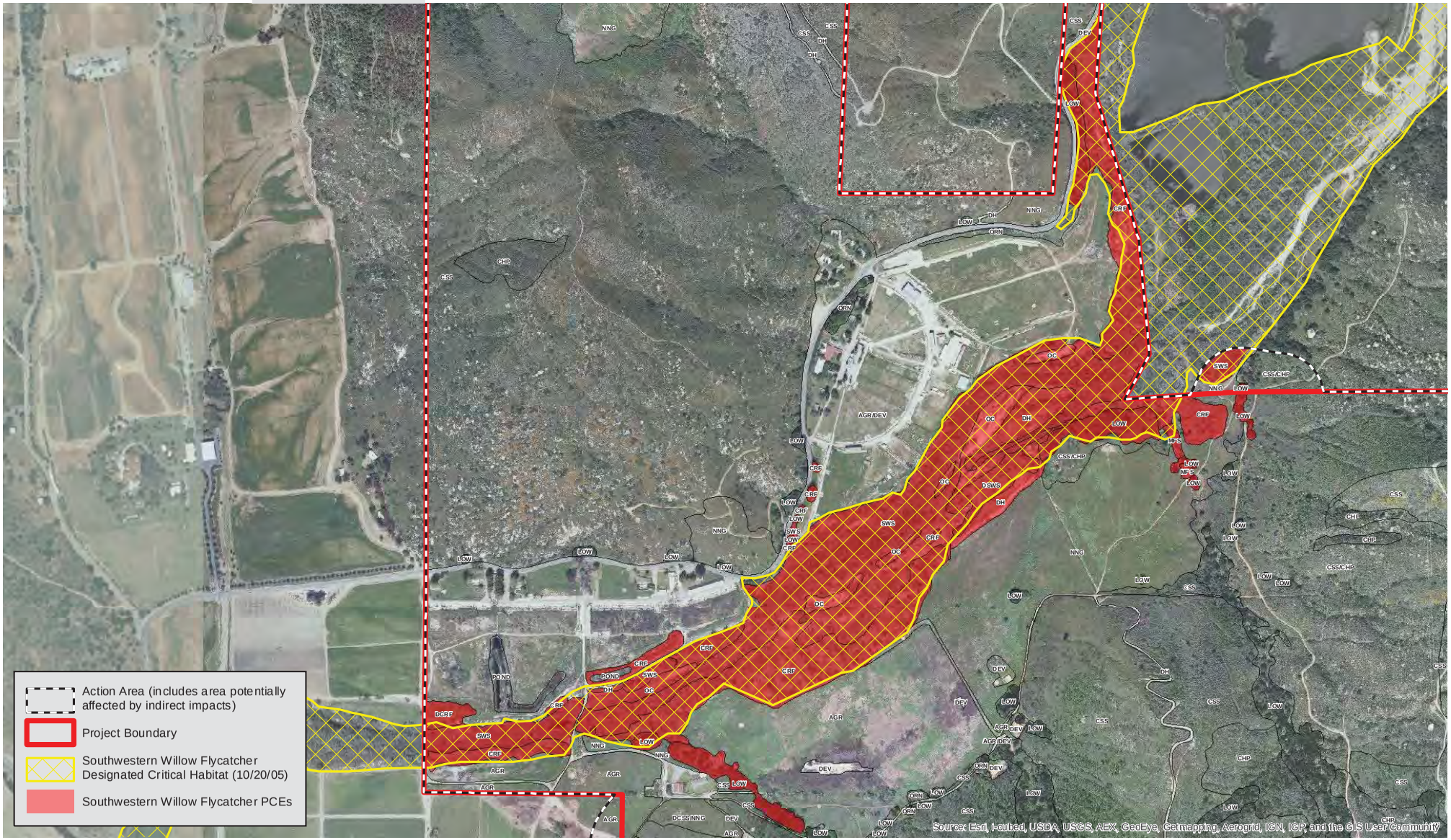
Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-8

- PRELIMINARY WORKING DRAFT -

- PRELIMINARY WORKING DRAFT -



N

0 600 1,200 Feet

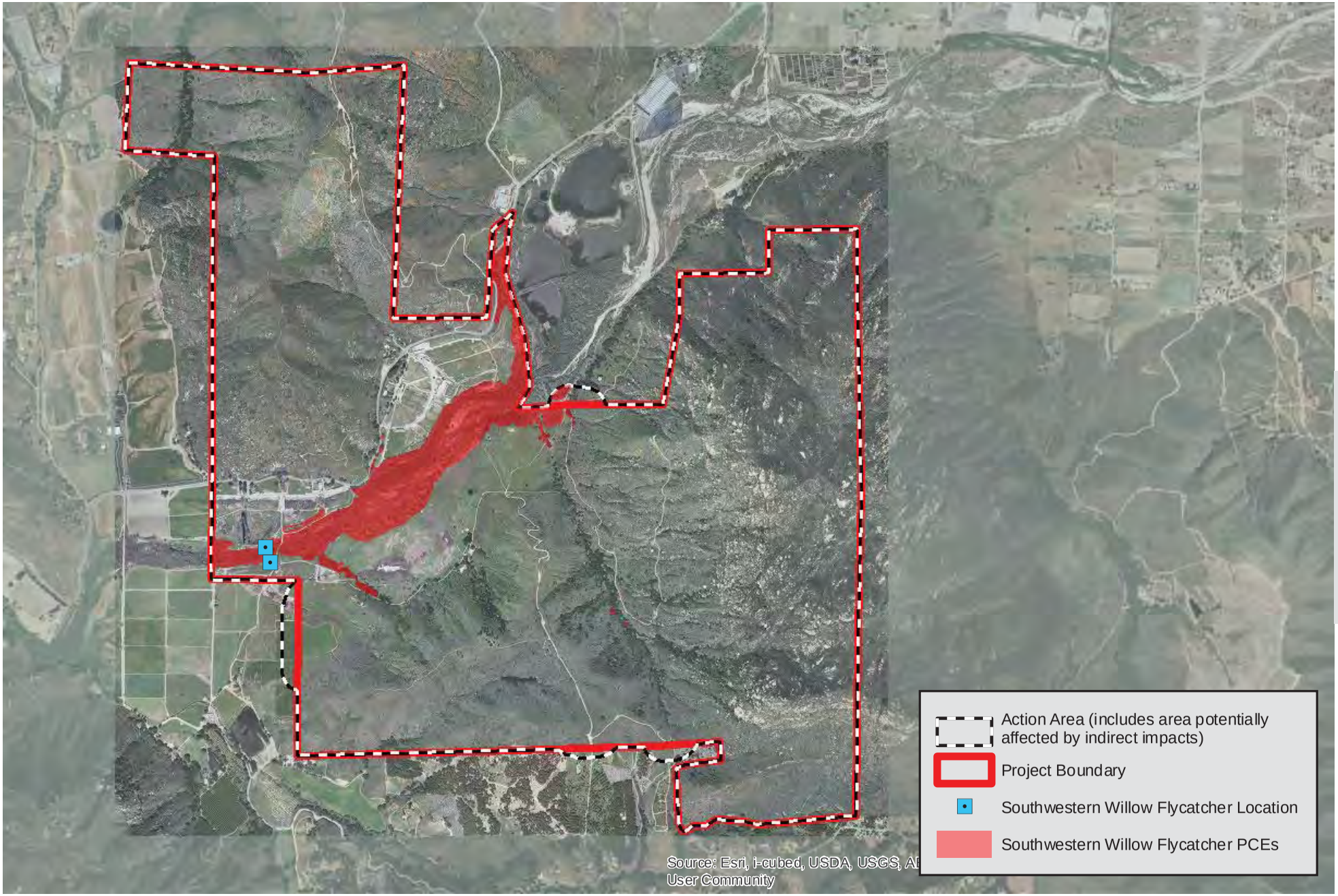
Designated Critical Habitat Supporting Southwestern Willow Flycatcher PCEs

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-9



N

0 2,000 4,000 Feet

Year 2000 Southwestern Willow Flycatcher Locations

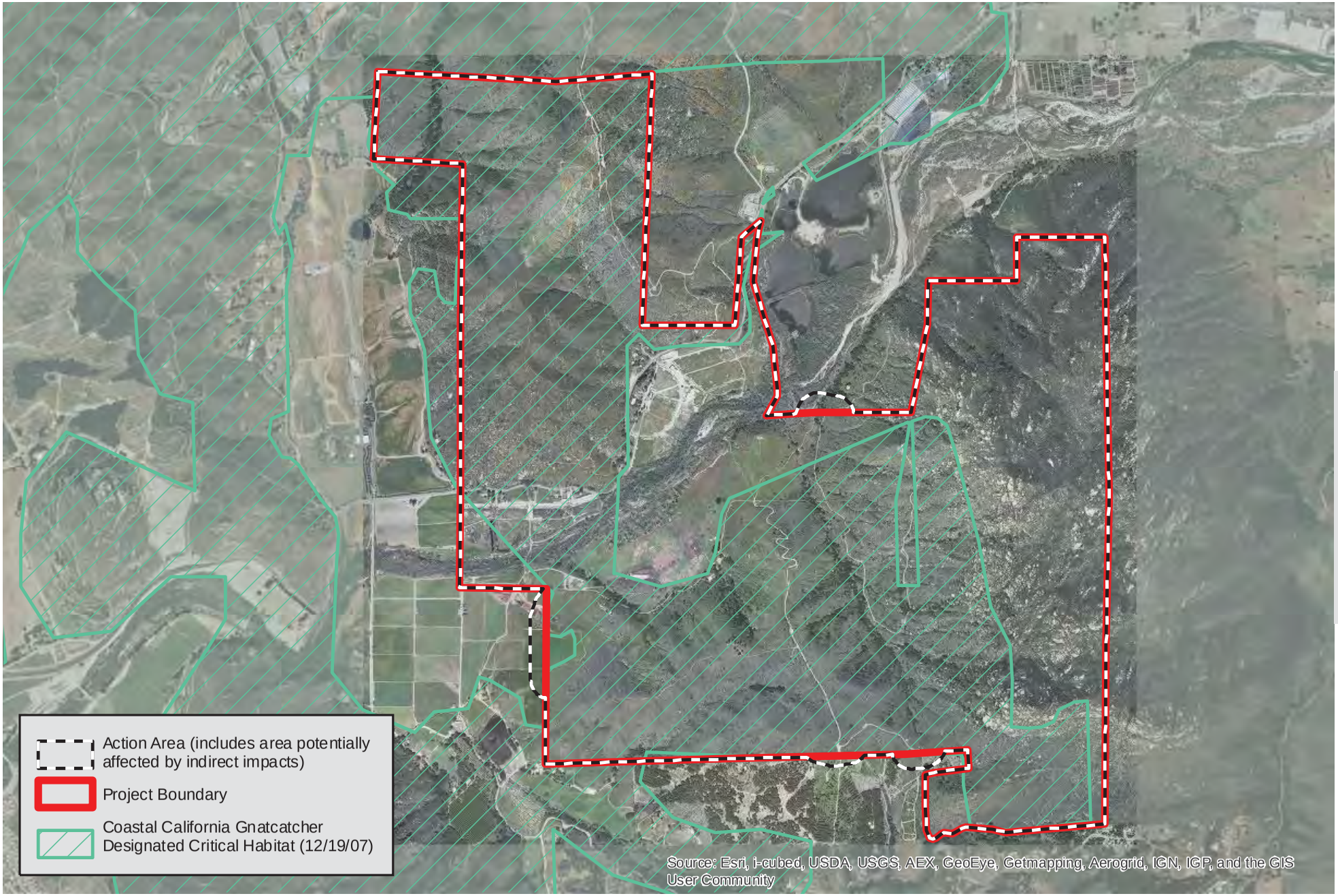
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-10

- PRELIMINARY WORKING DRAFT -



N

0 2,000 4,000 Feet

Coastal California Gnatcatcher Designated Critical Habitat

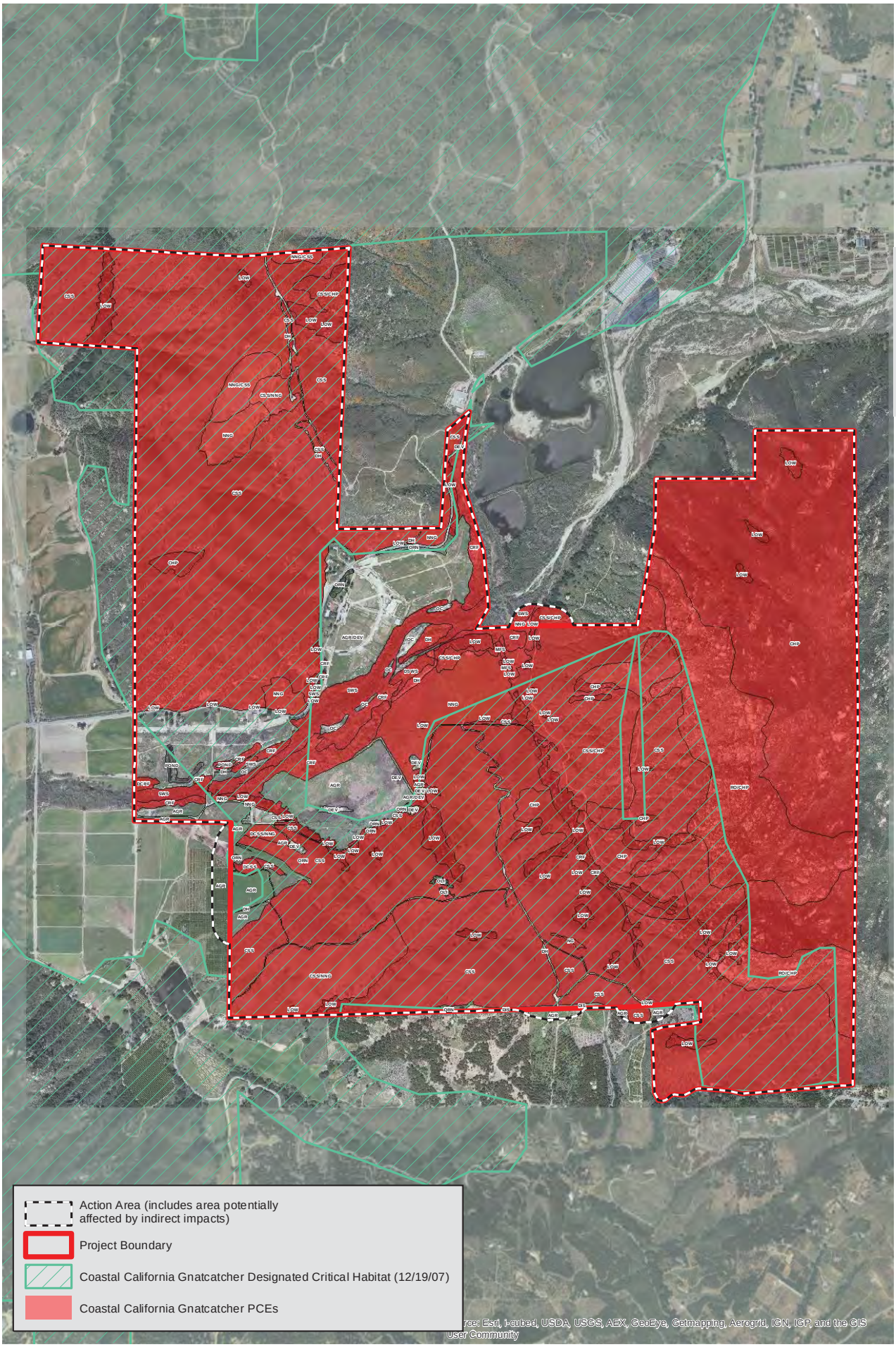
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-11

- PRELIMINARY WORKING DRAFT -



N

0 1,200 2,400 Feet

Designated Critical Habitat Supporting Coastal California Gnatcatcher PCEs

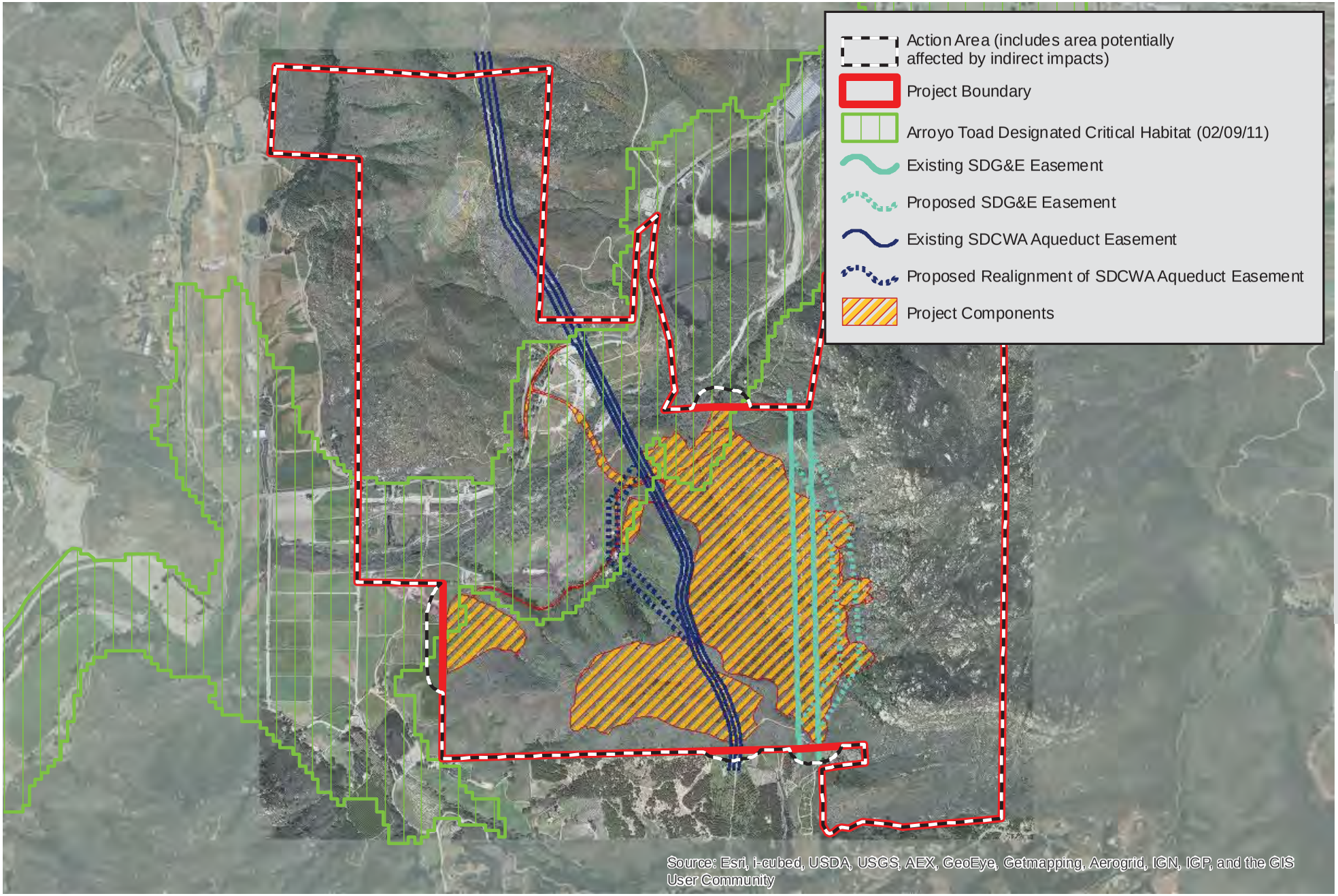
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-12

- PRELIMINARY WORKING DRAFT -



N

0 2,000 4,000 Feet

Impacts to Arroyo Toad Designated Critical Habitat

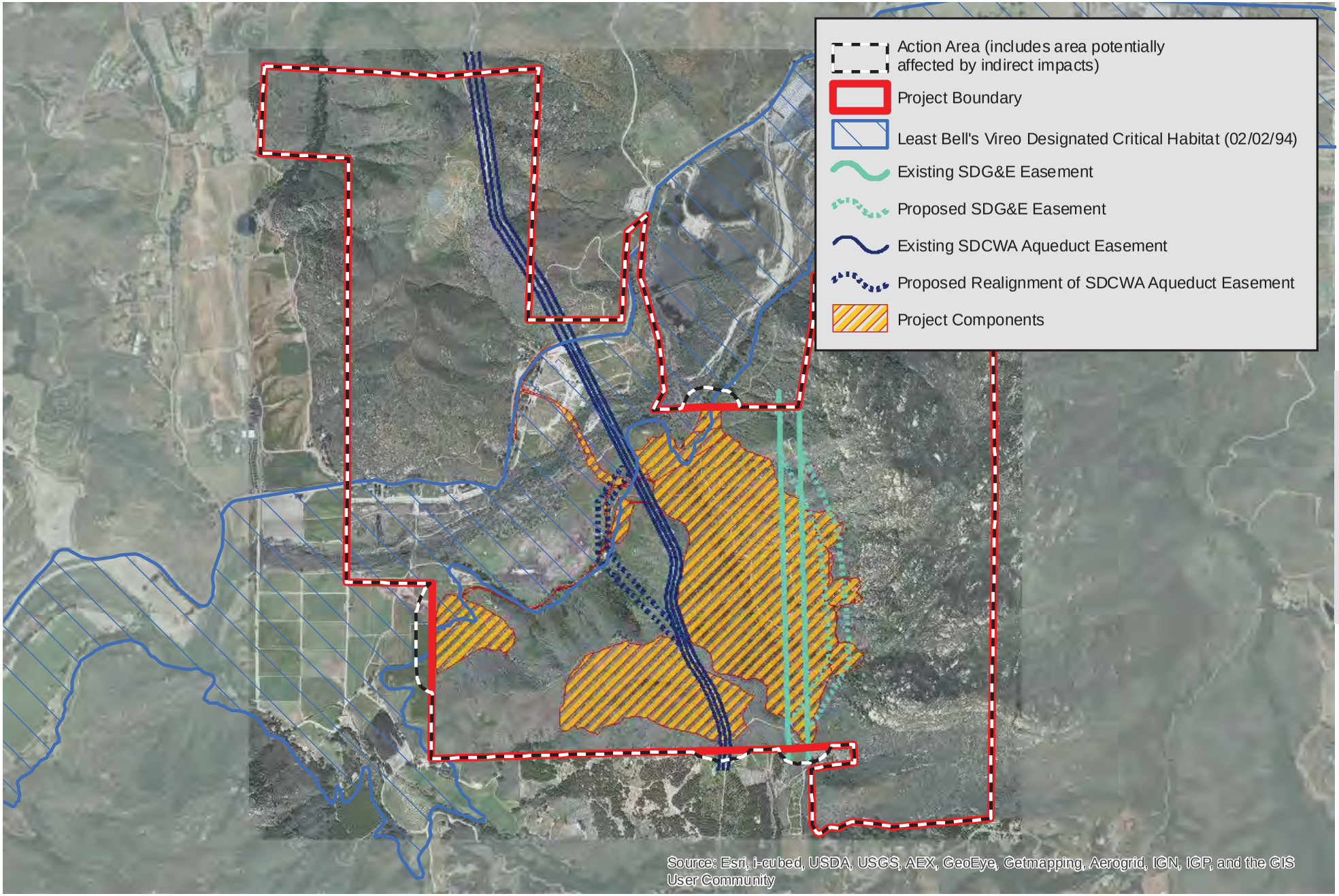
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-13

- PRELIMINARY WORKING DRAFT -



N

0 2,000 4,000 Feet

Impacts to Least Bell's Vireo Designated Critical Habitat

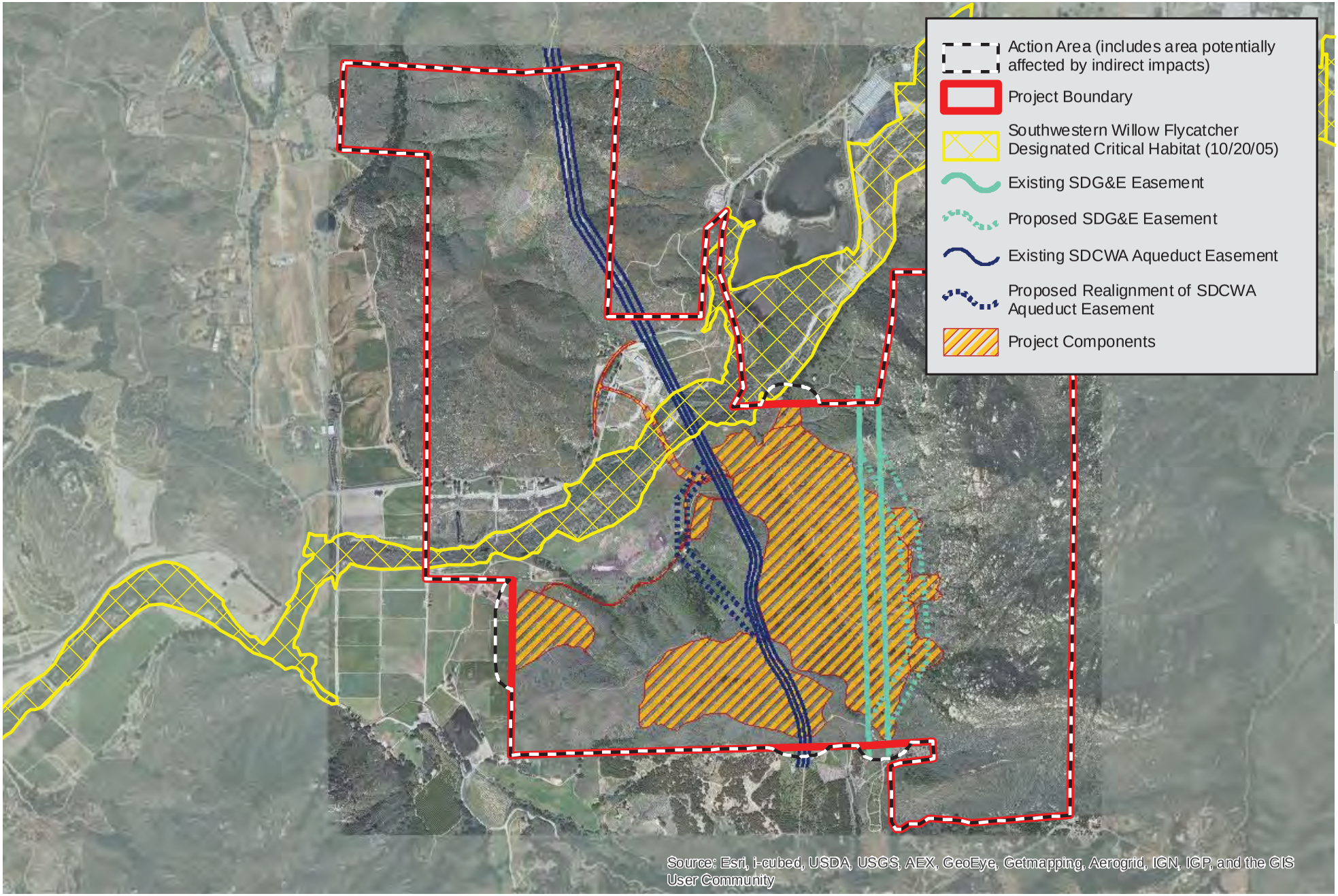
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-14

- PRELIMINARY WORKING DRAFT -



N

0 2,000 4,000 Feet

Impacts to Southwestern Willow Flycatcher Designated Critical Habitat

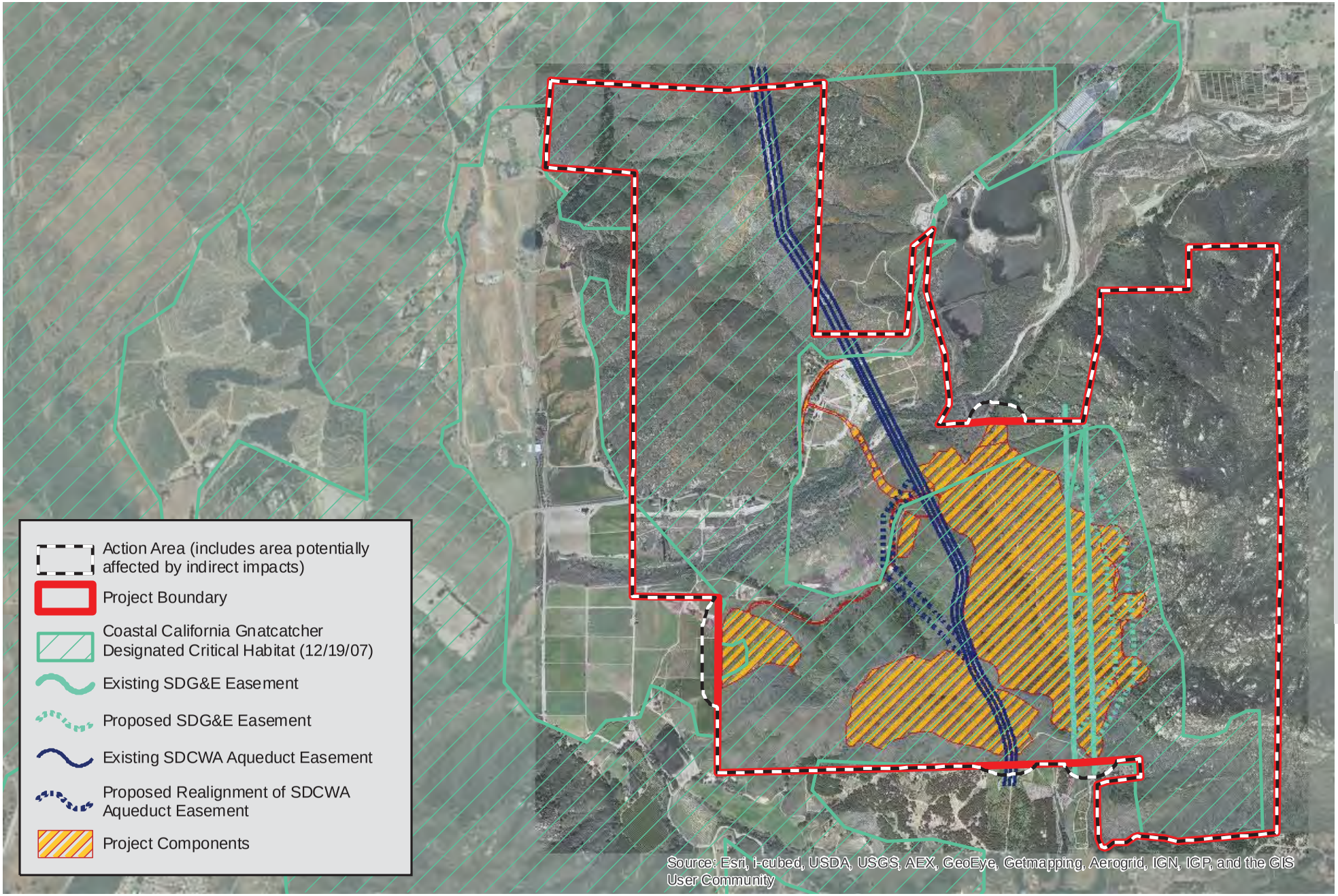
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-15

- PRELIMINARY WORKING DRAFT -



N

0 2,000 4,000 Feet

Impacts to Coastal California Gnatcatcher Designated Critical Habitat

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

G-16

- PRELIMINARY WORKING DRAFT -

Action Area (includes area potentially affected by indirect impacts)

Project Boundary

Plant Communities

AGR - Agricultural Land

AGR/DEV - Agricultural Land / Developed

CHP - Chaparral

CRF - Cottonwood-willow Riparian Forest

CSS - Coastal Sage Scrub

CSS/CHP - Coastal Sage Scrub / Chaparral

CSS/NNG - Coastal Sage Scrub / Non-Native Grassland

DCRF - Disturbed Cottonwood-willow Riparian Forest

DCSS - Disturbed Coastal Sage Scrub

DCSS/NNG - Disturbed Coastal Sage Scrub / Non-Native Grassland

DEV - Developed

DH - Disturbed Habitat

DIS - Disturbed

DSWS - Disturbed Southern Willow Scrub

LOW - Coast Live Oak Woodland

MFS - Mulefat Scrub

NG - Native Perennial Grassland

NNG - Non-Native Grassland

NNG/CSS - Non-Native Grassland / Coastal Sage Scrub

OC - Open Channel

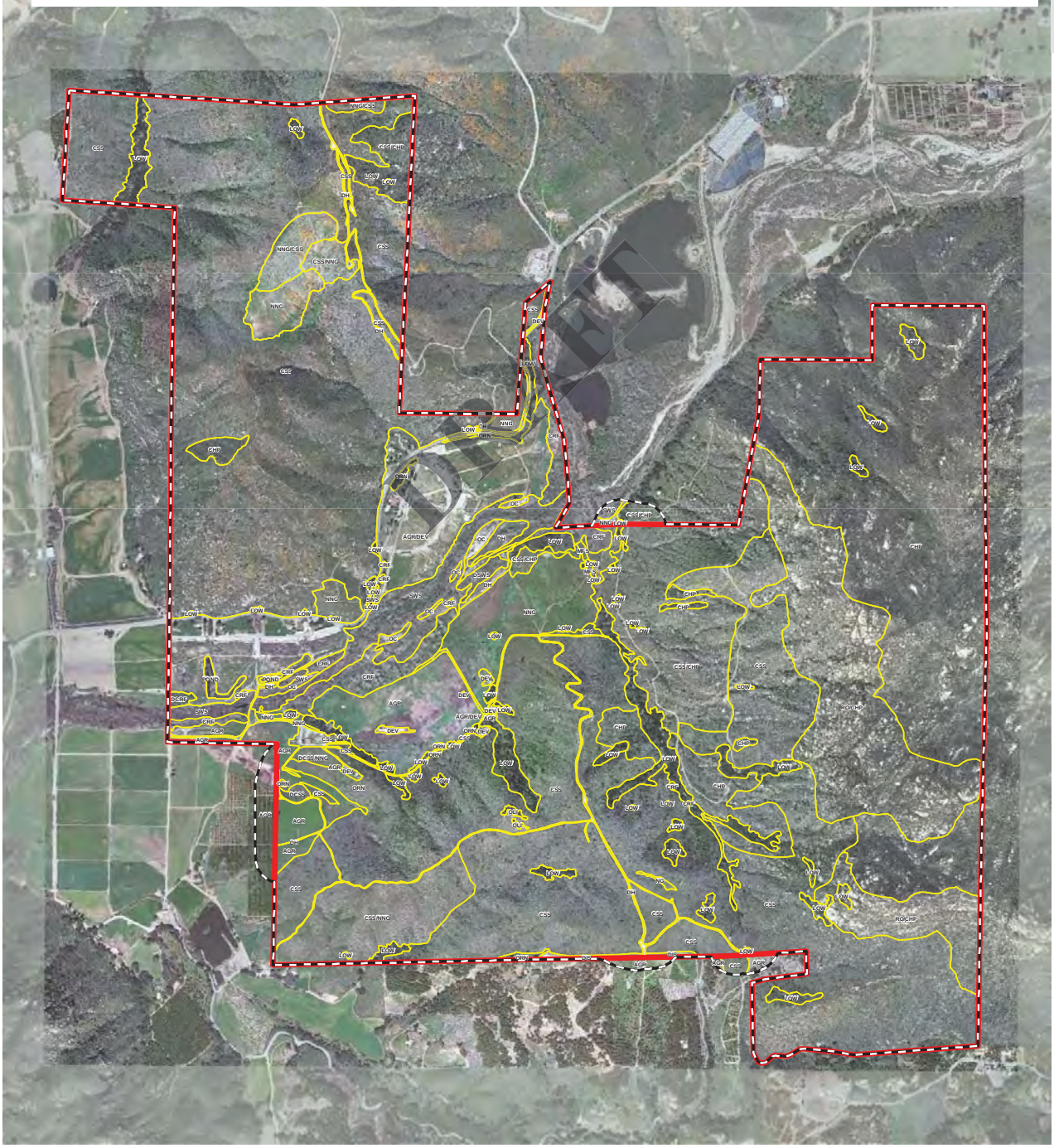
OLI - Olives

ORN - Ornamental

POND - Pond

RO/CHP - Rock Outcrop / Chaparral

SWS - Southern Willow Scrub



- PRELIMINARY WORKING DRAFT -

N

0 1,250 2,500 Feet

Plant Communities

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

6

N

0 2,000 4,000 Feet

Arroyo Toad Critical Habitat

Gregory Canyon

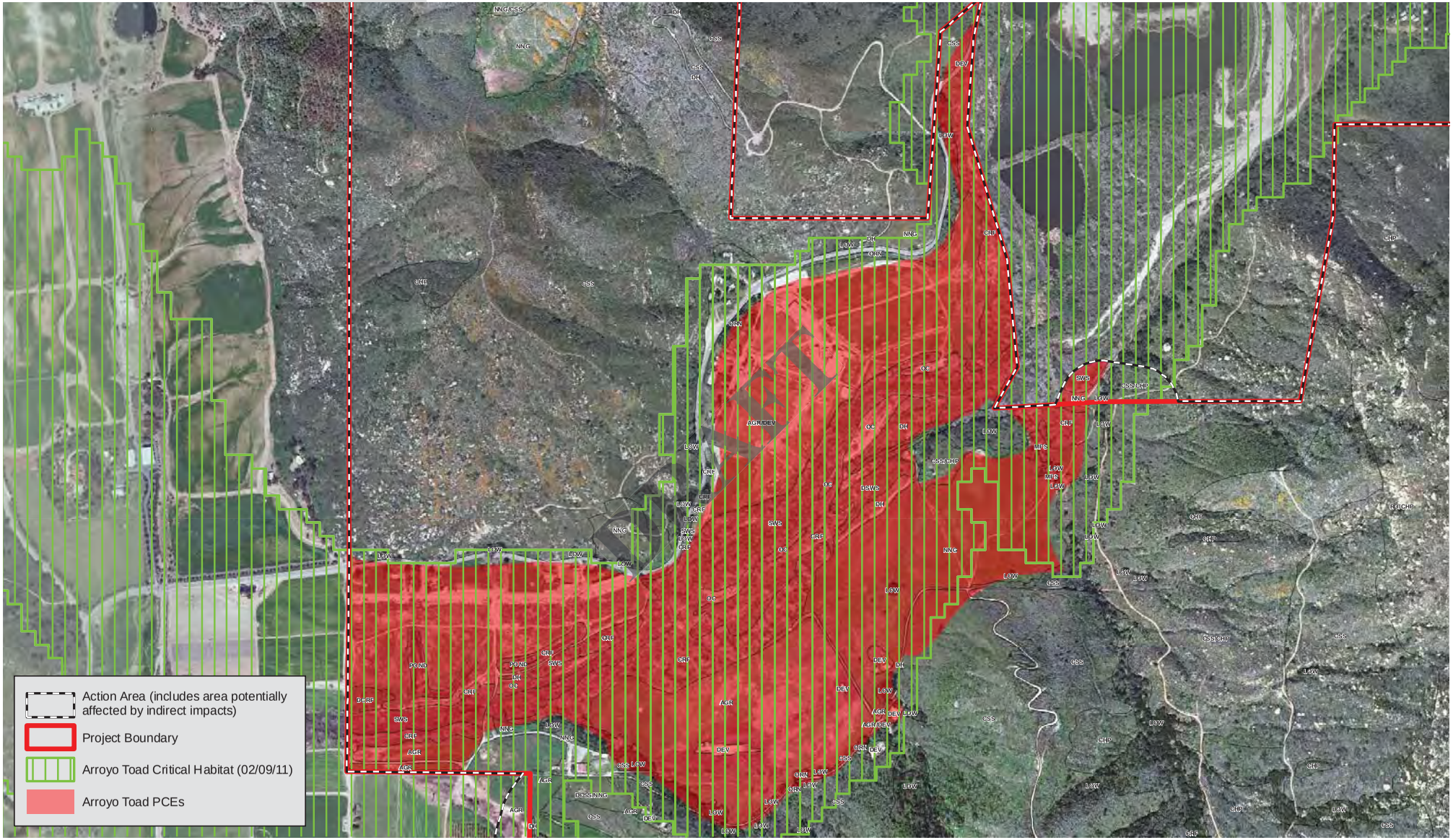
Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

