Table 2

Jurisdictional Drainage Systems and Associated Wetlands

		Average Width (feet)			Area (acres)[a]			
Name	Length (feet)	ACOE/ RWQCB	Wetlands	CDFG	ACOE/ RWQCB	Wetlands	CDFG	Nature
A	811	3 - 5	4 - 20	25 – 75	0.077	0.206	1.859	Perennial
A1	204	2 - 18	-	2 - 18	0.005	-	0.050	Ephemeral
TOTALS	**1,015**	-	-	-	0.082	0.206	1.909	

[a] *ACOE/RWQCB "waters of the U.S."/"waters of the State" acreages are included within the acreages for Wetlands and are not additive. ACOE/RWQCB "waters of the U.S."/"waters of the State" and Wetlands are a included within the acreages of CDFG and the areas are not additive.*

Source: PCR Services Corporation 2008

photograph were also analyzed for indicators of streams, as well as mapping of wetlands, seeps, springs, or hydric soils. Descriptions of these soil types are presented below.

- Calleguas Series (Typic Xerorthents): This well drained soil series is formed in material weathered from lime coated shale or lime coated sandstone. It occurs on uplands with elevations ranging from 200 to 2,500 feet. Natural vegetation consists mainly of annual grasses, and forbs, mostly mustard and brush. On-site, one soil of the Calleguas series occurs. **Calleguas clay loam, 50 to 75 percent slopes, eroded (134)**. This soil is found on very steep, generally south-facing slopes. This soil is moderately permeable, with an available water holding capacity of 1.5 to 3.5 inches. Runoff is rapid, and the hazard of erosion is high.

- Capistrano Series (Entic Haploxerolls): This well drained soil series is formed in granitic alluvium. It occurs on alluvial fans and alluvial plains with elevations ranging from 25 to 2,500 feet. Natural vegetation consists mostly of grasses, with a few oaks in some areas. On-site, two soils types of the Capistrano series occur. **Capistrano sandy loam, 2 to 9 percent slopes (135)**. This soil is found on gently to moderately sloping terrain mostly as long, narrow areas in small valleys. This soil is moderately rapidly permeable, with an available water holding capacity of 5.5 to 7.5 inches. Runoff is slow to medium, and the hazard of erosion is moderate. **Capistrano sandy loam, 9 to 15 percent slopes (136)**. This soil is found on strongly sloping terrain that generally occurs on small toe slope fans and in small narrow foothill valleys. This soil is moderately rapidly permeable, with an available water holding capacity of 5.5 to 7.5 inches. Runoff is medium, and the hazard of erosion is moderate.

- Cineba Series (Typic Xerorthents): This somewhat excessively drained soil series is formed in material weathered from granitic rocks of the Santa Ana Mountains and from the sandstone of the coastal foothills. It typically occurs on uplands with

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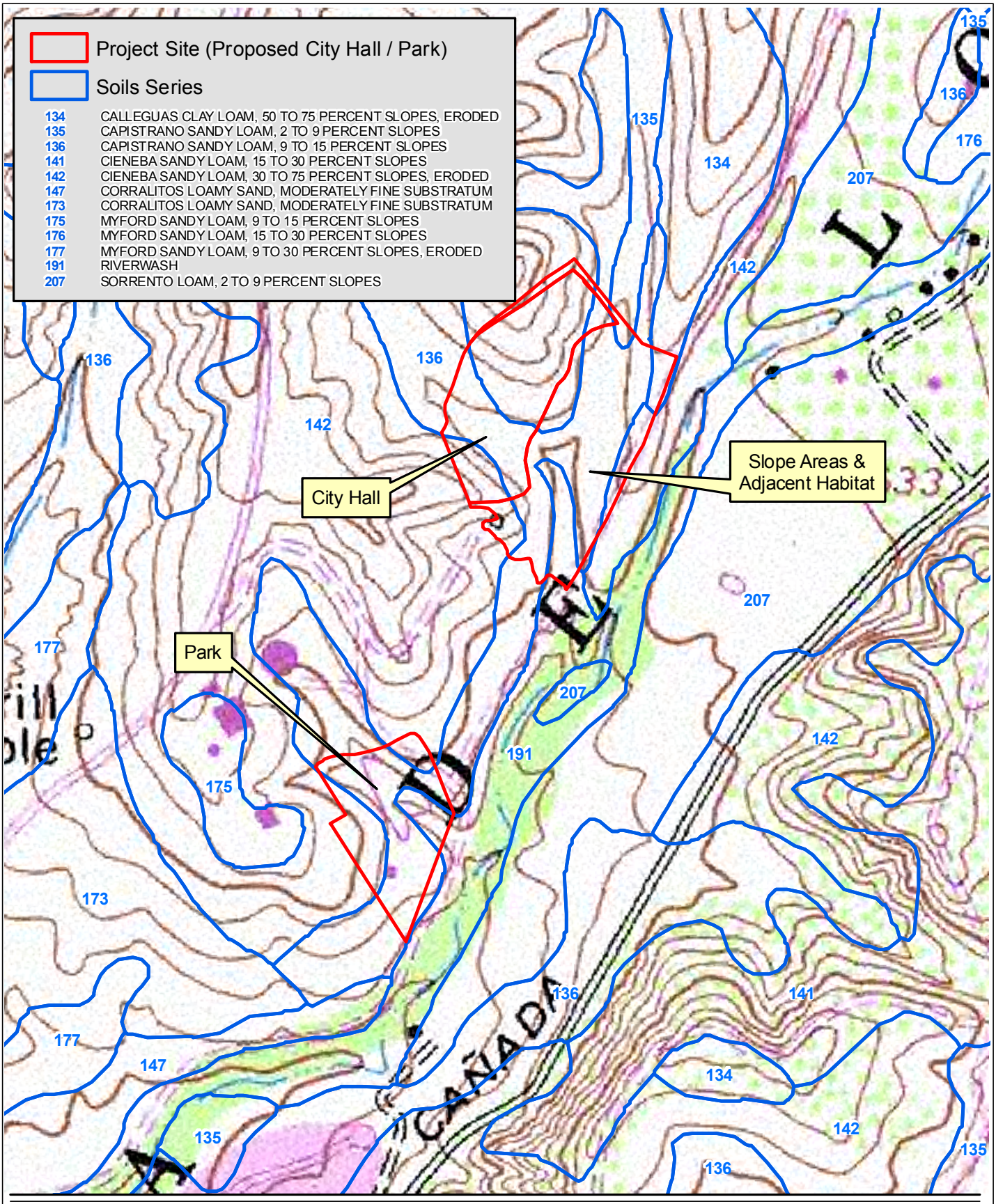
N

200 0 200 Feet

Source: Eagle Aerial, 2001; PCR Services Corporation, 2008.

Figure 4
Lake Forest
Proposed City Hall Site
Jurisdictional Features



PCR

N

500 0 500 Feet

Source: USGS Topographic Series (El Toro, CA); PCR Services Corporation, 2008.

Figure 5
Lake Forest
Proposed City Hall Site
Soils Map

elevations ranging from 200 to 4,000 feet. Natural vegetation consists mainly of brush. On-site, one soil of the Cieneba series occurs. **Cieneba sandy loam, 30 to 75 percent slopes, eroded (142)**. This soil is found on steep to very steep terrain, is generally shallow to bedrock and is often cut by gullies and intermittent drainage channels. This soil is moderately rapidly permeable, and an available water holding capacity is 0.75 to 2.5 inches. Runoff is rapid, and the hazard of erosion is high.

- Riverwash: This soil type consists of unconsolidated alluvium, generally stratified and varying widely in texture, recently deposited by intermittent streams, and subject to frequent changes through stream overflow. These are sandy, gravelly, cobbly, and boundary deposits that support little or no vegetation. Runoff is generally rapid, and the erosion hazard is high. Deposition and removal of fresh alluvium are common.

Riverwash is mapped as a hydric soil on the official list of hydric soils for Orange County and the western part of Riverside County. No other soil mapped on the study area is identified as a hydric soil on the official list of hydric soils for Orange County.

5.2 Topographic Map Review

The USGS 7.5-minute El Toro, California (USGS 1968, photorevised in 1982) topographic map was utilized to identify natural as well as man-made features occurring on the study area and in its vicinity. The El Toro, California map is based on a 1967 aerial photograph, field checked in 1968 and photo-revised in 1980 from aerial photography (Figure 2, *Vicinity Map*). The study area is undeveloped, aside from a water tank and associated buildings and a dirt road at the southern end of the study area. In addition, Serrano Creek, a USGS "blue-line stream" located to the east of the study area, and the existing dirt trail (Serrano Creek Trail) that roughly parallels the eastern boundary of the study area are also shown on the map. No additional aquatic features or other significant structural features are identified on the map within the boundaries of the study area.

5.3 Aerial Photograph Review

Research into the natural drainage patterns and land use of the study area included a review of available aerial photographs. Google Earth imagery from 2007 was reviewed to analyze the vicinity of the study area. The overall conditions observed in the aerial photography appear consistent with the undeveloped condition witnessed during the field investigation. Land use practices on the study area do not appear to have significantly changed over the past several of years. A fairly regular vegetation mosaic is evident from the aerial photograph that is consistent with a scrub plant community mapped throughout the majority of the study area. In addition, the surrounding land use and dirt trails are present within and surrounding the study area are also consistent with conditions witnessed during the field investigation. Drainage A and

Tributary A1 delineated during the field investigation can be identified on the aerial photographs. These drainage features are generally aligned from the north to south, in the eastern half of the 14.7-acre portion of the study area. Drainage A flows through a culvert underneath the Serrano Creek Trail and joins Serrano Creek to the southeast of the study area.

5.4 Description of Jurisdictional Drainages

5.4.1 Drainage A (Perennial, Wetlands)

Drainage A consists of a north-to-south flowing perennial drainage in the eastern half of the 14.7-acre portion of the study area. The drainage is a small, well defined feature, confined within a small, topographically distinct riparian corridor located along the floor of a small valley. Flows originate from a distinct groundwater spring or discharge at the drainage's northern extent. These perennial flows are likely supported by natural groundwater and augmented by the surrounding development associated irrigation. In addition, the system hydrology is further supplemented from seasonal surface runoff, both as sheet flow from the surrounding valley, and as stormwater runoff from Indian Ocean Drive collected in the on-site concrete v-ditch and discharged approximately 25 feet up-gradient from the groundwater spring. The drainage is approximately 818 linear feet in length on-site, and exits the study area via a culvert under the Serrano Creek Trail. Drainage A subsequently flows into Serrano Creek off-site to the southeast. The drainage contains 0.206 acre of ACOE/RWQCB jurisdictional wetland "waters of the U.S."/"waters if the State." It should be1 noted that the area delineated as wetlands includes both the stream channel (0.077 acre) and a bordering vegetated wetlands (0.129 acre). Drainage A also contains 1.859 acre of CDFG jurisdictional streambed and associated riparian habitat. Please also note that ACOE/RWQCB, are included within the total CDFG jurisdictional area, and are not additive

On-site, the stream channel drainage averages three to five feet in width, with three-inch to one-foot high, shallow, earthen banks and flowing water two to six inches deep. However, the deepest water observed was approximately ten inches deep within a short reach of the stream. The streambed is composed of fine sands, silts and mucks, and dense willow-root mats are common within the stream channel. Throughout its on-site extent the channel is flanked on either side by a small active floodplain (shelves) ranging from one to 15-feet in width. This active floodplain is confined within a well defined riparian corridor (ravine) that is up to 25 feet wide with steep to nearly vertical side walls, comprised of loose, generally vegetated soils that range between a few feet to over 25 feet in height.

In addition to the flowing water observed, other evidence of hydrology includes some leaf staining, debris wracks and small sand bar formation. Dominant plant species observed within and alongside Drainage A, includes red willow (*Salix laevigata*, FACW), arroyo willow (*Salix lasiolepis*, FACW), mulefat (*Baccharis salicifolia*, FACW), watercress (*Rorippa* sp.),

poison oak (*Toxicodendron diversilobium*, FAC), clematis (*Clematis* sp.) and a small stand of giant reed (*Arundo donax*, FACW), (see Figure 6, *Site Photographs*, on page 18).

Due to hydrology observed and the presence of hydrophytic vegetation in and alongside Drainage A, soil pits were excavated to determine if hydric soils were present on-site, and if the area met the criteria that would define it as a wetland system. These soil logs were generally located on the floodplain shelves along the sides of the stream channel. All the soils examined alongside the channel qualified as hydric and therefore the area is considered wetlands (see Appendix A: *Wetland Data Sheets*). These wetlands occupy the stream channel and its floodplain shelves directly adjacent to the stream. On these shelves, ground water was observed within a few inches of the soil surface and, based on secondary hydrologic indicators, flooding is expected to occur seasonally. Because the drainage is confined within a well defined ravine, the hydrology, hydric soils, and for the most part the hydrophytic plant community are likewise confined.

5.4.2 Tributary A1 (Ephemeral)

Tributary A1 is a small confined, ephemeral feature that carries stormwater runoff down the steep northern slope into Drainage A. The tributary is a generally well defined erosional feature with a channel that ranges from one-foot to 20-feet wide, with one- to two foot high vertical earthen banks. The channel is generally well vegetated with a number of upland plant species found throughout the study area, including buckwheat (*Eriogonum* sp., *UPL*), California sagebrush (*Artemisia californica*, UPL), black mustard (*Brassica nigra*, UPL), white sage (*Salvia apiana*, UPL), and some mulefat. Secondary indicators of hydrology were very limited due to the density of the vegetation as well as leaf litter. These limited indicators include some bank erosion, minimal sediment sorting and sediment deposition. Due to the presence of the upland plant community and limited hydrologic indicators, the tributary is not expected to support any systems, and no soils pits were excavated. The tributary is approximately 204 linear feet in length on-site and flows into Drainage A near its northern extent. The tributary contains 0.005 acre of ACOE/RWQCB jurisdictional non-wetland "waters of the U.S."/"waters if the State," and 0.050 acre of CDFG jurisdictional streambed and associated riparian habitat.

Significant Nexus

The determination of a significant nexus evaluates various characteristics of the delineated drainage feature, both on- and off-site to identify if that feature will effect the physical, chemical, or biological "integrity" of the jurisdictional "waters" downstream (i.e., TNW). These characteristics are outlined within the Guidance and several of these characteristics are discussed below. In addition, Appendix B, Approved Jurisdictional Delineation Form, includes information on both the characteristics discussed below as well as other factors utilized to complete the significant nexus determination. This information is

Photograph 1: Looking at Drainage A (in the distance) from the upper end of the concrete V-ditch near Indian Ocean Drive.

Photograph 2: Dense vegetated reach of streambed along Drainage A.

Photograph 3: Dense willow woodland community within riparian corridor.

Photograph 4: Hydric soil sample taken at Soil Log #1.

PCR

Source: PCR Services Corporation, 2008.

Figure 6
Lake Forest
Proposed City Hall Site
Site Photographs

provided to assist the ACOE in the review of this jurisdictional delineation and in issuing the Final Jurisdictional Determination of the drainage feature delineated on the study area. If necessary, electronic, tabular versions of this information are available upon request.

5.4.3 Watershed

The on-site drainage feature (Drainage A) is contained within its individual local drainage area. This local drainage area includes the 14.7-acre parcel portion of the study area as well as a part of Indian Ocean Drive and impervious parking areas associated with the surrounding commercial developments. Drainage A's local drainage area totals 24 acres of the surrounding hillsides. This local drainage area is located within the larger East Coastal Plain (has), within the Lower Santa Ana River (ha), within the larger lower Santa Ana River (hu) (18070203) (1670.7 mi^2). This in turn is located within the Southern California subregion (1807), California Region (18).

As noted in Section 2.0 above, an irrigation system does exist within Drainage A's local drainage area, it is uncertain if this system is currently functioning or if it is a relic from a past re-vegetation program. No active irrigation, or evidence of surface runoff from the irrigation line, was observed during the field investigation. However, seasonal irrigation cannot be completely ruled out.

