JURISDICTIONAL DELINEATION REPORT

SERRANO HIGHLANDS

LAKE FOREST, ORANGE COUNTY, CALIFORNIA

LSA

August 2011

JURISDICTIONAL DELINEATION REPORT

SERRANO HIGHLANDS

LAKE FOREST, ORANGE COUNTY, CALIFORNIA

Submitted to:

Gary Emsiek, General Partner
Madison Investors, LP
25108 Marguerite Parkway, Suite A-132
Mission Viejo, Ca 92691

Prepared by:

LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, California 92614-4731
(949) 553-0666

LSA Project No. MAI1101

LSA

August 2011

TABLE OF CONTENTS

FIGURES

TABLE

APPENDICES

INTRODUCTION

The purpose of this assessment is to delineate wetlands and other jurisdictional waters and to identify functions and values of the project area. This information and analysis have been prepared for use by the United States Army Corps of Engineers (Corps), the California Department of Fish and Game (CDFG), and the Regional Water Quality Control Board (RWQCB) as part of the evaluation for potential permit requirements under Section 404 of the federal Clean Water Act (CWA), under Section 1600 et seq. of the California Fish and Game Code, and under Section 401 of the CWA, respectively. This Jurisdictional Delineation is also an important source of CEQA information for the evaluation of potential impacts associated with proposed residential development on the site.

The study area is located at the northern terminus of Peachwood Street in the City of Lake Forest, Orange County, California (Figure 1). It is located in the *El Toro, California* quadrangle of the United States Geological Survey 7.5-minute series topographical map. The property is within Section 11 of Township 6 South and Range 8 West. The site is located within the planning boundaries of the Central/Coastal Orange County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) and the San Diego Creek Special Area Management Plan (SAMP).

REGULATORY BACKGROUND

UNITED STATES ARMY CORPS OF ENGINEERS

The Corps regulates discharges of dredged or fill material into waters of the U.S. These waters include wetland and nonwetland bodies of water that meet specific criteria. Corps regulatory jurisdiction pursuant to Section 404 of the CWA is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or may be indirect, through a nexus identified in the Corps regulations. The following definition of waters of the U.S. is taken from the discussion provided at 33 Code of Federal Regulations (CFR) 328.3:

> "The term waters of the U.S. means:
>
> (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce . . . ;
>
> (2) All interstate waters including interstate wetlands;
>
> (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams) . . . the use, degradation or destruction of which could affect interstate or foreign commerce . . . ;
>
> (4) All impoundments of waters otherwise defined as waters of the U.S. under the definition; and
>
> (5) Tributaries of waters defined in paragraphs (a) (1)–(4) of this section."

The Corps typically regulates as waters of the U.S. any body of water displaying an ordinary high water mark (OHWM). Corps jurisdiction over nontidal waters of the U.S. extends laterally to the OHWM or beyond the OHWM to the limit of any adjacent wetlands, if present (33 CFR 328.4). The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area (33 CFR 328.3)." Jurisdiction typically extends upstream to the point where the OHWM is no longer perceptible.

As discussed above, Corps regulatory jurisdiction under Section 404 of the CWA is founded on a connection between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or may be indirect, through a nexus identified in the Corps regulations. In the past, an indirect nexus could potentially be established if isolated waters provided habitat for migratory birds, even in the absence of a surface connection to a navigable water of the

U.S. The 1984 rule that enabled the Corps to expand jurisdiction over isolated waters of this type became known as the Migratory Bird Rule. However, on January 9, 2001, the United States Supreme Court narrowly limited the Corps jurisdiction of "nonnavigable, isolated, intrastate" waters based solely on the use of such waters by migratory birds, and particularly the use of indirect indicators of interstate commerce (e.g., use by migratory birds, that cross state lines) as a basis for jurisdiction. The court's ruling derives from the case Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, No. 99-1178 (SWANCC). The Supreme Court determined that the Corps exceeded its statutory authority by asserting CWA jurisdiction over an abandoned sand and gravel pit in northern Illinois, which provides habitat for migratory birds.

In 2006, the United States Supreme Court further considered the Corps jurisdiction of "waters of the U.S." in the consolidated cases Rapanos v. United States and Carabell v. United States (126 S. Ct. 2208), collectively referred to as Rapanos. The Supreme Court concluded that wetlands are "waters of the U.S." if they significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as navigable. On June 5, 2007, the Corps issued guidance regarding the Rapanos decision. This guidance states that the Corps will continue to assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, relatively permanent nonnavigable tributaries that have a continuous flow at least seasonally (typically 3 months), and wetlands that directly abut relatively permanent tributaries. The Corps will determine jurisdiction over waters that are nonnavigable tributaries that are not relatively permanent waters and wetlands adjacent to nonnavigable tributaries that are not relatively permanent waters only after making a significant nexus finding relative to traditional navigable waters.