7

- PRELIMINARY WORKING DRAFT -

- PRELIMINARY WORKING DRAFT -



N

0 600 1,200 Feet

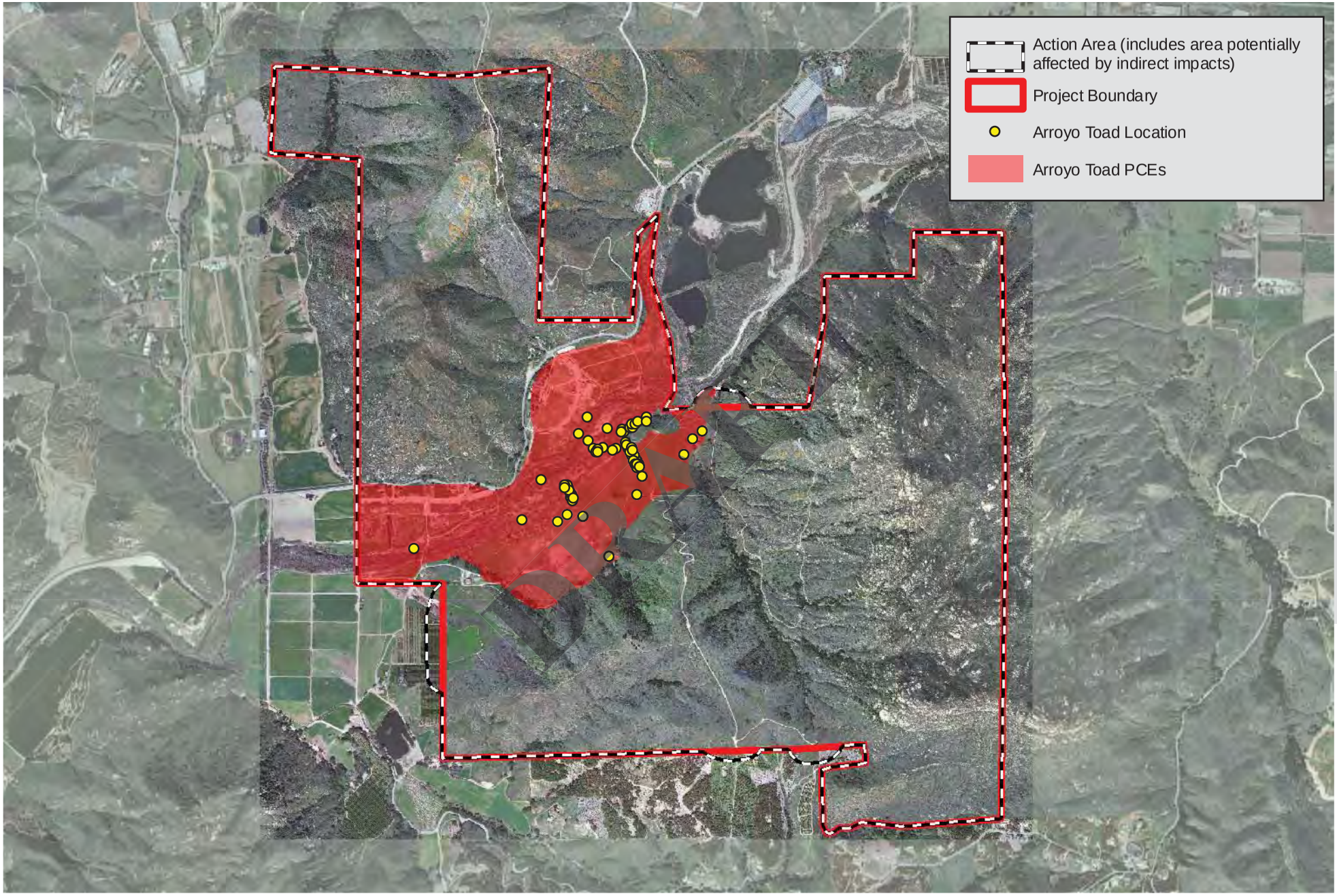
Critical Habitat Supporting Arroyo Toad PCEs

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

8



N

0 2,000 4,000 Feet

Years 1998, 2000 and 2003 Arroyo Toad Locations

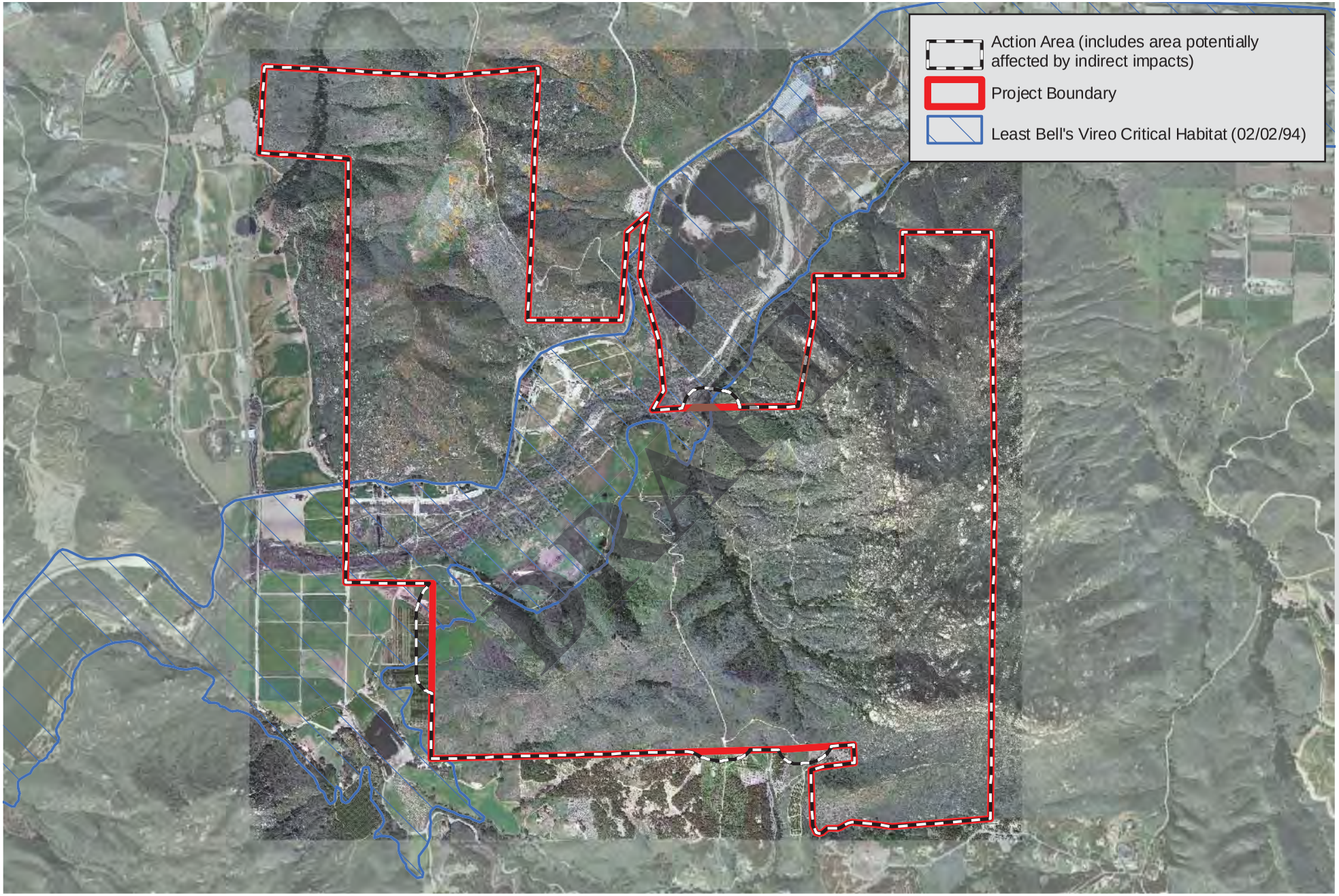
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

9

- PRELIMINARY WORKING DRAFT -



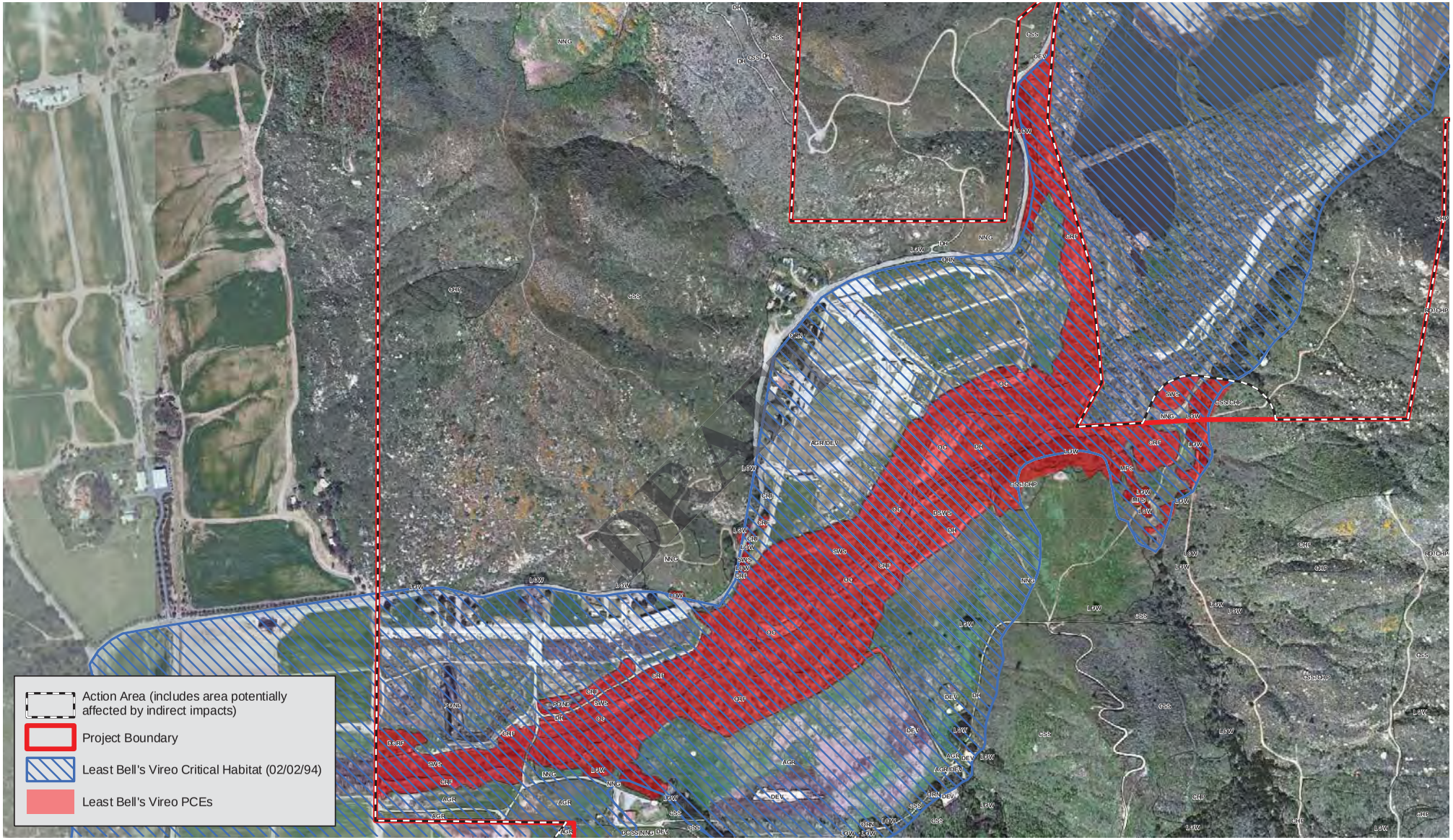
Least Bell's Vireo Critical Habitat

FIGURE
10

Gregory Canyon
Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

- PRELIMINARY WORKING DRAFT -

- PRELIMINARY WORKING DRAFT -



N

0 600 1,200 Feet

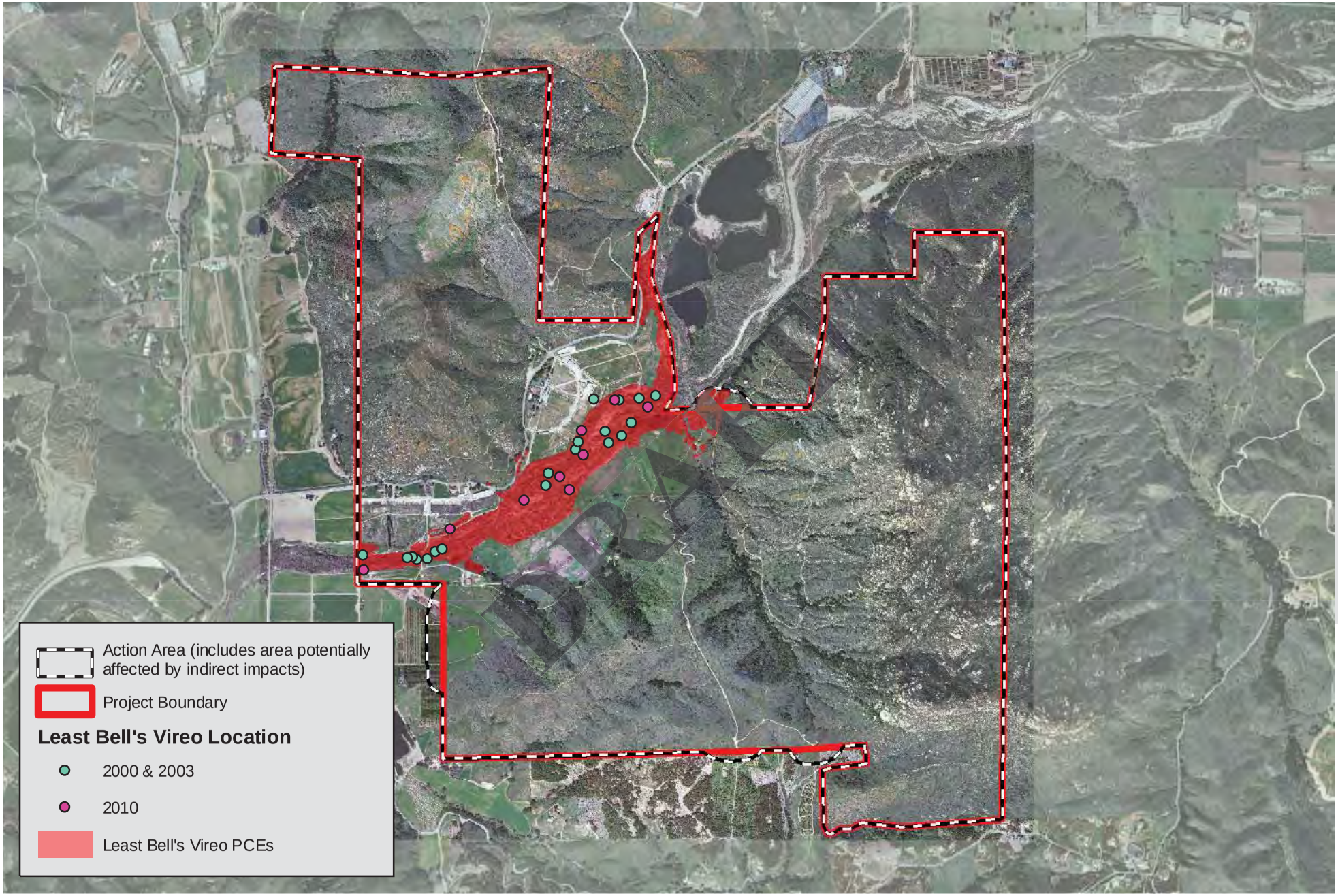
Critical Habitat Supporting Least Bell's Vireo PCE's

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

11



N

0 2,000 4,000 Feet

Years 2000, 2003 and 2010 Least Bell's Vireo Locations

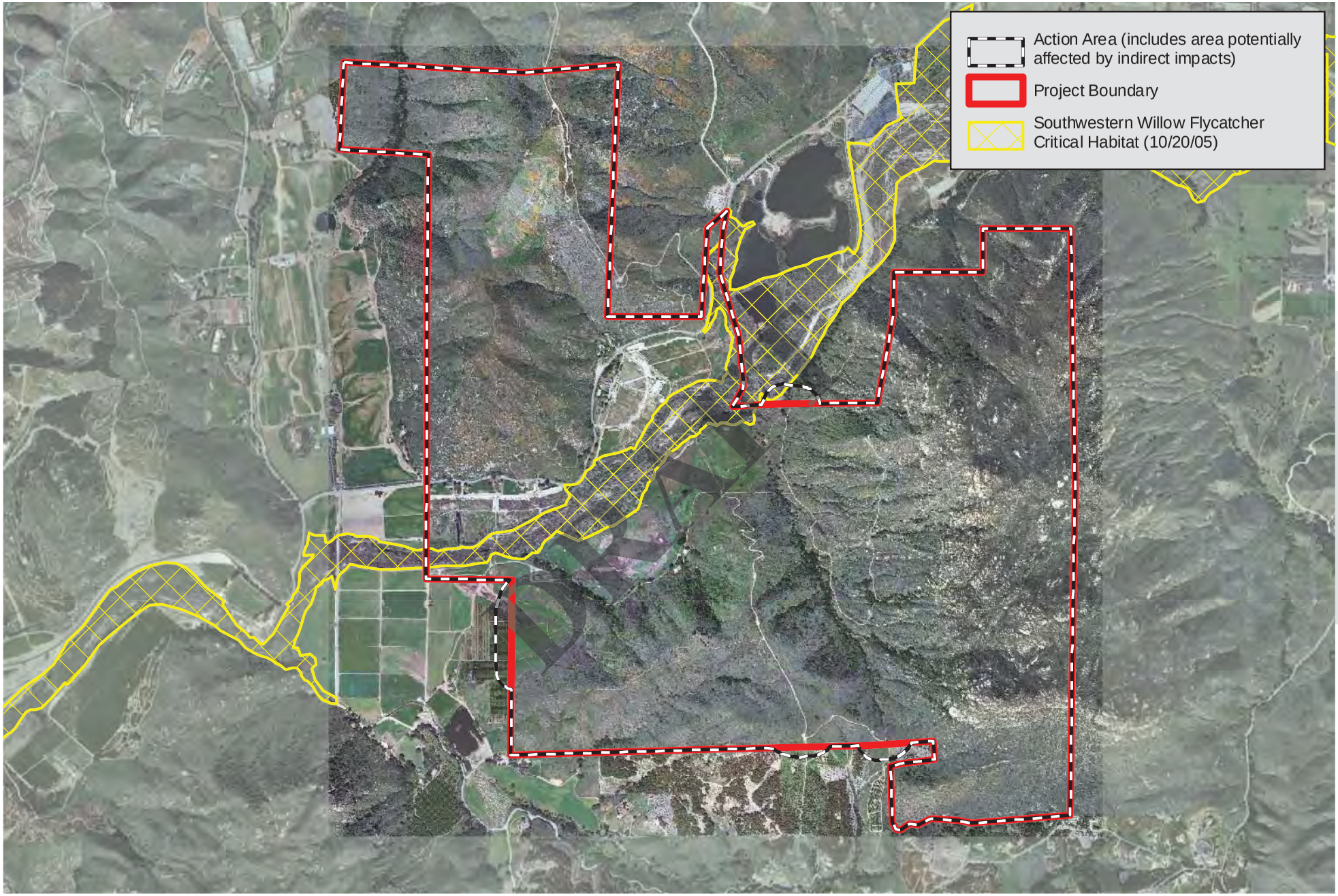
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

12

- PRELIMINARY WORKING DRAFT -



N

0 2,000 4,000 Feet

Southwestern Willow Flycatcher Critical Habitat

Gregory Canyon

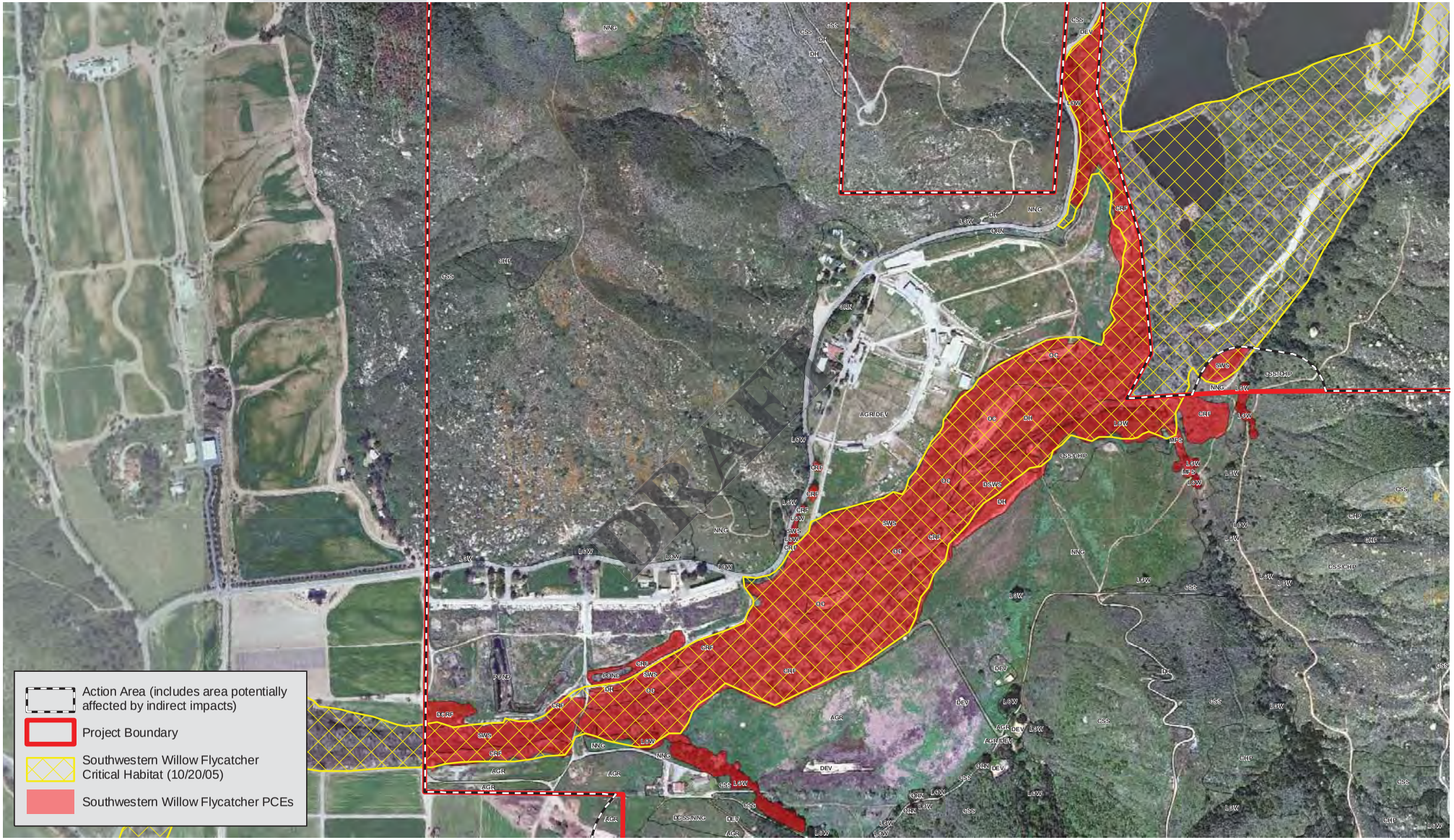
Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

13

- PRELIMINARY WORKING DRAFT -

- PRELIMINARY WORKING DRAFT -



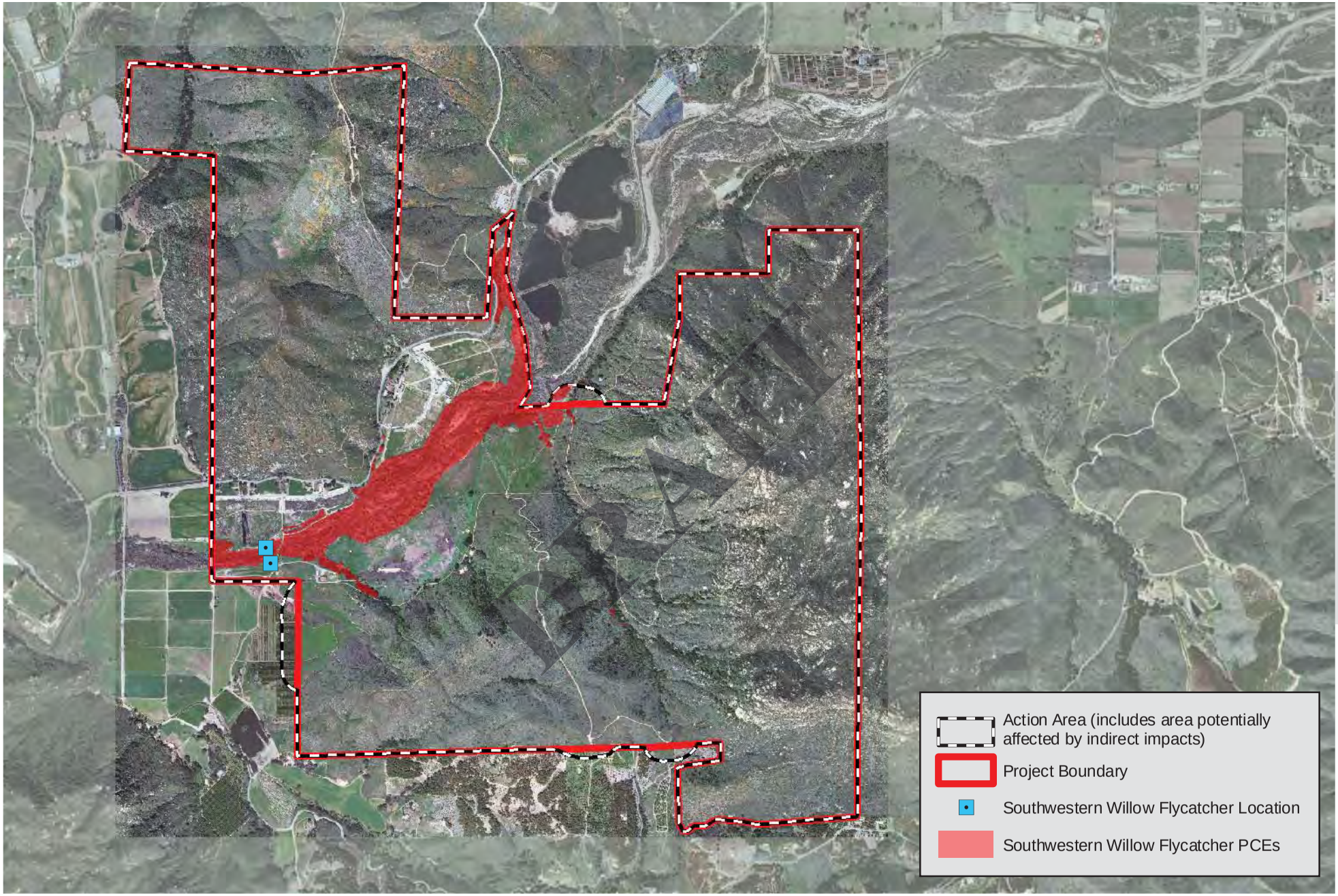
0 600 1,200 Feet

Critical Habitat Supporting Southwestern Willow Flycatcher PCEs

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE **14**



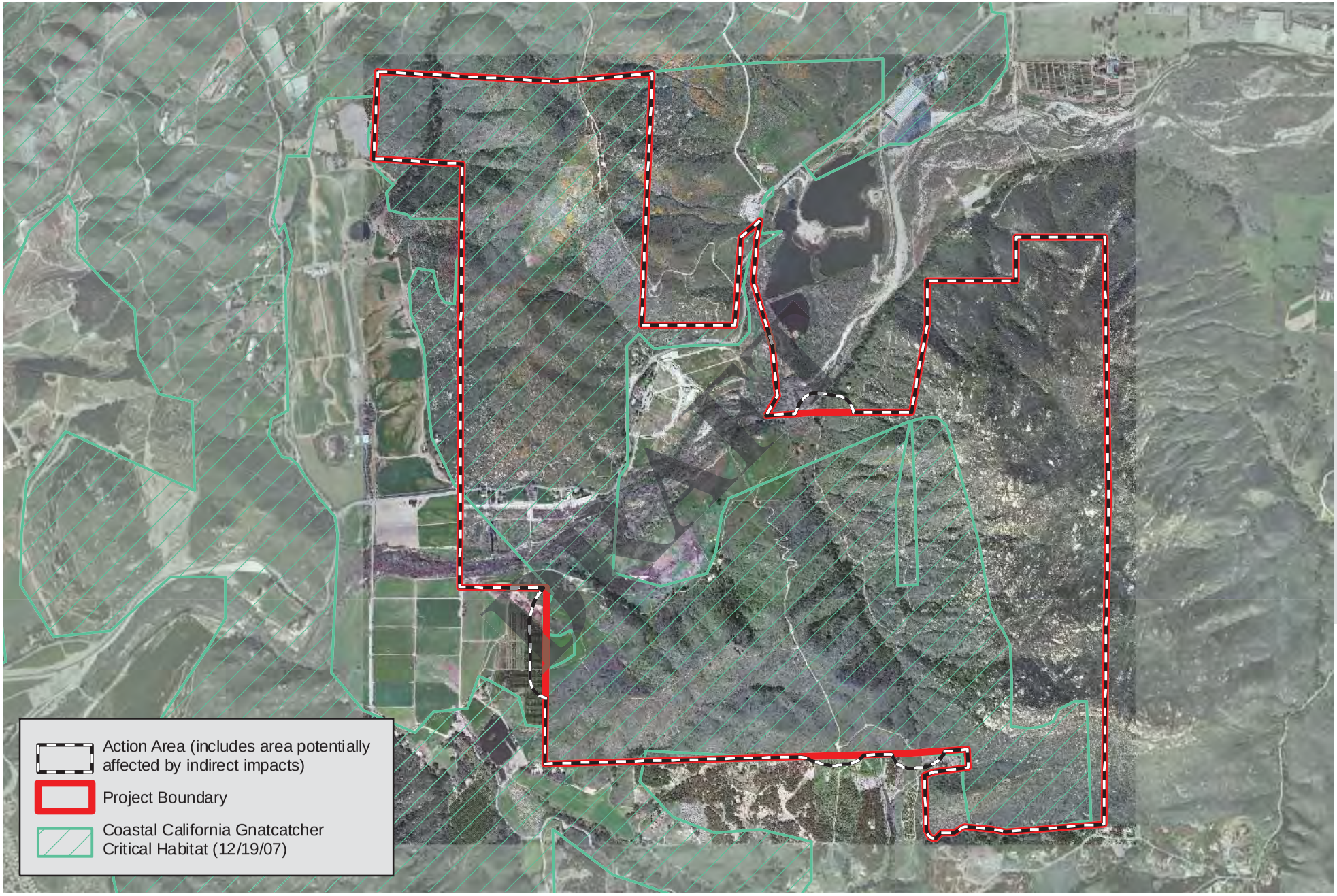
Year 2000 Southwestern Willow Flycatcher Locations

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

15



N

0 2,000 4,000 Feet

Coastal California Gnatcatcher Critical Habitat

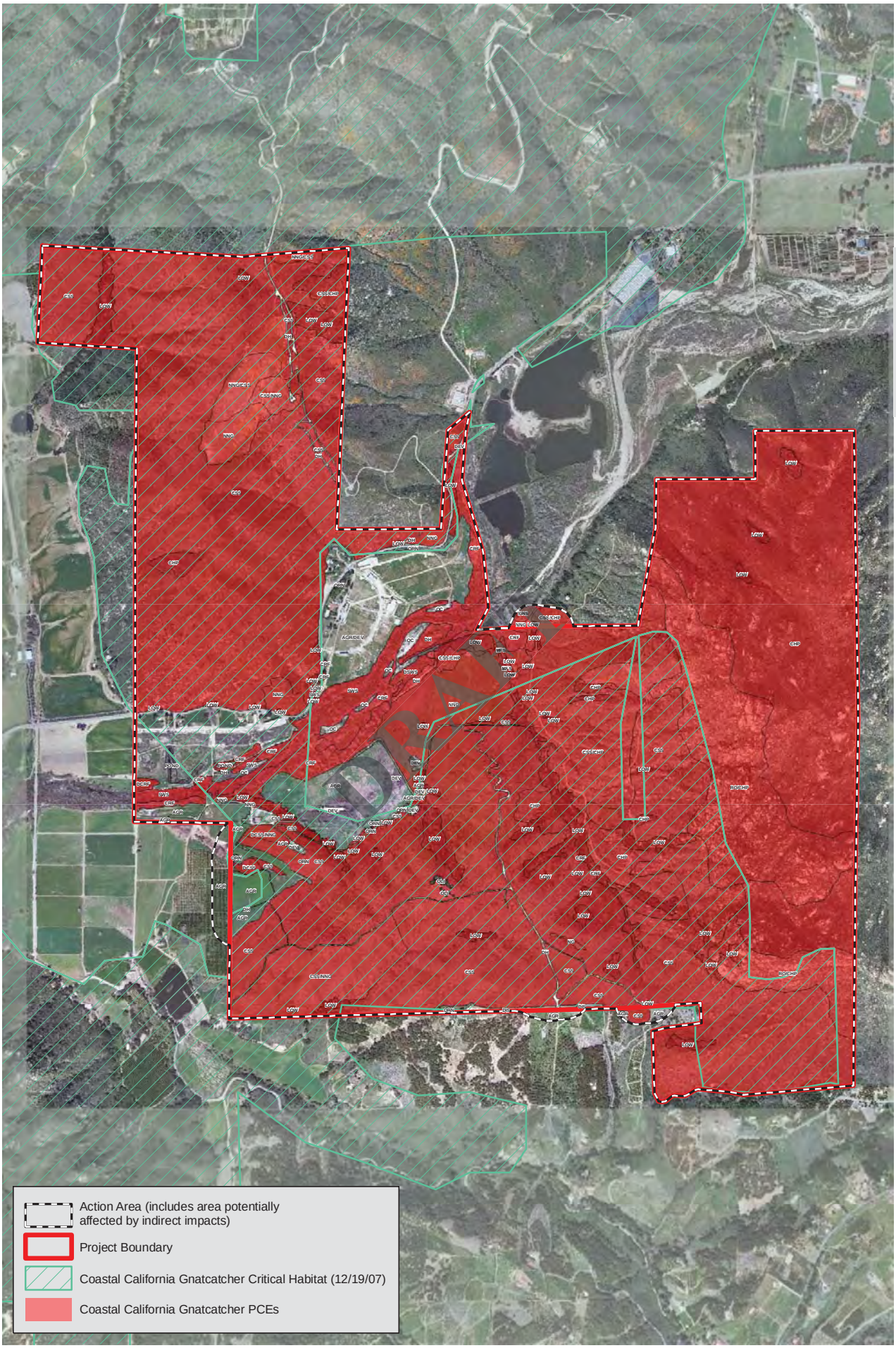
Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE

16

- PRELIMINARY WORKING DRAFT -



Critical Habitat Supporting Coastal California Gnatcatcher PCEs

Gregory Canyon

Source: Aerial Express, 2009; Gregory Canyon Limited, 2012; PCR Services Corporation, 2012.

FIGURE 17

- PRELIMINARY WORKING DRAFT -

APPENDIX G
BIOLOGICAL RESOURCES

The Habitat Restoration and Resource Management Plan (HRRMP) (URS, 2008) was prepared to implement Mitigation Measure 4.9-18 from the Revised Final EIR for the Gregory Canyon Landfill. The focus of the HRRMP is on habitat and species. Pursuant to a Mitigation Monitoring and Reporting Program (MMRP) adopted by the San Diego DEH on May 13, 2011, the HRRMP is required to be implemented as part of the project.

RESTORATION PLAN

HABITAT RESTORATION AND RESOURCE MANAGEMENT PLAN FOR GREGORY CANYON LANDFILL PROPERTY

Prepared for

Gregory Canyon Ltd.
249 South Highway 101 #377
Solana Beach, CA 92075

URS Project No. 27654025.00020

Bill Magdych, Ph.D.

Sundeep Amin

Brian Lohstroh

October 7, 2008
Final Report

URS

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619.294.9400 Fax: 619.293.7920

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Appendices

Appendix A	Property Analysis Record (PAR) Table
Appendix B	Gregory Canyon Landfill Phasing Plan
Appendix C	Sample Qualitative Evaluation Monitoring Sheet
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Plates

Plate 1 Restoration and Enhancement Areas Gregory Canyon Landfill

CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CNLM	Center for Natural Lands Management
Corps	U.S. Army Corps of Engineers
CPI	Consumer Price Index
CWA	County Water Authority
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
GCLF	Gregory Canyon Landfill
HRRMP	Habitat Restoration and Resource Management Plan
QAL	qualified applicator's license
RFEIR	Revised Final Environmental Impact Report
RWQCB	Regional Water Quality Control Board
SDG&E	San Diego Gas and Electric
SSC	Species of Special Concern
URS	URS Corporation
USFWS	U.S. Fish and Wildlife Service

SECTION 1 INTRODUCTION

This habitat restoration and resource management plan includes restoration and preservation requirements for the U.S. Army Corps of Engineers (Corps) 404 permit, Regional Water Quality Control Board (RWQCB) Section 401 Certification, California Department of Fish and Game (CDFG) Streambed Alteration Agreement, and the San Diego County Environmental Impact Report (EIR). This plan provides methods and success criteria for creating 166.0 acres of upland/transitional habitat [including mitigation for 70.4 acres of oak woodland with alluvial scrub and native grassland understory, 14.3 acres of chaparral, 2.0 acres of native grassland, and 79.3 acres of coastal sage scrub/coastal sage scrub (mesic alluvial scrub)], creating 6.5 acres of riparian habitat (including 2.3 acres of mitigation for riparian vegetative communities at the bridge crossing of the San Luis Rey River consisting of southern willow scrub habitat creation, and 4.2 acres of cottonwood riparian forest and cottonwood riparian forest/pond restoration), and enhancing 75.6 acres of riparian habitat (32.7 acres of which will apply specifically to least Bell's vireo and southwestern willow flycatcher mitigation requirements). These areas are referred to in this plan as the restoration area. These figures are an increase over the previous numbers provided in a conceptual plan included in the 2007 Revised Final Environmental Impact Report (San Diego County 2007) (RFEIR), and are a result of the maximization of land available for restoration outside of the landfill footprint. Utility and aqueduct easement acreage has been taken into account and is excluded from the above totals. This plan also addresses maintenance of the restoration area, as well as maintenance of other areas on the landfill property required to be preserved as open space by the land use entitlement for the project. In accordance with the land use entitlement, the combination of the restoration area and other open space areas must be at least 1,313 acres.

This plan updates and replaces the Draft Wetland Mitigation and Habitat Enhancement Plan prepared by Helix (2000). This plan addresses reductions in impacts on Corps jurisdictional wetlands and combines the restoration and preservation effort for upland habitat as well.

SECTION 2 PROJECT DESCRIPTION

2.1 RESPONSIBLE PARTY

Gregory Canyon Ltd. LLC
Contact: Mr. Richard Chase
249 South Highway 101 #377
Solana Beach, CA 92075

2.2 PROJECT LOCATION

The 1,783 acre Gregory Canyon Landfill (GCLF) property is located approximately 3 miles east of I-15 along SR-76, as shown on Figure 1 (33º 20’ 55” W Latitude, 117º 06’ 59” N Longitude).

2.3 BRIEF SUMMARY OF OVERALL PROJECT

The GCLF property includes 308.6 acres that will be used for overall landfill activities (*e.g.*, stockpile areas, ancillary facilities, access road, and refuse disposal), of which 183 acres will be used specifically for refuse disposal. The proposed site will be permitted as a Class III landfill. The proposed project area will also include two designated soil stockpile/borrow areas. Borrow/Stockpile Area A will be located west of the proposed landfill footprint adjacent to the western property boundary, and Borrow/Stockpile Area B will be located immediately southwest and adjacent to the proposed landfill footprint. Other project components include the ancillary facilities area, access road and bridge from State Route 76 crossing San Luis Rey River, internal haul road, and installation of environmental monitoring and control systems.