5.4.4 TNW Proximity

A primary and easily defined relationship of the on-site drainages to the downstream TNW (i.e., Pacific Ocean) is how close they. Drainage A is approximately 16 river miles, and 10 linear miles to the Pacific Ocean.

The flow path that water takes after leaving the drainage to finally reach its TNW also plays a large role in determining the drainage's influence on its downstream "water". This characteristic is important to evaluate because it helps identify the on-site drainage feature's direct influence on the TNW, for example, a small drainage that flows into (is tributary to) a larger stream, which in turn flows into the TNW will have less individual influence on that downstream "water" than an individual stream flowing directly into the TNW. The more tributaries there are within a stream system, the more diffuse each individual tributary's influence will be upon the integrity of the downstream TNW.

The flow path of Drainage A is as follows:

- Drainage A $\rightarrow$ to the confluence with Serrano Creek. Serrano Creek $\rightarrow$ San Diego River. San Diego River $\rightarrow$ The Pacific Ocean. Total 16 river miles.

5.4.5 Function

The functions performed by the non-wetland waters on-site include flood storage, groundwater recharge, groundwater discharge, sediment transport, sediment trapping, carbon supply (particulate and dissolved), wildlife habitat, wildlife corridor, nutrient removal, nitrogen transformation, and pollution attenuation.

6.0 SUMMARY AND CONCLUSIONS

One drainage (Drainage A) and one associated tributary (Tributary A1) have been identified on the approximately 14-7-acre parcel portion of the study area. No drainage features occur on the 5-acre parcel portion of the study area. Drainage A has been delineated as a "waters of the U.S."/"waters of the State," with a bordering wetland system throughout its on-site extent, and CDFG jurisdictional riparian habitat.

Drainage A and its tributary are jurisdictional under Sections 404 and 401 of the CWA, as well as California FGC 1600 et seq. and the Porter-Cologne Water Quality Control Act (Water Code § 13050 (e)). Combined, these two features total 1,015 linear feet of streambed, 0.206 acres of ACOE/RWQCB jurisdictional wetland "waters of the U.S."/"waters of the State, which includes the delineated stream channel (0.082 acre), and 1.909 acres of CDFG jurisdictional streambed and associated riparian habitat. Please note that ACOE/RWQCB, are included within the total CDFG jurisdictional area, and are not additive.

Drainage A is characterized as perennial, based on the presence of flowing water, secondary indicators of hydrology and the presence of wetlands within the system. Tributary A1 is an ephemeral drainage feature which flows only during and immediately following storm events and are typically only supported by precipitation and stormwater runoff. Due to this ephemeral hydrology, most of the on-site drainages support upland plant communities, and well drained, sometimes shallow soils. Portions of many of the drainages have been impacted by culverted or non-culverted road crossings, however the majority of the drainages are not disturbed.

The following, Section 7.0, is a detailed discussion of the current State and Federal regulations that govern the various aquatic resources on the Site.

7.0 REGULATIONS

Any impacts to jurisdictional waters on the Gavilan Hills property would require permits from the ACOE, CDFG, and the RWQCB.

This discussion concentrates on the ACOE permit because the processing time of an Individual Permit (IP) or Nationwide Permit (NWP) generally drives the other permits. Please note that all NWPs have been revised or updated as of March 2007. A brief summary of all the required permits is shown below:

Section 404

Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or excavation within "waters of the U.S." and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. Permits can be issued for individual projects (individual permits) or for general categories of projects (general permits). "waters of the U.S." are defined by the CWA as "rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands." Wetlands are defined by the CWA as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions."

Once the limits of ACOE jurisdiction are determined and an application is submitted to the ACOE, the ACOE determines whether or not the activity meets the terms and conditions of one of the NWPs. If a project qualifies under one of the NWPs, a letter may be issued verifying compliance with the NWP program. Verification of compliance may be conditioned with specific terms regarding construction protocol, use of best management practices, avoidance of endangered species habitat, and mitigation requirements to ensure that the project will have minimal incremental or cumulative impacts to aquatic resources. If a project meets the general terms and conditions of a NWP, but will result in greater than minimal impacts, the District Engineer may take discretionary authority and require the project to be processed as an IP. The review process for a NWP is generally less extensive than for an IP and can often be completed within 30 days.

Projects that cannot be permitted under a NWP must undergo a more extensive review under the IP process, which typically takes 120 days. The ACOE decides whether to issue an IP based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity. According to ACOE regulations, permits should not be issued for activities that will create "significant" degradation of the "waters of the U.S." or have "significantly adverse effects on wetlands values." However, the CWA provides no clear definition of "significant."

The evaluation process for an IP is based on guidelines established under Section 404(b)(1) of the CWA and on the "public interest review" procedures. The public interest review involves a broad, qualitative evaluation of a project's benefits and detriments. ACOE regulations have identified 21 factors that are relevant to permit review. These factors are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership, and the general needs and welfare of the people. The public interest review is facilitated by the issuance of a 15-30 day Public Notice soliciting comments from the public and resource agencies, such as the USFWS, U.S. Environmental Protection Agency, and CDFG regarding the proposed project. A public hearing may be held for highly controversial projects.

The Section 404(b)(1) guidelines are often considered the driving force in the ACOE permit process. The 404(b)(1) guidelines prohibit discharges of dredged or fill material if there is a less environmentally damaging practicable alternative. Practicability is determined based on technological, economic, social, and logistic considerations. If a proposed project has greater-than-significant impacts, attempts must be made to avoid and minimize impacts. Impacts that cannot be avoided must be mitigated to a level where the net impacts to "waters of the U.S." are not significant. In some cases, projects that result in significant impacts may be permitted if they provide a substantial benefit to the public, such as projects affecting national security or considerable production of energy.

The ACOE must ensure that permitted projects comply with all other applicable federal resource protection laws such as the Endangered Species Act, the National Historic Preservation Act, and the Coastal Zone Management Act. In addition, certification that the proposed activity will comply with all applicable effluent limitations and water quality standards of Section 401 of the CWA is needed prior to issuance of a Section 404 permit. The need for a Section 404 permit constitutes a federal action under the National Environmental Policy Act (NEPA). Therefore, during the review of a proposed project an Environmental Assessment is prepared according to NEPA guidelines. If the impacts of the proposed activity are determined to be significant according to NEPA, an Environmental Impact Statement must be prepared and reviewed according to all NEPA requirements.

If a proposed project complies with all the NEPA requirements, and the 404(b)(1) guidelines, is determined not to be contrary to the public interest, and does not violate any federal resource protection laws, the ACOE will issue an IP authorizing the proposed discharge of dredged or fill material into "waters of the U.S." or wetlands. If a proposed project violates any of the above, then the ACOE must deny the Section 404 permit.

Section 401

Section 401 of the CWA requires that:

> "Any applicant for a Federal permit for activities that involve a discharge to "waters of the State," shall provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal Clean Water Act."

Therefore, before the ACOE will issue a Section 404 permit, applicants must apply for and receive a Section 401 Water Quality Certification from the RWQCB. Applications to the RWQCB must include a complete CEQA document (e.g., IS/Neg Dec or EIR). Processing of a water quality certification generally takes 60 days, but the ACOE may grant the RWQCB time extensions of up to one year. A 21-day public comment period is included in the processing of the Water Quality Certification. The RWQCB may add conditions to their certification to remove or mitigate potential impacts to water quality standards. Such conditions must ultimately be included in the Federal Section 404 permit. The State Water Quality regulations contain an "aggrieved party provision" that allows any person or group who objects to the issuance of a water quality certification to petition the State Water Board to reconsider the RWQCB decision within 30 days of issuance.

Under separate authorities granted by State law (i.e., the Porter-Cologne Water Quality Control Act), a RWQCB may choose to regulate discharges of dredge or fill materials by issuing or waiving (with or without conditions) Waste Discharge Requirements, a type of State discharge permit, instead of taking a Water Quality Certification action. Processing of a WDR is similar to that of a Section 401 certification; however, the RWQCB has slightly more discretion to add conditions to a project under the Porter-Cologne Act than under the CWA.

1601/1603 Agreement

Section 1603 of the California Fish and Game Code requires any person who proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake or use materials from a streambed to notify the CDFG before beginning the project. Similarly, under Section 1601 of the Fish and Game Code, before any State or local governmental agency or public utility begins a construction project that will: (1) divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake; (2) use materials from a streambed; or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake, it must first notify the CDFG of the proposed project.

Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Based on the notification materials you submit to the CDFG and, if necessary, an investigation of the project site by the CDFG, the CDFG will determine if your proposed project may impact fish or wildlife resources.

If the CDFG determines that a proposed project may substantially adversely affect existing fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. A completed CEQA document must be submitted to the CDFG before they will issue a Streambed Alteration Agreement. Within 30 days of receipt of a complete notification package, the CDFG will propose measures necessary to protect the fish or wildlife that your project could affect. These measures may be the same as any that have been included as part of the project and/or measures proposed by the CDFG. The applicant has 14 days after receiving the CDFG's proposed measures to notify it in writing whether they accept them, unless this time period is extended by mutual agreement. If the measures are acceptable, the Streambed Alteration Agreement will be issued. If the measures are not acceptable, the applicant may request a meeting with the CDFG within seven (7) days from the date the CDFG receives the response or by some other mutually agreed upon date for the purpose of developing measures that are acceptable to both the applicant and the CDFG. If an agreement is not reached with the CDFG on acceptable protection measures, an arbitration panel will be established to resolve any disagreements. If a panel is requested, it must be established within 7 days of the meeting with the CDFG. The arbitration panel will be composed of a representative from the CDFG, the applicant, and a mutually agreed upon third person who will act as the panel chair. The panel must complete the arbitration within 14 days from the date the panel is established unless a time extension is mutually agreed upon. The CDFG, the applicant, or any party affected by a panel decision may appeal the decision to the court to confirm, correct, or vacate the decision in accordance with Section 1285 et seq., of the Code of Civil Procedure.

Once the applicant and the CDFG accept or agree on measures necessary to protect fish or wildlife resources, the CDFG will incorporate these measures into a draft Lake or Streambed Alteration Agreement for review and signature.

Section 7 Endangered Species Consultation

This process is required only if the proposed project would affect a threatened or endangered species. The process begins when the federal agency (the ACOE) completes a Biological Assessment and formally requests to initiate consultation. The ACOE, in cooperation with the applicant, coordinates with the USFWS regarding avoidance and minimization of impacts to endangered species and habitat. After these avenues have been exhausted, the

USFWS will recommend mitigation that will allow a "take" of individual animals or plants along with occupied habitat. The USFWS will then issue a Biological Opinion (BO), which is required before the ACOE can make a permit decision. By the regulations, the USFWS has 90 days from the initiation of consultation in which to complete the biological assessment and 45 days to write the BO. However, the ACOE and the USFWS can agree to a 60-day extension without approval from the applicant. If there are substantial impacts to endangered species, the USFWS can issue an opinion that the proposed project would jeopardize the continued existence of the species, which would result in a permit denial from the ACOE. If there are no substantial impacts, the USFWS will issue a "no jeopardy" decision with specific terms and conditions to allow the project to move forward.

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APPENDIX A: APPROVED JURISDICTIONAL DELINEATION FORM

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: California County/parish/borough: Orange City: Lake Forest
Center coordinates of site (lat/long in degree decimal format): Lat. 33.65980 ° **N**, Long. 117.67907 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: Serrano Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: The Pacific Ocean
Name of watershed or Hydrologic Unit Code (HUC): Santa Ana River Watershed (18070203)

☒ 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 this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

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. [*Required*]

☐ 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. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☒ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 1,015 linear feet: 4 width (ft) and/or 0.082 acres.
      Wetlands: 0.206 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

[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.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 24 **acres**
Drainage area: 1600 **square miles**
Average annual rainfall: 14-16 inches
Average annual snowfall: NA inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** tributaries before entering TNW.

Project waters are **15-20** river miles from TNW.
Project waters are **2-5** river miles from RPW.
Project waters are **10-15** aerial (straight) miles from TNW.
Project waters are **10-15** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: From study area to Serrano Creek to the San Diego River to Sanata Ana River to the Pacific Ocean. .

[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.

Tributary stream order, if known: 1st order stream..

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: Hydrology augment by irridation runoff.

Tributary properties with respect to top of bank (estimate):
Average width: 4 feet
Average depth: 1 feet
Average side slopes: **4:1 (or greater).**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☒ Muck
☐ Bedrock	☒ Vegetation. Type/% cover: 55% Rorippa Nasturtium	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: low erosion.
Presence of run/riffle/pool complexes. Explain: none.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): <2 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: .
Other information on duration and volume: water flow expected throughout most of the year.

Surface flow is: **Confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☒ destruction of terrestrial vegetation
☒ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☒ sediment sorting
☐ leaf litter disturbed or washed away	☒ scour
☒ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Water clear and flowing.
Identify specific pollutants, if known: Not known - Pollutants associated with commercial development expected.

[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.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): Ave. width 20 feet within ravine. Willow canopy throughout on-site extent of channel.

☒ Wetland fringe. Characteristics: wetland within stream channel, and bordering along side stream channel.

☐ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: may provide habitat for amphibian and bird species.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:0.206 acres

Wetland type. Explain: Bordering Vegetated Wetland.

Wetland quality. Explain: Good quality - few non-native species or debris..

Project wetlands cross or serve as state boundaries. Explain: n/a.

(b) General Flow Relationship with Non-TNW:

Flow is: **Perennial flow**. Explain: wetland is within the stream channel and bordering channel. Contained within ravine.

Surface flow is**: Confined**

Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting

☐ Not directly abutting

☐ Discrete wetland hydrologic connection. Explain: .

☐ Ecological connection. Explain: .

☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **10-15** river miles from TNW.

Project waters are **10-15** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **2-year or less** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Water is clear and flowing.

Identify specific pollutants, if known: Unknown (natural drainage system - few pollutants expected). Pollutants typical of commercial development expected .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width): 40 feet of sycamore canopy along a portion of wetland.

☒ Vegetation type/percent cover. Explain:100% cover of willow (canopy) and watercress (emergent herbaceous) > 100% cover .

☒ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: may provide habitat for woodland bird species.

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (0.206) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Y	0.206		

Summarize overall biological, chemical and physical functions being performed: Flood storage, groundwater recharge, groundwater discharge, sediment transport, sediment trapping, carbon supply (particulate and dissolved), wildlife habitat, wildlife corridor, nutrient removal, nitrogen transformation, and pollution attenuation.

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.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

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 (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

[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.*

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ 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 solely 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, if not covered above): .

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 (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

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 (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☐ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☐ U.S. Geological Survey map(s). Cite scale & quad name: .
☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☐ Aerial (Name & Date): .
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

APPENDIX B: WETLAND DATA SHEETS

Data sheets for Routine Wetland Determination

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lake Forest City Hall Site City/County: Lake Forest, Orange County CA Sampling Date: 05/27/08

Applicant/Owner: City of Lake Forest State: CA Sampling Point: 1-1

Investigator(s): Richard Haywood Section, Township, Range: Section 11, Township 6 S., Range 8 W

Landform (hillslope, terrace, etc.): Valley bottom/ravine Local relief (concave, convex, none): concave Slope (%): <2%

Subregion (LRR): C Lat: N 33.65980 Long: W 117.67907 Datum: WGS 1984

Soil Map Unit Name: Callegaus, Capistrano, Cineba, and Riverwash NWI classification: NA

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

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? 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:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiollepis	40	Y	FACW
2. Salix Laevigata	50	Y	FACW
3.			
4.			
Total Cover:	90		
Sapling/Shrub Stratum			
1. Heteromoles arbutifolia	10	N	UPL
2. Toxicodendron diversilobium	20	Y	FAC
3. Salix lasiollepis	20	Y	FACW
4.			
5.			
Total Cover:	30		
Herb Stratum			
1. Rorippa nasturtium-aquaticum	55	Y	OBL
2. Xanthium strumarium	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	65		
Woody Vine Stratum			
1. Clemitis sp.	15	N	NI
2.			
Total Cover:	15		

% Bare Ground in Herb Stratum 35 % Cover of Biotic Crust NA

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 1-1

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
0-2	2.5Y 5/3	100	none				f. sandy loam	~1" leaf litter on soil surface
2-8	10 YR 2/2 (2/1)	100	none				silt loam	Saturated at 4"
8-15	G 5/10GY	100	5Y 5/6	10	C	M	f. sandy loam	Standing H2O @ 12"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

Muck layer present w/in stream channel – not in soil log location.