The recent Corps guidance states that the Corps generally will not assert jurisdiction over "swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)" and ditches "wholly in and draining only uplands and that do not carry a relatively permanent flow of water."

Furthermore, the preamble to Corps regulations (Preamble Section 328.3, Definitions) states that the Corps does not generally consider the following waters to be waters of the U.S. The Corps does, however, reserve the right to regulate these waters on a case-by-case basis.

- Nontidal drainage and irrigation ditches excavated on dry land
- Artificially irrigated areas that would revert to upland if the irrigation ceased
- Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing
- Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons
- Water-filled depressions created in dry land incidental to construction activity and pits excavated in dry land for purposes of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the U.S.

Waters found to be isolated and not subject to CWA regulation are often still regulated by the RWQCB under the State Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Wetlands

Wetland delineations for Section 404 purposes must be conducted according to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Regional Supplement) (Corps 2008) and the Corps of Engineers 1987 Wetlands Delineation Manual (1987 Manual) (Environmental Laboratory 1987). Where there are differences between the two documents, the Regional Supplement takes precedence over the 1987 Manual.

The Corps and the United States Environmental Protection Agency (EPA) define wetlands as follows:

> "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions."

In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland characteristic to be met. Several indicators may be analyzed to determine whether the criteria are satisfied.

Hydrophytic vegetation and hydric soils indicators provide evidence that episodes of inundation have lasted more than a few days or have occurred repeatedly over a period of years, but do not confirm that an episode has occurred recently. Conversely, wetland hydrology indicators provide evidence that an episode of inundation or soil saturation occurred recently, but does not provide evidence that episodes have lasted more than a few days or have occurred repeatedly over a period of years. Because of this, if an area lacks one of the three characteristics under normal circumstances, the area is considered nonwetland under most circumstances.

Determination of wetland limits may be obfuscated by a variety of natural environmental factors or human activities, collectively called difficult wetland situations, including cyclic periods of drought and flooding or highly ephemeral stream systems. During periods of drought, for example, bank return flows are reduced and water tables are lowered. This results in a corresponding lowering of ordinary high water and invasion of upland plant species into wetland areas. Conversely, extreme flooding may create physical evidence of high water well above what might be considered ordinary and may allow the temporary invasion of hydrophytic species into nonwetland areas. In highly ephemeral systems typical of Southern California, these problems are encountered frequently. In these situations, professional judgment based on years of practical experience and extensive knowledge of local ecological conditions comes into play in delineating wetlands. The Regional Supplement provides additional guidance for difficult wetland situations.

Hydrophytic Vegetation. Hydrophytic vegetation is plant life that grows and is typically adapted for life in permanently or periodically saturated soils. The hydrophytic vegetation criterion is met if more than 50 percent of the dominant plant species from all strata (tree, shrub, herb, and woody vine

layers) are considered hydrophytic. Hydrophytic species are those included on the *National List of Plant Species That Occur in Wetlands: California* (*Region 0*) (Reed 1988), published by the United States Fish and Wildlife Service (USFWS). Each species on the list is rated according to a wetland indicator category, as shown in Table A. To be considered hydrophytic, the species must have wetland indicator status (i.e., be rated as OBL, FACW, or FAC).

Table A: Hydrophytic Vegetation

Category		Probability
Obligate Wetland	OBL	Almost always occur in wetlands (estimated probability > 99 percent)
Facultative Wetland	FACW	Usually occur in wetlands (estimated probability 67–99 percent)
Facultative	FAC	Equally likely to occur in wetlands and nonwetlands (estimated probability 34–66 percent)
Facultative Upland	FACU	Usually occur in nonwetlands (estimated probability 67–99 percent)
Obligate Upland	UPL	Almost always occur in nonwetlands (estimated probability > 99 percent)

The delineation of hydrophytic vegetation is typically based on the most dominant species from each vegetative stratum (strata are considered separately); when more than 50 percent of these dominant species are hydrophytic (i.e., FAC, FACW, or OBL), the vegetation is considered hydrophytic. In particular, the Corps recommends the use of the "50/20" rule (also known as the dominance test) from the Regional Supplement for determining dominant species. Under this method, dominant species are the most abundant species that immediately exceed 50 percent of the total dominance measure for the stratum, plus any additional species comprising 20 percent or more of the total dominance measure for the stratum. In cases where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test, the prevalence index must be used. The prevalence index is a weighted average of all plant species within a sampling plot. The prevalence index is particularly useful when communities only have one or two dominants, where species are present at roughly equal coverage, or when strata differ greatly in total plant cover. In addition, Corps guidance provides that morphological adaptations may be considered when determining hydrophytic vegetation when indicators of hydric soil and wetland hydrology are present (Corps 2008). If the plant community passes either the dominance test or prevalence index after reconsidering the indicator status of any plant species that exhibit morphological adaptations for life in wetlands, then the vegetation is considered hydrophytic.