The construction of a new bridge crossing of the San Luis Rey River to handle ingress to and egress from the Gregory Canyon Landfill will result in approximately 0.368 acres of proposed project impacts to Corps and CDFG jurisdictional wetlands (0.002 acre of which are permanent impacts). This bridge crossing will replace an existing crossing that is located downstream, but which will not be able to support the required equipment during operation of the project. The existing crossing will be abandoned after construction of the new bridge is completed.

Implementation of the proposed project will result in a total of 308.6 acres of impacts to various vegetation communities (Table 1). The RFEIR provides that these impacts will require a total of approximately 543.2 acres of mitigation that will be achieved through on-site habitat restoration (including habitat creation or enhancement) and off-site acquisition/preservation. Project phases are described in Appendix B.

Conceptual habitat restoration areas were provided in the RFEIR. This plan elaborates on the implementation of the habitat restoration. This restoration program will consist of the creation/enhancement of lost and/or disturbed habitat, enhancement of water quality effects caused by the long-term agricultural use of the property, and removal of invasive, exotic plant species. This plan will focus on avoiding take of State and federally listed species, with the overall goal of providing a net increase in suitable habitat for these species. Habitat restoration is only one part of the project’s complete

biological resources mitigation package. A detailed discussion of the complete mitigation package can be found in the 2003 EIR (San Diego County 2003), and subsequent RFEIR.

2.4 JURISDICTIONAL AREAS IMPACTED

The project will result in the temporary impact of 0.366 acre of Federal/State wetlands/waters at the San Luis Rey River for construction of the bridge with an additional 0.002 acre of permanent fill for bridge piers, for a total impact of 0.368 acre. Total impacts on riparian vegetation, including this 0.368 acre of impact, are 0.4 acre of southern willow scrub, 0.2 acre of cotton-willow riparian forest, and 0.4 acre of disturbed southern willow scrub. This total impact of 1.0 acre of riparian habitats will be compensated for through the creation of 2.3 acres of riparian habitat (specifically southern willow scrub) at the bridge crossing on the north side of the San Luis Rey River, plus restored habitat within the temporary construction areas for the bridge. Additional riparian vegetation will be established as cottonwood riparian forest and cottonwood riparian forest/pond on 4.2 acres along the San Luis Rey River, while 75.6 acres of existing riparian vegetation will be enhanced through removal of exotic species within the existing riparian habitat in and along the San Luis Rey River.

The project will also result in impacts on various upland vegetation communities, and this plan also addresses the restoration of upland vegetation communities. Table 1 provides acreages of impacts by habitat type and the associated mitigation required in the RFEIR. This plan addresses the portion of the mitigation, in the form of restoration, which is proposed on-site. Additional mitigation for habitat impacts will also occur off-site. The project impact area and existing vegetation communities are shown in Figure 1. In addition to project mitigation requirements in the RFEIR, this plan also addresses maintenance of additional on-site open space areas as required by the land use entitlement for the project.

2.5 TYPE, FUNCTIONS, AND VALUES OF IMPACTED JURISDICTIONAL AREAS

The types of jurisdictional areas affected by the bridge construction include Federal wetlands, State wetlands, and other waters of the U.S. The proposed bridge location crosses through southern willow scrub, disturbed southern willow scrub, unvegetated open channel, and disturbed habitat in this portion of the San Luis Rey River, which supports populations of least Bell’s vireo, southwestern willow flycatcher, and arroyo toad. The functions provided by the riparian habitat along this portion of the river include foraging and nesting sites for these and other wildlife species. Additionally, the riparian zone associated with the river functions as a wildlife corridor for various species of wildlife including large mammals and birds. This is important in allowing animals and plants to disperse throughout their historic range and maintain population diversity. The impacts on these functions and values for wetlands and waters will be minimal as they are temporary in nature, and they will not be lost as a result of this project. The mitigation for these impacts will result in the creation of 2.3 acres of high quality southern willow scrub habitat, as well as the creation and enhancement of other riparian habitats, which will result in a substantial net increase in these functions and values. These impacted areas, plus upland impact areas and their mitigation are discussed in more detail in the 2007 RFEIR and URS Corporation (URS) California Environmental Quality Act (CEQA) update (2007).

SECTION 3 GOALS OF PLAN

3.1 TYPES OF HABITAT TO BE RESTORED

The goal of the restoration effort is to return the agricultural and developed areas within the property and outside the project impact areas to a state similar to the natural circumstance prior to such land use. Evidence of the natural circumstance can be seen in a 1928 aerial photo of the project site (Figure 2). Based on the photo, much of the area encompassing the project site is undeveloped, with the exception of a relatively small pasture found in what became the Verboom dairy pasture. Overall, the habitat in the valley bottom at the time appears to be subject to, and an artifact of, the occasional flood flows of the San Luis Rey River. Much of the native upland habitat in the area appears to be an open alluvial scrub, with oaks and possibly sycamores dispersed sparsely throughout. Closer to the San Luis Rey River, more mesic vegetation is apparent, possibly including cottonwoods, willows, sycamores, occasional oaks, and other mesic scrub/woodland vegetation.

The habitats to be restored as part of the required mitigation effort to offset impacts of the 308.6-acre landfill and related facilities are chosen in an effort to mimic the area's natural state as depicted in the 1928 aerial photo. Therefore, the following habitat categories are designated to be restored. Sloped and elevated areas in the uplands exhibiting relatively thin soils will be restored to coastal sage scrub, chaparral, and native grassland habitat as appropriate. Gradually sloped, lower areas in the uplands exhibiting thicker, alluvial soils will be restored to oak woodland with an alluvial scrub and native grassland understory. Closer to the San Luis Rey River, the habitat to be restored will transition into mesic alluvial scrub, which is a coastal sage scrub association. In addition, an area near the proposed bridge that was likely filled to support dairy facilities will be graded down in elevation, and 2.3 acre of southern willow scrub habitat will be created in its place. Finally, the entire San Luis Rey River riparian habitat corridor within the property boundaries will be enhanced in the form of exotic species management.

The habitat restoration areas are shown in Figure 3 and Plate 1. Approximate acreages of these areas include creation of 70.4 acres of oak woodland habitat with alluvial scrub and native grassland understory, 14.3 acres of chaparral habitat, 79.3 total acres of coastal sage scrub habitats (including mesic alluvial scrub), 2.0 acres of native grassland habitat, 2.3 acres of southern willow scrub, 4.2 acres of cottonwood riparian forest habitats, and enhancement of 75.6 acres of riverine riparian habitat (Table 2).

3.2 SPECIFIC FUNCTIONS AND VALUES OF HABITATS TO BE PRESERVED, CREATED, AND ENHANCED

The primary goal of the restoration effort is to provide a net benefit to the listed species present within the project area. A large net benefit will result from the creation/enhancement of habitat for arroyo toad, least Bell's vireo, and southwestern willow flycatcher in an area where all three species are already known to occur and can expand into. Least Bell's vireo and southwestern willow flycatcher will specifically benefit from the enhancement of 32.7 acres of existing riparian vegetation in the riverine riparian enhancement area, as well as 2.3 acres of on-site southern willow scrub habitat creation and the enhancement of the remaining 42.9 acres of the riverine riparian habitat enhancement area. The 32.7 acres of riparian area creation/enhancement is directly applicable to least Bell's vireo and southwestern willow flycatcher

mitigation, as the identified areas are both outside of the project facility footprint and cumulative 60 dBA L_{eq} noise contours, and are greater than the 20.0 acres as required in the RFEIR (Figure 4). Exotic invasive plants that have become established in the portions of the San Luis Rey that occur on-site will be cleared, allowing native riparian vegetation to re-colonize, creating improved habitat for both the least Bell's vireo and southwestern willow flycatcher, as well as other riparian species. Arroyo toad will not only benefit from the riparian habitat creation and enhancement, but also from the various upland habitat creation areas as well (specifically 149.7 acres of oak woodland and coastal sage scrub habitats). Currently, the upland areas on-site have ideal sandy alluvial soils for arroyo toad use. However, the dense cover of non-native grasses and annuals, and compaction from decades of agricultural use make these areas unsuitable. Once cleared, controlled for weeds, and planted with sparser native vegetation, these areas will provide excellent upland habitat that arroyo toads can use for foraging and aestivation.

Other species that may benefit from the habitat creation, enhancement, and preservation include various California Species of Special Concern (SSC), and species that do not currently occur on-site, such as California gnatcatcher (*Polioptila californica*).

3.3 TIME LAPSE BETWEEN IMPACTS AND RESTORATION SUCCESS

Implementation of the creation of southern willow scrub, cottonwood riparian forest and cottonwood riparian forest/pond, oak woodland with alluvial scrub and native grassland understory, coastal sage scrub and coastal sage scrub (mesic alluvial scrub), chaparral, and native grassland will be phased to match the phased construction of the landfill. However, all riverine riparian enhancement activities will take place at the initial implementation of the plan. The proximity of the water table to the finished grade of the creation areas will ensure the rapid establishment of the target vegetation. In addition to natural rain and groundwater, the use of temporary supplemental irrigation will quickly germinate native seed, and help rapidly establish the plants to ensure success as soon as possible. All container stock (native trees) will also receive temporary supplemental irrigation via an overhead system as described in Section 5.6, although other methods, such as drip irrigation or DriWater® may also be used, if appropriate. Under ideal conditions, three years of supplemental irrigation from a temporary above-ground system should be adequate to germinate seed and establish native vegetation. However, continued irrigation may be necessary beyond three years if sufficient progress is not being made, as noted from annual monitoring. If this is the case, the site/area will have to be self-reliant for two years without supplemental irrigation to be considered successful, which may then be longer than five years in total. This situation is not likely, and should not be an issue with proper site preparation and maintenance. After the sites have established themselves, the temporary irrigation system will be removed from the site. The entire habitat creation may not be completed until the landfill reaches full build-out in approximately 16 years because of the phased installation of each creation area (project phases are described in Appendix B). With that understanding, each of the above creation areas should be self-sustaining within 5-7 years after installation.

3.4 ESTIMATED TOTAL COST

The total cost of the Habitat Restoration and Resource Management Plan implementation is approximately $18.6 million, and includes maintenance and monitoring of the restoration area for a period of five years after implementation of habitat creation/enhancement, maintenance of the restoration

area for a period of twenty five years thereafter, and maintenance of other open space areas on the property for thirty years. See Section 11 and Appendix A for more detail about the overall cost of implementation, monitoring, and maintenance.

3.5 OTHER HABITAT-RELATED ACTIVITIES

Habitat restoration is considered only part of the activities proposed by the applicant. Other portions of the landfill property will be preserved as open space, and approximately 377 acres of habitat will be preserved off-site (the exact acreage will be determined through consultation with the County, based on EIR mitigation requirements). A second option, as an alternative to acquiring off-site properties, would enable Gregory Canyon Ltd. LLC to pay San Diego County a fee that would be paid in lieu of acquiring the off-site acreage. In the event off-site properties are required, the applicant will submit a revised Habitat Restoration and Resource Management Plan.

SECTION 4 PROPOSED RESTORATION SITE

4.1 SELECTION PROCESS

Conceptual restoration areas were selected during the project's RFEIR process.

4.2 LOCATION AND SIZE OF RESTORATION SITE

The restoration areas are situated along the San Luis Rey River in formerly developed agricultural areas on-site (Figure 3 and Plate 1). The restoration plan includes creating approximately 166.0 acres of upland/transitional habitat and 6.5 acres of riparian habitat. Another 75.6 acres of riparian habitat will be enhanced through exotic plant species management.

4.3 OWNERSHIP STATUS

Gregory Canyon, Ltd. owns the project site, which includes the restoration areas. Easements for the County Water Authority (CWA) and San Diego Gas and Electric (SDG&E) exist on-site (Figure 1).

4.4 EXISTING FUNCTIONS AND VALUES OF RESTORATION SITE

4.4.1 Existing Vegetation Communities

The areas planned for restoration include developed areas, degraded and disturbed native habitat, and habitat supporting non-native species, such as non-native grassland. These areas are consistent with the agricultural/dairy operations that have occurred on-site for several decades. A map showing the current vegetation, and areas planned for creation and enhancement is provided in Figure 3 and Plate 1. The area planned for enhancement supports various riparian habitat communities, such as southern willow scrub and cottonwood riparian forest, along with disturbed versions of some of these habitats. The disturbed riparian habitats often support invasive, exotic species such as giant reed (*Arundo donax*) and tamarisk (*Tamarix* sp.).

4.4.2 Special Status Species

The property supports populations of least Bell's vireo (*Vireo bellii pusillus*, State listed as Endangered [SE], federally listed as Endangered [FE]), southwestern willow flycatcher (*Empidonax traillii extimus*¸ SE, FE), and arroyo toad (*Bufo californicus*, FE). These species breed in the riparian habitat associated with the San Luis Rey River, and the arroyo toad also uses the upland habitat adjacent to the river for foraging and aestivation. As mentioned in the previous section, creation/enhancement activities are aimed at a net increase of suitable habitat for the above-mentioned species. Specifically, the creation and enhancement of riparian habitat is aimed at increasing suitable habitat for least Bell's vireo and southwestern willow flycatcher and increasing arroyo toad breeding habitat, while replacing the developed/non-native grasslands with oak woodland and alluvial coastal sage scrub habitat will provide additional foraging and burrowing habitat for the arroyo toad.

4.5 JURISDICTIONAL DELINEATION

A jurisdictional delineation was completed by URS (2004), and is shown on Figure 5.

4.6 PRESENT AND PROPOSED USES

4.6.1 Restoration Site

Although much of the property currently supports native vegetation communities, the low-lying areas adjacent to the San Luis Rey River have been used for agricultural purposes since the early 1920s and currently contain the remnant fields and structures associated with that land use. Prior to acquisition by the project proponent, these areas were developed into two dairies, complete with large pastures. No longer grazed by cattle, these fallow pastures have transitioned to large non-native grasslands that will be one of the focal points of this restoration plan. The other areas slated for restoration include the developed areas associated with the dairy facilities. These areas will be restored to an upland/transitional habitat and remain undeveloped as dedicated open space.

The riparian habitat associated with the San Luis Rey River supports State and federally-listed species, however, there is a portion of this habitat within the property that supports invasive plant species such as giant reed and tamarisk. This area is slated for habitat enhancement, which will include removal of these invasive plant species. Once the invasive species are removed, native vegetation is expected to naturally re-colonize this area. This area will then remain undeveloped as dedicated open space.

4.6.2 Adjacent Areas

Several native vegetation communities occur on the property (Figure 1), including chaparral, coastal sage scrub, coast live oak woodland, native perennial grassland, southern willow scrub, mule fat scrub, and riparian forest. Other vegetation communities present on-site include agriculture, non-native grassland, ruderal habitat, disturbed habitat, and developed areas. A detailed discussion of these vegetation communities is provided in the 2003 EIR, RFEIR, and URS CEQA Update (2007).

4.7 REFERENCE SITES

A primary point of reference for tracking the progress of the restoration plan will be the 1928 aerial photograph (Figure 2). This photo provides evidence of the site prior to the widespread agricultural development that occurred on-site after this photo was taken. Based on the photograph, the areas currently occupied by development appear to have consisted of an oak woodland and alluvial scrub habitat in the floodplain areas, with sycamores and cottonwoods possibly occurring in the actual flood channel. Additionally, URS biologists used the Wilderness Gardens Regional Park upstream of the project as a reference site to determine the presence of similar habitat, and to come up with a plant palette representative of actual species that occur in the immediate area along a relatively undisturbed stretch of the San Luis Rey River. The specific habitats encountered at the reference site were oak woodland, upland scrub in the 100-year floodplain, and riparian alluvial scrub. Five point-intercept transects were sampled in each habitat community for a total of 15 transects (Figure 6). These communities closely mimic the proposed habitat creation communities and the data collected on the species diversity and composition were considered when creating site specific plant palettes for the project (Tables 3 through 5) (see Section 5.5.1.3).

SECTION 5 IMPLEMENTATION OF RESTORATION PLAN

5.1 RATIONALE FOR EXPECTING IMPLEMENTATION SUCCESS

The restoration areas chosen for this effort support the appropriate hydrological regime and soils with minimal grade modification required. A soils investigation conducted by Geologic Associates (2000) reported that groundwater was present within 7.5-8.5 feet of the surface according to borings conducted at the dairies and within the Verboom pasture. In addition, very little organic content was found near the soil surface (1.17%-4.08%) at these boring locations, indicating that the current soil properties at the site are similar to the original native condition. This low organic content will favor native upland and riparian species, which are adapted to such conditions.

The goal of the restoration plan is to return the site to a condition similar to its native condition, prior to the agricultural development that has been present at the site since the early 1900s. The 1928 aerial photograph (County of San Diego) indicates that much of the uplands on-site were an open, alluvial scrubland with oaks and sycamores. This photograph will help ensure implementation success by guiding the restoration effort, ensuring that the various vegetation communities are planted in the proper areas on-site.

Once the restoration and enhancement efforts are complete, the overall goal of providing a net increase of suitable habitat for the listed species on-site will also be attained. Removing invasive plant species in the riparian habitat will provide more suitable habitat for least Bell's vireo and southwestern willow flycatcher, and replacing large areas of non-native grassland with open oak woodland and alluvial coastal sage scrub habitat associations will provide increased foraging and burrowing habitat for arroyo toad. Increasing the amount of suitable habitat for these species should allow for their populations to expand.

5.2 RESPONSIBLE PARTIES

The restoration team for the project will consist of a qualified biologist and landscape contractor. As necessary, a qualified biologist will work with the project landscape architect to develop landscape construction documents for the proposed habitat creation areas. A qualified biologist will supervise site preparation, plant and irrigation installation (where required), and habitat maintenance, and oversee the five-year maintenance and monitoring period. A qualified biologist and landscape contractor will be responsible for site preparation and exotic species removal, seeding/planting, and irrigation plans (where required) based on this plan. The landscape contractor should have revegetation experience and have successfully completed native habitat revegetation elsewhere in southern California. A qualified biologist will also oversee the habitat enhancement activities within the riparian habitat.

Habitat creation and enhancement activities will be coordinated with the U.S. Fish and Wildlife Service (USFWS) and CDFG within habitat potentially occupied by special status species such as arroyo toad, least Bell's vireo, and southwestern willow flycatcher. The restoration team, as well as other personnel involved with the restoration activities will be familiar with arroyo toad identification and behavior, or will complete a training session given by a qualified biologist detailing with these aspects prior to starting work on this project.

5.3 SCHEDULE

Restoration and enhancement activities in riparian habitat that would adversely affect least Bell's vireo, southwestern willow flycatcher, or arroyo toad will generally be limited to fall and winter months (specifically September 15 through March 15) to avoid disturbing the breeding activities of the special status species present within the project area.

5.3.1 Habitat Creation Schedule

Habitat creation activities will be implemented in phases prior to and/or concurrent with disturbance. The estimated timing and extent of each phase is described in the document entitled Phased Landfill Development Description, Design Features and Mitigations related to Biological Resources, which is included as Appendix B. Reasonable efforts will be made to initiate subsequent restoration phases as far as possible (up to five years) in advance of the disturbance, where practicable, considering ongoing construction and operation of the landfill. The phasing schedule may be altered depending on the volume of waste receipts. Seed application and container planting will be performed in the late summer through early spring, with fall months being preferable. The time of seeding may need to be adjusted by a qualified biologist in response to seasonal variability and weather conditions to help ensure the ultimate success of the restoration effort.

5.3.2 Habitat Enhancement Schedule

Habitat enhancement activities consist of exotic species removal in and around the San Luis Rey River, specifically the Riverine Riparian Management Enhancement Area and Southern Willow Scrub Creation Area. Exotic plant species removal within the entire 75.6 acre riverine riparian management area will take place upon the initial implementation of the restoration plan, and thereafter on an annual basis for a duration of five years, with dead exotic removal conducted on the sixth year, if necessary. If exotic species continue to persist beyond the allowable success criteria percentage, removal will continue until that component of the success criteria is achieved and agency approval is met (Section 9). Active removal activities will take place during the fall months to avoid the breeding season of special status species present within the area. Initial removal will take place in one phase, beginning upstream and moving downstream to minimize seed dispersal.

Habitat enhancement activities will be reported to the agencies as part of the reporting program for the habitat restoration. Reported items will include mapping of areas were specific exotic removal activities were conducted, methodology used (*e.g.*, hand tools vs. herbicide application), an evaluation of the success of the enhancement program, and photo-documentation.

5.4 SITE PREPARATION FOR HABITAT CREATION

5.4.1 Initial Preparation

Initial site preparation will involve removing fences, unnecessary power poles, structures, and concrete reinforced areas such as foundations and other dairy-related paved areas. The use of herbicide will be the most cost efficient and effective means of control because of the large concentration of non-native grasses

and other ruderal species in the fallow pastures, along with the equally large seed bank as a result of decades of agricultural use. Again, it is recommended that several (at least two if not more) "grow-and-kill" cycles be implemented to help reduce the exotic species seed bank in the restoration areas because of the large seed bank and ability to phase installation of the restoration areas. Other methods that may be used include hand removal, mowing, goat grazing, or similar methods. Removal of dead vegetation will be conducted by a combination of raking, mowing, or similar activities with a focus on minimizing seed dispersal.

As development begins, the soil seed bank of undisturbed, native habitat will be conserved where possible by stockpiling topsoil from areas that will be developed. Stockpiling and spreading the topsoil on areas that will be revegetated will conserve mycorrhizal fungi, bacteria, and other beneficial soil micro-organisms that help promote plant establishment and growth.

Measures to minimize take of the listed species during the restoration activities will be evaluated and implemented by the restoration and monitoring biologists. Factors considered will include timing of exotic removal in the riparian habitat to avoid take of least Bell's vireo, southwestern willow flycatcher, and other nesting birds; the minimization of the use of herbicides in riparian areas to avoid negative effects on aestivating arroyo toads; evaluating the need to use alternative means of vegetation clearing such as goat grazing; and evaluation of the need to install arroyo toad exclusionary fencing in areas that will require mechanical disturbance.

Arroyo toad exclusionary fence installation can be an effective means of safely excluding the species from areas that will be cleared of non-native plant species through mechanical means. The fence is comprised of a silt screen type barrier at least 24 inches high and partially buried to exclude toad access via burrowing. Surveys conducted by a biologist permitted to handle the species are conducted subsequent to fence installation to remove any toads that are found within the exclusion area. The fence will remain installed until after necessary mechanical disturbance is completed. Surveys will be conducted during appropriate climatic conditions and during the appropriate time of day or night to minimize the likelihood of encountering arroyo toads. If climatic conditions are not appropriate for arroyo toad movement during the surveys, a qualified biologist may attempt to illicit a response from the arroyo toads, during nights (*i.e.*, at least one hour after sunset) with temperatures above 50 degrees Fahrenheit, by spraying the project area with water to simulate a rain event.

Areas that have a higher potential to support arroyo toads, and therefore, may require exclusionary fencing include the riparian habitat creation areas, as well as the upland/transitional habitat creation areas on the south side of the San Luis Rey River. The Verboom and Lucio Dairy facilities on the north side of the river have lower potential to support arroyo toads given the developed nature of these areas. Exclusionary fences may be required along the riparian corridor, however, to keep arroyo toads out of these habitat creation areas during the mechanical clearing of the developed areas.

5.4.2 Weed Eradication

Competition from invasive, non-native plant species can hinder the re-establishment of native vegetation. Non-native species can out-compete native species, reduce diversity, and degrade the habitat for wildlife. Undesirable exotic plants will be eradicated either during initial site clearing or prior to site preparation. If clearing precedes planting by more than a few months, it will be necessary and advantageous to re-

eradicate undesirable exotic plants that have become re-established prior to planting and seeding of the revegetation areas. If deemed necessary by a qualified biologist, two or more "grow-and-kill" cycles will be established during that period. A "grow and kill" cycle is a cycle of applying water, germinating the non-native, invasive species, and spraying with the appropriate herbicide. This allows a large portion of the seed load currently present in the soil to be removed. Removing competition early in the life cycle of native plants helps to ensure more rapid growth and cover of the native species.

The initial eradication of pest plants will be performed by herbicide application, mechanical means, by hand, or by other methods as approved by a qualified biologist during the non-breeding season. If vegetation clearing by mechanical means or through the use of herbicide application is considered unfeasible, grazing by goats or similar livestock can be an effective means of vegetation removal, if managed correctly. Goats can be indiscriminant in their food choice, however, and eradicate desirable native species as well. Furthermore, positive results from grazing are often not achieved unless repeated over a few years, and can be difficult to achieve without the supplemental application of herbicides (Lym et al. 1997).

Weed control will be maintained throughout the monitoring period. It is important that weeds are controlled before they set seed. Ongoing weed control will be accomplished by use of tools to uproot the entire plant, mowers, weed whips, herbicide application, or other suitable methods.

The type, quantity, and method of herbicide application will be determined by a landscape contractor qualified to apply herbicide. To apply herbicides in California, the landscape contractor must have a qualified applicator’s license (QAL). Herbicide recommendations include, but are not limited to, the herbicide to be used, rates of application, weather conditions during application, methods of application, and areas to which pesticides are to be applied. Herbicide recommendations will be submitted to a qualified biologist for approval

A qualified biologist will direct the landscape contractor regarding the selection of target weed species, their location, and the timing and method of weed control operations to ensure that native plants and breeding wildlife are avoided to the greatest extent possible.

5.4.3 Soil Preparation

Depending on the degree of soil compaction and location (within arroyo toad excluded areas only), the soil should be lightly tilled or ripped to reduce soil compaction, increase aeration, and help facilitate healthy root growth. Except as described for container planting or if deemed appropriate by a qualified biologist, fertilization will not take place as part of this revegetation plan. Fertilization with nitrogen or phosphorous-based chemical fertilizers has been shown to favor exotic species over native plants in many sites throughout southern California (Grime and Hunt 1975; Grime 1978). Many species native to arid regions have evolved under low nutrient conditions and are adapted to non-fertilized soils.

5.4.4 Mycorrhizal Inoculum

The presence of intact soil that has developed under local site conditions will likely contain appropriate mycorrhizae without the need for supplemental mycorrhizal soil amendments. This will aid in the establishment of plants from seed and container plantings. Although not necessary, appropriate container-

grown plants, except those known to be non-host species, may be inoculated with mycorrhizal fungi prior to delivery to the job site.

5.5 HABITAT CREATION PLANTING PLAN AND SPECIFICATIONS

5.5.1 Habitat Creation

Habitat creation within the designated areas on the property will entail the use of three different revegetation methods, including seeding, container plant installation, and planting of cuttings. Emphasis will be placed on the use of on-site plant materials, then local, then regional materials. Seed not procured on-site will be purchased from a qualified native plant nursery using material sourced from the local or regional Southern California area because of the lack of sufficient donor material on-site or because of the lack of similar existing on-site habitat in relation to the target habitat. To the extent practicable, plant material will be derived from the native species on-site before the site is graded, or from the dedicated open space area as available.

5.5.1.1 Container Plant Procurement

Container plantings will be used where appropriate for habitat creation. Container plantings for the project will consist mainly of tree species, and possibly willow and mulefat shrubs. Plant sources from the Southern California region will be used, with an emphasis on using material derived from the native species on-site where practicable. Container plants will be grown at a qualified native plant nursery into container stock for future planting on-site. All container plants will be inspected for pests and diseases prior to installation into any restoration area, preferably immediately after delivery. Plants that are found to be diseased or infested with pests will be immediately removed from the site. The density of plantings should follow the recommendations in Tables 6, 7, 8, and 10. Temporary supplemental irrigation will be installed in appropriate areas to help ensure the establishment and growth of the container stock. Irrigation soil supplements (*e.g.*, DriWater®) will be used with container plants in areas not irrigated.

The potential to transplant existing mature oak trees onsite from within the disturbance areas to habitat creation areas will be evaluated. Transplantation of large oak trees can be very difficult with limited success in optimal conditions. It is necessary that oak trees to be moved be located in deeper soils and that the trees not be too large to allow the use of a tree spade that can collect a suitable root ball. Most of the oak trees on-site in disturbance areas are within shallow, fractured rocky soils or bedrock on steep slopes, and most trees are very large such that transplantation may be difficult, especially successful transplantation.

5.5.1.2 Seed Sources and Procurement

Seed from native species within the restoration areas will be collected as practicable to promote establishment of desired species on-site. Seed not collected on-site will be purchased from a qualified native plant nursery or native seed supplier site using material sourced from the general Southern California area. Additional seed may be needed after the initial seeding/planting and can be sourced from outside the project site (within the Southern California area) for additional plant material that may be

needed during the five-year maintenance program. Seed will be used for direct seeding of designated areas and will also be germinated and grown in containers for use as container plantings on-site.

For on-site collection, seed would be collected by hand in the fall and placed in moisture resistant, breathable collection bags, labeled by species and collection date. Collections would be made from as many different individuals as possible within each species to help ensure genetic diversity in the collected sample. No more than 25% of the seed would be removed from any individual plant to help ensure the viability of the natural population, except in areas slated for development, in which case most of the seed would be harvested.

5.5.1.3 Revegetation Plant Palette

The plant palettes for the Gregory Canyon restoration effort were selected after extensive research, local reference site surveys, and site-specific native habitat composition observed on-site. The palettes (Tables 6 through 12) are organized by vegetation community within the restoration area and include native trees, grasses, forbs, subshrubs, and riparian species that occur locally. These palettes include container plantings and cuttings, and comprise a complete revegetation plan for the project. A qualified biologist may make substitutions to any palette as necessary, depending on availability of plant material and/or variability of site conditions.

5.5.1.4 Plant Distribution and Layout

Container plantings and cuttings should be distributed more or less evenly over the restoration areas, except as otherwise specified or directed by a qualified biologist. Crowding of plants must be avoided. The mature size of each species and their normal distribution and associations in nature should be considered before installation. Plant species should be located where favorable conditions are present, recognizing that this could have some impact on even distribution. A qualified biologist may follow the methods found most efficient, but one method is to begin with the species that are to be planted in the smallest quantities followed by the species to be planted in larger quantities.

5.5.1.5 Container Plant Installation Procedure

The planting hole will be of sufficient depth so that the top of the root ball is set one-inch above finish grade. The sides and bottom of the planting hole should be scarified as necessary to aid future root penetration. Plants should be removed from containers without damage. It may be necessary to wash some or the entire growing medium from the roots with some plants. Plants should not be left out of containers long enough to damage roots. If the root mass can be flattened along one plane without damage, the roots can be spread out on one (lower) side of the planting hole (which should be scarified as necessary to aid future root penetration) to mimic the normal pattern of the root system as if it were not grown in a container. The planting hole will be backfilled with native soil to proper planting depth, and compacted as necessary to firm the soil sufficiently to keep the plant erect.

A three-inch high, compacted earthen berm approximately 36 inches in diameter will then be constructed around each container plant. This watering basin will be maintained until the plants are no longer irrigated. Mulch may be applied as a top dressing 2 to 3 inches thick, but must not harm the stem of the plant.

Immediately upon planting, the container stock will be watered. If sufficient compaction has not been done, a muddy condition may result, in which case, additional soil and compaction may be necessary after the surplus free water has drained. Additional water should be applied upon completion to settle the disturbed soil in the planting area. The entire planting operation must be completed quickly and without interruption.

5.5.1.6 Cutting Installation Procedure

Cuttings of mulefat and willows will be planted in the riparian habitat creation areas. Source material will compose of mature shrubs and trees found close to the restoration site, as they are adapted to site conditions. Planting should take place at sites that have an appropriate amount of soil moisture to support either mulefat or willow, such as after winter rains have moistened the soils or if the water table is close to the ground surface. Mulefat can generally tolerate drier conditions than willows.

Specific stem cutting procedures include taking cuttings that are as straight as possible and at least 1½ feet long, and from ½ to 1-inch in diameter. If cuttings are substantially longer, they may be re-cut to smaller lengths. However, cuttings placed in or near the groundwater table should be sufficiently long enough to reach the water table. A few cuttings can be taken from an individual shrub or tree, however, over-pruning should be avoided. The stems should be cut so that the bottom end is at an angle, to help identify which end to put into the ground. Cuttings will be stripped of leaves to keep the cutting from drying out. If the cuttings will not be planted right away, they can be stored in a bucket of water for one to two weeks.

5.5.1.7 Seeding Specifications and Techniques

The seeding of native plants should take place in the fall, before the onset of the rainy season, immediately after site preparation. Once applied, the seed should be raked in by hand to conform to the existing ground surface. The seed should also be lightly compacted to provide continuity between soil and seed, and reduce erosion.

5.6 HABITAT CREATION IRRIGATION PLAN

With the slight contouring lowering appropriate restoration areas, there should be enough water present to sustain healthy plant establishment. As such, temporary supplemental irrigation will only be used to water the seeded areas and container plants until they are established. Excessive irrigation should be avoided to prevent disease, excessive growth and competing weeds. The landscape contractor will be responsible for the ongoing maintenance and repair of irrigation of components during the monitoring and plant establishment periods. The irrigation system will be installed above-ground so that it can be removed without damaging vegetation.

Certain areas slated for habitat creation/enhancement may not be suitable for irrigation because of the presence of special status species or physical site conditions. Non-irrigated areas will rely on seasonal rainfall and groundwater access. Other methods of watering could be considered for use to specifically target the container plantings if necessary, such as drip irrigation or DriWater®. A single quart of DriWater® will provide enough water to sustain a small shrub for up to three months, depending on the type of plant, extent of its root structure and specific existing soil and climatic conditions. The DriWater®

should be replaced as necessary depending on the condition and requirements of the individual plant. Determination of the use of this product or other means of watering will be made in the field by a qualified biologist.

5.6.1 Irrigation Water Volume and Frequency

The landscape contractor will be responsible for applying sufficient irrigation water to adequately establish new plant materials, and germinate and establish the applied seed. Irrigation water will be applied in such a way as to encourage deep root growth (periodic deep irrigation versus frequent light irrigation). The landscape contractor will allow soil to dry down to approximately 50- to 60-percent of field capacity (in the top six or 10 inches after germination and during seedling establishment) before the next irrigation cycle. Wetting of the full root zone and drying of the soil between irrigation events is essential to the maintenance of the plants and the promotion of a deep root zone that will support the vegetation in the years after establishment. A soil moisture probe or shovel will be used to examine soil moisture and rooting depth directly. During dry periods after plant installation, a qualified biologist and/or landscape contractor will regularly inspect soil moisture. Watering during the late growing season will occur as frequently as required to maintain soil moisture and prevent mortality of plants/seedlings. During dry conditions, the soil moisture level should not fall below 30 percent of field capacity.

5.7 HABITAT CREATION AS-BUILT CONDITIONS

Following the completion of all grading, preparation, and installation of the revegetation areas, an As-Built report will be completed by a qualified biologist and submitted to the appropriate agencies within 90 days. This report will include photographs, photo-documentation locations, sampling plot locations, a description of the baseline conditions for each area including species seeded/planted and densities if applicable. Additionally, deviations from this restoration plan will also be noted. Based on the phased nature of the installation of the restoration/landfill construction, there may be multiple reports as each restoration area is completed.

5.8 HABITAT ENHANCEMENT

Exotic, invasive plant species found within the riparian habitat associated with the San Luis Rey River include giant reed and tamarisk among others. If left unchecked, these species can out-compete native riparian plant species and take over large areas. Additionally, this shift in habitat type can be detrimental to native wildlife species, including the listed species present within the property.

A qualified biologist will oversee the habitat enhancement activities, and be responsible for hiring subcontractors capable of conducting proper exotic plant species removal and herbicide application. Prior to the removal activities, the management area will be surveyed with the aid of a GPS unit accurate to within five meters to locate and delineate areas requiring exotic plant species removal.

Exotic plant species removal within the riparian habitat associated with the San Luis Rey River will be conducted with hand tools when possible. No wheeled or tracked vehicles will enter the habitat during the removal activities. If necessary, plant-specific application of herbicides currently approved by the Environmental Protection Agency (EPA) for use in wetlands will be used. Specific techniques may

consist of application via a backpack or other sprayer, and/or the cut/paint technique (cutting of the plant, followed by immediate direct application of herbicide to the freshly cut stump). No herbicide will be applied to native riparian vegetation.

Removed and trimmed exotic vegetation, including stalks, roots, flowering structures, and seeds will be removed from the area and disposed of properly off site or in the landfill to avoid further exotic species dispersal within the riparian corridor. Dead exotic plant remnants that have undergone herbicide treatment will be removed by the following year, if they persist. This will facilitate recolonization of native riparian species while allowing for some erosion control in the meantime. If deemed necessary, native species cuttings will be planted in areas cleared of exotic species. Cuttings will not be planted in active flow zones, or in areas that may support arroyo toad breeding.

SECTION 6 INITIAL MAINTENANCE OF RESTORATION AREAS

The purpose of this maintenance program is to ensure the success of the habitat creation plantings. Maintenance will occur over the first five years after implementation of each restoration area or until success criteria/performance standards are met. A qualified biologist will monitor all aspects of the revegetation in an effort to detect problems at an early state. Potential problems could arise from irrigation failure, erosion, vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation.

These maintenance guidelines are specifically tailored for native plant establishment. The maintenance personnel will be fully informed regarding the habitat establishment program so they understand the goals of the effort and the maintenance requirements. A landscape contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel. Damage to plants, irrigation systems, and other facilities occurring as a result of unusual weather or vandalism will be repaired or replaced immediately.

6.1 MAINTENANCE ACTIVITIES AND RESPONSIBLE PARTIES

6.1.1 Irrigation System Maintenance

The landscape contractor will be responsible for the regular maintenance and repair of all aspects of the irrigation system. Poorly functioning or non-functioning parts will be replaced immediately so as not to endanger the plantings.

General system checks will be conducted no less than weekly for the first month after installation to assure the system is functioning correctly and monthly thereafter, except during periods when the irrigation system is not in operation as recommended by a qualified biologist. The irrigation system will be removed at the conclusion of the initial maintenance period such that vegetation and soils are not damaged or substantially disturbed.

6.1.2 Weed Control

The restoration areas will be weeded continuously during the entire maintenance period. Weed eradication will minimize competition that could prevent the establishment of native species. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

As weeds become evident, they should be immediately removed by hand or controlled with an appropriate herbicide as determined by a properly licensed landscape contractor. A qualified biologist will be consulted and approve herbicide application in advance. Weed debris will be removed from the project area as it accumulates and disposed of as permitted by law.

Weeds should be manually removed or sprayed before they can attain a height of three-inches (3") at intervals of not more than 30 days for the first two years following planting. If manually removed, all portions of the plant will be removed, including the roots. A qualified biologist will direct the landscape

contractor regarding the selection of target weed species, their location, and the timing and method of weed control operations to ensure that native plants are avoided to the extent possible.

A cleared space should be maintained 18 inches from the base of each container plant to minimize competition from other plant species. Mulch, two-inches thick within the watering basin, may be applied throughout the maintenance period to achieve this. Leaf, branch drop, and organic debris of native species, will be left in place.

6.1.3 Plant Replacement

The landscape contractor will be responsible for replacing all container stock plants terminally diseased or dead for 120 days after plant installation as recommended by a qualified biologist. Replacement plants should conform to the species, size requirements, and spacing as specified for the plants being replaced, unless unavailable. The replacement plants will be purchased from inventory at the same native plant nursery as were the contract-grown plant stock. Furthermore, if sufficient density/cover values are not being met based on monitoring data, additional container plants may be replanted to compensate.

6.1.4 Erosion Control

The loss of soil or sediment to erosion should be minimized with the use of silt fencing, fiber rolls, jute matting and/or straw bales where necessary (*e.g.*, high velocity flow areas, steep slopes). The need for erosion control is expected to be limited given the relatively flat terrain in the habitat creation areas. Erosion control will focus on sloped areas and areas that potentially support water flow.