Seep into soil log pit at approximately 9 inches. Standing water at 12 inches

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ 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 Plowed Soils (C6)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ 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): 2 – 5"

Water Table Present? Yes ✓ No ___ Depth (inches): . 12"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 4"

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: Lake Forest City Hall Site City/County: Lake Forest, Orange County CA Sampling Date: 05/27/08

Applicant/Owner: City of Lake Forest State: CA Sampling Point: 2-1

Investigator(s): Richard Haywood Section, Township, Range: Section 11, Township 6 S., Range 8 W

Landform (hillslope, terrace, etc.): Valley bottom/ravine Local relief (concave, convex, none): concave Slope (%): <2%

Subregion (LRR): C Lat: N 33.65980 Long: W 117.67907 Datum: WGS 1984

Soil Map Unit Name: Callegaus, Capistrano, Cineba, and Riverwash NWI classification: NA

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

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? 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:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiollepis	40	Y	FACW
2. Salix Laevigata	70	Y	FACW
3.			
4.			
Total Cover:	110		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 2-1

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
0-3	2.5Y 2.5/1	100	none				loam	~2" leaf litter
3-15	2.5Y 5/2	100	5Y 7/2	2	R	M	silt loam	Saturation @ 10"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ 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 Plowed Soils (C6)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ 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): 2 – 5"

Water Table Present? Yes ___ No ✓ Depth (inches): .

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 10"

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available

Remarks:

PCR Irvine
One Venture
Suite 150
Irvine, CA 92618
TEL 949.753.7001
FAX 949.753.7002
email@pcrnet.com

PCR Santa Monica
233 Wilshire Boulevard
Suite 130
Santa Monica, CA 90401
TEL 310.451.4488
FAX 310.451.5279
email@pcrnet.com

PCR Pasadena
55 South Lake Avenue
Suite 215
Pasadena, CA 91101
TEL 626.204.6170
FAX 626.204.6171
email@pcrnet.com

BIOLOGICAL REPORT
FOR THE
LAKE FOREST IRWD SITE

HARMSWORTH ASSOCIATES

SEPTEMBER 2008

BIOLOGICAL REPORT
FOR THE
LAKE FOREST IRWD SITE

Prepared for:

LEWIS CORPORATION
1156 North Mountain Avenue
P. O. Box 670
Upland, California 91785-0670

Prepared by:

HARMSWORTH ASSOCIATES
19 Golf Ridge Drive
Dove Canyon, CA 92679
(949) 858-1553 (949) 589-2784 fax

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, **and** information presented are true and correct to the best of my knowledge and belief.

HARMSWORTH ASSOCIATES
Paul Galvin, M.S.
Vice President

SEPTEMBER 2008

TABLE OF CONTENTS

1.0 INTRODUCTION

This report summarizes the results of a biological assessment, focused surveys and findings of the delineation of the U.S. Army Corps of Engineers (Corps) and California Department of Fish and Game (CDFG) jurisdiction for the Lake Forest IRWD (Irvine Ranch Water District) project site conducted in summer 2008. The biological assessment consisted of the following surveys, conducted throughout the project site:

- General plant inventory,
- Habitat assessment and focused survey for special status plant species[1],
- General wildlife inventory,
- Habitat assessment for assessing potential for special status wildlife species[2],
- Focused survey for California gnatcatcher (*Polioptila californica californica*) and coastal cactus wren (*Campylorhynchus brunneicapillus couesi*), and,
- Jurisdictional delineation.

1.1 Local Setting and Site Description

The approximately 80-acre Lake Forest IRWD site is located in the city of Lake Forest in Orange County, California; within the U.S. Geological Survey (USGS) topographic map: El Toro quadrangle (Figure 1). The site includes the Irvine Ranch Water District's (IRWD) Baker Filtration Plant and Administrative property located at the terminus of Marin, west of Serrano Creek, south of Commerce Centre. The Site is located in Non-Reserve Lands in the Central Subarea of the Orange County Natural Communities Conservation Plan/Habitat Conservation Plan NCCP/HCP.

In addition to existing buildings the project site includes roads, ornamental landscaping, fallow agricultural land, disturbed ground, areas landscaped with coastal sage scrub and some small patches of native coastal sage scrub, chaparral and riparian habitats.

The project site is mostly flat but also includes a few gently sloping hillsides and shallow canyons, with elevations ranging from approximately 550 feet in the southern portion of the site to approximately 710 feet along the ridgeline in the northwestern portion of the project site. The climate is typically Mediterranean, with warm dry summers and cool wet winters. Early morning coastal fog frequently clouds the hillsides during spring.

Soils at the project site are generally excessively drained, well drained or moderately drained soils from the Cieneba-Anaheim-Soper or Myford soil associations (Wachtell

[1] Special status plant species = federal or state listed threatened or endangered species, or proposed endangered, threatened or candidate species, California Native Plant Society Species List (CNPS list 1-4), or otherwise sensitive species.

[2] Special status wildlife species = federal or state listed threatened or endangered species, or proposed endangered, threatened or candidate species, or otherwise sensitive species.

1998). These soils formed in material weathered from sandstone, shale and conglomerate or in sandy sediments mostly on marine terraces. Most of the site consists of Cieneba sandy loam (30 to 75 percent slopes, eroded), but there are also areas of Myford sandy loam (9 to 15 percent slopes), Capistrano sandy loam (9 to 15 percent slopes) and Calleguas clay loam (50 to 75 percent slopes, eroded).

None of the soils units found within the Lake Forest IRWD site are identified as hydric in the publication, *Hydric Soils of the United States.*[3]

[3]United States Department of Agriculture, Soil Conservation Service. 1991. *Hydric Soils of the United States*, 3rd Edition, Miscellaneous Publication Number 1491. National Technical Committee for Hydric Soils.

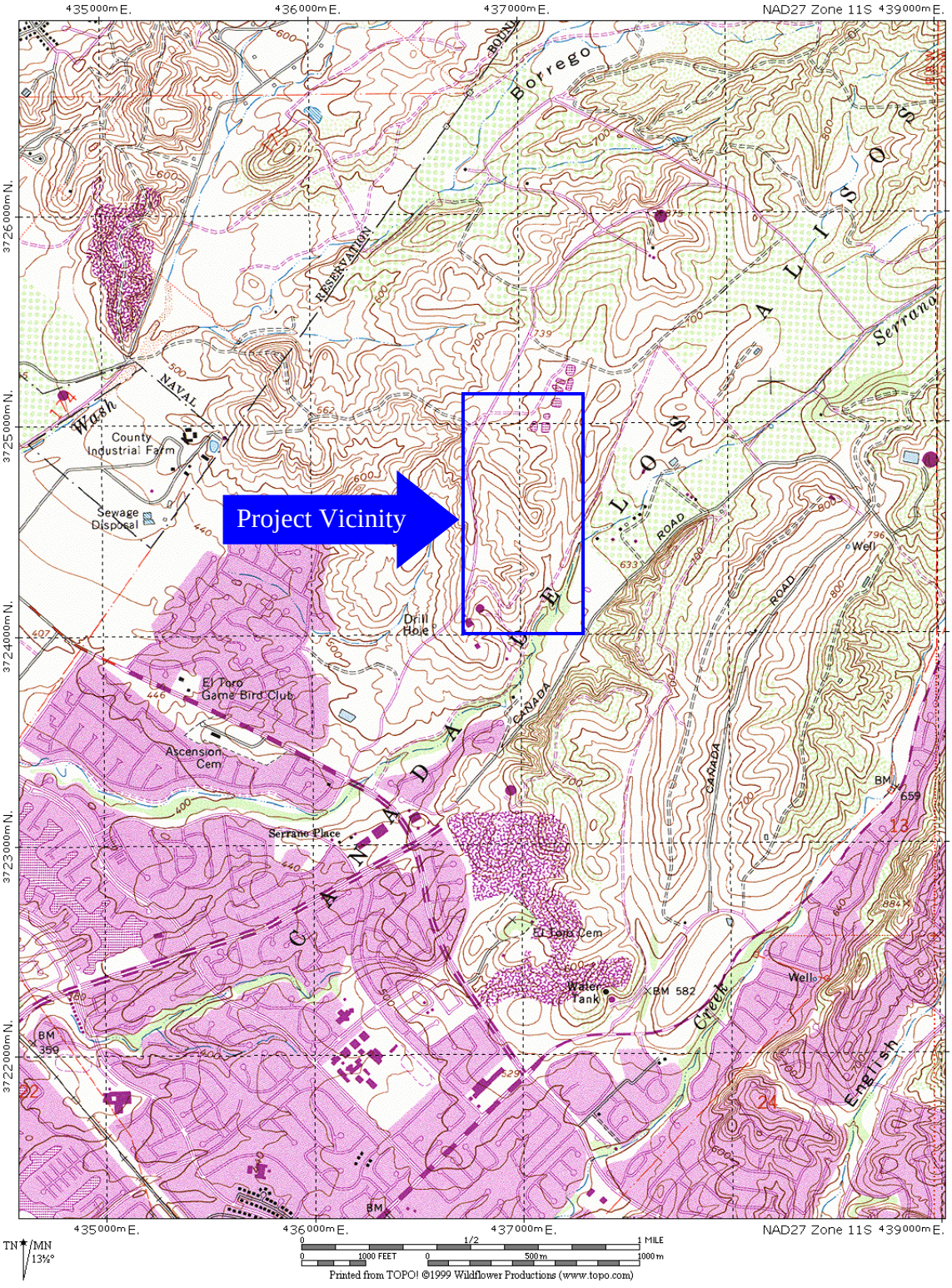

Figure 1: Location of the Lake Forest IRWD site in Orange County, southern California. Source: El Toro U.S.G.S. quadrangles.

Figure 2: Lake Forest IRWD site in Orange County, southern California. Source: IRWD aerial photograph from 2005.

2.0 RELATIONSHIP TO THE NCCP/HCP

The project site lies within the Natural Communities Conservation Plan & Habitat Conservation Plan – County of Orange Central & Coastal Subregion (NCCP/HCP). The project site lies within the Central Subarea of the NCCP/HCP.

The Natural Community Conservation Act, codified as Fish and Game Code Sections 2800-2840 and signed into law on October 1991, authorized the preparation of Natural Community Conservation Plans (NCCP/HCPs). The NCCP/HCP Act is an innovative State of California effort to protect critical vegetative communities and their dependent wildlife species. The purpose of an NCCP/HCP is to protect natural communities and species, while allowing a reasonable amount of economic development. The NCCP/HCP process provides an alternative to protecting species on a single "species basis" as in the federal and state Endangered Species Acts. Under the Act, the CDFG is responsible for creating process planning and conservation guidelines for NCCP/HCP programs. Local governments and landowners may then prepare the NCCP/HCPs so that they comply with both the federal and California Endangered Species Acts.

The first program under the NCCP/HCP Act, pursued concurrently with the enactment of the statute, was a program to address coastal sage scrub habitat, and the species that inhabit or use coastal sage scrub (CSS). This CSS NCCP/HCP program focused upon coastal sage scrub habitat protection and preparation of NCCP/HCPs within Southern California, including portions of Los Angeles, San Bernardino, Riverside, San Diego and Orange Counties. Under planning and conservation guidelines prepared for the pilot program by CDFG, and reviewed and approved by USFWS, CSS NCCP/HCPs began to be prepared. To date, CSS NCCP/HCPs have been completed for portions of Orange County, San Diego County and Riverside County.

Under this program, the County of Orange, other participating agencies and special districts and participating landowners, including the project proponent, worked with CDFG and USFWS to prepare a CSS NCCP/HCP called the *Natural Communities Conservation Plan & Habitat Conservation Plan – County of Orange Central & Coastal Subregion* (NCCP/HCP). The NCCP/HCP was reviewed and approved by the CDFG and USFWS in 1996. It addressed protection and management of CSS habitat and CSS-obligate species, and other covered habitats and species, and mitigated anticipated impacts to those habitats and species, on a programmatic, sub-regional level, rather than on a project-by-project, single species basis. The NCCP/HCP identified Impact Areas where impacts to species and habitats receiving regulatory coverage under the NCCP/HCP would be authorized. In addition, a habitat Reserve of in excess of 37,000 acres was established for the protection of CSS, other upland habitats, the coastal California gnatcatcher and other primarily CSS dependent species identified in the NCCP/HCP. Thus, the NCCP/HCP provides for the protection and management of a broad range of plant and animal populations, while providing certainty to the public and affected landowners with respect to the location of future development and open space in the sub-region. As shown in Exhibit 2 the Reserve is not within the project site.

The NCCP/HCP was analyzed in a joint EIR/EIS prepared under the auspices of the County of Orange and the USFWS as lead agencies, while the CDFG and the City of Irvine were responsible agencies. Following certification of the EIR/EIS and approval of the NCCP/HCP, the participating agencies (including The City of Irvine) and landowners (including The Irvine Company), the USFWS, the CDFG and the County of Orange signed an Implementation Agreement.

The Implementation Agreement sets forth the implementation requirements for the NCCP/HCP, including requirements related to dedication, creation and adaptive management of the more than 37,000-acre Reserve, interim management of the Reserve, funding for the Reserve management, and procedures and minimization measures related to "take" of "Identified Species" and modification of habitat in those areas designated for development under the NCCP/HCP. The proposed project is within an NCCP/HCP Impact Area (Exhibit 2). The project site lies within the Coastal Subarea of the NCCP/HCP. The habitat Reserve system and adaptive management program created as part of the approved NCCP/HCP is the cornerstone for the take authorization and habitat modification approvals issued by CDFG and USFWS granting state/federal regulatory authorization to "take" 39 plant and animal species (Table 1).

Based upon the NCCP/HCP, the USFWS and CDFG authorized "take" of 39 "Identified Species" of plants and animals, as shown on Table 1, including 10 "conditionally covered species."

Table 1: Target and Identified Species Receiving Regulatory Coverage Under the NCCP/HCP.

Target Species (3)
* Coastal California gnatcatcher
coastal cactus wren
orange-throated whiptail

Mammals (3)
San Diego desert woodrat
coyote
gray fox

Birds (6)
northern harrier
sharp-shinned hawk
peregrine falcon
red-shouldered hawk
rough-legged hawk
southern California rufous-sparrow

Reptiles (6)
coastal western whiptail
San Bernardino ringneck snake
red diamond rattlesnake
San Diego horned lizard
Coronado skink
coastal rosy boa

Amphibians (3)
arboreal salamander
western spadefoot toad (Coastal sub area only)
black-bellied slender salamander

Plants (8)
Catalina mariposa lily
Laguna Beach dudleya
Santa Monica Mountains dudleya
Nuttall's scrub oak
small-flowered mountain mahogany
heart-leaved pitcher sage
Coulter's matilija poppy
Tecate cypress

Conditionally Covered Species (10)
* least Bell's vireo
* southwestern willow flycatcher
* southwestern arroyo toad
Quino (Wright's) checkerspot
golden eagle
prairie falcon
* Riverside Fairy shrimp
* San Diego fairy shrimp
* Pacific pocket mouse
foothill mariposa lily

*Species that currently are on the federal list of "threatened or endangered" species.

Disturbance of the following habitats was also specifically addressed, and these habitats are designated as "covered habitats" under the NCCP/HCP.

- coastal sage scrub
- oak woodlands
- chaparral (Coastal sub area only)

- Tecate cypress forest
- cliff and rock

Substantial wetland/riparian habitats and grasslands were included within the approved habitat Reserve system, but wetland and grassland habitats were not a specific focus of habitat conservation planning.

The Reserve established under the NCCP/HCP was designed and approved consistent with the reserve design tenets established by the NCCP/HCP program. These tenets call for design and establishment of reserves consistent with the following principles:

- Conservation of focus species and their habitats throughout the planning area;
- Conservation of large habitat blocks;
- Conservation of habitat diversity;
- Keeping reserves contiguous and connected;
- Protecting reserves from encroachment and invasion by non-native species.