Hydric Soils.[1] Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.[2] Soils are considered likely to meet the definition of a hydric soil when one or more of the following criteria are met:

[1] The hydric soil definition and criteria included in the 1987 Manual are obsolete. Users of the Manual are directed to the United States Department of Agriculture (USDA) Natural Resources Conservation Service website for the most current information on hydric soils.

[2] Current definition as of 1994 (Federal Register [FR] July 13, 1994).

1. All Histels except Folistels and Histosols except Folists; or
2. Soils that are frequently ponded for long duration or very long duration[1] during the growing season; or
3. Soils that are frequently flooded for long duration or very long duration during the growing season.

Hydric soils develop under conditions of saturation and inundation combined with microbial activity in the soil that causes a depletion of oxygen. While saturation may occur at any time of year, microbial activity is limited to the growing season, when soil temperature is above biologic zero (the soil temperature at a depth of 50 centimeters [cm], below which the growth and function of locally adapted plants are negligible). Biogeochemical processes that occur under anaerobic conditions during the growing season result in the distinctive morphologic characteristics of hydric soils. Based on these criteria, a National List of Hydric Soils was created from the National Soil Information System (NASIS) database that is updated annually.

The Regional Supplement has a number of field indicators that may be used to identify hydric soils. The Natural Resources Conservation Service (NRCS) (USDA 2003) has also developed a number of field indicators that may demonstrate the presence of hydric soils. These indicators include hydrogen sulfide generation, accumulation of organic matter, and the reduction, translocation, and/or accumulation of iron and other reducible elements. These processes result in soil characteristics that persist during both wet and dry periods. Separate indicators have been developed for sandy soils and for loamy and clayey soils.

Wetland Hydrology. Under natural conditions, development of hydrophytic vegetation and hydric soils are dependent on a third characteristic: wetland hydrology. Areas with wetland hydrology are those where the presence of water has an overriding influence on vegetation and soil characteristics due to anaerobic and reducing conditions (Environmental Laboratory 1987). The wetland hydrology parameter is satisfied if the area is seasonally inundated or saturated to the surface for a minimum of 14 consecutive days during the growing season in most years (Corps 2008).

Hydrology is often the most difficult criterion to measure in the field due to seasonal and annual variations in water availability. Some of the indicators that are commonly used to identify wetland hydrology include visual observation of inundation or saturation, watermarks, recent sediment deposits, surface scour, and oxidized root channels (rhizospheres) resulting from prolonged anaerobic conditions.

CALIFORNIA DEPARTMENT OF FISH AND GAME

The CDFG, through provisions of the California Fish and Game Code (Section 1600 et seq.), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel

[1] Long duration is defined as a single event ranging from 7 to 30 days. Very long duration is defined as a single event that lasts longer than 30 days.

bed and banks and at least an ephemeral flow of water. The CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by the CDFG.

In obtaining CDFG agreements, the limits of wetlands are not typically determined. The reason for this is that CDFG generally includes, within the jurisdictional limits of streams and lakes, any riparian habitat present. Riparian habitat includes willows, mulefat, and other vegetation typically associated with the banks of a stream or lake shorelines and may not be consistent with Corps definitions. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFG jurisdiction based on riparian habitat will automatically include any wetland areas and may include additional areas that do not meet Corps criteria for soils and/or hydrology (e.g., where riparian woodland canopy extends beyond the banks of a stream away from frequently saturated soils).

REGIONAL WATER QUALITY CONTROL BOARD

The California RWQCB is responsible for the administration of Section 401 of the CWA. Typically, the areas subject to RWQCB jurisdiction coincide with those of the Corps (i.e., waters of the U.S., including any wetlands). RWQCB also asserts authority over waters of the State under waste discharge requirements pursuant to the Porter-Cologne Act.

ENVIRONMENTAL SETTING

The study area is located at the northern terminus of Peachwood Street in the City of Lake Forest, Orange County, California (Figure 1). It is located in the *El Toro, California* quadrangle of the United States Geological Survey 7.5-minute series topographical map. The property is within Section 11 of Township 6 South and Range 8 West. The site is located within the planning boundaries of the Central/Coastal Orange County NCCP/HCP and the San Diego Creek SAMP.