6.1.5 Horticultural Treatments

6.1.5.1 Pest Control

Young shrubs will be monitored for signs for disease, insect and/or herbivory damage, and treated as necessary. Badly damaged plants will be pruned to prevent spreading of the pestilence or replaced in kind if removed. Excessive foraging by herbivorous animals may necessitate protective screening around plants. A qualified biologist will be consulted on pest control measures to be implemented if this becomes an issue.

6.1.5.2 Fertilization

If nutrient deficiencies are observed during site monitoring, a qualified biologist may specify applications of slow-release pellet fertilizer or soil amendments to speed initial growth or as a remedial measure. These applications will occur at the onset of the rainy season following the manufacturer's recommendations. Fertilizer will not be applied other than under the explicit direction of a qualified biologist.

6.1.5.3 Pruning

No pruning is necessary unless otherwise specified by a qualified biologist. Dead wood will be left on shrubs or where it has fallen as it plays an important role in micro-habitat creation and soil biogeochemistry.

6.1.6 Site Protection

The site will be adequately protected from disturbance, such as trampling/trespassing/vandalism by humans. In some instances, this may be achieved with the installation of a fence or posting of signs around restoration areas.

6.1.6.1 Vandalism

The landscape contractor will deal with vandalism issues in coordination with a qualified biologist. Corrective and preventative actions could include additional fencing, placement of vehicle barriers, and posting of signs.

6.1.6.2 Trash and Debris Removal

The restoration areas will be well-maintained in order to deter vandalism and dumping of trash. The contractor is responsible for avoiding impacts to plantings during trash removal activities. The landscape contractor will, during routine maintenance, manually remove weeds, liter, trash, and debris from the restoration site and dispose of as permitted by law. Woody debris will be left in place in the revegetation areas.

6.2 MAINTENANCE SCHEDULE

After the initial non-native species eradication and associated planting effort has been completed, both habitat creation and enhancement areas within the restoration site will be monitored for non-native species and trash on a monthly basis. A proposed schedule of maintenance activities discussed above is provided in Table 13, covering the projected five-year duration of the initial maintenance.

SECTION 7 INITIAL MONITORING PLAN FOR RESTORATION AREAS

7.1 PERFORMANCE STANDARDS

The success of habitat restoration is defined as the restoration of a functional ecosystem. Success is usually measured by percent coverage by target species. Natural habitats rarely exhibit 100-percent coverage; but rather, include a considerable proportion of open spaces. While this monitoring program uses percent coverage criteria, it is noted that determination of successful coverage is expected to be relative to other similar native habitats typical of the region. Existing on-site native habitat patches adjacent to restoration areas will be used to assess riparian habitat restoration success. Restoration success for habitats not adequately represented by adjacent areas on-site, such as alluvial coastal sage scrub, will be assessed using suitable off-site areas such as Wilderness Gardens County Park. Initial transects of relatively intact native habitat patches will be collected to verify the quantitative cover criteria proposed in this plan. Localized adjustments in the cover criteria can be made so that the restoration areas will blend in with the adjacent intact native habitat patches.

The means of determining successful restoration for this site will be through a series of measurements for species composition/diversity, exotic species cover, container plant survival, and cover by native species as described in Tables 14-16. All of these, except non-native species cover, should increase over time. Cover by non-native species should decrease with time, particularly because one of the primary goals of the project is to substantially reduce or eliminate non-native species from the restoration site.

Target cover values and community diversity requirements for each area are based on reference information gathered from the Wilderness Gardens County Park (Tables 3-5). Target cover values differ between areas to reflect the differing vegetation density associated with each distinct area and was corroborated with the data gathered at the reference site. Diversity requirements are also included to ensure ultimate success will reflect some measure of long term diversity after success criteria are met rather than allowing an area to be deemed successful if a monoculture of a native species met the cover success criteria. A monoculture of one native species might meet the cover success criteria, but not provide the functional benefits of a diversity of species and is to be avoided. Container plantings to be used on-site consist solely of tree species in order to speed up the establishment of these larger, slower growing plants. Because it is unreasonable to expect significant overall cover contributions from trees that have only had five years to grow, high container plant (tree) survival numbers will be required (Tables 14 and 15). This will help make certain that adequate numbers of trees are present after cover and diversity success criteria have been met to allow for areas such as the oak woodland and cottonwood riparian forest creation areas to progress from an initial scrub habitat to their long term woodland/forest habitat goals.

In the event that plantings should fail to meet the specified requirements, compliance will be ensured by the performance of either or both of the following remedial procedures by the contractor on an as-needed basis as directed by a qualified biologist: (1) replacing unsuccessful plantings with appropriate-sized stock or seed mixes to meet stated cover or survival requirements, and/or (2) performing maintenance procedures to ensure the site conditions are appropriate (*e.g.*, non-native species removal). Remedial actions in planting areas will be based on detailed investigations (such as soil tests and excavations of failed plantings to examine root development) to determine causes of failure.

The success of each restoration area will be assessed individually to accommodate the phased nature of the installation, the various times each area may take to reach success. In general, exotic species should not exceed 10 percent cover during the monitoring period. The highly invasive species, giant reed, tamarisk, pampas grass (*Cortaderia* species), castor bean (*Ricinus communis*), and tree tobacco (*Nicotiana glauca*) will be continuously monitored for and removed on a periodic basis. Replacement plantings and reseeding will be done by the landscape contractor each year as directed by a qualified biologist to achieve an acceptable survival rate for years 2-5 (Tables 14-16).

7.2 TARGET FUNCTIONS AND VALUES

The overall restoration goal is to create native habitat similar to that shown in the 1928 aerial photo, aside from the minimal agriculture that is visible (Figure 2). Attaining this goal will result in a net increase in suitable habitat for arroyo toad, least Bell's vireo, and southwestern willow flycatcher.

The restoration in the uplands will primarily provide additional suitable habitat for arroyo toad, but other species are expected to benefit as well. Arroyo toads have not been found in the dense non-native grasslands on-site (URS, 2007), and their replacement with an open, alluvial scrub is expected to create more arroyo toad upland habitat. Other special status species that would potentially benefit from the open alluvial scrub habitat creation include orange throated whiptail (*Cnemidophorus hyperythrus*) western spadefoot (*Spea hammondii*), and California Gnatcatcher (*Polioptila californica*).

Riparian habitat creation and enhancement will provide additional suitable habitat for many riparian bird species, including least Bell's vireo and southwestern willow flycatcher. Additional suitable habitat will be created from the on-site riparian habitat creation, as well as from the exotic plant species removal within the larger riverine riparian habitat management enhancement area. The exotic species that will be removed will be replaced with native species, and, in the short term, provide natural herbaceous openings, which is a habitat constituent element of the southwestern willow flycatcher (USFWS 2005).

7.3 TARGET HYDROLOGICAL REGIME

The hydrological regime will remain the same in the restoration and enhancement areas, with the exception of the 2.3 acre southern willow scrub creation area. This area will be graded down in elevation closer to the water table to promote the establishment and growth of riparian plant species. This graded area will likely be subject to occasional flooding consistent with the typical flood cycle of the San Luis Rey River. Upon completion, this area is expected to qualify as Corps jurisdictional wetlands.

7.4 TARGET ACREAGES TO BE PRESERVED, CREATED, AND ENHANCED

Target creation acreages include 70.4 acres of oak woodland with alluvial scrub and native grassland understory, 14.3 acres of chaparral, 2.0 acres of native grassland, and 79.3 acres of coastal sage scrub/coastal sage scrub (mesic alluvial scrub) habitats. In addition, 2.3 acres of southern willow scrub habitat and 4.2 acres of cottonwood riparian habitat will be created on-site, and 75.6 acres of riparian habitat will be enhanced.

7.5 MONITORING METHODS

Monitoring for purposes of documenting compliance with success criteria will be conducted by a qualified biologist. Continuity within the personnel and methodology of monitoring will be maintained as much as possible to ensure comparable assessments throughout the duration of the monitoring. Special management status species monitoring will begin pre-disturbance, continuing through landfill construction, mitigation implementation, and the five-year post-implementation monitoring period. Habitat monitoring will commence with mitigation implementation, continuing through the five-year post-installation monitoring period following the schedule outlined in Table 13. Long term habitat and special management status species monitoring after the five-year period is addressed in Section 10. There may be parts of the restoration that are staggered because of the phased nature of the construction of the landfill. However, each staggered phase will still go through a similar five-year monitoring period. The monitoring program will emphasize qualitative and quantitative assessments of the status of the restoration plan. Records of mortality and other problems will be kept, such as insect damage, herbivory, weed infestation, and soil loss, will be identified by a qualified biologist. Monitoring will assess the attainment of annual and final success criteria, and identify the need to implement adaptive measures to assure ultimate success, or contingency measures in the event of failure.

7.5.1 Qualitative Assessment

Qualitative assessments will be conducted to assess the overall condition of the restoration areas, and determine the effectiveness of irrigation, the weed eradication program, and general development of the habitat. Qualitative assessments will be conducted on a monthly basis for the first year, bimonthly for the second year, and quarterly thereafter for the remainder of the monitoring period. Qualitative surveys will be completed during each monitoring visit, and will consist of a site walkover and general habitat characterization. General observations, such as fitness and health of the planted species, pest problems, herbivory, weed establishment, mortality, and drought stress, will be noted during each site walkover. A qualified biologist will also note observations of wildlife use and native plant recruitment for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss. A qualified biologist will determine remedial measures necessary to facilitate compliance with performance standards. A qualified biologist will relay these findings to the landscape contractor after each visit, as necessary, to address and correct problems as soon as they are discovered. All remedial measures undertaken will be referenced in the annual monitoring report to the agencies. A sample of a qualitative evaluation monitoring sheet is provided in Appendix C.

7.5.2 Quantitative Special Management Status Species Monitoring

7.5.2.1 Observed Injury or Mortality

During the initial monitoring period, animals found injured or dead on-site will be reported to the project biologist immediately. The project biologist will determine whether or not the animal was a special management status species. If it is a listed species, it will be documented as potential take, and reported to the appropriate agencies. Efforts will be made to determine the cause of the mortality. Death resulting from events unrelated to the landfill will be reported, but will not be considered a take by the project.

7.5.2.2 Pre-Disturbance/Implementation Monitoring

Protocol special management status species surveys will be conducted by a qualified biologist in areas that will potentially affect such special management status species' habitat because of initial construction activities to determine presence/absence of species prior to disturbance.

7.5.2.2.1 Coastal California Gnatcatcher

A qualified biologist will conduct in-season presence/absence protocol surveys to detect individuals within the landfill footprint prior to disturbance. If individuals are found, monitoring will continue until it is determined whether the individual(s) is(are) migrating through or nesting. If the individual is migrating through the site, a biological monitor will be present and construction may continue. If the individual is nesting, then the appropriate resource agencies will be notified to re-open Section 7 consultation. Because development of the landfill footprint is phased, these surveys will occur at a frequency of every one to two years for approximately 16 years, based on the current phasing plan and anticipated waste receipts.

7.5.2.2.2 Arroyo Toad

Pre-disturbance mitigation measures for arroyo toad will occur exclusively at the time of initial landfill construction (bridge installation and access road construction to the facilities area), because this is the only time when suitable habitat as delineated through NRCS soil mapping would be disturbed. However, installation of some exclusion fencing will be permanent.

If temporally feasible, a qualified biologist will conduct protocol surveys in the wet season prior to disturbance to establish density and limits of arroyo toad occupation in the construction and mitigation areas. Prior to work in suitable arroyo toad habitat as established during the survey, temporary/permanent exclusion fencing will be erected and areas within the fence (demolition/construction/implementation areas) will be re-surveyed for arroyo toad. Arroyo toad found during these exclusion surveys will be moved to a suitable location outside of the excluded area. Areas that will need arroyo toad exclusion fencing include the northern bank of the river, to prevent arroyo toads from entering the demolition areas and eventual mitigation areas (the fencing will be removed once demo is complete and mitigation on this side of the river is installed); across the river channel up to the banks during bridge construction; along both sides of the landfill access road for its entire length except where the sides of the bridge act as a barrier (this fencing will be permanent to minimize the potential of arroyo toads being injured by landfill related vehicular traffic); along the northern edge of the landfill facilities area and east desiltation basin (this fencing will be permanent to keep arroyo toad out of active use areas); the south side of the river along the boundary of existing suitable habitat to allow implementation work on the mitigation areas here (this fencing will be removed once mitigation areas on this side of the river are installed); and along the northern side of the borrow/stockpile area A haul road (this fencing will be removed once use of borrow/stockpile area A ceases following initial construction, and then re-installed once use is re-initiated in approximately year 25). Temporary arroyo toad exclusion fencing will consist of a silt screen type barrier approximately 24 inches high and partially buried to exclude toad access via burrowing. Permanent arroyo toad exclusion fencing will be made from a suitable material or structure that will persist in the long term without the need for extensive maintenance (for instance, silt fencing would not be suitable for permanent fencing, however, some type of concrete curb structure might suffice).

A biological monitor will be present when digging the trenches required to properly install the exclusion fencing in case an arroyo toad is found or accidentally harmed during this process. Thereafter, a biological monitor will inspect temporary construction-related exclusion fencing three times a week and see that repairs are made in a timely manner as needed.

7.5.2.2.3 Least Bell's Vireo/Southwestern Willow Flycatcher

Pre-disturbance measures for least Bell's vireo and southwestern willow flycatcher will occur exclusively at the time of initial landfill construction (specifically the bridge construction) as this is the only time when suitable habitat within the San Luis Rey River channel would be disturbed. No surveys are necessary if work is done outside of the breeding season from September to March. Work done to grub the river channel for bridge construction will take place during this period. The biological monitor present for arroyo toad during this work will also monitor for these species at the same time. If work is done during the March to September breeding season, a qualified biologist will conduct presence/absence surveys, and monitoring will be performed until it is determined that these species are not present. Thereafter, daily noise monitoring will occur to assure that noise levels do not exceed 60 dBA L_{eq}, either before or after installation of noise barriers.

7.5.2.3 Five-Year Monitoring Period

This monitoring would occur within the habitat restoration area and consist of annual monitoring for arroyo toad, least Bell's vireo, and southwestern willow flycatcher during the five-year monitoring period. This monitoring would commence upon the completion of restoration activities, and continue for five years or until achieving restoration success criteria, whichever occurs later.

A qualified biologist will conduct annual protocol surveys for each of the above species. Relative numbers of species observed during monitoring will be evaluated to demonstrate whether or not the mitigation is attracting special management status species or not. For instance, numbers of arroyo toads and the locations observed, and nesting pairs and the locations of least Bell's vireo and southwestern willow flycatcher will be recorded for use in this relative assessment. These relative estimates will be used to assist in monitoring potential take of species. Directly monitored take will also be reported (*e.g.*, potential sighting of a dead animal). Note also that extreme weather years or other factors out of the control of the project proponent will also cause numbers to be higher or lower than expected. Such factors include prolonged drought, fire, increased development in the surrounding area, flooding, and the like. It is important to take this information into account when determining whether the project is within take authorization, or if other conditions are decreasing the relative numbers of special management status species on-site.

7.5.3 Quantitative Habitat Monitoring Techniques

Quantitative habitat analysis will be conducted during the late spring or early summer of every year, ideally between April and June, to coincide with the blooming periods of the greatest number of plants. Measurements that will determine the total plant cover and species composition within each restoration area will be conducted along established transects. The means of these measurements will be evaluated against the criteria presented in Tables 14-16.

Quantitative sampling within the restoration site will be performed using approximate 60- to 900-foot point-intercept transects that will be placed throughout the site to ensure representative sampling. A

tentative placement of transects is shown in Figure 7 (Tentative Transect Location Map). Final placement will be noted in the as-built report. Five 60-foot transects will be placed in the Southern Willow Scrub Creation Area; three 60-foot transects will be placed in remnant native vegetation near the face of the landfill; six 300-foot transects in the Chaparral Creation Area; fifteen 300-foot transects in the Coastal Sage Scrub (Mesic Alluvial Scrub) Creation Area; five 300-foot transects in the Coastal Sage Scrub Creation Area; fifteen 300-foot transects in the Oak Woodland Creation Area; four 300-foot transects in the Native Grassland Creation Area; two 300-foot transects in the Cottonwood Riparian Forest Creation Area; two 300-foot transects in the Cottonwood Riparian Forest/Pond Creation Area; and eleven 900-foot transects throughout the non-restored open space in the northwestern and southwestern portions of the property. The extreme topography of the eastern portion of the site presents access challenges which will prevent the quantitative monitoring of the open space in this area. In lieu of quantitative monitoring here, qualitative monitoring will be sufficient as this area is remote and undisturbed. Vegetative cover will be estimated by species present at three- to thirty-foot intervals depending on transect length using the point-intercept method, and recorded on a data sheet. Species observed during the sampling that does not fall along the transect line will be recorded and included on the list of species observed at each transect location. Transects may also be altered by number, method, length, number of points taken, or both length and number of points taken if the results show that an adjustment will better describe actual species compositions found in the field. This determination will be made by a qualified biologist, and changes in methods will be documented in the annual monitoring report.

7.5.4 Photo-documentation

Photographs will be taken to document the progress of the restoration areas throughout the five-year monitoring period and geo-referenced when possible. Photo-documentation locations will be established prior to commencement of the habitat restoration. Photographs will be taken from similar angles and locations so that comparisons can be made through time. Formal photo-documentation will occur before the restoration activities, immediately following the restoration activities, and at least every six months for the remainder of the five-year monitoring period.

7.6 MONITORING SCHEDULE

A monitoring program spanning five years will be conducted by a qualified biologist in conjunction with the initial habitat maintenance program. The schedule for each type of monitoring is set forth in Sections 7.5.2 and 7.5.3 above (see also, Table 13). If the site does not meet the final success criteria after the fifth year, additional monitoring following the same schedule will be necessary until the site meets final success criteria and is signed off by the appropriate agencies (Sections 8 and 9). The monitoring program is intended to document the progress of the restoration effort as well as to fulfill the requirements of any permit conditions. The monitoring program is designed to gather information on the success of plant establishment and habitat development and to recommend remedial actions. Annual reports for submittal to the pertinent regulatory agencies will also be prepared.

7.7 ANNUAL MONITORING REPORTS

Quarterly progress reports and annual technical reports will be provided as part of the monitoring program. The quarterly progress reports will detail the results of the qualitative assessments and will be submitted to the client in the form of a brief letter report. These reports will include information on problems with irrigation, pests, vandalism, mortality, and weeds that have been identified during the

qualitative inspections. Proposed remedial actions will also be discussed as a part of these reports and will be summarized in memo format to be sent to the landscape contractor for implementation.

Annual technical reports describing the results of the quantitative sampling will be submitted to the agencies at the end of each monitoring year (December). Annual reports will include 1) a list of names, titles, and organizations of all persons who prepared the content of the annual report and participated in the monitoring activities for the year; 2) analyses of all quantitative monitoring data in relation to the success criteria (success, failure, and remedial action) and special management status species survey results; 3) monitoring photographs; and 4) maps identifying transect locations and locations of special management status species found during surveys. Details of necessary replacement plantings will also be included. Comments about the monitoring program or site conditions from the agencies should be submitted to a qualified biologist for review and appropriate remedial action, if required. The final annual report at the end of year five will summarize the results of the entire restoration effort, thereby providing the agencies with a basis for comprehensive evaluation of the restoration project.

The first annual report will be submitted after the first growing season following the initial weed eradication, seeding, and container planting.

Reporting of the enhancement activities will also be included as a separate section in the annual reports. Reported items will include mapping of areas where specific exotic removal activities were conducted, methodology used (*e.g.*, hand tools vs. herbicide application), an evaluation of the success of the enhancement program, and photo-documentation.

7.8 CONSERVATION EASEMENT

Prior to commencement of initial construction of those features of the landfill and ancillary facilities described in Table B-2, GCLF will execute and record a Conservation Easement in a form acceptable to the Corps, USFWS, CDFG and/or the County, and consistent with CEQA mitigation measures and Proposition C. A suitable land management agency, such as the Corps, CDFG, or the County would be the Grantee of the Conservation Easement. A copy of the most recent multi-agency (Corps/CDFG) mitigation bank Conservation Easement Deed Template is provided in Appendix D, to indicate the general format and typical terms and conditions for the Conservation Easement. The Conservation Easement will be subject to all pre-existing and known future encumbrances on the GCLF property, such as utility easements, subject to separate approval of those projects by all agencies with jurisdiction, and implementation of appropriate mitigation measures or compensation by the proponents of those projects. The specific language of the Conservation Easement shall be submitted to the appropriate governmental agencies for final approval prior to official recordation.

SECTION 8 COMPLETION OF HABITAT RESTORATION

8.1 NOTIFICATION OF COMPLETION

The project proponent will notify the resource agencies upon completion of the restoration effort through the submittal of the final monitoring report. This report will include analysis of quantitative sampling data that will show that the success criteria have been met. After completion of the creation and enhancement effort, ongoing management activities such as those described in Sections 10.2 and 10.3 will continue.

8.2 AGENCY CONFIRMATION

The resource agencies may inspect the restoration areas after the final monitoring report has been submitted. Confirmation that the success criteria have been met will be provided by the resource agencies to the project proponent in writing.

SECTION 9 CONTINGENCY MEASURES

If an annual performance criterion is not met for all or a portion of the restoration areas in any year, or if the final success criteria are not met, the biologist will prepare an analysis of the cause(s) of failure and, propose remedial action for approval with the appropriate resource agencies. Remedial actions may include supplemental site grading/manipulation, planting, changes to the plant palette, or adjustments to the management of the areas. If the restoration area or portion thereof has not met the performance criterion, and remedial actions are necessary, the responsible party's initial maintenance and monitoring obligations as described in Sections 6 and 7 will continue beyond five years of monitoring and maintenance until final success criteria are achieved.

9.1 INITIATING PROCEDURES

If the Corps, USFWS, or CDFG determine upon receipt of an annual monitoring report that the restoration efforts are not meeting the success criteria, the respective agency will notify the project proponent in writing that the effort will require augmentation. The project proponent will have 30 days to respond to the notifying agency with a description of the measures enacted or to be enacted.

9.2 ALTERNATIVE LOCATIONS FOR MITIGATION

No alternative locations are proposed for this restoration effort. If setbacks occur because of unforeseen circumstances (*e.g.*, flooding washes away much of the plantings or fires wipe out the mitigation site), then the project proponent will work with the resource agencies to reformulate a new schedule or solution.

9.3 FUNDING MECHANISM

The project proponent will be responsible for funding the costs associated with implementation of restoration measures (Section 11).

9.4 RESPONSIBLE PARTIES

The project proponent will be the responsible party for the contingency measures.

SECTION 10 LONG TERM MAINTENANCE OF RESTORATION AREAS AND OTHER ON-SITE OPEN SPACE

After completion of the restoration plan on the restoration area, and for other open space on the landfill property, long term maintenance and monitoring tasks will be put into action to ensure the maintenance of the entire site in perpetuity. Long term maintenance and management tasks will focus on maintaining the site in a natural state. The overall site open space can be split into two distinct areas where maintenance and management differ in complexity and effort, non-restored open space and restored open space. Some of the components of the maintenance and management are described below, but may be amended in the future to account for potential future conditions and costs that will be best determined when the site is transferred to a third party. The focus and scope of the long term management plan may also be revised every five to ten years if long term monitoring data show that site conditions are changing and require adaptive management.

10.1 NON-RESTORED OPEN SPACE

The non-restored open space area will be managed during the operating period of the landfill (estimated at 30 years) in the same manner it will thereafter be managed in perpetuity. The non-restored open space area makes up the majority (over 1,000 acres) of the overall open space on the project site. Although the size of the area is large, minimal maintenance activities will need to be undertaken to maintain this area, as it currently exists in a natural and self-sustaining state. Maintenance and management tasks for this area will primarily consist of monthly site inspections for access control, fence inspection, and recording of new infestations of invasive plant species. During inspections, the area will also be checked for human-related issues such as illegal dumping and illegal recreational use (i.e. creating new trails and/or use of all terrain vehicles such as quads or motorcycles). Weed control, wildlife control, fire management, general habitat monitoring, special management status species monitoring, and annual reporting requirements will also be addressed as part of the long term management plan. Each long term management issue is discussed in detail below.

10.2 RESTORED OPEN SPACE

The bulk of the maintenance and management effort will focus on the restored area as this area will need to be monitored more closely to ensure continued self-sustainability. Once the initial five-year maintenance and monitoring period is complete and a restoration area meets success criteria, the objective of the effort will shift from restoration to maintenance during the remainder of the operating period of the landfill. Maintenance and management tasks in this area will include at minimum, monthly site inspections to check for weed control, wildlife control, fire management, refuse removal, and human-related disturbance issues. The bulk of the habitat and special management status species monitoring will take place in the restored open space because of the presence of suitable special management status species habitat in this area. Each long term management issue is discussed below, along with the long term habitat and special management status species monitoring programs, and annual reporting requirements.

10.3 PERPETUAL MAINTENANCE

After the landfill ceases operation at the end of approximately 30 years, perpetual maintenance activities will be initiated through a qualified land manager selected by Gregory Canyon Ltd. LLC following consultation with the County, the USFWS, and CDFG. Maintenance activities during this period are expected to continue as it will when the open space areas enter the maintenance period as described above. These activities will consist of monthly site inspections to check access control, weed control measures, wildlife control, fire management, and refuse removal. Habitat monitoring and special management status species monitoring will also occur in perpetuity as described below.

10.4 LONG-TERM MANAGEMENT ISSUES

10.4.1 Annual Reporting

Long term management issues will be summarized and reported to the USFWS on a yearly basis. The report will summarize the work done on the site for the year broken down by management issue, as well as the proposed work to be performed in the upcoming year. The locations of exotic plant infestations will be noted, methods used to remove exotic species will be described, and effectiveness of the results will be discussed. Remedial actions undertaken during the monitoring year, and/or recommended in the immediate future will be noted. Updates of remedial actions completed in the previous year will be analyzed to evaluate effectiveness for future use. A summary of the financial status of the management budget will also be provided. Specifically, the income generated by the endowment will be compared to actual expenses incurred while performing site management to ensure the long term funding will be sufficient. Additionally, site photos will be taken within six months of the submittal of the annual report to provide photo documentation of the site. Qualitative and quantitative data collected during the habitat and special management status species monitoring will also be included in each report as described in the respective monitoring plan sections below. Qualitative data will include plant and animal species lists observed on-site during the monthly inspections and monitoring events, if applicable. Because quantitative monitoring will only take place every three years for habitat, and every other year for special management status species, qualitative data will be reported in years where no quantitative data is collected. When quantitative data is collected, the locations of each special management status species will be described and mapped. Estimated numbers of individuals or pairs will be reported and territory locations will be mapped if applicable. The report will be due by February following the year for which the report is being written for to allow for remedial measures to be discussed, approved, and implemented in the spring following the monitoring year.

10.4.2 Observed Injury or Mortality

During the long term maintenance period and into perpetuity, animals found injured or dead on-site will be reported to the project biologist immediately. The project biologist will determine whether or not the animal was a special management status species. If it is a listed species, it will be documented as potential take, and reported to the appropriate agencies. Efforts will be made to determine the cause of the mortality. Death resulting from events unrelated to the landfill will be reported, but will not be considered a take by the project.

10.4.3 Special Management Status Species Monitoring

Special management status species monitoring will take place on all portions of the landfill property. Long-term monitoring for arroyo toad, least Bell's vireo, and southwestern willow flycatcher will commence after the completion of the five-year monitoring described in Section 7.5.2. Long-term monitoring for coastal California gnatcatcher and steelhead trout will commence upon the initiation of project operation. The purpose of long-term monitoring is to track the relative numbers of special management status species on-site and document take related to long-term maintenance of the project site in perpetuity.

10.4.3.1 Coastal California Gnatcatcher

A qualified biologist will conduct protocol surveys for coastal California gnatcatcher in areas of suitable habitat to determine presence/absence. If present, the number of nests or breeding pairs will be quantified and mapped. Results will be documented in the annual report. Surveys conducted every other year will provide adequate information to determine the rise or decline of the relative number of coastal California gnatcatcher on-site.

10.4.3.2 Arroyo Toad

A qualified biologist will conduct an appropriate number of nocturnal surveys (6-10) in suitable habitat during the active season to determine the number of toads in the uplands and river on-site. Ideally, surveys will take place during the breeding season (March to June), however, if the rainy season begins early, up to four surveys can take place between November and February, with the remainder occurring from March to June. If present, the number of individuals will be quantified and mapped. Results will be documented in the annual report. Surveys conducted every other year will provide adequate information to determine the rise or decline of the relative number of arroyo toad on-site.

10.4.3.3 Least Bell's Vireo/Southwestern Willow Flycatcher

A qualified biologist will conduct protocol surveys during breeding season to determine the number of breeding pairs in suitable habitat on-site. If present, territories of pairs found on-site will be quantified and mapped. Results will be documented in the annual report. Surveys conducted every other year will provide adequate information to determine the rise or decline of the relative number of least Bell's vireo and southwestern willow flycatcher on-site.

10.4.3.4 Steelhead Trout

Monitoring for steelhead trout will involve inspecting the river channel for un-natural obstructions that would prevent the trout from potentially moving upstream through the river channel on-site. Plant litter and debris normally found in a river system would not be removed. The focus of this monitoring is the removal of man-made obstructions, namely large items of trash or similar debris, should such obstructions originate on-site from project activities. This monitoring will occur annually in spring immediately after the rainy season, and can be done in conjunction with regular site inspections.

10.4.4 Habitat Monitoring

Habitat monitoring will take place on all portions of the landfill property subject to a conservation easement. Long-term monitoring of general site conditions and vegetation within the restored open space area will commence after the completion of the five-year monitoring described above. Long-term monitoring of general site conditions and vegetation within the non-restored open space area will commence upon the initiation of project operation. The purpose of long-term monitoring is to track the stability of vegetation communities on the project site in perpetuity.

General site condition monitoring will consist of compiling monthly weather data (temperature, wind, precipitation, etc.) for documentation in the annual report. Vegetation monitoring will consist of qualitative and quantitative monitoring. Qualitative monitoring will take place annually and consist of visual inspections of the various vegetation communities. Photo-documentation will also take place to provide a visual picture of the various communities over time. Photographs will be taken from the same locations each year to allow pictures to be compared year to year. Quantitative monitoring will take place every three years and be accomplished by conducting vegetation transects throughout the site (Figure 7, Tentative Transect Location Map). Point-intercept transects ranging in length from 60 to 900 feet will be sampled as described in Section 7.5.3. Information collected during the year will be presented in an annual monitoring report. Based on information collected during qualitative surveys and data in the annual report, the USFWS and land manager may increase the frequency of quantitative monitoring to every other year if necessary to properly monitor changes regarding the vegetation.

10.4.5 Weed Control

The complete elimination of all exotic species from the project area is not feasible and not the goal of long term weed control. The goals of long term weed control on-site are to keep weed cover in restored open space areas at similar levels to those observed at reference sties in Wilderness Gardens Park, to identify and control new weed infestations discovered in the non-restored open space area, and to pay special attention to the detection of invasive exotic species. The non-restored open space area will not be held to a minimum weed cover standard as this area is to be managed as is, in its current natural state. This area will be inspected as described in Section 10.4.4 and newly discovered infestations of exotic species will be removed within 30 days. Additionally, special attention will be given to invasive exotic weed species throughout the site. These species include, but are not limited to, giant reed, tamarisk, pampas grass, castor bean, and tree tobacco. To the extent practicable, these species should be completely removed from the site within 30 days of detection.

10.4.6 Wildlife Control

Nuisance wildlife species that have the potential to directly or indirectly impact the relative number of special management status species on-site will be inspected for and dealt with accordingly. Control measures will be implemented if nuisance species populations increase or if new nuisance species enter the area that would or are adversely affecting the relative number of listed species or desired habitats onsite relative to pre-project conditions.

10.4.7 Refuse Removal

To avoid the attraction of nuisance species which may also potentially prey upon or otherwise indirectly affect special management status species on-site, trash and other man-made debris will be inspected for and removed on a monthly basis. Dead limbs, tree fall, and other organic debris originating from native vegetation on-site will be left in place. Weed debris will be removed from the project area and disposed of legally.

10.4.8 Access Control

In order to control unauthorized access of the site, a wildlife compatible barbwire fence will be installed around areas where the public has easy access to the site. Additionally, signs will be posted to identify the site as an open space reserve. Dirt roads leading to the site will be gated, otherwise obstructed, or removed to control unauthorized vehicle use. Fencing will be inspected monthly to ensure it is intact and will be repaired as needed. It is anticipated that on-going monthly inspections of the site will also serve to deter trespassing.

10.4.9 Fire Management

Fire management tasks chiefly involve the removal of potentially hazardous accumulations of non-native vegetation to reduce the likelihood of brush fires from starting and propagating on-site. Native vegetation is accustomed to routine fires that occur on a semi-regular basis. These fires typically move quickly through the vegetation as there is normally little to no dry understory vegetation. By moving through the vegetation quickly, the plants are damaged less and are able to recover quicker. When there is a prevalence of dried understory vegetation (usually associated with non-native annuals and/or grasses), fires typically burn longer and hotter, increasing the damage to native shrubs, and delaying recovery if the native vegetation is not completely killed. Areas that have a prevalence of dried non-native vegetation will be noted during monthly site inspections and cleared before the onset of the fire season (late summer through early fall). Weeding of these areas in the spring will also reduce the amount of dry fuel in the summer.

SECTION 11 FINANCIAL ASSURANCES

Gregory Canyon Ltd. LLC will fund all activities related to implementation of the Habitat Restoration and Resource Management Plan and management of both on-site and off-site (to the extent applicable) open space. During the period of landfill operation, which is anticipated to last approximately 30 years, these activities will be budgeted and funded as part of the cost of operating and maintaining the landfill, and funding assurances will be provided in the form of a Performance Bond. Because of the jurisdictions and subsequent enforcement ability of different public agencies over different mitigation areas, the Performance Bond will be split into two bonds. One bond, in the amount of $300,000 will be held by the Corps and will cover impacts to Federal wetlands/waters of the U.S. caused by the construction of the access bridge, which is mitigated by the 2.3 acre Southern Willow Scrub creation area. The second bond, in the amount of $18.3 million will be held by a public agency to be determined in cooperation with the County, USFWS, and CDFG, and will cover the mitigation proposed for remainder of the impacts on-site. The total face-value of the Performance Bonds at the time of initial habitat disturbance will be approximately $18.6 million. This amount is the estimated cost of the Habitat Restoration and Resource Management Plan implementation; maintenance and monitoring until the restoration areas attain success (five years), along with follow up management of restoration areas for an additional 25 years; and management of other non-restored open space areas for 30 years. This includes activities that will not commence for many years because of the phased nature of the Habitat Resource Management Plan. The face amount of the Performance Bonds would be adjusted every three years to account for inflation and the completion of on-site activities, as more fully discussed below, and on an ongoing basis to account for anticipated maintenance costs of any off-site open space acquired.

When Gregory Canyon Ltd. LLC leaves the site at the conclusion of the landfill operating period, the bonds will expire and funding for ongoing management of all open space portions of the landfill property (including both the restoration areas and other non-restored open space areas, approximately 1,300 acres total) will be provided through a $7.3 million endowment established by Gregory Canyon Ltd. LLC to be held in an independent trust account. The endowment will be initiated at the time of initial habitat disturbance, with deposits by Gregory Canyon Ltd. LLC at the end of the landfill operating period adequate to generate full funding of the endowment (Section 11.3).

11.1 INITIAL PERFORMANCE BOND ESTIMATES

To determine the appropriate initial amount of the Performance Bonds, Gregory Canyon Ltd. LLC estimated the cost of implementing all of the anticipated plan activities to take place on the landfill property during the landfill operating period, assuming immediate implementation of all plan elements.

This approach is conservative, because implementation of the Habitat Resource Management Plan will proceed in phases over a period of years.

Based on the projected costs of the identified tasks, the total amount of both Performance Bonds were estimated at approximately $18.6 million. This estimate includes approximately $9.3 million for implementation of the Habitat Resource Management Plan and $9.3 million for habitat management.

11.1.1 Restoration Plan Implementation

The total cost of restoration and initial monitoring and maintenance is approximately $11.6 million. This total includes:

- $260,000 for creation of 6.5 acres of riparian vegetative communities such as southern willow scrub and cottonwood riparian forest;
- $6.3 million for creation of 166.0 acres of oak woodland, coastal sage scrub, chaparral, and native grassland communities;
- $440,000 for enhancement of 75.6 acres of existing riparian vegetative communities; and
- $2.3 million for maintenance and monitoring of restoration areas for five years.

This total does NOT include costs associated with removing existing structures, utilities, or major grading. Enhancement/creation costs reflect direct implementation costs and do not reflect costs associated with supporting tasks and administration/contingency costs. A detailed cost breakdown is provided in Appendix A.

11.1.2 Long-Term Habitat Management Costs

Total management costs on the landfill property during the landfill operating period are estimated at approximately $6.9 million for 25 years of post-restoration management of the restoration areas and 30 years of maintenance of non-restored open space outside of the restoration area. The cost of implementing long-term habitat management activities on the landfill property were estimated as follows:

- Reports prepared by the Center for Natural Lands Management (CNLM) for comparable management programs were reviewed to determine the number of hours per task and/or total expenditure per year for management tasks.
- For tasks involving qualitative evaluations and biological surveys, labor costs were estimated using a rate of $100/hour. Manual labor costs were estimated at $50/hour.
- An additional 10% was allocated for annual work program contingencies.
- The amount of the changed circumstances reserve is 25% of the cost of the land management tasks (*i.e.*, only tasks involving resource protection and management).

A detailed cost breakdown is provided in Appendix A.

11.2 ADJUSTMENTS TO PERFORMANCE BOND DURING LANDFILL OPERATING PERIOD

11.2.1 Periodic Review of On-Site Costs Estimates and Fund Allocations

Gregory Canyon Ltd. LLC will review the cost estimates and allocations for on-site activities every three years, commencing on the date of initial disturbance. Where appropriate, the estimates and allocations will be adjusted as necessary to ensure implementation of and adequate funding for on-site activities. All

such adjustments will require the approval of San Diego County as part of the administration of the Habitat Restoration and Resource Management Plan.

11.2.2 Cost Estimates and Fund Allocation for Off-Site Open Space

Whenever Gregory Canyon Ltd. LLC proposes to acquire off-site open space, its submittal of a revised Habitat Restoration and Resource Management Plan to San Diego County will include an estimate for habitat management costs during the operating period of the landfill, based on the same criteria used to establish estimates for management of on-site non-restored open space. The cost estimates will require the approval of San Diego County as part of the administration of the Habitat Restoration and Resource Management Plan. Upon approval, the amount of the Performance Bond will be adjusted to account for these management costs. As a second option, with approval from the County, an agreed-upon fee may be paid to the County by Gregory Canyon Ltd. LLC in lieu of acquiring off-site properties.

11.2.3 Reduction of the Performance Bond

Gregory Canyon Ltd. LLC will have the option of reducing the face value of the Performance Bond every three years, on the same cycle as the cost estimates and fund allocations review, in accordance with the following procedures:

- Gregory Canyon Ltd. LLC's actual expenditures for implementation activities will be deducted from the face-value of the bond; and
- To account for inflation, the remaining face value of the bond will be increased by changes in the Consumer Price Index (CPI) since the initial date of disturbance or the most recent adjustment in bond amount, as the case may be.

This adjusted amount will become the required face value of the Performance Bond for the next succeeding three-year period, or until Gregory Canyon Ltd. LLC proposes to acquire additional off-site open space, whichever occurs first. To ensure adequate funding at all times, including management in perpetuity, the minimum face value of the Performance Bond shall be $1,000,000 plus the difference between $7.3 million and the principal of the endowment trust as of the date of bond adjustment. This adjustment also will ensure that the Performance Bond is maintained at a level adequate to fund the endowment if Gregory Canyon Ltd. LLC should leave the site prior to the end of the operating period.

11.3 MANAGEMENT ENDOWMENT

To determine the amount required to fund perpetual management of on-site (restoration area and open space outside of restoration area) and off-site open space after Gregory Canyon, Ltd. LLC leaves the site, Gregory Canyon Ltd. LLC:

- Identified the habitat management tasks (including remedial measures and responses to changed circumstances) that would be necessary after the impacts of the Landfill Project ceased;
- Calculated the annual costs of those tasks in 2008 dollars; and

- Projected the annual cost of those measures at the end of the landfill operating based on an assumed CPI of 3% per annum.