Under the NCCP/HCP, it was determined that the Reserve design was sufficiently large and diverse and incorporated sufficient connectivity for purposes of wildlife movement. Likewise, given the ecosystem-based approach to reserve design, it was determined that the Reserve design adequately addressed buffer and edge considerations to fulfill the NCCP/HCP reserve design tenets. Accordingly, impacts of development within designated Impact Areas outside the NCCP/HCP Reserve to "Identified Species" and "covered habitats" do not require further mitigation above the mitigation provided for by the NCCP/HCP. These determinations were consistent with non-regulatory guidance issued by the CDFG and USFWS jointly on March 17, 1995, stating:

> "After a subregional NCCP/HCP has been prepared and approved, *project-related impacts to CSS and target species (including all species receiving regulatory coverage under the NCCP/HCP) shall be considered to be mitigated to insignificant levels* and consistent with the NCCP/HCP Guidelines if the project and its related impacts to CSS/target species are carried out . . . consistent with the subregional or subarea NCCP/HCP and its associated Implementing Agreement. . . ."
> (Emphasis added).

The Implementation Agreement specifically authorizes disturbance of coastal sage scrub, other covered habitats and "take" of Identified Species listed in Table 1 within the Central/Coastal NCCP/HCP Subregion. The NCCP/HCP Reserve system, adaptive management program and other measures of the NCCP/HCP were determined by the EIR/EIS to fully mitigate "take" of these species and habitats resulting from development projects in compliance with the Implementation Agreement. For "conditionally covered

species" present on a particular project site, additional mitigation measures have been specified in the Implementation Agreement. In certain circumstances, consultation with USFWS and CDFG is mandated and, at a minimum, a project-specific mitigation plan must be developed meeting the requirements of the NCCP/HCP. Thus, with compliance with the conditions of the NCCP/HCP and Implementation Agreement, all direct, indirect and cumulative impacts under CEQA and NEPA to the covered habitats and Identified Species resulting from development within designated Impact Areas owned by NCCP/HCP participating landowners are considered fully mitigated.

Disturbance of covered habitats and "take" of Identified Species are specifically authorized in the following documents:

County of Orange, Environmental Management Agency. (1995a). *Central and Coastal Subregion Natural Community Conservation Plan & Habitat Conservation Plan, County of Orange Central and Coastal Subregion.* Parts I & II NCCP/HCP; Part III Joint Programmatic EIR/EIS Prepared by R. J. Meade Consulting, Inc., San Diego. December7.

County of Orange, Environmental Management Agency. (1995b). *Implementation Agreement for the Orange County Central and Coastal Subregion Natural Community Conservation Plan/ Habitat Conservation Plan, County of Orange.*

County of Orange, Environmental Management Agency. (1996). *Joint Programmatic EIR/EIS Response to Comments, Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan, County of Orange.*

County of Orange, Environmental Management Agency. (1996). *Mitigation and Implementation Agreement Monitoring Program for the Orange County Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan, County of Orange.*

3.0 METHODOLOGY

3.1 Biological Resources Information sources

In addition to field surveys, wildlife inventories, and habitat assessments, information on the biological resources of the Lake Forest IRWD project site was obtained by reviewing existing available data. The following sources were reviewed;

- Orange County Central/Coastal NCCP/HCP Plan,
- California Natural Diversity Data Base (CNDDB) for the USGS 7.5' quadrangle which comprised the study area: El Toro and neighboring quads for pertinent data,
- California Native Plant Society Inventory of rare and endangered vascular plants of California (Tibor 2001; 6th Edition of CNPS Inventory),
- Special Animals (including California Species of Special Concern), CDFG, Natural Heritage Division, February 2008,
- Special Vascular Plants, Bryophytes, and Lichens List, CDFG, Natural Heritage Division, July 2008,
- State and Federally Listed Endangered, Threatened and Rare Plants of California, CDFG, Natural Heritage Division, July 2008,
- State and Federally Listed Endangered and Threatened Animals of California, CDFG, Natural Heritage Division, May 2008,
- Review of previous biological assessment reports and species lists for the region and neighboring areas, and,
- Published literature (Sibley 2000, Small 1994, Moyle *et al.* 1995, Jennings and Hayes 1994, Stebbins 2003, Webster *et al.* 1980, Burt and Grossenheider 1976).

3.2 Habitat assessment and focused surveys for special status plants

The vegetation mapping and habitat assessment were conducted by walking throughout the study area. Field surveys were conducted in summer 2008. Potential sensitive species habitat, boundaries of rapid vegetation change, riparian habitat, roadways, and disturbed areas were observed and mapped accordingly. Each habitat type within the study area was thoroughly traversed on foot and examined for particular features such as seeps, rock outcrops or unique substrates that might indicate suitable habitat for sensitive plant species. A general plant species list was compiled (Appendix A); scientific nomenclature follows Hickman (1993) and common names per Calflora (2008).

Vegetation types within the project site were mapped according to the Orange County GIS Habitat Classification System (Gray and Bramlet 1992; expanded and modified by Jones & Stokes 1993). This system is roughly equivalent to mapping at the association level and consists of using the common name of the two most common species in the

designation along with the vegetation type. Identification and mapping of vegetation also incorporated habitat descriptions provided by Holland (1986).

Focused surveys were conducted for special status plant species. All areas of potential habitat for special status plant species was thoroughly searched while traversing the areas by foot. Surveys, habitat assessment and vegetation mapping took place on September 4, 2008; however this is outside the blooming time for most plant species. Past surveys for plants and wildlife were conducted onsite on February 5 and August 31, 2005; July 20, 2006; and May 15 and 20, 2007.

3.3 Wildlife surveys and habitat assessment for special status wildlife

Field surveys for wildlife, the habitat assessment for special status wildlife species and focused wildlife surveys were conducted on August 26, September 12 and 19, 2008. Past surveys for plants and wildlife were conducted onsite on February 5 and August 31, 2005; July 20, 2006; and May 15 and 20, 2007. The assessment included the collection of information on the distribution and status of special status species that may occur on or near the site.

The site was traversed on foot to survey each vegetation community and look for evidence of wildlife presence. Wildlife species were detected during the field surveys by sight, vocalizations, burrows, tracks, scat, scrapings and other sign. An assessment of potential habitat for special status species was also conducted.

Protocol surveys were conducted for the coastal California gnatcatcher and the cactus wren, to provide updated information regarding the presence of these species in the project site. Protocol surveys were conducted at all potentially suitable gnatcatcher and wren habitat a total of three times, as specified by survey protocols for NCCP/HCP areas. Surveys were conducted on August 26, September 12 and 19, 2008, Appendix D.

During the focused gnatcatcher and wren surveys information on the distribution and status of other sensitive species that utilize CSS, including San Diego horned lizard (*Phrynosoma coronatum blainvillei*), orange-throated whiptail (*Cnemidophorus hyperythrus*), Bell's sage sparrow (*Amphispiza belli belli*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), raptors, San Diego black-tailed jackrabbit (*Lepus californicus*) and San Diego desert woodrat (*Neotoma lepida intermedia*) was collected.

The methodology used in the surveys followed the guidelines of Mock *et al*. (1990), the Southern California Coastal Sage Scrub Scientific Review Panel (Brussard *et al*. 1992) and the USFWS monitoring protocol (USFWS 1997), as follows;

- Surveys were conducted during the morning hours and when the temperature exceeded 55°F.

- No more than 100 acres were surveyed by each biologist per day, and no surveys were conducted during windy (>15 miles per hour), rainy, or extremely hot (>95°F) conditions.
- Taped vocalizations of gnatcatchers and cactus wrens were used to elicit a response from resident birds, if they were present.
- All located birds were observed long enough to determine their breeding status (whether paired or unpaired).
- Located birds were observed long enough to determine if they were banded.
- All data were recorded on standardized data sheets and male/pair locations were plotted on topographic maps of the project site.

Latin and common names of wildlife referred to in this report follow Powell and Hogue (1979), Hogue 1993 and NatureServe http://www.natureserve.org/explorer/) for invertebrates; NatureServe for fish; North American Herpetology (http://www.naherpetology.org/nameslist) for amphibians and reptiles; American Ornithologists' Union Checklist of North American Birds - 7th Edition (2005) for birds; Baker at al. 2003 for mammals; and Grenfell et al. 2003, California Department of Fish and Game & California Interagency Wildlife Task Group (http://www.dfg.ca.gov/whdab/pdfs/species_list.pdf) and Perrins *et al.* 1983 for common names.

3.4 Wetland Delineation

Prior to beginning the field delineation, a base map showing the project limits and the Perris USGS topographic quad, were examined to determine the locations of potential areas of Corps/CDFG jurisdiction. The project area was checked in the field for the presence of streambeds, definable channels, wetland and riparian vegetation, and hydric soils. All areas of topographic relief suspected of representing historic drainage patterns were closely inspected on-foot. A field visit was conducted on August 26, 2008. Data on vegetation, soils and hydrology were recorded at representative sampling points, including photographic documentation.

3.4.1 Determination of U.S. Army Corps of Engineers Jurisdiction

The Corps regulates the discharge of dredged and/or fill material into waters of the United States (pursuant to Section 404 of the Clean Water Act). The term "waters of the United States" is defined in Corps regulations at 33 CFR Part 328.3(a) as:

1) *All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
2) *All interstate waters including interstate wetlands;*

3) *All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa takes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:*
   (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
   (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
   (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;
4) *All impoundments of waters otherwise defined as waters of the United States under the definition;*
5) *Tributaries of waters identified in paragraphs (a)(1)-(4) of this section;*
6) *The territorial seas;*
7) *Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(l)-(6) of this section.*

The limits of Corps jurisdiction in non-tidal waters when wetlands are not present, such as ephemeral or intermittent streams, extends to the ordinary high water mark (OHWM), which is defined at 33 CFR 328.3(e) as:

> *that line on the shore established by the fluctuation 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 areas.*

Further evaluation includes a classification of watercourses at the site. An ephemeral stream is defined as has having flowing water only during, and for a short duration after, storm events in a typical year. Ephemeral streams are located above the water table, and runoff from rainfall is the primary source for stream flows. An intermittent stream is defined as having flowing water during certain times of the year, and rainfall is a supplemental source of flows. The presence of well-developed riparian vegetation is a secondary indicator frequently used to identify intermittent streams. A perennial stream, however, has flowing water year-round during most years, and the streambed is located below the water table for most of the year and groundwater is its primary source.

Waters that are not considered "waters of the U.S." are defined at 33 CFR Preamble to 328.3 as:

> *Non-tidal drainage/irrigation ditches on dry land,*
> *Artificially irrigated areas,*
> *Artificial lakes/ponds on dry land used for stock watering, irrigation, settling basins, rice,*
> *Artificial reflecting, swimming, ornamental pools on dry land,*
> *Incidental construction and borrow pits until abandoned.*

On January 9, 2001 the U.S. Supreme court issued a ruling that affected the Corps jurisdiction over "water of the U.S." The case (referred to as SWANCC) related to the whether or not the Clean Water Act had jurisdiction over isolated, non-navigable, interstate waters used as habitat by migratory birds.[4] The Supreme Court held that the Corps' application of § 328.3(a)(3) was invalid in SWANCC, but the Court did not strike down §328.3(a)(3) or any other component of the regulations defining "waters of the U.S." The court's actual holding was narrowly limited to CWA regulation of "nonnavigable, isolated, instrastate" waters based solely on the use of such waters by migratory birds. The Corps and EPA have issued a guidance and a memorandum relating to this decision.[5] The guidance and memorandum state:

"The following subsection of the regulatory definition of "waters of the U.S." is the provision primarily affected by SWANCC:

> *"a(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce ."*
>
> Waters covered solely by subsection a(3) that could affect interstate commerce **solely** by virtue of their use as habitat by migratory birds are no longer considered "waters of the U.S."

The SWANCC case only affects "nonnavigable, isolated, (and) instrastate" waters, all other "waters of the U.S." as defined in 33 CFR Part 328.3(a) are unaffected by SWANCC and are used in this report to define jurisdictional waters of the U.S.

One subset of the "waters of the U.S." is wetlands. Wetlands are defined at 33 CFR 328.3(b) as

> *those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions.*

The U.S. Army Corps of Engineers 1987 Wetland Delineation Manual[6] is used in determining jurisdictional wetland boundaries. The methodology set forth in the 1987 Wetland Delineation Manual generally requires that in order to be classified as a jurisdictional wetland the vegetation, soils, and hydrology of an area should exhibit at

[4] Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, (referred to as SWANCC).

[5] Guidance for Corps and EPA Field Offices Regarding Clean Water Act Section 404 Jurisdiction Over Isolated Waters in Light of United States v. James J. Wilson United and Corps Memorandum relating to Supreme court ruling concerning CWA jurisdiction over isolated waters.

[6] Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

least minimal hydric characteristics. A jurisdictional wetland should normally meet each of the following three criteria:

- greater than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the *National List of Plant Species that Occur in Wetlands*[7]);

- soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color or redoxymorphic features within a matrix of low chroma[8]).and,

- hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year.[9]

3.4.2 Determination of California Department of Fish and Game Jurisdiction

Pursuant to Division 2, Chapter 6, Sections 1600-1616 of the California Fish and Game Code, CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife.

CDFG defines a "stream" (including creeks and rivers) at (Section 1.72, Title 14[10]) as:

> *a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation.*
>
> *CDFG's definition of a "lake" includes "natural lakes or man-made reservoirs.*

CDFG jurisdiction within altered or artificial waterways is based upon the value of these waterways to fish and wildlife. CDFG Legal Advisor has prepared the following opinion:

> *Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects and riparian vegetation will be treated like natural waterways…*

---

[7] Reed, P.B., Jr. 1988. *National List of Plant Species that Occur in Wetlands*. U.S. Fish and Wildlife Service Biological Report 88(26.10).

[8] USDA, Natural Resources Conservation Service. 2003. *Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils.*

[9] For most of low-lying southern California, five percent of the growing season is equivalent to 18 days.

[10] *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607*, California Fish and Game Code, Environmental Services Division, 1994.

> *Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses, should be treated by CDFG as natural waterways…*
>
> *Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions…*

Thus, the boundaries of CDFG jurisdiction closely reflect those of the Corps. However, CDFG jurisdiction generally covers a broader zone, which commonly includes the Corps jurisdictional OHWM but also extends across the bank to the edge of the riparian tree canopy. In some cases it is difficult to determine the edge of the riparian tree canopy, for example where the riparian oak community extends beyond the streambed and continues into uplands as oak woodlands. CDFG has the following guidelines to determine the edge of the riparian canopy (and hence CDFG 1603 jurisdiction) in these cases, in descending order:

- *abrupt change in vegetation,*
- *break in tree canopy,*
- *change in understory vegetation,*
- *100 year floodplain,*
- *canopy of oaks (or other trees) rooted in streambed.*

CDFG jurisdiction does not include isolated wetlands (those not associated with a river, stream, or lake), and the occurrence of riparian plants/habitat not associated with a river, stream, or lake. CDFG jurisdiction does include artificial stock ponds and irrigation ditches constructed on uplands, if they have acquired the physical attributes of natural stream courses. CDFG may take jurisdiction within the 100-year floodplain or any streambed and its associated riparian habitat regardless of the boundaries of Corps jurisdiction or federal wetland status.

Unlike the Corps, CDFG regulates not only the discharge of dredged or fill material into streambeds, but monitors and authorizes all activities that alter streams and their associated riparian habitats. A CDFG 1600 Agreement is required for all activities resulting in impacts to streambeds and their riparian vegetation.

4.0 RESULTS

4.1 Vegetation types

The Lake Forest IRWD project site consists primarily of developed and disturbed areas, including the Baker Filtration Plant and Administrative property, roads, ornamental landscaping and fallow agricultural land. Dispersed among the developed areas (parking lots, roads and water tanks) were re-vegetated slopes and ornamental landscaping some of which included some native vegetation (mapped as restored coastal sage scrub). Small patches of native coastal sage scrub, chaparral and oak woodland habitats also occurred onsite. The site contained five habitat types in addition to developed/disturbed areas. A general description of each major habitat type is described below.