DESCRIPTION OF THE EXISTING BIOLOGICAL AND PHYSICAL CONDITIONS

The proposed use of the property is residential development, and current adjacent uses include existing residential, agriculture, municipal water district, undeveloped open space, and an office campus. The project area is 23.79 acres (ac). The proposed project includes the grading of 19.31 ac and fuel modification on an additional 4.48 ac. For the purposes of this analysis, a study area of 33.85 ac was surveyed for the Biological Resource Assessment and this Jurisdictional Delineation.

LSA biologists conducted on-site assessments to survey and evaluate the existing habitat types within the proposed impact area, including the suitability of habitat for the presence of various sensitive species. The habitat was mapped according to the Orange County Habitat Classification System (HCS) consistent with the "Methods Used to Survey the Vegetation of Orange County Parks and Open Space Areas and The Irvine Company Property" (Jones & Stokes Associates, Inc., February 10, 1993). Representative photographs are included in Appendix C.

Within the study area (33.85 ac) there are eight broad habitat classifications: sagebrush and sage scrub [2.3], mulefat scrub [7.3], sagebrush-grassland ecotone/sere [2.8.1], southern cactus scrub [2.4], irrigated agriculture [14.2], ruderal [4.6], developed [15], and disturbed [16]. The broad category sagebrush and sage scrub [2.3] is broken down into several subtypes which, within the project area, include: sagebrush-buckwheat scrub [2.3.1], sagebrush scrub [2.3.6], buckwheat scrub [2.3.7], sagebrush-black sage scrub [2.3.8], coyote brush scrub [2.3.9], mixed scrub/Mexican elderberry woodland [2.3.10/8.4], and sagebrush-coyote brush scrub [2.3.12] (Figure 2).

METHODS

The field work for this evaluation was conducted by biologists Blake Selna and Sara Louwsma on July 13 and August 4, 2011. The study area was surveyed on foot for both federal and State jurisdictional areas.

Areas of potential jurisdiction were evaluated according to Corps and CDFG criteria. The boundaries of the potential jurisdictional areas were observed in the field and mapped on aerial photographs (scale: 1 inch = approximately 100 feet [ft]), which show the entire study area (Figure 3). Measurements of federal and State jurisdictional areas mapped during the course of the field investigation were determined by a combination of direct measurements taken in the field and measurements taken from aerial photographs.

Soil pits were considered in areas where jurisdictional status was in question. Two locations within the potential Corps jurisdiction (at the confluence of the major drainages on the site) were considered the most likely places that wetlands exist if any exist on site (Figure 3). These areas were evaluated according to routine wetland delineation procedures described in the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region* (Regional Supplement, 2008). Representative sample plots were examined in these locations.

At the sample plots, the dominant and subdominant plant species were identified and their wetland indicator status noted (Reed 1988). A small sample pit was dug within the plots in order to examine soil characteristics and composition. Soil matrix colors were classified according to the Munsell Soil Color Charts (Munsell Color 2000). Hydrological conditions, including any surface inundation, saturated soils, groundwater levels, and/or other wetland hydrology indicators, were noted. General site characteristics were also noted. A standard data form was completed for each sample plot, and a copy of these data forms is included in Appendix B of this report.

RESULTS

ESTABLISHING POTENTIAL FOR FEDERAL AND STATE JURISDICTION

The drainages on this site are very ephemeral, flowing only during a significant rain event.

As described in the Regulatory Background section above, federal jurisdiction is founded on a connection, or nexus, between the water body in question and interstate commerce, as well as the existence of an OHWM, while CDFG jurisdiction is established through the presence of a channel bed and banks with at least an intermittent flow of water. Based on the findings above, the drainages on this site demonstrate potential for federal and State jurisdiction and warrant the following analysis to delineate jurisdictional limits.

The drainages on this site are tributary to Serrano Creek through storm drains, and Serrano Creek drains into San Diego Creek, which drains to Upper Newport Bay. Because the drainages on this site are ultimately tributary to a Traditional Navigable Water (TNW), but are not relatively permanent waters, a significant nexus determination would have to be made by the Corps.

Given the extremely ephemeral nature of the drainages, the limited watershed, and the distance from Upper Newport Bay, it is unlikely that these drainages have a significant influence on the chemical, physical, and biological integrity of the TNW.