The identified ongoing management tasks include access control, weed control measures, wildlife control, fire management, refuse removal, habitat monitoring, species monitoring, administrative costs, and an additional 10% for remedial measures/contingencies. Annual ongoing management costs were estimated at approximately $146,000 in 2008 dollars (per year total, Section 3.9 of Appendix A). With CPI (3% per year) factored into the costs over the 30-year operating period, there would need to be approximately $7.3 million in an interest-bearing account (5% for this calculation) at the end of the 30-year operating period to create enough interest income to provide for annual management and contingencies. Because the costs will be covered by interest alone, without utilization of the principal, the endowment will be non-wasting.

To fund the management endowment, Gregory Canyon Ltd. LLC will establish the interest-bearing account at the time of initial habitat disturbance and make deposits sufficient to provide full funding by the end of the 30-year landfill operating period. If, at the end of the landfill operating period, the endowment account does not contain $7.3 million, Gregory Canyon Ltd. LLC will fund the difference. If Gregory Canyon Ltd. LLC is unable to fully fund the endowment at the time full funding is needed for long-term management of on-site or off-site open space, the Performance Bond shall be used to complete funding of the endowment.

The amount of the endowment will be adjusted every three years commencing on the date of initial habitat disturbance to account for management costs related to any off-site open space that is acquired, and differences in actual inflation from the assumed 3%.

The intended use of the endowment funds is the perpetual management of all on-site and off-site open space after Gregory Canyon Ltd. LLC leaves the site. If Gregory Canyon Ltd. LLC leaves the site prior to the end of the landfill operating period, adequate funding for long-term management (including full funding of the endowment) will be provided through enforcement of the Performance Bond.

The amount of funds in the account will be reported to San Diego County annually as part of the administration of the Habitat Restoration and Resource Management Plan. In addition, every three years Gregory Canyon Ltd. LLC will report to San Diego County on inflation levels, interest levels and yield over the previous three years. The purpose of this report will be to determine whether the account would likely grow to the required amount. Gregory Canyon Ltd. LLC will designate an entity to administer the funds for implementation after Gregory Canyon Ltd. LLC leaves the site. San Diego County will approve the entity designated to administer the funds and will oversee use of the funds as part of the administration of the Habitat Resource Management Plan.

SECTION 12 REFERENCES

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Table 1
Vegetation Impacts and Mitigation Requirements
Identified during CEQA Compliance

Vegetation Type	Acreage of Impacts	Mitigation Ratio	Mitigation Acreage
Agricultural Land	9.9	-	0.0
Agriculture/Developed	2.5	-	0.0
Chaparral	27.4	0.5	13.7
Rock Outcrop/Chaparral	1.6	-	0.0
Coastal Sage Scrub/Chaparral	51.5	2	103.0
Coastal Sage Scrub	170.8	2	341.6
Burned Coastal Sage Scrub	0.0	2	0.0
Disturbed Coastal Sage Scrub	1.7	2	3.4
Coast Live Oak Woodland	22.6	3	67.8
Southern Willow Scrub*	0.4	4	1.6
Cottonwood-willow Riparian Forest	0.2	4	0.8
Disturbed Southern Willow Scrub*	0.4	4	1.6
Open Channel* **	0.2	-	0.0
Native Perennial Grassland	0.6	3	1.8
Non-Native Grassland	15.8	0.5	7.9
Olives	0.3	-	0.0
Ornamental	0.4	-	0.0
Disturbed Habitat	2.3	-	0.0
Total	308.6	NA	543.2

*Impact and mitigation areas have been updated from the 2007 RFEIR.

**Note that "Open Channel" does not indicate jurisdictional water of the U.S. Open Channel in this sense is the same as open sand.

Table 2
RFEIR Mitigation Compared to HRRMP Mitigation Acreage

Habitat Resource Management Plan Habitat Classification	EIR Vegetation Type	EIR Required Mitigation Acreage	Proposed On-Site Creation/Enhancement Acreage (HRRMP)	Off-Site Acquisition Acreage (HRRMP)	Total Creation or Acquisition Acreage (HRRMP)
Chaparral Creation Area	Chaparral	13.7	14.3	-	14.3
Coastal Sage Scrub (Mesic Alluvial Scrub) and Coastal Sage Scrub Creation Areas	Coastal Sage Scrub/Chaparral	103.0	79.3 [1] (70.8 Coastal Sage Scrub [Mesic Alluvial Scrub] + 8.5 Coastal Sage Scrub)	368.7	448.0
	Coastal Sage Scrub	341.6			
	Disturbed Coastal Sage Scrub	3.4			
Oak Woodland with Alluvial Scrub/Native Grassland Understory Creation Area	Coast Live Oak Woodland	67.8	70.4	-	70.4
Native Grassland Creation Area	Non-Native Grassland	7.9	-	7.9	7.9
	Native Perennial Grassland	1.8	2.0 [2]	-	2.0
Southern Willow Scrub Creation Area	Southern Willow Scrub	1.6	2.3 [3]	-	2.3
	Disturbed Southern Willow Scrub	1.6		-	
Cottonwood Riparian Forest Creation Area and Cottonwood Riparian Forest Creation Area/Pond	Cottonwood-Willow Riparian Forest	0.8	4.2 (1.3 Cottonwood Riparian Forest + 2.9 Cottonwood Riparian Forest/Pond)	-	4.2
	Total	543.2	172.5[4]	376.6	549.1
Riverine Riparian Management Enhancement Area (including LBV/SWWF area)[5]	Restoration of riparian habitat within the San Luis Rey River floodplain	57.1	75.6		75.6
Upland and riparian habitat creation[6]	Direct mitigation creation obligations for vegetation community impacts	155.5	172.5		172.5
	Total	212.6	248.1		248.1[7]

Table 2
RFEIR Mitigation Compared to HRRMP Mitigation Acreage
(Continued)

Species Specific Mitigation	EIR Required Mitigation Acreage	Proposed On-Site Mitigation Acreage	Off-Site Mitigation Acreage	Total Mitigation Acreage (HEP)
Arroyo Toad	88.0	149.7 [8]	-	149.7
Least Bell's Vireo/Southwestern Willow Flycatcher	20.0	32.7 [9]	-	32.7

Notes:

[1] The on-site mitigation shown for coastal sage scrub (mesic alluvial scrub) and coastal sage scrub creation areas does not include alluvial scrub understory in oak woodland with alluvial scrub/native grassland understory creation area, which is treated as part of the oak woodland habitat.

[2] The on-site mitigation shown for native perennial grassland does not include native grassland understory in oak woodland with alluvial scrub/native grassland understory creation area, which is treated as part of the oak woodland habitat.

[3] On-site mitigation includes dedicated southern willow scrub creation area only; this area does not include southern willow scrub in the riverine riparian enhancement area, cottonwood riparian forest creation area, or cottonwood riparian forest creation area/pond areas. However, southern willow scrub and cottonwood willow vegetation communities are made up of many of the same species, and serve virtually the same habitat functions.

[4] No riverine riparian management (restoration) activities are proposed to satisfy this RFEIR mitigation obligation, per RFEIR MM 4.9-18.

[5] See RFEIR page 4.9-17 for breakdown between habitat creation and habitat enhancement.

[6] See RFEIR page 4.9-17 for breakdown between habitat creation and habitat enhancement. This category includes habitat creation activities.

[7] Total combined upland habitat creation/restoration is 172.5 acres (creation – 172.5 ac.), RFEIR requirement in MM 4.9-18 is 131.4 acres. Total combined riparian habitat creation/restoration is 82.1 acres (creation – 2.3 ac. + 4.2 ac.; restoration – 75.6 ac.), RFEIR requirement in MM 4.9-18 is 81.2 acres. Per MM 4.9-18, the restoration (management/enhancement) activities on 75.6 acres are above and beyond mitigation (creation or acquisition) for direct project impacts on vegetation communities.

[8] On-site mitigation includes coastal sage scrub creation, coastal sage scrub (mesic alluvial scrub), and oak woodland creation areas, which all provide suitable habitat for arroyo toad.

[9] Includes habitat creation and enhancement areas outside of both cumulative 60 dBA L_{eq} noise contours and facility operational 60 dBA L_{eq} noise contour. This area also excludes acreage occupied by the SDCWA right-of-way.

Table 3
Wilderness Gardens Regional Park Reference Site - Riparian/Alluvial Scrub Transect Data

Layer	Species	Average % Coverage
Herb	native herbs	25
	non-native grasses	25
	bare ground	6
	Phacelia distans	3
	Moss	2
	Cryptantha sp.	1
	Plagiobothrys collinus var. gracilis	1
Shrub	*Eriogonum fasciculatum*	10
	Pellaea mucronata	2
	Lepidospartum squamatum	1
	Dudleya edulis	1
	Adolphia californica	1
	Dudleya lanceolata	1
	Croton californica	1
	Marah macrocarpus	1

Table 4
Wilderness Gardens Regional Park Reference Site - Oak Woodland Transect Data

Layer	Species	Average % Coverage
Herb	non-native grasses	93
	Moss	6
	Sonchus oleraceus	2
	Lupinus truncatus	1
	Raphanus sativus	1
	Ambrosia acanthicarpa	1
Shrub	*Isocoma menziesii*	4
	Opuntia littoralis	3
	Toxicodendron diversilobum	3
	Marah macrocarpus	2
	Eriogonum fasciculatum	2
	Lepidospartum squamatum	1
Tree	*Quercus agrifolia*	65

Table 5
Wilderness Gardens Regional Park Reference Site - 100-year Floodplain Transect Data

Layer	Species	Average % Coverage
Herb	non-native grasses	14
	Lupinus truncates	1
	Lichens	1
	Moss	1
	native herbs	1
Shrub	*Isocoma menziesii*	26
	Adenostoma fasciculatum	17
	Quercus dumosa	6
	Eriogonum fasciculatum	3
	Marah macrocarpus	3
	Artemisia californica	2

Table 6
Plant Palette for Southern Willow Scrub Creation Area

Scientific Name	Common Name	Number Per Acre
Baccharis salicifolia	Mulefat	150 cuttings
Populus fremontii	Fremont's Cottonwood	40 one-gallon containers
Salix exigua	Narrow-leaved Willow	100 cuttings
Salix gooddingii	Black Willow	150 cuttings
Salix laevigata	Red Willow	150 cuttings
Salix lasiolepis	Arroyo Willow	150 cuttings
Salix lucida ssp. lasiandra	Lance-leaved Willow	75 cuttings
Total		815 plants per acre
Scientific Name	Common Name	Lbs. Per Acre
Ambrosia psilostachya	Western Ragweed	2
Amsinckia menziesii var. *intermedia*	Common Fiddleneck	1
Artemisia douglasiana	Mugwort	2
Eriogonum fasciculatum	California buckwheat	6
Lasthenia californica	Goldfields	1
Mimulus aurantiacus	Red-bush Monkeyflower	1
Plantago erecta	Dot-seed Plantain	4
Sisyrinchium bellum	Blue-eyed Grass	3
Totals		20
Optional Alternate Species		
Baccharis pilularis	Coyotebrush	
Baccharis sarothroides	Broom Baccharis	
Croton californica	California Croton	
Dichelostemma capitatum	Wild Hyacinth	
Encelia californica	California Sunflower	
Phacelia distans	Distant Phacelia	
Scrophularia californica	California Bee Plant	

Table 7
Plant Palette for Cottonwood Riparian Forest Creation Area and Cottonwood Riparian Creation Area/Pond

Scientific Name	Common Name	Number Per Acre
Baccharis salicifolia	Mulefat	75 cuttings
Populus fremontii	Fremont's Cottonwood	30 one-gallon containers
Platanus racemosa	Western Sycamore	10 one-gallon containers
Salix exigua	Narrow-leaved Willow	50 cuttings
Salix gooddingii [1]	Black Willow	75 cuttings
Salix laevigata	Red Willow	75 cuttings
Salix lasiolepis	Arroyo Willow	75 cuttings
Salix lucida ssp. lasiandra	Lance-leaved Willow	40 cuttings
Total		430 plants per acre
Scientific Name	**Common Name**	**Lbs. Per Acre**
Ambrosia psilostachya	Western Ragweed	2
Amsinckia menziesii var. *intermedia*	Common Fiddleneck	1
Artemisia douglasiana	Mugwort	2
Eriogonum fasciculatum	California buckwheat	6
Lasthenia californica	Goldfields	1
Marah macrocarpus	Wild Cucumber	2
Mimulus aurantiacus	Red-bush Monkeyflower	1
Phacelia distans	Distant Phacelia	1
Plantago erecta	Dot-seed Plantain	4
Totals		20
Optional Alternate Species		
Baccharis pilularis	Coyotebrush	
Baccharis sarothroides	Broom Baccharis	
Croton californica	California Croton	
Dichelostemma capitatum	Wild Hyacinth	
Lotus scoparius	Deerweed	
Lupinus truncatus	Collar Lupine	
Sisyrinchium bellum	Blue-eyed Grass	

[1] Use salix gooddingii only at the edge of ponds or near water table.

Table 8
Plant Palette for Oak Woodland with Alluvial Scrub/Native Grassland Understory Creation Area

Scientific Name	Common Name	Number Per Acre
Platanus racemosa	Western Sycamore	30 one-gallon
Quercus agrifolia	Coast Live Oak	45 one-gallon
Quercus engelmannii	Engelmann Oak	75 one-gallon
Total		150 plants per acre
Scientific Name	**Common Name**	**Lbs. Per Acre**
Ambrosia psilostachya	Western Ragweed	2
Amsinckia menziesii var. *intermedia*	Common Fiddleneck	1
Artemisia californica	California sagebrush	3
Artemisia douglasiana	Mugwort	2
Eriogonum fasciculatum	California buckwheat	6
Encelia californica	California Sunflower	2
Isocoma menziesii	Goldenbush	3
Lupinus truncatus	Collar Lupine	3
Mimulus aurantiacus	Red-bush Monkeyflower	1
Nassella lepida	Foothill Needlegrass	4
Nassella pulchra	Purple Needlegrass	6
Phacelia distans	Distant Phacelia	1
Plantago erecta	Dot-seed Plantain	4
Totals		38
Optional Alternate Species		
Adenostoma fasciculatum	Chamise	
Baccharis pilularis	Coyotebrush	
Baccharis sarothroides	Broom Baccharis	
Croton californica	California Croton	
Dichelostemma capitatum	Wild Hyacinth	
Lotus scoparius	Deerweed	
Malosma laurina	Laurel Sumac	
Opuntia littoralis	Coast prickly pear	
Rhus integrifolia	Lemonadeberry	
Sisyrinchium bellum	Blue-eyed Grass	
Toxicodendron diversilobum	Poison Oak	

Table 9
Plant Palette for Coastal Sage Scrub Creation Area

Scientific Name	Common Name	Lbs. Per Acre
Ambrosia psilostachya	Western Ragweed	2
Artemisia californica	California sagebrush	3
Artemisia douglasiana	Mugwort	2
Croton californica	California Croton	2
Encelia californica	California Sunflower	2
Eriogonum fasciculatum	California buckwheat	6
Heteromeles arbutifolia	Toyon	4
Isocoma menziesii	Goldenbush	3
Lotus scoparius	Deerweed	3
Nassella pulchra	Purple Needlegrass	6
Plantago erecta	Dot-seed Plantain	4
Salvia apiana	White Sage	2
Totals		39
Optional Alternate Species		
Baccharis pilularis	Coyotebrush	
Dichelostemma capitatum	Wild Hyacinth	
Leymus condensatus	Giant Wild Rye	
Malcothamnus fasciculatus	Bushmallow	
Malosma laurina	Laurel Sumac	
Mirabilis californica	Wishbone Bush	
Opuntia littoralis	Coast prickly pear	
Rhus integrifolia	Lemonadeberry	
Solanum xanti	Chaparral Nightshade	

Table 10
Plant Palette for Coastal Sage Scrub (Mesic Alluvial Scrub) Creation Area

Scientific Name	Common Name	Number Per Acre
Platanus racemosa	Western Sycamore	15 one-gallon
Total		15 plants per acre
Scientific Name	**Common Name**	**Lbs. Per Acre**
Ambrosia psilostachya	Western Ragweed	2
Artemisia californica	California sagebrush	3
Artemisia douglasiana	Mugwort	2
Baccharis sarothroides	Broom Baccharis	2
Encelia californica	California Sunflower	2
Eriogonum fasciculatum	California buckwheat	6
Heteromeles arbutifolia	Toyon	4
Isocoma menziesii	Goldenbush	3
Lotus scoparius	Deerweed	3
Nassella pulchra	Purple Needlegrass	6
Plantago erecta	Dot-seed Plantain	4
Salvia apiana	White Sage	2
Totals		39
Optional Alternate Species		
Baccharis pilularis	Coyotebrush	
Dichelostemma capitatum	Wild Hyacinth	
Leymus condensatus	Giant Wild Rye	
Malcothamnus fasciculatus	Bushmallow	
Malosma laurina	Laurel Sumac	
Mirabilis californica	Wishbone Bush	
Opuntia littoralis	Coast prickly pear	
Rhus integrifolia	Lemonadeberry	
Solanum xanti	Chaparral Nightshade	

Table 11
Plant Palette for Chaparral Creation Area

Scientific Name	Common Name	Lbs. Per Acre
Ambrosia psilostachya	Western Ragweed	2
Adenostoma fasciculatum	Chamise	1
Cerocarpus betuloides	Mountain Mahogany	6
Eriogonum fasciculatum	California buckwheat	6
Heteromeles arbutifolia	Toyon	4
Lotus scoparius	Deerweed	3
Malcothamnus fasciculatus	Bushmallow	4
Malosma laurina	Laurel Sumac	2
Nassella pulchra	Purple Needlegrass	6
Plantago erecta	Dot-seed Plantain	4
Totals		38
Optional Alternate Species		
Croton californica	California Croton	
Dichelostemma capitatum	Wild Hyacinth	
Isocoma menziesii	Goldenbush	
Isomeris arborea	Bladderpod	
Leymus condensatus	Giant Wild Rye	
Mirabilis californica	Wishbone Bush	
Opuntia littoralis	Coast prickly pear	
Rhus integrifolia	Lemonadeberry	
Solanum xanti	Chaparral Nightshade	

Table 12
Plant Palette for Native Grassland Creation Area

Scientific Name	Common Name	Lbs. Per Acre
Amsinckia menziesii var. *intermedia*	Common Fiddleneck	1
Bromus carinatus	California Brome	6
Calandrinia ciliata	Red Maids	1
Dichelostemma capitatum	Wild Hyacinth	1
Elymus glaucus	Blue Wild Rye	6
Lasthenia californica	Goldfields	1
Leymus condensatus	Giant Wild Rye	4
Lupinus truncatus	Collar Lupine	3
Nassella cernua	Nodding Needlegrass	3
Nassella lepida	Foothill Needlegrass	4
Nassella pulchra	Purple Needlegrass	6
Phacelia distans	Distant Phacelia	1
Plantago erecta	Dot-seed Plantain	4
Sisyrinchium bellum	Blue-eyed Grass	3
Totals		44

Table 13
Maintenance/Monitoring Schedule

Task	Year				
	1	2	3	4	5
Biological Monitoring	Monthly	Bimonthly	Quarterly	Quarterly	Quarterly
Plant Inspection	Monthly first 12 months	Monthly through 18th month; quarterly thereafter	Quarterly	Quarterly	Quarterly
Irrigation System Inspection	Monthly, or more frequently if required	Monthly	As Required	N/A	N/A
Trash and Debris Removal	Monthly	Monthly	Monthly	Monthly	Monthly
Weed Control	Minimum of Monthly	Monthly	Monthly	Monthly	Monthly
Pest Control	Monthly	Bi-monthly	Quarterly	Quarterly	Quarterly
Plant Replacement	Annually	Annually	Annually	Annually	Annually
Fertilization (if necessary)	Annually	Annually	N/A	N/A	N/A

Table 14
Southern Willow Scrub, Cottonwood Riparian Forest, and Cottonwood Riparian Forest/Pond Creation Area Performance Standards

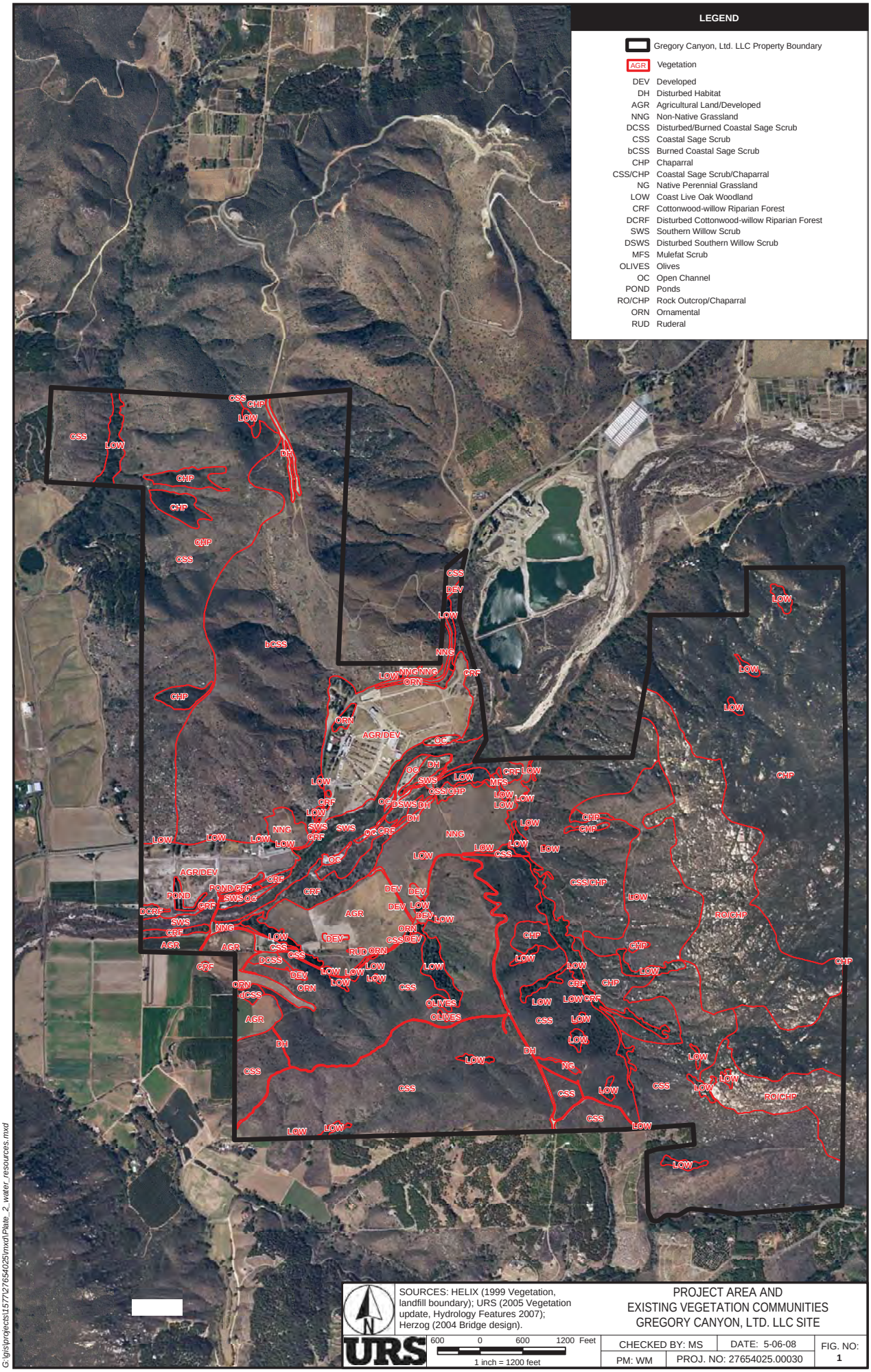
Milestone	Assessment Criteria	Maintenance Action
Year 1	Native plants (seeds, container plantings, cuttings) to achieve 30% absolute cover and 90% survivorship of container stock (cuttings not included). Weed cover less than 10%.	If target plant materials experience mortality and do not meet first year success criteria, plants will be replaced to bring densities up to 100% of the original planting density.
Year 2	Native plants (seeds, container plantings, cuttings) to achieve 40% absolute cover and 85% survivorship of container stock (cuttings not included). Weed cover less than 10%.	If plants do not meet coverage criteria, additional seeding and planting will be done. If necessary, container plantings will be replaced to bring numbers up to survivorship percentage requirements.
Year 3	Native plants (seeds, container plantings, cuttings) to achieve 50% absolute cover, with at least two dominant native species at 15-20% cover each, and at least two subdominant native species at 5-10% cover each, and 80% survivorship of container stock (cuttings not included). Weed cover less than 10%.	If plants do not meet coverage criteria, additional seeding and planting will be done. If necessary, container plantings will be replaced to bring numbers up to survivorship percentage requirements.
Year 4	Native plants (seeds, container plantings, cuttings) to achieve 60% absolute cover, with at least two dominant native species at 15-20% cover each, and at least two subdominant native species at 5-10% cover each, and 75% survivorship of container stock (cuttings not included). Weed cover less than 10%. Supplemental irrigation is discontinued at the beginning of the 4th year.	If plants do not meet coverage criteria, additional seeding and planting will be done. If necessary, container plantings will be replaced to bring numbers up to survivorship percentage requirements.
Year 5	Native plants (seeds, container plantings, cuttings) to achieve 75% absolute cover, with at least two dominant native species at 15-20% cover each, and at least two subdominant native species at 5-10% cover each, and 70% survivorship of container stock (cuttings not included). Weed cover less than 10%.	If plants do not meet coverage criteria, additional seeding and planting will be done. If necessary, container plantings will be replaced to bring numbers up to survivorship percentage requirements.

Table 15
Oak Woodland with Alluvial Scurb/Native Grassland Understory and Coastal Sage Scurb (Mesic Alluvial Scrub) Creation Area Performance Standards

Milestone	Assessment Criteria	Maintenance Action
Year 1	Native plants (seeds, container plantings, cuttings) to achieve 25% absolute cover and 90% survivorship of container stock. Weed cover less than 10%.	If target plant materials experience mortality and do not meet first year success criteria, plants will be replaced to bring densities up to 100% of the original planting density.
Year 2	Native plants (seeds, container plantings, cuttings) to achieve 35% absolute cover and 90% survivorship of container stock. Weed cover less than 10%.	If plants do not meet coverage criteria, additional seeding and planting will be done. If necessary, container plantings will be replaced to bring numbers up to survivorship percentage requirements.
Year 3	Native plants (seeds, container plantings, cuttings) to achieve 50% absolute cover, with at least two dominant native species at 15-20% cover each, and at least two subdominant native species at 5-10% cover each, and 85% survivorship of container stock. Weed cover less than 10%.	If plants do not meet coverage criteria, additional seeding and planting will be done. If necessary, container plantings will be replaced to bring numbers up to survivorship percentage requirements.
Year 4	Native plants (seeds, container plantings, cuttings) to achieve 60% absolute cover, with at least two dominant native species at 15-20% cover each, and at least two subdominant native species at 5-10% cover each, and 80% survivorship of container stock. Weed cover less than 10%. Supplemental irrigation is discontinued at the beginning of the 4th year.	If plants do not meet coverage criteria, additional seeding and planting will be done. If necessary, container plantings will be replaced to bring numbers up to survivorship percentage requirements.
Year 5	Native plants (seeds, container plantings, cuttings) to achieve 65% absolute cover, with at least two dominant native species at 15-20% cover each, and at least two subdominant native species at 5-10% cover each, and 75% survivorship of container stock. Weed cover less than 10%.	If plants do not meet coverage criteria, additional seeding and planting will be done. If necessary, container plantings will be replaced to bring numbers up to survivorship percentage requirements.

Table 16
Coastal Sage Scrub, Chaparral, and Native Grassland Performance Standards

Milestone	Assessment Criteria	Maintenance Action
Year 1	Native plants (seeds) to achieve 30% absolute cover. Weed cover less than 10%.	If target plant materials do not meet first year success criteria, supplemental seeding will be done.
Year 2	Native plants to achieve 40% absolute cover. Weed cover less than 10%.	If plants do not meet coverage criteria, additional seeding will be done.
Year 3	Native plants to achieve 50% absolute cover, with at least two dominant native species at 15-20% cover each, and at least two subdominant native species at 5-10% cover each. Weed cover less than 10%.	If plants do not meet coverage criteria, additional seeding will be done.
Year 4	Native plants to achieve 60% absolute cover, with at least two dominant native species at 15-20% cover each, and at least two subdominant native species at 5-10% cover each. Weed cover less than 10%. Supplemental irrigation is discontinued at the beginning of the 4th year.	If plants do not meet coverage criteria, additional seeding will be done.
Year 5	Native plants to achieve 70% absolute cover, with at least two dominant native species at 15-20% cover each, and at least two subdominant native species at 5-10% cover each. Weed cover less than 10%.	If plants do not meet coverage criteria, additional seeding will be done.



SOURCES: HELIX (1999 Vegetation, landfill boundary); URS (2005 Vegetation update, Hydrology Features 2007); Herzog (2004 Bridge design).

PROJECT AREA AND
EXISTING VEGETATION COMMUNITIES
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1 inch = 1200 feet

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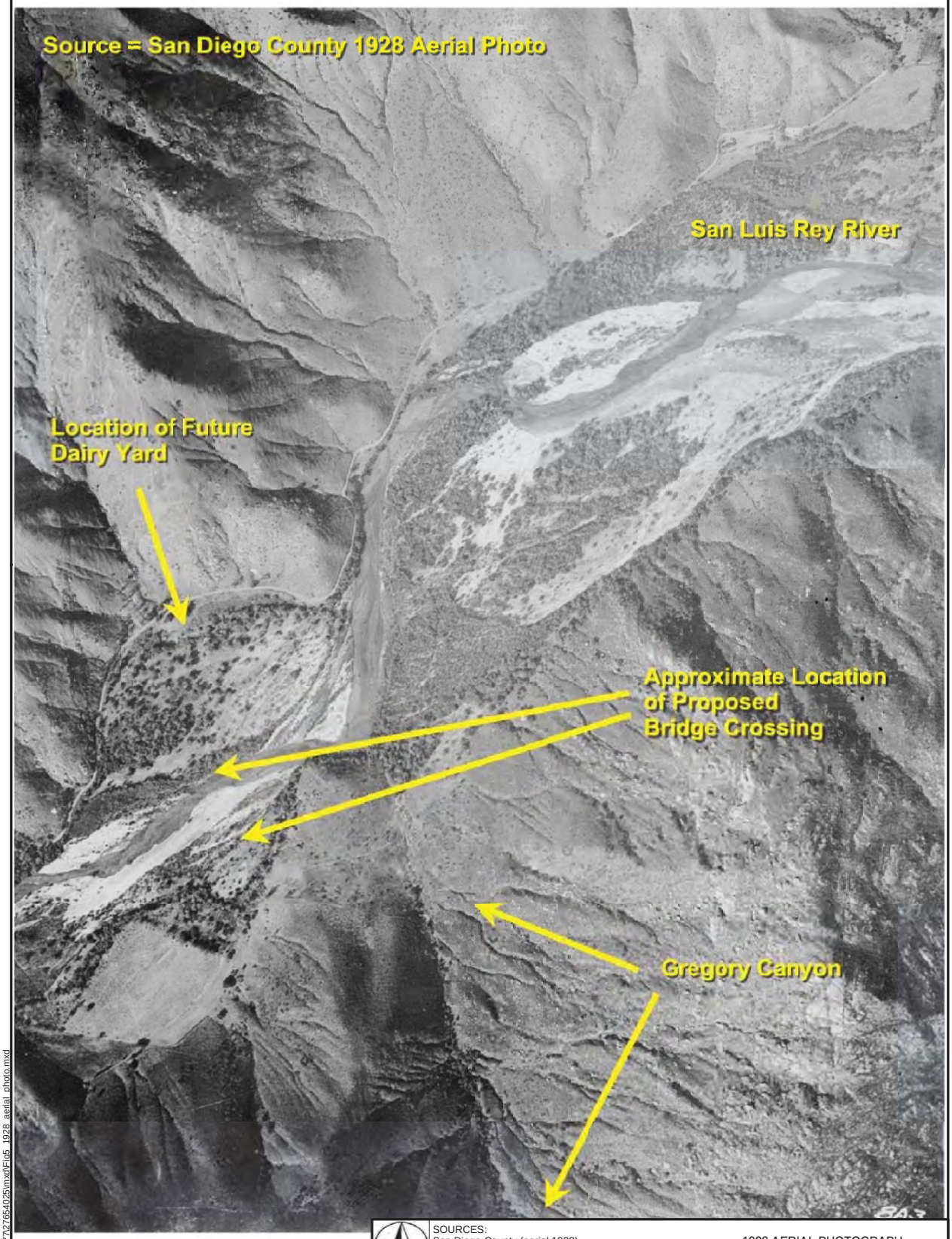

SOURCES:
San Diego County (aerial 1928).

1928 AERIAL PHOTOGRAPH
GREGORY CANYON LTD. LLC

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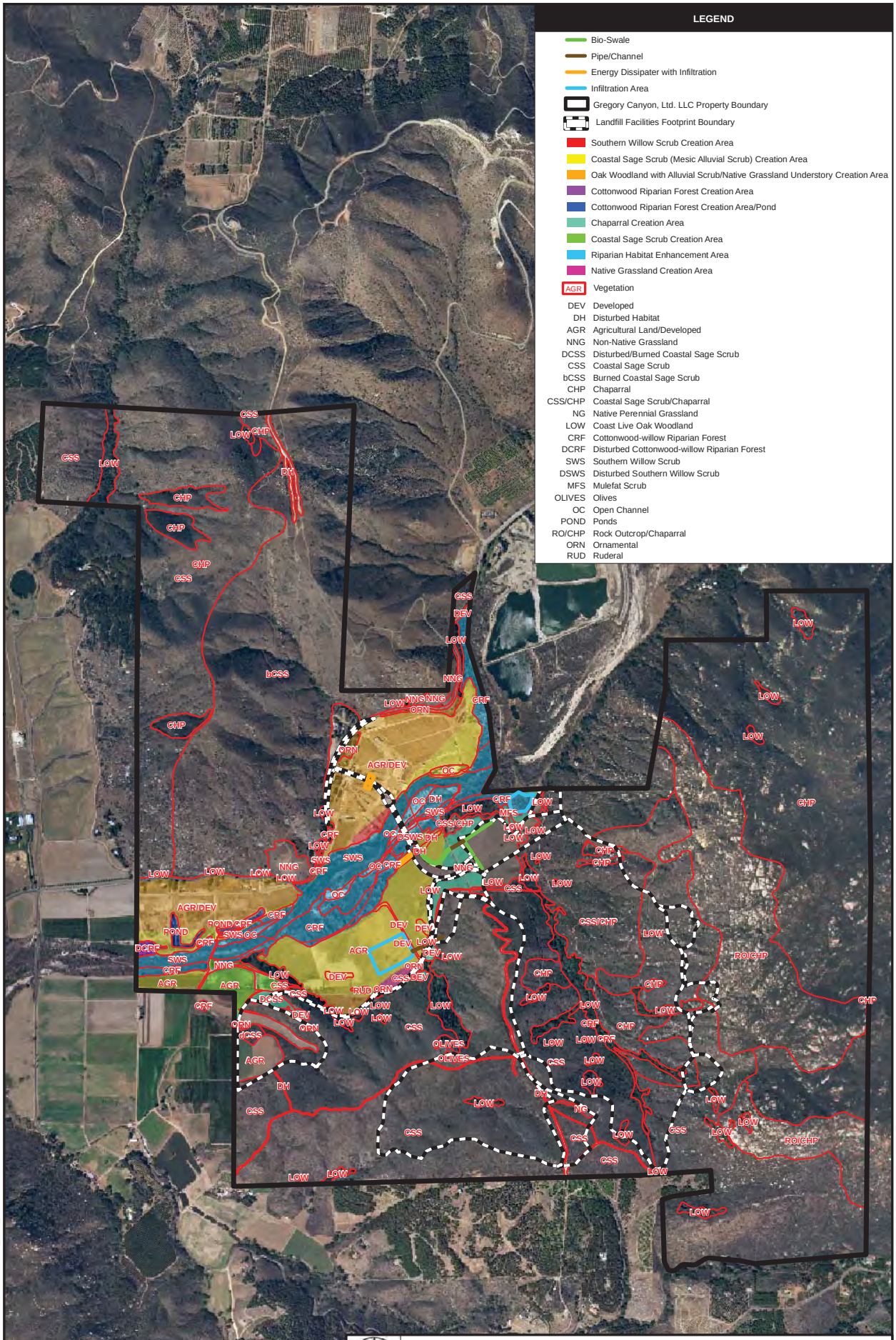

SOURCES: HELIX (1999 Vegetation, landfill boundary); URS (2005 Vegetation update, Hydrology Features 2007); Herzog (2004 Bridge design).

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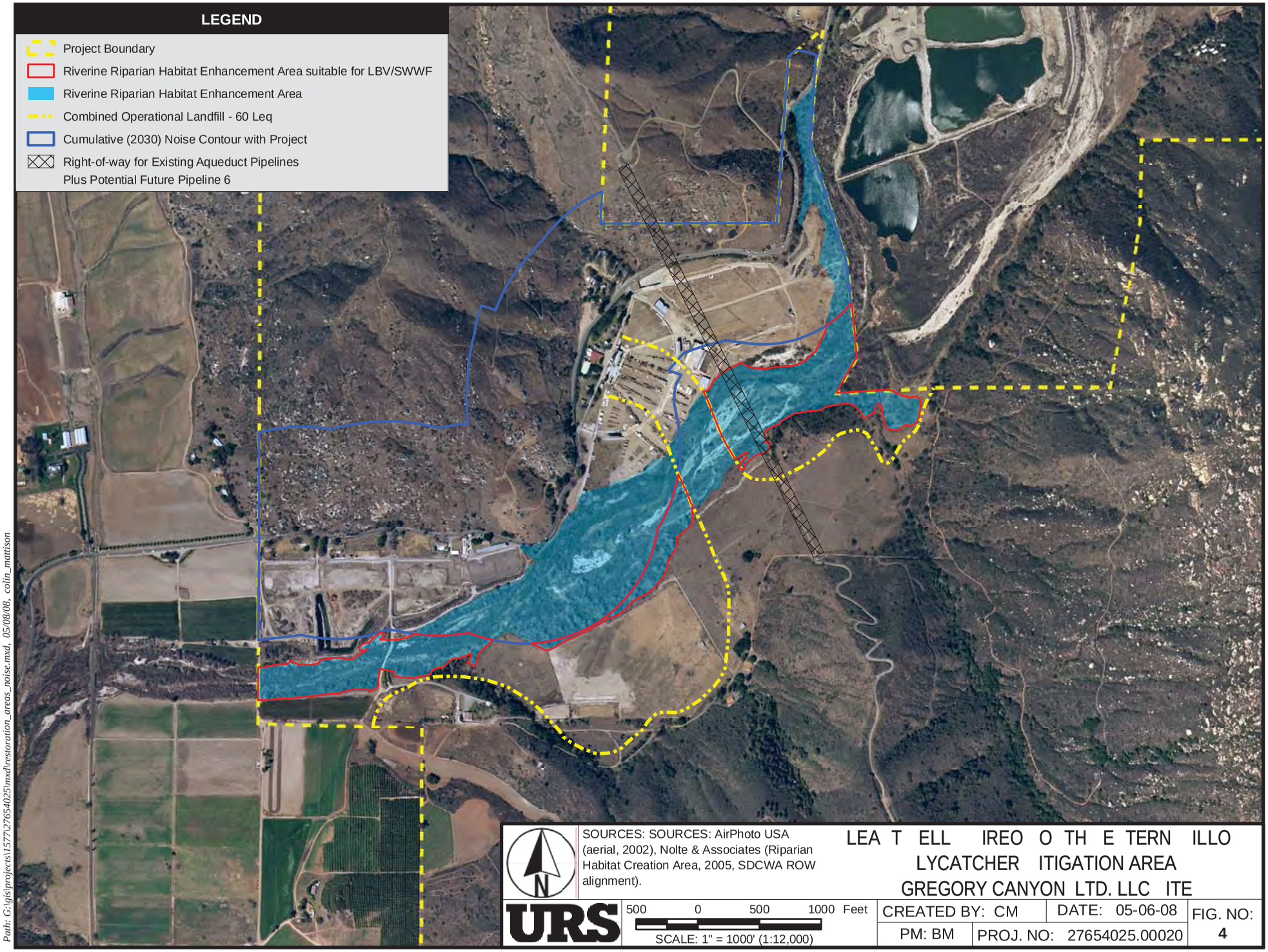

SOURCES: SOURCES: AirPhoto USA (aerial, 2002), Nolte & Associates (Riparian Habitat Creation Area, 2005, SDCWA ROW alignment).