Grasslands

Ruderal

No native grasslands occurred onsite. The few areas mapped as grassland consisted of recently disturbed areas dominated by ruderal species. Ruderal vegetation occurred on the northwest side of the administration building. This area had been graded and was bare ground with a few scattered weeds; a small patch of vegetation, including one coast live oak, remained for ornamental purposes. To the northeast of the graded area in the southern portion of the site, a triangular shaped area was dominated by ruderal species with scattered natives, including ripgut brome (*Bromus diandrus*), burweed (*Ambrosia acanthicarpa*), goldenbush (*Isocoma menziesii*), telegraph weed (*Heterotheca grandiflora*), summer mustard (*Hirschfeldia incana*), and doveweed (*Eremocarpus setigerus*).

A total of 3.8 acres of ruderal occurred onsite (Figure 3).

Coastal sage scrub

Native Coastal Sage Scrub

Coastal sage scrub is a diverse community forming many associations determined by soil factors, fire, and topography. It is a community of low growing, soft, woody, drought-deciduous subshrubs and herbaceous plants that grow in thin rocky soils. Scrub vegetation at the project site varied between relatively moist (mesic) and relatively dry (xeric) sites. Mesic sites generally occurred in microhabitats characterized by north-facing slopes and in small drainages and xeric habitats occurred in the remaining areas on ridges and south-facing slopes. These mesic microsites included such vegetation as lemonadeberry (*Rhus integrifolia*) and toyon (*Heteromeles arbutifolia*). Xeric scrub habitats were comprised of various proportions of California sagebrush (*Artemisia californica*), bush buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*), white sage (*Salvia apiana*), coast prickly pear cactus (*Opuntia littoralis*) and coastal

cholla (*Opuntia prolifera*). Some of the scrub was disturbed and contained significant amounts of mustards (*Brassica* spp. and *Hirschfeldia incana*), invasive grasses (*Bromus* spp.), and artichoke thistle (*Cynara cardunculus*).

Native Coastal sage scrub onsite refers to naturally occurring vegetation, as compared to areas restored or revegetated with CSS species. The composition and quality of the various native coastal sage scrub (CSS) vegetation patches onsite reflected historical disturbances, local slope conditions, local aspect and proximity to irrigation features.

Native CSS was largely restricted to the western boundary of the site and represented the highest quality vegetation onsite. This area contained the greatest diversity of shrub species, presumably due to the lack of disturbance and presence of steep slopes. Typical representatives of mature, diverse CSS occurred in this patch including black sage, California buckwheat, California sagebrush, Mexican elderberry (*Sambucus mexicana*), prickly pear cactus and coastal cholla. The presence of prickly pear cactus and coastal cholla here is of marked interest as these species are important habitat components for the coastal cactus wren (*Campylorhynchus brunneicapillus*).

A total of 12.4 acres of native coastal sage scrub occurred onsite (Figure 3).

Restored Coastal Sage Scrub

Restored coastal sage scrub refers to any areas supporting CSS that is not naturally occurring, and includes ares where CSS species were planted or seeded and disturbed areas where some CSS species are returning. Restored CSS occurs on cut and fill slopes adjacent developed facilities, on slopes and along edges of parking lots and on other areas that were disturbed in the past.

The restored CSS include a mix of native species, exotic landscaped species and weedy ruderal species. In many cases the areas were sparsely vegetated and in some cases are artificially irrigated. CSS species in these areas included purple sage (*Salvia leucophylla*), coyote brush (*Baccharis pilularis*), California encelia (*Encelia californica*), California sagebrush, black sage (*Salvia mellifera*), deerweed (*Lotus scoparius*) but also coast live oak (*Quercus agrifolia*), lemonadeberry (*Rhus integrifolia*) and toyon (*Heteromeles arbutifolia*) dominated some areas.

Mulefat (*Baccharis salicifolius*), pampas grass (*Cortaderia* sp.), tamarisk (*Tamarix* sp.), cottonwood (*Populus* sp.), exotic trees and non-native annuals and grasses also occurred in many of the restored CSS areas.

A total of 8.6 acres of restored coastal sage scrub occurred onsite (Figure 3).

Chaparral

The term chaparral applies to a variety of vegetation associations made up of sclerophyllus shrubs that occur on relatively xeric sites. According to Jones & Stokes

(1993) chaparral is defined as those habitats where more than 50 percent of the shrub cover comprise chaparral species. Most species are adapted to repeated fires and stump sprouting. One chaparral subtype occurred onsite.

Scrub Oak Chaparral

One small patch of scrub oak chaparral occurred on the project site, dominated by scrub oak (*Quercus berberidifolia*) and lemonadeberry (*Rhus integrifolia*). Understory species in this chaparral community included black sage, heart-leaved penstemon (*Keckiella cordifolia*), poison oak (*Toxicodendron diversilobum*), manroot (*Marah macrocarpa*), Mexican elderberry (*Sambucus mexicana*) and California encelia (*Encelia californica*).

A total of 0.4 acres of Scrub Oak Chaparral occurred onsite (Figure 3).

Riparian

Riparian habitats consist of trees, shrubs, or herbs that occur along watercourses and water bodies. The vegetation is adapted to flooding and soil saturation during at least a portion of the growing season[11]. The Orange County GIS Habitat Classification System (Jones and Stokes 1993) defines a number of different riparian sub-associations including, Mulefat scrub.

Non-jurisdictional Mulefat Scrub

Non-jurisdictional Mulefat Scrub occurred in several small isolated locations onsite near irrigation systems, where water collected in low areas, or was channelized by earthen or concrete V-ditches or other topographic features. Mulefat scrub (*Baccharis salicifolius*) dominated these areas. Associated species included CSS shrubs and non-native herbs and grasses. None of the mulefat scrub onsite was associated with a streambed or lake and was not part of any area that would be jurisdictional to the Corps 404 or CDFG 1600 programs. Hence these areas are termed Non-jurisdictional Mulefat Scrub to differentiate from areas supporting Mulefat Scrub that are jurisdictional to these agencies.

A total of 1.0 acres of Non-jurisdictional Mulefat Scrub occurred onsite (Figure 3).

Woodland

Woodland habitats consist of multilayered vegetation with tree canopy cover between 20 and 80 percent. One woodland type, Coast Live Oak Woodland, occurred onsite.

Coast Live Oak Woodland

To the west of the subsurface water tanks was a small patch of coast live oak woodland. Understory species included coast goldenbush (*Isocoma menziesii*) and non-native grasses.

[11] Areas defined as riparian by the Orange County GIS Habitat Classification System are not always subject to CDFG or ACOE jurisdiction.

A total of 0.4 acres of Coast Live Oak Woodland occurred onsite (Figure 3).

Disturbed

Disturbed areas are characterized as recently cleared areas lacking vegetation, such as actively farmed areas that are frequently disked. Extensive disturbed areas comprised the large open areas in the north-central portion of the site, and the flat terraced areas southeast of the administration building. These flat areas were recently disked and generally devoid of vegetation. Weedy species were evident along the edges of these cleared areas including tree tobacco (*Nicotiana glauca*), telegraph weed (*Heterotheca grandiflora*) and Russian thistle (*Salsola tragus*). These disturbed areas are regularly disked.

A total of 39.7 acres of Disturbed occurred onsite (Figure 3).

Developed

Developed includes developed areas and ornamental landscaping. The developed areas included the Los Alisos Water District Administration Building, various aboveground and belowground water tanks, filtration plant facilities and parking lots. Ornamental landscaping occurred throughout the site, especially in the southern end. Roses and other ornamental plantings occupied the raised beds in the parking-lot, and eucalyptus, pines, sycamores, and London Plane trees were scattered around the developed areas. The moderate sized areas above the buried tank locations in the southeastern portion of the site supported mowed ruderal vegetation, but were mapped as developed. Ornamental plantings were also intermixed with native species such as that which occurred on a steep slope in the southwestern portion of the site. The dense southwest-facing slope was comprised of an overstory of eucalyptus, oleander and olive trees, but with an understory of CSS species. This area was considered developed/ornamental.

A total of 14.9 acres of Developed occurred onsite (Figure 3).

Table 2: Habitat types and vegetation communities at the Lake Forest IRWD site.

Habitat Type/Vegetation community	**Map Code**	**Acreage**
Grassland		**3.8**
Ruderal	6	3.8
Coastal sage scrub		**21.0**
Native coastal sage scrub	1	12.4
Restored coastal sage scrub	2	8.6
Chaparral		**0.4**
Scrub oak chaparral	3	0.4
Riparian		**1.0**
Non-jurisdictional mulefat scrub	4	1.0
Woodland		**0.4**
Coast Live Oak Woodland	5	0.4
Disturbed		**39.7**
Disturbed	7	39.7
Developed		**14.9**
Developed and ornamental landscaping	8	14.9
SITE TOTAL		**99.0**

Figure 3: Vegetation communities at Lake Forest IRWD site; see Table 2 for vegetation legend Source: IRWD aerial photograph.

4.2 Plant Inventory

Plant species at the site consisted of species associated with coastal sage scrub, chaparral, riparian, and ruderal habitats. A total of 96 vascular plant species, representing 36 families were detected at the project site during the current surveys (Appendix A). This does not include plants from the landscaped area but does include landscaping species that have escaped into the more natural portions of the site. About 79% (66) were native and the remaining 30 species were exotic. The families best represented were Asteraceae (23 species) and Poaceae (13 species).

4.3 Special status plant species

Based on a review of CNDDB, the CNPS Inventory of Rare and Endangered Vascular Plants of California (Tibor *et al.* 2001), the coastal/central Orange County NCCP/HCP Plan, historic records and field surveys, one state/federally listed threatened or endangered species and 25 additional special status species[12] were identified as having some potential to occur onsite (Table 3). Many of the special status species in Table 3 occur primarily in chaparral; and since only one small area (0.4 acres) of chaparral exists onsite, potential for those species is very low. The highest quality habitat for supporting special status species is the coastal sage scrub on the western edge of the project site.

The September 4, 2008 survey date fell within blooming periods for six of the special status plant species potentially occurring on site; California satintail (*Imperata brevifolia*), felt-leaved monardella (*Monardella hypoleuca ssp. lanata*), Hall's Monardella (*Monardella macrantha ssp. hallii*), Fish's milkwort (*Polygala cornuta var. fishiae*), white-rabbit tobacco (*Pseudognaphalium leucocephalum*) and San Bernardino Aster (*Symphyotrichum defoliatum*). In addition, six other species are easily detected year-round due to their size and distinctive appearance, including summer holly (*Comarostaphylis diversifolia*), heart-leaved pitcher sage (*Lepechinia cardiophylla*), chaparral beargrass (*Nolina cismontana*), Nuttall's scrub oak (*Quercus dumosa*), Coulter's Matilija poppy (*Romneya coulteri*), San Miguel Savory (*Satureja chandleri*).

Focused surveys were conducted for each of these twelve of these species. No special status plant species were observed during the September 2008 survey.

[12] Special status plant species = federal or state listed threatened or endangered species, or proposed endangered, threatened or candidate species, California Native Plant Society Species List (CNPS list 1-4), or otherwise sensitive species.

Table 3: Special status plant species with potential to occur on site. Definitions - status: Fed = federal, FE = federal endangered, FT = federal threatened, FPE = federally proposed for listing as endangered, FPT = federally proposed for listing as threatened, FC = federal candidate species, FSC = federal special concern species, state = state of California, SE = state endangered, ST = state threatened, SCE = state candidate for listing as endangered, SCT = state candidate for listing as threatened, SC = state species of concern, FP = fully protected species, none = no federal or state listing, see Appendix B for CNPS Status. Occurrence onsite: Occurs = known to occur onsite, potential = could occur due to presence of suitable habitat onsite but not detected, unlikely = probably does not occur due to limited suitable habitat onsite and not detected. NCCP status as a covered species (C), conditionally covered species (CC) or non covered species (NC) is also listed. Definitions: Unlikely = appropriate habitat does not occur; low = possible but unlikely to occur onsite; medium = could occur onsite; high = probably does occur onsite but not recorded during recent surveys; occurs = recorded onsite.

Scientific Name FAMILY	**Common name**	**Status**	**NCCP**	**Occurrence onsite**	**Comments/Habitat**
Brodiaea filifolia *LILIACEAE*	Thread-leaved Brodiaea	Fed: FT State: SE CNPS: 1B	NC	Unlikely	Bulbiferous herb occurs on clay, or silty alkaline substrates on edges of vernal pools, valley and foothill grasslands, coastal sage scrub, chaparral, and cismontane woodlands, below 2000 feet. Blooms March through June.
Calochortus catalinae *LILIACEAE*	Catalina Mariposa Lily	Fed: None State: None CNPS: 4.2	C	Low	Bulbiferous herb. Blooms May through June in heavy soils, open grassy slopes and opening in brush in chaparral, coastal sage scrub, and valley and foothill grassland from 15-700 meters.
Calochortus weedii var. intermedius *LILIACEAE*	Intermediate Mariposa Lily	Fed: None State: None CNPS: 1B.2	CC	Medium	Bulbiferous herb blooms from May-July on dry rocky open slopes and hills in chaparral, coastal sage scrub, valley & foothill grassland from 100-855 meters.
Caulanthus simulans *BRASSICACEAE*	Payson's Jewel Flower	Fed: None State: None CNPS: 4.2	NC	Medium	Annual herb found in chaparral and coastal scrub with sandy or granitic soils from 90-2200 meters. Blooms from March through May.
Comarostaphylis diversifolia ssp. diversifolia *ERICACEAE*	Summer Holly	Fed: None State: None CNPS: 1B.2	NC	Unlikely, not detected during current surveys	Evergreen shrub occurs in chaparral and cismontane woodland from 30-550 meters. Blooms April through June.
Convolvulus simulans *CONVOLVULACEAE*	Small-flowered morning-glory	Fed: None State: None CNPS: 4.2	NC	Unlikely	Annual herb occurs from Baja north to San Luis Obispo County and inland to Riverside and Kern Counties, on wet clay, serpentine seeps and ridges, near rock outcrops, south-facing slopes in shallow or clay soils on edges of coastal sage scrub and perennial grasslands. Blooms March through June.