DELINEATION OF WETLANDS AND OTHER WATERS

Vegetation

The vegetation in the Biological Study Area (BSA) is heavily dominated by upland scrub types (coastal sage scrub [CSS] and associated subtypes) with ribbons of mulefat scrub (cumulatively 0.46 ac). The mulefat scrub is atypical in its composition. It is a very even mixture of mulefat and CSS components (e.g., California sagebrush [*Artemisia californica*], coyote brush [*Baccharis pilularis*], buckwheat [*Eriogonum fasciculatum*]), without the presence of other species typically associated with mulefat scrub in wetter settings (e.g., mugwort [*Artemisia douglasiana*], nightshade [*Solanum* spp.], western ragweed [*Ambrosia psilostachia*]). Additional descriptions of these habitat types and associated figures showing their locations within the BSA are included in the project's Biological Assessment Report (LSA Associates, Inc., June 2005).

The only hydrophytic vegetation observed was mulefat (FACW) in a few areas in the bottom of the drainage. Based on the predominance of upland vegetation within the drainages, the federal criterion for wetland vegetation is not satisfied. No other areas of hydrophytic vegetation were observed adjacent to the creek.

Soils

The first soil pit was located right before the drainage empties into the underground storm drain. The soil in the first 4 inches of the sample plot is characterized by loamy sand, and below the sand is concrete. The soil is well drained, and no hydric soil indicators were observed; therefore, federal criteria for wetland soils are not met. The second soil pit was located approximately 60 ft upstream from the first, adjacent to another patch of mulefat. The soil type and conditions were the same as the first pit. No other areas within the invert of the creek, adjacent to the creek, or within the unnamed ephemeral drainages are likely to exhibit hydric soil characteristics.

Hydrology

Based on the limited contributing watershed, the lack of visible evidence of saturation, and the soil type, wetland hydrology does not exist.

FUNCTIONS AND VALUES OF WETLANDS AND OTHER WATERS

The following is an assessment of the functions and values attributable to the waters in the BSA. All wetlands and other waters have some degree of functionality, and no single wetland or water can perform all of the functions considered below. The following functions are classified at low, moderate, or high value levels.

Hydrologic Regime

This function is the ability of a wetland or stream to absorb and store water below ground. The degree of this saturation is dependent on the soil composition and is affected by prior flooding events. For example, clay soils possess more pore space than sandy soils. However, the smaller pore size slows the rate at which water is absorbed and released and therefore has a lower capacity to store water than sandy soils. The storage of water below ground allows for the fluctuation between anaerobic and aerobic conditions that benefit environmental conditions necessary for microbial cycling. The sandy soil readily absorbs water, but the drainages and watershed are so small and flashy that there isn't much water to absorb. The drainages on the site provide a low function hydrologic regime.

Flood Storage and Flood Flow Modification

This function is determined based on the ability of a wetland or stream at which the peak flow in a watershed can be attenuated during major storm events and during peak domestic flows. In other words, this is the ability of a wetland or stream to take in surface water that may otherwise cause flooding. This is dependent on the size, amount of water it can hold, and location in the watershed. Areas high in the watershed may have more ability to reduce flooding in downstream areas, but areas lower in the watershed may have greater benefits to a specific area. Vegetation, shape, and the configuration of the wetland or stream may also affect flood storage by dissipating energy of flows during flood events. Except for a few patches of mulefat and several patches of giant wild-rye, the drainages do not dissipate energy or otherwise attenuate flows due to their shape and relative lack of vegetation. The sparsely vegetated channel bottom and steep-sided narrow nature of the drainages on site provide low flood storage and flood flow modification.

Sediment Retention

Removal of sediment is the process that keeps sediments from migrating downstream. This is accomplished through the natural process of sediment retention and entrapment. This function is dependent on the sediment load being delivered by runoff into the watershed. Similar to that mentioned above, vegetation, shape, and the configuration of a wetland will also affect sediment retention if water is detained for long durations, such as dense vegetation, bowl shape, and slow-moving water. This function would be demonstrated (i.e., high) if the turbidity of the incoming water is greater than that of the outgoing water. The shape of the channel and the relative lack of vegetation provide for low sediment retention function.

Nutrient Retention and Transformation

Nutrient cycling consists of two variables: (1) uptake of nutrients by plants, and (2) detritus turnover, in which nutrients are released for uptake by plants downstream. Wetland systems in general are much more productive with regard to nutrients than nonwetland habitats. The regular availability of water associated with the wetland or stream may cause the growth of plants (nutrient uptake), associated detritivores, and generate nutrients that may be utilized by a variety of aquatic and terrestrial wildlife downstream. Such a dry system, with primarily upland vegetation, does not generate the detritus associated with deciduous riparian trees and herbaceuous annuals; therefore, this system of ephemeral drainages provides low-function nutrient retention and transformation.