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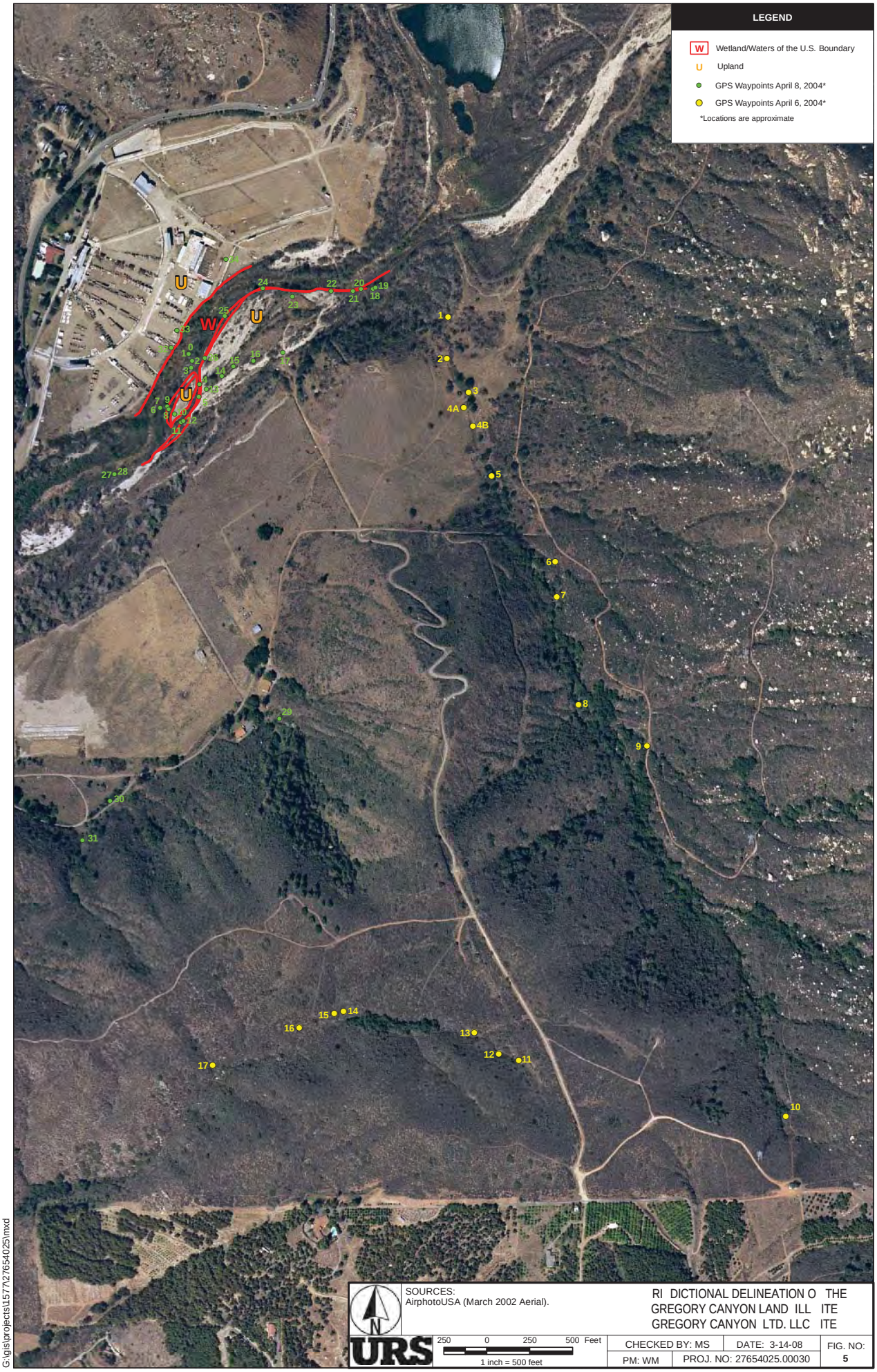

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LEGEND

Transect Locations

SOURCES:
AerialExpress (aerial March 2007);
URS (transects).

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1 inch = 150 feet

ILDERNE GARDEN REGIONAL PAR
RE ERENCE ITE TRAN ECT LOCATION
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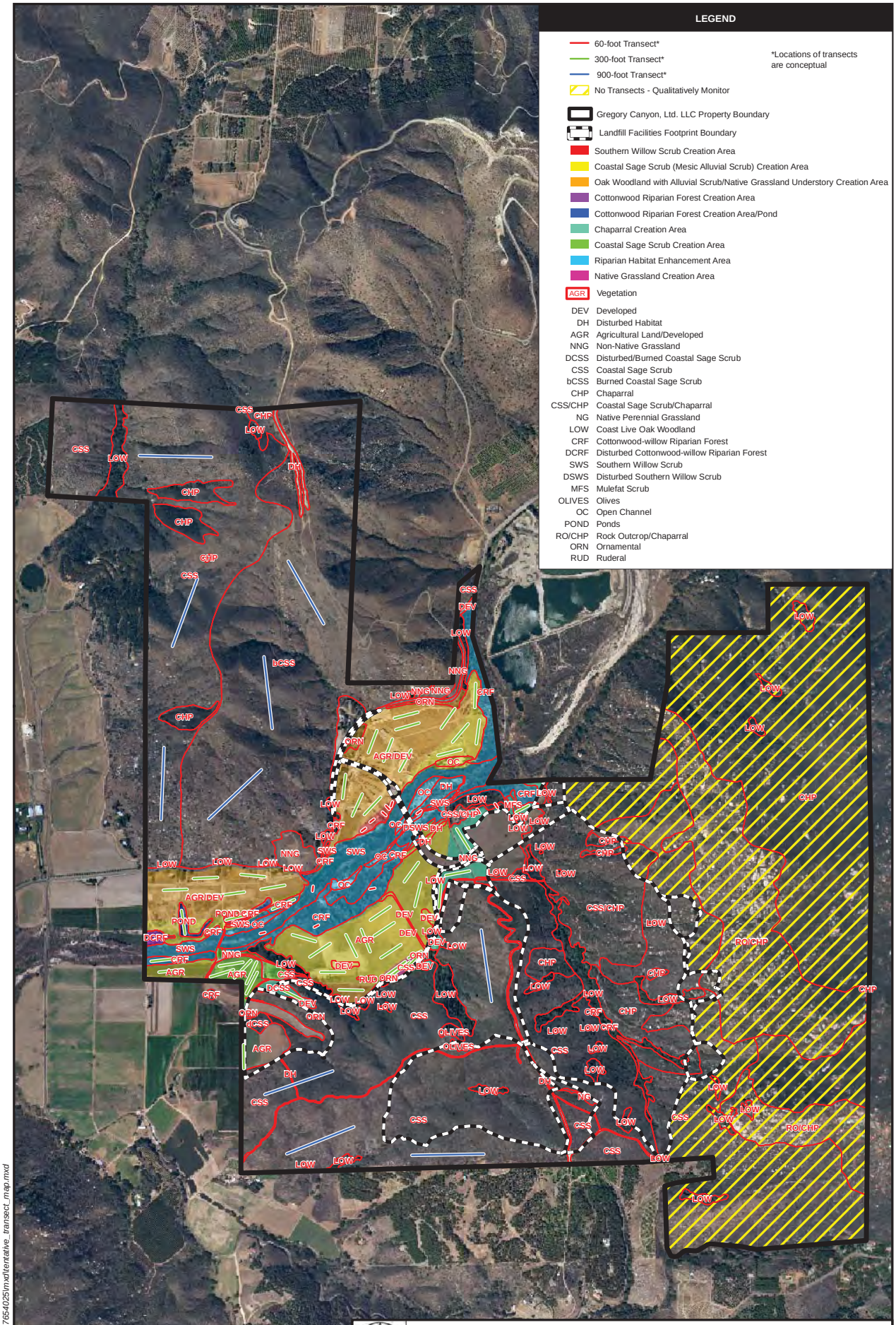

SOURCES: HELIX (1999 Vegetation, landfill boundary); URS (2005 Vegetation update, Hydrology Features 2007); Herzog (2004 Bridge design).

TENTATI E TRAN ECT LOCATION AP
GREGORY CANYON LTD. LLC ITE

URS

600 0 600 1200 Feet
1 inch = 1200 feet

CHECKED BY: CM	DATE: 9-15-08	FIG. NO:
PM: WM	PROJ. NO: 27654025.00020	7

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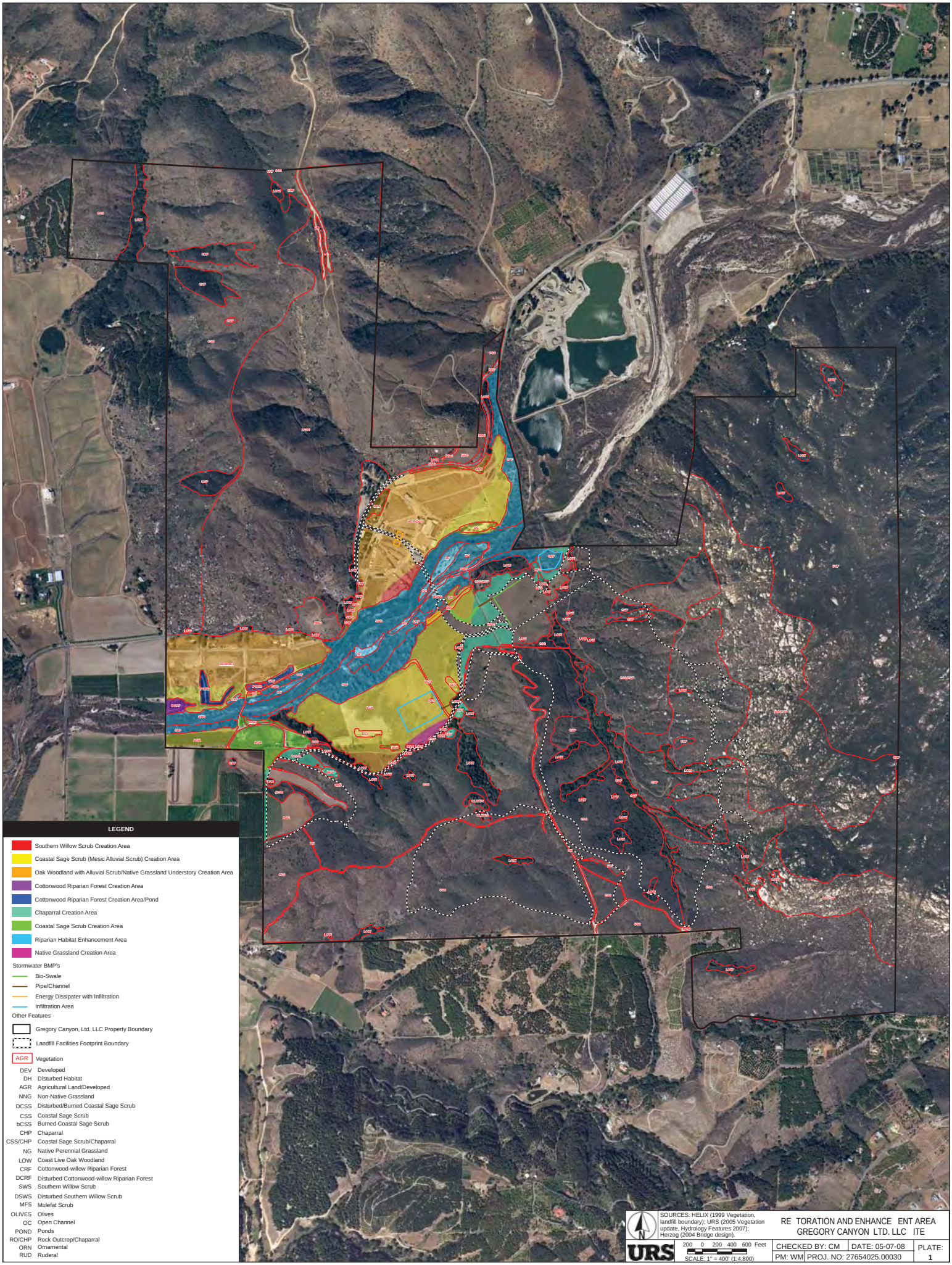

LEGEND
Southern Willow Scrub Creation Area
Coastal Sage Scrub (Mesic Alluvial Scrub) Creation Area
Oak Woodland with Alluvial Scrub/Native Grassland Understory Creation Area
Cottonwood Riparian Forest Creation Area
Cottonwood Riparian Forest Creation Area/Pond
Chaparral Creation Area
Coastal Sage Scrub Creation Area
Riparian Habitat Enhancement Area
Native Grassland Creation Area
Stormwater BMP's
Bio-Swale
Pipe/Channel
Energy Dissipater with Infiltration
Infiltration Area
Other Features
Gregory Canyon, Ltd. LLC Property Boundary
Landfill Facilities Footprint Boundary
AGR Vegetation
DEV Developed
DH Disturbed Habitat
AGR Agricultural Land/Developed
NNG Non-Native Grassland
DCSS Disturbed/Burned Coastal Sage Scrub
CSS Coastal Sage Scrub
bCSS Burned Coastal Sage Scrub
CHP Chaparral
CSS/CHP Coastal Sage Scrub/Chaparral
NG Native Perennial Grassland
LOW Coast Live Oak Woodland
CRF Cottonwood-willow Riparian Forest
DCRF Disturbed Cottonwood-willow Riparian Forest
SWS Southern Willow Scrub
DSWS Disturbed Southern Willow Scrub
MFS Mulefat Scrub
OLIVES Olives
OC Open Channel
POND Ponds
RO/CHP Rock Outcrop/Chaparral
ORN Ornamental
RUD Ruderal
G:\gis\projects\157\27654025\mxd\Plate_2_water_resources.mxd
N
SOURCES: HELIX (1999 Vegetation, landfill boundary); URS (2005 Vegetation update, Hydrology Features 2007); Herzog (2004 Bridge design).
URS
200 0 200 400 600 Feet
SCALE: 1" = 400' (1:4,800)
RE TORATION AND ENHANCE ENT AREA
GREGORY CANYON LTD. LLC ITE
CHECKED BY: CM
DATE: 05-07-08
PM: WM
PROJ. NO: 27654025.00030
PLATE: 1

1.0 Initial and Capital Tasks and Costs (section 8 of PAR)

Task List	Specifications	unit	number	cost/unit	interval	Total
1.1 SITE CONSTRUCTION/MAINTENANCE						
Fence, installed	Hi-vis and t-posts	Feet	10000	$ 2.00	1	$ 20,000.00
Subtotal						$ 20,000.00
1.2 BIOTIC SURVEYS						
Restoration Biologist	Project management, supervise implementation	Hours	200	$ 100.00	1	$ 20,000.00
Restoration Biologist	Baseline field survey to delineate sensitive areas	Hours	160	$ 100.00	1	$ 16,000.00
Wildlife Biologist	Baseline wildlife survey to delineate sensitive areas	Hours	160	$ 100.00	1	$ 16,000.00
Monitor Climate	Local resource	Hours	25	$ 100.00	1	$ 2,500.00
Subtotal						$ 54,500.00
1.3 HABITAT RESTORATION	SOUTHERN WILLOW SCRUB CREATION AREA (2.3 acres)*					
Organic Debris Removal	Remove weeds to landfill	Hours	16	$ 50.00	1	$ 800.00
Non-organic Debris Removal	Remove garbage to landfill	Hours	16	$ 50.00	1	$ 800.00
Seed Procurement	native seed	Acre	1	$ 842.00	1	$ 842.00
Plant Procurement	Native trees, gallon size	Acre	1	$ 120.00	1	$ 120.00
Plant Procurement	Cuttings	Hours	14	$ 50.00	1	$ 700.00
Revegetation	flag plant locations	Hours	8	$ 50.00	1	$ 400.00
Revegetation	plant installation	Hours	40	$ 50.00	1	$ 2,000.00
Revegetation	Hand seeding, raking, and tamping	Hours	40	$ 50.00	1	$ 2,000.00
Plant Protection Device, installed	plastic mesh or wire	Item	40	$ 1.45	1	$ 58.00
Irrigation System, temp	Overhead system	Acre	1	$ 26,000.00	1	$ 26,000.00
Irrigation System	Maintenance, labor	Hours	16	$ 70.25	1	$ 1,124.00
Exotic Plant Control	Hand removal	Hours	80	$ 50.00	1	$ 4,000.00
Exotic Plant Control	Herbicide (such as Rodeo, Roundup Pro or Fusilade)	Acre	1	$ 1,458.00	1	$ 1,458.00

1.0 Initial and Capital Tasks and Costs (section 8 of PAR)

Task List	Specifications	unit	number	cost/unit	interval	Total
Exotic Plant Control	Herbicide application (such as tractor or backpack)	Hours	16	$ 50.00	1	$ 800.00
Other	misc. supplies	Item	1	$ 250.00	1	$ 250.00
Subtotal per acre						$ 41,352.00
Overall area subtotal						$ 95,109.60

* Does not include cost of grading. Grading will be included with bridge construction.

1.4 HABITAT RESTORATION	COTTONWOOD RIPARIAN FOREST CREATION AREA AND COTTONWOOD RIPARIAN FOREST CREATION AREA/POND (4.2 acres)*					
Organic Debris Removal	Remove weeds to landfill	Hours	16	$ 50.00	1	$ 800.00
Non-organic Debris Removal	Remove garbage to landfill	Hours	16	$ 50.00	1	$ 800.00
Seed Procurement	native seed	Acre	1	$ 899.00	1	$ 899.00
Plant Procurement	Native trees, gallon size	Acre	1	$ 120.00	1	$ 120.00
Plant Procurement	Cuttings	Hours	8	$ 50.00	1	$ 400.00
Revegetation	flag plant locations	Hours	4	$ 50.00	1	$ 200.00
Revegetation	plant installation	Hours	20	$ 50.00	1	$ 1,000.00
Revegetation	Hand seeding, raking, and tamping	Hours	40	$ 50.00	1	$ 2,000.00
Plant Protection Device, installed	plastic mesh or wire	Item	40	$ 1.45	1	$ 58.00
Irrigation System, temp	Overhead system	Acre	1	$ 26,000.00	1	$ 26,000.00
Irrigation System	Maintenance, labor	Hours	16	$ 70.25	1	$ 1,124.00
Exotic Plant Control	Hand removal	Hours	80	$ 50.00	1	$ 4,000.00
Exotic Plant Control	Herbicide (such as Rodeo, Roundup Pro or Fusilade)	Acre	1	$ 1,458.00	1	$ 1,458.00
Exotic Plant Control	Herbicide application (such as tractor or backpack)	Hours	16	$ 50.00	1	$ 800.00
Other	misc. supplies	Item	1	$ 250.00	1	$ 250.00
Subtotal per acre						$ 39,909.00
Overall area subtotal						$ 167,617.80

1.0 Initial and Capital Tasks and Costs (section 8 of PAR)

Task List	Specifications	unit	number	cost/unit	interval	Total
1.5 HABITAT RESTORATION	OAK WOOODLAND WITH ALLUVIAL SCRUB/NATIVE GRASSLAND UNDERSTORY CREATION AREA (70.4 acres)					
Soil Preparation	Rip or till soil as directed	Hours	4	$ 50.00	1	$ 200.00
Organic Debris Removal	Remove weeds to landfill	Hours	10	$ 50.00	1	$ 500.00
Non-organic Debris Removal	Remove garbage to landfill	Hours	10	$ 50.00	1	$ 500.00
Seed Procurement	native seed	Acre	1	$ 1,652.00	1	$ 1,652.00
Plant Procurement	Native trees, gallon size	Acre	1	$ 585.00	1	$ 585.00
Revegetation	flag plant locations	Hours	2	$ 50.00	1	$ 100.00
Revegetation	plant installation	Hours	8	$ 50.00	1	$ 400.00
Revegetation	Hand seeding, raking, and tamping	Hours	40	$ 50.00	1	$ 2,000.00
Plant Protection Device, installed	plastic mesh or wire	Item	150	$ 1.45	1	$ 217.50
Irrigation System, temp	Overhead system	Acre	1	$ 26,000.00	1	$ 26,000.00
Irrigation System	Maintenance, labor	Hours	16	$ 70.25	1	$ 1,124.00
Exotic Plant Control	Hand removal	Hours	52	$ 50.00	1	$ 2,600.00
Exotic Plant Control	Herbicide (such as Rodeo, Roundup Pro or Fusilade)	Acre	1	$ 1,458.00	1	$ 1,458.00
Exotic Plant Control	Herbicide application (such as tractor or backpack)	Hours	16	$ 50.00	1	$ 800.00
Other	misc. supplies	Item	1	$ 250.00	1	$ 250.00
Subtotal per acre						$ 38,386.50
Overall area subtotal						$ 2,702,409.60
1.6 HABITAT RESTORATION	CHAPARRAL CREATION AREA (14.3 acres)					
Soil Preparation	Rip or till soil as directed	Hours	4	$ 50.00	1	$ 200.00
Organic Debris Removal	Remove weeds to landfill	Hours	10	$ 50.00	1	$ 500.00
Non-organic Debris Removal	Remove garbage to landfill	Hours	10	$ 50.00	1	$ 500.00
Seed Procurement	native seed	Acre	1	$ 1,288.00	1	$ 1,288.00
Revegetation	Hand seeding, raking, and tamping	Hours	40	$ 50.00	1	$ 2,000.00

1.0 Initial and Capital Tasks and Costs (section 8 of PAR)

Task List	Specifications	unit	number	cost/unit	interval	Total
Irrigation System, temp	Overhead system	Acre	1	$ 26,000.00	1	$ 26,000.00
Irrigation System	Maintenance, labor	Hours	16	$ 70.25	1	$ 1,124.00
Exotic Plant Control	Hand removal	Hours	52	$ 50.00	1	$ 2,600.00
Exotic Plant Control	Herbicide (such as Rodeo, Roundup Pro or Fusilade)	Acre	1	$ 1,458.00	1	$ 1,458.00
Exotic Plant Control	Herbicide application (such as tractor or backpack)	Hours	16	$ 50.00	1	$ 800.00
Other	misc. supplies	Item	1	$ 250.00	1	$ 250.00
Subtotal per acre						$ 36,720.00
Overall area subtotal						$ 525,096.00

1.7 HABITAT RESTORATION	COASTAL SAGE SCRUB (MESIC ALLUVIAL SCRUB) AND COASTAL SAGE SCRUB CREATION AREAS (79.3 acres)					
Soil Preparation	Rip or till soil as directed	Hours	4	$ 50.00	1	$ 200.00
Organic Debris Removal	Remove weeds to landfill	Hours	10	$ 50.00	1	$ 500.00
Non-organic Debris Removal	Remove garbage to landfill	Hours	10	$ 50.00	1	$ 500.00
Seed Procurement	native seed	Acre	1	$ 2,676.00	1	$ 2,676.00
Plant Procurement	Native trees, gallon size	Acre	1	$ 45.00	1	$ 45.00
Revegetation	flag plant locations	Hours	1	$ 50.00	1	$ 50.00
Revegetation	plant installation	Hours	2	$ 50.00	1	$ 100.00
Revegetation	Hand seeding, raking, and tamping	Hours	40	$ 50.00	1	$ 2,000.00
Plant Protection Device, installed	plastic mesh or wire	Item	15	$ 1.45	1	$ 21.75
Irrigation System, temp	Overhead system	Acre	1	$ 26,000.00	1	$ 26,000.00
Irrigation System	Maintenance, labor	Hours	16	$ 70.25	1	$ 1,124.00
Exotic Plant Control	Hand removal	Hours	52	$ 50.00	1	$ 2,600.00
Exotic Plant Control	Herbicide (such as Rodeo, Roundup Pro or Fusilade)	Acre	1	$ 1,458.00	1	$ 1,458.00
Exotic Plant Control	Herbicide application (such as tractor or backpack)	Hours	16	$ 50.00	1	$ 800.00
Other	misc. supplies	Item	1	$ 250.00	1	$ 250.00

1.0 Initial and Capital Tasks and Costs (section 8 of PAR)

Task List	Specifications	unit	number	cost/unit	interval	Total
Subtotal per acre						$ 38,324.75
Overall area subtotal						$ 3,039,152.68
1.8 HABITAT RESTORATION	NATIVE GRASSLAND CREATION AREA (2.0 acres)					
Soil Preparation	Rip or till soil as directed	Hours	4	$ 50.00	1	$ 200.00
Organic Debris Removal	Remove weeds to landfill	Hours	10	$ 50.00	1	$ 500.00
Non-organic Debris Removal	Remove garbage to landfill	Hours	10	$ 50.00	1	$ 500.00
Seed Procurement	native seed	Acre	1	$ 1,754.00	1	$ 1,754.00
Revegetation	Hand seeding, raking, and tamping	Hours	40	$ 50.00	1	$ 2,000.00
Irrigation System, temp	Overhead system	Acre	1	$ 26,000.00	1	$ 26,000.00
Irrigation System	Maintenance, labor	Hours	16	$ 70.25	1	$ 1,124.00
Exotic Plant Control	Hand removal	Hours	52	$ 50.00	1	$ 2,600.00
Exotic Plant Control	Herbicide (such as Rodeo, Roundup Pro or Fusilade)	Acre	1	$ 1,458.00	1	$ 1,458.00
Exotic Plant Control	Herbicide application (such as tractor or backpack)	Hours	16	$ 50.00	1	$ 800.00
Other	misc. supplies	Item	1	$ 250.00	1	$ 250.00
Subtotal per acre						$ 37,186.00
Overall area subtotal						$ 74,372.00
1.9 HABITAT RESTORATION	RIVERINE RIPARIAN MANAGEMENT ENHANCEMENT AREA (75.6 acres)					
Organic Debris Removal	Remove weeds to landfill	Hours	10	$ 50.00	1	$ 500.00
Non-organic Debris Removal	Remove garbage to landfill	Hours	10	$ 50.00	1	$ 500.00
Exotic Plant Control	Hand removal	Hours	52	$ 50.00	1	$ 2,600.00
Exotic Plant Control	Herbicide (such as Rodeo, Roundup Pro or Fusilade)	Acre	1	$ 1,458.00	1	$ 1,458.00
Exotic Plant Control	Herbicide application (such as tractor or backpack)	Hours	14	$ 50.00	1	$ 700.00
Other	misc. supplies	Item	1	$ 100.00	1	$ 100.00

1.0 Initial and Capital Tasks and Costs (section 8 of PAR)

Task List	Specifications	unit	number	cost/unit	interval	Total
Subtotal per acre						$ 5,858.00
Overall area subtotal						$ 442,864.80
1.10 REPORTING						
Database Management	data input	Hours	160	$ 100.00	1	$ 16,000.00
GIS/CAD Management	data management	Hours	40	$ 100.00	1	$ 4,000.00
Photodocumentation	field survey	Hours	160	$ 100.00	1	$ 16,000.00
Aerial photos	flight	Item	1	$ 1,000.00	1	$ 1,000.00
Agency Report	As-Built report	Hours	60	$ 100.00	1	$ 6,000.00
Report Production	labor	Hours	20	$ 100.00	1	$ 2,000.00
Subtotal						$ 45,000.00
OFFICE MAINTENANCE	Part of Landfill operation costs					
FIELD EQUIPMENT	Part of Landfill operation costs					
OPERATIONS	Part of Landfill operation costs					
SUBTOTAL	(using the Overall Area Subtotal values where applicable)					$ 7,166,122.48

1.0 Initial and Capital Tasks and Costs (section 8 of PAR)

Task List	Specifications	unit	number	cost/unit	interval	Total
1.11 CONTINGENCY & ADMINISTRATION						
Contingency	10% of total					$ 716,612.25
Administration	20% of total					$ 1,433,224.50
Subtotal						$ 2,149,836.74
SECTION 1.0 GRAND TOTAL						$ 9,315,959.22

2.0 Ongoing Tasks and Costs (section 9 of PAR) for FIVE YEAR MONITORING/MAINTENANCE PERIOD (for restoration area, ~248.1 acres)*

Task List	Specifications	unit	number	cost/unit	interval	Total
2.1 SITE CONSTRUCTION/MAINTENANCE						
Fence, maintenance	Check and repair fencing as needed	Hours	160	$ 50.00	1	$ 8,000.00
Subtotal						$ 8,000.00
2.2 BIOTIC SURVEYS						
Restoration Biologist	Project Management	Hours	100	$ 100.00	1	$ 10,000.00
Restoration Biologist	Annual monitoring	Hours	140	$ 100.00	1	$ 14,000.00
Wildlife Biologist	Annual monitoring	Hours	140	$ 100.00	1	$ 14,000.00
Restoration Biologist	Field survey	Hours	120	$ 100.00	1	$ 12,000.00
Wildlife Biologist	Field survey	Hours	120	$ 100.00	1	$ 12,000.00
Botanist	Outside expert	Hours	40	$ 100.00	1	$ 4,000.00
Monitor Climate	Local resource	Hours	8	$ 100.00	1	$ 800.00
Subtotal						$ 66,800.00

* Costs are calculated per year, total by year and cumulative total appears at the end of this section.

2.0 Ongoing Tasks and Costs (section 9 of PAR) for FIVE YEAR MONITORING/MAINTENANCE PERIOD (for restoration area, ~248.1 acres)*

Task List	Specifications	unit	number	cost/unit	interval	Total
2.3 HABITAT RESTORATION						
Supplemental Planting	Replacement planting if needed	Hours	80	$ 50.00	1	$ 4,000.00
Seed Procurement	native seed	Acre	172.5	$ 75.00	1	$ 12,937.50
Plant Procurement	Native trees, gallon size	Item	600	$ 3.00	1	$ 1,800.00
Plant Procurement	Cuttings	Hours	12	$ 50.00	1	$ 600.00
Plant Protection Device	collar & screen or wire, or tube	Item	600	$ 1.50	1	$ 900.00
Other	misc. supplies	Item	1	$ 2,500.00	1	$ 2,500.00
Subtotal						$ 22,737.50
2.4 HABITAT MAINTENANCE						
Organic Debris Removal	Remove weeds to landfill	Hours	100	$ 50.00	1	$ 5,000.00
Non-organic Debris Removal	Remove garbage to landfill	Hours	100	$ 50.00	1	$ 5,000.00
Erosion Control	Check for erosion control problems	Hours	100	$ 50.00	1	$ 5,000.00
Irrigation System	Maintenance, labor	Hours	100	$ 50.00	1	$ 5,000.00
Exotic Plant Control	Hand removal	Hours	1400	$ 50.00	1	$ 70,000.00
Exotic Plant Control	Herbicide (such as Rodeo, Roundup Pro or Fusilade)	Acre	20	$ 1,458.00	1	$ 29,160.00
Exotic Plant Control	Herbicide application (such as tractor or backpack)	Hours	200	$ 50.00	1	$ 10,000.00
Exotic Plant Control	weed whip	Hours	200	$ 50.00	1	$ 10,000.00
Pest Control	Check for insect and animal pest/damage	Hours	100	$ 50.00	1	$ 5,000.00
Other	misc supplies	item	1	$ 2,500.00	1	$ 2,500.00
Subtotal						$ 146,660.00

2.0 Ongoing Tasks and Costs (section 9 of PAR) for FIVE YEAR MONITORING/MAINTENANCE PERIOD (for restoration area, ~248.1 acres)*

Task List	Specifications	unit	number	cost/unit	interval	Total
2.5 REPORTING						
Database Management	data input	Hours	60	$ 100.00	1	$ 6,000.00
GIS/CAD Management	data management	Hours	60	$ 100.00	1	$ 6,000.00
Photodocumentation	field survey	Hours	80	$ 100.00	1	$ 8,000.00
Agency Report	annual report	Hours	80	$ 100.00	1	$ 8,000.00
Monitoring Reports	monitoring documentation	Hours	80	$ 100.00	1	$ 8,000.00
Report Production	labor	Hours	20	$ 100.00	1	$ 2,000.00
Subtotal						$ 38,000.00
SUBTOTAL						$ 282,197.50
2.6 CONTINGENCY & ADMINISTRATION						
Contingency	10% of total					$ 28,219.75
Administration	20% of total					$ 56,439.50
Changed Circumstances Reserve	25% of total					$ 70,549.38
Subtotal						$ 155,208.63
TOTAL	Year 1					$ 437,406.13
	Year 2					$ 450,528.31
	Year 3					$ 464,044.16
	Year 4					$ 477,965.48
	Year 5					$ 492,304.45
SECTION 2.0 GRAND TOTAL	Five years					$ 2,322,248.52

3.0 Ongoing Tasks and Costs (section 9 of PAR) for THIRTY YEAR LANDFILL OPERATING PERIOD (for all open space, ~1,300 acres)

Task List	Specifications	unit	number	cost/unit	interval	Total
3.1 SITE CONSTRUCTION/MAINTENANCE						
Fence, maintenance	Check and repair fencing as needed	Hours	192	$ 50.00	1	$ 9,600.00
Subtotal						$ 9,600.00
3.2 BIOTIC SURVEYS						
Restoration Biologist	Project Management	Hours	20	$ 100.00	1	$ 2,000.00
Restoration Biologist	Habitat monitoring	Hours	80	$ 100.00	1	$ 8,000.00
Wildlife Biologist	Species monitoring	Hours	80	$ 100.00	1	$ 8,000.00
Botanist	Outside expert	Hours	40	$ 100.00	1	$ 4,000.00
Monitor Climate	Local resource	Hours	10	$ 100.00	1	$ 1,000.00
Subtotal						$ 23,000.00
3.3 HABITAT MAINTENANCE						
Organic Debris Removal	Remove weeds to landfill	Hours	10	$ 50.00	1	$ 500.00
Non-organic Debris Removal	Remove garbage to landfill	Hours	10	$ 50.00	1	$ 500.00
Erosion Control	Check for erosion control problems	Hours	10	$ 50.00	1	$ 500.00
Exotic Plant Control	Hand removal	Hours	320	$ 50.00	1	$ 16,000.00
Exotic Plant Control	Herbicide (such as Rodeo, Roundup Pro or Fusilade)	Acre	5	$ 1,458.00	1	$ 7,290.00
Exotic Plant Control	Herbicide application (such as tractor or backpack)	Hours	50	$ 50.00	1	$ 2,500.00
Exotic Plant Control	weed whip	Hours	40	$ 50.00	1	$ 2,000.00
Wildlife Control	Check for insect and animal pest/damage	Hours	10	$ 50.00	1	$ 500.00
Brush Management	fuel modification zones	Hours	40	$ 50.00	1	$ 2,000.00
Brush Hog Tractor Mower	mowing	week	2	$ 750.00	1	$ 1,500.00
Other	misc supplies	item	1	$ 2,000.00	1	$ 2,000.00
Subtotal						$ 35,290.00

3.0 Ongoing Tasks and Costs (section 9 of PAR) for THIRTY YEAR LANDFILL OPERATING PERIOD (for all open space, ~1,300 acres)

Task List	Specifications	unit	number	cost/unit	interval	Total
3.4 PUBLIC SERVICES						
Patrolling	patrol	Hours	240	$ 50.00	1	$ 12,000.00
Other	misc. supplies	Item	1	$ 1,000.00	1	$ 1,000.00
Subtotal						$ 13,000.00
3.5 REPORTING						
Database Management	data input	Hours	15	$ 100.00	1	$ 1,500.00
GIS/CAD Management	data management	Hours	10	$ 100.00	1	$ 1,000.00
Photodocumentation	field survey	Hours	30	$ 100.00	1	$ 3,000.00
Aerial photos	flight	Item	1	$ 1,000.00	0.2	$ 200.00
Agency Report	annual report	Hours	40	$ 100.00	1	$ 4,000.00
Fire Management Plan	report	Hours	20	$ 100.00	1	$ 2,000.00
Report Production	labor	Hours	10	$ 100.00	1	$ 1,000.00
Subtotal						$ 12,700.00
3.6 OFFICE MAINTENANCE						
Administrative	operations	Hours	40	$ 100.00	1	$ 4,000.00
Telephone Charges, Annual	phone charges	Month	0.5	$ 2,520.00	0.5	$ 630.00
Office Supplies, Year	supplies	Month	0.5	$ 1,140.00	1	$ 570.00
Other	misc supplies	Item	1	$ 500.00	1	$ 500.00
Subtotal						$ 5,700.00
3.7 FIELD EQUIPMENT						
GPS, Rover & Base Unit	gps w. mapping capability	item	1	$ 400.00	0.2	$ 80.00
Vehicle	pickup truck	item	1	$ 20,000.00	0.1	$ 2,000.00

3.0 Ongoing Tasks and Costs (section 9 of PAR) for THIRTY YEAR LANDFILL OPERATING PERIOD (for all open space, ~1,300 acres)

Task List	Specifications	unit	number	cost/unit	interval	Total
Vehicle	mileage	mile	5000	$ 0.59	1	$ 2,925.00
Vehicle Insurance	insurance	year	1	$ 2,000.00	1	$ 2,000.00
Camera 35mm lens	digital	item	1	$ 300.00	0.2	$ 60.00
Other	misc. supplies	item	1	$ 500.00	1	$ 500.00
Subtotal						$ 7,565.00
3.8 OPERATIONS						
Audit	CPA audit	Hours	20	$ 50.00	1	$ 1,000.00
Contracts	produce contracts	Hours	20	$ 100.00	1	$ 2,000.00
Endowment	process endowment	Hours	20	$ 100.00	1	$ 2,000.00
Other	misc items	Item	1	$ 500.00	1	$ 500.00
Subtotal						$ 5,500.00
SUBTOTAL						$ 112,355.00
3.9 CONTINGENCY & ADMINISTRATION						
Contingency	10% of total					$ 11,235.50
Administration	20% of total					$ 22,471.00
Subtotal						$ 33,706.50
TOTAL	Per year					$ 146,061.50
SECTION 3.0 GRAND TOTAL	30 years, with 3% inflation					$ 6,948,912.79
OVERALL GRAND TOTAL	for Entire Restoration Plan, PAR Sections 1.0, 2.0, and 3.0					$18,587,120.53

GREGORY CANYON LANDFILL

PHASED LANDFILL DEVELOPMENT DESCRIPTION, DESIGN FEATURES AND MITIGATIONS RELATED TO BIOLOGICAL RESOURCES

1. Description of Landfill Development

The Gregory Canyon Landfill will provide landfill capacity to meet a portion of the total disposal needs of San Diego County. The landfill development is located along SR 76 approximately 3½ miles east of I-15. The landfill development is located on approximately 1,783 acres owned by or optioned to Gregory Canyon Ltd. LLC. The landfill facilities will comprise approximately 308 acres, including the landfill footprint, ancillary facilities, storm water management facilities, two borrow-stockpile areas, a landfill access road and bridge, and internal access roads. The landfill development includes the construction of new transmission tower pads and relocation of the current SDG&E power transmission lines. The landfill development could have both direct and indirect impacts to threatened or endangered species, both on the landfill property and along certain transportation corridors. To prevent jeopardy, the landfill development includes the permanent preservation of at least 1,313 acres of open space within the landfill property, and implementation of habitat creation and habitat enhancement on approximately 216 acres within the 1,313 acres, including long-term management. The landfill development also includes acquisition of between approximately 410 to 651 acres of off-site property for habitat preservation, or contribution to a mitigation bank, including long-term management.