Scientific Name FAMILY	Common name	Status	NCCP	Occurrence onsite	Comments/Habitat
Dichondra occidentalis *CRASSULACEAE*	Western dichondra	Fed: None State: None CNPS: 4.2	NC	Medium	Rhizomatous herb is a fire follower, occurs in rock outcrops, under shrubs in loamy alluvium and gravely clay loam in southern mixed chaparral, Diegan sage scrub, oak woodland and grasslands. Blooms January through July. From 50-500 meters
Dudleya multicaulis *CRASSULACEAE*	Many Stemmed Dudleya	Fed: None State: None CNPS: 1B.2	NC, Species of Interest	Unlikely, not detected during current surveys	Perennial herb flowers from April-July. Microhabitat is rocky outcrops, clay soil in chaparral, coastal sage scrub, valley & foothill grassland.
Harpagonella palmeri *BORAGINACEAE*	Palmer's grapplinghook	Fed: None State: None CNPS: 4.2	NC	Low	Moderate potential to occur. Occurs on clay soils, dry slopes and mesas in coastal sage scrub openings and grasslands from 20-955 meters. Flowers March to April. More readily found after fires.
Horkelia cuneata ssp. puberula *ROSACEAE*	Mesa Horkelia	Fed: None State: None CNPS: 1B.1	NC	Medium	Perennial herb found in dry sandy soils in the outer coast ranges in chaparral, coastal scrub, and cismontane woodland in sandy or gravelly soils. Blooms from February through July from 70- 810 meters.
Imperata brevifolia *POACEAE*	California Satintail	Fed: None State: None CNPS: 2.1	NC	Unlikely, not detected during current surveys	Rhizomatous herb found in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps, and riparian scrub below 500 meters. Flowers from September through May.
Lepechinia cardiophylla *LAMIACEAE*	Heart-Leaved Pitcher Sage	Fed: None State: None CNPS: 2.1	C	Unlikely, not detected during current surveys	Aromatic shrub occurs in chaparral, closed-cone coniferous forest and cismontane woodland from 520 – 1370 meters. Blooms from April through July.
Lepidium virginicum var. robinsonii *BRASSICACEAE*	Robinson's peppergrass	Fed: None State: None CNPS: 1B.2	NC	Medium	Annual herb grows in openings of coastal sage and chaparral, typically away from the coast. Few recent collections of these species from cismontane southern California. Blooms January through July below 885 meters.
Microseris douglasii ssp. platycarpha *ASTERACEAE*	Small-flowered Microseris	Fed: None State: None CNPS: 4.2	NC	Unlikely	Annual herb blooms from March through May on clay soils in coastal sage scrub, valley and foothill grasslands, and cismontane woodland habitats from 15-1070 meters.
Monardella hypoleuca ssp. lanata *LAMIACEAE*	Felt-Leaved Monardella	Fed: None State: None CNPS: 1B.2	NC	Unlikely, not detected during current surveys	Rhizomatous herb found in chaparral and cismontane woodland from 300-1575 meters. Blooms from June through August.
Monardella macrantha ssp. hallii	Hall's Monardella	Fed: None State: None	NC	Unlikely, not detected during	Rhizomatous herb found in chaparral, broadleaf upland forest, lower montane coniferous forest and cismontane

Scientific Name FAMILY	Common name	Status	NCCP	Occurrence onsite	Comments/Habitat
LAMIACEAE		CNPS: 1B.3		current surveys	woodland from 730-2195 meters. Blooms from June through August
Nolina cismontana *LILIACEAE*	Chaparral beargrass	Fed: None State: None CNPS: 1B.2	NC	Unlikely, not detected during current surveys	Evergreen shrub distributed from western Ventura County south through Simi Hills, Santa Ana Mountains to the foothills of Palomar and Cuyamaca Mountains in San Diego County. Blooms from April through June.
Pentachaeta aurea *ASTERACEAE*	Golden-flowered Pentachaeta	Fed: None State: None CNPS: 1B.1	NC	Medium	Annual herb occurs in Los Angeles, Orange, Riverside, San Bernardino, San Diego Counties, Baja California. Habitat includes cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Blooms March through June from 75-520 meters.
Piperia cooperi *ORCHIDACEAE*	Chaparral rein orchid	Fed: None State: None CNPS: 4.2	NC	Low	Perennial herb occurs in chaparral, cismontane woodland, valley and foothill grassland from 15-1585 meters. Blooms March through June.
Polygala cornuta var. fishiae *POLYGALACEAE*	Fish's Milkwort	Fed: None State: None CNPS: 4.3	NC	Low, not detected during current surveys	Deciduous shrub occurs in Los Angeles, Orange, Riverside, Santa Barbara, San Diego, Ventura, Baja California in chaparral, cismontane woodland, and riparian woodland. Blooms May through August from 100-100 meters.
Pseudognaphalium leucocephalum *ASTERACEAE*	White-Rabbit tobacco	Fed: None State: None CNPS: 2.2	NC	Medium, not detected during current surveys	Perennial herb occurs in sandy or gravelly soil in coastal scrub, chaparral, riparian woodland, and cismontane woodland below 2000 meters. Blooms from July through December.
Quercus dumosa *FAGACEAE*	Nuttall's scrub oak	Fed: None State: None CNPS 1B.1	C	Medium, not detected during current surveys	Evergreen shrub occurs in sandy soils in coastal scrub, chaparral and closed cone coniferous forest from 15-800 meters. Flowers from February through April.
Romneya coulteri *PAPAVERACEAE*	Coulter's Matilija Poppy	Fed: None State: None CNPS: 4.2	C	Low, not detected during current surveys	Rhizomatous herb occurs in Los Angeles, Orange, Riverside, San Diego in chaparral, coastal scrub / often in burns. Blooms March through July. Easy to identify year round.
Satureja chandleri *LAMIACEAE*	San Miguel Savory	Fed: None State: None CNPS 1B.2	NC	Unlikely, not detected during current surveys	Small shrub occurs in chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grasslands in rocky, gabbroic or metavolcanic soils from 120 to 1075 meters. Blooms from May through July.
Senecio aphanactis *ASTERACEAE*	Rayless raywort	Fed: None State: None	NC	Medium	Annual herb occurs in coastal sage scrub from Contra Costa County to Baja California from 15-800 meters.

Scientific Name FAMILY	Common name	Status	NCCP	Occurrence onsite	Comments/Habitat
		CNPS 2.2			Known from lower Hicks Canyon and UCI ecological preserve. Blooms January through April.
Symphyotrichum defoliatum *ASTERACEAE*	San Bernardino aster	Fed: None State: None CNPS: 1B.2	NC	Unlikely, not detected during current surveys	Occurs in vernally mesic places near ditches, streams and springs in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps and valley and foothill grassland. Blooms from July-November from 2-2040 meters.

4.4 Wildlife

Wildlife at the Lake Forest IRWD project site consisted of common species associated with grassland, scrub and open habitats. In total 37 wildlife species, including two reptile, 32 bird and three mammalian species, were recorded at the project site during the surveys. A complete list of all wildlife detected is listed in Appendix C.

4.5 Special status wildlife species

Based on a review of CNDDB, the MSHCP and field surveys, several special status wildlife species were identified as potentially occurring onsite (Table 2). Four special status species, California gnatcatcher (discussed below), Cooper's hawk (*Accipiter cooperi*), merlin (*Falco columbarius*) and California horned lark (*Eremophila alpestris actia*) were detected onsite. No other special status wildlife species were detected onsite.

The Cooper's hawk is a wide-ranging species in North America that breeds from British Columbia eastward to Nova Scotia and southward to northern Mexico and Florida. They occur in mature forests, open woodlands, wood edges, river groves and riparian woodland. The majority of Cooper's hawk nests are located in small groves of oak trees but dense stands of mature willows are also used. A single Cooper's hawk was detected foraging onsite but suitable nesting sites do not exist at the project site.

Merlin nest in open woodlands and savanna but forage in a wide variety of habitats including woods, scrub, chaparral and open areas. Merlins do not breed in southern California but are widespread (although not common) during migration and in winter. A single Merlin was detected foraging onsite.

California horned larks occur throughout the U.S., Canada and Mexico. The California horned lark is one of a number of subspecies occurring in North America. The horned lark breeds and forages in open habitats, including grasslands and agricultural areas and are particularly fond of ruderal, grazed, mowed and other degraded grasslands, where dense cover of annual and perennial grasses are lacking. A few horned larks were documented in the disturbed bare ground in the central portion of the project site.

4.6 California gnatcatcher and coastal cactus wren

Two pairs of California gnatcatcher and an additional unpaired juvenile gnatcatcher were detected onsite during the 2008 surveys. One pair occurred in the coastal sage scrub on the western edge of the project site, a second pair occurred in the south near the water tanks and unpaired juvenile gnatcatcher occurred in the narrow strip of coastal sage scrub along the eastern boarder (Figure 4).

No coastal cactus wrens were detected onsite during the surveys in 2008.

Figure 4: California gnatcatcher locations at the Lake Forest IRWD site; red = gnatcatcher pairs; blue = unpaired juvenile gnatcatcher. Source: IRWD aerial photograph.

Table 4: Special status wildlife species that occurred or have the potential to occur in the Lake Forest IRWD project site. Definitions – see below.

Scientific Name	Common Name	ESA/CESA Status	NCCP	Other Status	Occurrence	Habitat
Amphibians						
Spea hammondii	western spadefoot toad	none	NC	DFG: CSC CNDDB Ranked	Unlikely	grassland, open habitats with sandy or gravelly soil; temporary rainpools for breeding
Reptiles						
Phrynosoma coronatum	coast horned lizard	none	C	DFG: CSC CNDDB Ranked	Potential	sandy washes and open sandy areas within coastal sage scrub, grassland, chaparral, oak and riparian woodland
Eumeces skiltonianus interparietalis	Coronado skink	none	C	DFG: CSC CNDDB Ranked	Potential	mesic areas of coastal sage scrub, chaparral, grasslands and woodlands; heavily forested areas and dense brush avoided
Cnemidophorus tigris stejnegeri	coastal western whiptail	none		CNDDB Ranked	Potential	semiarid habitats with open sparsely vegetated areas, scrub, chaparral, grassland and woodland habitats
Cnemidophorus hyperytha	orange-throated whiptail	none	C	DFG: CSC CNDDB Ranked	Potential	open, sparsely covered land, often with well-drained sandy or loose soils in coastal sage scrub, grassland, chaparral, oak woodland and riparian habitats
Anniella pulchra pulchra	silvery legless lizard	none	NC	DFG: CSC CNDDB Ranked	Potential	chaparral, oak woodland, coastal sage scrub
Charina trivirgata roseofusca	coastal rosy boa	none	C	CNDDB Ranked	Potential	Occurs in coastal areas, occurs in rocky chaparral-covered hillsides and canyons
Salvadora hexalepis virgultea	coast patch-nosed snake	none	NC	DFG: CSC CNDDB Ranked	Potential	associated with brushy or shrubby vegetation
Crotalus ruber ruber	northern red-diamond rattlesnake	none	C	DFG: CSC CNDDB Ranked	Potential	chamise, coastal sage scrub, desert slope scrub and other habitats with heavy brush associated large rocks or boulders
Birds						
Circus cyaneus	northern harrier	none	C	DFG: CSC CNDDB Ranked	Potential, foraging only	grassland, marshes, agricultural land, open areas in scrub and chaparral; ground or shrub nesting
Elanus leucurus	white-tailed kite	none	NC	DFG: FP CNDDB Ranked	Potential, foraging only	forages in grasslands; nests and roosts in oak and riparian woodland

Accipiter striatus	sharp-shinned hawk	none	C	DFG: WL CNDDB Ranked	Potential, foraging only	wide variety of habitats used by wintering and migrating birds, but mostly associated with woodland and scrubland; breeds in mountains
Accipiter cooperi	Cooper's hawk	none	NC	DFG: WL CNDDB Ranked	Occurs, non-breeding	mature forests, open woodlands, wood edges, river groves, riparian woodland
Buteo regalis	ferruginous hawk	none	NC	DFG: WL FW: BCC CNDDB Ranked	Potential, foraging only	plains, prairies, grasslands
Aquila chrysaetos.	golden eagle	none	CC	DFG: FP FW: BCC CNDDB Ranked	Potential, foraging only	open mountains, foothills, plains, open country
Falco columbarius	merlin	none	NC	DFG: WL CNDDB Ranked	Occurs, non-breeding	nests in open woodlands, savanna, does not breed in southern California, woodlands, open areas in winter, migration
Falco peregrinus anatum	American peregrine falcon	ESA: SE	C	DFG: FP FWS: BCC CNDDB Ranked	Potential, foraging only	nest on cliffs or rock outcroppings, usually near water; forages over open country (grassland, scrub, marshes)
Athene cunicularia	burrowing owl	none	NC	DFG: CSC FWS: BCC CNDDB Ranked	Potential	grasslands, farmland and other open habitats
Asio flammeus	short-eared owl	none	NC	DFG: CSC CNDDB Ranked	Potential, foraging only	grasslands
Asio otus	long-eared owl	none	NC	DFG: CSC CNDDB Ranked	Potential, foraging only	widespread forager; nests in dense woodlands
Selasphorus rufus	rufous hummingbird	none	NC	FWS: BCC CNDDB Ranked	Potential	Found in a wide variety of habitats that provide nectar-producing flowers; uses valley foothill and riparian woodland, various chaparral habitats and montane meadows. Takes nectar from many species of flowering plants; also eats insects, spiders and tree sap.
Eremophila alpestris actia	California horned lark	none	NC	DFG: WL CNDDB Ranked	Occurs	Open areas with little or no ground cover, such as grassland or ruderal vegetation
Campylorhynchus brunneicapillus	cactus wren	none	C	DFG: CSC CNDDB Ranked	Potential	cactus patches and yucca within coastal sage scrub and chaparral habitats
Polioptila californica californica	California gnatcatcher	ESA: FT CESA: None	C	DFG: CSC CNDDB Ranked	Occurs	coastal sage scrub
Lanius ludovicianus	loggerhead shrike	none	NC	DFG: CSC	Potential	grassland, scrub and other open habitats

				FWS: BCC CNDDB Ranked		with perching structures; nests in trees and shrubs
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	none	C	DFG: WL CNDDB Ranked	Potential	grass covered hillsides in coastal sage scrub and chaparral
Carduelis lawrencei	Lawrence's goldfinch	none	NC	FWS: BCC CNDDB Ranked	Potential	Breeds in open oak or other arid woodland and chaparral, near water, in southern California, occurs in desert riparian, palm oasis, pinyon-juniper, and lower montane habitats. Winters erratically in southern coastal lowlands and Colorado River Valley; can be common locally.
Mammals						
Macrotus californicus	California leaf-nosed bat	none	NC	DFG: CSC WBWG: High priority CNDDB Ranked	Potential	roosts in caves or old mines
Antrozous pallidus	pallid bat	none	NC	DFG: CSC WBWG: High priority CNDDB Ranked	Potential	coastal sage scrub, oak woodland and chaparral; roosts in caves, mines, rock crevices, trees and buildings
Myotis yumanensis	Yuma myotis	none		WBWG: Medium priority CNDDB Ranked	Potential	Large colonies, caves, tunnels and buildings in arid areas, forages over water
Eumops perotis californicus	California mastiff bat	none	NC	DFG: CSC WBWG: High priority CNDDB Ranked	Potential	widespread forager; roosts in cliffs and buildings
Lepus californicus bennettii	San Diego black-tailed jackrabbit	none	NC	DFG: CSC CNDDB Ranked	Potential	coastal sage scrub, grassland and chaparral
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	none	NC	DFG: CSC CNDDB Ranked	Potential	coastal sage scrub, grassland and chaparral
Perognathus longimembris pacificus	Pacific pocket mouse	ESA: FE CESA: None	CC	DFG: CSC CNDDB Ranked	Unlikely	Ranges from the vicinity of Marina del Rey in Los Angeles south along the immediate coast to the Mexican border. All definite historical localities are within 4km from the ocean and at elevations of 600 feet or less. Currently known from four locations, including the Dana Point

						Headlands and three locations on Camp Pendleton. This pocket mouse frequents sandy soils with sparse vegetation cover. All potential pocket mouse habitat in the Coastal/Central NCCP/HCP Subregion has been mapped and none occurs within the project site (County of Orange, Environmental Management Agency (1995a).
Perognathus longimembris brevinasus	Los Angeles pocket mouse	none	NC	DFG: CSC CNDDB Ranked	Potential	inhabits open ground with fine sandy soils fine, sandy soils, may be restricted to lower elevation grassland and coastal sage scrub
Neotoma lepida intermedia	San Diego desert woodrat	none	C	DFG: CSC CNDDB Ranked	Potential	cactus patches and rock outcroppings in coastal sage scrub
Onychomys torridus ramona	Ramona grasshopper mouse	none	NC	DFG: CSC CNDDB Ranked	Potential	annual grassland and coastal sage scrub
Taxidea taxus	American badger	none	NC	DFG: CSC CNDDB Ranked	Potential	widespread in natural habitats

Definitions – (see Department of Fish and Game web page http://www.dfg.ca.gov/whdab/html/cnddb.html for details)

ESA = Federal Endangered Species Act
- FE = federal endangered
- FT = federal threatened
- FPE = federally proposed for listing as endangered
- FPT = federally proposed for listing as threatened
- FC = federal candidate species

CESA = California Endangered Species Act
- SE = state endangered
- ST = state threatened
- SCE = state candidate for listing as endangered
- SCT = state candidate for listing as threatened

DFG = Department of Fish and Game
- CSC = California species of special concern
- FP = fully protected species

WL = Watch list
CNDDB ranked = species listed under the states CNDDB program
FWS = Fish and Wildlife Service
BCC = Birds of Conservation Concern
Watch List = list of sensitive species
WBWG = The Western Bat Working Group
High Priority = list of species at high risk
Local concern = species that is in decline in local area

NCCP = County of Orange Central & Coastal Subregion
C = covered species
CC = conditionally covered species
NC = not covered species

4.7 Wetland Delineation

No areas subject to the Corps 404 or CDFG 1600 programs occurred onsite.