Toxicant Trapping

The major processes by which wetlands remove nutrients and toxicants are as follows: (1) by trapping sediments rich in nutrients and toxicants, (2) by adsorption to soils high in clay content or organic matter, and (3) through nitrification and denitrification in alternating oxic and anoxic conditions. Removal of nutrients and toxicants is closely tied to the processes that provide for sediment removal. Because the sediment retention is relatively minor and the soils are not highly charged or organic, the toxicant trapping function is low in this system.

Social Significance

Social significance is a measure of the probability that a wetland or stream will be utilized by the public because of its natural features, economic value, official status, and/or location. This includes being utilized by the public for recreational uses such as boating, fishing, birding, walking, and other passive recreational activities. In addition, a wetland or stream that is utilized as an outdoor classroom, is a location for scientific study, or is located near a nature center would have a higher social significance standing. This area has low social significance.

Wildlife Habitat

General habitat suitability is the ability of a wetland to provide habitat for a wide range of wildlife. Vegetation is a large component of wildlife habitat. As plant community diversity increases along

with connectivity with other habitats, so does potential wildlife diversity. In addition, a variety of open water and intermittent and perennial ponding is also an important habitat element for wildlife. There is very low water-related wildlife habitat value associated with this drainage due to its extremely ephemeral nature.

Aquatic Habitat

The ability of a wetland or stream to support aquatic species requires that there is ample food supply, pool and riffle complexes, and sufficient soil substrate. Food supply is typically in the form of aquatic invertebrates and detrital matter from nearby vegetation. Pool and riffle complexes provide a variety of habitats for species diversity as well as providing habitat for breeding and rearing activities. Species diversity is directly related to the complexity of the habitat structure. This small drainage complex provides very low aquatic habitat values because of its extremely ephemeral nature.

DISCUSSION

This small complex of ephemeral drainages is not navigable and is not directly tributary to a navigable water.

The drainage bottom is primarily unvegetated, except for a few patches of mulefat scrub. The banks are vegetated with CSS shrubs.

Based on the analysis of a sample plot located at the confluence of the few small drainages, this area does not meet Corps criteria for hydric soils; therefore, this area does not satisfy the three-parameter approach for identifying Corps jurisdictional wetlands.

However, all portions of the drainages located below the OHWM within the BSA potentially qualify as nonwetland waters of the U.S., subject to a significant nexus determination.

All areas described above as potential Corps nonwetland waters of the U.S. plus the adjacent areas extending to the top of the banks satisfy the CDFG definition of a streambed by encompassing the extent of the bed and banks of the channel. As a result, the total acreage under CDFG jurisdiction exceeds the total acreage under Corps jurisdiction.

CONCLUSIONS

The following conclusions are based on the observations of trained and experienced wetlands and jurisdictional water delineators. The conclusions are based on the application of pertinent manuals, regulations, and guidance to the conditions observed within the study area. The conclusions are subject to verification by the Corps and CDFG.

UNITED STATES ARMY CORPS OF ENGINEERS

Based on the results of the delineation, the proposed project encompasses a total of 0.11 ac of waters potentially subject to Corps jurisdiction (Figure 3). These areas of potential Corps jurisdiction are located within the channel, extend up to the OHWM, and consist entirely of nonwetland waters of the U.S.

REGIONAL WATER QUALITY CONTROL BOARD

For purposes of this Jurisdictional Delineation, the areas subject to RWQCB jurisdiction coincide with areas identified as potential Corps jurisdiction.

CALIFORNIA DEPARTMENT OF FISH AND GAME

The areas satisfying Corps jurisdiction, as described above, are also subject to CDFG jurisdiction. In addition, the width of the banks exceeds the OHWM for an additional 0.27 ac of banks. Therefore, CDFG jurisdiction is a total of 0.38 ac within the BSA (Figure 3).

FUNCTIONS AND VALUES

Based on the conclusions in this report, the waters on this site, in their current condition, exhibit a low value for the following hydrological functions: hydrologic regime, flood storage and flood flow modification, sediment retention, nutrient retention and transformation, toxicant trapping, social significance, wildlife habitat, and aquatic habitat.

REFERENCES CITED

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. United States Army Engineer Waterways Experiment Station, Vicksburg, MS.