An overlay of the three stages of phase one on an aerial photo showing vegetation communities is presented in Figure B-1 of this appendix. An overlay of the remaining landfill phases on a topographic map are presented in Figures B-2 to B-4. Impacts on vegetation communities from Phase 1 of the landfill footprint development are shown in Table B-1 table below. Phase 1, Stage 1 is part of initial landfill construction, with development of Phase 1, Stages 2 and 3 estimated to occur in Operating Years 1-6. Impacts associated with landfill startup, which include the Phase 1, Stage 1 landfill footprint and all other landfill features that would be part of initial construction, are shown in Table B-2 below.

Table B-1
Phase 1 Vegetation Impacts by Vegetation Community and Stage

Vegetation Communities Impacted	Stage 1	Stage 2	Stage 3	Total Impacted Acreage by Habitat
Chaparral	1.9	0	0.7	2.6
Coastal Sage Scrub [1]	33.1	11.5	28.8	73.4
Coast Live Oak Woodland	2.8	0.1	3.6	6.5
Disturbed Habitat	0.2	0	0	0.2
Non-native Grassland	3.3	0	0	3.3
Total Impacted Acreage by Stage	41.3	11.6	33.1	86

[1] Includes Coastal Sage Scrub/Chaparral community also.

Table B-2
Initial Landfill Operation Construction Impacts by Vegetation Community and Construction Activity

Vegetation Communities Impacted	Phase 1 Stage 1	Stockpile Area A	Facilities Area	Sediment Basins (incl. access road)	Access Road (incl. bridge)	Haul Road to Stockpile Area A	Highway 76 Re-alignment	Total Impact Acreage by Vegetation Community
Agricultural Land	0	9.9	0	0	0	0.1	0	10
Agricultural/Developed	0	0.1	0	0	1.1	0.6	1.3	3.1
Chaparral	1.9	0	0	0	0	0	0	1.9
Coastal Sage Scrub [1]	33.1	10.4	2.6	5.4	0	0.5	< 0.05	52.0
Coast Live Oak Woodland	2.8	0	0.3	0.3	0	0.2	< 0.05	3.6
Developed	0	0	0	0	0	< 0.05	0	< 0.05
Disturbed Habitat	0.2	< 0.05	0	< 0.05	0.3	0	0	0.5
Non-Native Grassland	3.3	0	9.1	0.6	2.3	0.7	0	16.0
Open Channel	0	0	0	0	0.1	0	0	0.1
Ornamental	0	0.2	0	0	0	0.1	0.1	0.4
Southern Willow Scrub [2]	0	0	0	0	0.5	0	0	0.5
Total Impact Acreage by Construction Activity	41.3	20.6	12	6.3	4.3	2.2	1.4	88.1

[1] Includes Coastal Sage Scrub/Chaparral, Disturbed Coastal Sage Scrub, Burned Coastal Sage Scrub vegetation communities as well.

[2] Includes Disturbed Southern Willow Scrub vegetation community also.

Implementation of mitigation may be phased in proportion to impact areas per each phase. Enhancement within the San Luis Rey River riparian zone will be initiated at the beginning of the on-site mitigation. Implementation of mitigation south of the river will also occur upfront. Implementation of mitigation north of the river may be phased.

A. Overview of landfill facilities.

Landfill Footprint: 183 acres
Relocated Power Pads: 13 acres
Ancillary Facilities/Desilting Basins: 17 acres
Landfill Access Road/Borrow-Stockpile Area A Road/Borrow-Stockpile Area B Road: 8 acres
Borrow/Stockpile Areas: 87 acres

Total: 308 acres

Projected operating life: 30-32 years

2. Initial Construction – Year 0 (1)

A. Extent of disturbed area (approx.):

See Table B-2

(1) Initial construction is within a portion of the Phase I development area.

(2) Landfill footprint area includes both lined disposal area and stormwater management facilities.

B. Design Features and Mitigation Measures to protect biological resources applicable to initial construction period.

Design Feature (DF) or Mitigation	EIR Mitigation Measure/ DF
Include removal of dairies as part of initial construction.	DF
Approved Wetland Mitigation and Habitat Enhancement Plan for on-site mitigation areas; approved Habitat Resource Management Plan for on-site areas; funding for long-term management.	MM 4.9-1a; 4.9-1b; 4.9-1d; 4.9-1e; 4.9-1f; 4.9-2; 4.9-4; 4.9-14; 4.9-18
Approved Habitat Resource Management Plan for off-site mitigation areas; funding for long-term management.	MM 4.9-1a; 4.9-1c; 4.9-1g; 4.9-2; 4.9-14
Implement on-site habitat creation or enhancement, acquire off-site mitigation parcels, or contribute to mitigation bank, as needed to mitigate acreage impacts to vegetation and endangered species from initial construction.	MM 4.9-1a through 4.9-1g; 4.9-2; 4.9-3a; 4.9-4; 4.9-11b; 4.9-14; 4.9-18
Mitigation activities limited to September 15 to March 15, unless operational changes or noise barriers document noise levels less than 60 dBA L_{eq}.	MM 4.9-13

Design Feature (DF) or Mitigation	EIR Mitigation Measure/ DF
Pre-construction meeting with biologist and construction personnel to explain restrictions, emphasize importance of staying within construction areas, and consequences of violating restrictions.	MM 4.9a
Construction hours limited to 7 am – 6 pm Monday through Friday, 8 am – 5 pm on Saturday.	MM 4.6-1b
Access road and bridge construction limited to daylight hours.	DF
Install temporary fencing where construction areas interface with open space, install permanent fencing marked with signs around open space.	MM 4.9-1h
Remove arroyo toad riparian breeding habitat between October and December.	MM 4.9-3b; 4.9-11a
Riparian vegetation removal for bridge construction limited to 50 foot width underneath and along east side of structure.	DF
Arroyo toad exclusion fencing around bridge construction zone; daily monitoring by biologist and daily repair by construction personnel, as needed.	MM 4.9-5a
Arroyo toad surveys pre- and post- installation of exclusion fencing in bridge construction area, relocation of toads within exclusion area.	MM4.9-5b
Bridge construction limited to September 15 to March 15, unless operational changes or noise barriers document noise levels less than 60 dBA L_{eq}.	MM 4.9-12c
Arroyo toad exclusion fencing along both sides of landfill access road; and at designated locations around ancillary facilities area and desilting basin.	MM 4.9-5c
Arroyo toad surveys following installation of exclusion fencing along landfill access road, relocation of toads within exclusion area.	MM 4.9-5d
Arroyo toad surveys following installation of exclusion fencing around ancillary facilities area and desilting basin, relocation of toads within exclusion area.	MM 4.9-5e
Borrow-Stockpile Area A will only be used during initial construction and for landfill closure, revegetated with native species between use periods.	DF
Arroyo toad exclusion fencing along north side of Borrow-Stockpile Area A road; remove and reinstall as needed.	MM 4.9-5g
Arroyo toad surveys following installation or re-installation of exclusion fencing along north side of Borrow-Stockpile Area A road, relocation of toads within exclusion area.	MM 4.9-5h
Construct temporary noise barrier along north side of Borrow-Stockpile Area A prior to use, between September 15 and March 15, remove upon determination that noise levels during breeding season are reduced to 60 dBA L_{eq}.	MM 4.9-15a
Arroyo toad exclusion fencing along both sides of low-flow crossing, remove when use completed. Arroyo toad surveys following installation of exclusion fencing including daily surveys when low-flow crossing in to be used, relocation of toads within exclusion area.	MM 4.9-5i
Use low-flow crossing only between September 15 and March 15 unless surveys or operational changes to reduce noise.	MM 4.9-12b
Daily or weekly noise monitoring between September 15 and March 15 in vireo and flycatcher habitat, and operational changes to reduce noise levels.	MM 4.9-12a
Any gaps in bridge abutment riprap will be filled with concrete.	MM 4.9-7

Design Feature (DF) or Mitigation	EIR Mitigation Measure/ DF
At least one landfill access road undercrossing for arroyo toad on both the north and south sides of river.	MM 4.9-5f
Bridge abutments to be drilled in place, rather than driven.	DF
Bridge deck will be 17.5 feet above river bed.	DF
Install reflective strips along inside structure of bridge, no lighting on bridge.	DF
Pre-construction survey for golden eagle, follow up weekly monitoring between December and May for one year following construction activity.	MM 4.9-9b
Construction activity within 2,000 feet of eagle's nest to be scheduled as close as possible to June.	MM 4.9-9c
Access to eagle's nests restricted to eagle specialists and researchers.	MM 4.9-9a
Limit construction of recycled water facilities at OMWD to February 15 through August 31, or noise reduction.	MM 4.9-20

3. Prior to Initial Operation – Year 0

A. Design Features and Mitigation Measures to protect biological resources required prior to initial operation.

Mitigation	EIR Mitigation Measure
Dedicate or create open-space easement for at least 1,313 acres on-site, funding for long-term management.	MM 4.1-2
Plant large riparian trees and associated understory along access road to shield landfill development, consistent with habitat creation and enhancement activities.	MM 4.13-5
Plant mature tree groupings adjacent to ancillary facilities area; place any rock outcrops removed from the landfill footprint around the ancillary facilities area.	MM 4-13-6a; 4.13-6b
Revegetate Borrow-Stockpile Area A following initial use with native plant species.	MM 4.13-8c

4. Operation – Years 1 to 30-32

A. Extent of Disturbed Area (est.)

Borrow-Stockpile Area B: 65 acres (3)
Borrow-Stockpile Area B road: 1 acre

Total: 66 acres

(3) Use of Borrow-Stockpile Area B will be phased over the operating life of the landfill.

B. Design Features and Mitigation Measures to protect biological resources applicable to landfill operations.

Design Feature (DF) or Mitigation	EIR Mitigation Measure/DF
Maintain arroyo toad exclusion fencing along landfill access road, ancillary facilities area and desilting basin.	MM 4.9-5c
Approved Habitat Resource Management Plan for off-site mitigation areas; funding for long-term management.	MM 4.9-1a; 4.9-1c; 4.9-1g; 4.9-2; 4.9-14
Implement on-site habitat creation or enhancement, acquire off-site mitigation parcels, or contribute to mitigation bank, as needed to mitigate acreage impacts to vegetation and endangered species from initial construction.	MM 4.9-1a through 4.9-1g, 4.9-2; 4.9-4
If needed, treat and dispose of any contaminated water detected in monitoring wells, treat contaminated groundwater to background levels	MM 4.3-1b
Tire shredding and rock crushing will not occur at the same time.	MM 4.6-2a
Noise monitoring at initiation of tire shredding operations, noise reduction measures if needed.	MM 4.6-2b
Rock crushing and tire shredding to occur on landfill footprint at least 1,500 feet from LBV and SWF habitat.	DF
Noise monitoring and verification at flare station prior to operation.	MM 4.6-3
Weekly noise monitoring of landfill operations for one month, construction of permanent noise barrier and operational changes if needed.	MM 4.9-15b
Restrict access routes to existing roads, restrict access to non-impact open space areas, post signs, public education program.	MM 4.9-16
Provide funding for cowbird trapping along San Luis Rey River for 5 years following commencement of initial landfill operation.	MM 4.9-11c
Inspect for and clean up litter and illegally dumped materials along landfill access road and SR 76.	MM 4.9.C5C; 4.16.C5C
Establish native vegetation cover on disturbed areas, including landfill footprint and borrow-stockpile areas.	DF
Revegetate temporary and permanent slopes with native seed mix and container stock around the edges.	MM 4.9-17b; 4.13-2c
Plant native or indigenous trees or shrub species along south side of SR 76 to shield views.	MM 4.13-2a
Revegetate areas within public view within 2 years of commencement of operation with oak woodlands or riparian plantings, consistent with habitat creation and enhancement activities.	MM 4.13-4
Excavation and filling of landfill will be phased to minimize ground disturbance and will only occur during operational hours	DF
Landfill perimeter fencing will allow for wildlife movement where topography is a barrier to human access.	DF
Block of open space between borrow-stockpile areas will be maintained.	DF

Design Feature (DF) or Mitigation	EIR Mitigation Measure/DF
Require slow traffic speeds (15 mph) on access road.	DF
Use low-impact, focused lighting in facilities area.	DF
Implement vector control measures to minimize nuisance species.	DF
Prevent any sources of standing or flowing water on landfill facilities.	DF
Diversion structure placement to prevent debris flows will not occur during eagle breeding season.	DF
Maintain 100-foot buffer between landfill operations and river habitat, except where landfill access road/bridge crosses the river.	DF

5. Completion of Phase I (Stages 2 and 3) Construction – Years 1-6

A. Extent of Disturbed Area (approx.)

Landfill Footprint/ North Power Pad: 49 acres (4)

(4) Landfill footprint area includes both lined disposal area and stormwater management facilities. Exact timing of construction activities depends on volume of waste receipts.

B. Design Features and Mitigation Measures to protect biological resources applicable to completion of Phase I construction.

Mitigation	EIR Mitigation Measure/DF
Approved Habitat Resource Management Plan for off-site mitigation areas; funding for long-term management.	MM 4.9-1a; 4.9-1c; 4.9-1g; 4.9-2; 4.9-14
Implement on-site habitat creation or enhancement; or acquire off-site mitigation parcels; as needed to mitigate acreage impacts to vegetation and endangered species from disturbance.	MM 4.9-1a through 4.9-1g; 4.9-2; 4.9-4
Construction hours limited to 7 am – 6 pm Monday through Friday, 8 am – 5 pm on Saturday.	MM 4.6-1b
Install temporary fencing where construction areas interface with open space, install permanent fencing marked with signs around open space.	MM 4.9-1h
Pre-construction survey for golden eagle, follow up weekly monitoring between December and May for one year following construction activity.	MM 4.9-9b
Access to eagle's nests restricted to eagle specialists and researchers.	MM 4.9-9a
Daily or weekly noise monitoring between September 15 and March 15 in vireo and flycatcher habitat, and operational changes to reduce noise levels.	MM 4.9-12a

6. Phase II Construction – Years 6-13

A. Extent of Disturbed Area (approx.):

Landfill Footprint/ Central and South Power Pads: 79 acres (4)

(4) Landfill footprint area includes both lined disposal area and stormwater management facilities. Exact timing of construction activities depends on volume of waste receipts.

B. Design Features and Mitigation Measures to protect biological resources applicable to Phase II construction.

Mitigation	EIR Mitigation Measure/DF
Approved Habitat Resource Management Plan for off-site mitigation areas; funding for long-term management.	MM 4.9-1a; 4.9-1c; 4.9-1g; 4.9-2; 4.9-14
Implement on-site habitat creation or enhancement, acquire off-site mitigation parcels, or contribute to mitigation bank, as needed to mitigate acreage impacts to vegetation and endangered species from initial construction.	MM 4.9-1a through 4.9-1g, 4.9-2; 4.9-4
Construction hours limited to 7 am – 6 pm Monday through Friday, 8 am – 5 pm on Saturday.	MM 4.6-1b
Install temporary fencing where construction areas interface with open space, install permanent fencing marked with signs around open space.	MM 4.9-1h
Pre-construction survey for golden eagle, follow up weekly monitoring between December and May for one year following construction activity.	MM 4.9-9b
Access to eagle's nests restricted to eagle specialists and researchers.	MM 4.9-9a
Daily or weekly noise monitoring between September 15 and March 15 in vireo and flycatcher habitat, and operational changes to reduce noise levels.	MM 4.9-12a

7. Relocation of SDG&E Power Line ROW – Years 8-10

A. Extent of disturbed area: NONE (5)

(5) Exact timing of relocation depends on volume of waste receipts.

B. Design Features and Mitigation Measures to protect biological resources applicable to relocation of SDG&E power line ROW.

Design Feature (DF) or Mitigation	EIR Mitigation Measure/DF
Relocated transmission lines will be parallel to topography of Gregory County to avoid indirect impacts to eagles and other raptors.	DF
Northern power line tower will be replaced between July through October.	MM 4.9-8
Southern power line tower will be replaced between June through November, or when any red-tailed hawk or raptor nests are inactive.	MM 4.9-10

8. Phase III and IV Construction – Years 14-25

A. Extent of Disturbed Area (approx.):

Landfill Footprint: 29 acres (6)

(6) Landfill footprint area includes both lined disposal area and stormwater management facilities. Exact timing of construction activities depends on volume of waste receipts.

B. Design Features and Mitigation Measures to protect biological resources applicable to Phase III and IV construction.

Mitigation	EIR Mitigation Measure/DF
Approved Habitat Resource Management Plan for off-site mitigation areas; funding for long-term management.	MM 4.9-1a; 4.9-1c; 4.9-1g; 4.9-2; 4.9-14
Implement on-site habitat creation or enhancement, acquire off-site mitigation parcels, or contribute to mitigation bank, as needed to mitigate acreage impacts to vegetation and endangered species from initial construction.	MM 4.9-1a through 4.9-1g; 4.9-2; 4.9-4
Construction hours limited to 7 am – 6 pm Monday through Friday, 8 am – 5 pm on Saturday.	MM 4.6-1b
Install temporary fencing where construction areas interface with open space, install permanent fencing marked with signs around open space.	MM 4.9-1h
Pre-construction survey for golden eagle, follow up weekly monitoring between December and May for one year following construction activity.	MM 4.9-9b

Mitigation	EIR Mitigation Measure/DF
Access to eagle's nests restricted to eagle specialists and researchers.	MM 4.9-9a
Daily or weekly noise monitoring between September 15 and March 15 in vireo and flycatcher habitat, and operational changes to reduce noise levels.	MM 4.9-12a

9. Landfill Closure – Years 30-32 (closure), and 30 additional years for post-closure maintenance.

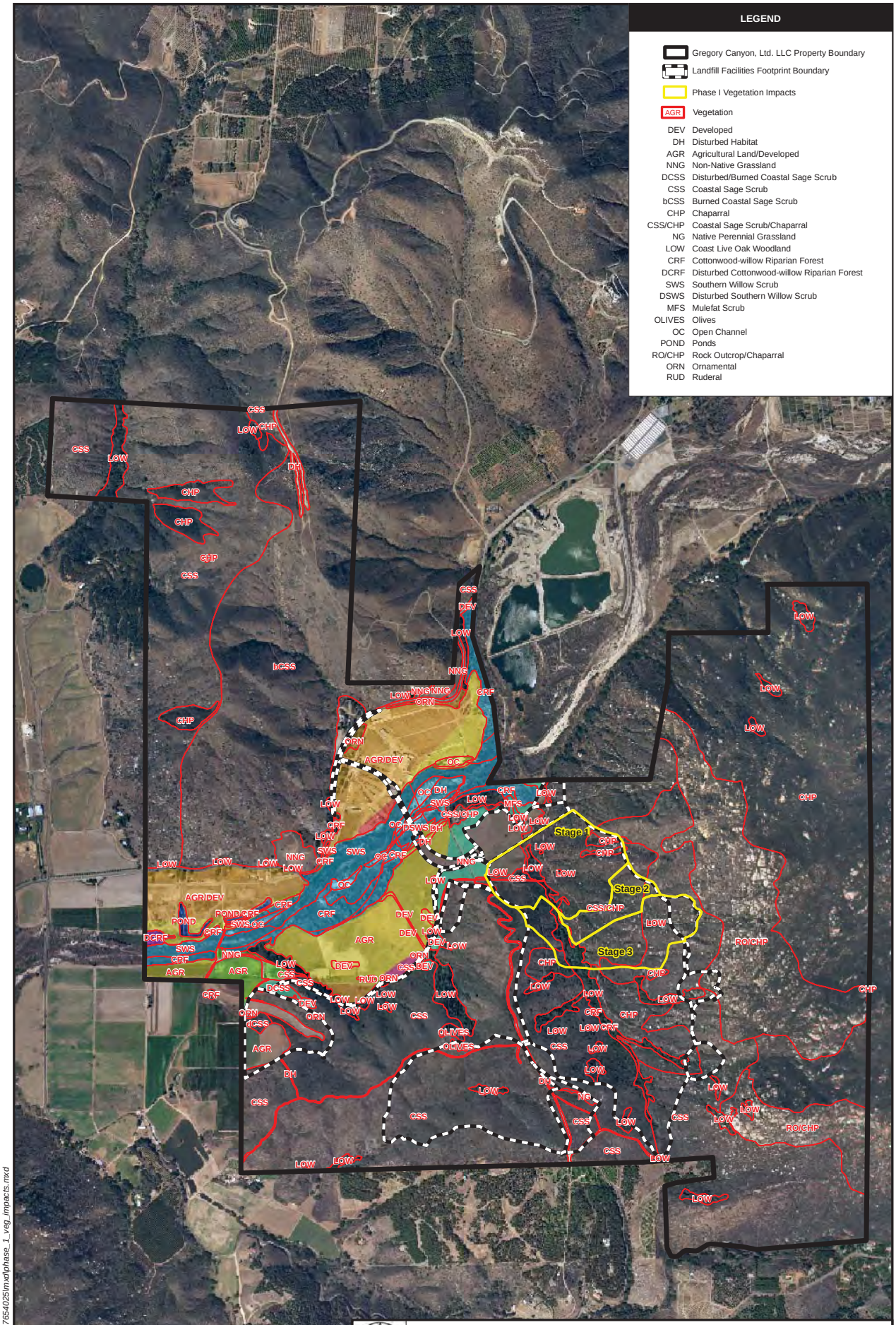
A. Extent of Disturbed Area (approx.): (7)

Borrow-stockpile Area A re-opened: 22 acres

(7) Exact timing of landfill closure depends on volume of waste receipts.

B. Design Features and Mitigation Measures to protect biological resources applicable to landfill closure.

Design Feature (DF) or Mitigation	EIR Mitigation Measure/DF
Borrow-Stockpile Area A road will only be used during initial construction and for landfill closure.	DF
Reinstall arroyo toad exclusion fencing along north side of Borrow-Stockpile Area A road.	MM 4.9-5g
Arroyo toad surveys following re-installation of exclusion fencing along north side of Borrow-Stockpile Area A road, relocation of toads within exclusion area.	MM 4.9-5h
Construct temporary noise barrier along north side of Borrow-Stockpile Area A prior to use, between September 15 and March 15, remove upon determination that noise levels during breeding season are reduced to 60 dBA L_{eq}.	MM 4.9-15a
Revegetate Borrow-Stockpile Area A following initial use with native plant species.	MM 4.13-8c
Establish native vegetation cover on disturbed areas, including slopes, landfill footprint and borrow-stockpile Areas A and B.	DF; MM 4.9-17b; 4.13-2c
Establish native vegetation on any areas on final landfill cover requiring repair.	MM 4.13-11



SOURCES: HELIX (1999 Vegetation, landfill boundary); URS (2005 Vegetation update, Hydrology Features 2007); Herzog (2004 Bridge design).

URS

600 0 600 1200 Feet

1 inch = 1200 feet

PHASE I VEGETATION IMPACTS
GREGORY CANYON, LTD. LLC SITE

CHECKED BY: CM	DATE: 9-04-08	FIG. NO:
PM: WM	PROJ. NO: 27654025.00030	B-1

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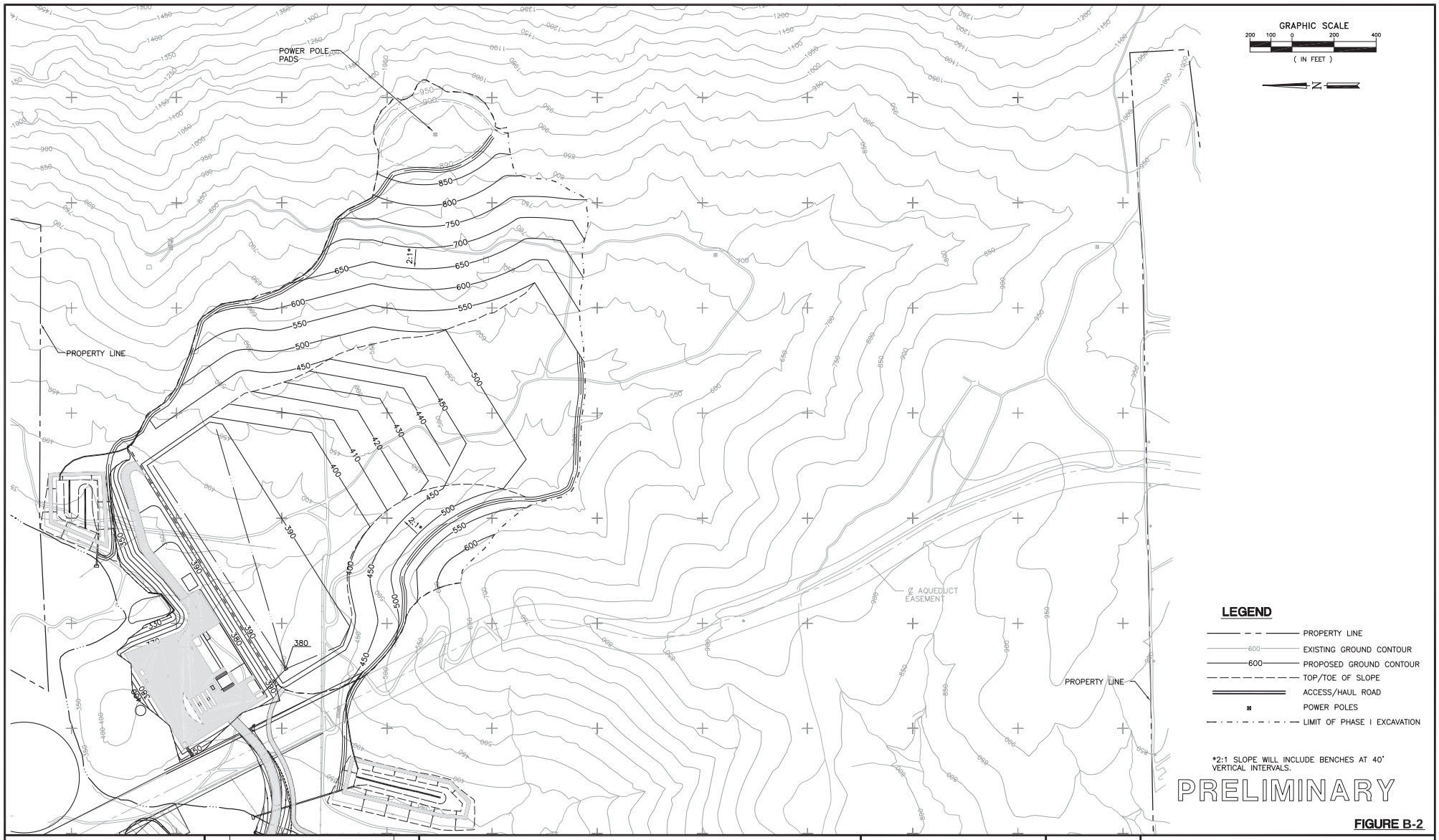

FIGURE B-2

NO.	REVISION DESCRIPTION	BY:

BAS
BRYAN A. STIRRAT & ASSOCIATES
CONSULTING CIVIL & ENVIRONMENTAL ENGINEERS
1360 E. VALLEY VISTA DRIVE
DIAMOND BAR, CALIFORNIA 91765
(909) 860-7777

GREGORY CANYON LANDFILL
PHASE I EXCAVATION PLAN

DESIGNED BY : T.W.	SCALE : AS SHOWN	
DRAWN BY : J.P.J.	DATE : 6-2001	FILE NO. 1710390B.DWG
CHECKED BY :	DATE :	DRAWING 9
APPROVED BY :	DATE :	

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FOR PERMIT PURPOSES ONLY - NOT FOR CONSTRUCTION

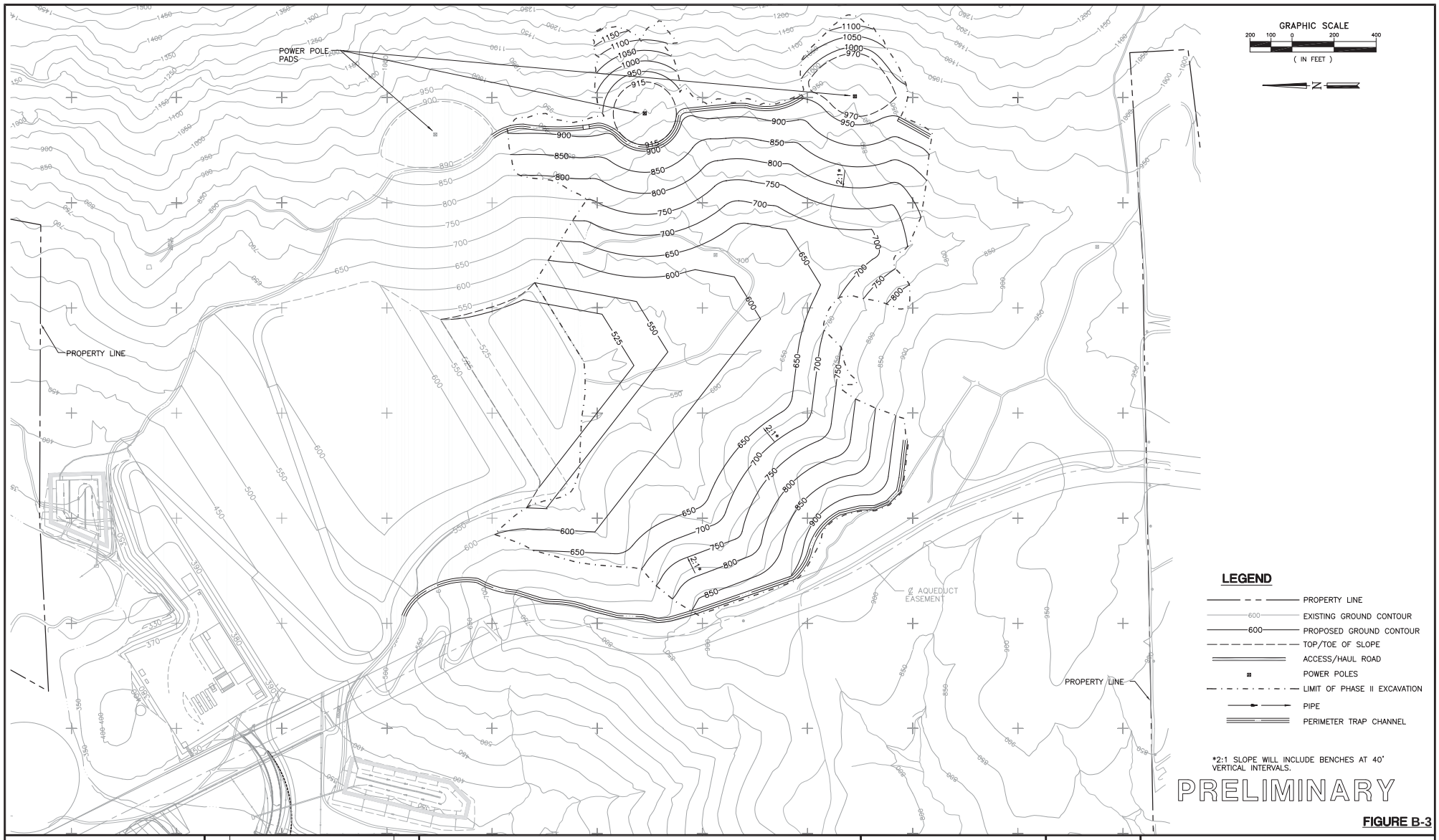

FIGURE B-3

NO.	REVISION DESCRIPTION	BY:

BAS
BRYAN A. STIRRAT & ASSOCIATES
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GREGORY CANYON LANDFILL
PHASE II EXCAVATION PLAN

DESIGNED BY : T.W.	SCALE : AS SHOWN	
DRAWN BY : J.P.J.	DATE : 6-2001	FILE NO. 171048DB.DWG
CHECKED BY :	DATE :	**DRAWING 12**
APPROVED BY :	DATE :	

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FOR PERMIT PURPOSES ONLY - NOT FOR CONSTRUCTION

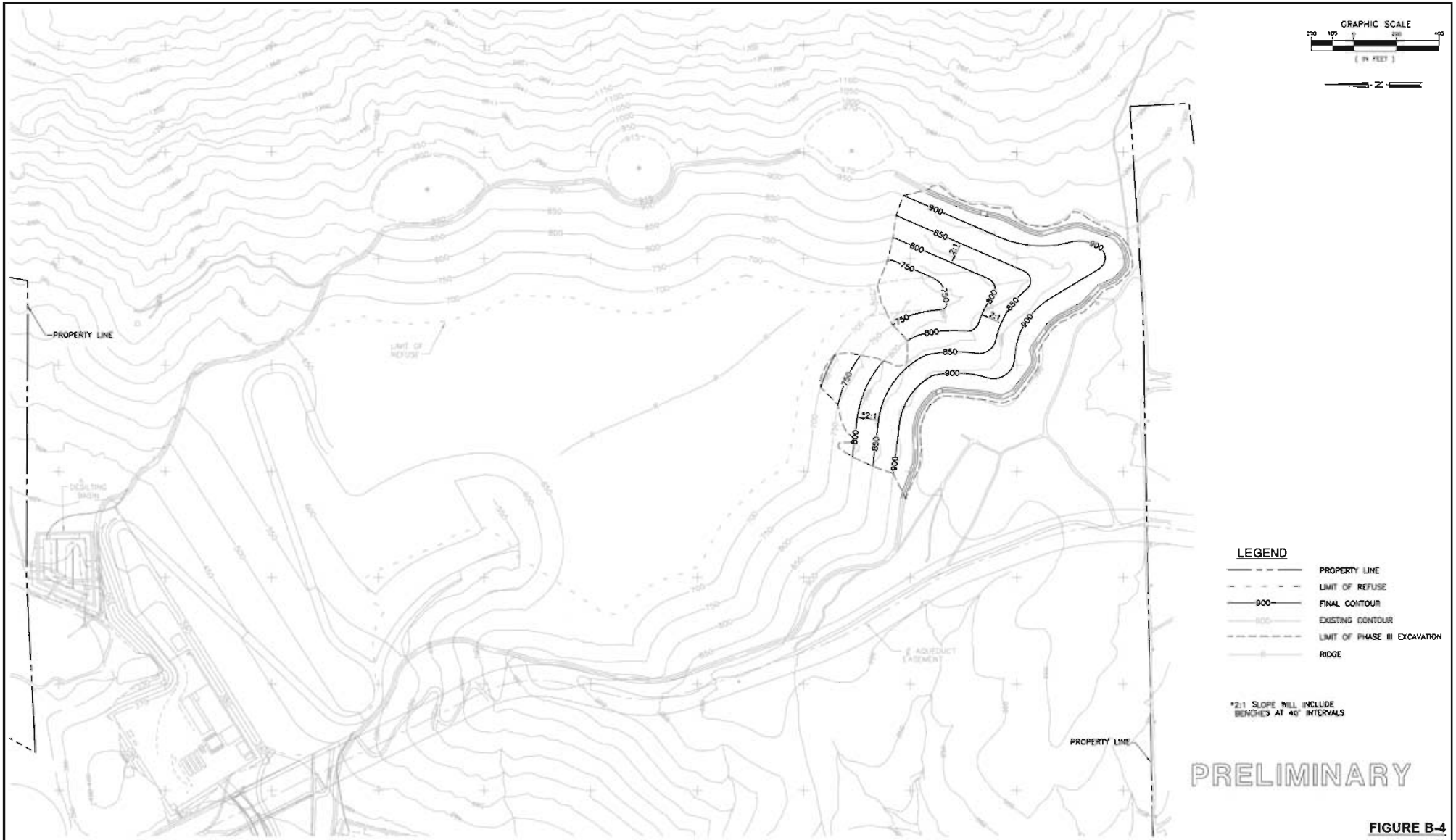

FIGURE B-4

NO.	REVISION DESCRIPTION	BY

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GREGORY CANYON LANDFILL
PHASE III EXCAVATION

DESIGNED BY :	E.L.S.	SCALE : AS SHOWN	
DRAWN BY :	M.T.B.	DATE : 8-2000	FILE NO.: 2603BDB.DWG
CHECKED BY :		DATE :	DRAWING 14
APPROVED BY :		DATE :	

FOR PERMIT PURPOSES ONLY - NOT FOR CONSTRUCTION

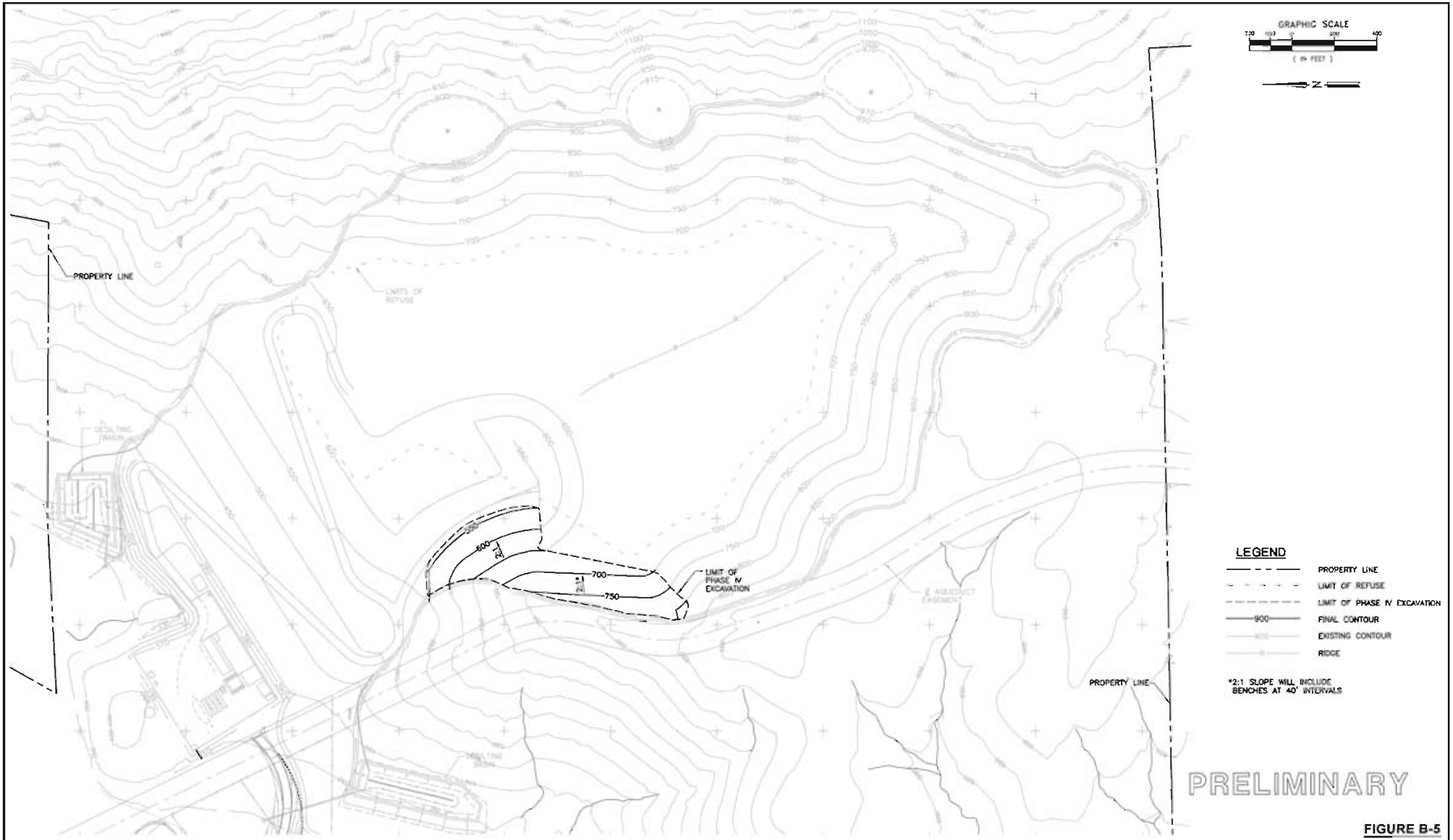

FIGURE B-5

NO.	REVISION DESCRIPTION	BY

BAS
BRYAN A. STIRRAT & ASSOCIATES
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GREGORY CANYON LANDFILL
PHASE IV EXCAVATION

DESIGNED BY : E.L.S.		SCALE : AS SHOWN	
DRAWN BY : M.T.B.		DATE : 7-2000	FILE NO.: 2603B08.DWG
CHECKED BY :		DATE :	DRAWING 15
APPROVED BY :		DATE :	

FOR PERMIT PURPOSES ONLY - NOT FOR CONSTRUCTION

MONITORING SHEET - QUALITATIVE EVALUATION

Project Name: _____
Date: _____
Recorders: _____

Plant Health - General
Are there visible signs of nutrient/water deficiencies? If yes, then describe:

Are there signs of regeneration/reseeding?

Is vandalism harming plant health or project success?

Are there any signs of herbivory?:

Other:

Container Stock
Provide visual estimation percent survival of container stock:

Are watering basins intact?:

Is mulch from original installation still present? Is there litter development?:

Seeded Species
Are all intended native species present? If not, then what is missing?:

Are there any occurrences of volunteer native species?:

Are there any unvegetated areas? Should these be remediated?:

Weeds
Is excessive competition from weeds affecting desired species?:

Is there adequate maintenance/weed clearing?:

Other:

Soils
Are there any signs of soil development?:

Are there any signs of erosion or other potential adverse soil disturbance?:

Other:

Irrigation System
Are irrigation heads functioning properly?:

Are there any signs of rodent damage to irrigation system?:

Are there any signs of vandalism to the irrigation system/controller box?:

Are there any signs of excessive runoff?:

Does irrigation frequency and volume require adjustment?

Other:

Is there any indication that wildlife is using the site?
What species were specifically noted?:

Recommendations for Remediation:

PLEASE NOTE:
The following Conservation Easement Deed is provided by the multi-agency Project Delivery Team as a standardized template document for Mitigation and Conservation Banks in California. Any modifications to this template shall be identified using tracked changes or other electronic comparison and explained in a memorandum.
(Template Version Date: May 2008)

RECORDING REQUESTED BY AND
WHEN RECORDED MAIL TO:

[***Fill in Grantee Name/Address***]
Grantee Name
Grantee Address
City, State ZIP
Attn: _____

_____
Space Above Line for Recorder's Use Only

CONSERVATION EASEMENT DEED
[***Insert Bank Name***]

THIS CONSERVATION EASEMENT DEED ("Conservation Easement") is made as of the _____ day of _____, 20____, by [***insert full legal name(s) of Grantor:*** _____] ("Grantor"), in favor of [***insert Grantee's full legal name:*** _____] [***if CDFG is Grantee insert:*** the State of California] ("Grantee"), with reference to the following facts:

RECITALS

A. Grantor is the sole owner in fee simple of certain real property containing approximately _____ acres, located in the City of [***insert City name***], County of [***insert County name***], State of California, and designated Assessor's Parcel Number(s) [***insert Assessor's Parcel Number(s)***] (the "Bank Property"). The Bank Property is legally described and depicted in **Exhibit A** attached to this Conservation Easement and incorporated in it by this reference.

B. The Bank Property possesses wildlife and habitat values of great importance to Grantee, the people of the State of California and the people of the United States. The Bank Property will provide high quality natural, restored and/or enhanced habitat for [***specify listed and sensitive plant and/or animal species***] and contain [***list habitats; native and/or non-native***], [***include the following phrase only if there are jurisdictional wetlands:*** and restored, created, enhanced and/or preserved jurisdictional waters of the United States]. Individually and collectively, these wildlife and habitat values comprise the "Conservation Values" of the Bank

Property.

C. The California Department of Fish and Game ("CDFG") has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants and the habitat necessary for biologically sustainable populations of these species pursuant to California Fish and Game Code Section 1802. CDFG is authorized to hold easements for these purposes pursuant to California Civil Code Section 815.3, Fish and Game Code Section 1348, and other provisions of California law.

D. The United States Fish and Wildlife Service (the "USFWS"), an agency within the United States Department of the Interior, has jurisdiction over the conservation, protection, restoration and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of these species within the United States pursuant to the federal Endangered Species Act, 16 U.S.C. Section 1531, *et seq.*, the Fish and Wildlife Coordination Act, 16 U.S.C. Sections 661-666c, the Fish and Wildlife Act of 1956, 16 U.S.C. Section 742(f), *et seq.*, and other provisions of federal law.

E. [***Remove/modify this recital as appropriate when USEPA or USACE is not a signatory to the BEI or CBA.***] The U.S. Environmental Protection Agency ("USEPA") and U.S. Army Corps of Engineers ("USACE") have jurisdiction over waters of the United States pursuant to the federal Clean Water Act, 33 U.S.C. Section 1251, *et seq.*

F. [***Use this version of Recital F when qualified nonprofit organization is Grantee.***] Grantee is authorized to hold this conservation easement pursuant to California Civil Code Section 815.3 and Government Code Section 65965. Specifically, Grantee is (i) a tax-exempt nonprofit organization qualified under section 501(c) (3) of the Internal Revenue Code of 1986, as amended, and qualified to do business in California; (ii) a “qualified organization” as defined in section 170(h) (3) of the Internal Revenue Code; and (iii) an organization which has as its primary and principal purpose and activity the protection and preservation of natural lands or resources in its natural, scenic, agricultural, forested, or open space condition or use.

[***Use this version of Recital F when governmental entity is Grantee.***] Grantee is authorized to hold this conservation easement pursuant to California Civil Code Section 815.3. Specifically, Grantee is a governmental entity identified in Civil Code Section 815.3 (b) and otherwise authorized to acquire and hold title to real property.

G. [***Modify this recital as appropriate when CDFG, USFWS, USEPA or USACE is not a signatory to the BEI or CBA.***] This Conservation Easement is granted pursuant to the [***insert the appropriate term:*** Mitigation Bank Enabling Instrument (the "BEI") ***or*** Conservation Bank Agreement (the “CBA”)], by and between [***insert Bank Sponsor name(s)***], [***insert Bank Property Owner name(s)***], and [***insert Region name***] CDFG, CDFG Tracking No. [***insert number***], the [***insert Field Office name***] of the USFWS, USFWS File No. [***insert number***], the [***insert District name***] District of USACE, USACE File No. [***insert number***], and Region IX of the USEPA, entered into concurrently with this Conservation Easement, and the Bank Development Plan (the "Development Plan"), and the Interim Management Plan and Long-Term

Management Plan (as applicable, the "Management Plan") created under the [***insert:*** BEI ***or*** CBA]. [***Remove reference to any agency that is not a party to the BEI or CBA***] CDFG, USFWS, USACE, and USEPA are together referred to in this Conservation Easement as the "Signatory Agencies".

A final, approved copy of the [***insert:*** BEI ***or*** CBA], the Development Plan and the Management Plan, and any amendments thereto approved by the Signatory Agencies, shall be kept on file at the respective offices of the Signatory Agencies. If Grantor, or any successor or assign, requires an official copy of the [***insert:*** BEI ***or*** CBA], the Development Plan or the Management Plan, it should request a copy from one of the Signatory Agencies at its address for notices listed in Section 12 of this Conservation Easement.

The [***insert:*** BEI ***or*** CBA], the Development Plan and the Management Plan are incorporated by this reference into this Conservation Easement as if fully set forth herein.

H. All section numbers referred to in this Conservation Easement are references to sections within this Conservation Easement, unless otherwise indicated.

COVENANTS, TERMS, CONDITIONS AND RESTRICTIONS

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and pursuant to the laws of the United States and the State of California, including California Civil Code Section 815, *et seq.*, Grantor hereby voluntarily grants and conveys to Grantee a conservation easement in perpetuity over the Bank Property.

1. Purposes.

The purposes of this Conservation Easement are to ensure that the Bank Property will be retained forever in its natural, restored, or enhanced condition as contemplated by the [***insert:*** BEI ***or*** CBA], the Development Plan, and the Management Plan, and to prevent any use of the Bank Property that will impair or interfere with the Conservation Values of the Bank Property. Grantor intends that this Conservation Easement will confine the use of the Bank Property to activities that are consistent with such purposes, including, without limitation, those involving the preservation, restoration and enhancement of native species and their habitats implemented in accordance with the [***insert:*** BEI ***or*** CBA], the Development Plan and the Management Plan.

2. Grantee's Rights.

To accomplish the purposes of this Conservation Easement, Grantor hereby grants and conveys the following rights to Grantee:

(a) To preserve and protect the Conservation Values of the Bank Property.

(b) To enter the Bank Property at reasonable times, in order to monitor compliance with and otherwise enforce the terms of this Conservation Easement, the [***insert:*** BEI ***or*** CBA], the Development Plan and the Management Plan and to implement at Grantee's sole

discretion Development Plan and Management Plan activities that have not been implemented, provided that Grantee shall not unreasonably interfere with Grantor's authorized use and quiet enjoyment of the Bank Property.

(c) To prevent any activity on or use of the Bank Property that is inconsistent with the purposes of this Conservation Easement and to require the restoration of such areas or features of the Bank Property that may be damaged by any act, failure to act, or any use or activity that is inconsistent with the purposes of this Conservation Easement.

(d) To require that all mineral, air and water rights as Grantee deems necessary to preserve and protect the biological resources and Conservation Values of the Bank Property shall remain a part of and be put to beneficial use upon the Bank Property, consistent with the purposes of this Conservation Easement.

(e) All present and future development rights appurtenant to, allocated, implied, reserved or inherent in the Bank Property; such rights are hereby terminated and extinguished, and may not be used on or transferred to any portion of the Bank Property, nor any other property adjacent or otherwise.

3. Prohibited Uses.

Any activity on or use of the Bank Property that is inconsistent with the purposes of this Conservation Easement is prohibited. Without limiting the generality of the foregoing, the following uses and activities by Grantor, Grantor's agents, and third parties are expressly prohibited:

(a) Unseasonable watering; use of fertilizers, pesticides, biocides, herbicides or other agricultural chemicals; weed abatement activities; incompatible fire protection activities; and any and all other activities and uses which may impair or interfere with the purposes of this Conservation Easement [***include the following language only if the Development Plan or Management Plan, including any adaptive management measures, specifies such an exception:***], except for [***insert specific exception(s)***] as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(b) Use of off-road vehicles and use of any other motorized vehicles except on existing roadways [***include the following language only if the Development Plan or Management Plan, including any adaptive management measures, specifies such an exception:***], except for [***insert specific exception(s)***] as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(c) Agricultural activity of any kind [***include the following language only if the Development Plan or Management Plan, including any adaptive management measures, specifies such an exception:***] except grazing for vegetation management as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(d) Recreational activities, including, but not limited to, horseback riding,

biking, hunting or fishing except for personal, non-commercial, recreational activities of the Grantor, so long as such activities are consistent with the purposes of this Conservation Easement and specifically provided for in the Management Plan.

(e) Commercial, industrial, residential, or institutional uses.

(f) Any legal or de facto division, subdivision or partitioning of the Bank Property.

(g) Construction, reconstruction, erecting or placement of any building, billboard or sign, or any other structure or improvement of any kind [***include the following language only if the Development Plan or Management Plan specifies such an exception:***], except for [***insert specific exception(s)***] as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(h) Depositing or accumulation of soil, trash, ashes, refuse, waste, bio-solids or any other materials.

(i) Planting, introduction or dispersal of non-native or exotic plant or animal species.

(j) Filling, dumping, excavating, draining, dredging, mining, drilling, removing or exploring for or extracting minerals, loam, soil, sand, gravel, rock or other material on or below the surface of the Bank Property, or granting or authorizing surface entry for any of these purposes.

(k) Altering the surface or general topography of the Bank Property, including but not limited to any alterations to habitat, building roads or trails, paving or otherwise covering the Bank Property with concrete, asphalt or any other impervious material except for those habitat management activities specified in the Development Plan or Management Plan.

(l) Removing, destroying, or cutting of trees, shrubs or other vegetation, except as required by law for (i) fire breaks, (ii) maintenance of existing foot trails or roads, or (iii) prevention or treatment of disease [***include the following language only if the Development Plan or Management Plan specifies such an exception:***]; and except for [***insert specific exception(s)***] as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(m) Manipulating, impounding or altering any natural water course, body of water or water circulation on the Bank Property, and any activities or uses detrimental to water quality, including but not limited to degradation or pollution of any surface or sub-surface waters [***include the following language only if the Development Plan or Management Plan specifies such an exception:***], except for [***insert specific exception(s)***] as specifically provided in the [***specify:*** Development Plan ***or*** Management Plan].

(n) Without the prior written consent of Grantee, which Grantee may

withhold, transferring, encumbering, selling, leasing, or otherwise separating the mineral, air or water rights for the Bank Property; changing the place or purpose of use of the water rights; abandoning or allowing the abandonment of, by action or inaction, any water or water rights, ditch or ditch rights, spring rights, reservoir or storage rights, wells, ground water rights, or other rights in and to the use of water historically used on or otherwise appurtenant to the Bank Property, including but not limited to: (i) riparian water rights; (ii) appropriative water rights; (iii) rights to waters which are secured under contract with any irrigation or water district, to the extent such waters are customarily applied to the Bank Property; and (iv) any water from wells that are in existence or may be constructed in the future on the Bank Property.

(o) Engaging in any use or activity that may violate, or may fail to comply with, relevant federal, state, or local laws, regulations, or policies applicable to Grantor, the Bank Property, or the use or activity in question.

4. Grantee's Duties.

(a) To ensure that the purposes of this Conservation Easement as described in Section 1 are being accomplished, Grantee and its successors and assigns shall:

(1) Perform, at a minimum on an annual basis, compliance monitoring inspections of the Bank Property; and

(2) Prepare reports on the results of the compliance monitoring inspections, and provide these reports to the Signatory Agencies on an annual basis.

(b) In the event that the Grantee's interest in this easement is held by, reverts to, or is transferred to the State of California, Section 4(a) shall not apply.

5. Grantor's Duties.

Grantor shall undertake all reasonable actions to prevent the unlawful entry and trespass by persons whose activities may degrade or harm the Conservation Values of the Bank Property or that are otherwise inconsistent with this Conservation Easement. In addition, Grantor shall undertake all necessary actions to perfect and defend Grantee's rights under Section 2 of this Conservation Easement, and to observe and carry out the obligations of Grantor under the [***insert:*** BEI ***or*** CBA], the Development Plan and the Management Plan.

6. Reserved Rights.

Grantor reserves to itself, and to its personal representatives, heirs, successors, and assigns, all rights accruing from Grantor's ownership of the Bank Property, including the right to engage in or permit or invite others to engage in all uses of the Bank Property that are not prohibited or limited by, and are consistent with the purposes of, this Conservation Easement.

7. Grantee's Remedies.

If Grantee determines that a violation of this Conservation Easement has occurred or is threatened, Grantee shall give written notice to Grantor of such violation and demand in writing the cure of such violation ("Notice of Violation"). If Grantor fails to cure the violation within thirty (30) days after receipt of a Notice of Violation, or if the cure reasonably requires more than thirty (30) days to complete and Grantor fails to begin the cure within the thirty (30)-day period or fails to continue diligently to complete the cure, Grantee may bring an action at law or in equity in a court of competent jurisdiction for any or all of the following: to recover any damages to which Grantee may be entitled for violation of the terms of this Conservation Easement or for any injury to the Conservation Values of the Bank Property; to enjoin the violation, *ex parte* as necessary, by temporary or permanent injunction without the necessity of proving either actual damages or the inadequacy of otherwise available legal remedies; to pursue any other legal or equitable relief, including but not limited to, the restoration of the Bank Property to the condition in which it existed prior to any violation or injury; or to otherwise enforce this Conservation Easement. Without limiting the liability of Grantor, Grantee may apply any damages recovered to the cost of undertaking any corrective action on the Bank Property.

If Grantee, in its sole discretion, determines that circumstances require immediate action to prevent or mitigate injury to the Conservation Values of the Bank Property, Grantee may pursue its remedies under this Conservation Easement without prior notice to Grantor or without waiting for the period provided for cure to expire. Grantee's rights under this section apply equally to actual or threatened violations of this Conservation Easement.

Grantor agrees that Grantee's remedies at law for any violation of this Conservation Easement are inadequate and that Grantee shall be entitled to the injunctive relief described in this section, both prohibitive and mandatory, in addition to such other relief to which Grantee may be entitled, including specific performance of this Conservation Easement, without the necessity of proving either actual damages or the inadequacy of otherwise available legal remedies. Grantee's remedies described in this section shall be cumulative and shall be in addition to all remedies now or hereafter existing at law or in equity, including but not limited to the remedies set forth in California Civil Code Section 815, *et seq.* The failure of Grantee to discover a violation or to take immediate legal action shall not bar Grantee from taking such action at a later time.

(a) Costs of Enforcement.

All costs incurred by Grantee, where Grantee is the prevailing party, in enforcing the terms of this Conservation Easement against Grantor, including, but not limited to, costs of suit and attorneys' and experts' fees, and any costs of restoration necessitated by negligence or breach of this Conservation Easement, shall be borne by Grantor.

(b) Grantee's Discretion.

Enforcement of the terms of this Conservation Easement by Grantee shall be at the discretion of Grantee, and any forbearance by Grantee to exercise its rights under this Conservation Easement in the event of any breach of any term of this Conservation Easement shall not be deemed or construed to be a waiver of such term or of any subsequent breach of the

same or any other term of this Conservation Easement or of any rights of Grantee under this Conservation Easement. No delay or omission by Grantee in the exercise of any right or remedy shall impair such right or remedy or be construed as a waiver.

(c) Acts Beyond Grantor's Control.

Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor for any injury to or change in the Bank Property resulting from (i) any natural cause beyond Grantor's control, including, without limitation, fire not caused by Grantor, flood, storm, and earth movement, or any prudent action taken by Grantor under emergency conditions to prevent, abate, or mitigate significant injury to the Bank Property resulting from such causes; or (ii) acts by Grantee or its employees.

(d) Enforcement; Standing.

All rights and remedies conveyed to Grantee under this Conservation Easement shall extend to and are enforceable by [***insert if State of California is Grantee:*** CDFG and] the Third-Party Beneficiaries (as defined in Section 14(m)). These enforcement rights are in addition to, and do not limit, the rights of enforcement under the [***insert:*** BEI ***or*** CBA], the Development Plan or the Management Plan. If at any time in the future Grantor uses, allows the use, or threatens to use or allow use of, the Bank Property for any purpose that is inconsistent with or in violation of this Conservation Easement then, despite the provisions of California Civil Code Section 815.7, the California Attorney General and the Third-Party Beneficiaries each has standing as an interested party in any proceeding affecting this Conservation Easement.

(e) Notice of Conflict.

If Grantor receives a Notice of Violation from Grantee or a Third-Party Beneficiary with which it is impossible for Grantor to comply consistent with any prior uncured Notice(s) of Violation, Grantor shall give written notice of the conflict (hereinafter "Notice of Conflict") to the Grantee and Third-Party Beneficiaries. In order to be a valid, a Notice of Conflict shall be given within fifteen (15) days of the date Grantor receives a conflicting Notice of Violation, shall include copies of the conflicting Notices of Violation, and shall describe the conflict with specificity, including how the conflict makes compliance with the uncured Notice(s) of Violation impossible. Upon issuing a valid Notice of Conflict, Grantor shall not be required to comply with the conflicting Notices of Violation until such time as the entity or entities issuing said conflicting Notices of Violation issue(s) revised Notice(s) of Violation that resolve the conflict. Upon receipt of a revised Notice of Violation, Grantor shall comply with such notice within the time period(s) described in the first grammatical paragraph of this Section. The failure of Grantor to issue a valid Notice of Conflict within fifteen (15) days of receipt of a conflicting Notice of Violation shall constitute a waiver of Grantor's ability to claim a conflict.

(f) [***Add if nonprofit organization is Grantee***] Reversion.

If the Signatory Agencies determine that Grantee is not holding, monitoring or managing this Conservation Easement for conservation purposes in the manner specified in this Conservation Easement or in the [***insert:*** BEI ***or*** CBA], the Development Plan or the Management Plan then, pursuant to California Government Code Section 65965(c), this Conservation Easement shall revert to the State of California, or to another public agency or

nonprofit organization qualified pursuant to Civil Code Section 815.3 and Government Code Section 65965 (and any successor or other provision(s) then applicable) and approved by the Signatory Agencies.

8. Access.

This Conservation Easement does not convey a general right of access to the public.

9. Costs and Liabilities.

Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, upkeep, and maintenance of the Bank Property. Grantor agrees that neither Grantee nor Third-Party Beneficiaries shall have any duty or responsibility for the operation, upkeep or maintenance of the Bank Property, the monitoring of hazardous conditions on it, or the protection of Grantor, the public or any third parties from risks relating to conditions on the Bank Property. Grantor remains solely responsible for obtaining any applicable governmental permits and approvals required for any activity or use permitted by this Conservation Easement [***insert if CDFG or another government entity is Grantee:*** , including permits and approvals required from Grantee acting in its regulatory capacity], and any activity or use shall be undertaken in accordance with all applicable federal, state, local and administrative agency laws, statutes, ordinances, rules, regulations, orders and requirements.

(a) Taxes; No Liens.

Grantor shall pay before delinquency all taxes, assessments (general and special), fees, and charges of whatever description levied on or assessed against the Bank Property by competent authority (collectively "Taxes"), including any Taxes imposed upon, or incurred as a result of, this Conservation Easement, and shall furnish Grantee with satisfactory evidence of payment upon request. Grantor shall keep the Bank Property free from any liens (other than a security interest that is expressly subordinated to this Conservation Easement, as provided in Section 14(k)), including those arising out of any obligations incurred by Grantor for any labor or materials furnished or alleged to have been furnished to or for Grantor at or for use on the Bank Property.

(b) Hold Harmless.

(1) Grantor shall hold harmless, protect and indemnify Grantee and its directors, officers, employees, agents, contractors, and representatives and the heirs, personal representatives, successors and assigns of each of them (each a "Grantee Indemnified Party" and collectively, "Grantee's Indemnified Parties") from and against any and all liabilities, penalties, costs, losses, damages, expenses (including, without limitation reasonable attorneys' fees and experts' fees), causes of action, claims, demands, orders, liens or judgments (each a "Claim" and, collectively, "Claims"), arising from or in any way connected with: (i) injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition, or other matter related to or occurring on or about the Bank Property, regardless of cause, except that this indemnification shall be inapplicable to any Claim due solely to the negligence of Grantee or any of its employees; (ii) the obligations specified in Sections 5, 9 and 9(a); and (iii) the existence or administration of this Conservation Easement. If any action or proceeding is

brought against any of the Grantee's Indemnified Parties by reason of any such Claim, Grantor shall, at the election of and upon written notice from Grantee, defend such action or proceeding by counsel reasonably acceptable to the Grantee's Indemnified Party [***insert if CDFG is grantee:*** or reimburse Grantee for all charges incurred for services of the California Attorney General in defending the action or proceeding].

(2) Grantor shall hold harmless, protect and indemnify Third-Party Beneficiaries and their respective directors, officers, employees, agents, contractors, and representatives and the heirs, personal representatives, successors and assigns of each of them (each a "Third-Party Beneficiary Indemnified Party" and collectively, "Third-Party Beneficiary Indemnified Parties") from and against any and all Claims arising from or in any way connected with: (i) injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition, or other matter related to or occurring on or about the Bank Property, regardless of cause and (ii) the existence or administration of this Conservation Easement. *Provided, however*, that the indemnification in this Section 9 (b) (2) shall be inapplicable to a Third-Party Beneficiary Indemnified Party with respect to any Claim due solely to the negligence of that Third-Party Beneficiary Indemnified Party or any of its employees. If any action or proceeding is brought against any of the Third-Party Beneficiary Indemnified Parties by reason of any Claim to which the indemnification in this Section 9 (b) (2) applies, then at the election of and upon written notice from the Third-Party Beneficiary Indemnified Party, Grantor shall defend such action or proceeding by counsel reasonably acceptable to the applicable Third-Party Beneficiary Indemnified Party or reimburse the Third-Party Beneficiary Indemnified Party for all charges incurred for services of the California Attorney General or the U.S. Department of Justice in defending the action or proceeding.

(c) Extinguishment.

If circumstances arise in the future that render the preservation of Conservation Values, [***include this phrase only if there are jurisdictional wetlands:*** including wetland functions and values,] or other purposes of this Conservation Easement impossible to accomplish, this Conservation Easement can only be terminated or extinguished, in whole or in part, by judicial proceedings in a court of competent jurisdiction.

(d) Condemnation.

[***Use the appropriate paragraph:***]

[***If CDFG or other state agency is Grantee:***] Condemnation. This Conservation Easement is a "wildlife conservation easement" acquired by a State agency, the condemnation of which is prohibited except as provided in California Fish and Game Code Section 1348.3.

[***All other Grantees:***] Condemnation. The purposes of this Conservation Easement are presumed to be the best and most necessary public use as defined at California Code of Civil Procedure Section 1240.680 notwithstanding Code of Civil Procedure Sections 1240.690 and 1240.700.

10. Transfer of Conservation Easement or Bank Property.

(a) Conservation Easement.

This Conservation Easement may be assigned or transferred by Grantee upon written approval of the Signatory Agencies, which approval shall not be unreasonably withheld or delayed, but Grantee shall give Grantor and the Signatory Agencies at least sixty (60) days prior written notice of the proposed assignment or transfer. Grantee may assign or transfer its rights under this Conservation Easement only to an entity or organization: (i) authorized to acquire and hold conservation easements pursuant to California Civil Code Section 815.3 and Government Code Section 65965 (and any successor or other provision(s) then applicable), or the laws of the United States; and (ii) otherwise reasonably acceptable to the Signatory Agencies. Grantee shall require the assignee to record the assignment in the county where the Bank Property is located. The failure of Grantee to perform any act provided in this section shall not impair the validity of this Conservation Easement or limit its enforcement in any way. Any transfer under this section is subject to the requirements of Section 11.

(b) Bank Property.

Grantor agrees to incorporate the terms of this Conservation Easement by reference in any deed or other legal instrument by which Grantor divests itself of any interest in all or any portion of the Bank Property, including, without limitation, a leasehold interest. Grantor agrees that the deed or other legal instrument shall also incorporate by reference the [***insert:*** BEI ***or*** CBA], the Development Plan, the Management Plan, and any amendment(s) to those documents. Grantor further agrees to give written notice to Grantee and the Signatory Agencies of the intent to transfer any interest at least sixty (60) days prior to the date of such transfer. Grantee or the Signatory Agencies shall have the right to prevent any transfers in which prospective subsequent claimants or transferees are not given notice of the terms, covenants, conditions and restrictions of this Conservation Easement (including the exhibits and documents incorporated by reference in it). The failure of Grantor to perform any act provided in this section shall not impair the validity of this Conservation Easement or limit its enforceability in any way. Any transfer under this section is subject to the requirements of Section 11.

11. Merger.

The doctrine of merger shall not operate to extinguish this Conservation Easement if the Conservation Easement and the Bank Property become vested in the same party. If, despite this intent, the doctrine of merger applies to extinguish the Conservation Easement then, unless Grantor, Grantee, and the Signatory Agencies otherwise agree in writing, a replacement conservation easement or restrictive covenant containing the same protections embodied in this Conservation Easement shall be recorded against the Bank Property.

12. Notices.

Any notice, demand, request, consent, approval, or other communication that Grantor or Grantee desires or is required to give to the other shall be in writing, with a copy to each of the Signatory Agencies, and served personally or sent by recognized overnight courier that guarantees next-day delivery or by first class United States mail, postage fully prepaid, addressed as follows:

To Grantor: [Grantee name]
[Grantee address]
Attn: _____

To Grantee: [***insert the appropriate Grantee information:***]

[Department of Fish and Game]
[Region name] Region
[REGION ADDRESS]
[Attn: Regional Manager]

OR

[Grantee name]
[Grantee address]

[***Remove/modify the following blocks as appropriate when CDFG or the USFWS are not signatories to the BEI or CBA or third-party beneficiaries to the CE.***]

To CDFG: [Department of Fish and Game]
[Region name] Region
[REGION ADDRESS]
[Attn: Regional Manager]

With a copy to: Department of Fish and Game
Office of General Counsel
1416 Ninth Street, 12th Floor
Sacramento, CA 95814-2090
Attn: General Counsel

To USFWS: United States Fish and Wildlife Service
[Field Office name] Field Office
[FIELD OFFICE ADDRESS]
Attn: Field Supervisor

[***Remove/modify these blocks as appropriate when USEPA or USACE are not signatories to the BEI or CBA or third-party beneficiaries to the CE.***]

To USACE: U.S. Army Corps of Engineers
[District name] District
[DISTRICT ADDRESS]
Attn: Chief, Regulatory Branch

To USEPA: U.S. Environmental Protection Agency, Region IX

75 Hawthorne Street
San Francisco, CA 94105
Attn: Director, Water Division

or to such other address a party or a Signatory Agency shall designate by written notice to Grantor, Grantee and the Signatory Agencies. Notice shall be deemed effective upon delivery in the case of personal delivery or delivery by overnight courier or, in the case of delivery by first class mail, three (3) days after deposit into the United States mail.

13. Amendment.

This Conservation Easement may be amended only by mutual written agreement of Grantor and Grantee and written approval of the Signatory Agencies, which approval shall not be unreasonably withheld or delayed. Any such amendment shall be consistent with the purposes of this Conservation Easement and California law governing conservation easements, and shall not affect its perpetual duration. Any such amendment shall be recorded in the official records of the county in which the Bank Property is located, and Grantee shall promptly provide a conformed copy of the recorded amendment to the Grantor and the Signatory Agencies.

14. Additional Provisions.

(a) Controlling Law.

The interpretation and performance of this Conservation Easement shall be governed by the laws of the United States and the State of California, disregarding the conflicts of law principles of such state.

(b) Liberal Construction.

Despite any general rule of construction to the contrary, this Conservation Easement shall be liberally construed to effect the purposes of this Conservation Easement and the policy and purpose of California Civil Code Section 815, *et seq.* [***add if Grantee is nonprofit organization:*** and Government Code Section 65965]. If any provision in this instrument is found to be ambiguous, an interpretation consistent with the purposes of this Conservation Easement that would render the provision valid shall be favored over any interpretation that would render it invalid.

(c) Severability.

If a court of competent jurisdiction voids or invalidates on its face any provision of this Conservation Easement, such action shall not affect the remainder of this Conservation Easement. If a court of competent jurisdiction voids or invalidates the application of any provision of this Conservation Easement to a person or circumstance, such action shall not affect the application of the provision to any other persons or circumstances.

(d) Entire Agreement.

This document (including its exhibits and the [***insert:*** BEI ***or*** CBA], the Development Plan, and the Management Plan incorporated by reference in this document) sets forth the entire agreement of the parties and the Signatory Agencies with respect to the

Conservation Easement and supersedes all prior discussions, negotiations, understandings, or agreements of the parties relating to the Conservation Easement. No alteration or variation of this Conservation Easement shall be valid or binding unless contained in an amendment in accordance with Section 13.

(e) No Forfeiture.

Nothing contained in this Conservation Easement will result in a forfeiture or reversion of Grantor's title in any respect.

(f) Successors.

The covenants, terms, conditions, and restrictions of this Conservation Easement shall be binding upon, and inure to the benefit of, the parties and their respective personal representatives, heirs, successors, and assigns, and shall constitute a servitude running in perpetuity with the Bank Property.

(g) Termination of Rights and Obligations.

A party's rights and obligations under this Conservation Easement terminate upon transfer of the party's interest in the Conservation Easement or Bank Property, except that liability for acts, omissions or breaches occurring prior to transfer shall survive transfer.

(h) Captions.

The captions in this instrument have been inserted solely for convenience of reference and are not a part of this instrument and shall have no effect upon its construction or interpretation.

(i) No Hazardous Materials Liability.

(1) Grantor represents and warrants that it has no knowledge or notice of any Hazardous Materials (defined below) or underground storage tanks existing, generated, treated, stored, used, released, disposed of, deposited or abandoned in, on, under, or from the Bank Property, or transported to or from or affecting the Bank Property.

(2) Without limiting the obligations of Grantor under Section 9 (b), Grantor hereby releases and agrees to indemnify, protect and hold harmless the Grantee's Indemnified Parties (defined in Section 9 (b) (1)) from and against any and all Claims (defined in Section 9 (b)(1)) arising from or connected with any Hazardous Materials or underground storage tanks present, alleged to be present, released in, from or about, or otherwise associated with the Bank Property at any time, except any Hazardous Materials placed, disposed or released by Grantee or any of its employees. This release and indemnification includes, without limitation, Claims for (A) injury to or death of any person or physical damage to any property; and (B) the violation or alleged violation of, or other failure to comply with, any Environmental Laws (defined below). If any action or proceeding is brought against any of the Grantee's Indemnified Parties by reason of any such Claim, Grantor shall, at the election of and upon written notice from the applicable Grantee Indemnified Party, defend such action or proceeding

by counsel reasonably acceptable to the Grantee Indemnified Party [***add if CDFG is Grantee:*** or reimburse Grantee for all charges incurred for services of the California Attorney General in defending the action or proceeding].

(3) Without limiting the obligations of Grantor under Section 9 (b), Grantor hereby releases and agrees to indemnify, protect and hold harmless the Third-Party Beneficiary Indemnified Parties (defined in Section 9 (b)(2)) from and against any and all Claims arising from or connected with any Hazardous Materials or underground storage tanks present, alleged to be present, released in, from or about, or otherwise associated with the Bank Property at any time, except that this release and indemnification shall be inapplicable to a Third-Party Beneficiary Indemnified Party with respect to any Hazardous Materials placed, disposed or released by that Third-Party Beneficiary Indemnified Party or any of its employees. This release and indemnification includes, without limitation, Claims for (A) injury to or death of any person or physical damage to any property; and (B) the violation of alleged violation of, or other failure to comply with, any Environmental Laws. If any action or proceeding is brought against any of the Third-Party Beneficiary Indemnified Parties by reason of any such Claim, Grantor shall, at the election or and upon written notice from the applicable Third-Party Beneficiary Indemnified Party, defend such action or proceeding by counsel reasonably acceptable to the Third-Party Beneficiary Indemnified Party for all charges incurred for services of the California Attorney General or the U.S. Department of Justice in defending the action or proceeding.

(4) Despite any contrary provision of this Conservation Easement, the parties do not intend this Conservation Easement to be, and this Conservation Easement shall not be, construed such that it creates in or gives to Grantee or any Third-Party Beneficiaries any of the following:

(A) The obligations or liability of an "owner" or "operator," as those terms are defined and used in Environmental Laws (defined below), including, without limitation, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (42 U.S.C. § 9601, *et seq.*; hereinafter, "CERCLA"); or

(B) The obligations or liabilities of a person described in 42 U.S.C. § 9607(a)(3) or (4); or

(C) The obligations of a responsible person under any applicable Environmental Laws; or

(D) The right to investigate and remediate any Hazardous Materials associated with the Bank Property; or

(E) Any control over Grantor's ability to investigate, remove, remediate or otherwise clean up any Hazardous Materials associated with the Bank Property.

(5) The term "Hazardous Materials" includes, without limitation, (a) material that is flammable, explosive or radioactive; (b) petroleum products, including by-

products and fractions thereof; and (c) hazardous materials, hazardous wastes, hazardous or toxic substances, or related materials defined in CERCLA, the Resource Conservation and Recovery Act of 1976 (42 U.S.C. § 6901, *et seq.*; hereinafter, "RCRA"); the Hazardous Materials Transportation Act (49 U.S.C. §5101, *et seq.*; hereinafter, "HTA"); the Hazardous Waste Control Law (California Health & Safety Code § 25100, *et seq.*; hereinafter, "HCL"); the Carpenter-Presley-Tanner Hazardous Substance Account Act (California Health & Safety Code § 25300, *et seq.*; hereinafter "HSA"), and in the regulations adopted and publications promulgated pursuant to them, or any other applicable Environmental Laws now in effect or enacted after the date of this Conservation Easement.

(6) The term "Environmental Laws" includes, without limitation, CERCLA, RCRA, HTA, HCL, HSA, and any other federal, state, local or administrative agency statute, ordinance, rule, regulation, order or requirement relating to pollution, protection of human health or safety, the environment or Hazardous Materials. Grantor represents, warrants and covenants to Grantee and Third-Party Beneficiaries that activities upon and use of the Bank Property by Grantor, its agents, employees, invitees and contractors will comply with all Environmental Laws.

(j) Warranty.

Grantor represents and warrants that Grantor is the sole owner of the Bank Property. Grantor also represents and warrants that, except as specifically disclosed to and approved by the Signatory Agencies pursuant to the Bank Property Assessment and Warranty signed by Grantee and attached as an exhibit to the [***insert:*** BEI ***or*** CBA], [***choose applicable statement:*** there are no outstanding mortgages, liens, encumbrances or other interests in the Bank Property (including, without limitation, mineral interests) which may conflict or are inconsistent with this Conservation Easement ***or*** the holder of any outstanding mortgage, lien, encumbrance or other interest in the Bank Property (including, without limitation, mineral interest) which conflicts or is inconsistent with this Conservation Easement has expressly subordinated such interest to this Conservation Easement by a recorded Subordination Agreement approved by Grantee and the Signatory Agencies].

(k) Additional Interests.

Grantor shall not grant any additional easements, rights of way or other interests in the Bank Property (other than a security interest that is expressly subordinated to this Conservation Easement), nor shall Grantor grant, transfer, abandon or relinquish (each a "Transfer") any mineral, air, or water right or any water associated with the Bank Property, without first obtaining the written consent of Grantee and the Signatory Agencies. Such consent may be withheld if Grantee or the Signatory Agencies determine(s) that the proposed interest or Transfer is inconsistent with the purposes of this Conservation Easement or will impair or interfere with the Conservation Values of the Bank Property. This Section 14(k) shall not limit the provisions of Section 2(d) or 3(n), nor prohibit transfer of a fee or leasehold interest in the Bank Property that is subject to this Conservation Easement and complies with Section 10. Grantor shall provide a copy of any recorded or unrecorded grant or Transfer document to the Grantee and Signatory Agencies.

(l) Recording.

Grantee shall record this Conservation Easement in the Official Records of the County in which the Bank Property is located, and may re-record it at any time as Grantee deems necessary to preserve its rights in this Conservation Easement.

(m) Third-Party Beneficiary.

Grantor and Grantee acknowledge that the [***include the agencies that will be third-party beneficiaries:*** CDFG, USFWS, USACE, and USEPA] (the "Third-Party Beneficiaries") are third party beneficiaries of this Conservation Easement with the right of access to the Bank Property and the right to enforce all of the obligations of Grantor including, but not limited to, Grantor's obligations under Section 14, and all other rights and remedies of the Grantee under this Conservation Easement.

(n) Funding.

Endowment funding for the perpetual management, maintenance and monitoring of the Bank Property is specified in and governed by the [***insert:*** BEI ***or*** CBA] and the Management Plan.

IN WITNESS WHEREOF Grantor has executed this Conservation Easement Deed the day and year first above written.

GRANTOR:

BY: _____

NAME: _____

TITLE: _____

DATE: _____

Approved as to form:

[***Remove or modify the approval block as appropriate, i.e., Grantee's legal counsel if CDFG is not Grantee.***]

General Counsel
State of California
Department of Fish and Game

BY: _____
Ann S. Malcolm
General Counsel

[***Delete this page if CDFG will not be Grantee. If the Grantee will be a government agency, that agency must include its own Certificate of Acceptance.***]

CERTIFICATE OF ACCEPTANCE

This is to certify that the interest in real property conveyed by the Conservation Easement Deed by _____, dated _____, 20____, to the State of California, Grantee, acting by and through its Department of Fish and Game, a governmental agency (under Government Code § 27281), is hereby accepted by the undersigned officer on behalf of the Grantee pursuant to the Fish and Game Code.

GRANTEE:

[***Remove or modify the approval block as appropriate if CDFG is not Grantee.***]

STATE OF CALIFORNIA, by and through its
DEPARTMENT OF FISH AND GAME

By: _____

Title: _____
Authorized Representative

Date: _____

US Army Corps of Engineers®

U.S. Army Corps of Engineers
Los Angeles District, Regulatory Division
2152 Alessandro Drive, Suite 110
Ventura, California 93001