A few areas of Non-jurisdictional Mulefat Scrub occurred in small isolated locations onsite near irrigation systems, where water collected in low areas, or was channelized by earthen or concrete V-ditches or other topographic features. All these areas were artificially created and were not associated with a natural drainage, streambed, lake or Waters of the U.S. None of the Non-jurisdictional Mulefat Scrub areas were subject to the Corps 404 or CDFG 1600 programs.

4.8 Wildlife movement corridors and linkages

The terms "wildlife corridors" and "linkages" are based upon fundamental ecological concepts, but can be easily misinterpreted because: 1) universally accepted definitions of these terms have not been established; 2) each term can be interpreted using different time scales (i.e. daily, seasonal, annual and evolutionary) and spatial scales (i.e. microclimate, local, community, and landscape) which changes their meaning; 3) the areas and values change from species to species; and, 4) the understanding of how these processes work is on-going and conclusions are subject to revision. The following definitions are intended to provide a working understanding of corridors and linkages and are summarized from several sources (SCWP 2003, USCA9D 1990, Barrett and Livermore 1983, Beier 1993).

Wildlife corridor - Wildlife corridors are areas which animals can use to move from one patch of suitable habitat to another. These areas would be expected to have the least habitat fragmentation relative to surroundings areas. A wildlife corridor establishes connectivity for animals to move, live, reproduce and respond to functional ecological processes during the course of a year to several years. The quality and functionality of a particular wildlife corridor varies from species to species.

Wildlife crossings are generally small, narrow wildlife corridors that allow wildlife to pass through an obstacle or barrier such as a roadway to reach another patch of habitat. Wildlife crossings are manmade and include culverts, drainage pipes, underpasses, tunnels, and, more recently, crossings created specifically for wildlife movement over or under highways.

Both wildlife crossings and wildlife corridors function to prevent habitat fragmentation that would result in the loss of species that require large contiguous expanses of unbroken habitat and/or that occur in low densities.

Linkages – Linkages are areas that provide for long term movement or interaction of wildlife to maintain natural evolutionary and ecological patterns. Linkages are

fundamental for gene flow and large scale ecological processes. These areas are usually defined by the zones of "least resistance" for the genes of a given species to move or "flow" between core reserve populations.

No wildlife corridors or linkages are known to occur at the Lake Forest IRWD project site.

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6.0 APPENDICES

6.1: Appendix A: Plant species list form the Lake Forest IRWD project site 2008.

SCIENTIFIC NAME	COMMON NAME
SELAGINELLACEAE	**SPIKE-MOSS FAMILY**
Selaginella bigelovii	Bigelow's Spike-Moss
GYMNOSPERMS	**CONE BEARING PLANTS**
PINACEAE	**PINE FAMILY**
*Pinus muricata**	Bishop Pine
ANGIOSPERMAE	**FLOWERING PLANTS**
ANGIOSPERMS - DICOTYLEDONES	**DICOTS**
AIZOACEAE	**CARPET-WEED FAMILY**
*Carpobrotus edulis**	Hottentot Fig
AMARANTHACEAE	**AMARANTH FAMILY**
*Amaranthus albus**	Tumbling Pigweed
ANACARDIACEAE	**SUMAC or CASHEW FAMILY**
Malosma laurina	Laurel Sumac
Rhus integrifolia	Lemonadeberry
*Schinus molle**	Peruvian Pepper Tree
Toxicodendron diversilobum	Poison Oak
APIACEAE	**CARROT FAMILY**
Conium maculatum	Common Poison Hemlock
ASTERACEAE	**SUNFLOWER FAMILY**
Ambrosia psilostachya	Western Ragweed
Artemisia californica	Coastal Sagebrush
Artemisia douglasiana	Douglas or California Mugwort
Artemisia dracunculus	Dragon Sagewort or Tarragon
Baccharis pilularis	Coyote Brush or Chaparral Broom
Baccharis salicifolia	Mulefat
*Centaurea melitensis**	Tocalote
*Conyza bonariensis**	Flax-Leaved Horseweed
Conyza canadensis	Common Horseweed
Eclipta actoni	Encelia
Encelia californica	California Encelia
Ericameria palmeri var. pachylepis	Grassland Goldenbush
Gnaphalium bicolor	Bioletti's or Bicolored Cudweed
Gnaphalium californicum	California Everlasting
Gnaphalium canescens subsp. microcephalum	White Everlasting
Gutierrezia californica	California Matchweed
Helianthus annuus	Western Sunflower
Hemizonia fasciculata	Fascicled Tarweed
Heterotheca grandiflora	Telegraph Weed
Isocoma menziesii var. menziesii	Decumbent Goldenbush
*Lactuca serriola**	Prickly or Wild Lettuce
Stephanomeria exigua subsp. exigua	Small Wreath Plant
Stephanomeria virgata subsp. virgata	Tall Wreath Plant

BORAGINACEAE	**BORAGE FAMILY**
Amsinckia menziesii var. intermedia	Common Fiddleneck
Cryptantha intermedia	Common Cryptantha
Cryptantha muricata	Prickly Cryptantha
BRASSICACEAE	**MUSTARD FAMILY**
Hirschfeldia incana	Shortpod or Summer Mustard
CACTACEAE	**CACTUS FAMILY**
Opuntia littoralis	Mesa Prickly Pear
Opuntia prolifera	Coastal Cholla
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**
Lonicera subspicata var. denudata	Southern Honeysuckle
Sambucus mexicana	Mexican Elderberry
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
Atriplex canescens subsp. canescens	Fourwing Saltbush or Shad Scale
*Atriplex semibaccata**	Australian Saltbush
*Chenopodium album**	Lamb's Quarter
*Salsola tragus**	Russian-Thistle
CUCURBITACEAE	**GOURD FAMILY**
Cucurbita foetidissima	Calabazilla
Marah macrocarpus var. macrocarpus	Man-Root, Wild Cucumber
EUPHORBIACEAE	**SPURGE FAMILY**
*Ricinus communis**	Castor-Bean
FABACEAE	**LEGUME FAMILY**
Lotus purshianus var. purshianus	Spanish Lotus
Lotus scoparius var. scoparius	Coastal Deerweed
FAGACEAE	**OAK FAMILY**
Quercus agrifolia var. agrifolia	Coast Live Oak
Quercus berberidifolia	Scrub Oak
HYDROPHYLLACEAE	**WATERLEAF FAMILY**
Phacelia cicutaria var. hispida	Caterpillar Phacelia
Phacelia distans	Common Phacelia
LAMIACEAE	**MINT FAMILY**
*Marrubium vulgare**	Common Horehound
Salvia apiana	White Sage
Salvia leucophylla	Purple Sage
Salvia mellifera	Black Sage
MALVACEAE	**MALLOW FAMILY**
Malacothamnus fasciculatus	Lax-Flowered Bush Mallow
*Malva parviflora**	Cheeseweed
MORACEAE	**FIG FAMILY**
*Morus alba**	White Mulberry
MYRTACEAE	**MYRTLE FAMILY**
*Eucalyptus globulus**	Tasmanian Blue Gum
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**
Mirabilis californica	California Wishbone Bush
OLEACEAE	**OLIVE FAMILY**
Fraxinus dipetala	California Flowering-Ash
*Olea europaea**	European Olive

ONAGRACEAE	**EVENING PRIMROSE FAMILY**
Epilobium canum subsp. canum	Narrow-Leaved Fuchsia
POLYGONACEAE	**BUCKWHEAT FAMILY**
Eriogonum fasciculatum var. fasciculatum	California Buckwheat
Eriogonum fasciculatum var. foliolosum	Interior Flat-Topped Buckwheat
RANUNCULACEAE	**CROWFOOT FAMILY**
Clematis pauciflora	Small-Leaved Virgin's Bower
RHAMNACEAE	**BUCKTHORN FAMILY**
Rhamnus ilicifolia	Holly-Leaved Redberry
ROSACEAE	**ROSE FAMILY**
Heteromeles arbutifolia	Toyon or Christmas Berry
*Prunus persica**	Peach
RUBIACEAE	**MADDER FAMILY**
Galium angustifolium subsp. angustifolium	Chaparral Bedstraw
SALICACEAE	**WILLOW FAMILY**
Populus fremontii subsp. fremontii	Western Cottonwood
SCROPHULARIACEAE	**FIGWORT FAMILY**
Keckiella cordifolia	Heart-Leaved Bush-Penstemon
SIMAROUBACEAE	**QUASSIA or SIMAROUBA FAMILY**
*Ailanthus altissima**	Tree of Heaven
SOLANACEAE	**NIGHTSHADE FAMILY**
Datura wrightii	Jimsonweed
*Nicotiana glauca**	Tree Tobacco
Solanum douglasii	Douglas' Nightshade
TAMARICACEAE	**TAMARISK FAMILY**
Tamarix sp.	Tamarisk
ANGIOSPERMS - MONOCOTYLENDONES	**MONOCOTS**
ARECACEAE	**PALM FAMILY**
*Washingtonia robusta**	Mexican Fan Palm
POACEAE	**GRASS FAMILY**
*Avena barbata**	Slender Wild Oat
*Bromus diandrus**	Common Ripgut Grass
*Bromus madritensis subsp. rubens**	Foxtail Chess or Red Brome
*Bromus tectorum**	Cheat Grass
*Cortaderia jubata**	Pampas Grass
Leymus condensatus	Giant Wild-Rye
Nassella lepida	Foothill Needlegrass
*Pennisetum setaceum**	African Fountain Grass
*Pennisetum villosum**	Pennisetum
*Piptatherum miliaceum**	Smilo Grass or Millett Ricegrass
*Schismus barbatus**	Mediterranean Schismus
Vulpia microstachys var. pauciflora	Pacific Fescue
*Vulpia myuros var. myuros**	Rattail Fescue
TYPHACEAE	**CAT-TAIL FAMILY**
Typha latifolia	Broad-Leaved Cat-Tail

KEY: Asterisk (*) = non-native species; $^{+}$ = sensitive species; Sources: Taxonomy - Hickman (1993), http://ucjeps.berkeley.edu/interchange.html, July 2008; Common names and non-native species designations according to Roberts (1998), then Hickman (1993)

6.2 Appendix B: California Native Plant Society Categories

CNPS Status based on California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavilk 1994):

List 1A: Plants Presumed Extinct in California
The plants of List 1A are presumed extinct because they have not been seen or collected in the wild for many years. Although most of them are restricted to California, a few are found in other states as well. There is a difference between "extinct" and "extirpated." A plant is extirpated if it has been locally eliminated. It may be doing quite nicely elsewhere in its range. All of the plants constituting List 1A meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

List 1B: Plants Rare, Threatened or Endangered in California and Elsewhere
The plants of List 1B are rare throughout their range. All but a few are endemic to California. All of them are judged to be vulnerable under present circumstances or to have a high potential for becoming so because of their limited or vulnerable habitat, their low numbers of individuals per population (even through they may be wide ranging), or their limited number of populations. All of the plants constituting List 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

List 2: Plants Rare, Threatened or Endangered in California, But More Common Elsewhere
Except for being common beyond the boundaries of California, the plants of List 2 would have appeared on List 1B. Based on the "Native Plant Protection Act," plants are considered without regard to their distribution outside the state. All of the plants constituting List 2 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

List 3: Plants About Which We Need More Information—A Review List
The plants that comprise List 3 are an assemblage of taxa that have been transferred from other lists or that have been suggested for consideration. The necessary information that would assign most to a sensitivity category is missing.

List 4: Plants of Limited Distribution—A Watch List
The plants in this category are of limited distribution in California and their vulnerability or susceptibility to threat appears low at this time. While these plants cannot be called "rare" from a statewide perspective, they are uncommon enough that their status should be monitored regularly. Many of them may be significant locally. Should the degree of endangerment or rarity of a plant change, they will be transferred to a more appropriate list.

R-E-D Code

R (Rarity)
1. Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
2. Occurrence confined to several populations or to one extended population.
3. Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

E (Endangerment)
1. Not endangered
2. Endangered in a portion of its range
3. Endangered throughout its range

D (Distribution)
1. More or less widespread outside of California
2. Rare outside California
3. Endemic to California

6.3 Appendix C: Wildlife species Plant species list form the Lake Forest IRWD project site 2008.

FAMILY/SPECIES NAME	COMMON NAME
REPTILIA	**REPTILES**
PHRYNOSOMATIDAE	**NORTH AMERICAN SPINY LIZARDS & RELATIVES**
Sceloporus occidentalis	Western Fence Lizard
Uta stansburiana	Side-Blotched Lizard
ODONTOPHORIDAE	**NEW WORLD QUAIL**
Callipepla californica	California Quail
CATHARTIDAE	**NEW WORLD VULTURES**
Cathartes aura	Turkey Vulture
ACCIPITRIDAE	**HAWKS, OLD WORLD VULTURES & HARRIERS**
Accipiter cooperii[+]	Cooper's Hawk
Buteo jamaicensis	Red-Tailed Hawk
Buteo lineatus	Red-Shouldered Hawk
FALCONIDAE	**CARACARAS & FALCONS**
Falco sparverius	American Kestrel
Falco columbarius[+]	Merlin
COLUMBIDAE	**PIGEONS & DOVES**
Columba livia	Rock Pigeon
Zenaida macroura	Mourning Dove
TROCHILIDAE	**HUMMINGBIRDS**
Archilochus alexandri	Black-Chinned Hummingbird
Calypte anna	Anna's Hummingbird
PICIDAE	**WOODPECKERS**
Melanerpes formicivorus	Acorn Woodpecker
Picoides nuttallii[+]	Nuttall's Woodpecker
TYRANNIDAE	**TYRANT FLYCATCHERS**
Sayornis nigricans	Black Phoebe
Sayornis saya	Say's Phoebe
Tyrannus vociferans	Cassin's Kingbird
Tyrannus verticalis	Western Kingbird
CORVIDAE	**JAYS, MAGPIES & CROWS**
Aphelocoma californica	Western Scrub-Jay
Corvus brachyrhynchos	American Crow
Corvus corax	Common Raven
ALAUDIDAE	**LARKS**
Eremophila alpestris actia[+]	California Horned Lark
AEGITHALIDAE	**LONG-TAILED TITS**
Psaltriparus minimus	Bushtit
TROGLODYTIDAE	**WRENS**
Thryomanes bewickii	Bewick's Wren
Troglodytes aedon	House Wren
SYLVIIDAE	**OLD-WORLD WARBLERS & GNATCATCHERS**
Polioptila californica californica[+]	Coastal California Gnatcatcher
MIMIDAE	**MOCKINGBIRDS & THRASHERS**

Mimus polyglottos	Northern Mockingbird
Toxostoma redivivum[+]	California Thrasher
EMBERIZIDAE	**EMBERIZINES**
Pipilo maculatus	Spotted Towhee
Pipilo crissalis	California Towhee
FRINGILLIDAE	**FRINGILLINE FINCHES**
Carpodacus mexicanus	House Finch
Carduelis psaltria	Lesser Goldfinch
ESTRILDIDAE	**WAXBILLS & ALLIES**
Lonchura punctulata	Nutmeg Mannikin
MAMMALIA	**MAMMALS**
LEPORIDAE	**RABBITS & HARES**
Sylvilagus audubonii	Desert Cottontail
CANIDAE	**FOXES, WOLVES & RELATIVES**
Canis latrans	Coyote
PROCYONIDAE	**RACCOONS, RINGTAILS & COATIS**
Procyon lotor	Northern Raccoon

Sources:
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Common names: Grenfell, W. E., M. D. Parisi, and D. McGriff. 2003. Complete List of Amphibians, Reptiles, Birds and Mammals in California. California Department of Fish and Game & California Interagency Wildlife Task Group. http://www.dfg.ca.gov/whdab/pdfs/species_list.pdf; and Perrins, C. M, and A. L. A. Middleton (Eds.). 1983. The Encyclopedia of Birds. Andromeda Oxford Limited. 463pp.
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6.4 Appendix D: California gnatcatcher surveys data.

Date	Biologist	Time	%Cloud cover	Temp (^{0}F)	Wind speed (mph)	Acres per survey	# CAGN	#BHCO
8/26/08	PG	7.00-11.00	0-0	60-75	0-0	13	1 single	0
9/12/08	PG	7.00-11.00	100-90	60-68	0-0	13	2 pairs	0
9/19/08	PG	6.45-10.00	100-80	59-61	0-0	13	2 pairs	0

Paul Galvin (USFWS permit# TE 821967)

CALIFORNIA GNATCATCHER
REPORT FOR THE
LAKE FOREST IRWD SITE

Prepared for:

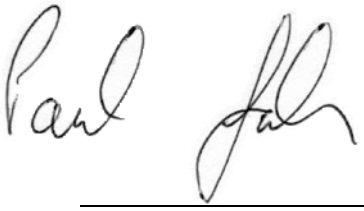
LEWIS CORPORATION
1156 North Mountain Avenue
P. O. Box 670
Upland, California 91785-0670

Prepared by:

HARMSWORTH ASSOCIATES
19 Golf Ridge Drive
Dove Canyon, CA 92679
(949) 858-1553 (949) 589-2784 fax

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, **and** information presented are true and correct to the best of my knowledge and belief.



HARMSWORTH ASSOCIATES
Paul Galvin, M.S.
Vice President

SEPTEMBER 2008

TABLE OF CONTENTS

1.0 INTRODUCTION

This report summarizes the results of focused surveys for California gnatcatcher (*Polioptila californica californica*) and coastal cactus wren (*Campylorhynchus brunneicapillus couesi*) at the Lake Forest IRWD (Irvine Ranch Water District) project site conducted in summer 2008.

1.1 Local Setting and Site Description

The approximately 80-acre Lake Forest IRWD site is located in the city of Lake Forest in Orange County, California; within the U.S. Geological Survey (USGS) topographic map: El Toro quadrangle (Figure 1). The site includes the Irvine Ranch Water District's (IRWD) Baker Filtration Plant and Administrative property located at the terminus of Marin, west of Serrano Creek, south of Commerce Centre. The Site is located in Non-Reserve Lands in the Central Subarea of the Orange County Natural Communities Conservation Plan/Habitat Conservation Plan NCCP/HCP.

In addition to existing buildings the project site includes roads, ornamental landscaping, fallow agricultural land, disturbed ground, areas landscaped with coastal sage scrub and some small patches of native coastal sage scrub, chaparral and riparian habitats.

The project site is mostly flat but also includes a few gently sloping hillsides and shallow canyons, with elevations ranging from approximately 550 feet in the southern portion of the site to approximately 710 feet along the ridgeline in the northwestern portion of the project site. The climate is typically Mediterranean, with warm dry summers and cool wet winters. Early morning coastal fog frequently clouds the hillsides during spring.

Soils at the project site are generally excessively drained, well drained or moderately drained soils from the Cieneba-Anaheim-Soper or Myford soil associations (Wachtell 1998). These soils formed in material weathered from sandstone, shale and conglomerate or in sandy sediments mostly on marine terraces. Most of the site consists of Cieneba sandy loam (30 to 75 percent slopes, eroded), but there are also areas of Myford sandy loam (9 to 15 percent slopes), Capistrano sandy loam (9 to 15 percent slopes) and Calleguas clay loam (50 to 75 percent slopes, eroded).

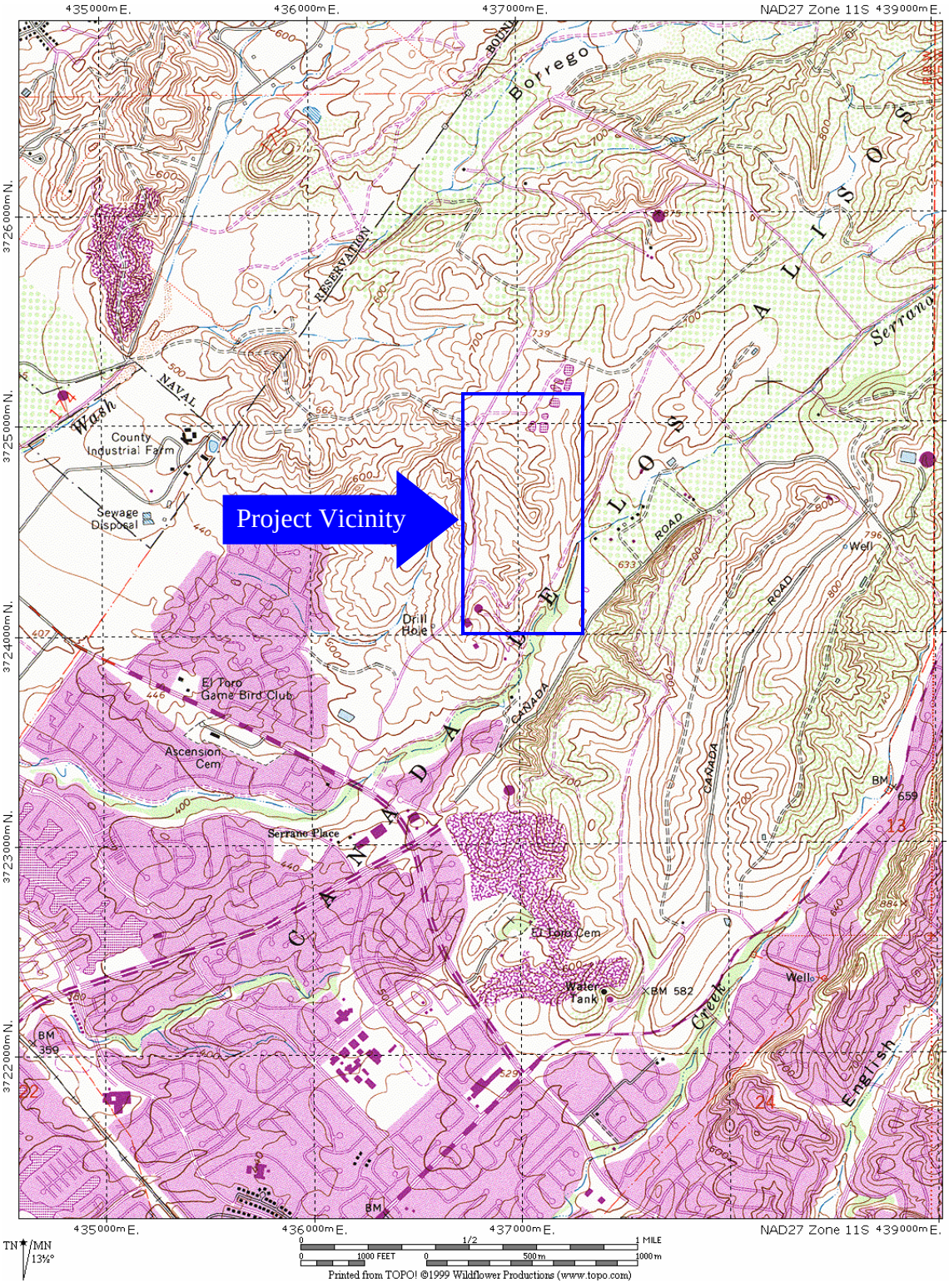


Figure 1: Location of the Lake Forest IRWD site in Orange County, southern California. Source: El Toro U.S.G.S. quadrangles.

2.0 METHODOLOGY

2.1 Biological Resources Information sources

In addition to field surveys, wildlife inventories, and habitat assessments, information on the biological resources of the Lake Forest IRWD project site was obtained by reviewing existing available data. The following sources were reviewed;

- Orange County Central/Coastal NCCP/HCP Plan,
- California Natural Diversity Data Base (CNDDB) for the USGS 7.5' quadrangle which comprised the study area: El Toro and neighboring quads for pertinent data,
- California Native Plant Society Inventory of rare and endangered vascular plants of California (Tibor 2001; 6th Edition of CNPS Inventory),
- Special Animals (including California Species of Special Concern), CDFG, Natural Heritage Division, February 2008,
- Special Vascular Plants, Bryophytes, and Lichens List, CDFG, Natural Heritage Division, July 2008,
- State and Federally Listed Endangered, Threatened and Rare Plants of California, CDFG, Natural Heritage Division, July 2008,
- State and Federally Listed Endangered and Threatened Animals of California, CDFG, Natural Heritage Division, May 2008,
- Review of previous biological assessment reports and species lists for the region and neighboring areas, and,
- Published literature (Sibley 2000, Small 1994, Moyle *et al.* 1995, Jennings and Hayes 1994, Stebbins 2003, Webster *et al.* 1980, Burt and Grossenheider 1976).

2.2 Wildlife surveys and habitat assessment for special status wildlife

Field surveys for wildlife, the habitat assessment for special status wildlife species and focused wildlife surveys were conducted on August 26, September 12 and 19, 2008. The site was traversed on foot to survey each vegetation community and look for evidence of wildlife presence. Wildlife species were detected during the field surveys by sight, vocalizations, burrows, tracks, scat, scrapings and other sign. An assessment of potential habitat for special status species was also conducted.

Protocol surveys were conducted for the coastal California gnatcatcher and the cactus wren, to provide updated information regarding the presence of these species in the project site. Protocol surveys were conducted at all potentially suitable gnatcatcher and wren habitat a total of three times, as specified by survey protocols for NCCP/HCP areas. Surveys were conducted on August 26, September 12 and 19, 2008, Appendix B.

During the focused gnatcatcher and wren surveys information on the distribution and status of other sensitive species that utilize CSS, including San Diego horned lizard (*Phrynosoma coronatum blainvillei*), orange-throated whiptail (*Cnemidophorus hyperythrus*), Bell's sage sparrow (*Amphispiza belli belli*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), raptors, San Diego black-tailed jackrabbit (*Lepus californicus*) and San Diego desert woodrat (*Neotoma lepida intermedia*) was collected.

The methodology used in the surveys followed the guidelines of Mock *et al*. (1990), the Southern California Coastal Sage Scrub Scientific Review Panel (Brussard *et al*. 1992) and the USFWS monitoring protocol (USFWS 1997), as follows;

- Surveys were conducted during the morning hours and when the temperature exceeded 55°F.
- No more than 100 acres were surveyed by each biologist per day, and no surveys were conducted during windy (>15 miles per hour), rainy, or extremely hot (>95°F) conditions.
- Taped vocalizations of gnatcatchers and cactus wrens were used to elicit a response from resident birds, if they were present.
- All located birds were observed long enough to determine their breeding status (whether paired or unpaired).
- Located birds were observed long enough to determine if they were banded.
- All data were recorded on standardized data sheets and male/pair locations were plotted on topographic maps of the project site.

Latin and common names of wildlife referred to in this report follow Powell and Hogue (1979), Hogue 1993 and NatureServe http://www.natureserve.org/explorer/) for invertebrates; NatureServe for fish; North American Herpetology (http://www.naherpetology.org/nameslist) for amphibians and reptiles; American Ornithologists' Union Checklist of North American Birds - 7th Edition (2005) for birds; Baker at al. 2003 for mammals; and Grenfell et al. 2003, California Department of Fish and Game & California Interagency Wildlife Task Group (http://www.dfg.ca.gov/whdab/pdfs/species_list.pdf) and Perrins *et al.* 1983 for common names.

3.0 RESULTS

3.1 Vegetation types

The Lake Forest IRWD project site consists primarily of developed and disturbed areas, including the Baker Filtration Plant and Administrative property, roads, ornamental landscaping and fallow agricultural land. Dispersed among the developed areas (parking lots, roads and water tanks) were re-vegetated slopes and ornamental landscaping some of which included some native vegetation (mapped as restored coastal sage scrub). Small patches of native coastal sage scrub, chaparral and oak woodland habitats also occurred onsite. The site contained five habitat types in addition to developed/disturbed areas.

Coastal sage scrub

Native Coastal Sage Scrub

Native Coastal sage scrub onsite refers to naturally occurring vegetation, as compared to areas restored or revegetated with CSS species. The composition and quality of the various native coastal sage scrub (CSS) vegetation patches onsite reflected historical disturbances, local slope conditions, local aspect and proximity to irrigation features.

Native CSS was largely restricted to the western boundary of the site and represented the highest quality vegetation onsite. This area contained the greatest diversity of shrub species, presumably due to the lack of disturbance and presence of steep slopes. Typical representatives of mature, diverse CSS occurred in this patch including black sage, California buckwheat, California sagebrush, Mexican elderberry (*Sambucus mexicana*), prickly pear cactus and coastal cholla. The presence of prickly pear cactus and coastal cholla here is of marked interest as these species are important habitat components for the coastal cactus wren (*Campylorhynchus brunneicapillus*).

A total of 12.4 acres of native coastal sage scrub occurred onsite (Figure 2).

Restored Coastal Sage Scrub

Restored coastal sage scrub refers to any areas supporting CSS that is not naturally occurring, and includes ares where CSS species were planted or seeded and disturbed areas where some CSS species are returning. Restored CSS occurs on cut and fill slopes adjacent developed facilities, on slopes and along edges of parking lots and on other areas that were disturbed in the past.

The restored CSS include a mix of native species, exotic landscaped species and weedy ruderal species. In many cases the areas were sparsely vegetated and in some cases are artificially irrigated. CSS species in these areas included purple sage (*Salvia leucophylla*), coyote brush (*Baccharis pilularis*), California encelia (*Encelia californica*), California sagebrush, black sage (*Salvia mellifera*), deerweed (*Lotus scoparius*) but also coast live oak (*Quercus agrifolia*), lemonadeberry (*Rhus integrifolia*) and toyon (*Heteromeles arbutifolia*) dominated some areas.

Mulefat (*Baccharis salicifolius*), pampas grass (*Cortaderia* sp.), tamarisk (*Tamarix* sp.), cottonwood (*Populus* sp.), exotic trees and non-native annuals and grasses also occurred in many of the restored CSS areas.

A total of 8.6 acres of restored coastal sage scrub occurred onsite (Figure 2).

Table 1: Habitat types and vegetation communities at the Lake Forest IRWD site.

Habitat Type/Vegetation community	**Map Code**	**Acreage**
Grassland		**3.8**
Ruderal	6	3.8
Coastal sage scrub		**21.0**
Native coastal sage scrub	1	12.4
Restored coastal sage scrub	2	8.6
Chaparral		**0.4**
Scrub oak chaparral	3	0.4
Riparian		**1.0**
Non-jurisdictional mulefat scrub	4	1.0
Woodland		**0.4**
Coast Live Oak Woodland	5	0.4
Disturbed		**39.7**
Disturbed	7	39.7
Developed		**14.9**
Developed and ornamental landscaping	8	14.9
SITE TOTAL		**99.0**

3.2 Wildlife

Wildlife at the Lake Forest IRWD project site consisted of common species associated with grassland, scrub and open habitats. In total 37 wildlife species, including two reptile, 32 bird and three mammalian species, were recorded at the project site during the surveys. A complete list of all wildlife detected is listed in Appendix A.

3.3 California gnatcatcher and coastal cactus wren

Two pairs of California gnatcatcher and an additional unpaired juvenile gnatcatcher were detected onsite during the 2008 surveys. One pair occurred in the coastal sage scrub on the western edge of the project site, a second pair occurred in the south near the water tanks and unpaired juvenile gnatcatcher occurred in the narrow strip of coastal sage scrub along the eastern boarder (Figure 3).

No coastal cactus wrens were detected onsite during the surveys in 2008.

Figure 2: Vegetation communities at Lake Forest IRWD site; see Table 2 for vegetation legend. Source: IRWD aerial photograph.

Figure 3: California gnatcatcher locations at the Lake Forest IRWD site; red = gnatcatcher pairs; blue = unpaired juvenile gnatcatcher. Source: IRWD aerial photograph.

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5.0 APPENDICES

5.1 Appendix A: Wildlife species list form the Lake Forest IRWD project site 2008.

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