Federal Interagency Committee for Wetland Delineation. 1989. *Federal Manual for Identifying and Delineating Jurisdictional Wetlands.* United States Army Corps of Engineers, United States Environmental Protection Agency, United States Fish and Wildlife Service, and United States Department of Agriculture Soil Conservation Service, Washington, D.C. Cooperative Technical publication. 76 pp. plus appendices.

LSA Associates, Inc. 2005. *Biological Resources Analysis, Serrano Highlands.*

Munsell Color. 2000 (rev. ed.). *Munsell Soil Color Charts*. Macbeth Division of Kollmorgen Instruments Corporation, New Windsor, NY.

Reed, P.B., Jr. 1988. *National List of Plant Species that Occur in Wetlands: California* (*Region 0*). United States Fish and Wildlife Service Biological Report 88 (26.10). 135 pp.

United States Army Corps of Engineers. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (*Version 2.0*), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-29. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

———. 2007. *CECW-OR Memorandum: Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States.*

———. 1992. *CECW-OR Memorandum: Clarification and Interpretation of the 1987 Manual.*

———. 1991. *CECW-OR Memorandum: Questions and Answers on the 1987 Manual*.

United States Department of Agriculture, Natural Resource Conservation Service. 2003. *Field Indicators of Hydric Soils in the United States, Version 5.01*. G.W. Hurt, P.M. Whited, and R.F. Pringle (eds.) USDA NRCS in cooperation with the National Technical Committee for Hydric Soils, Fort Worth, TX.

United States Geological Survey. 1997. 7.5-minute Quadrangle, *El Toro, California*.

APPENDIX A

FIGURES

LSA

LEGEND

Project Boundary

Fuel Modification Boundary

FIGURE 1

N

0 150 300

FEET

SOURCE: Bing Maps (c. 2008); ESRI (2008)

i:\MAI1101\gis\ProjectLocaiton.mxd (8/10/2011)

Serrano Highlands

Project Location Map

View at soil pit number 2.

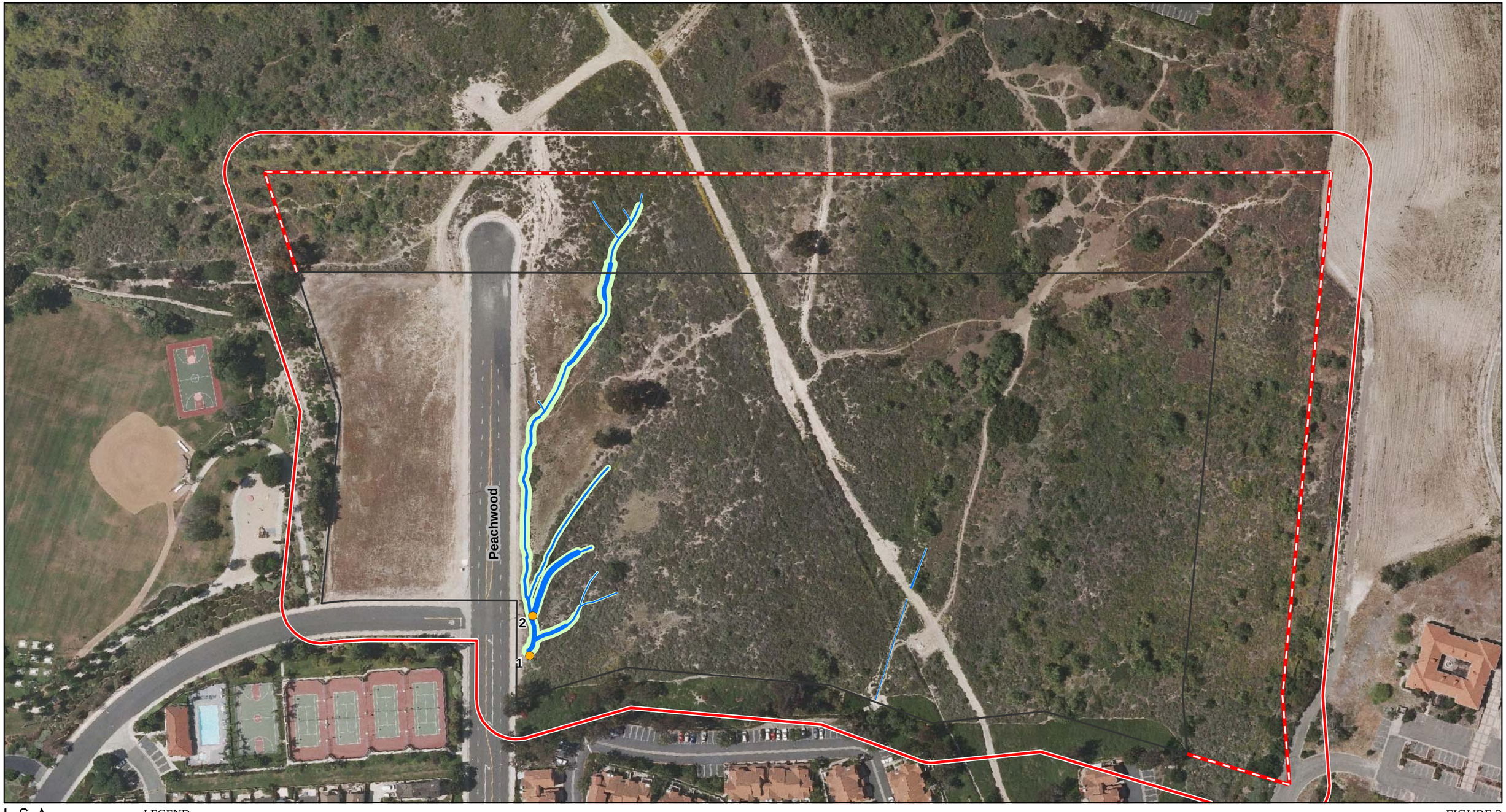
Vegetation surrounding soil pit number 2.

LSA

FIGURE 2

Serrano Highlands
Representative Site Photographs

I:\MAI1101\G\Site Photos.cdr (8/9/11)



LSA

LEGEND

- Project Boundary
- Fuel Modification Boundary
- Survey Limit
- Potential Corps Jurisdiction (0.11 acre)
- Potential CDFG Jurisdiction (0.38 acre)
- Soil Pit

0 70 140
FEET

SOURCE: EagleAerial (4/2010); LSA (7/2011)

I:\MAI1101\GIS\JD_Drainages.mxd (8/9/2011)

FIGURE 3

Serrano Highlands

Potential Jurisdictional Drainages

APPENDIX B

DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Serrano Highlands City/County: Lake Forest / Orange Sampling Date: 7/13/11

Applicant/Owner: State: CA Sampling Point: SH1

Investigator(s): Selna / Louwsma Section, Township, Range:

Landform (hillslope, terrace, etc.): drainage / mouth of culvert Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): LRR-C Mediterranean Lat: Long: Datum:

Soil Map Unit Name: 0 NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15'x15')	Absolute % Cover	Dominant Species?	Indicator Status
1. NONE			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15'x15')			
1. Baccharis salicifolia	50%	Y	FACW
2. Baccharis pilularis	50%	Y	UPL
3. Artemesia californica	10%	N	UPL
4.			
5.			
	110% = Total Cover		
Herb Stratum (Plot size: 15'x15')			
1. Hirschfeldia incana	5%	N	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5% = Total Cover		
Woody Vine Stratum (Plot size: 15'x15')			
1. NONE			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	
FACW species 50%	x 2 =	100
FAC species 0	x 3 =	
FACU species 0	x 4 =	
UPL species 65%	x 5 =	325
Column Totals: 115 (A)		425 (B)

Prevalence Index = B/A = 3.7

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 ✓

Remarks:

SOIL

Sampling Point: SH 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	2.5Y 4/2		NONE				Loamy 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: concrete

Depth (inches): 4" +

Hydric Soil Present? Yes ____ No ✓

Remarks: Soil pit was dug near mouth of culvert.

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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Serrano Highlands City/County: Lake Forest / Orange Sampling Date: 8/4/11
Applicant/Owner: State: CA Sampling Point: SH2
Investigator(s): S. Louwsma Section, Township, Range: Section 11, Township 06.0S, Range 08.0W
Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): LRR-C Mediterranean Lat: 33.659118 Long: -117.666919 Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation ____, Soil ____, or Hydrology ____ 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:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10' X 10')			
1. NONE			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10' X 10')			
1. Baccharis salicifolia	25%	Y	FACW
2. Baccharis pilularis	25%	Y	UPL
3. Artemisia californica	25%	Y	UPL
4.			
5.			
	75% = Total Cover		
Herb Stratum (Plot size: 10' X 10')			
1. Hirschfeldia incana	2	N	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	2% = Total Cover		
Woody Vine Stratum (Plot size: 10' X 10')			
1. NONE			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 23% % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 1	x 2 = 2
FAC species 0	x 3 = 0
FACU species 0	x 4 = 0
UPL species 3	x 5 = 15
Column Totals: 4 (A)	17 (B)

Prevalence Index = B/A = 4.25

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 ✓

Remarks:

SOIL

Sampling Point: SH2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
14"+	25Y 4/2		NONE				loamy 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:

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: