



May 27, 2008

Ms. Cheryl Kuta
CITY OF LAKE FOREST
25550 Commercentre Drive, Suite 100
Lake Forest, CA 92630

**Re: RESULTS OF BIOLOGICAL CONSTRAINTS ANALYSIS CONDUCTED FOR THE
19.7-ACRE PROPOSED CITY HALL AND PARK PROJECT SITE LOCATED IN
THE CITY OF LAKE FOREST, ORANGE COUNTY, CALIFORNIA**

Dear Cheryl:

This letter presents the findings of a biological constraints analysis conducted by **PCR Services Corporation (PCR)** on the approximately 19.7-acre proposed City Hall and Park Project Site located in the City of Lake Forest, Orange County, California (Figure 1, *Regional Map*, attached) ("Project Site"). The Project Site is located south of Commercentre Drive, east of Bake Parkway, and northwest of Lake Forest Drive. The 19.7-acre Project Site consists of two parts, a 14.7-acre parcel just south of the southern extent of Indian Ocean Drive (consisting of the 6.3-acre proposed City Hall site and an adjacent 8.4-acre site that consists of engineered slopes associated with the City Hall site and habitat beyond these slopes extending to an existing dirt trail to the east), and a 5.0-acre proposed park site approximately 900 feet to the southeast of the 14.7-acre parcel. These two parcels are separated by an open space area used for commercial purposes that includes a paved access road, two flat, circular terraces and adjacent slopes vegetated with native and ornamental species.

The 19.7-acre Project Site is surrounded by open space land including a dirt trail and Serrano Creek (and residential development beyond the open space) to the east and south, residential and commercial development to the west, and commercial development and a partially graded open space area used for commercial purposes to the north. Topography within the Project Site consists generally of rolling hills sloping to flat areas to the east (14.7-acre City Hall/slope site) and is predominantly flat in the 5.0-acre park site. The elevation ranges from approximately 544 feet above mean sea level ("MSL") in the southern portion of the Project Site (park site) to approximately 698 feet above MSL in the northern portion of the Project Site (City Hall site). The Project Site can be found within Section 11, T. 6 S., R. 8 W. of the U.S. Geological Survey (USGS) 7.5-minute El Toro, California quadrangle map (Figure 2, *Vicinity Map*, attached).¹

¹ United States Geological Survey. 1968. *El Toro, California 7.5-minute Topographical Quadrangle*. Photo revised 1982.



METHODOLOGY

Prior to visiting the Project Site, the California Natural Diversity Database (“CNDDDB”),² a California Department of Fish and Game (“CDFG”) (Natural Heritage Division) species account database, was reviewed for information regarding sensitive species and habitats known to occur in the region. The CNDDDB search was conducted for the following 7.5-minute quadrangle maps that include the Project Site and the surrounding area: El Toro, San Juan Capistrano, Canada Gobernadora, Santiago Peak, Laguna Beach, and Tustin. The Project Site is within the Orange County Natural Community Conservation Plan (“NCCP”), Central Subregion; therefore, documentation pertaining to the NCCP was reviewed.³ In addition, literature reviewed included species data provided by the U.S. Fish and Wildlife Service (“USFWS”) and CDFG for each listed species potentially occurring within the Project Site. Additionally, aerial photography and topographic maps were examined.

On May 2, 2008, PCR Senior Biologist Linda Robb performed a general biological investigation of the Project Site. The purpose of the general survey was to identify potential habitat for any threatened, endangered, or otherwise sensitive species that may occur on-site. No focused surveys were performed.

Plant communities located on-site were noted. Plant community designations were determined according to descriptions contained in Gray and Bramlett (1992)⁴ and Sawyer and Keeler-Wolf (1995).⁵ If a community found on-site did not conform to any of the communities listed in Gray and Bramlett or Sawyer and Keeler-Wolf, it was named for the dominant species comprising it (e.g., Fremont cottonwood) and described accordingly.

PROJECT DESCRIPTION

The City of Lake Forest is examining the possible use of the Project Site for or more public facilities. The potential facilities are an active sports park, community center, and city hall. The exact layout of the facilities and the amount of Project Site that is developed will be influenced by the environmental constraints on the property, including but not limited to streambed areas and wildlife habitat.

² California Department of Fish and Game. 2008. *Natural Heritage Division. Natural Diversity Data Base. Data Base Record Search for Information on Threatened, Endangered, Rare, or Otherwise Sensitive Species and Communities. Sacramento, California; El Toro, San Juan Capistrano, Canada Gobernadora, Santiago Peak, Laguna Beach, and Tustin quads.*

³ 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. December 7.*

⁴ Gray, J. and D. Bramlett. 1992. *Habitat Classification System: Natural Resources Geographic Information System (GIS) Project. Environmental Management Agency. County of Orange, Santa Ana, California.*

⁵ Sawyer, John O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation. Sacramento: California Native Plant Society.*



The analysis of biological constrains included two County flood control parcels. The City of Lake Forest does not anticipate using the flood control parcels for the proposed public facilities but examined them to ensure that the design of the public facilities would avoid Aliso Creek.

The assumed program for the public facilities includes 7 acres for a community center and city hall and 38 acres of active sports park. While all of the facilities may be contained within the Project Site, it is anticipated that the total of 45 acres will utilize a portion of the Project Site in combination with one or more adjacent properties. A final layout of the facilities will be developed once all environmental resources are identified.

RESULTS

Plant Communities

A variety of plant communities were observed on the Project Site. Locations of each of the plant communities within the Project Site are shown in Figure 3, *Plant Communities*, attached. Representative photographs of the Project Site are included in Figure 4, *Site Photographs*, attached.

Scrub Communities

Buckwheat scrub is characterized by nearly monotypic stands of California buckwheat (*Eriogonum fasciculatum*). This community occurs throughout the foothills and mountains of Orange County and is most often found on slopes that have been disturbed within the last 10 years. California buckwheat was the dominant plant species observed within this community. Additional species observed in sparse amounts included native white sage (*Salvia apiana*), California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), mule fat (*Baccharis salicifolia*), California bush sunflower (*Encelia californica*), and non-native horehound (*Marrubium vulgare*), and tocalote (*Centaurea melitensis*). This area appears to have been planted and irrigation lines are still present although no evidence of watering was observed. The extent of buckwheat scrub totals 1.4 acres within the northern portion of the Project Site (0.4 acre in the City Hall site and 1.0 acre in the slope area).

Mixed scrub is usually dominated by an even mix of various sage scrub species. Dominant species found within the community on-site include native black sage, California sagebrush, and California buckwheat. Additional species observed included native mule fat, coyote brush (*Baccharis pilularis*), deerweed (*Lotus scoparius*), our Lord's candle (*Yucca whipplei*), California bush sunflower, wishbone bush (*Mirabilis californica*), California sun cup (*Camissonia bistorta*), California croton (*Croton californicus*), purple sage (*Salvia leucophylla*), poison oak (*Toxicodendron diversilobum*), wild cucumber (*Marah macrocarpa*), orange bush monkey-flower (*Mimulus aurantiacus*), chaparral mallow (*Malacothamnus fasciculatus*), and non-native short-podded mustard (*Hirshfeldia incana*), foxtail chess (*Bromus madritensis*), and tree tobacco (*Nicotiana glauca*). Mixed scrub occupies 4.7 acres throughout the Project Site (2.9 acres in the City Hall site, 1.2 acres in the slope area, and 0.6 acre in the park site).



Mixed scrub/mule fat scrub contains a similar vegetation composition to mixed scrub and mule fat scrub combined. Dominant species observed within this community on-site included mule fat, California sagebrush, and California bush sunflower. Additional species observed included short-podded mustard. This community is present within a basin in the northeastern portion of the Project Site and occupies 0.2 acre (all within the City Hall site).

Woodland Communities

Coast live oak woodland is dominated by coast live oak with a poorly developed shrub layer. This plant community typically occurs on north-facing slopes and shaded ravines. Coast live oak (*Quercus agrifolia*) was the dominant plant species observed within this community. Additional species observed included foxtail chess and California sagebrush. This plant community occupies less than 0.1 acre within the eastern portion of the Project Site (all within the slope area).

Fremont cottonwood/mixed scrub is present along slopes in the southern portion and on the southeastern edge of the Project Site (within the park site). This community consists of mixed scrub species interspersed with several Fremont cottonwood trees (*Populus fremontii*), and a few coast live oak trees. Additional species observed included toyon (*Heteromeles arbutifolia*) and lemonadeberry (*Rhus integrifolia*). This community occupies 0.3 acre within the Project Site (all within the park site).

Mexican elderberry woodland is characterized by an open woodland of Mexican elderberry (*Sambucus mexicana*) that dominates the surrounding vegetation, both structurally and by biomass. It is commonly found on stream benches and lower slopes above streams. Mexican elderberry woodland occupies 0.2 acre within the northeastern portion of the Project Site (all within the slope area).

Chaparral Communities

Scrub oak chaparral is typically characterized as a dense, evergreen chaparral dominated by scrub oak (*Quercus berberidifolia*). This community occurs in more mesic areas than many other chaparrals and often occurs at slightly higher elevations. Plant species observed within this community on-site included scrub oak with understory species such as native California sagebrush and non-native short-podded mustard and tocalote. There is approximately 0.2 acre of scrub oak chaparral within the eastern portion of the Project Site (all within the City Hall site).

Riparian Communities

Mule fat scrub consists of dense stands of mule fat with scattered willows commonly present. This community typically occupies intermittent streambeds or disturbed areas within drainages and washes. Mule fat was the dominant species observed within this community on-site. Additional species observed included native Mexican elderberry and non-native tamarisk (*Tamarix*



ramosissima) and short-podded mustard. A total of 0.8 acre of the Project Site is occupied by mule fat scrub (0.6 acre in the City Hall site and 0.2 acre in the slope area). The community occurs within two basins in the central and western portions of the Project Site and on the eastern edge of the drainage in the northeastern portion of the Project Site.

Red willow/arroyo willow riparian forest consists of a closed canopy of red willow (*Salix laevigata*) and arroyo willow (*Salix lasioloepis*) in arborescent form. This community typically occurs on floodplains along major streams and rivers. Shrubs are sparse under the tree canopy. Red willow and arroyo willow were the dominant species observed within this community on-site. Several coast live oak trees were also present within this community. Additional species observed included native mule fat and poison oak, and non-native giant reed (*Arundo donax*). Approximately 2.5 acres of red willow/arroyo willow riparian forest occur within the Project Site (all within the slope area).

Disturbed and Ornamental Communities

Disturbed/Fremont cottonwood occurs along a slope on the southeastern edge of the Project Site (within the park site). This community is characterized by a greater than 20 percent cover of non-native species interspersed with several Fremont cottonwood trees and a few coast live oak trees. Non-native species observed within this community included short-podded mustard, tree tobacco, tocalote, yellow sweetclover (*Melilotus officinalis*), and poison hemlock (*Conium maculatum*). A sparse cover of additional native species present within this community included toyon and western ragweed (*Ambrosia psilostachya*). Disturbed/Fremont cottonwood occupies 0.4 acre within the Project Site (all within the park site).

Disturbed/mixed scrub and **disturbed/mule fat scrub** contain a similar vegetation composition to mixed scrub and mule fat scrub, except non-native species constitute greater than 20 percent of the vegetative cover. Disturbed/mixed scrub occupies 3.9 acres throughout the Project Site (1.0 acre within the City Hall site and 2.9 acre within the slope area). Disturbed/mule fat scrub occupies 0.3 acre at the base of a trail within the eastern portion of the Project Site (all within the City Hall site).

Several areas of **ornamental** vegetation occur within the Project Site. Ornamental species observed included eucalyptus (*Eucalyptus* sp.) and pine (*Pinus* sp.) with an understory of predominantly non-native vegetation including red-stemmed filaree (*Erodium cicutarium*) and short-podded mustard. In addition to the eucalyptus and pine trees, scattered native coast live oak and Fremont cottonwood trees that appear to have been planted are present. Areas of ornamental vegetation occupy 0.6 acre within the eastern and southern portions of the Project Site (less than 0.1 acre within the slope area and 0.6 acre within the park site).

Ruderal areas are dominated by non-native weedy species that readily colonize disturbed ground. Plant species observed within the ruderal areas on-site include short-podded mustard, castor bean (*Ricinus communis*), foxtail chess, tocalote, yellow sweetclover, and poison hemlock. In



addition, a sparse amount of native western ragweed occurs within the ruderal areas on-site. Ruderal areas occupy 3.3 acres throughout the Project Site (0.7 acre in the City Hall site, 0.3 acre in the slope area, and 2.3 acres in the park site).

Tamarisk stand is characterized by nearly monotypic stands of tamarisk, and this community occupies 0.1 acre within the northern portion of the Project Site (all within the slope area). Other species observed within this community on-site included white sage and California sagebrush.

Other Areas

Developed areas within the Project Site consist of paved pathways. Developed areas occupy 0.8 acre within the Project Site (all within the park site).

Wildlife

Wildlife species detected within the Project Site include common buckeye (*Junonia coenia*), California towhee (*Pipilo crissalis*), spotted towhee (*Pipilo maculatus*), American crow (*Corvus brachyrhynchos*), ash-throated flycatcher (*Myiarchus cinerascens*), California quail (*Callipepla californica*), song sparrow (*Melospiza melodia*), western scrub-jay (*Aphelocoma californica*), bushtit (*Psaltriparus minimus*), black-headed grosbeak (*Pheucticus melanocephalus*), common yellowthroat (*Geothlypis trichas*), California thrasher (*Toxostoma redivivum*), acorn woodpecker (*Melanerpes formicivorus*), American goldfinch (*Carduelis tristis*), lesser goldfinch (*Carduelis psaltria*), Cooper's hawk (*Accipiter cooperii*), white throated swift (*Aeronautes saxatalis*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), common raven (*Corvus corax*), Pacific-slope flycatcher (*Empidonax difficilis*), Cassin's kingbird (*Tyrannus vociferans*), wrentit (*Chamaea fasciata*), house finch (*Carpodacus mexicanus*), black phoebe (*Sayornis nigricans*), Nuttall's woodpecker (*Picoides nuttallii*), Anna's hummingbird (*Calypte anna*), side-blotched lizard (*Uta stansburiana*), western skink (*Eumeces skiltonianus*), and coyote (*Canis latrans*).

The Project Site has nesting and foraging habitat for raptors. Nest sites are limited to trees while hunting opportunities favor woodland dwelling species rather than open habitat species due to the absence of grasslands within the Project Site. Woodland breeding species will include red-shouldered hawk (*Buteo lineatus*) and Cooper's hawk. Other species nest in the wooded areas but hunt in the more open hillsides. These include red-tailed hawk, great horned owl (*Bubo virginianus*), western screech owl (*Otus kennicottii*), long-eared owl (*Asio otus*), barn owl (*Tyto alba*), and American kestrel (*Falco sparverius*).

The use of the Project Site by raptors in the winter will include the above species in addition to migrants. The sharp-shinned hawk (*Accipiter striatus*) may over winter on the Project Site, while other species, such as golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), northern harrier (*Circus cyaneus*), and American peregrine falcon (*Falco peregrinus anatum*), may visit the Project Site in passing.



Sensitive Habitats/Species

The presence of protected, regulated, or otherwise sensitive plant and wildlife species occurring or potentially occurring on-site is based on an evaluation of the habitat found on the Project Site. Protected sensitive species are classified by either State or Federal resource management agencies, or both, as threatened or endangered, under provisions of the State and federal Endangered Species Acts. The species discussed below have been afforded special recognition by local, State, or federal resource conservation agencies and organizations, principally due to the species' declining or limited population sizes usually resulting from habitat loss. Also discussed are habitats that are unique, of relatively limited distribution, or are of particular value to wildlife.

Fremont cottonwood/mixed scrub and red willow/arroyo willow riparian forest are considered sensitive by the CNDDDB (CDFG 2003).⁶ These communities were observed within the Project Site. *The proposed project is not expected to directly impact Fremont cottonwood/mixed scrub.*

Sensitive plants include those listed, or candidates for listing by the USFWS, CDFG, and California Native Plant Society (CNPS) (particularly List 1A – Presumed extinct in California; List 1B – Rare, threatened, or endangered throughout its range; and List 2 – Rare or Endangered in California, more common elsewhere). Several sensitive plant species were reported in the CNDDDB from the vicinity. Based on the habitat present on the Project Site, the following species may potentially occur on-site:

- *Calochortus weedii* var. *intermedius* (intermediate mariposa lily) – CNPS List 1B.2;
- *Comarostaphylis diversifolia* ssp. *diversifolia* (summer holly) – CNPS List 1B.2;
- *Caulanthus simulans* (Payson's jewel-flower) – CNPS List 4.2;
- *Dudleya multicaulis* (many-stemmed dudleya) – CNPS List 1B.2;
- *Horkelia cuneata* ssp. *puberula* (mesa horkelia) – CNPS List 1B.1;
- *Imperata brevifolia* (California satintail) – CNPS List 2.1;
- *Lepechinia cardiophylla* (heart-leaved pitcher sage) – CNPS List 1B.2;
- *Lepidium virginicum* var. *robinsonii* (Robinson's pepper-grass) – CNPS List 1B;
- *Monardella hypoleuca* ssp. *lanata* (felt-leaved monardella) – CNPS List 1B.2;

⁶ State of California Resources Agency. Department of Fish and Game. September 2003. List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database. Wildlife and Habitat Data Analysis Branch. The Vegetation Classification and Mapping Program. Sacramento.



- *Monardella macrantha* ssp. *hallii* (Hall's monardella) – CNPS List 1B.3;
- *Nama stenocarpum* (mud nama) – CNPS List 2.2;
- *Nolina cismontana* (chaparral nolina) – CNPS List 1B.2;
- *Pseudognaphalium leucocephalum* (white rabbit-tobacco) – CNPS List 2.2;
- *Quercus dumosa* (Nuttall's scrub oak) – CNPS List 1B.1;
- *Satureja chandleri* (San Miguel savory) – CNPS List 1B;
- *Symphyotrichum defoliatum* (San Bernardino aster) – CNPS List 1B.2.

Although suitable habitat for all of the aforementioned species exists on-site, these species were not observed during the site visit conducted on May 2, 2008. The absence of these species from the Project Site cannot be confirmed until spring season surveys are performed to determine their presence or absence. Sensitive plant species with a CNPS Listing of 1B or 2 present California Environmental Quality Act (CEQA)-related issues.

Several sensitive wildlife species were reported in the CNDDDB from the vicinity. Based on the habitat present on the Project Site, the following sensitive species may potentially occur on-site:

- *Antrozous pallidus* (pallid bat) – CDFG Species of Special Concern;
- *Aquila chrysaetos* (golden eagle) – CDFG Species of Special Concern and Fully Protected Species;
- *Asio otus* (long-eared owl) – CDFG Species of Special Concern;
- *Aspidoscelis hyperythra* (orange-throated whiptail) - CDFG Species of Special Concern;
- *Circus cyaneus* (northern harrier) – CDFG Species of Special Concern;
- *Crotalus ruber ruber* (northern red-diamond rattlesnake) – CDFG Species of Special Concern;
- *Elanus leucurus* (white-tailed kite) – CDFG Fully Protected Species;
- *Empidonax traillii extimus* (southwestern willow flycatcher) – State and Federally Endangered;
- *Eumops perotis californicus* (western mastiff bat) – CDFG Species of Special Concern;



- *Falco peregrinus anatum* (American peregrine falcon) – State Endangered, Federally Delisted, and CDFG Fully Protected Species;
- *Icteria virens* (yellow-breasted chat) – CDFG Species of Special Concern;
- *Lasiurus blossevillii* (western red bat) - CDFG Species of Special Concern;
- *Nyctinomops macrotis* (big free-tailed bat) – CDFG Species of Special Concern;
- *Neotoma lepida intermedia* (San Diego desert woodrat) – CDFG Species of Special Concern;
- *Phrynosoma coronatum (blainvillei)* (coast [San Diego] horned lizard) – CDFG Species of Special Concern;
- *Polioptila californica californica* (coastal California gnatcatcher) – Federally Threatened, CDFG Species of Special Concern;
- *Salvadora hexalepis* (coast patch-nosed snake) – CDFG Species of Special Concern;
- *Taricha torosa torosa* (Coast Range newt) – CDFG Species of Special Concern;
- *Thamnophis hammondi* (two-striped garter snake) – CDFG Species of Special Concern;
- *Vireo bellii pusillus* (least Bell's vireo) – State and Federally Endangered.

As indicated, these species have been assigned varying degrees of sensitivity by federal and/or State resources agencies depending on their rarity and threats to their habitats and populations. The majority of these species are not protected by State or federal listings as threatened or endangered. Therefore, specific compensatory mitigation may not be required by resource agencies; however, adequate documentation may be required under CEQA.

The coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, and the American peregrine falcon are the listed wildlife species with a low to moderate potential to occur within the Project Site. The coastal California gnatcatcher and least Bell's vireo have a moderate potential to occur due to the presence of suitable habitat (sage scrub with California sagebrush as a dominant component for the coastal California gnatcatcher and mature riparian habitat with willows as the dominant component for the least Bell's vireo). The southwestern willow flycatcher has a low potential to occur on-site. This species also occurs in willow thickets, but multi-layered canopies can also be an important habitat component which is present in very limited, isolated areas within the Project Site. The American peregrine falcon would only utilize the Project Site by passing through and would not nest on-site (due to the lack of suitable nesting habitat); therefore, mitigation would not likely be required by resource agencies. Surveys are



recommended for the coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher.

Orange County NCCP

The Project Site is within the Natural Community Conservation Plan (NCCP), Central Subregion, and within an in-lieu fee area. City projects within the in-lieu fee area are required to pay a fee to mitigate for the loss of occupied coastal California gnatcatcher habitat. The loss of any occupied least Bell's vireo or southwestern willow flycatcher habitat that provides long-term conservation value would be mitigated through Section 7. Should intermediate mariposa lily (less than 20 individuals) be observed on-site, this can also be mitigated through the payment of a fee. Impacts to greater than 20 intermediate mariposa lily (20 to 100 individuals) require a Mitigation Plan. Any other sensitive plants present within the Project Site would be mitigated through CEQA.

Regulated Trees

The City of Lake Forest regulates the maintenance of eucalyptus trees more than eight feet tall or with a trunk diameter of two inches or more measured at least three feet above ground level. The maintenance of eucalyptus trees is regulated to control the infestation by a beetle, the eucalyptus longhorn borer. During the period from April 1 through October 31 (the restricted period) of each year, a eucalyptus cutting permit must be obtained from the City to prune, remove, or transport a eucalyptus or its logs, branches, or trunk. During this restricted period, an application for a eucalyptus tree cutting or removal permit must include the number and location of the eucalyptus tree(s) to be cut, pruned, moved, or removed. The application must include the health, safety, or emergency reasons for the pruning, moving, or removal during the restricted period. From November 1 through March 31, no permit is required for the pruning, cutting, removal, or transportation of eucalyptus trees⁷.

Preliminary Jurisdictional Determination

The Project Site contains several drainage features which would be considered under the jurisdiction of the U.S. Army Corps of Engineers ("ACOE"), Regional Water Quality Control Board ("RWQCB"), and the CDFG. A formal jurisdictional delineation of wetlands and "waters of the U.S." was also conducted on May 2, 2008 and the results will be provided under separate cover.

CONSTRAINTS AND RECOMMENDATIONS

The potential planning constraints addressed below are based on the biological resources present within the Project Site. The potential constraints are determined by Federal, State, and/or local regulatory requirements under the following policies:

⁷ *City of Lake Forest. 2006. Chapter 6.20, Regulations Pertaining to Conversion, Maintenance, and Removal of Eucalyptus Trees. City of Lake Forests Municipal Code (Sections. 015, 020, 025, and 035).*



- California Environmental Quality Act;
- Clean Water Act;
- Federal Endangered Species Act;
- California Endangered Species Act;
- Orange County NCCP;
- City of Lake Forest Regulations Pertaining to Conversion, Maintenance, and Removal of Eucalyptus Trees;
- Migratory Bird Treaty Act;
- State Fish and Game Code.

Based on the results of the field observations and data collection, PCR biologists identified the following potential constraints to development of the Project Site.

Sensitive Plants

Although no sensitive plants were observed during the reconnaissance site visit, several have the potential to occur. PCR recommends that focused surveys for sensitive plants be conducted during the appropriate blooming periods (April through August) and prior to any direct impacts to the Project Site in anticipation of a detailed environmental review. Spring season focused surveys will be required to determine the numbers and distribution of any sensitive plant species that might occur within the Project Site and identify the significance of any impacts to these species. As stated previously, should intermediate mariposa lily (less than 20 individuals) be observed on-site, this can also be mitigated through the payment of a fee. Impacts to more than 20 intermediate mariposa lily (20 to 100 individuals) will require a Mitigation Plan. Any other sensitive plants present within the Project Site would be mitigated through CEQA.

Sensitive Plant Communities

Fremont cottonwood/mixed scrub and red willow/arroyo willow riparian forest are considered sensitive by the CNDDDB.⁸ These communities were observed within the Project Site. Any impacts determined to be significant under CEQA would require the implementation of mitigation measures that would lessen the impacts to a less than significant level (*the proposed project is not expected to directly impact Fremont cottonwood/mixed scrub*). In addition, impacts to

⁸ State of California Resources Agency. Department of Fish and Game. September 2003. *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database. Wildlife and Habitat Data Analysis Branch. The Vegetation Classification and Mapping Program. Sacramento.*



riparian plant communities under the jurisdiction of the CDFG may require a streambed alteration agreement.

Nesting Raptors and Songbirds

The Project Site has the potential to support both raptor and songbird nests due to the presence of trees, shrubs, and other ground cover. Nesting activity typically occurs from mid-February to mid-August. Disturbing or destroying active nests is a violation of the federal Migratory Bird Treaty Act. In addition, nests and eggs are protected under Fish and Game Code Section 3503. The removal of vegetation during the breeding season is considered a potentially significant impact of the proposed project.

Mitigation for the potential taking of migratory bird species would be accomplished in one of two ways. First, efforts will be made to schedule all vegetation removal activities outside the nesting season (typically February 15 to August 15) to avoid potential impacts to nesting birds. This would insure that no active nests would be disturbed and that habitat removal could proceed rapidly. Secondly, if initial vegetation removal occurs during the nesting season, all suitable habitat will be thoroughly surveyed for the presence of nesting birds by a qualified biologist before commencement of clearing. If any active nests are detected, a buffer of at least 100 feet (300 feet for raptors) will be delineated, flagged, and avoided until the nesting cycle is complete as determined by the biological monitor to minimize impacts.

Sensitive Wildlife Species

A variety of sensitive wildlife species have the potential to occur within the Project Site. The sensitive species that are not listed as threatened or endangered and have the potential to occur on-site generally represent CEQA-related issues requiring adequate documentation and analysis, and may require mitigation.

The coastal California gnatcatcher, a federally threatened species, has the potential to occur within the Project Site. Focused surveys are recommended for this species. Should the coastal California gnatcatcher be detected within the Project Site during focused surveys, the NCCP allows for the payment of a fee which is determined according to the number of acres of occupied habitat impacted by the Project Site. The resource agencies will likely consider all potential habitat to be occupied if the species is detected.

The Project Site contains 2.5 acres of red willow/arroyo willow riparian forest. This plant community contains the dense riparian willow thickets required for nesting by the least Bell's vireo. The southwestern willow flycatcher has a low potential to occur on-site. This species requires a multi-layered canopy and standing water, which is present within very limited, isolated areas in the red willow/arroyo willow riparian forest. Focused surveys are recommended for the least Bell's vireo and southwestern willow flycatcher. These two species are conditionally covered under the NCCP. If the habitat support migrants and nesting birds and does not provide long-term conservation value, the species (least Bell's vireo and/or southwestern willow flycatcher) are



covered under the NCCP. If the on-site habitat supports migrants or nesting birds and has potentially significant long-term conservation value, the species is not covered under the NCCP (and the loss of any occupied habitat would be mitigated through Section 7).

Regulated Trees

The City of Lake Forest requires a permit to prune, remove, or transport a eucalyptus or its logs, branches, or trunk from April 1 through October 31 of each year (City of Lake Forest Municipal Code Chapter 6.20). Avoidance of these activities during the period from April 1 through October 31 would preclude the need for a permit and application.

Jurisdictional Drainages

PCR conducted a formal jurisdictional delineation of wetlands and “waters of the U.S.” according to the ACOE 1987 Manual and State Fish and Game Code to determine the extent of the jurisdictional areas on-site. Areas potentially falling under the jurisdiction of the ACOE, CDFG, and RWQCB do exist within the Project Site. Associated federal and State permits should be anticipated if impacts are proposed within the jurisdictional drainages.

SUMMARY

Based on the results of the literature review and recent field observations conducted by PCR biologists, potential constraints to development were identified. These include the potential for sensitive plant species, sensitive wildlife, nesting raptors and songbirds, as well as the presence of regulated trees, jurisdictional drainages, and sensitive plant communities. The following actions are recommended:

- Focused surveys for sensitive plants identified as having a potential to occur within the Project Site;
- Focused surveys for the coastal California gnatcatcher, least Bell’s vireo, and southwestern willow flycatcher;
- Vegetation clearing prior to February 15 or after August 15 to avoid impacting nesting birds;
- Pruning, translocation, or removal of eucalyptus trees from November 1 through February 28; if trees must be removed from April 1 through October 31, a tree survey should be conducted followed by an application for a permit through the City of Lake Forest;

Ms. Cheryl Kuta
CITY OF LAKE FOREST
May 27, 2008 - Page 14



- If impacting any jurisdictional features, obtain necessary permits from the ACOE, RWQCB, and CDFG. Mitigation measures for impacts to jurisdictional features may include on- or off-site creation, restoration, or enhancement of ACOE jurisdictional waters of the U.S. and/or wetlands and CDFG jurisdictional areas. Mitigation may also include the incorporation of design features that will avoid or minimize impacts to on-site drainages.

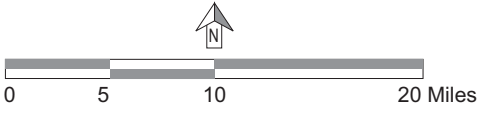
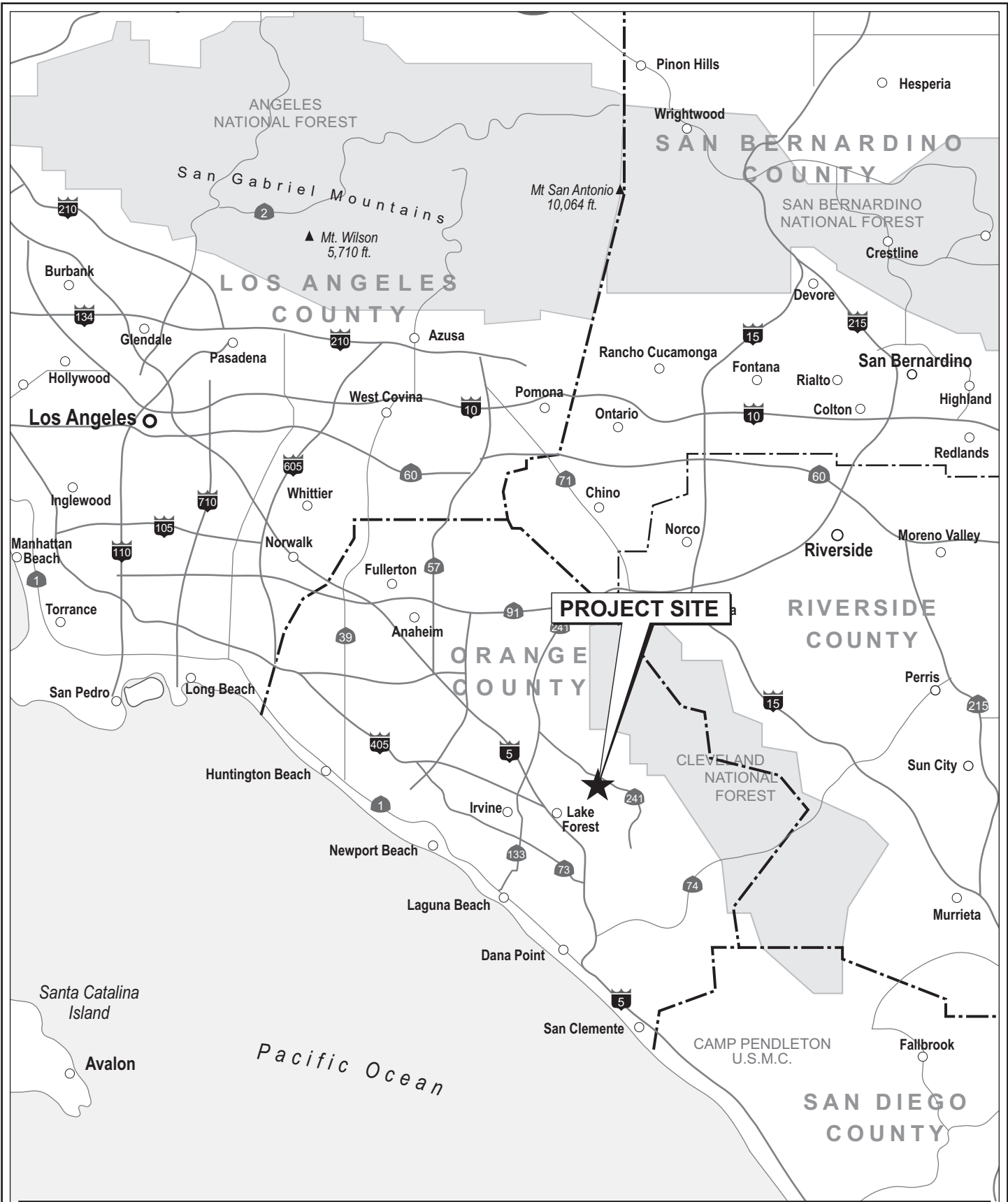
Please feel free to contact me at (949) 753-7001 should you have any questions regarding this analysis.

Sincerely,
PCR SERVICES CORPORATION

A handwritten signature in black ink that reads "Linda Robb".

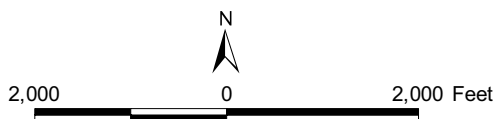
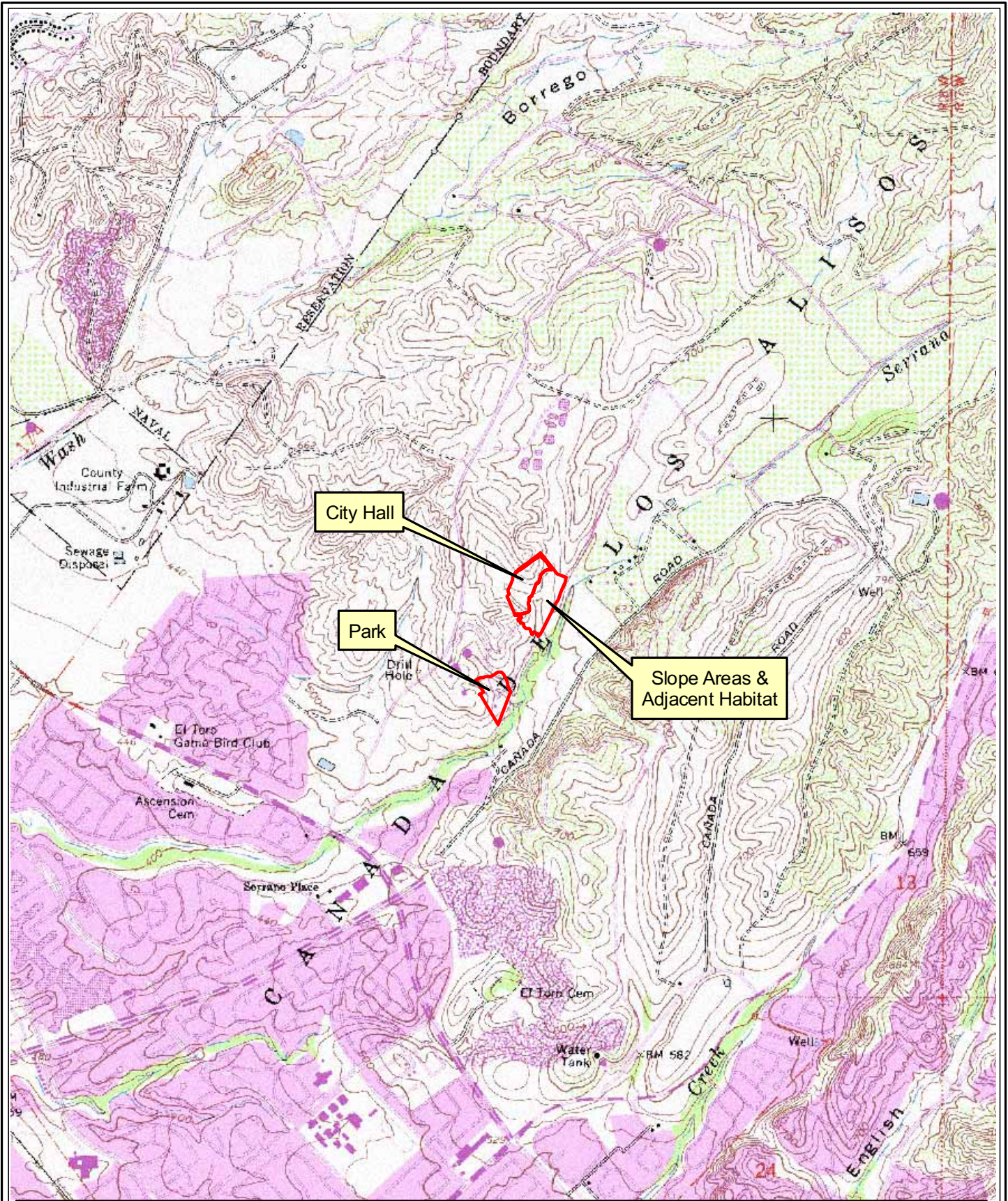
Linda Robb
Senior Biologist

Attachments



Source: PCR Services Corporation, 2008.

Figure 1
Lake Forest
Proposed City Hall Site
Regional Map



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

Figure 2
Lake Forest
Proposed City Hall Site
Vicinity Map



Figure 3
Lake Forest Proposed City Hall Site
Plant Communities



Photograph 1: View (looking southeast) of buckwheat scrub within the northern portion of the Project Site.



Photograph 2: View (looking south) of mixed scrub within the northern portion of the Project Site. The red willow/arroyo willow forest can be observed in the background.



Photograph 3: View (looking south) of the eastern and central portions of the Project Site. Vegetation communities shown in this photograph include mule fat scrub/mixed scrub in foreground, disturbed/mixed scrub, and mixed scrub and scrub oak chaparral on the slope in the background.



Photograph 4: View (looking northeast) of Fremont cottonwood/mixed scrub on a slope in the southeastern portion of the Project Site.



Source: PCR Services Corporation, 2008.

Figure 4
Lake Forest
Proposed City Hall Site
Site Photographs



August 26, 2008

Ms. Cheryl Kuta
CITY OF LAKE FOREST
25550 Commercentre Drive
Suite 100
Lake Forest, California 92630

Re: SPRING 2008 SENSITIVE PLANT SURVEYS FOR THE 19.7-ACRE PROPOSED CITY HALL AND PARK PROJECT SITE LOCATED IN THE CITY OF LAKE FOREST, ORANGE COUNTY, CALIFORNIA

Dear Ms. Kuta:

This letter report summarizes the methodology and findings of sensitive plant surveys conducted by **PCR Services Corporation (PCR)** at the 19.7-acre proposed City Hall and Park Project Site located in the City of Lake Forest, Orange County, California (“Project Site”). No sensitive plant species were observed on-site during focused surveys.

STUDY AREA

The Project Site consists of approximately 19.7 acres of primarily undeveloped land located in the City of Lake Forest, Orange County, California (Figure 1, *Regional Map*, attached). The Project Site is located south of Commercentre Drive, east of Bake Parkway, and northwest of Lake Forest Drive. The 19.7-acre Project Site consists of two parts, a 14.7-acre parcel just south of the southern extent of Indian Ocean Drive (comprised of the 6.3-acre proposed City Hall site and an adjacent 8.4-acre site that consists of engineered slopes associated with the City Hall site and habitat beyond these slopes extending to an existing dirt trail to the east), and a 5.0-acre proposed park site approximately 900 feet to the southeast of the 14.7-acre parcel. These two parcels are separated by an open space area used for commercial purposes that includes a paved access road, two flat circular terraces, and adjacent slopes vegetated with native and ornamental species.

The 19.7-acre Project Site is surrounded by open space land including a dirt trail and Serrano Creek (and residential development beyond the open space) to the east and south, residential and commercial development to the west, and commercial development and a partially graded open space area used for commercial purposes to the north. Topography within the Project Site consists generally of rolling hills sloping to flat areas to the east (14.7-acre City Hall/slope site) and is predominantly flat in the 5.0-acre park site. The elevation ranges from approximately 544 feet above mean sea level (“MSL”) in the southern portion of the Project Site (park site) to approximately 698 feet above MSL in the northern portion of the Project Site (City Hall site). The

Project Site can be found within Section 11, T. 6 S., R. 8 W. of the U.S. Geological Survey (USGS) 7.5-minute El Toro, California quadrangle map (Figure 2, *Vicinity Map*, attached).¹

VEGETATION

A variety of plant communities were observed within the Project Site. Plant community names and hierarchical structure follows the CDFG *List of California Terrestrial Natural Communities Recognized by the Natural Diversity Data Base*.² Plant community designations were determined according to descriptions contained in Gray and Bramlet (1992)³ and Sawyer and Keeler-Wolf (1995).⁴ If a community found on-site did not conform to any of the communities listed in Gray and Bramlet or Sawyer and Keeler-Wolf, it was named for the dominant species comprising it (e.g., Fremont cottonwood) and described accordingly.

Details of the plant communities mapped within the Project Site are included below. The locations of all plant communities on the Project Site are indicated in Figure 3, *Plant Communities*, attached. A list of the plant communities on-site along with the acreage of each is listed in Table 1, *Plant Communities*, on page 3.

Scrub Communities

Buckwheat scrub is characterized by nearly monotypic stands of California buckwheat (*Eriogonum fasciculatum*). This community occurs throughout the foothills and mountains of Orange County and is most often found on slopes that have been disturbed within the last 10 years. California buckwheat was the dominant plant species observed within this community. Additional species observed in sparse amounts included native white sage (*Salvia apiana*), California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), mule fat (*Baccharis salicifolia*), California bush sunflower (*Encelia californica*), and non-native horehound (*Marrubium vulgare*), and tocalote (*Centaurea melitensis*). This area appears to have been planted and irrigation lines are still present although no evidence of watering was observed. The extent of buckwheat scrub totals 1.4 acres within the northern portion of the Project Site (0.4 acre in the City Hall site and 1.0 acre in the slope area).

Mixed scrub is usually dominated by an even mix of various sage scrub species. Dominant species found within the community on-site include native black sage, California sagebrush, and California buckwheat. Additional species observed included native mule fat, coyote brush

¹ United States Geological Survey. 1968. *El Toro, California 7.5-minute Topographical Quadrangle*. Photo revised 1982.
² State of California Resources Agency. Department of Fish and Game. September 2003. *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database*. Wildlife and Habitat Data Analysis Branch. *The Vegetation Classification and Mapping Program*. Sacramento.
³ Gray, J. and D. Bramlet. 1992. *Habitat Classification System: Natural Resources Geographic Information System (GIS) Project*. Environmental Management Agency. County of Orange, Santa Ana, California.
⁴ Sawyer, John O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. Sacramento: California Native Plant Society.

Table 1
Plant Communities

Plant Community	Acres
Buckwheat Scrub	1.4
Coast Live Oak Woodland	<0.1
Developed	0.8
Disturbed/Fremont Cottonwood	0.4
Disturbed/Mixed Scrub	3.9
Disturbed/Mule Fat Scrub	0.3
Fremont Cottonwood/Mixed Scrub	0.3
Mexican Elderberry Woodland	0.2
Mixed Scrub	4.7
Mixed Scrub/Mule Fat Scrub	0.2
Mule Fat Scrub	0.8
Ornamental	0.6
Red Willow/Arroyo Willow Riparian Forest	2.5
Ruderal	3.3
Scrub Oak Chaparral	0.2
Tamarisk Stand	0.1
Total	19.7

Source: PCR Services Corporation, 2008.

(*Baccharis pilularis*), deerweed (*Lotus scoparius*), our Lord's candle (*Yucca whipplei*), California bush sunflower, wishbone bush (*Mirabilis californica*), California sun cup (*Camissonia bistorta*), California croton (*Croton californicus*), purple sage (*Salvia leucophylla*), poison oak (*Toxicodendron diversilobum*), wild cucumber (*Marah macrocarpa*), orange bush monkey-flower (*Mimulus aurantiacus*), chaparral mallow (*Malacothamnus fasciculatus*), and non-native short-podded mustard (*Hirshfeldia incana*), foxtail chess (*Bromus madritensis*), and tree tobacco (*Nicotiana glauca*). Mixed scrub occupies 4.7 acres throughout the Project Site (2.9 acres in the City Hall site, 1.2 acres in the slope area, and 0.6 acre in the park site).

Mixed scrub/mule fat scrub contains a similar vegetation composition to mixed scrub and mule fat scrub combined. Dominant species observed within this community on-site included mule fat, California sagebrush, and California bush sunflower. Additional species observed included short-podded mustard. This community is present within a basin in the northeastern portion of the Project Site and occupies 0.2 acre (all within the City Hall site).

Woodland Communities

Coast live oak woodland is dominated by coast live oak with a poorly developed shrub layer. This plant community typically occurs on north-facing slopes and shaded ravines. Coast live oak (*Quercus agrifolia*) was the dominant plant species observed within this community. Additional species observed included foxtail chess and California sagebrush. This plant community occupies less than 0.1 acre within the eastern portion of the Project Site (all within the slope area).

Fremont cottonwood/mixed scrub is present along slopes in the southern portion and on the southeastern edge of the Project Site (within the park site). This community consists of mixed scrub species interspersed with several Fremont cottonwood trees (*Populus fremontii*), and a few coast live oak trees. Additional species observed included toyon (*Heteromeles arbutifolia*) and lemonadeberry (*Rhus integrifolia*). This community occupies 0.3 acre within the Project Site (all within the park site).

Mexican elderberry woodland is characterized by an open woodland of Mexican elderberry (*Sambucus mexicana*) that dominates the surrounding vegetation, both structurally and by biomass. It is commonly found on stream benches and lower slopes above streams. Mexican elderberry woodland occupies 0.2 acre within the northeastern portion of the Project Site (all within the slope area).

Chaparral Communities

Scrub oak chaparral is typically characterized as a dense, evergreen chaparral dominated by scrub oak (*Quercus berberidifolia*). This community occurs in more mesic areas than many other chaparrals and often occurs at slightly higher elevations. Plant species observed within this community on-site included scrub oak with understory species such as native California sagebrush and non-native short-podded mustard and tocalote. There is approximately 0.2 acre of scrub oak chaparral within the eastern portion of the Project Site (all within the City Hall site).

Riparian Communities

Mule fat scrub consists of dense stands of mule fat with scattered willows commonly present. This community typically occupies intermittent streambeds or disturbed areas within drainages and washes. Mule fat was the dominant species observed within this community on-site. Additional species observed included native Mexican elderberry and non-native tamarisk (*Tamarix ramosissima*) and short-podded mustard. A total of 0.8 acre of the Project Site is occupied by mule fat scrub (0.6 acre in the City Hall site and 0.2 acre in the slope area). The community occurs within two basins in the central and western portions of the Project Site and on the eastern edge of the drainage in the northeastern portion of the Project Site.

Red willow/arroyo willow riparian forest consists of a closed canopy of red willow (*Salix laevigata*) and arroyo willow (*Salix lasioloepis*) in arborescent form. This community typically occurs on floodplains along major streams and rivers. Shrubs are sparse under the tree canopy. Red willow and arroyo willow were the dominant species observed within this community on-site. Several coast live oak trees were also present within this community. Additional species observed included native mule fat and poison oak, and non-native giant reed (*Arundo donax*). Approximately 2.5 acres of red willow/arroyo willow riparian forest occur within the Project Site (all within the slope area).

Disturbed and Ornamental Communities

Disturbed/Fremont cottonwood occurs along a slope on the southeastern edge of the Project Site (within the park site). This community is characterized by a greater than 20 percent cover of non-native species interspersed with several Fremont cottonwood trees and a few coast live oak trees. Non-native species observed within this community included short-podded mustard, tree tobacco, tocalote, yellow sweetclover (*Melilotus officinalis*), and poison hemlock (*Conium maculatum*). A sparse cover of additional native species present within this community included toyon and western ragweed (*Ambrosia psilostachya*). Disturbed/Fremont cottonwood occupies 0.4 acre within the Project Site (all within the park site).

Disturbed/mixed scrub and **disturbed/mule fat scrub** contain a similar vegetation composition to mixed scrub and mule fat scrub, except non-native species constitute greater than 20 percent of the vegetative cover. Disturbed/mixed scrub occupies 3.9 acres throughout the Project Site (1.0 acre within the City Hall site and 2.9 acre within the slope area). Disturbed/mule fat scrub occupies 0.3 acre at the base of a trail within the eastern portion of the Project Site (all within the City Hall site).

Several areas of **ornamental** vegetation occur within the Project Site. Ornamental species observed included eucalyptus (*Eucalyptus* sp.) and pine (*Pinus* sp.) with an understory of predominantly non-native vegetation including red-stemmed filaree (*Erodium cicutarium*) and short-podded mustard. In addition to the eucalyptus and pine trees, scattered native coast live oak and Fremont cottonwood trees that appear to have been planted are present. Areas of ornamental vegetation occupy 0.6 acre within the eastern and southern portions of the Project Site (less than 0.1 acre within the slope area and 0.6 acre within the park site).

Ruderal areas are dominated by non-native weedy species that readily colonize disturbed ground. Plant species observed within the ruderal areas on-site include short-podded mustard, castor bean (*Ricinus communis*), foxtail chess, tocalote, yellow sweetclover, and poison hemlock. In addition, a sparse amount of native western ragweed occurs within the ruderal areas on-site. Ruderal areas occupy 3.3 acres throughout the Project Site (0.7 acre in the City Hall site, 0.3 acre in the slope area, and 2.3 acres in the park site).

Tamarisk stand is characterized by nearly monotypic stands of tamarisk, and this community occupies 0.1 acre within the northern portion of the Project Site (all within the slope area). Other species observed within this community on-site included white sage and California sagebrush.

Developed Areas

Developed areas within the Project Site consist of paved pathways. Developed areas occupy 0.8 acre within the Project Site (all within the park site).

SOILS

The Soil Survey of Orange County and Western Part of Riverside County, California⁵ was consulted, and five soil types within three soil series were identified within the Project Site. The soils map and underlying aerial 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

⁵ United States Department of Agriculture. Natural Resources Conservation Service. November 1971. *Soil Survey of Western Riverside Area, California*. Washington, D.C.

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.

- **Cieneba 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 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.

METHODOLOGY

Surveys for sensitive plants were conducted by PCR biologists Linda Robb, Richard Haywood, Chris Jones, and Maile Tanaka on May 30 and August 6, 2008. Collectively, survey dates encompassed the flowering periods of all endangered, threatened, and sensitive plants potentially occurring on-site [except Nuttall's scrub oak (*Quercus dumosa*) which is a conspicuous tree/shrub that can be distinguished from the common scrub oak (*Quercus berberidifolia*) using vegetative characteristics].

PCR reviewed all available relevant data on sensitive habitats and species distribution to determine which sensitive plants have the potential for occurrence on-site. Items reviewed included: the California Natural Diversity Database (CNDDDB),⁶ the California Department of Fish and Game (CDFG),^{7,8} and the California Native Plant Society (CNPS)⁹ for endangered, threatened, or sensitive species potentially occurring within the Project Site.

⁶ California Department of Fish and Game (CDFG). 2008. *California Natural Diversity Data Base Inventory for USGS 7.5-minute quadrangles for El Toro, San Juan Capistrano, Canada Gobernadora, Santiago Peak, Laguna Beach, and Tustin*. April.

⁷ CDFG. July 2008. *Department of Fish and Game. Natural Heritage Division. State and Federally Listed Endangered, Threatened, and Rare Plants and California*. Sacramento. 16 pgs.

Ms. Cheryl Kuta
CITY OF LAKE FOREST
August 26, 2008 - Page 8

Surveys were conducted in accordance with survey guidelines published in the *Inventory of Rare and Endangered Vascular Plants of California*.¹⁰ Meandering transects were walked across all accessible portions of the Project Site and biological resources, including vegetation and sensitive plants (if observed), were mapped on a 1" = 300' scale aerial photograph. Plant species on-site were recorded and a list of all plant species observed on-site was compiled (Appendix A, *Floral Compendium for the Lake Forest Proposed City Hall and Park Site*, attached). Plant species nomenclature follows that of Hickman.¹¹

RESULTS

Sensitive plants include those listed, or candidates for listing by the CDFG, the U.S. Fish & Wildlife Service (USFWS), and the CNPS (Lists 1A, 1B and 2). Sensitive plant species known or potentially occurring in the vicinity of the Project Site are listed in Table 2, *Sensitive Plant Species*, attached, along with their sensitivity statuses and potential for occurrence on-site. No sensitive plant species were observed within the Project Site.

Should you have any questions regarding the methodology or findings in this report, please do not hesitate to contact Linda Robb at (949) 753-7001.

Sincerely,
PCR SERVICES CORPORATION



Linda Robb
Senior Biologist



Richard Haywood
Senior Wetland Ecologist

Attachments

⁸ CDFG. July 2008. *Department of Fish and Game. Natural Diversity Database. Special Vascular Plants, Bryophytes, and Lichens List. Biannual publication. 79 pgs.*

⁹ CNPS. 2008. *Inventory of Rare and Endangered Plants for USGS 7.5-minute quadrangles for El Toro, San Juan Capistrano, Cananda Gobernadora, Santiago Peak, Laguna Beach, and Tustin. April.*

¹⁰ California Native Plant Society (CNPS). 2001. *Inventory of Rare and Endangered Plants of California (sixth edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, California. 388 pgs.*

¹¹ Hickman, J. C. 1993. *The Jepson Manual: Higher Plants of California. Berkeley: University of California Press.*

Table 2
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
GYMNOSPERMS								
Cupressaceae	Cypress Family							
<i>Cupressus forbesii</i>	Tecate cypress	N/A	NONE	NONE	1B.1	Closed-cone coniferous forest, chaparral; occurs primarily on north-facing slopes and groves often associated with chaparral.	Orange and San Diego Counties, Baja California.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to a lack of suitable habitat.								
ANGIOSPERMS (DICOTYLEDONS)								
Asteraceae	Sunflower Family							
<i>Centromadia parryi</i> ssp. <i>australis</i>	southern tarplant	May-Nov.	NONE	NONE	1B.1	Margins of marshes and swamps, valley and foothill grassland; often occurs in disturbed sites near the coast and in alkaline soils with salt grass.	Los Angeles, Orange, Santa Barbara, San Diego, and Ventura Counties, California, Baja California. May also occur on Santa Catalina Island.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to a lack of suitable habitat.								
<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i>	Orcutt's pincushion	Jan.-Aug.	NONE	NONE	1B.1	Coastal bluff scrub, coastal dunes.	Ventura, Los Angeles, and San Diego counties; Baja California. Extirpated from Orange County.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to a lack of suitable habitat.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	Los Angeles sunflower	Aug.-Oct.	NONE	NONE	1A	Marshes and swamps (coastal salt and freshwater).	Los Angeles, Orange, and San Bernardino Counties, California	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to a lack of suitable habitat.								
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	Feb.-Jun.	NONE	NONE	1B.1	Coastal salt marshes and swamps, playas, vernal pools.	Orange, Riverside, San Diego, Ventura, and Santa Barbara counties; Baja California.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								
<i>Pseudognaphalium leucocephalum</i>	white rabbit-tobacco	Aug.-Nov.	NONE	NONE	2.2	Riparian woodland, cismontane woodland, coastal scrub, and chaparral in sandy, gravelly areas.	Southern and central California, Arizona, New Mexico, Texas, Baja California, and Sonora, Mexico.	NE
Comments: This species is not expected to occur due to the negative results of focused surveys conducted during its blooming period.								
<i>Senecio aphanactis</i>	rayless ragwort	Jan.-Apr.	NONE	NONE	2.2	Cismontane woodland and coastal scrub on drying alkaline flats.	Throughout California and the Channel Islands. Baja California.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
<i>Symphotrichum defoliatum</i>	San Bernardino aster	Jul.-Nov.	NONE	NONE	1B.2	Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, and grassland; occurs in vernal mesic grassland or near ditches, streams, and springs in disturbed areas.	Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and San Luis Obispo Counties.	NE
Comments: This species is not expected to occur due to the negative results of focused surveys conducted during its blooming period.								
<i>Verbesina dissita</i>	Crownbeard	Apr.-Jul.	FT	ST	1B.1	Maritime chaparral (mainly) and coastal scrub; occurs on steep, rocky, primarily north-facing slopes within 1.5 miles of the ocean.	Orange County; Baja California.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								
Brassicaceae								
Mustard Family								
<i>Caulanthus simulans</i>	Payson's jewel-flower	Mar.-Jun.	NONE	NONE	4.2	Chaparral and coastal scrub; frequently occurs in burned areas or in disturbed sites such as stream banks or rocky, steep slopes.	Riverside and San Diego Counties.	NE
Comments: This species is not expected to occur due to the negative results of focused surveys conducted during its blooming period.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
Chenopodiaceae	Goosefoot Family							
<i>Aphanisma blitoides</i>	Aphanisma	Mar.-Jun.	NONE	NONE	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub.	Santa Barbara, Ventura, Los Angeles, Orange, San Diego Counties; Baja California.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to a lack of suitable habitat.								
<i>Atriplex coulteri</i>	Coulter's saltbush	Mar.-Oct.	NONE	NONE	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland/ alkaline or clay.	Most southern California Counties; Baja California.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to a lack of suitable habitat.								
<i>Atriplex pacifica</i>	South coast saltscare	Mar.-Oct.	NONE	NONE	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, playas.	Los Angeles, Orange, Riverside, San Diego counties; Baja California.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to a lack of suitable habitat.								
<i>Atriplex parishii</i>	Parish's brittlescale	Jun.-Oct.	NONE	NONE	1B.1	Chenopod scrub, playas, vernal pools.	Riverside County, Baja California. Extirpated from many southern California counties.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								
<i>Atriplex serenana var. davidsonii</i>	Davidson's saltscare	Apr.-Oct.	NONE	NONE	1B.2	Coastal bluff scrub, coastal scrub/alkaline.	Orange, Riverside, and San Diego Counties; Baja California.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
<i>Suaeda esteroa</i>	Estuary seablite	May-Oct.	NONE	NONE	1B.2	Coastal salt marshes and swamps.	Los Angeles, Orange, San Diego, and Ventura Counties; Baja California.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								
Convolvaceae	Morning-glory Family							
<i>Dichondra occidentalis</i>	Western dichondra	Mar.-Jul.	NONE	NONE	4.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland.	Orange, Santa Barbara, San Diego, and Ventura Counties; Baja California.	NE
Comments: This species This species is not expected to occur due to the negative results of focused surveys conducted during its blooming period.								
Crassulaceae	Stonecrop Family							
<i>Dudleya cymosa ssp. ovatifolia</i>	Santa Monica Mountains dudleya	Mar.-Jun.	FT	NONE	1B.2	Chaparral and coastal scrub; occurs in canyons on sedimentary conglomerates, primarily on north facing slopes.	Los Angeles and Orange Counties.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								
<i>Dudleya multicaulis</i>	Many-stemmed dudleya	Apr.-Jun.	NONE	NONE	1B.2	Coastal scrub, chaparral, valley and foothill grassland; heavy clay soils or rock outcrops; below 2,000 feet.	Los Angeles County to San Onofre Mountain in San Diego County.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
<i>Dudleya stolonifera</i>	Laguna Beach dudleya	May-Jul.	FT	ST	1B.1	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/rocky.	Orange County.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								
<i>Dudleya viscida</i>	sticky dudleya	May-Jun.	NONE	NONE	1B.2	Coastal scrub, coastal bluff scrub, and chaparral; occurs on north and south-facing cliffs and banks.	Orange, Riverside, and San Diego Counties.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								
Ericaceae	Heath Family							
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	Summer holly	Apr.-Jun.	NONE	NONE	1B.2	Chaparral.	Orange, Riverside, and San Diego Counties; Baja California.	NE
Comments: This species is not expected to occur due the negative results of focused surveys conducted during its blooming period.								
Euphorbiaceae	Spurge Family							
<i>Euphorbia misera</i>	Cliff spurge	Dec.-Aug.	NONE	NONE	2.2	Coastal bluff scrub, coastal scrub/rocky.	Orange, Riverside, and San Diego Counties; Baja California.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								
Fagaceae	Oak Family							
<i>Quercus dumosa</i>	Nuttall's scrub oak	Feb.-Apr.	NONE	NONE	1B.1	Closed-cone coniferous forest, chaparral, coastal scrub/sandy, clay loam.	Orange, Santa Barbara, San Diego; Baja California.	NE
Comments: This species was not observed within the Project Site. Focused surveys were conducted outside its blooming period; however, this is a conspicuous tree/shrub species and every scrub oak on-site was accessible and examined to determined the species.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
Hydrophyllaceae	Waterleaf Family							
<i>Nama stenocarpum</i>	Mud nama	Jan.-Jul.	NONE	NONE	2.2	Marshes and swamps; occurs on lake shores, river banks, and intermittently wet areas.	Los Angeles, Orange, Riverside, and San Diego Counties; Baja California.	NE
Comments: This species is not expected to occur due the negative results of focused surveys conducted during its blooming period.								
<i>Phacelia suaveolens</i> ssp. <i>keckii</i>	Santiago Peak phacelia	May-Jun.	NONE	NONE	1B.3	Closed-cone coniferous forest and chaparral in open areas and sometimes along creeks. Lowest recorded occurrence is 1,799 ft. above msl.	Orange and Riverside Counties.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to the lack of suitable habitat.								
Lamiaceae	Mint Family							
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper-grass	Jan.-Jul.	NONE	NONE	1B.2	Chaparral and coastal scrub; occurs within dry soils in shrubland.	Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and San Diego Counties. Also in Baja California and Santa Cruz Island.	NE
Comments: This species is not expected to occur due the negative results of focused surveys conducted during its blooming period.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
<i>Mondardella hypoleuca</i> ssp. <i>lanata</i>	felt-leaved monardella	Jun.-Aug.	NONE	NONE	1B.2	Chaparral and cismontane woodland; occurs in the understory of mixed chaparral, chamise chaparral, and southern oak woodlands; occurs on sandy soil.	Orange and San Diego Counties and Baja California.	NE
Comments: This species is not expected to occur due the negative results of focused surveys conducted during its blooming period.								
<i>Mondardella macrantha</i> ssp. <i>hallii</i>	Hall's monardella	Jun.-Aug.	NONE	NONE	1B.3	Broadleaved upland forest, chaparral, lower montane coniferous forest, cismontane woodland, valley and foothill grassland; occurs on dry slopes and ridges in openings within these communities.	Orange, Riverside, San Bernardino, and San Diego Counties.	NE
Comments: This species is not expected to occur due the negative results of focused surveys conducted during its blooming period.								
<i>Satureja chandleri</i>	San Miguel savory	Mar.-Jul.	NONE	NONE	1B.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland on rocky, gabbroic or metavolcanic substrate.	Orange, Riverside, and San Diego Counties, and Baja California.	NE
Comments: This species is not expected to occur due the negative results of focused surveys conducted during its blooming period.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
Malvaceae	Mallow Family							
<i>Sidalcea neomexicana</i>	Salt Spring checkerbloom	Mar.-Jun.	NONE	NONE	2.2	Alkali playas, brackish marshes, chaparral, coastal scrub, lower montane coniferous forest, and Mojavean Desert scrub in alkali springs and marshes.	Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and Ventura Counties. Arizona, Nevada, New Mexico, Utah, Baja California, and Sonora, Mexico	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to a lack of suitable habitat.								
Polygonaceae	Buckwheat Family							
<i>Chorizanthe parryi</i> var. <i>fernandina</i>	San Fernando Valley spineflower	Apr.-Jun.	FC	SE	1B.1	Coastal scrub on sandy soils.	Los Angeles and Ventura Counties. Was previously known from Orange County but much of the area has been developed and surveys have failed to find evidence of this species in Orange County.	NE
Comments: This species was not observed within the Project Site during focused surveys conducted during its blooming period. In addition, this species is not believed to occur in Orange County at the present time.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
<i>Nemacaulis denudata</i> var. <i>denudata</i>	coast woolly-heads	Apr.-Sept.	NONE	NONE	1B.2	Coastal dunes.	Los Angeles, Orange, and San Diego Counties. Also occurs in Baja California and Santa Catalina Island.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to a lack of suitable habitat.								
Rosaceae	Rose Family							
<i>Horkelia cuneata</i> ssp. <i>puberula</i>	Mesa horkelia	Feb.-Sep.	NONE	NONE	1B.1	Chaparral, cismontane woodland, coastal scrub/sandy or gravelly.	Los Angeles, Orange, Santa Barbara, and San Luis Obispo Counties.	NE
Comments: This species is not expected to occur due to the negative results of focused surveys conducted during its blooming period.								
ANGIOSPERMS (MONOCOTYLEDONS)								
Liliaceae	Lily Family							
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea	Mar.-Jun.	FT	SE	1B.1	Sage scrub, valley and foothill grassland, cismontane woodland; vernal pools (clay soils).	Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties.	NE
Comments: This species was not observed within the Project Site and is not expected to occur due to a lack of suitable habitat.								
<i>Calochortus catalinae</i>	Catalina mariposa lily	Feb.-May	NONE	NONE	4.2	Openings in chaparral, valley and foothill grassland, cismontane woodland; heavy soils.	All coastal counties south of San Luis Obispo.	NE
Comments: This species is not expected to occur due to the negative results of focused surveys conducted during its blooming period.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
<i>Calochortus weedii</i> var. <i>intermedius</i>	Foothill mariposa lily	May-Jul.	NONE	NONE	1B.2	Chaparral, coastal scrub, valley and foothill grasslands below 2,000 feet.	Los Angeles, Orange, and Riverside counties.	NE
Comments: This species is not expected to occur due to negative results of focused surveys conducted during its blooming period.								
<i>Nolina cismontana</i>	Chaparral nolina	May-Jul.	NONE	NONE	1B.2	Chaparral, coastal sage scrub, sandstone or gabbro.	Ventura, Orange, and San Diego counties.	NE
Comments: This species is not expected to occur due to negative results of focused surveys conducted during its blooming period.								
Poaceae	Grass Family							
<i>Imperata brevifolia</i>	California satintail	Sept.-May	NONE	NONE	2.1	Coastal scrub, chaparral, riparian scrub, Mojavean scrub, and meadows and seeps; occurs in mesic alkali areas.	Throughout California. Also occurs in Arizona, Baja California, New Mexico, Nevada, Texas, and Utah.	NE
Comments: This species is not expected to occur due to the negative results of focused surveys conducted during its blooming period.								

Table 2 (Continued)
Special Status Plant Species

VASCULAR PLANTS								
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Preferred Habitat	Distribution	Occurrence On-site
Key to Species Listing Status Codes								
FE	<i>Federally Listed as Endangered</i>	SE	<i>State Listed as Endangered</i>		SFP	<i>State Fully Protected</i>		
FT	<i>Federally Listed as Threatened</i>	ST	<i>State Listed as Threatened</i>		CSC	<i>California Special Concern Species</i>		
FPD	<i>Federal Proposed for Delisting</i>	SCE	<i>State Candidate for Endangered</i>					
FPE	<i>Federally Proposed as Endangered</i>	SCT	<i>State Candidate for Threatened</i>					
FPT	<i>Federally Proposed as Threatened</i>	SR	<i>State Listed as Rare</i>					
FC	<i>Federally Candidate Species</i>							
<i>California Native Plant Society (CNPS)</i> <i>List 1A: Presumed extinct in California.</i> <i>List 1B: Rare, threatened, or endangered in California and elsewhere.</i> <i>List 2: Rare, threatened, or endangered in California, but more common elsewhere.</i> <i>List 3: Plant species for which additional information is needed - a review list.</i> <i>List 4: Species of limited distribution in California – a watch list.</i> <i>.1: Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)</i> <i>.2: Fairly endangered in California (20-80% occurrences threatened)</i> <i>.3: Not very endangered in California (<20% of occurrences threatened or no current threats known)</i>								

**APPENDIX A: FLORAL COMPENDIUM
FOR THE LAKE FOREST PROPOSED CITY HALL AND PARK SITE**

GYMNOSPERMS

SCIENTIFIC NAME	COMMON NAME
Pinaceae <i>Pinus sp.</i>	Pine Family pine

ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Aizoaceae <i>Carpobrotus sp.</i>	Ice Plant Family ice plant
Anacardiaceae <i>Malosma laurina</i> <i>Rhus integrifolia</i> <i>Schinus molle</i> <i>Toxicodendron diversilobum</i>	Sumac or Cashew Family laurel sumac lemonadeberry Peruvian pepper poison oak
Apiaceae * <i>Conium maculatum</i> <i>Daucus pusillis</i> * <i>Foeniculum vulgare</i>	Carrot Family poison hemlock rattlesnake weed fennel
Apocynaceae * <i>Nerium oleander</i>	Dogbane Family oldeander
Asteraceae <i>Acourtia microcephala</i> <i>Ambrosia psilostachya</i> <i>Artemisia californica</i> <i>Artemisia douglasiana</i> <i>Artemisia dracunculul</i> <i>Baccharis pilularis</i> <i>Baccharis salicifolia</i> * <i>Carduus pycnocephalus</i> * <i>Centaurea melitensis</i> * <i>Conyza canadensis</i> <i>Encelia californica</i>	Sunflower Family sacapellote western ragweed (sandbur) California sagebrush mugwort tarragon coyote brush mule fat Italian thistle totalote horseweed California bush sunflower

* *Non-native species*

ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
<i>Gnaphalium californicum</i>	California everlasting
<i>Gnaphalium canescens</i>	felty everlasting
<i>Gutierrezia californica</i>	California matchweed
<i>Heterotheca grandiflora</i>	telegraph weed
<i>Isocoma menziesii</i>	coastal goldenbush
* <i>Senecio vulgaris</i>	common groundsel
* <i>Silybum marianum</i>	milk thistle
<i>Stephanomeria virgata</i>	twiggy wreathplant
<i>Xanthium strumarium</i>	cocklebur
Boraginaceae	Borage Family
<i>Amsinckia menziesii</i>	common fiddleneck
<i>Cryptantha</i> sp.	cryptantha
Brassicaceae	Mustard Family
* <i>Brassica nigra</i>	black mustard
* <i>Hirshfeldia incana</i>	short-podded mustard
<i>Rorippa nasturtium-aquatica</i>	water cress
Cactaceae	Cactus Family
<i>Opuntia littoralis</i>	coastal prickly pear
Caprifoliaceae	Honeysuckle Family
<i>Sambucus mexicana</i>	Mexican elderberry
Chenopodiaceae	Goosefoot Family
<i>Atriplex</i> sp.	saltbush
Convolvulaceae	Morning-Glory Family
<i>Calystegia macrostegia</i>	western bindweed
Cucurbitaceae	Gourd Family
<i>Cucurbita foetidissima</i>	calabazilla
<i>Marah macrocarpus</i>	wild cucumber
Cuscutaceae	Dooder Family
<i>Cuscuta californica</i>	California dodder
Euphorbiaceae	Spurge Family
<i>Croton californicus</i>	California croton
* <i>Ricinus communis</i>	castor bean
Fabaceae	Legume Family
<i>Lotus scoparius</i>	deerweed
<i>Lotus strigosus</i>	strigose lotus
* <i>Melilotus officinalis</i>	yellow sweetclover

* *Non-native species*

ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Fagaceae	Oak Family
<i>Quercus agrifolia</i>	coast live oak
<i>Quercus berberidifolia</i>	scrub oak
Geraniaceae	Geranium Family
* <i>Erodium cicutarium</i>	red-stemmed filaree
Hydrophyllaceae	Waterleaf Family
<i>Phacelia distans</i>	fern-leaf phacelia
<i>Phacelia minor</i>	wild canterbury-bell
<i>Phacelia</i> sp.	phacelia
Lamiaceae	Mint Family
* <i>Marrubium vulgare</i>	horehound
<i>Salvia apiana</i>	white sage
<i>Salvia leucophylla</i>	purple sage
<i>Salvia mellifera</i>	black sage
Malvaceae	Mallow Family
<i>Malacothamnus fasciculatus</i>	mesa bushmallow
Moraceae	Mulberry Family
* <i>Ficus</i> sp.	fig
Myrtaceae	Myrtle Family
* <i>Eucalyptus</i> sp.	gum tree
Nyctaginaceae	Four O'Clock Family
<i>Mirabiliscalifornica</i>	California wishbone bush
Onagraceae	Evening Primrose Family
<i>Camissonia bistorta</i>	California sun cup
<i>Camissonia micrantha</i>	camissonia
Platanaceae	Sycamore Family
<i>Platanus racemosa</i>	western sycamore
Polygonaceae	Buckwheat Family
<i>Eriogonum fasciculatum</i>	California buckwheat
* <i>Rumex crispus</i>	curly dock
Primulaceae	Primrose Family
* <i>Anagallis arvensis</i>	scarlet pimpernel
Ranunculaceae	Buttercup Family
<i>Clematis ligusticifolia</i>	virgin's bower
Rosaceae	Rose Family
<i>Heteromeles arbutifolia</i>	toyon
* <i>Non-native species</i>	

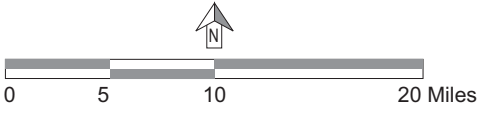
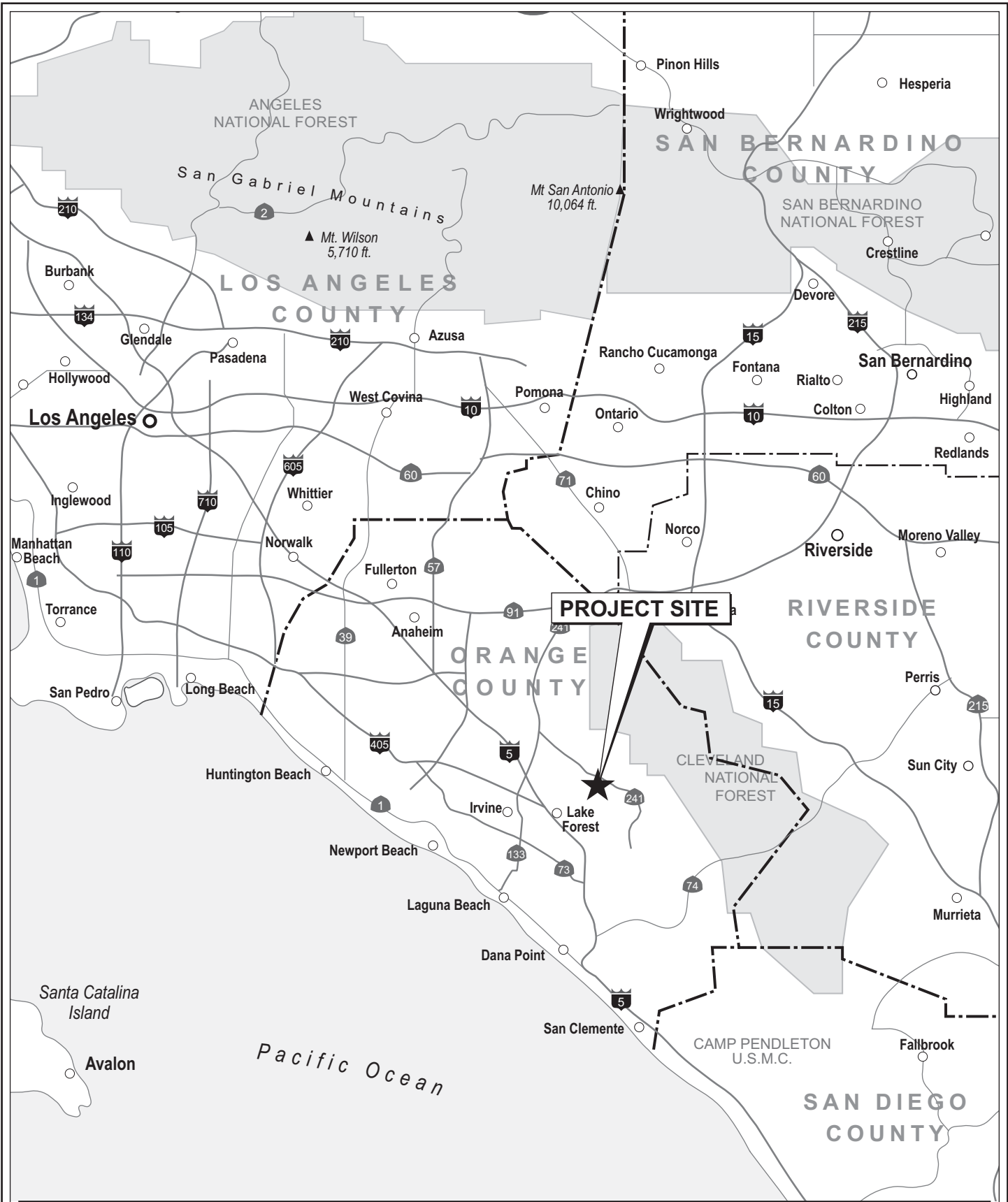
ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Salicaceae	Willow Family
<i>Populus fremontii</i>	Fremont cottonwood
<i>Salix laevigata</i>	red willow
<i>Salix lasiolepis</i>	arroyo willow
Scrophulariaceae	Figwort Family
<i>Keckiella cordifolia</i>	heart-leaved penstemon
<i>Mimulus aurantiacus</i>	orange bush monkey-flower
<i>Verbascum blattaria</i>	moth mullein
Solanaceae	Nightshade Family
* <i>Nicotiana glauca</i>	tree tobacco
Tamaricaceae	Tamarisk Family
* <i>Tamarix ramosissima</i>	Mediterranean tamarisk
Vitaceae	Grape Family
<i>Vitis girdiana</i>	desert wild grape

ANGIOSPERMS (MONOCOTYLEDONS)

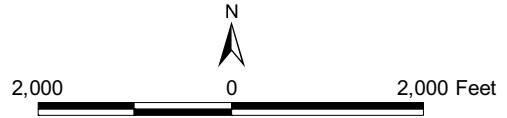
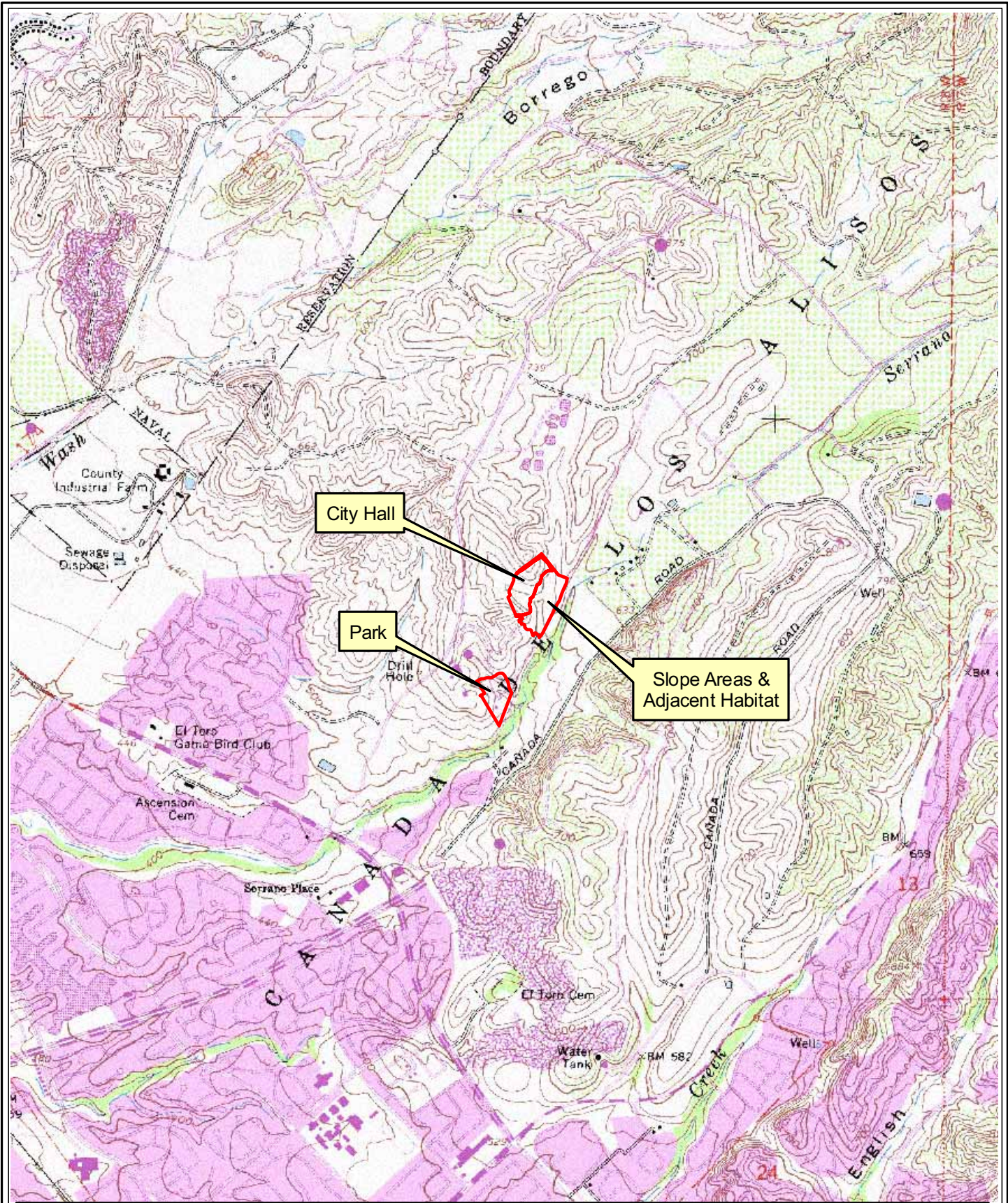
SCIENTIFIC NAME	COMMON NAME
Liliaceae	Lily Family
<i>Yucca whipplei</i>	Our Lord's candle
Juncaceae	Rush Family
<i>Juncus</i> sp.	rush
Poaceae	Grass Family
<i>Arundo donax</i>	giant reed
* <i>Avena fatua</i>	wild oat
* <i>Bromus diandrus</i>	ripgut grass
* <i>Bromus madritensis</i>	foxtail chess
* <i>Cortaderia selloana</i>	pampas grass
<i>Leymus condensatus</i>	giant wild rye
<i>Melica imperfecta</i>	coast range melic
<i>Triticum aestivum</i>	wheat

* *Non-native species*



Source: PCR Services Corporation, 2008.

Figure 1
Lake Forest
Proposed City Hall Site
Regional Map



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

Figure 2
Lake Forest
Proposed City Hall Site
Vicinity Map

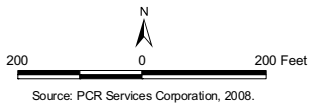


Figure 3
Lake Forest Proposed City Hall Site
Plant Communities



September 2, 2008

Ms. Sandy Marquez
U.S. FISH AND WILDLIFE SERVICE
6010 Hidden Valley Road
Carlsbad, CA 92011

**Re: RESULTS OF FOCUSED COASTAL CALIFORNIA GNATCATCHER SURVEYS
FOR THE 19.7-ACRE PROPOSED CITY HALL AND PARK PROJECT SITE
LOCATED IN THE CITY OF LAKE FOREST, ORANGE COUNTY, CALIFORNIA**

Dear Ms. Marquez:

This report is prepared in compliance with the conditions of authorized permit number TE044520-0 issued to **PCR Services Corporation (PCR)** biologist Jenni Snibbe, permit number TE093591-0 issued to Linda Robb, and permit number TE067347-3 issued to Crysta Dickson, for the performance of protocol surveys for the coastal California gnatcatcher (*Polioptila californica californica*). As such, this letter report summarizes the methodology and findings of surveys for this species on the 19.7-acre proposed City Hall and Park Project Site located in the City of Lake Forest, Orange County, California ("Project Site"). The surveys were conducted to determine the presence and location or absence of the coastal California gnatcatcher within the Project Site.

STUDY AREA

The Project Site consists of approximately 19.7 acres of primarily undeveloped land located in the City of Lake Forest, Orange County, California (Figure 1, *Regional Map*, attached). The Project Site is located south of Commercentre Drive, east of Bake Parkway, and northwest of Lake Forest Drive. The 19.7-acre Project Site consists of two parts, a 14.7-acre parcel just south of the southern extent of Indian Ocean Drive (consisting of the 6.3-acre proposed City Hall site and an adjacent 8.4-acre site that consists of engineered slopes associated with the City Hall site and habitat beyond these slopes extending to an existing dirt trail to the east), and a 5.0-acre proposed park site approximately 900 feet to the southeast of the 14.7-acre parcel. These two parcels are separated by an open space area used for commercial purposes that includes a paved access road, two flat, circular terraces and adjacent slopes vegetated with native and ornamental species.

The 19.7-acre Project Site is surrounded by open space land including a dirt trail and Serrano Creek (and residential development beyond the open space) to the east and south, residential and commercial development to the west, and commercial development and a partially graded open space area used for commercial purposes to the north. Topography within the Project Site consists generally of rolling hills sloping to flat areas to the east (14.7-acre City Hall/slope site) and is predominantly flat in the 5.0-acre park site. The elevation ranges from approximately 544 feet above mean sea level ("MSL") in the southern portion of the Project Site (park site) to approximately 698 feet above MSL in the northern portion of the Project Site (City Hall site). The



Project Site can be found within Section 11, T. 6 S., R. 8 W. of the U.S. Geological Survey (USGS) 7.5-minute El Toro, California quadrangle map (Figure 2, *Vicinity Map*, attached).¹

VEGETATION

A variety of plant communities were observed within the Project Site. Plant community names and hierarchical structure follows the CDFG *List of California Terrestrial Natural Communities Recognized by the Natural Diversity Data Base*.² Plant community designations were determined according to descriptions contained in Gray and Bramlet (1992)³ and Sawyer and Keeler-Wolf (1995).⁴ If a community found on-site did not conform to any of the communities listed in Gray and Bramlet or Sawyer and Keeler-Wolf, it was named for the dominant species comprising it (e.g., Fremont cottonwood) and described accordingly.

Surveys were conducted in those areas of the study area that contained appropriate habitat to support the coastal California gnatcatcher (scrub communities), totaling 6.3 acres. The study area supports three native scrub plant communities, as well as woodland, chaparral, riparian, ornamental, and disturbed plant communities. Details of the plant communities mapped within the study area are included below. The locations of all plant communities on the project site are indicated in Figure 3, *Plant Communities*, attached.

Scrub Communities

Buckwheat scrub is characterized by nearly monotypic stands of California buckwheat (*Eriogonum fasciculatum*). This community occurs throughout the foothills and mountains of Orange County and is most often found on slopes that have been disturbed within the last 10 years. California buckwheat was the dominant plant species observed within this community. Additional species observed in sparse amounts included native white sage (*Salvia apiana*), California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), mule fat (*Baccharis salicifolia*), California bush sunflower (*Encelia californica*), and non-native horehound (*Marrubium vulgare*), and tocalote (*Centaurea melitensis*). This area appears to have been planted and irrigation lines are still present although no evidence of watering was observed. The extent of buckwheat scrub totals 1.4 acres within the northern portion of the Project Site (0.4 acre in the City Hall site and 1.0 acre in the slope area).

¹ United States Geological Survey. 1968. *El Toro, California 7.5-minute Topographical Quadrangle*. Photo revised 1982.

² State of California Resources Agency. Department of Fish and Game. September 2003. *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database*. Wildlife and Habitat Data Analysis Branch. *The Vegetation Classification and Mapping Program*. Sacramento.

³ Gray, J. and D. Bramlet. 1992. *Habitat Classification System: Natural Resources Geographic Information System (GIS) Project*. Environmental Management Agency. County of Orange, Santa Ana, California.

⁴ Sawyer, John O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. Sacramento: California Native Plant Society.



Mixed scrub is usually dominated by an even mix of various sage scrub species. Dominant species found within the community on-site include native black sage, California sagebrush, and California buckwheat. Additional species observed included native mule fat, coyote brush (*Baccharis pilularis*), deerweed (*Lotus scoparius*), our Lord's candle (*Yucca whipplei*), California bush sunflower, wishbone bush (*Mirabilis californica*), California sun cup (*Camissonia bistorta*), California croton (*Croton californicus*), purple sage (*Salvia leucophylla*), poison oak (*Toxicodendron diversilobum*), wild cucumber (*Marah macrocarpa*), orange bush monkey-flower (*Mimulus aurantiacus*), chaparral mallow (*Malacothamnus fasciculatus*), and non-native short-podded mustard (*Hirshfeldia incana*), foxtail chess (*Bromus madritensis*), and tree tobacco (*Nicotiana glauca*). Mixed scrub occupies 4.7 acres throughout the Project Site (2.9 acres in the City Hall site, 1.2 acres in the slope area, and 0.6 acre in the park site).

Mixed scrub/mule fat scrub contains a similar vegetation composition to mixed scrub and mule fat scrub combined. Dominant species observed within this community on-site included mule fat, California sagebrush, and California bush sunflower. Additional species observed included short-podded mustard. This community is present within a basin in the northeastern portion of the Project Site and occupies 0.2 acre (all within the City Hall site).

Woodland Communities

Coast live oak woodland is dominated by coast live oak with a poorly developed shrub layer. This plant community typically occurs on north-facing slopes and shaded ravines. Coast live oak (*Quercus agrifolia*) was the dominant plant species observed within this community. Additional species observed included foxtail chess and California sagebrush. This plant community occupies less than 0.1 acre within the eastern portion of the Project Site (all within the slope area).

Fremont cottonwood/mixed scrub is present along slopes in the southern portion and on the southeastern edge of the Project Site (within the park site). This community consists of mixed scrub species interspersed with several Fremont cottonwood trees (*Populus fremontii*), and a few coast live oak trees. Additional species observed included toyon (*Heteromeles arbutifolia*) and lemonadeberry (*Rhus integrifolia*). This community occupies 0.3 acre within the Project Site (all within the park site).

Mexican elderberry woodland is characterized by an open woodland of Mexican elderberry (*Sambucus mexicana*) that dominates the surrounding vegetation, both structurally and by biomass. It is commonly found on stream benches and lower slopes above streams. Mexican elderberry woodland occupies 0.2 acre within the northeastern portion of the Project Site (all within the slope area).



Chaparral Communities

Scrub oak chaparral is typically characterized as a dense, evergreen chaparral dominated by scrub oak (*Quercus berberidifolia*). This community occurs in more mesic areas than many other chaparrals and often occurs at slightly higher elevations. Plant species observed within this community on-site included scrub oak with understory species such as native California sagebrush and non-native short-podded mustard and tocalote. There is approximately 0.2 acre of scrub oak chaparral within the eastern portion of the Project Site (all within the City Hall site).

Riparian Communities

Mule fat scrub consists of dense stands of mule fat with scattered willows commonly present. This community typically occupies intermittent streambeds or disturbed areas within drainages and washes. Mule fat was the dominant species observed within this community on-site. Additional species observed included native Mexican elderberry and non-native tamarisk (*Tamarix ramosissima*) and short-podded mustard. A total of 0.8 acre of the Project Site is occupied by mule fat scrub (0.6 acre in the City Hall site and 0.2 acre in the slope area). The community occurs within two basins in the central and western portions of the Project Site and on the eastern edge of the drainage in the northeastern portion of the Project Site.

Red willow/arroyo willow riparian forest consists of a closed canopy of red willow (*Salix laevigata*) and arroyo willow (*Salix lasioloepis*) in arborescent form. This community typically occurs on floodplains along major streams and rivers. Shrubs are sparse under the tree canopy. Red willow and arroyo willow were the dominant species observed within this community on-site. Several coast live oak trees were also present within this community. Additional species observed included native mule fat and poison oak, and non-native giant reed (*Arundo donax*). Approximately 2.5 acres of red willow/arroyo willow riparian forest occur within the Project Site (all within the slope area).

Disturbed and Ornamental Communities

Disturbed/Fremont cottonwood occurs along a slope on the southeastern edge of the Project Site (within the park site). This community is characterized by a greater than 20 percent cover of non-native species interspersed with several Fremont cottonwood trees and a few coast live oak trees. Non-native species observed within this community included short-podded mustard, tree tobacco, tocalote, yellow sweetclover (*Melilotus officinalis*), and poison hemlock (*Conium maculatum*). A sparse cover of additional native species present within this community included toyon and western ragweed (*Ambrosia psilostachya*). Disturbed/Fremont cottonwood occupies 0.4 acre within the Project Site (all within the park site).

Disturbed/mixed scrub and **disturbed/mule fat scrub** contain a similar vegetation composition to mixed scrub and mule fat scrub, except non-native species constitute greater than 20



percent of the vegetative cover. Disturbed/mixed scrub occupies 3.9 acres throughout the Project Site (1.0 acre within the City Hall site and 2.9 acre within the slope area). Disturbed/mule fat scrub occupies 0.3 acre at the base of a trail within the eastern portion of the Project Site (all within the City Hall site).

Several areas of **ornamental** vegetation occur within the Project Site. Ornamental species observed included eucalyptus (*Eucalyptus* sp.) and pine (*Pinus* sp.) with an understory of predominantly non-native vegetation including red-stemmed filaree (*Erodium cicutarium*) and short-podded mustard. In addition to the eucalyptus and pine trees, scattered native coast live oak and Fremont cottonwood trees that appear to have been planted are present. Areas of ornamental vegetation occupy 0.6 acre within the eastern and southern portions of the Project Site (less than 0.1 acre within the slope area and 0.6 acre within the park site).

Ruderal areas are dominated by non-native weedy species that readily colonize disturbed ground. Plant species observed within the ruderal areas on-site include short-podded mustard, castor bean (*Ricinus communis*), foxtail chess, tocalote, yellow sweetclover, and poison hemlock. In addition, a sparse amount of native western ragweed occurs within the ruderal areas on-site. Ruderal areas occupy 3.3 acres throughout the Project Site (0.7 acre in the City Hall site, 0.3 acre in the slope area, and 2.3 acres in the park site).

Tamarisk stand is characterized by nearly monotypic stands of tamarisk, and this community occupies 0.1 acre within the northern portion of the Project Site (all within the slope area). Other species observed within this community on-site included white sage and California sagebrush.

Developed Areas

Developed areas within the Project Site consist of paved pathways. Developed areas occupy 0.8 acre within the Project Site (all within the park site).

METHODOLOGY

Surveys for the coastal California gnatcatcher were conducted by PCR biologists Jenni Snibbe (Permit No. TE044520-0), Linda Robb (Permit No. TE093591-0), and Crysta Dickson (Permit No. TE067347-3) in accordance with the *USFWS Coastal California Gnatcatcher Presence/Absence Survey Guidelines*, issued July 28, 1997⁵. Accordingly, six surveys were performed at least one week apart, between 6:00 A.M. and 12:00 P.M., within all portions of the study area containing suitable habitat (6.3 acres). Temperatures during surveys ranged between 60

⁵ U.S. Fish and Wildlife Service. Department of the Interior. *Coastal California Gnatcatcher (Poliophtila californica californica): Presence/Absence Survey Guidelines*. Unpublished paper. Sacramento, California.



degrees Fahrenheit and 92 degrees Fahrenheit. Weather conditions were suitable for surveys, with skies ranging from 0 to 100 percent overcast, and winds ranging from 0 to 7 miles per hour.

The field investigator slowly walked through all potentially suitable habitat, stopping at approximately 200-foot intervals, uttering pishing sounds and playing a tape of recorded California gnatcatcher vocalizations. The tape was played for several seconds at each interval, followed by a brief pause to listen for a response. Surveys were conducted on May 20, May 28, June 4, June 11, June 18, and June 25, 2008. Survey details are listed in Table 1, *Survey Data*, below.

Table 1
Survey Data

Date	Time	Wind (mph)	Temperature (F)	Weather	Results	Surveyors
05/20/08	0900-1115	2-4/4-6	62°-62°	100% Clouds- 100% Clouds	None found	Robb
05/28/08	0900-1100	0/0-2	64°-75°	50% Clouds- 30% Clouds	None found	Dickson
06/04/08	0945-1200	2-4/2-4	60°-60°	100% Clouds- 100% Clouds	CAGN heard calling	Robb
06/11/08	0850-1205	1-3/4-7	66°-82°	90% Clouds- 99% Clouds	One pair observed	Snibbe
06/18/08	0850-1115	0/2-4	80°-92°	Clear-Clear	One pair observed	Robb
06/25/08	0930-1125	0-2/0-2	76°-80°	20% Clouds – Clear	One pair observed	Robb

Source: PCR Services Corporation 2008.

RESULTS

One pair of coastal California gnatcatchers was observed on-site during the focused surveys conducted. This pair occurred primarily within the central portion of the Project Site but was also observed within the eastern and northern portions of the Project Site. The pair was first detected on June 4, 2008 and was observed on all of the following surveys. The pair was observed utilizing



mixed scrub, mixed scrub/mule fat scrub, mule fat scrub, and buckwheat scrub habitats. A map of the locations of the observations is shown in Figure 4, *Coastal California Gnatcatcher Locations*, attached. This map depicts a polygon that includes the locations of all observations of coastal California gnatcatchers within the Project Site.

No brown-headed cowbirds (*Molothrus ater*) were observed during the surveys. A list of all avian species observed within the study area during surveys is included in the *Avian Compendium*, attached.

Additional sensitive species⁶ observed included yellow warbler (*Dendroica petechia*) and yellow-breasted chat (*Icteria virens*), both California Species of Special Concern.

Should you have any questions regarding the methodology or findings in this report, please do not hesitate to contact Linda Robb at (949) 753-7001.

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

Sincerely,
PCR SERVICES CORPORATION

Linda Robb
Senior Biologist
Permit No. TE093591-0

Crysta Dickson
Senior Wildlife Biologist
Permit No. TE067347-3

Jenni Snibbe
Biologist/ Ecologist
Permit No. TE044520-0

Attachments

⁶ California Department of Fish and Game. February 2008. *Special Animals. State of California. The Resources Agency. Department of Fish and Game. Wildlife and Habitat Data Analysis Branch. California Natural Diversity Data Base.*

ATTACHMENT A: AVIAN COMPENDIUM

BIRDS

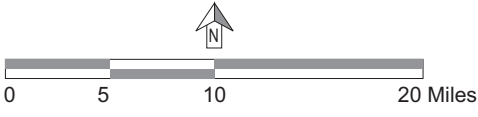
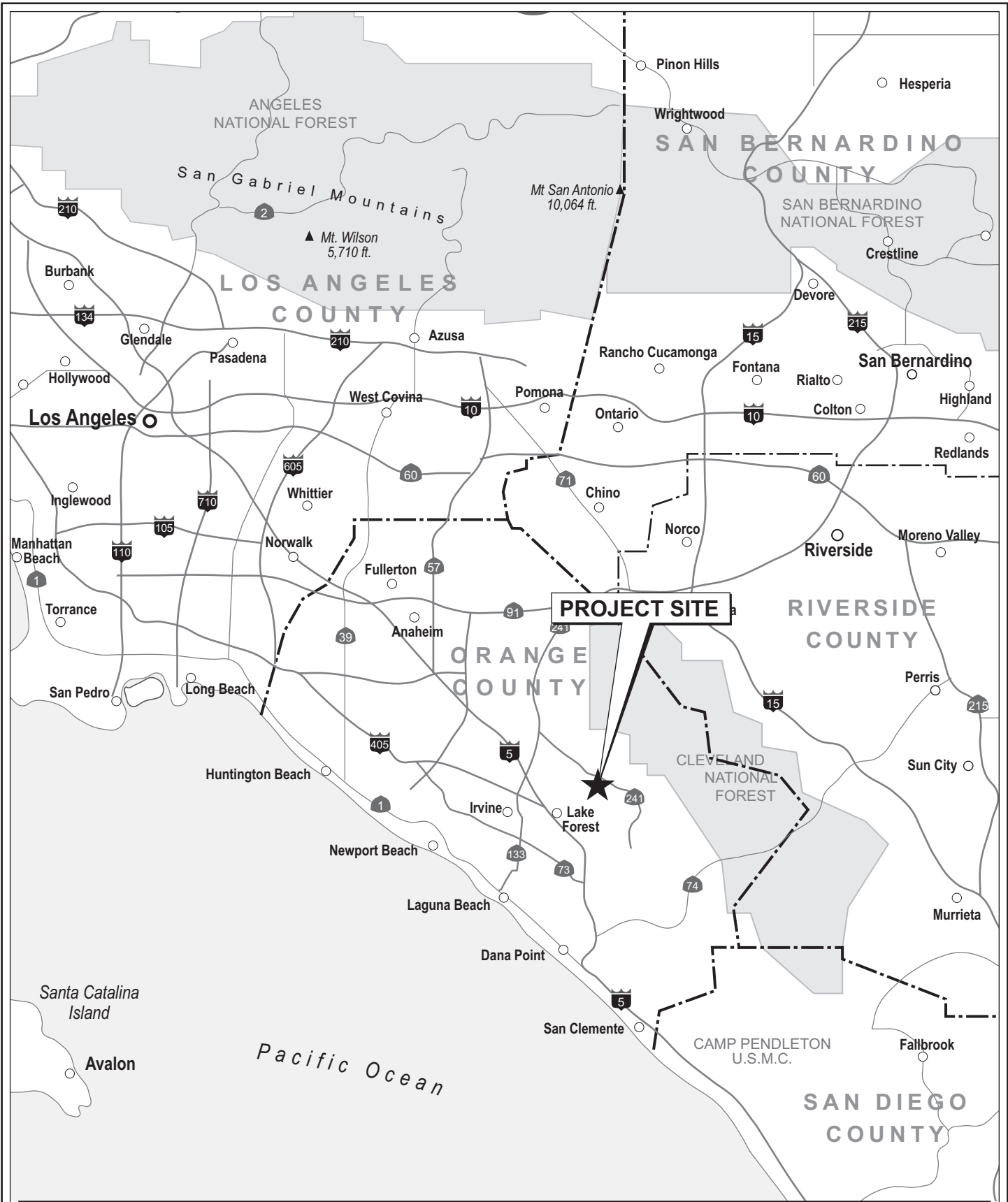
SCIENTIFIC NAME	COMMON NAME
Cathartidae	New World Vultures
<i>Cathartes aura</i>	turkey vulture
Accipitridae	Hawks
<i>Accipiter cooperii</i>	Cooper's hawk
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Buteo lineatus</i>	red-shouldered hawk
Odotophoridae	Quails
<i>Callipepla californica</i>	California quail
Charadriidae	Plovers
<i>Charadrius vociferus</i>	killdeer
Columbidae	Pigeons and Doves
* <i>Columba livia</i>	rock dove
<i>Zenaida macroura</i>	mourning dove
Trochilidae	Hummingbirds
<i>Calypte costae</i>	Costa's hummingbird
<i>Calypte anna</i>	Anna's hummingbird
<i>Selasphorus sasin</i>	Allen's hummingbird
Picidae	Woodpeckers
<i>Colaptes auratus</i>	northern flicker
<i>Melanerpes formicivorus</i>	acorn woodpecker
<i>Picoides nuttallii</i>	Nuttall's woodpecker
Tyrannidae	Tyrant Flycatchers
<i>Empidonax difficilis</i>	Pacific-slope flycatcher
<i>Sayornis nigricans</i>	black phoebe
<i>Myiarchus cinerascens</i>	ash-throated flycatcher
<i>Tyrannus verticalis</i>	western kingbird
<i>Tyrannus vociferans</i>	Cassin's kingbird
Corvidae	Jays and Crows
<i>Aphelocoma californica</i>	western scrub-jay
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	common raven

* =Non-native Species

BIRDS

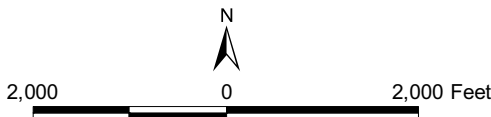
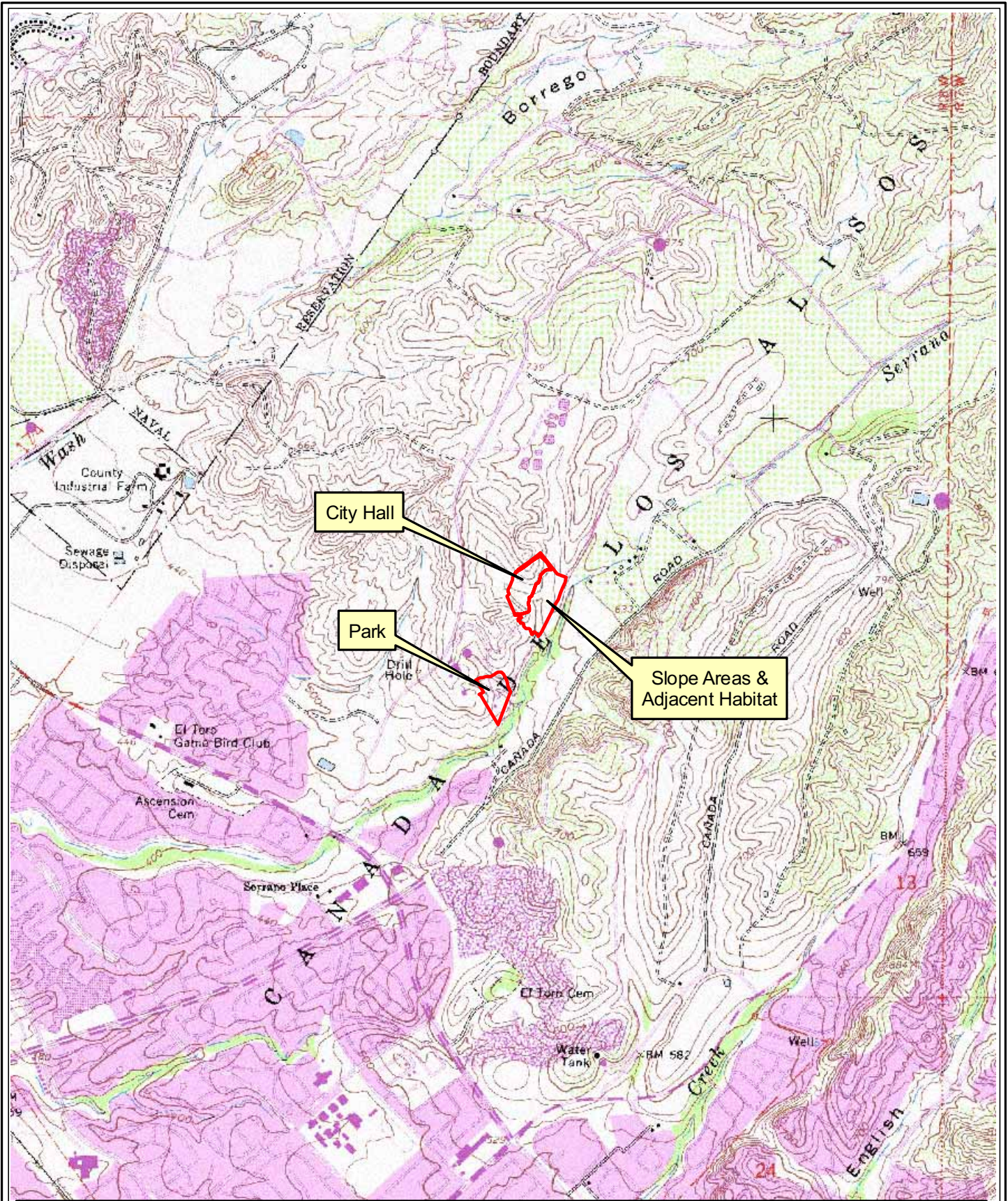
SCIENTIFIC NAME	COMMON NAME
Hirundinidae	Swallows
<i>Hirundo rustica</i>	barn swallow
<i>Petrochelidon pyrrhonota</i>	cliff swallow
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow
Muscicapidae	Wrentits
<i>Chamaea fasciata</i>	wrentit
Aegithalidae	Bushtits
<i>Psaltriparus minimus</i>	bushtit
Troglodytidae	Wrens
<i>Thryomanes bewickii</i>	Bewick's wren
<i>Troglodytes aedon</i>	house wren
Sylviidae	Old World Warblers, Gnatcatchers
<i>Polioptila californica californica</i>	coastal California gnatcatcher
Turdidae	Thrushes
<i>Catharus ustulatus</i>	Swainson's thrush
Mimidae	Thrashers
<i>Mimus polyglottos</i>	northern mockingbird
<i>Toxostoma redivivum</i>	California thrasher
Sturnidae	Starlings
* <i>Sturnus vulgaris</i>	European starling
Parulidae	Wood Warblers
<i>Dendroica petechia</i>	yellow warbler
<i>Geothlypis trichas</i>	common yellowthroat
<i>Icteria virens</i>	yellow-breasted chat
Emberizidae	Emberizids
<i>Pipilo crissalis</i>	California towhee
<i>Pipilo maculatus</i>	spotted towhee
<i>Melospiza melodia</i>	song sparrow
Cardinalidae	Cardinals
<i>Phoebastria melanocephalus</i>	black-headed grosbeak
Fringillidae	Finches
<i>Carpodacus mexicanus</i>	house finch
<i>Carduelis psaltria</i>	lesser goldfinch
<i>Carduelis tristis</i>	American goldfinch

* =Non-native Species



Source: PCR Services Corporation, 2008.

Figure 1
Lake Forest
Proposed City Hall Site
Regional Map



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

Figure 2
Lake Forest
Proposed City Hall Site
Vicinity Map

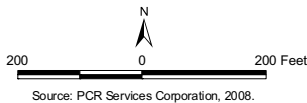


Figure 3
**Lake Forest Proposed City Hall Site
 Plant Communities**



Figure 4
 Lake Forest Proposed City Hall Site
 Coastal California Gnatcatcher Locations



200 0 200 Feet
 Source: PCR Services Corporation, 2008.



August 26, 2008

Ms. Sandy Marquez
U.S. FISH AND WILDLIFE SERVICE
6010 Hidden Valley Road
Carlsbad, CA 92011

Re: RESULTS OF FOCUSED LEAST BELL'S VIREO SURVEYS FOR THE 19.7-ACRE PROPOSED CITY HALL AND PARK PROJECT SITE LOCATED IN THE CITY OF LAKE FOREST, ORANGE COUNTY, CALIFORNIA

Dear Ms. Marquez:

This letter report summarizes the methodology and findings of surveys for the least Bell's vireo (*Vireo bellii pusillus*) (LBV) conducted by **PCR Services Corporation (PCR)** at the 19.7-acre proposed City Hall and Park Project Site located in the City of Lake Forest, Orange County, California ("Project Site") (Figure 1, *Regional Map*, attached). The surveys were conducted to determine the presence and location or absence of LBV within the 19.7-acre Project Site. No LBV's were observed on-site during focused surveys.

STUDY AREA

The Project Site consists of approximately 19.7 acres of primarily undeveloped land located in the City of Lake Forest, Orange County, California (Figure 1, *Regional Map*, attached). The Project Site is located south of Commercentre Drive, east of Bake Parkway, and northwest of Lake Forest Drive. The 19.7-acre Project Site consists of two parts, a 14.7-acre parcel just south of the southern extent of Indian Ocean Drive (consisting of the 6.3-acre proposed City Hall site and an adjacent 8.4-acre site that consists of engineered slopes associated with the City Hall site and habitat beyond these slopes extending to an existing dirt trail to the east), and a 5.0-acre proposed park site approximately 900 feet to the southeast of the 14.7-acre parcel. These two parcels are separated by an open space area used for commercial purposes that includes a paved access road, two flat, circular terraces and adjacent slopes vegetated with native and ornamental species.

The 19.7-acre Project Site is surrounded by open space land including a dirt trail and Serrano Creek (and residential development beyond the open space) to the east and south, residential and commercial development to the west, and commercial development and a partially graded open space area used for commercial purposes to the north. Topography within the Project Site consists generally of rolling hills sloping to flat areas to the east (14.7-acre City Hall/slope site) and is predominantly flat in the 5.0-acre park site. The elevation ranges from approximately 544 feet above mean sea level ("MSL") in the southern portion of the Project Site (park site) to approximately 698 feet above MSL in the northern portion of the Project Site (City Hall site). The

Project Site can be found within Section 11, T. 6 S., R. 8 W. of the U.S. Geological Survey (USGS) 7.5-minute El Toro, California quadrangle map (Figure 2, *Vicinity Map*, attached).¹

VEGETATION

A variety of plant communities were observed within the Project Site. Plant community names and hierarchical structure follows the CDFG *List of California Terrestrial Natural Communities Recognized by the Natural Diversity Data Base*.² Plant community designations were determined according to descriptions contained in Gray and Bramlet (1992)³ and Sawyer and Keeler-Wolf (1995).⁴ If a community found on-site did not conform to any of the communities listed in Gray and Bramlet or Sawyer and Keeler-Wolf, it was named for the dominant species comprising it (e.g., Fremont cottonwood) and described accordingly.

Surveys were conducted in those areas of the study area that contained appropriate habitat to support the least Bell's vireo (red willow/arroyo willow riparian forest), totaling 2.5 acres. The study area supports two native riparian plant communities, as well as woodland, chaparral, scrub, ornamental, and disturbed plant communities. Details of the plant communities mapped within the study area are included below. The locations of all plant communities on the project site are indicated in Figure 3, *Plant Communities*, attached. A list of the plant communities along with the acreage of each is listed in Table 1, *Plant Communities*, on page 3.

Scrub Communities

Buckwheat scrub is characterized by nearly monotypic stands of California buckwheat (*Eriogonum fasciculatum*). This community occurs throughout the foothills and mountains of Orange County and is most often found on slopes that have been disturbed within the last 10 years. California buckwheat was the dominant plant species observed within this community. Additional species observed in sparse amounts included native white sage (*Salvia apiana*), California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), mule fat (*Baccharis salicifolia*), California bush sunflower (*Encelia californica*), and non-native horehound (*Marrubium vulgare*), and tocalote (*Centaurea melitensis*). This area appears to have been planted and irrigation lines are still present although no evidence of watering was observed. The extent of buckwheat scrub totals 1.4 acres within the northern portion of the Project Site (0.4 acre in the City Hall site and 1.0 acre in the slope area).

¹ United States Geological Survey. 1968. *El Toro, California 7.5-minute Topographical Quadrangle*. Photo revised 1982.

² State of California Resources Agency. Department of Fish and Game. September 2003. *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database*. Wildlife and Habitat Data Analysis Branch. *The Vegetation Classification and Mapping Program*. Sacramento.

³ Gray, J. and D. Bramlet. 1992. *Habitat Classification System: Natural Resources Geographic Information System (GIS) Project*. Environmental Management Agency. County of Orange, Santa Ana, California.

⁴ Sawyer, John O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. Sacramento: California Native Plant Society.

Table 1

Plant Communities

Plant Community	Acres
Buckwheat Scrub	1.4
Coast Live Oak Woodland	<0.1
Developed	0.8
Disturbed/Fremont Cottonwood	0.4
Disturbed/Mixed Scrub	3.9
Disturbed/Mule Fat Scrub	0.3
Fremont Cottonwood/Mixed Scrub	0.3
Mexican Elderberry Woodland	0.2
Mixed Scrub	4.7
Mixed Scrub/Mule Fat Scrub	0.2
Mule Fat Scrub	0.8
Ornamental	0.6
Red Willow/Arroyo Willow Riparian Forest	2.5
Ruderal	3.3
Scrub Oak Chaparral	0.2
Tamarisk Stand	0.1
Total	19.7

Source: PCR Services Corporation, 2008.

Mixed scrub is usually dominated by an even mix of various sage scrub species. Dominant species found within the community on-site include native black sage, California sagebrush, and California buckwheat. Additional species observed included native mule fat, coyote brush (*Baccharis pilularis*), deerweed (*Lotus scoparius*), our Lord's candle (*Yucca whipplei*), California bush sunflower, wishbone bush (*Mirabilis californica*), California sun cup (*Camissonia bistorta*), California croton (*Croton californicus*), purple sage (*Salvia leucophylla*), poison oak (*Toxicodendron diversilobum*), wild cucumber (*Marah macrocarpa*), orange bush monkey-flower (*Mimulus aurantiacus*), chaparral mallow (*Malacothamnus fasciculatus*), and non-native short-podded mustard (*Hirshfeldia incana*), foxtail chess (*Bromus madritensis*), and tree tobacco (*Nicotiana glauca*). Mixed scrub occupies 4.7 acres throughout the Project Site (2.9 acres in the City Hall site, 1.2 acres in the slope area, and 0.6 acre in the park site).

Mixed scrub/mule fat scrub contains a similar vegetation composition to mixed scrub and mule fat scrub combined. Dominant species observed within this community on-site included mule fat, California sagebrush, and California bush sunflower. Additional species observed included short-podded mustard. This community is present within a basin in the northeastern portion of the Project Site and occupies 0.2 acre (all within the City Hall site).

Woodland Communities

Coast live oak woodland is dominated by coast live oak with a poorly developed shrub layer. This plant community typically occurs on north-facing slopes and shaded ravines. Coast live oak (*Quercus agrifolia*) was the dominant plant species observed within this community. Additional species observed included foxtail chess and California sagebrush. This plant community occupies less than 0.1 acre within the eastern portion of the Project Site (all within the slope area).

Fremont cottonwood/mixed scrub is present along slopes in the southern portion and on the southeastern edge of the Project Site (within the park site). This community consists of mixed scrub species interspersed with several Fremont cottonwood trees (*Populus fremontii*), and a few coast live oak trees. Additional species observed included toyon (*Heteromeles arbutifolia*) and lemonadeberry (*Rhus integrifolia*). This community occupies 0.3 acre within the Project Site (all within the park site).

Mexican elderberry woodland is characterized by an open woodland of Mexican elderberry (*Sambucus mexicana*) that dominates the surrounding vegetation, both structurally and by biomass. It is commonly found on stream benches and lower slopes above streams. Mexican elderberry woodland occupies 0.2 acre within the northeastern portion of the Project Site (all within the slope area).

Chaparral Communities

Scrub oak chaparral is typically characterized as a dense, evergreen chaparral dominated by scrub oak (*Quercus berberidifolia*). This community occurs in more mesic areas than many other chaparrals and often occurs at slightly higher elevations. Plant species observed within this community on-site included scrub oak with understory species such as native California sagebrush and non-native short-podded mustard and tocalote. There is approximately 0.2 acre of scrub oak chaparral within the eastern portion of the Project Site (all within the City Hall site).

Riparian Communities

Mule fat scrub consists of dense stands of mule fat with scattered willows commonly present. This community typically occupies intermittent streambeds or disturbed areas within drainages and washes. Mule fat was the dominant species observed within this community on-site. Additional species observed included native Mexican elderberry and non-native tamarisk (*Tamarix ramosissima*) and short-podded mustard. A total of 0.8 acre of the Project Site is occupied by mule fat scrub (0.6 acre in the City Hall site and 0.2 acre in the slope area). The community occurs within two basins in the central and western portions of the Project Site and on the eastern edge of the drainage in the northeastern portion of the Project Site.

Ms. Sandy Marquez

U.S. FISH AND WILDLIFE SERVICE

August 26, 2008 - Page 5

Red willow/arroyo willow riparian forest consists of a closed canopy of red willow (*Salix laevigata*) and arroyo willow (*Salix lasioloepis*) in arborescent form. This community typically occurs on floodplains along major streams and rivers. Shrubs are sparse under the tree canopy. Red willow and arroyo willow were the dominant species observed within this community on-site. Several coast live oak trees were also present within this community. Additional species observed included native mule fat and poison oak, and non-native giant reed (*Arundo donax*). Approximately 2.5 acres of red willow/arroyo willow riparian forest occur within the Project Site (all within the slope area).

Disturbed and Ornamental Communities

Disturbed/Fremont cottonwood occurs along a slope on the southeastern edge of the Project Site (within the park site). This community is characterized by a greater than 20 percent cover of non-native species interspersed with several Fremont cottonwood trees and a few coast live oak trees. Non-native species observed within this community included short-podded mustard, tree tobacco, tocalote, yellow sweetclover (*Melilotus officinalis*), and poison hemlock (*Conium maculatum*). A sparse cover of additional native species present within this community included toyon and western ragweed (*Ambrosia psilostachya*). Disturbed/Fremont cottonwood occupies 0.4 acre within the Project Site (all within the park site).

Disturbed/mixed scrub and **disturbed/mule fat scrub** contain a similar vegetation composition to mixed scrub and mule fat scrub, except non-native species constitute greater than 20 percent of the vegetative cover. Disturbed/mixed scrub occupies 3.9 acres throughout the Project Site (1.0 acre within the City Hall site and 2.9 acre within the slope area). Disturbed/mule fat scrub occupies 0.3 acre at the base of a trail within the eastern portion of the Project Site (all within the City Hall site).

Several areas of **ornamental** vegetation occur within the Project Site. Ornamental species observed included eucalyptus (*Eucalyptus* sp.) and pine (*Pinus* sp.) with an understory of predominantly non-native vegetation including red-stemmed filaree (*Erodium cicutarium*) and short-podded mustard. In addition to the eucalyptus and pine trees, scattered native coast live oak and Fremont cottonwood trees that appear to have been planted are present. Areas of ornamental vegetation occupy 0.6 acre within the eastern and southern portions of the Project Site (less than 0.1 acre within the slope area and 0.6 acre within the park site).

Ruderal areas are dominated by non-native weedy species that readily colonize disturbed ground. Plant species observed within the ruderal areas on-site include short-podded mustard, castor bean (*Ricinus communis*), foxtail chess, tocalote, yellow sweetclover, and poison hemlock. In addition, a sparse amount of native western ragweed occurs within the ruderal areas on-site. Ruderal areas occupy 3.3 acres throughout the Project Site (0.7 acre in the City Hall site, 0.3 acre in the slope area, and 2.3 acres in the park site).

Tamarisk stand is characterized by nearly monotypic stands of tamarisk, and this community occupies 0.1 acre within the northern portion of the Project Site (all within the slope area). Other species observed within this community on-site included white sage and California sagebrush.

Developed Areas

Developed areas within the Project Site consist of paved pathways. Developed areas occupy 0.8 acre within the Project Site (all within the park site).

METHODOLOGY

Surveys for the LBV were conducted by PCR biologists Linda Robb, Susan Anon, and Chris Jones, with assistance from Maile Tanaka. Methods employed were in conformance with U.S. Fish and Wildlife Service *Least Bell's Vireo Survey Guidelines* issued January 19, 2001. Accordingly, eight (8) surveys were performed between April 10 and July 31, 2008. Surveys were conducted no less than ten (10) days apart, between dawn and 11:00 A.M., within all portions of the study area containing suitable riparian habitat and adjacent habitat potentially used for foraging. Weather conditions were suitable for surveys, with skies ranging from clear to overcast and winds at or below Beaufort scale 1. Temperatures during surveys ranged between 66 and 82 degrees Fahrenheit.

The field investigators slowly walked along or within the riparian habitat, stopping at approximately 150- to 200-foot intervals, looking and listening for LBV. Surveys were conducted on May 14, 27, June 6, 16, 24, July 7, 17, and 28, 2008. Survey details are listed in Table 2, *Survey Data*, on page 7.

RESULTS

No LBVs were observed within the Project Site. Sensitive species⁵ observed included yellow warbler (*Dendroica petechia*) and yellow-breasted chat (*Icteria virens*), both California Species of Special Concern (SSC), willow flycatcher (*Empidonax traillii*) (State endangered),⁶ and coastal California gnatcatcher (*Polioptila californica californica*), federally threatened and SSC.

No brown-headed cowbirds (*Molothrus ater*) were observed within the Project Site during surveys. A list of all bird species observed is included in Attachment A, *Avian Compendium*, attached.

⁵ California Department of Fish and Game. February 2008. *Special Animals*. State of California. The Resources Agency. Department of Fish and Game. Wildlife and Habitat Data Analysis Branch. California Natural Diversity Data Base.

⁶ The full species of the willow flycatcher (*Empidonax traillii*) is state listed as endangered and the federally endangered subspecies, southwestern willow flycatcher, does not occur within the study area.

Table 2
Survey Data

Date	Time	Wind (Beaufort)/ Temperature (F)	Weather	Results	Surveyors
05/14/08	0825-1050	2-0 / 66°-76°	2% Clouds- 2% Clouds	No LBV observed	Robb
05/27/08	0740-0920	2-2 / 70°-72°	5% Clouds- 15% Clouds	No LBV observed	Robb
06/06/08	0816-0909	1-1 / 75°-82°	clear-clear	No LBV observed	Jones
06/16/08	0830-1000	1-2 / 70°-80°	30% Clouds- 30% Clouds	No LBV observed	Anon
06/24/08	0800-0945	1-1 / 70°-70°	100% Clouds- 100% Clouds	No LBV observed	Anon
07/07/08	0925-1100	1-1 / 78°-82°	clear-clear	No LBV observed	Robb
07/17/08	0825-0943	2-2 / 66°-82°	70% Clouds-20% Clouds	No LBV observed	Robb, Jones
07/28//08	0915-1100	2-2 / 70°-79°	100% Clouds- 80% Clouds	No LBV observed	Robb, Tanaka

Source: PCR Services Corporation, 2008.

Should you have any questions regarding the methodology or findings in this report, please do not hesitate to contact Linda Robb at (949) 753-7001.

Sincerely,
PCR SERVICES CORPORATION



Linda Robb
Senior Biologist



Chris Jones
Associate Wildlife Biologist



Susan Anon
Senior Wildlife Biologist

Attachments

**ATTACHMENT A:
AVIAN COMPENDIUM**

BIRDS

SCIENTIFIC NAME	COMMON NAME
Cathartidae <i>Cathartes aura</i>	New World Vultures turkey vulture
Accipitridae <i>Accipiter cooperii</i> <i>Buteo lineatus</i> <i>Buteo jamaicensis</i>	Hawks Cooper's hawk red-shouldered hawk red-tailed hawk
Falconidae <i>Falco sparverius</i>	Falcons American kestrel
Odotophoridae <i>Callipepla californica</i>	Quails California quail
Columbidae * <i>Columba livia</i> <i>Zenaida macroura</i>	Pigeons and Doves rock dove mourning dove
Apodidae <i>Aeronautes saxatalis</i>	Swifts white-throated swift
Trochilidae <i>Calypte anna</i>	Hummingbirds Anna's hummingbird
Picidae <i>Colaptes auratus</i> <i>Melanerpes formicivorus</i> <i>Picoides nuttallii</i> <i>Picoides pubescens</i>	Woodpeckers northern flicker acorn woodpecker Nuttall's woodpecker downy woodpecker
Tyrannidae <i>Empidonax difficilis</i> <i>Empidonax traillii</i> <i>Sayornis nigricans</i> <i>Myiarchus cinerascens</i> <i>Tyrannus verticalis</i> <i>Tyrannus vociferans</i>	Tyrant Flycatchers Pacific-slope flycatcher willow flycatcher black phoebe ash-throated flycatcher western kingbird Cassin's kingbird
Vireonidae <i>Vireo huttoni</i> <i>Vireo gilvus</i>	Vireos Hutton's vireo warbling vireo

BIRDS

SCIENTIFIC NAME	COMMON NAME
Corvidae	Jays and Crows
<i>Aphelocoma californica</i>	western scrub-jay
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	common raven
Hirundinidae	Swallows
<i>Hirundo rustica</i>	barn swallow
<i>Petrochelidon pyrrhonota</i>	cliff swallow
<i>Tachycineta thalassina</i>	violet-green swallow
Paridae	Titmice and Relatives
<i>Baeolophus inornatus</i>	oak titmouse
Turdidae	Thrushes
<i>Catharus ustulatus</i>	Swainson's thrush
Muscicapidae	Wrentits
<i>Chamaea fasciata</i>	wrentit
Aegithalidae	Bushtits
<i>Psaltriparus minimus</i>	bushtit
Troglodytidae	Wrens
<i>Troglodytes aedon</i>	house wren
<i>Thryomanes bewickii</i>	Bewick's wren
Sylviidae	Old World Warblers, Gnatcatchers
<i>Poliophtila californica californica</i>	coastal California gnatcatcher
Mimidae	Thrashers
<i>Mimus polyglottos</i>	northern mockingbird
<i>Toxostoma redivivum</i>	California thrasher
Ptilonotidae	Silky Flycatchers
<i>Phainopepla nitens</i>	phainopepla
Sturnidae	Starlings
* <i>Sturnus vulgaris</i>	European starling
Parulidae	Wood Warblers
<i>Dendroica petechia</i>	yellow warbler
<i>Geothlypis trichas</i>	common yellowthroat
<i>Icteria virens</i>	yellow-breasted chat
<i>Vermivora celata</i>	orange-crowned warbler
Emberizidae	Emberizids
<i>Melospiza melodia</i>	song sparrow
<i>Pipilo crissalis</i>	California towhee

BIRDS

SCIENTIFIC NAME

Pipilo maculatus

Cardinalidae

Pheucticus melanocephalus

Fringillidae

Carpodacus mexicanus

Carduelis psaltria

COMMON NAME

spotted towhee

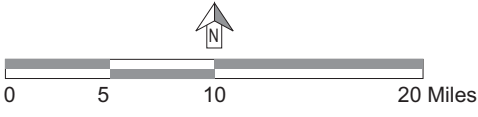
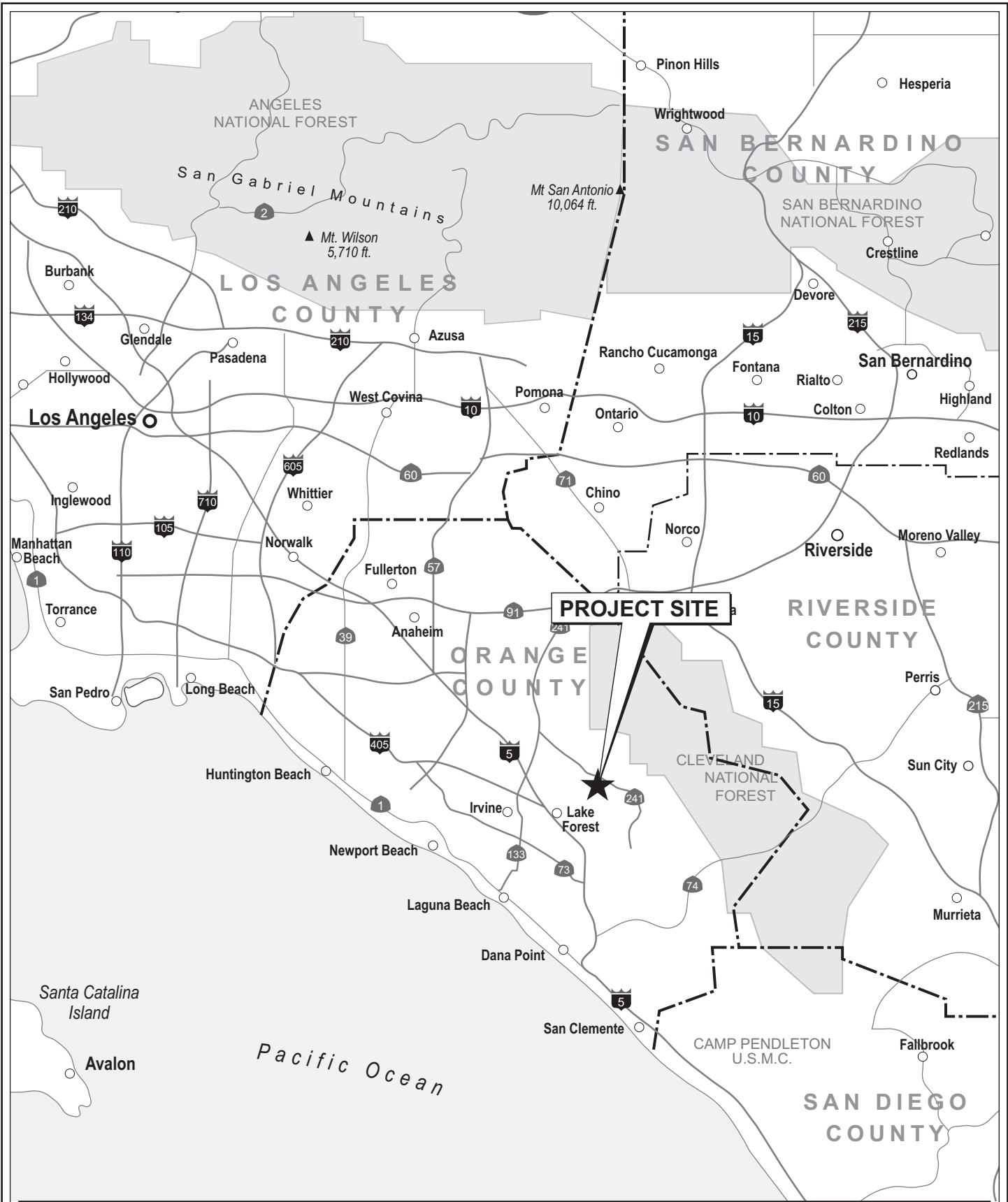
Cardinals

black-headed grosbeak

Finches

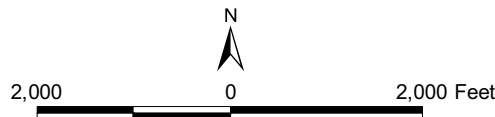
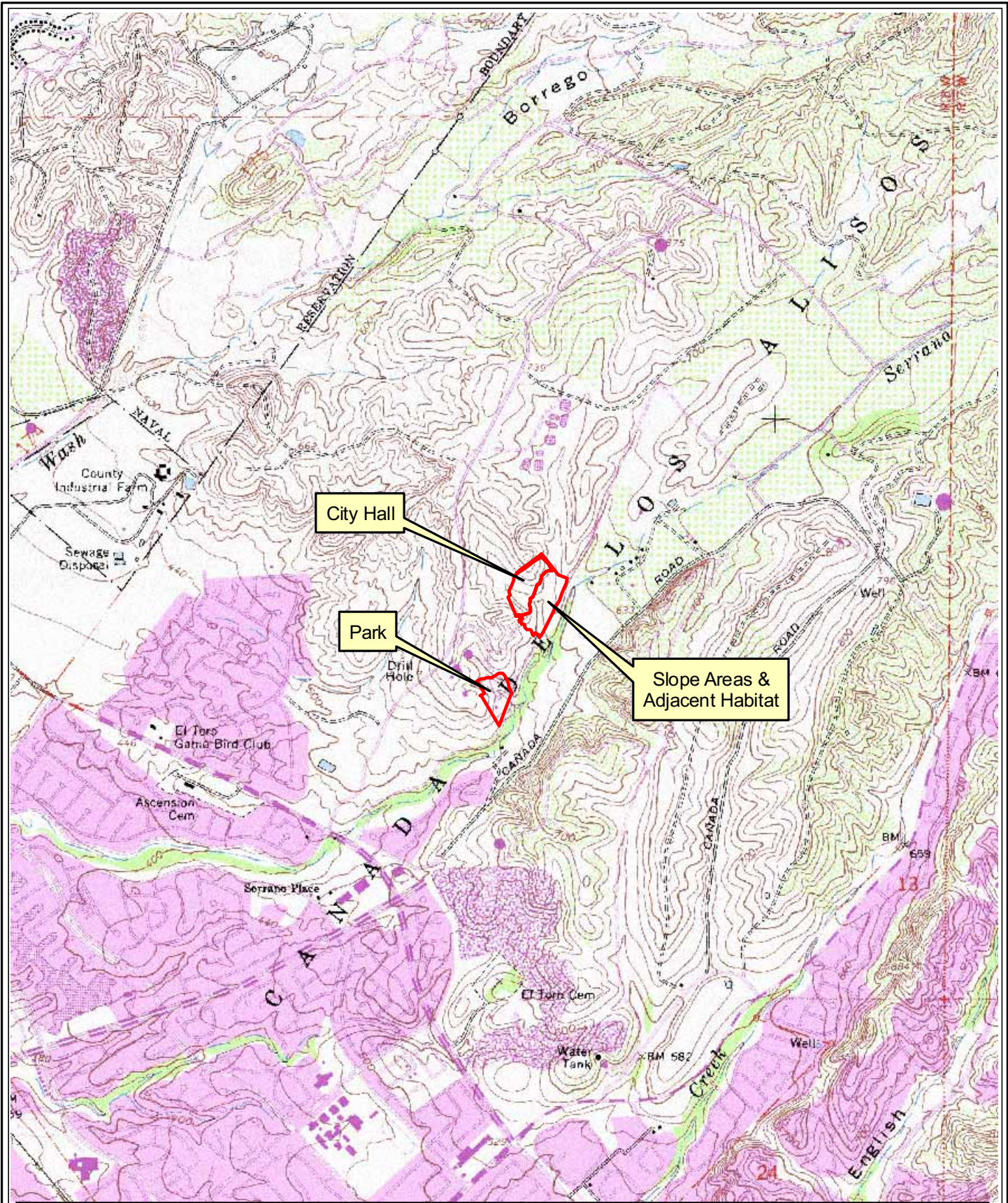
house finch

lesser goldfinch



Source: PCR Services Corporation, 2008.

Figure 1
Lake Forest
Proposed City Hall Site
Regional Map



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

Figure 2
Lake Forest
Proposed City Hall Site
Vicinity Map



Figure 3
Lake Forest Proposed City Hall Site
Plant Communities



September 9, 2008

Ms. Cheryl Kuta
CITY OF LAKE FOREST
25550 Commercentre Drive, Suite 100
Lake Forest, California 92630

**Re: RESULTS OF FOCUSED SOUTHWESTERN WILLOW FLYCATCHER SURVEYS
FOR THE 19.7-ACRE PROPOSED CITY HALL AND PARK PROJECT SITE
LOCATED IN THE CITY OF LAKE FOREST, ORANGE COUNTY, CALIFORNIA**

Dear Cheryl:

This letter report summarizes the methodology and findings of surveys for the southwestern willow flycatcher (*Empidonax traillii extimus*) (SWWF) conducted by **PCR Services Corporation (PCR)** at the 19.7-acre proposed City Hall and Park Project Site located in the City of Lake Forest, Orange County, California ("Project Site") (Figure 1, *Regional Map*, attached). The surveys were conducted to determine the presence and location or absence of SWWF within the 19.7-acre Project Site. One SWWF was observed on-site during focused surveys.

STUDY AREA

The Project Site consists of approximately 19.7 acres of primarily undeveloped land located in the City of Lake Forest, Orange County, California (Figure 1, *Regional Map*, attached). The Project Site is located south of Commercentre Drive, east of Bake Parkway, and northwest of Lake Forest Drive. The 19.7-acre Project Site consists of two parts, a 14.7-acre parcel just south of the southern extent of Indian Ocean Drive (consisting of the 6.3-acre proposed City Hall site and an adjacent 8.4-acre site that consists of engineered slopes associated with the City Hall site and habitat beyond these slopes extending to an existing dirt trail to the east), and a 5.0-acre proposed park site approximately 900 feet to the southeast of the 14.7-acre parcel. These two parcels are separated by an open space area used for commercial purposes that includes a paved access road, two flat, circular terraces and adjacent slopes vegetated with native and ornamental species.

The 19.7-acre Project Site is surrounded by open space land including a dirt trail and Serrano Creek (and residential development beyond the open space) to the east and south, residential and commercial development to the west, and commercial development and a partially graded open space area used for commercial purposes to the north. Topography within the Project Site consists generally of rolling hills sloping to flat areas to the east (14.7-acre City Hall/slope site) and is predominantly flat in the 5.0-acre park site. The elevation ranges from approximately 544 feet above mean sea level ("MSL") in the southern portion of the Project Site (park site) to approximately 698 feet above MSL in the northern portion of the Project Site (City Hall site). The



Project Site can be found within Section 11, T. 6 S., R. 8 W. of the U.S. Geological Survey (USGS) 7.5-minute El Toro, California quadrangle map (Figure 2, *Vicinity Map*, attached).¹

METHODOLOGY

Surveys for the SWWF were conducted by PCR Principal Ecologist Joseph Platt, Ph.D. (Permit No. TE-122620-0). Methods employed were in conformance with the U.S. Fish and Wildlife Service *Southwestern Willow Flycatcher Presence/Absence Survey Guidelines*, issued July 11, 2000. Accordingly, five surveys of all suitable habitat on-site were conducted within three survey periods. All surveys were conducted at least five days apart within all portions of the study area containing suitable habitat. The surveys began between 6:05 A.M. and 8:10 A.M. and were completed between 7:30 A.M. and 9:50 A.M. One permitted field investigator slowly walked over the site, stopping at appropriate intervals, and playing a recording of SWWF vocalizations. The tape was played for several seconds at each interval, followed by a brief pause to listen for a response. Surveys were conducted on May 21, June 3, 20, and 25, and July 1, 2008.

RESULTS

No SWWFs were observed within the Project Site; however, a male willow flycatcher (*Empidonax traillii*), which is listed as State endangered,² was observed during the survey conducted on May 21, 2008. Because it was not heard during subsequent surveys, it is considered to be a migrant.

Should you have any questions regarding the methodology or findings in this report, please do not hesitate to contact Joseph Platt, Ph.D. or Linda Robb at (949) 753-7001.

Sincerely,

PCR SERVICES CORPORATION

A handwritten signature in black ink that reads "Joseph B. Platt".

Joseph B. Platt, Ph.D.
Principal Ecologist

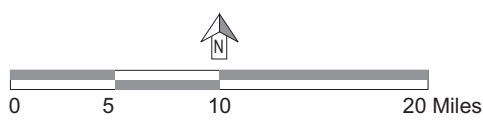
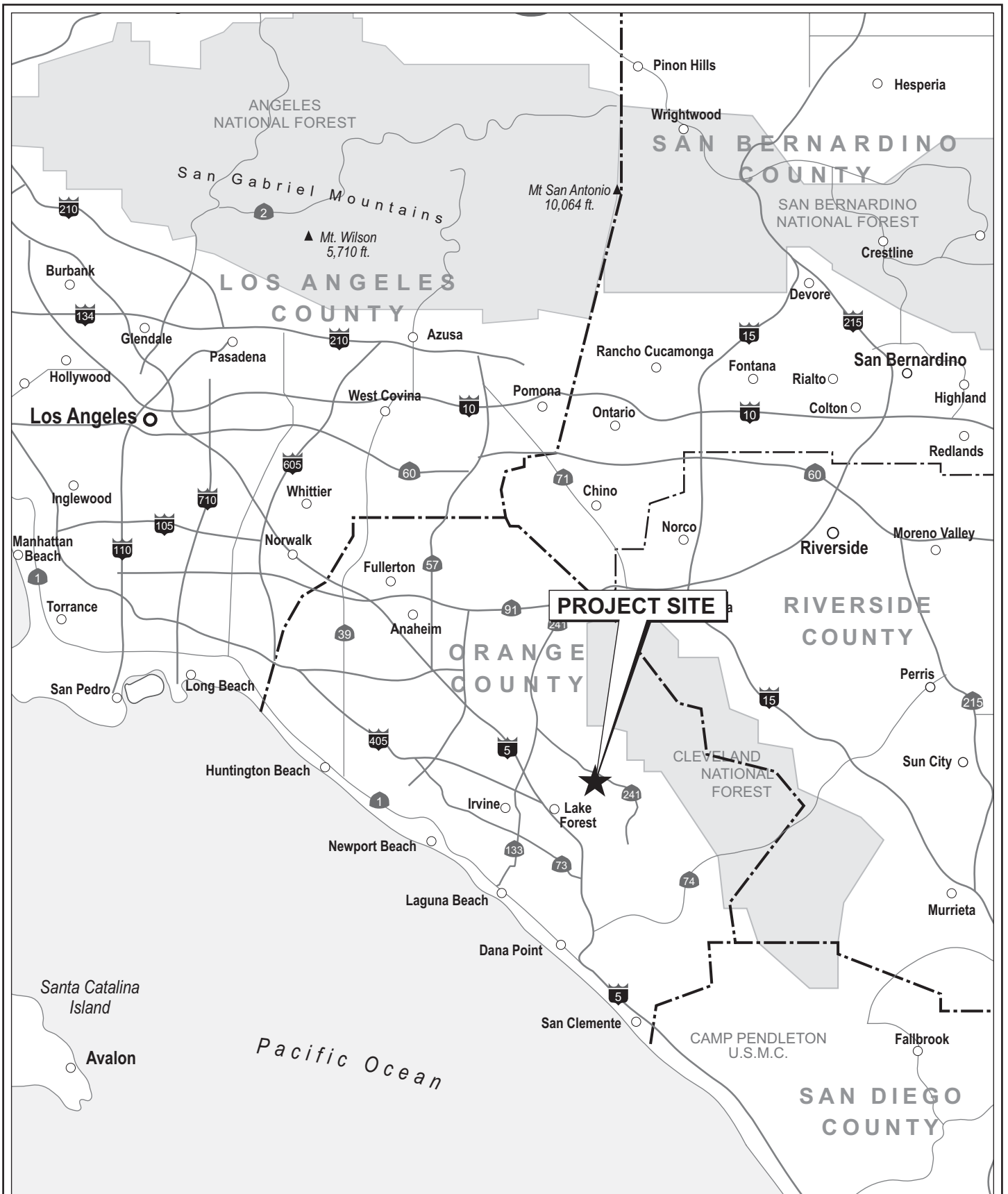
A handwritten signature in black ink that reads "Linda Robb".

Linda M. Robb
Senior Biologist

Attachments

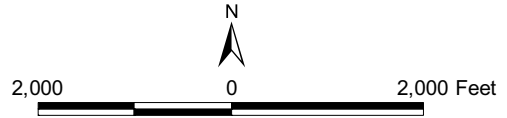
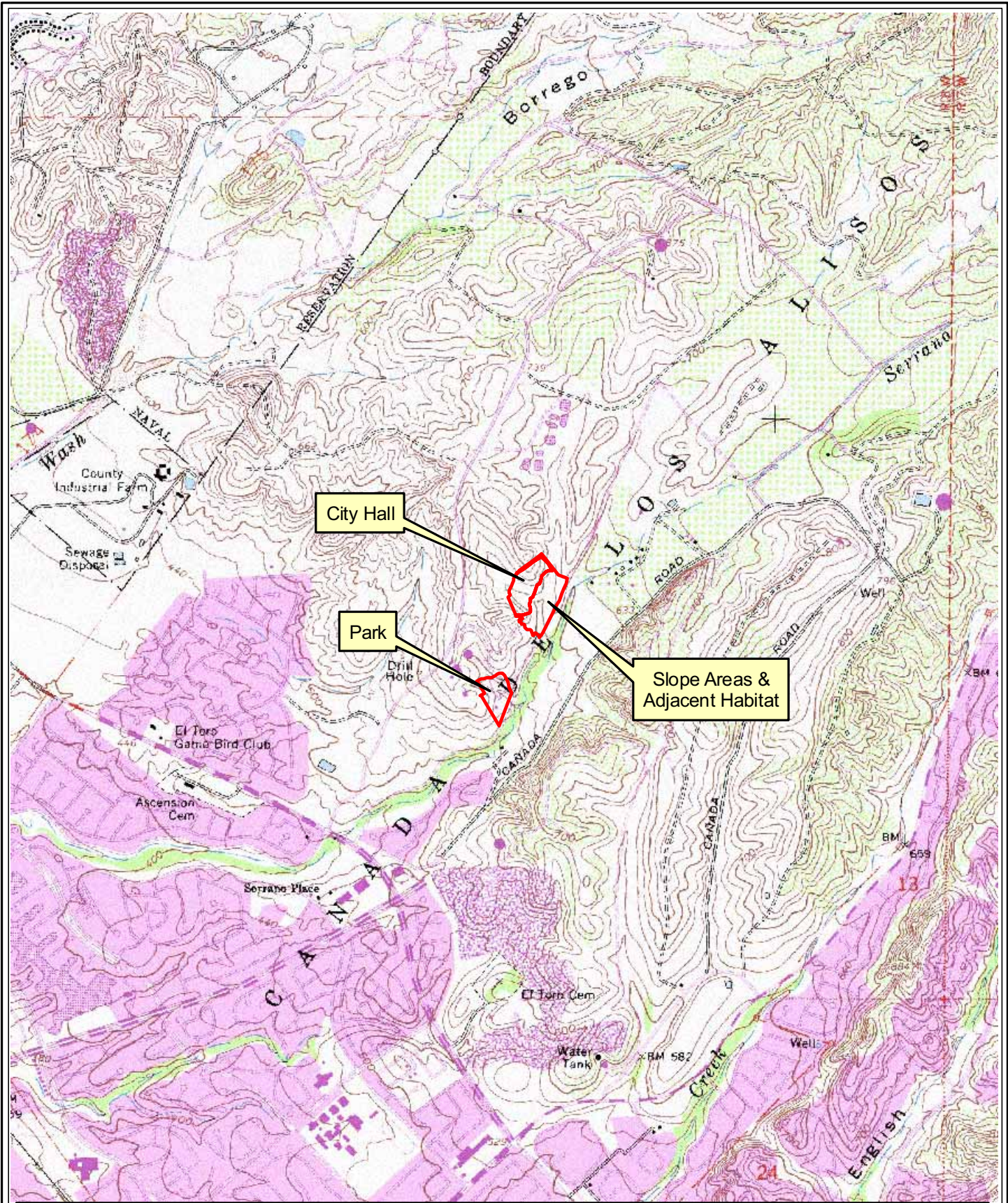
¹ United States Geological Survey. 1968. *El Toro, California 7.5-minute Topographical Quadrangle*. Photo revised 1982.

² The full species of the willow flycatcher (*Empidonax traillii*) is state listed as endangered and the federally endangered subspecies, southwestern willow flycatcher, does not occur within the study area.



Source: PCR Services Corporation, 2008.

Figure 1
Lake Forest
Proposed City Hall Site
Regional Map



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

Figure 2
Lake Forest
Proposed City Hall Site
Vicinity Map

INVESTIGATION OF JURISDICTIONAL
WETLANDS AND WATERS OF THE U.S.

LAKE FOREST
CITY HALL PROJECT SITE

ORANGE COUNTY, CALIFORNIA



PCR

May 2008

INVESTIGATION OF JURISDICTIONAL
WETLANDS AND WATERS OF THE U.S.

LAKE FOREST
CITY HALL PROJECT SITE

ORANGE COUNTY, CALIFORNIA

Prepared For:

City of Lake Forest
25550 Commercentre Drive, #100
Lake Forest, California 92630
Contact: Ms. Cheryl Kuta

Prepared By:

PCR Services Corporation
One Venture, Suite 150
Irvine, California 92618
Contact: Richard Haywood, Senior Wetland Ecologist

May 2008

Investigation of Jurisdictional Wetlands and Waters of the U.S.

**Lake Forest
City Hall Project Site
Orange County, California**

Prepared For:
City of Lake Forest
25550 Commercentre Drive, #100
Lake Forest, California 92630
(949) 461-3400

Contact:
Ms. Cheryl Kuta

Prepared By:

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

Contact:

Richard Haywood, Senior Wetland Ecologist


May 29, 2008

**Investigation of Jurisdictional Wetlands
And Waters of the U.S.**

**Lake Forest
City Hall Project Site
Orange County, California**

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a jurisdictional determination for the above-referenced project.

PCR Services Corporation



Richard Haywood, Senior Wetland Ecologist

May 29, 2008

TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION.....	1
2.0 EXISTING SITE CONDITIONS	4
3.0 SUMMARY OF REGULATIONS	4
3.1 Regulatory Agencies.....	6
3.1.1 U.S. Army Corps of Engineers	6
3.1.2 California Department of Fish and Game.....	7
3.1.3 Regional Water Quality Control Board	7
3.2 Activities Requiring Permitting.....	8
4.0 METHODS	8
4.1 Initial Data Collection and Assessment.....	8
4.2 Field Delineation and Mapping: “Waters of the U.S.”	8
4.3 Field Delineation and Mapping: Wetlands.....	9
4.3.1 Vegetation.....	9
4.3.2 Hydrology	10
4.3.3 Soils.....	10
4.4 Significant Nexus Determination	10
5.0 RESULTS	11
5.1 Soil Survey Review	11
5.2 Topographic Map Review	15
5.3 Aerial Photograph Review.....	15
5.4 Description of Jurisdictional Drainages.....	16
5.4.1 Drainage A (Perennial, Wetlands).....	16
5.4.2 Tributary A1 (Ephemeral).....	17
5.4.3 Watershed	19
5.4.4 TNW Proximity	19
5.4.5 Function	20
6.0 SUMMARY AND CONCLUSIONS	20
7.0 REGULATIONS.....	21
8.0 REFERENCES.....	25

APPENDIX A: WETLAND DATA SHEETS

APPENDIX B: APPROVED JURISDICTIONAL DELINEATION FORMS

LIST OF FIGURES

	<u>Page</u>
Figure 1 Regional Map.....	2
Figure 2 Vicinity Map.....	3
Figure 3 Vegetation Map.....	5
Figure 4 Jurisdictional Waters and Wetlands.....	13
Figure 5 Soil Survey.....	14
Figure 6 Lake Forest City Hall Site - Site Photographs.....	18

LIST OF TABLES

	<u>Page</u>
Table 1 Summary of Wetland Indicator Status.....	10
Table 2 Jurisdictional Drainage Systems and Associated Wetlands	12

INVESTIGATION OF JURISDICTIONAL WETLANDS AND WATERS OF THE U.S. ON THE LAKE FOREST CITY HALL PROJECT SITE

1.0 INTRODUCTION

This report presents the findings of an investigation conducted by **PCR Services Corporation (PCR)** of jurisdictional wetlands, “waters of the U.S.,” and “waters of the State” on the City of Lake Forest City Hall project site (the study area).

The study area totals approximately 19.7 acres, which consists of two parts, a 14.7-acre parcel just south of the southern extent of Indian Ocean Drive (consisting of the 6.3-acre proposed City Hall site and an adjacent 8.4-acre site that consists of engineered slopes associated with the City Hall site and habitat beyond these slopes extending to an existing dirt trail to the east), and a 5.0-acre proposed park site approximately 900 feet to the southeast of the 14.7-acre parcel. These two parcels are separated by an open space area used for commercial purposes that includes a paved access road, two flat, circular terraces and adjacent slopes vegetated with native and ornamental species. Please note that all jurisdictional resources occur only within the 14.7-acre parcel, and therefore only this parcel will be discussed in this report.

The study area is located in the City of Lake Forest, Orange County, California (Figure 1, *Regional Map*, on page 2). The study area is located south of Commercentre Drive, east of Bake Parkway, and northwest of Lake Forest Drive. The study area is located within Section 11, T. 6 S., R. 8 W., of the U.S. Geological Survey (USGS) 7.5-minute El Toro, California topographic quadrangle as shown in Figure 2, *Vicinity Map*, on page 3. Surrounding land use includes a dirt trail and Serrano Creek (with residential development beyond this) to the east and south, and commercial development and graded open space to the west and north. The longitude and latitude of the approximate center of the study area is 33.65980 North and 117.67907 West.

An assessment of jurisdictional wetlands and “waters of the U.S.” on the study area was conducted by PCR Senior Wetland Ecologist Richard Haywood on May 2, 2008. The assessment was conducted to determine whether or not the on-site drainage feature is subject to the jurisdiction of the U.S. Army Corps of Engineers (ACOE), the Regional Water Quality Control Board (RWQCB) and/or the California Department of Fish and Game (CDFG) and to determine and map the extent of all jurisdictional resources on the study area.

It should be noted that the opinions presented in this report are a reflection of the best professional judgment of PCR staff. However, all conclusions are tentative until verified by Agency (i.e. ACOE, RWQCB and CDFG) personnel.

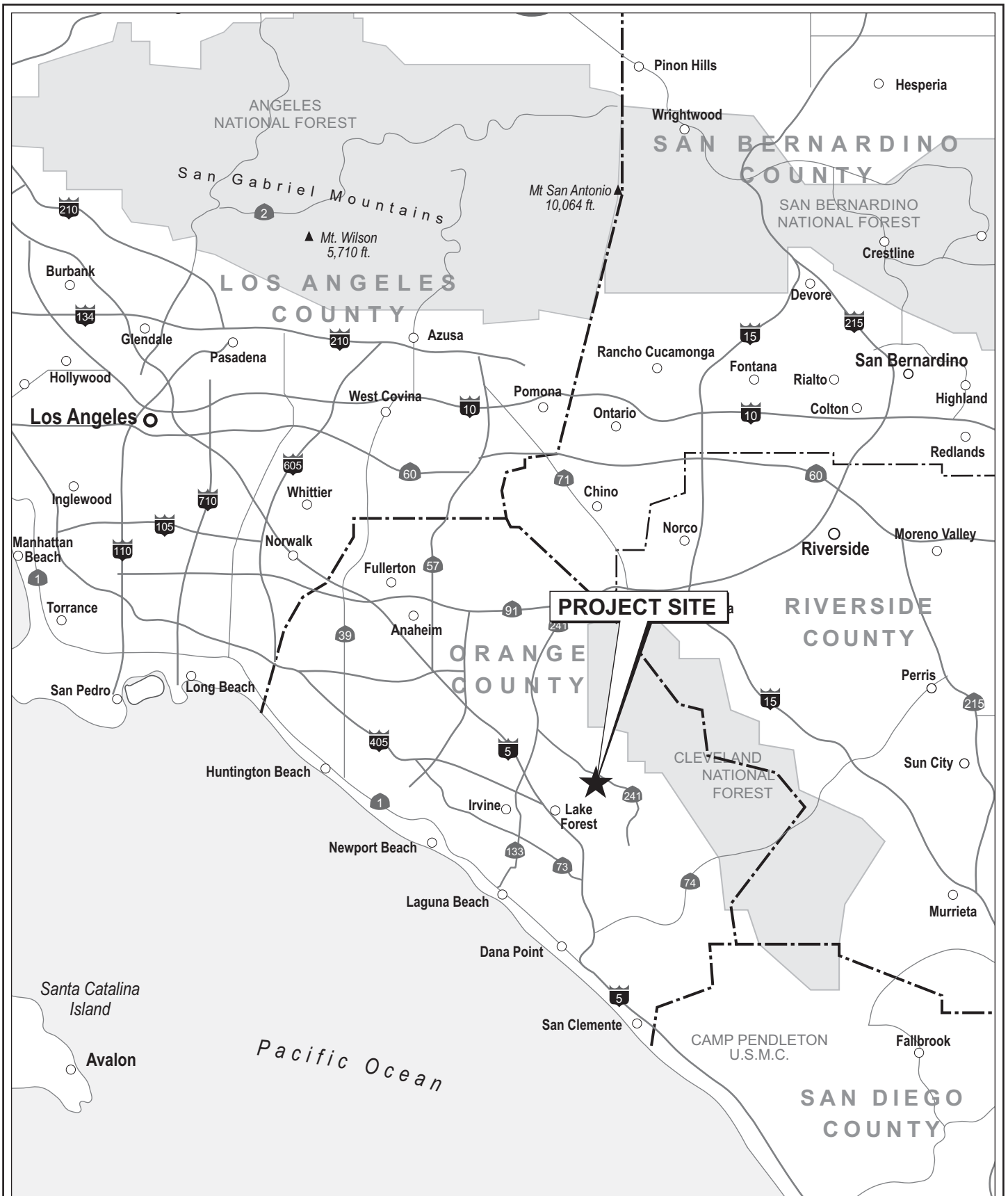
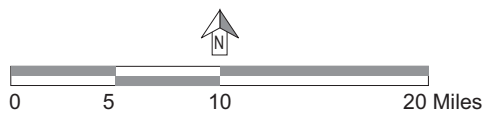


Figure 1
 Lake Forest
 Proposed City Hall Site
 Regional Map



Source: PCR Services Corporation, 2008.

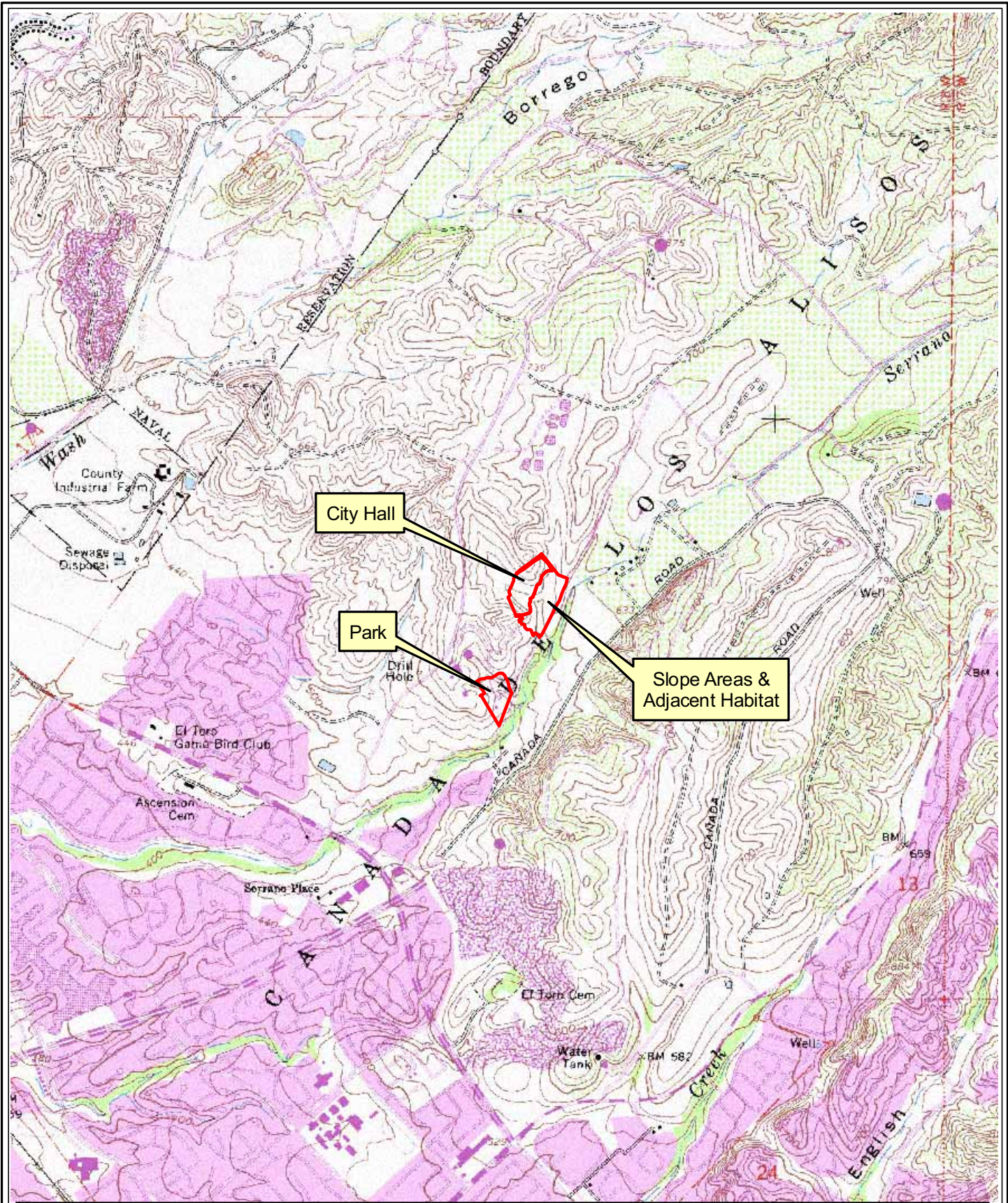


Figure 2
 Lake Forest
 Proposed City Hall Site
 Vicinity Map

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

2.0 EXISTING SITE CONDITIONS

The study area consists of mostly undeveloped lands within the Canada De Los Alisos, in the foothills of the Santa Ana Mountains. Local topography within the study area consists of gently sloping hills that form a small valley that is generally aligned north to south. The one jurisdictional drainage within the study area, herein referred to as Drainage A, is located within a small riparian corridor along the bottom of this valley. The 14.7-acre parcel portion of the study area drains to the south, and elevations range between approximately 590 feet above mean sea level (msl) in the southern (downstream) portion of the study area to approximately 698 feet above msl on the hilltops in the northwestern portion of the parcel.

Disturbance within the study area includes a few dirt trails, and some areas of trash dumping. In addition, past earthwork, presumably associated with the surrounding commercial developments and graded open space, occurs throughout most of the study area north and west of the drainage corridor. Also presumably associated with this past earthwork is an extensive array of irrigation lines installed on the northern and western slopes of the valley, and concrete interceptor v-ditches installed on the northern slope. Lastly, a large concrete v-ditch collecting runoff from both the irrigated northern and western slopes, as well as from Indian Ocean Drive and surrounding paved parking areas is located in the northern part of the study area. This v-ditch, aligned roughly east to west, originates at the hilltop near the terminus of Indian Ocean Drive and carries flows downhill, discharging them approximately 25 feet above the start of Drainage A.

While past earthwork is apparent throughout the study area, the property is generally well vegetated with a number of native scrub and woodland plant communities, as well as some disturbed and non-native plant communities. The non-native plant communities are more prevalent in the proximity of the disturbed areas, particularly alongside the dirt trails in the study area. Native vegetation throughout the study area includes a mixture of buckwheat and mixed scrub, coast live oak woodland, Mexican elderberry woodland, Fremont cottonwood woodland, scrub oak chaparral, mule fat scrub, and willow forest communities (See Figure 3, *Vegetation Map*, on page 5).

3.0 SUMMARY OF REGULATIONS

Three key agencies regulate activities within inland streams, wetlands, and riparian areas in California. The ACOE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (CWA), the CDFG regulates activities under the Fish and Game Code Sections 1600-1616, and the RWQCB regulates activities under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act.

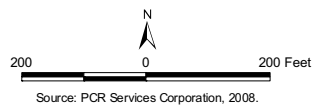


Figure 3
Lake Forest Proposed City Hall Site
Plant Communities

3.1 Regulatory Agencies

3.1.1 U.S. Army Corps of Engineers

The ACOE regulates the “discharge of dredged or fill material” into “waters of the U.S.,” which includes all waters currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce; waters subject to the ebb and flow of the tide; all interstate waters; all other waters, including intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce; or any other waters that are part of a tributary system to interstate waters or to navigable “waters of the U.S.,” (33 C.F.R. 328.3(a.)), pursuant to provisions of Section 404 of the CWA.

The ACOE generally takes jurisdiction within rivers and streams to the “ordinary high water mark” (OHWM) determined by erosion, the deposition of sediments or debris, and changes in vegetation. The ACOE defines wetlands as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 C.F.R. 328.3(b.)). In accordance with the ACOE’s *Wetland Delineation Manual* (Environmental Laboratory 1987) and subsequent guidance provided in the *Arid West Interim Regional Supplement* (Environmental Laboratory 2006) the (“2006 Supplement”), a wetland ecosystem must possess wetland hydrology and support hydrophytic vegetation and hydric soils.

Over the years, the ACOE has modified their regulations, typically due to evolving policy or judicial decisions, through the issuance of Regulatory Guidance Letters, memorandum, or more expansive instruction guidebooks. These guidance documents help to update and define how jurisdiction is claimed, and how these “waters of the U.S” will be regulated. The most recent modification occurred on June 5, 2007, when the ACOE and the U.S. Environmental Protection Agency (EPA) issued a series of guidance documents outlining the requirements and procedures, effective immediately, to establish jurisdiction under Section 404 of the CWA and the Section 10 of the Rivers and Harbors Act 1899 (ACOE and EPA 2006). These documents are intended to be used for all jurisdictional delineations but also provide specific guidance for the jurisdictional determination of potentially jurisdictional features affected by the United States Supreme Court rulings on *Rapanos v. the United States* and *Carabell v. the United States* 126 U.S. Ct. 2208 (2006) (jointly referred to as “Rapanos”).

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

jurisdictional. An ephemeral tributary has a significant nexus to a downstream navigable water when it has “more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW.” A significant nexus is established through the consideration of a variety of hydrologic, geologic and ecological factors specific to the particular drainage feature in question.

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

However, these “not relatively permanent” or isolated features may still be regulated by CDFG under Fish and Game Code Section 1600 or the RWQCB under the Porter-Cologne Water Quality Act. A detailed discussion of Section 404 of the CWA, is included in Section 7.0.

3.1.2 California Department of Fish and Game

In accordance with Section 1600 *et seq.*, of the California Fish and Game Code (FGC) (“Streambed Alteration”), CDFG regulates activities which “will substantially divert, obstruct, or substantially change the natural flow or bed, channel or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit.” The CDFG takes jurisdiction to the top of bank of the stream, or the limit of the adjacent riparian vegetation when present.

3.1.3 Regional Water Quality Control Board

The RWQCB regulates “discharging waste, or proposing to discharge waste, within any region that could affect “waters of the State” (Water Code § 13260 (a)), pursuant to provisions of the Porter-Cologne Water Quality Control Act. “Waters of the State” are defined as “any surface water or groundwater, including saline waters, within the boundaries of the State” (Water Code § 13050 (e)). Before the ACOE will issue a CWA Section 404 permit, applicants must receive a CWA Section 401 Water Quality Certification from the RWQCB. If a CWA Section 404 permit is not required for the project, the RWQCB may still require a permit (i.e., Waste Discharge Requirement) under the Porter-Cologne Water Quality Control Act.

3.2 Activities Requiring Permitting

Any development proposal that involves impacting jurisdictional drainages, streams, and/or wetlands through filling, stockpiling, conversion to a storm drain, channelization, bank stabilization, road or utility line crossings, or any other modifications, will require permits from the ACOE, RWQCB, and the CDFG before any development can commence within the study area. Both permanent and temporary impacts are regulated and would trigger the need for these permits. Before the ACOE will issue a CWA Section 404 permit, applicants must receive a CWA Section 401 Water Quality Certification from the RWQCB. If a CWA Section 404 permit is not required for the project, the RWQCB may still require a permit (i.e., Waste Discharge Requirement) under the Porter-Cologne Water Quality Control Act. Processing of the Section 401 and 1602 permits can occur concurrently with the ACOE permit process and can utilize the same information and analysis. Applications to the CDFG and RWQCB must include a complete, certified California Environmental Quality Act (CEQA) document. A detailed discussion of the regulatory permitting process is included in Section 7.0 of this report.

4.0 METHODS

4.1 Initial Data Collection and Assessment

Prior to visiting the study area, potential and/or historic drainages and aquatic features were located based on a review of the following: USGS El Toro, California topographic quadrangle map (USGS 1968, photorevised in 1982), aerial photographs, and the Natural Resources Conservation Service (NRCS) soil survey maps (Knecht 1971). The information provided by these various sources is used to identify the likely drainage features on the study area, the best access routes to those drainage features and through the study area as a whole, and to help assess the hydrologic connectivity of on-site drainage features to downstream (off-site) “waters”.

4.2 Field Delineation and Mapping: “Waters of the U.S.”

Following the initial data collection, the entire study area was evaluated and all areas that were identified as being potentially subject to the jurisdiction of the ACOE, RWQCB, and/or the CDFG were field verified and mapped. Drainage features were mapped to obtain characteristic parameters and detailed descriptions using a combination of standard measurement tools and Global Positioning System (GPS) equipment. The precise location of transects, upstream and downstream extents of each feature, and sample points were collected in the field using a GPS hand-held unit. The Trimble GeoXT system is an advanced geographic data collection tool that integrates satellite differential and wide area augmentation system capabilities to provide

submeter (50 cm RMS) positional accuracy on a real-time basis. Following data collection, the digital information was uploaded and incorporated within PCR's project-specific Geographic Information System (GIS) database to calculate jurisdictional acreages.

The potential for "waters of the U.S." and "waters of the State" were investigated based on the absence or presence of an OHWM, or if not clearly visible, as determined by erosion, the deposition of debris, and changes in vegetation. If any of these criteria were met, a series of transects were run to determine the extent of jurisdictional non-wetland "waters of the U.S." Identified non-wetland "waters of the U.S." were traversed within or along the channel, and the OHWM was measured. Where channels diverged to form low, intermediate areas between the channels, the entire area between the outermost edge of each channel was considered within the OHWM. Where the intermediate area was equal to or above the height of the uppermost bank of either channel, the OHWM was recorded individually for each channel. The CDFG jurisdiction was defined to the bank of the stream/channels or to the limit of the adjacent riparian vegetation.

4.3 Field Delineation and Mapping: Wetlands

ACOE jurisdictional wetlands were delineated using a routine determination according to the methods outlined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Environmental Laboratory 2006) based on hydrologic and edaphic features of the study area and on the vegetation community composition of each area being investigated. In areas where jurisdictional wetlands were suspected, data on vegetation, hydrology, and soils was collected along transects as described below.

4.3.1 Vegetation

Aerial cover of vegetation was estimated along each transect by estimating coverage in two randomly placed circular plots. Tree cover was estimated using 30-foot radius circular plots; sapling, shrub, and forb cover was estimated using 10-foot radius plots. Plant species in each stratum were ranked according to their dominance. Species that contributed to a cumulative total of 50 percent of the total dominant coverage plus any species that comprised at least 20 percent of the total dominant coverage were recorded on the wetland Data sheets. The wetland indicator status was assigned to each species using the Region 0 List of Plant Species that Occur in Wetlands, as shown in Table 1, *Summary of Wetland Indicator Status*, on page 10. If greater than 50 percent of the dominant species from all strata were Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation was considered to have been met.

Table 1**Summary of Wetland Indicator Status**

Category	Probability
Obligate Wetland (OBL)	Almost always occur in wetlands (estimated probability of >99%)
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability of 67 to 99%)
Facultative (FAC)	Equally likely to occur in wetlands/non-wetlands (estimated probability of 34 to 66%)
Facultative Upland (FACU)	Usually occur in non-wetlands (estimated probability 67 to 99%)
Obligate Upland (UPL)	Almost always occur in non-wetlands (estimated probability >99%)
Non-Indicator (NI)	No indicator status has been assigned

Source: Reed, 1988.

4.3.2 Hydrology

The presence of wetland hydrology was evaluated at each transect by recording the extent of observed surface flows, depth of inundation, depth to saturated soils, and depth to free water in the soil pits. In addition, indicators of wetland or riverine hydrology were recorded, including water marks, drift lines, rack, debris, and sediment deposits. The lateral extent of the hydrology indicators was used as a guide for locating soil pits for evaluation of hydric soils. In portions of the stream where the flow was divided between multiple channels with intermediate sand bars, the entire area between the outermost edges of each channel was considered within the OHWM and the wetland hydrology indicator was considered met for the entire area, assuming surface water was present.

4.3.3 Soils

If the criteria for wetland vegetation and hydrology were met, an excavation of the soils was conducted to determine if the soils were hydric. Soil pits were dug to a depth of 20 inches. In areas of recent deposition of sand or other overburden material, the soil pit was dug to a depth of 20 inches below the depth of the overburden material. At each soil pit the soil texture and color were recorded by comparison with standard plates within a Munsell soil color chart. Any hydric soils, as defined in the Field Indicators of Hydric Soils in the United State (NRCS 2006) or indicators of hydric soils were also recorded. The limits of wetland hydrology indicators were used as a guide for locating soil pits.

4.4 Significant Nexus Determination

Upon completion of the initial data collection and analysis and the field delineation and mapping, the on-site drainage features are evaluated to determine if a significant nexus is likely to exist between each individual drainage feature delineated on the study area and a TNW

located downstream and off-site from the study area. The downstream TNW for the drainage feature delineated on the study area is Railroad Canyon Reservoir. Information collected for the significant nexus determination is used to help complete the Approved Jurisdictional Determination Form found in Appendix A and is provided to assist the ACOE in making the final jurisdictional determination.

5.0 RESULTS

The entire 19.7-acre study area was investigated to determine the presence or absence of ACOE, RWQCB, and/or CDFG jurisdiction. One drainage feature (Drainage A) was identified on the 14.7-acre parcel portion of the study area, with one associated tributary (Tributary A1). No drainage features were identified on the 5-acre parcel portion of the study area.

Drainage A is considered a jurisdictional “waters of the U.S.” under Section 404 and 401 of the CWA, as well as State regulations, and is therefore regulated by all three agencies. In addition to being a jurisdictional “waters of the U.S.”/“waters of the State,” the hydrology that supports Drainage A is sufficient to have allowed a hydrophytic plant community and hydric soils to develop within the riparian corridor, and therefore the drainage supports an associated wetland system.

The jurisdictional resources delineated within Drainage A and its tributary on the study area total approximately 1,015 linear feet of streambed. The total (combined) jurisdictional area delineated includes 0.082 acre of ACOE/RWQCB jurisdictional “waters of the U.S.”/“waters of the State”, which is included within 0.206 acre of wetlands, and 1.909 acres of CDFG jurisdictional streambed and associated riparian habitat.

The various jurisdictional acreages often overlap, i.e., ACOE acreage is typically included within CDFG and RWQCB acreages, and the two are not additive. For clarification, please see Table 2, *Jurisdictional Drainage Systems and Associated Wetlands*, on page 12, and Figure 4, *Jurisdictional Waters and Wetlands*, on page 13, for the locations of jurisdictional drainages. Appendix B: Wetland Data Sheets contains the wetland data sheets completed during the on-site assessment.

5.1 Soil Survey Review

The Soil Survey of Orange County and Western Part of Riverside County, California was consulted, and five soil types within three soil series were identified on 14.7-acre portion of the study area (See Figure 5, Soil Survey, on page 14). The soils map and underlying aerial

Table 2

Jurisdictional Drainage Systems and Associated Wetlands

Name	Length (feet)	Average Width (feet)			Area (acres) ^a			Nature
		ACOE/ RWQCB	Wetlands	CDFG	ACOE/ RWQCB	Wetlands	CDFG	
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 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



200 0 200 Feet

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

Figure 4
Lake Forest
Proposed City Hall Site
Jurisdictional Features

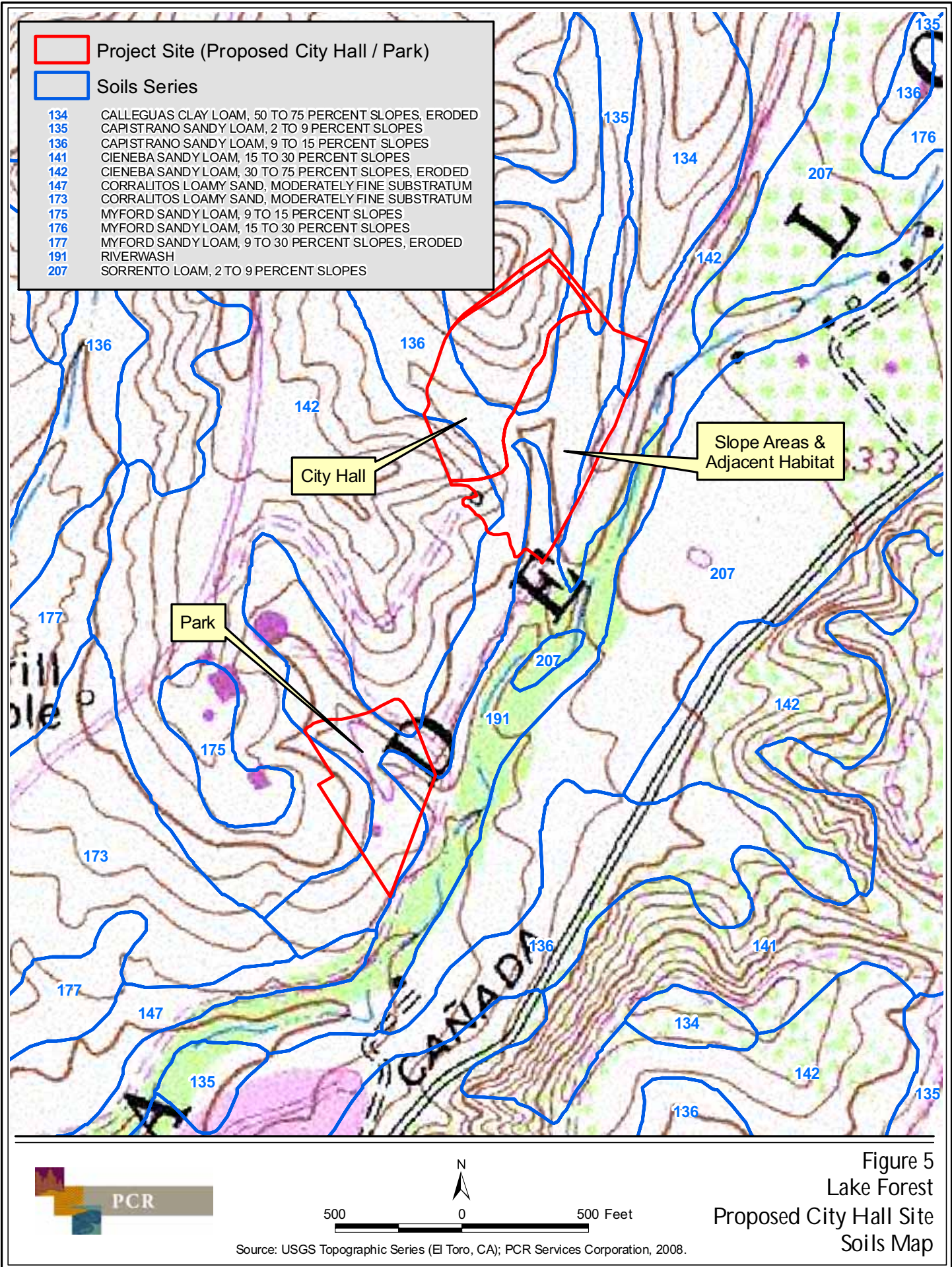


Figure 5
Lake Forest
Proposed City Hall Site
Soils Map

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 of the State." It should be 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-foot 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.



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 mi²). 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 → to the confluence with Serrano Creek. Serrano Creek → San Diego River. San Diego River → 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.

8.0 REFERENCES

- Cylinder, P., K. Bogdan, E. Davis, A. Herson. 1995. *Wetland Regulation: A Complete Guide to Federal and California Programs*. Solano Press Books, Point Arena, California.
- Environmental Laboratory. 1987. *ACOE of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- Environmental Laboratory. December 2006. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. United States Army Corps of Engineers. Technical Report 06-16.
- Hickman, J. C. 1993. *The Jepson Manual: Higher Plants of California*. Berkeley: University of California Press.
- Munsell Color. 2000 Revised Edition. *Soil Color Charts*. Macbeth Division of Kollmorgen Instruments Corporation. New York.
- Reed, P. B., Jr. 1988. *National List of Plant Species that Occur in Wetlands: California (Region 0)*. U.S. Fish and Wildlife Service Biol. Rep. 88(26.10). 135pp.
- Supreme Court of the United States. 2006. *No. 04-1034, John A. Rapanos, et ux., et al., Petitioners v. United States, No. 04-1384, June Carabell et al., Petitioners v. United States Corps of Engineers et al.* June 19.

United States Department of Agriculture, Natural Resources Conservation Service. March 1992. *Field Office Official List of Hydric Soil Map Units for Orange and Riverside Counties, California.*

United States Department of Agriculture, Natural Resources Conservation Service. 2006. *Field Indicators of Hydric Soils in the United States. A Guide for Identifying and Delineating Hydric Soils, Version 6.0.*

United States Department of Agriculture. Natural Resources Conservation Service. November 1978. *Soil Survey of Orange County and the Western Part of Riverside County, California.* Washington, D.C.

United States Geological Survey. 1968. El Toro, California 7.5-minute Topographic Quadrangle. Photorevised 1982.

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 waters² (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 waterbody⁴ 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 TNW⁵: 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 irrigation 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
 OHWM⁶ (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.

⁶A 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.

⁷Ibid.

(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:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
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-RPWs⁸ 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 jurisdictional. 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: .

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰Prior 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 Geodetic 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

VEGETATION

<u>Tree Stratum</u> (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix lasiollepis</u>	40	Y	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Salix Laevigata</u>	50	Y	FACW	
3. _____				
4. _____				
Total Cover: <u>90</u>				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 = _____
<u>Sapling/Shrub Stratum</u>				
1. <u>Heteromoles arbutifolia</u>	10	N	UPL	
2. <u>Toxicodendron diversilobium</u>	20	Y	FAC	
3. <u>Salix lasiollepis</u>	20	Y	FACW	
4. _____				
5. _____				
Total Cover: <u>30</u>				
<u>Herb Stratum</u>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Rorippa nasturtium-aquaticum</u>	55	Y	OBL	
2. <u>Xanthium strumarium</u>	10	N	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>65</u>				
<u>Woody Vine Stratum</u>				¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Clematis sp.</u>	15	N	NI	
2. _____				
Total Cover: <u>15</u>				
% Bare Ground in Herb Stratum <u>35</u> % Cover of Biotic Crust <u>NA</u>				
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		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
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"

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

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:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (any one indicator is sufficient)</u>	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input checked="" type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input checked="" type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2 – 5"</u>	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>12"</u>	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4"</u>	

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

VEGETATION

<u>Tree Stratum</u> (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix lasiollepis</u>	40	Y	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Salix Laevigata</u>	70	Y	FACW	
3. _____				
4. _____				
Total Cover: <u>110</u>				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 = _____
<u>Sapling/Shrub Stratum</u>				
1. _____				
2. _____				
3. _____				
4. _____				
Total Cover: _____				
<u>Herb Stratum</u>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____				
<u>Woody Vine Stratum</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				¹ Indicators of hydric soil and wetland hydrology must be present.
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		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
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"

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)
<input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient) <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water Marks (B1) (Riverine) <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input checked="" type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2-5"</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>10"</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

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.....	1
1.1 <i>Local Setting and Site Description.....</i>	<i>1</i>
2.0 RELATIONSHIP TO THE NCCP/HCP	5
3.0 METHODOLOGY	10
3.1 <i>Biological Resources Information sources</i>	<i>10</i>
3.2 <i>Habitat assessment and focused surveys for special status plants.....</i>	<i>10</i>
3.3 <i>Wildlife surveys and habitat assessment for special status wildlife.....</i>	<i>11</i>
3.4 <i>Wetland Delineation.....</i>	<i>12</i>
4.0 RESULTS	17
4.1 <i>Vegetation types</i>	<i>17</i>
4.2 <i>Plant Inventory.....</i>	<i>23</i>
4.3 <i>Special status plant species</i>	<i>23</i>
4.4 <i>Wildlife</i>	<i>28</i>
4.5 <i>Special status wildlife species</i>	<i>28</i>
4.6 <i>California gnatcatcher and coastal cactus wren</i>	<i>28</i>
4.7 <i>Wetland Delineation.....</i>	<i>35</i>
4.8 <i>Wildlife movement corridors and linkages.....</i>	<i>35</i>
5.0 REFERENCES.....	37
6.0 APPENDICES	41
6.1: <i>Appendix A: Plant species list form the Lake Forest IRWD project site 2008.</i>	<i>41</i>
6.2 <i>Appendix B: California Native Plant Society Categories</i>	<i>44</i>
6.3 <i>Appendix C: Wildlife species Plant species list form the Lake Forest IRWD project site 2008.....</i>	<i>45</i>
6.4 <i>Appendix D: California gnatcatcher surveys data.....</i>	<i>47</i>

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 species¹,
- General wildlife inventory,
- Habitat assessment for assessing potential for special status wildlife species²,
- 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

³United 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.

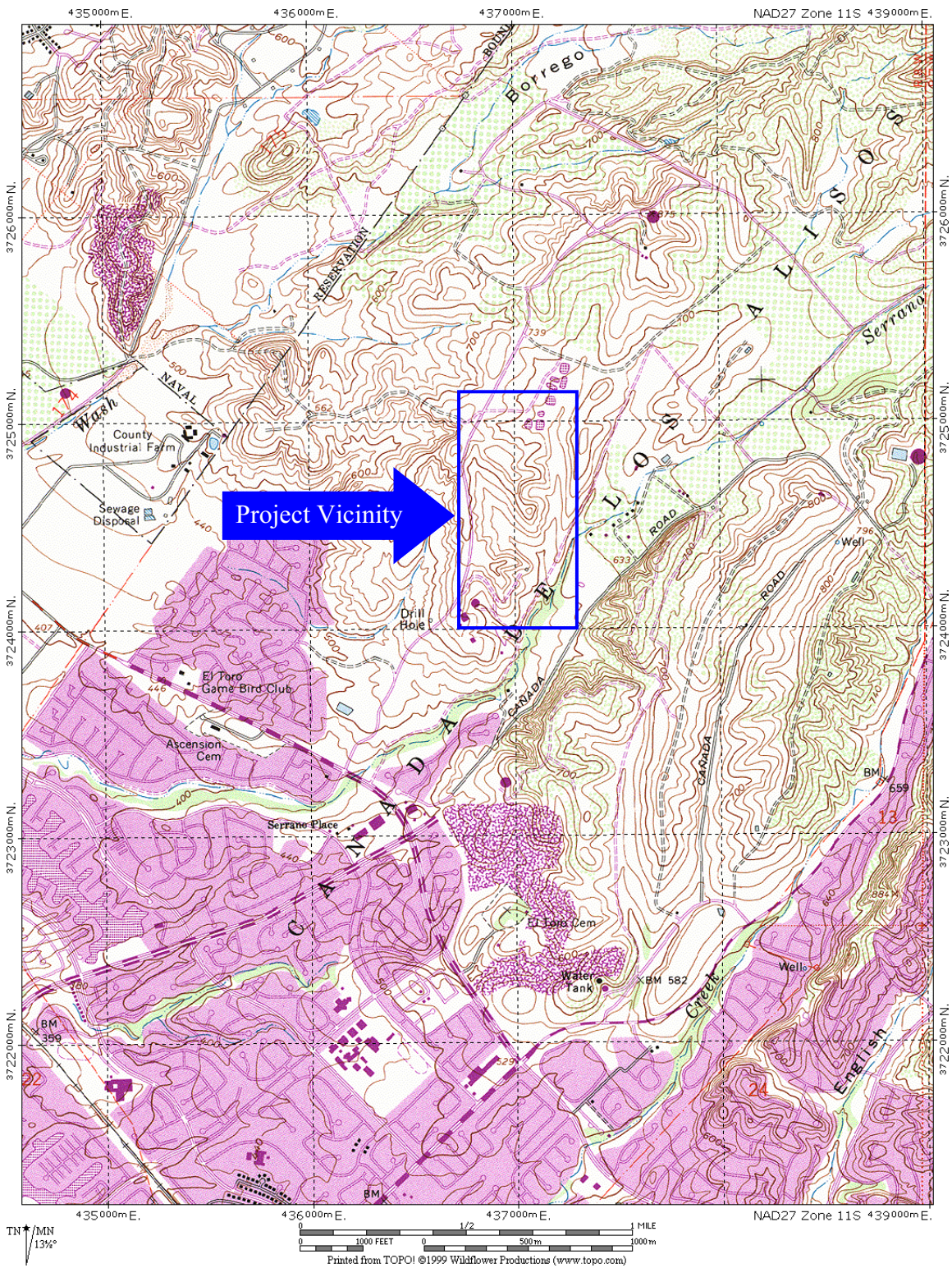


Figure 1: Location of the Lake Forest IRWD site in Orange County, southern California. Source: El Toro U.S.G.S. quadrangles.



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.

<p>Target Species (3)</p> <ul style="list-style-type: none">* Coastal California gnatcatchercoastal cactus wrenorange-throated whiptail	<p>Plants (8)</p> <ul style="list-style-type: none">Catalina mariposa lilyLaguna Beach dudleyaSanta Monica Mountains dudleyaNuttall’s scrub oaksmall-flowered mountain mahoganyheart-leaved pitcher sageCoulter’s matilija poppyTecate cypress
<p>Mammals (3)</p> <ul style="list-style-type: none">San Diego desert woodratcoyotegray fox	<p>Conditionally Covered Species (10)</p> <ul style="list-style-type: none">* least Bell’s vireo* southwestern willow flycatcher* southwestern arroyo toadQuino (Wright’s) checkerspotgolden eagleprairie falcon* Riverside Fairy shrimp* San Diego fairy shrimp* Pacific pocket mousefoothill mariposa lily
<p>Birds (6)</p> <ul style="list-style-type: none">northern harriersharp-shinned hawkperegrine falconred-shouldered hawkrough-legged hawksouthern California rufous-sparrow	
<p>Reptiles (6)</p> <ul style="list-style-type: none">coastal western whiptailSan Bernardino ringneck snakered diamond rattlesnakeSan Diego horned lizardCoronado skinkcoastal rosy boa	
<p>Amphibians (3)</p> <ul style="list-style-type: none">arboreal salamanderwestern spadefoot toad (Coastal sub area only)black-bellied slender salamander	

*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. December 7.

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 (CNDDDB) 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 et 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)(1)-(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, intrastate" 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) intrastate” 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 Manual⁶ 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.

⁶Environmental 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 chroma⁸).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 14¹⁰) 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...

⁷Reed, 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 areas 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 sclerophyllous 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 season¹¹. 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 Ruderal	6	3.8
Coastal sage scrub		21.0
Native coastal sage scrub	1	12.4
Restored coastal sage scrub	2	8.6
Chaparral Scrub oak chaparral	3	0.4
Riparian Non-jurisdictional mulefat scrub	4	1.0
Woodland Coast Live Oak Woodland	5	0.4
Disturbed Disturbed	7	39.7
Developed 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 CNDDDB, 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 species¹² 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
<i>Brodiaea filifolia</i> LILLIACEAE	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.
<i>Calochortus catalinae</i> LILLIACEAE	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.
<i>Calochortus weedii</i> var. <i>intermedius</i> LILLIACEAE	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.
<i>Caulanthus simulans</i> 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.
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> 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.
<i>Convolvulus simulans</i> CONVOLVULACEAE	Small-flowered moming-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
<i>Dichondra occidentalis</i> 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 gravelly clay loam in southern mixed chaparral, Diegan sage scrub, oak woodland and grasslands. Blooms January through July. From 50-500 meters
<i>Dudleya multicaulis</i> 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.
<i>Harpagonella palmeri</i> 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.
<i>Horkelia cuneata ssp. puberula</i> 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.
<i>Imperata brevifolia</i> 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.
<i>Lepechinia cardiophylla</i> 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.
<i>Lepidium virginicum var. robinsonii</i> 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.
<i>Microseris douglasii ssp. platycarpa</i> 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.
<i>Monardella hypoleuca ssp. lanata</i> 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.
<i>Monardella macrantha ssp. hallii</i>	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
<i>LAMIACEAE</i>		CNPS: 1B.3		current surveys	woodland from 730-2195 meters. Blooms from June through August
<i>Nolina cismontana</i> <i>LILLICEAE</i>	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.
<i>Pentachaeta aurea</i> <i>ASTERACEAE</i>	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.
<i>Piperia cooperi</i> <i>ORCHIDACEAE</i>	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.
<i>Polygala cornuta var. fishiae</i> <i>POLYGALACEAE</i>	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.
<i>Pseudognaphalium leucocephalum</i> <i>ASTERACEAE</i>	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.
<i>Quercus dumosa</i> <i>FAGACEAE</i>	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.
<i>Romneya coulteri</i> <i>PAPAVERACEAE</i>	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.
<i>Satureja chandleri</i> <i>LAMIACEAE</i>	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.
<i>Senecio aphanactis</i> <i>ASTERACEAE</i>	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.
<i>Symphotrichum defoliatum</i> ASTERACEAE	San Bernardino aster	Fed: None State: None CNPS: 1B.2	NC	Unlikely, not detected during current surveys	Occurs in vernal 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 CNDDDB, 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						
<i>Spea hammondi</i>	western spadefoot toad	none	NC	DFG: CSC CNDDDB Ranked	Unlikely	grassland, open habitats with sandy or gravelly soil; temporary rainpools for breeding
Reptiles						
<i>Phrynosoma coronatum</i>	coast horned lizard	none	C	DFG: CSC CNDDDB Ranked	Potential	sandy washes and open sandy areas within coastal sage scrub, grassland, chaparral, oak and riparian woodland
<i>Eumeces skiltonianus interparietalis</i>	Coronado skink	none	C	DFG: CSC CNDDDB Ranked	Potential	mesic areas of coastal sage scrub, chaparral, grasslands and woodlands; heavily forested areas and dense brush avoided
<i>Cnemidophorus tigris stejnegeri</i>	coastal western whiptail	none		CNDDDB Ranked	Potential	semiarid habitats with open sparsely vegetated areas, scrub, chaparral, grassland and woodland habitats
<i>Cnemidophorus hyperythra</i>	orange-throated whiptail	none	C	DFG: CSC CNDDDB 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
<i>Anniella pulchra pulchra</i>	silvery legless lizard	none	NC	DFG: CSC CNDDDB Ranked	Potential	chaparral, oak woodland, coastal sage scrub
<i>Charina trivirgata roseofusca</i>	coastal rosy boa	none	C	CNDDDB Ranked	Potential	Occurs in coastal areas, occurs in rocky chaparral-covered hillsides and canyons
<i>Salvadora hexalepis virgulata</i>	coast patch-nosed snake	none	NC	DFG: CSC CNDDDB Ranked	Potential	associated with brushy or shrubby vegetation
<i>Crotalus ruber ruber</i>	northern red-diamond rattlesnake	none	C	DFG: CSC CNDDDB Ranked	Potential	chamise, coastal sage scrub, desert slope scrub and other habitats with heavy brush associated large rocks or boulders
Birds						
<i>Circus cyaneus</i>	northern harrier	none	C	DFG: CSC CNDDDB Ranked	Potential, foraging only	grassland, marshes, agricultural land, open areas in scrub and chaparral; ground or shrub nesting
<i>Elanus leucurus</i>	white-tailed kite	none	NC	DFG: FP CNDDDB Ranked	Potential, foraging only	forages in grasslands; nests and roosts in oak and riparian woodland

Lake Forest IRWD Site Biological Report – September 2008

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

Lake Forest IRWD Site Biological Report – September 2008

				FWS: BCC CNDDDB Ranked		with perching structures; nests in trees and shrubs
<i>Aimophila ruficeps canescens</i>	southern California rufous-crowned sparrow	none	C	DFG: WL CNDDDB Ranked	Potential	grass covered hillsides in coastal sage scrub and chaparral
<i>Carduelis lawrencei</i>	Lawrence's goldfinch	none	NC	FWS: BCC CNDDDB 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						
<i>Macrotus californicus</i>	California leaf-nosed bat	none	NC	DFG: CSC WBWG: High priority CNDDDB Ranked	Potential	roosts in caves or old mines
<i>Antrozous pallidus</i>	pallid bat	none	NC	DFG: CSC WBWG: High priority CNDDDB Ranked	Potential	coastal sage scrub, oak woodland and chaparral; roosts in caves, mines, rock crevices, trees and buildings
<i>Myotis yumanensis</i>	Yuma myotis	none		WBWG: Medium priority CNDDDB Ranked	Potential	Large colonies, caves, tunnels and buildings in arid areas, forages over water
<i>Eumops perotis californicus</i>	California mastiff bat	none	NC	DFG: CSC WBWG: High priority CNDDDB Ranked	Potential	widespread forager; roosts in cliffs and buildings
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	none	NC	DFG: CSC CNDDDB Ranked	Potential	coastal sage scrub, grassland and chaparral
<i>Chaetodipus fallax fallax</i>	northwestern San Diego pocket mouse	none	NC	DFG: CSC CNDDDB Ranked	Potential	coastal sage scrub, grassland and chaparral
<i>Perognathus longimembris pacificus</i>	Pacific pocket mouse	ESA: FE CESA: None	CC	DFG: CSC CNDDDB 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).
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	none	NC	DFG: CSC CNDDDB Ranked	Potential	inhabits open ground with fine sandy soils fine, sandy soils, may be restricted to lower elevation grassland and coastal sage scrub
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	none	C	DFG: CSC CNDDDB Ranked	Potential	cactus patches and rock outcroppings in coastal sage scrub
<i>Onychomys torridus ramona</i>	Ramona grasshopper mouse	none	NC	DFG: CSC CNDDDB Ranked	Potential	annual grassland and coastal sage scrub
<i>Taxidea taxus</i>	American badger	none	NC	DFG: CSC CNDDDB 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
CNDDDB ranked = species listed under the states CNDDDB 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.

5.0 REFERENCES

- American Ornithologist's Union 1957. Check-list of North American Birds, fifth ed. American Ornithologist's Union, Baltimore.
- American Ornithologist's Union 2000. Forty-second supplement to the A.O.U. Check-list of North American Birds.
- Baker, R. J., L. C. Bradley, R. D. Bradley, J. W. Dragoo, M. D. Engstrom, R. S. Hoffmann, C. A. Jones, F. Reid, D. W. Rice, and C. Jones. 2003. Revised Checklist of North American Mammals North of Mexico. Museum of Texas Tech University. OP-229. <http://www.nsrl.ttu.edu/pubs/opapers.htm>
- Barrett, T.S. and P. Livermore. 1983. The Conservation Easement in California. Covelo: Island Press.
- Beier, P. 1993. Determining minimum habitat areas and habitat corridors for cougars. Conservation Biology 7: 94-108.
- Borror, D.J. and R.E. White 1970. A field guide to Insects, America north of Mexico. Houghton Mifflin Company, Boston, MA.
- Brussard, P.F., M.S. Gilpin, J.F. O'Leary, D.D. Murphy, and R.F. Noss 1992. Coastal Sage Scrub Survey Guidelines. Southern California Coastal Sage Scrub Scientific Review Panel.
- Burt, H.B. and R.P. Grossenheider 1976. A field guide to the mammals North America north of Mexico. 3rd Edition. Houghton Mifflin Company, Boston, MA.
- California Department of Fish and Game. 2008. Special Vascular Plants, Bryophytes, and Lichens List. Natural Diversity Database. California Department of Fish and Game. Sacramento. Biannual Publication. July 2005.
- California Department of Fish and Game [CDFG] [website]. 2008. Habitat Conservation Planning Branch. Available http://www.dfg.ca.gov/hcpb/species/t_e_spp/tespp.shtml
- California Department of Fish and Game 1994. A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code, Environmental Services Division, 1994.
- California Natural Diversity Data Base (CNDDB) 2008. El Toro USGS 7.5-minute quadrangle.

- California Natural Diversity Data Base (CNDDDB). 2008. List of Special Animals. California Department of Fish and Game. Sacramento. Biannual Publication. July 2005.
- Calflora: Information on California plants for education, research and conservation. 2008 Berkeley California: The CalFlora Database [a non-profit organization]. Available <http://www.calflora.org>
- Corps 2001. Corps Memorandum relating to Supreme Court ruling concerning CWA jurisdiction over isolated waters.
- Corps and EPA 2001. 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.
- Dames & Moore and D. Bramlet. 1994b. Habitat types of special interest (revised). Orange County Natural Resources GIS Project. Prepared for County of Orange, EMA. Santa Ana, California.
- Environmental Laboratory 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.
- Gallagher, S.R. 1997. Atlas of breeding birds, Orange County, California. Published by Sea and Sage Audubon Press, Irvine, California. 264 pp.
- Garrett, K. and J. Dunn. 1981. Birds of Southern California: Status and Distribution. Los Angeles Audubon Society. 407 pp.
- Gray, J., and D. Bramlet. 1992. Habitat Classification System Natural Resources Geographic Information System (GIS) Project. Prepared for County of Orange Environmental Management Agency, Santa Ana, California. May.
- 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
- Hamilton, R.A. and Willick, D.R. 1996. The birds of Orange County, California. Status and distribution. Sea and Sage Press. Sea and Sage Audubon Society, Irvine, California. 150 pp
- Hickman, J.C. (ed). 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA.

- Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Department of Fish and Game. Sacramento, CA.
- Jennings, M.R. and M.P. Hayes 1994. Amphibian and reptile Species of Special Concern in California. Final report submitted to the Department of Fish and Game Inland Fisheries Division. 255pp.
- Jones & Stokes Associates, Inc. 1993. Methods used to survey the vegetation of Orange County parks and open space areas and The Irvine Company property. February 10, 1993. (JSA 92-032.) Sacramento, CA. Prepared for County of Orange, Environmental Management Agency, Environmental Planning Division, Santa Ana, CA.
- Mock, P.J., B.L. Jones, and J. Konecny 1990. California Gnatcatcher Survey Guidelines. Unpublished Report Prepared by Environmental and Energy Services Company, San Diego, CA.
- Moyle, P.B., R.M. Yoshiyama, J.E. Williams and E.D. Wikramanayake 1995. Fish Species of Special Concern in California. Final report submitted to the Department of Fish and Game Inland Fisheries Division. 272pp.
- Nelson, J. 1984. Rare plant survey guidelines. *In*: Inventory of rare and endangered vascular plants of California. J. Smith and R. York (eds.). Special Publication No. 1. California Native Plant Society.
- O’Leary, J.F. 1990. Californian Coastal Sage Scrub: General Characteristics and Considerations of Biological Conservation. *In* Schoenherr, A.A. (Eds.). Endangered Plant Communities of Southern California. Proceedings of the 15th Annual Symposium. Southern California Botanists. Special Publication No.3.
- Perrins, C. M, and A. L. A. Middleton (Eds.). 1983. The Encyclopedia of Birds. Andromeda Oxford Limited. 463pp.
- Powell, J.A. and C.L. Hogue 1979. California insects. California Natural History Guides:44. University of California Press.
- 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).
- Remington, S. 2000. The distribution and diversity of bats in Orange County, California. Pomona: Calif. State Polytechnic Univ. 114 p. M.S. thesis.
- Roberts, F.M., Jr. 1990. Rare and Endangered Plants of Orange County. Crossosoma Vol. 16(2): 3-12.

- Roberts, F.M., Jr. 1998. A Checklist of the Vascular Plants of Orange County, California. F.M. Roberts Publications, Encinitas, California.
- Small, A. 1994. California birds: Their status and distribution. IBIS Publishing Company.
- Sawyer J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. Sacramento, CA.
- SCWP (South Coast Wildlands Project) 2004. South Coast Missing Linkages Project: A linkage design for the Tehachapi Connection. Unpublished Report. <http://scwildlands.org>.
- Sibley, D.A. 2000. The Sibley guide to birds. Alfred A. Knopf, New York.
- Stebbins, R.C. 2003. A field guide to western reptiles and amphibians. 3rd Edition. Houghton Mifflin Company, Boston, MA.
- Tibor, D.P. (ed.) 2001. 6th Edition. California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society, Sacramento, CA.
- United States Court of Appeals, Ninth Circuit. 1990. Marble Mountain Audubon Society v. United States Forest Service. No. 90-15389. 914 F.2d 179
- 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.
- U.S. Fish and Wildlife Service 1997. Presence/absence survey protocol for the Coastal California gnatcatcher. July 28, 1997.
- USDA, Natural Resources Conservation Service 2003. Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils. Version 5.01, 2003.
- United States Supreme Court, Case 2001. Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, (referred to as SWANCC).
- Wachtell, J.K. 1978. Soil survey of Orange County and western part of Riverside County, California. U.S. Dept. Agriculture., Soil Conservation Service.
- Western Bat Working Group. 1998. Western Bat Species: Regional Priority Matrix. Western Bat Working Group Workshop, February 9-13, 1998, Reno, Nevada.

6.0 APPENDICES

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

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

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

ONAGRACEAE	EVENING PRIMROSE FAMILY
<i>Epilobium canum</i> subsp. <i>canum</i>	Narrow-Leaved Fuchsia
POLYGONACEAE	BUCKWHEAT FAMILY
<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	California Buckwheat
<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	Interior Flat-Topped Buckwheat
RANUNCULACEAE	CROWFOOT FAMILY
<i>Clematis pauciflora</i>	Small-Leaved Virgin's Bower
RHAMNACEAE	BUCKTHORN FAMILY
<i>Rhamnus ilicifolia</i>	Holly-Leaved Redberry
ROSACEAE	ROSE FAMILY
<i>Heteromeles arbutifolia</i>	Toyon or Christmas Berry
<i>Prunus persica</i> *	Peach
RUBIACEAE	MADDER FAMILY
<i>Galium angustifolium</i> subsp. <i>angustifolium</i>	Chaparral Bedstraw
SALICACEAE	WILLOW FAMILY
<i>Populus fremontii</i> subsp. <i>fremontii</i>	Western Cottonwood
SCROPHULARIACEAE	FIGWORT FAMILY
<i>Keckiella cordifolia</i>	Heart-Leaved Bush-Penstemon
SIMAROUBACEAE	QUASSIA or SIMAROUBA FAMILY
<i>Ailanthus altissima</i> *	Tree of Heaven
SOLANACEAE	NIGHTSHADE FAMILY
<i>Datura wrightii</i>	Jimsonweed
<i>Nicotiana glauca</i> *	Tree Tobacco
<i>Solanum douglasii</i>	Douglas' Nightshade
TAMARICACEAE	TAMARISK FAMILY
<i>Tamarix</i> sp.	Tamarisk
ANGIOSPERMS - MONOCOTYLENDONES	MONOCOTS
ARECACEAE	PALM FAMILY
<i>Washingtonia robusta</i> *	Mexican Fan Palm
POACEAE	GRASS FAMILY
<i>Avena barbata</i> *	Slender Wild Oat
<i>Bromus diandrus</i> *	Common Ripgut Grass
<i>Bromus madritensis</i> subsp. <i>rubens</i> *	Foxtail Chess or Red Brome
<i>Bromus tectorum</i> *	Cheat Grass
<i>Cortaderia jubata</i> *	Pampas Grass
<i>Leymus condensatus</i>	Giant Wild-Rye
<i>Nassella lepida</i>	Foothill Needlegrass
<i>Pennisetum setaceum</i> *	African Fountain Grass
<i>Pennisetum villosum</i> *	Pennisetum
<i>Piptatherum miliaceum</i> *	Smilo Grass or Millett Ricegrass
<i>Schismus barbatus</i> *	Mediterranean Schismus
<i>Vulpia microstachys</i> var. <i>pauciflora</i>	Pacific Fescue
<i>Vulpia myuros</i> var. <i>myuros</i> *	Rattail Fescue
TYPHACEAE	CAT-TAIL FAMILY
<i>Typha latifolia</i>	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
<i>Sceloporus occidentalis</i>	Western Fence Lizard
<i>Uta stansburiana</i>	Side-Blotched Lizard
ODONTOPHORIDAE	NEW WORLD QUAIL
<i>Callipepla californica</i>	California Quail
CATHARTIDAE	NEW WORLD VULTURES
<i>Cathartes aura</i>	Turkey Vulture
ACCIPITRIDAE	HAWKS, OLD WORLD VULTURES & HARRIERS
<i>Accipiter cooperii</i> ⁺	Cooper's Hawk
<i>Buteo jamaicensis</i>	Red-Tailed Hawk
<i>Buteo lineatus</i>	Red-Shouldered Hawk
FALCONIDAE	CARACARAS & FALCONS
<i>Falco sparverius</i>	American Kestrel
<i>Falco columbarius</i> ⁺	Merlin
COLUMBIDAE	PIGEONS & DOVES
<i>Columba livia</i>	Rock Pigeon
<i>Zenaida macroura</i>	Mourning Dove
TROCHILIDAE	HUMMINGBIRDS
<i>Archilochus alexandri</i>	Black-Chinned Hummingbird
<i>Calypte anna</i>	Anna's Hummingbird
PICIDAE	WOODPECKERS
<i>Melanerpes formicivorus</i>	Acorn Woodpecker
<i>Picoides nuttallii</i> ⁺	Nuttall's Woodpecker
TYRANNIDAE	TYRANT FLYCATCHERS
<i>Sayornis nigricans</i>	Black Phoebe
<i>Sayornis saya</i>	Say's Phoebe
<i>Tyrannus vociferans</i>	Cassin's Kingbird
<i>Tyrannus verticalis</i>	Western Kingbird
CORVIDAE	JAYS, MAGPIES & CROWS
<i>Aphelocoma californica</i>	Western Scrub-Jay
<i>Corvus brachyrhynchos</i>	American Crow
<i>Corvus corax</i>	Common Raven
ALAUDIDAE	LARKS
<i>Eremophila alpestris actia</i> ⁺	California Horned Lark
AEGITHALIDAE	LONG-TAILED TITS
<i>Psaltriparus minimus</i>	Bushtit
TROGLODYTIDAE	WRENS
<i>Thryomanes bewickii</i>	Bewick's Wren
<i>Troglodytes aedon</i>	House Wren
SYLVIIDAE	OLD-WORLD WARBLERS & GNATCATCHERS
<i>Poliophtila californica californica</i> ⁺	Coastal California Gnatcatcher
MIMIDAE	MOCKINGBIRDS & THRASHERS

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

Sources:

Reptiles and amphibians: North American Herpetology (NAH) nomenclature updates:
<http://www.naherpetology.org/nameslist>
 Birds: American Ornithologists' Union Checklist of North American Birds - 7th Edition (2005):
<http://www.aou.org/checklist/index.php3>
 Mammals: Baker, R. J., L. C. Bradley, R. D. Bradley, J. W. Drago, M. D. Engstrom, R. S. Hoffmann, C. A. Jones, F. Reid, D. W. Rice, and C. Jones. 2003. Revised Checklist of North American Mammals North of Mexico. Museum of Texas Tech University. OP-229. <http://www.nsr.ttu.edu/pubs/opapers.htm>
 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.
 Special Status Designations + : California Department of Fish and Game, California Natural Diversity Database (May 2008): <http://www.dfg.ca.gov/whdab/html/cnddb.html>;

6.4 Appendix D: California gnatcatcher surveys data.

Date	Biologist	Time	%Cloud cover	Temp (°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	3
<i>1.1 Local Setting and Site Description</i>	<i>3</i>
2.0 METHODOLOGY	5
<i>2.1 Biological Resources Information sources</i>	<i>5</i>
<i>2.2 Wildlife surveys and habitat assessment for special status wildlife.....</i>	<i>5</i>
3.0 RESULTS.....	7
<i>3.1 Vegetation types.....</i>	<i>7</i>
<i>3.2 Wildlife</i>	<i>8</i>
<i>3.3 California gnatcatcher and coastal cactus wren</i>	<i>8</i>
4.0 REFERENCES	11
5.0 APPENDICES.....	13
<i>5.1 Appendix A: Wildlife species list from the Lake Forest IRWD project site 2008.</i>	<i>13</i>
<i>5.2 Appendix B: California gnatcatcher surveys data</i>	<i>15</i>

1.0 INTRODUCTION

This report summarizes the results of focused surveys for California gnatcatcher (*Poliophtila 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).

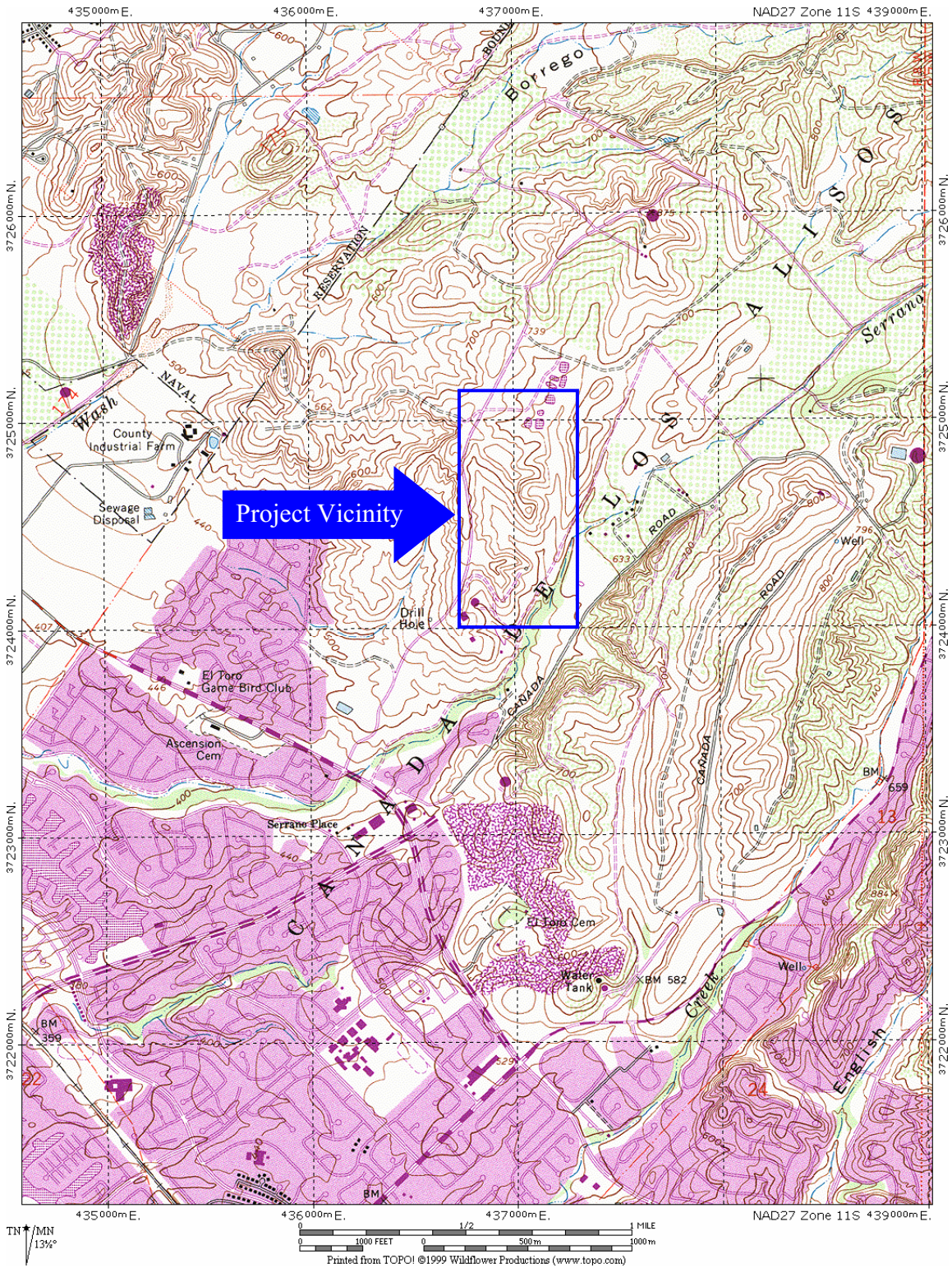


Figure 1: Location of the Lake Forest IRWD site in Orange County, southern California. Source: El Toro U.S.G.S. quadrangles.

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 (CNDDDB) 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 *et 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 areas 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.

4.0 REFERENCES

- American Ornithologist's Union 1957. Check-list of North American Birds, fifth ed. American Ornithologist's Union, Baltimore.
- American Ornithologist's Union 2000. Forty-second supplement to the A.O.U. Check-list of North American Birds.
- Baker, R. J., L. C. Bradley, R. D. Bradley, J. W. Dragoo, M. D. Engstrom, R. S. Hoffmann, C. A. Jones, F. Reid, D. W. Rice, and C. Jones. 2003. Revised Checklist of North American Mammals North of Mexico. Museum of Texas Tech University. OP-229. <http://www.nsrl.ttu.edu/pubs/opapers.htm>
- Brussard, P.F., M.S. Gilpin, J.F. O'Leary, D.D. Murphy, and R.F. Noss 1992. Coastal Sage Scrub Survey Guidelines. Southern California Coastal Sage Scrub Scientific Review Panel.
- Burt, H.B. and R.P. Grossenheider 1976. A field guide to the mammals North America north of Mexico. 3rd Edition. Houghton Mifflin Company, Boston, MA.
- California Natural Diversity Data Base (CNDDB) 2008. El Toro USGS 7.5-minute quadrangle.
- California Natural Diversity Data Base (CNDDB). 2008. List of Special Animals. California Department of Fish and Game. Sacramento. Biannual Publication. July 2005.
- Gallagher, S.R. 1997. Atlas of breeding birds, Orange County, California. Published by Sea and Sage Audubon Press, Irvine, California. 264 pp.
- Garrett, K. and J. Dunn. 1981. Birds of Southern California: Status and Distribution. Los Angeles Audubon Society. 407 pp.
- 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
- Hamilton, R.A. and Willick, D.R. 1996. The birds of Orange County, California. Status and distribution. Sea and Sage Press. Sea and Sage Audubon Society, Irvine, California. 150 pp
- Jennings, M.R. and M.P. Hayes 1994. Amphibian and reptile Species of Special Concern in California. Final report submitted to the Department of Fish and Game Inland Fisheries Division. 255pp.

- Jones & Stokes Associates, Inc. 1993. Methods used to survey the vegetation of Orange County parks and open space areas and The Irvine Company property. February 10, 1993. (JSA 92-032.) Sacramento, CA. Prepared for County of Orange, Environmental Management Agency, Environmental Planning Division, Santa Ana, CA.
- Mock, P.J., B.L. Jones, and J. Konecny 1990. California Gnatcatcher Survey Guidelines. Unpublished Report Prepared by Environmental and Energy Services Company, San Diego, CA.
- Moyle, P.B., R.M. Yoshiyama, J.E. Williams and E.D. Wikramanayake 1995. Fish Species of Special Concern in California. Final report submitted to the Department of Fish and Game Inland Fisheries Division. 272pp.
- Perrins, C. M, and A. L. A. Middleton (Eds.). 1983. The Encyclopedia of Birds. Andromeda Oxford Limited. 463pp.
- Powell, J.A. and C.L. Hogue 1979. California insects. California Natural History Guides:44. University of California Press.
- Small, A. 1994. California birds: Their status and distribution. IBIS Publishing Company.
- Sibley, D.A. 2000. The Sibley guide to birds. Alfred A. Knopf, New York.
- Stebbins, R.C. 2003. A field guide to western reptiles and amphibians. 3rd Edition. Houghton Mifflin Company, Boston, MA.
- U.S. Fish and Wildlife Service 1997. Presence/absence survey protocol for the Coastal California gnatcatcher. July 28, 1997.
- Wachtell, J.K. 1978. Soil survey of Orange County and western part of Riverside County, California. U.S. Dept. Agriculture., Soil Conservation Service.

5.0 APPENDICES

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

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

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

Sources:

Reptiles and amphibians: North American Herpetology (NAH) nomenclature updates:

<http://www.naherpetology.org/nameslist>

Birds: American Ornithologists' Union Checklist of North American Birds - 7th Edition (2005):

<http://www.aou.org/checklist/index.php3>

Mammals: Baker, R. J., L. C. Bradley, R. D. Bradley, J. W. Drago, M. D. Engstrom, R. S. Hoffmann, C. A. Jones, F. Reid, D. W. Rice, and C. Jones. 2003. Revised Checklist of North American Mammals North of Mexico. Museum of Texas Tech University. OP-229. <http://www.nsr.ttu.edu/pubs/opapers.htm>

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.

Special Status Designations + : California Department of Fish and Game, California Natural Diversity Database (May 2008): <http://www.dfg.ca.gov/whdab/html/cnddb.html>;

5.2 Appendix B: California gnatcatcher surveys data.

Date	Biologist	Time	%Cloud cover	Temp (°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)

HARMSWORTH ASSOCIATES

Environmental Consultants

July 19, 2011

Eddie Torres
Environmental Services
RBF Consulting
14725 Alton Parkway
Irvine, CA 92618

Dear Mr. Torres

Re: Serrano Summit biological surveys

This letter report presents the findings of focused biological surveys at the Serrano Summit (Lake Forest – IRWD) project site, in Orange County, California. The purpose of the focused surveys is to provide updated information for the Serrano Summit Initial Study. The surveys were conducted under contract to RBF Consultants. Surveys were conducted in June 2011.

Project location, site description and survey area

The Serrano Summit site is located in the city of Lake Forest, 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.

The survey area included the entire site, covering both the areas previously surveyed by Harmsworth Associates and PCR (RBF Consulting 2010), and included the proposed park and open space areas of the site (Figure 2).

Existing conditions

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 site conditions were unchanged compared with the conditions documented in the Initial Study (RBF Consulting 2010).

Focused survey methods

Focused surveys were conducted for special status plant species¹ and special status wildlife species² in June 2011.

Focused surveys for special status plant species were conducted on 24 and 30 June 2011, by Michelle Balk. Focused surveys were conducted for the following special status plant species;

- Chaparral beargrass (*Nolina cismontana*);
- Chaparral rein orchid (*Piperia cooperi*);
- Golden-flowered pentachaeta (*Pentachaeta aurea*);
- Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*);
- Many-stemmed dudleya (*Dudleya multicaulis*);
- Mesa horkelia (*Horkelia cuneata* ssp. *puberula*);
- Payson's jewel flower (*Caulanthus simulans*);
- Robinson's peppergrass (*Lepidium virginicum* var. *robinsonii*);
- Small-flowered morning-glory (*Convolvulus simulans*);
- Thread-leaved brodiaea (*Brodiaea filifolia*);
- Western dichondra (*Dichondra occidentalis*); and,
- Nuttall's scrub oak (*Quercus dumosa*).

The focused survey for special status plant species followed the methods of CNPS (2001) and Nelson, (1984). The focused surveys concentrated on habitats with the highest potential for yielding rare species and were performed during the peak of the blooming period. Fieldwork was focused within areas of native habitat potentially supporting special-status plants that were the focus of the surveys, although the entire site was walked to complete the survey. All plant species encountered were identified onsite or returned to the laboratory for further investigation, and a floral list was compiled. Scientific nomenclature in Hickman (1993) was used as the taxonomic resource; common names according to Roberts (1998).

Locations of sensitive plants were recorded with a hand-held Garmin 76Cx GPS unit, using the point-averaging feature for increased accuracy.

Focused surveys for special status wildlife species were conducted on 22, 24 and 30 June 2011, by Paul Galvin. On 22 and 30 June surveys were conducted during the morning hours (7.00am – 12.00noon) for diurnally active animals. Survey conditions were ideal, with temperatures ranging from 60-85 F, cloud cover at 0% and wind speed from 0-2 mph. On 24 June surveys were conducted during the evening/nighttime hours (7.00pm –

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.

9.00pm) for bats, owls and nocturnal mammals. Survey conditions were ideal, with temperatures ranging from 70-63 F, cloud cover at 0% and wind speed 0 mph.

Focused surveys were conducted for the following special status wildlife species;

- Coast Range newt (*Taricha torosa torosa*)
- Orange-throated whiptail (*Cnemidophorus hyperythra*)
- Coastal western whiptail (*Cnemidophorus tigris stejnegeri*)
- Coast horned lizard (*Phrynosoma coronatum (blainvillei)*)
- Coronado skink (*Eumeces skiltonianus interparietalis*)
- Silvery legless lizard (*Anniella pulchra pulchra*)
- Two-striped garter snake (*Thamnophis hammondi*)
- Coast patch-nosed snake (*Salvadora hexalepis virgultea*)
- Coastal rosy boa (*Charina trivirgata roseofusca*)
- Northern red-diamond rattlesnake (*Crotalus ruber ruber*)
- Sharp-shinned hawk (*Accipiter striatus*)
- Cooper's hawk (*Accipiter cooperi*)
- Ferruginous hawk (*Buteo regalis*)
- Golden eagle (*Aquila chrysaetos*)
- Northern harrier (*Circus cyaneus*)
- White-tailed kite (*Elanus leucurus*)
- American peregrine falcon (*Falco peregrinus anatum*)
- Merlin (*Falco columbarius*)
- Burrowing owl (*Athene cunicularia*)
- Short-eared owl (*Asio flammeus*)
- Long-eared owl (*Asio otus*)
- Rufous hummingbird (*Selasphorus rufus*)
- Loggerhead shrike (*Lanius ludovicianus*)
- Yellow-breasted chat (*Icteria virens*)
- Bell's sage sparrow (*Amphispiza belli belli*)
- Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
- Lawrence's goldfinch (*Carduelis lawrencei*)
- Big free-tailed bat (*Nyctinomops macrotis*)
- Pallid bat (*Antrozous pallidus*)
- Western mastiff bat (*Eumops perotis californicus*)
- Western red bat (*Lasiurus blossevillii*)
- California leaf-nosed bat (*Macrotus californicus*)
- Yuma myotis (*Myotis yumanensis*)
- Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)
- Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)
- Ramona grasshopper mouse (*Onychomys torridus Ramona*)
- San Diego desert woodrat (*Neotoma lepida intermedia*)
- San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)
- American badger (*Taxidea taxus*)

Focused surveys for special status wildlife species followed standard surveys protocols or CDFG and USFWS specifically approved/recommend survey protocols where they exist. The site was traversed on foot to survey each vegetation community and look for evidence of wildlife presence. The surveys primarily utilized the established network of access roads, and trails and also the drainage bottoms. Wildlife species were detected during the field surveys by sight, vocalizations, burrows, tracks, scat, scrapings and other sign. No specialized techniques, such as trapping, mist nets or sonar detectors, were used during the surveys.

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 et 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.

Survey Results

Special status plant species

None of the special status plant species for which focused surveys were specifically conducted were detected during the June 2011 surveys. No chaparral beargrass, chaparral rein orchid, golden-flowered Pentachaeta, intermediate mariposa lily, many-stemmed dudleya, mesa horkelia, Payson's jewel flower, Robinson's peppergrass, small-flowered morning-glory, thread-leaved brodiaea or western dichondra were detected onsite.

One special status plant species, San Diego marsh elder (*Iva hayesiana*) was observed onsite. Approximately 70 individuals of San Diego marsh elder (CNPS List 2.2) were observed onsite (Figure 2). Individuals were concentrated near sprinkler heads along access roads in the western region of the site, suggesting they may have been planted for landscaping purposes. San Diego marsh elder grows as a shrub and is commonly found along stream channels or in wetlands. It is generally confined to San Diego County and Baja California, Mexico, but one location in Orange County (Huntington Beach) has been reported (Consortium of California Herbaria; ucjeps.berkeley.edu/consortium/).

Special status wildlife species

None of the special status wildlife species for which focused surveys were specifically conducted were detected during the June 2011 surveys. No coast range newt, orange-throated whiptail, coastal western whiptail, coast horned lizard, coronado skink, silvery legless lizard, two-striped garter snake, coast patch-nosed snake, coastal rosy boa, northern red-diamond rattlesnake, sharp-shinned hawk, ferruginous hawk, golden eagle,

northern harrier, white-tailed kite, burrowing owl, short-eared owl, long-eared owl, rufous hummingbird, loggerhead shrike, yellow-breasted chat, Bell's sage sparrow, southern California rufous-crowned sparrow, Lawrence's goldfinch, big free-tailed bat, pallid bat, western mastiff bat, western red bat, California leaf-nosed bat, yuma myotis, Los Angeles pocket mouse, northwestern San Diego pocket mouse, Ramona grasshopper mouse, San Diego desert woodrat, San Diego black-tailed jackrabbit or American badger were detected onsite.

Three special status wildlife species were detected onsite, California gnatcatcher (*Polioptila californica californica*), California horned lark (*Eremophila alpestris actia*) and yellow warbler (*Dendroica petechia brewsteri*). Two pairs of gnatcatchers and a single male gnatcatcher were detected (Figure 3). These were in similar locations to the past surveys (RBF Consulting 2010). A flock of California horned larks were detected in the disturbed area at the central portion of the site, as they were during the past surveys (RBF Consulting 2010). Two pairs of yellow warbler were detected in the riparian woodland along Serrano Creek, in an area proposed for open space (Figure 3).

Biological constraints

Locations of California gnatcatcher and California horned lark were similar to that documented in the Initial Study and potential impacts to these species were addressed in the Initial Study (RBF Consulting 2010).

Two yellow warbler were detected in the riparian woodland along Serrano Creek, in an area proposed for open space. Any indirect impacts to yellow warbler would be less than significant.

Approximately 70 individuals of San Diego marsh elder were observed onsite. However, it is likely that this species was planted for landscaping purposes; as it typically occurs in wetlands or riparian areas while at this site it was found in scrub adjacent sprinkler heads. Any impacts to San Diego marsh elder would be less than significant.

If you have any questions or require additional information, please call me at (714) 389-9527.

Sincerely

Harmsworth Associates

A handwritten signature in black ink, appearing to read "Paul Galvin". The signature is written in a cursive, flowing style.

Paul Galvin, M.S.
Vice President

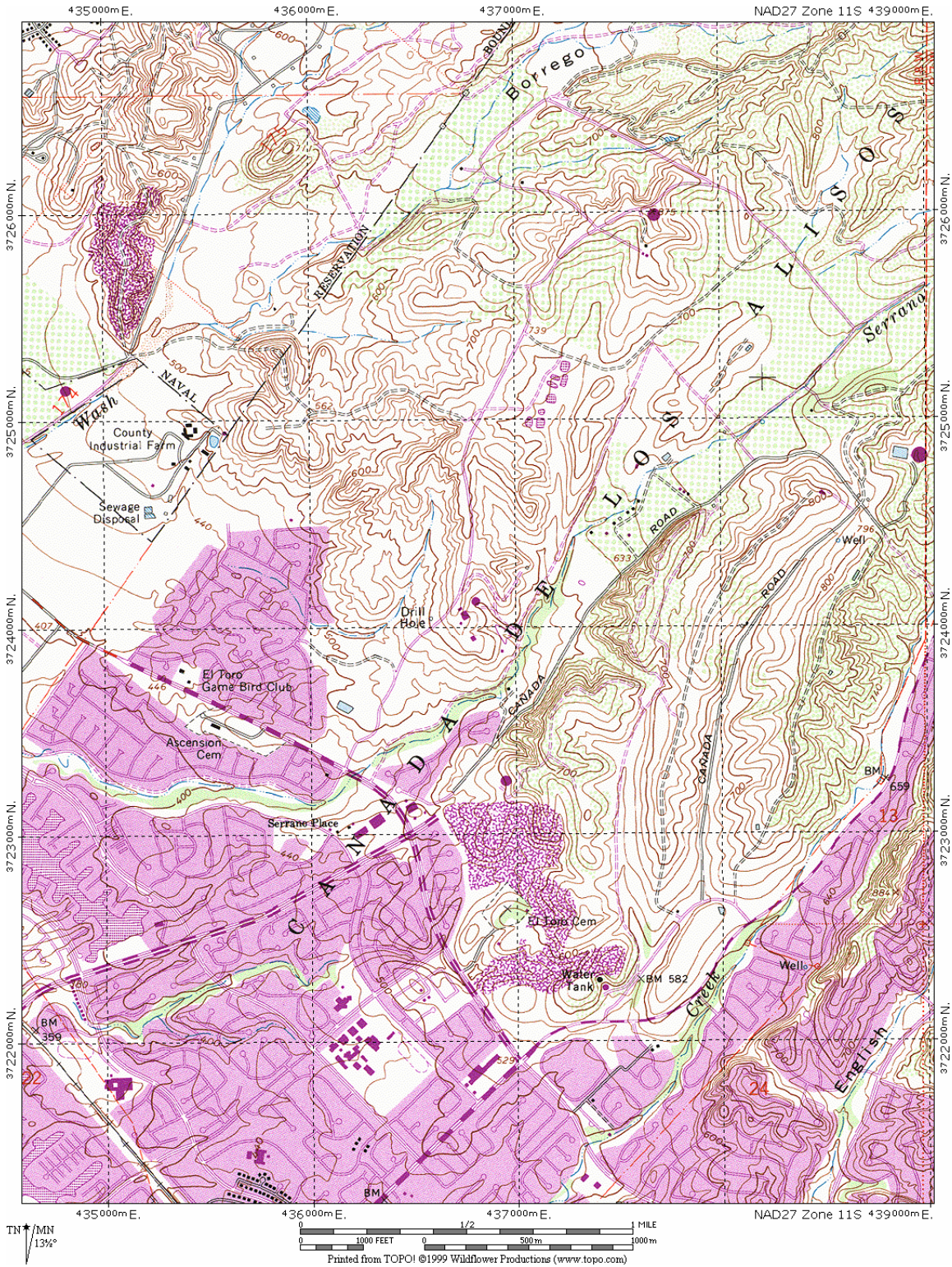


Figure 1: Location of the Serrano Summit site in Orange County, southern California. Source: El Toro U.S.G.S. quadrangle.



Figure 2: Serrano Summit survey area (in red); and locations of San Diego marsh elder (in yellow). Source: Google Earth.

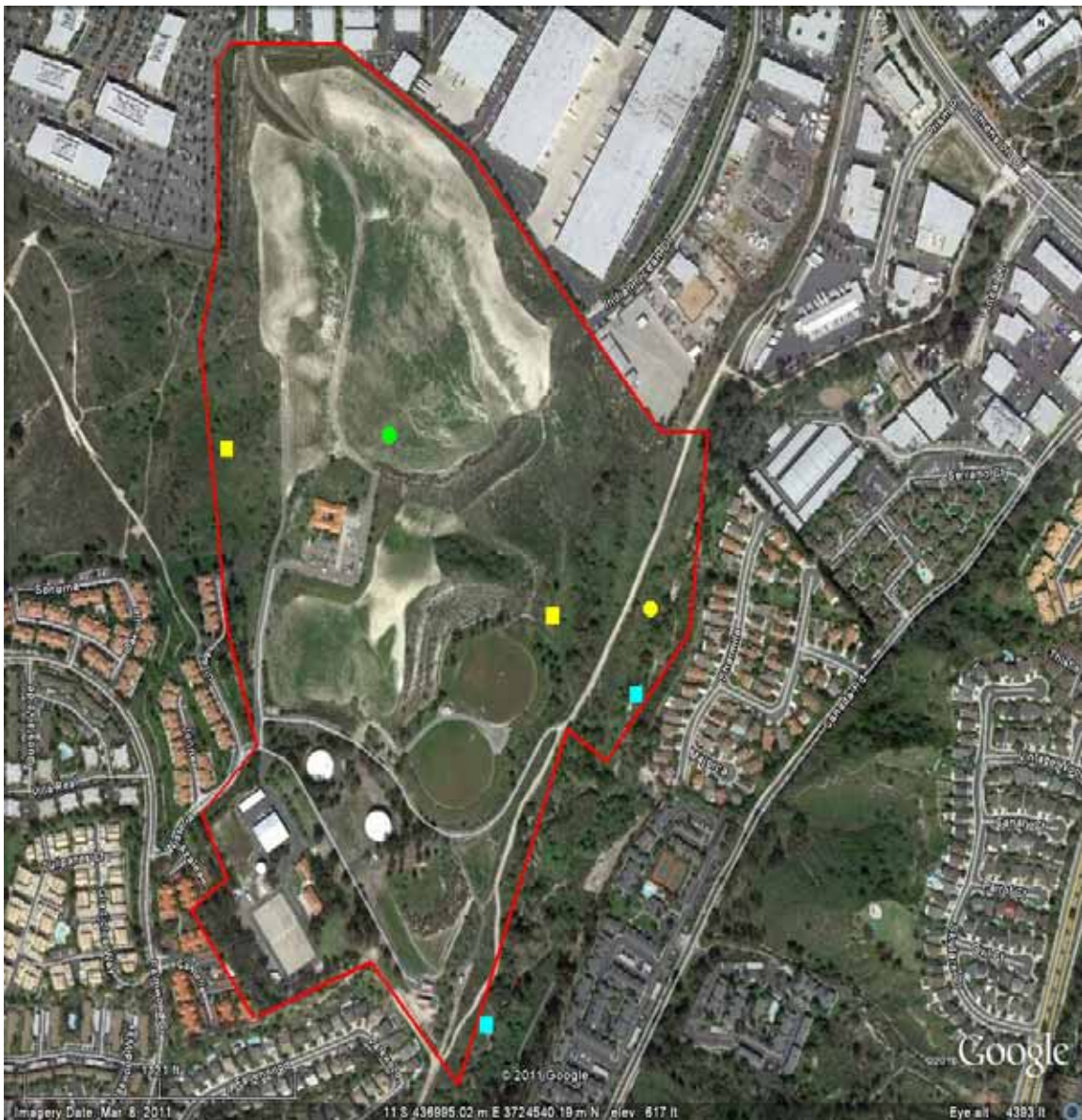


Figure 3: Serrano Summit survey area (in red); squares = pairs; circles = unpaired birds; California gnatcatcher in yellow, yellow warbler in blue, California horned lark in green. Source: Google Earth.

References

- American Ornithologist's Union 1957. Check-list of North American Birds, fifth ed. American Ornithologist's Union, Baltimore.
- American Ornithologist's Union 2000. Forty-second supplement to the A.O.U. Check-list of North American Birds.
- Baker, R. J., L. C. Bradley, R. D. Bradley, J. W. Dragoo, M. D. Engstrom, R. S. Hoffmann, C. A. Jones, F. Reid, D. W. Rice, and C. Jones. 2003. Revised Checklist of North American Mammals North of Mexico. Museum of Texas Tech University. OP-229. <http://www.nsrl.ttu.edu/pubs/opapers.htm>
- Brussard, P.F., M.S. Gilpin, J.F. O'Leary, D.D. Murphy, and R.F. Noss 1992. Coastal Sage Scrub Survey Guidelines. Southern California Coastal Sage Scrub Scientific Review Panel.
- Burt, H.B. and R.P. Grossenheider 1976. A field guide to the mammals North America north of Mexico. 3rd Edition. Houghton Mifflin Company, Boston, MA.
- California Natural Diversity Data Base (CNDDB) 2008. El Toro USGS 7.5-minute quadrangle.
- California Natural Diversity Data Base (CNDDB). 2008. List of Special Animals. California Department of Fish and Game. Sacramento. Biannual Publication. July 2005.
- California Native Plant Society 2001. CNPS botanical survey guidelines. California Native Plant Society, Sacramento, California.
- Gallagher, S.R. 1997. Atlas of breeding birds, Orange County, California. Published by Sea and Sage Audubon Press, Irvine, California. 264 pp.
- Garrett, K. and J. Dunn. 1981. Birds of Southern California: Status and Distribution. Los Angeles Audubon Society. 407 pp.
- 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
- Hamilton, R.A. and Willick, D.R. 1996. The birds of Orange County, California. Status and distribution. Sea and Sage Press. Sea and Sage Audubon Society, Irvine, California. 150 pp

- Hickman, J.C. (ed). 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA.
- Jennings, M.R. and M.P. Hayes 1994. Amphibian and reptile Species of Special Concern in California. Final report submitted to the Department of Fish and Game Inland Fisheries Division. 255pp.
- Jones & Stokes Associates, Inc. 1993. Methods used to survey the vegetation of Orange County parks and open space areas and The Irvine Company property. February 10, 1993. (JSA 92-032.) Sacramento, CA. Prepared for County of Orange, Environmental Management Agency, Environmental Planning Division, Santa Ana, CA.
- Mock, P.J., B.L. Jones, and J. Konecny 1990. California Gnatcatcher Survey Guidelines. Unpublished Report Prepared by Environmental and Energy Services Company, San Diego, CA.
- Moyle, P.B., R.M. Yoshiyama, J.E. Williams and E.D. Wikramanayake 1995. Fish Species of Special Concern in California. Final report submitted to the Department of Fish and Game Inland Fisheries Division. 272pp.
- Nelson, J. 1984. Rare plant survey guidelines. *In*: Inventory of rare and endangered vascular plants of California. J. Smith and R. York (eds.). Special Publication No. 1. California Native Plant Society.
- Roberts, F.M., Jr. 1990. Rare and Endangered Plants of Orange County. *Crossosoma* Vol. 16(2): 3-12.
- Roberts, F.M., Jr. 1998. A Checklist of the Vascular Plants of Orange County, California. F.M. Roberts Publications, Encinitas, California.
- Perrins, C. M, and A. L. A. Middleton (Eds.). 1983. The Encyclopedia of Birds. Andromeda Oxford Limited. 463pp.
- Powell, J.A. and C.L. Hogue 1979. California insects. California Natural History Guides:44. University of California Press.
- RBF Consulting 2010. Draft – Serrano Summit Area Plan 2009-01 and Tentative Track Map No. 17331. Initial Study/Environmental Checklist, April 30, 2010.
- Small, A. 1994. California birds: Their status and distribution. IBIS Publishing Company.
- Sibley, D.A. 2000. The Sibley guide to birds. Alfred A. Knopf, New York.

Stebbins, R.C. 2003. A field guide to western reptiles and amphibians. 3rd Edition. Houghton Mifflin Company, Boston, MA.

U.S. Fish and Wildlife Service 1997. Presence/absence survey protocol for the Coastal California gnatcatcher. July 28, 1997.

Wachtell, J.K. 1978. Soil survey of Orange County and western part of Riverside County, California. U.S. Dept. Agriculture., Soil Conservation Service.

Appendices

Appendix A: Plant species list from the Serrano Summit project site, 2011.

VASCULAR PLANT SPECIES

CONIFERS

ARAUCARIACEAE – ARAUCARIA FAMILY

- * *Araucaria heterophylla* – Norfolk Island pine

PINACEAE - PINE FAMILY

- Pinus* sp. - pine

ANGIOSPERMS (DICOTS)

ADOXACEAE – MUSKROOT FAMILY

- Sambucus nigra* ssp. *caerulea* - blue elderberry

AIZOACEAE - FIG-MARIGOLD FAMILY

- * *Carpobrotus edulis* - hottentot-fig

AMARANTHACEAE - AMARANTH FAMILY

- * *Amaranthus albus* - tumbleweed

ANACARDIACEAE - SUMAC FAMILY

- Malosma laurina* - laurel sumac
- Rhus integrifolia* - lemonadeberry
- Rhus ovata* - sugar bush
- * *Schinus molle* - Peruvian pepper tree
- Toxicodendron diversilobum* - western poison oak

APIACEAE - CARROT FAMILY

- * *Conium maculatum* - common poison hemlock

APOCYNACEAE - DOGBANE FAMILY

- * *Nerium oleander* - oleander

ASTERACEAE - SUNFLOWER FAMILY

- Acourtia microcephala* – sacapellote
- Ambrosia acanthicarpa* - annual bur-sage
- Ambrosia psilostachya* - western ragweed
- Artemisia californica* - California sagebrush
- Artemisia dracuncululus* – tarragon
- Baccharis pilularis* - chaparral broom, coyote brush
- Baccharis salicifolia* - mule fat, seep-willow, water-wally
- Baccharis sarothroides* - broom baccharis
- * *Carduus pycnocephalus* - Italian thistle\
- * *Centaurea benedicta* [= *Cnicus benedictus*] – blessed thistle
- * *Centaurea melitensis* – tocalote
- Conyza canadensis* – horseweed
- Corethrogyne filaginifolia* var. *filaginifolia* – California-aster
- Encelia californica* - California encelia
- Encelia farinosa* - brittlebush, incienso
- Gnaphalium californicum* - California everlasting
- Gutierrezia californica* - California matchweed
- Hazardia squarrosa* ssp. *grindelioides* - saw-toothed goldenbush
- Heterotheca grandiflora* - telegraph weed
- Isocoma menziesii* ssp. *menziesii* -spreading goldenbush
- Iva hayesiana* - San Diego marsh-elder
- * *Lactuca serriola* - prickly lettuce
- * *Logfia gallica* [= *Filago gallica*] - narrow-leaf filago

- Pseudognaphalium biolettii* [= *Gnaphalium bicolor*] – bicolor cudweed
- Pseudognaphalium* [= *Gnaphalium*] *canescens* – everlasting cudweed
- * *Pseudognaphalium* [= *Gnaphalium*] *luteo-album* - white-head cudweed
- * *Sonchus oleraceus* - common sow thistle
- Stephanomeria virgata* ssp. *virgata* - virgate wreath-plant
- * *Taraxacum officinale* - common dandelion

BORAGINACEAE - BORAGE FAMILY

- Cryptantha* sp. – cryptantha
- Eucrypta chrysanthemifolia* - common eucrypta
- Phacelia distans* - wild-heliotrope
- Phacelia ramosissima* var. *latifolia* - branching phacelia
- Phacelia* sp. - phacelia

BRASSICACEAE - MUSTARD FAMILY

- * *Hirschfeldia incana* - short-pod mustard
- * *Lobularia maritima* - sweet alyssum

CACTACEAE - CACTUS FAMILY

- Opuntia littoralis* - coastal prickly-pear

CHENOPODIACEAE - GOOSEFOOT FAMILY

- Atriplex canescens* ssp. *canescens* - four-wing saltbush/shadscale
- Atriplex lentiformis* ssp. *lentiformis* - big saltbush
- * *Chenopodium album* - pigweed, lamb's-quarters
- * *Chenopodium ambrosioides* - Mexican tea
- * *Chenopodium murale* - nettle-leaf goosefoot

CONVOLVULACEAE - MORNING-GLORY FAMILY

- Calystegia macrostegia* - morning-glory
- Cuscuta californica* - dodder

CUCURBITACEAE - GOURD FAMILY

- Cucurbita foetidissima* - calabazilla
- Marah macrocarpus* var. *macrocarpus* - manroot, wild-cucumber

EUPHORBIACEAE - SPURGE FAMILY

- * *Chamaesyce maculata* - spotted spurge
- Croton californicus* - California croton
- Croton* [= *Eremocarpus*] *setigerus* - doveseed
- * *Ricinus communis* - castor bean

FABACEAE - PEA FAMILY

- * *Acacia* sp. – golden wattle
- * *Lotus corniculatus* - birdfoot lotus
- Lotus purshianus* var. *purshianus* - Spanish-clover
- Lotus scoparius* - deerweed
- * *Melilotus albus* - white sweetclover
- Parkinsonia* sp. – palo verde
- Trifolium* sp. - clover

FAGACEAE - OAK FAMILY

- Quercus agrifolia* var. *agrifolia* - coast live oak, encina

GERANIACEAE - GERANIUM FAMILY

- * *Erodium botrys* - long-beak filaree/storksbill
- * *Erodium cicutarium* - red-stemmed filaree/storksbill

LAMIACEAE - MINT FAMILY

- * *Marrubium vulgare* - horehound
- Salvia apiana* - white sage
- Salvia columbariae* - chia
- Salvia leucophylla* - purple sage

Salvia mellifera - black sage

MALVACEAE - MALLOW FAMILY

Malacothamnus fasciculatus - chaparral bushmallow

MORACEAE - MULBERRY FAMILY

* *Ficus* sp. - fig

MYRSINACEAE – MYRSINE FAMILY

* *Anagallis arvensis* - poor man's weatherglass, scarlet pimpernel

MYRTACEAE - MYRTLE FAMILY

* *Eucalyptus* sp. - eucalyptus

NYCTAGINACEAE - FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia* [= *M. californica*] - wishbone bush

OLEACEAE - OLIVE FAMILY

* *Olea europaea* - olive

ONAGRACEAE - EVENING-PRIMROSE FAMILY

Camissonia bistorta - California sun cup

PAEONIACEAE - PEONY FAMILY

Paeonia californica - California peony

PAPAVERACEAE - POPPY FAMILY

Eschscholzia californica - California poppy

Romneya trichocalyx – hairy matilija poppy

PHRYMACEAE – LOPSEED FAMILY

Mimulus aurantiacus - coast monkey flower, bush monkey flower

PLANTAGINACEAE - PLANTAIN FAMILY

* *Plantago major* - common plantain

PLATANACEAE - SYCAMORE FAMILY

Keckiella cordifolia - climbing bush penstemon

Platanus racemosa - western sycamore

PLUMBAGINACEAE - LEADWORT FAMILY

Limonium californicum - western marsh-rosemary

* *Plumbago ariculata* – cape plumbago

POLYGONACEAE - BUCKWHEAT FAMILY

Eriogonum fasciculatum - California buckwheat

* *Polygonum aviculare* ssp. *depressum* [= *P. arenastrum*] - common knotweed, doorweed

* *Rumex crispus* - curly dock

RANUNCULACEAE - CROWFOOT FAMILY

Clematis sp. – clematis, virgin's bower

Delphinium sp. - larkspur

RHAMNACEAE - BUCKTHORN FAMILY

Rhamnus ilicifolia - holly-leaf redberry

ROSACEAE - ROSE FAMILY

Heteromeles arbutifolia - toyon, Christmas berry

Prunus ilicifolia - islay, holly-leaf cherry

RUBIACEAE - MADDER FAMILY

Galium angustifolium - narrow-leaved bedstraw

SALICACEAE - WILLOW FAMILY

- Populus fremontii* ssp. *fremontii* - alamo or Fremont cottonwood
- Salix gooddingii* - Goodding's black willow
- Salix laevigata* - red willow
- Salix lasiolepis* - arroyo willow

SCROPHULARIACEAE - FIGWORT FAMILY

- Scrophularia californica* var. *floribunda* - California figwort
- * *Verbascum virgatum* - wand mullein

SIMAROUBACEAE - QUASSIA FAMILY

- * *Ailanthus altissima* - tree of heaven

SOLANACEAE - NIGHTSHADE FAMILY

- Datura wrightii* - jimson weed
- * *Nicotiana glauca* - tree tobacco
- * *Solanum americanum* - white nightshade

TAMARICACEAE - TAMARISK FAMILY

- * *Tamarix ramosissima* - salt-cedar, Mediterranean tamarisk

URTICACEAE - NETTLE FAMILY

- Urtica dioica* ssp. *holosericea* - hoary nettle

VERBENACEAE - VERVAIN FAMILY

- * *Lantana camara* - lantana
- Verbena lasiostachys* var. *lasiostachys* - western verbena

ANGIOSPERMAE (MONOCOTYLEDONES)

AGAVACEAE – AGAVE FAMILY

- Chlorogalum pomeridianum* var. *pomeridianum* - wavy-leaved soap plant

ARECACEAE - PALM FAMILY

- * *Washingtonia robusta* - Mexican fan palm

CYPERACEAE - SEDGE FAMILY

- Cyperus eragrostis* - tall flatsedge

POACEAE - GRASS FAMILY

- * *Arundo donax* - giant reed
- * *Avena barbata* - slender wild oat
- * *Bromus hordeaceus* - soft chess
- * *Bromus madritensis* ssp. *rubens* - foxtail chess
- * *Cynodon dactylon* - Bermuda grass
- * *Leymus condensatus* - giant wild rye
- * *Pennisetum setaceum* - African fountain grass
- * *Piptatherum miliaceum* - smilo grass
- * *Polypogon monspeliensis* - annual beard grass
- * *Vulpia myuros* var. *myuros* - rattail fescue

* signifies introduced (non-native) species

Appendix B: Wildlife species list from the Serrano Summit project site, 2011.

FAMILY/SPECIES NAME	COMMON NAME
AMPHIBIA	AMPHIBIANS
HYLIDAE	TREE FROGS & RELATIVES
<i>Pseudacris regilla</i>	Pacific Chorus Frog
REPTILIA	REPTILES
PHRYNOSOMATIDAE	NORTH AMERICAN SPINY LIZARDS & RELATIVES
<i>Sceloporus occidentalis</i>	Western Fence Lizard
<i>Uta stansburiana</i>	Side-Blotched Lizard
ODONTOPHORIDAE	NEW WORLD QUAIL
<i>Callipepla californica</i>	California Quail
CATHARTIDAE	NEW WORLD VULTURES
<i>Cathartes aura</i>	Turkey Vulture
ACCIPITRIDAE	HAWKS, OLD WORLD VULTURES & HARRIERS
<i>Buteo jamaicensis</i>	Red-Tailed Hawk
<i>Buteo lineatus</i>	Red-Shouldered Hawk
FALCONIDAE	CARACARAS & FALCONS
<i>Falco sparverius</i>	American Kestrel
COLUMBIDAE	PIGEONS & DOVES
<i>Zenaida macroura</i>	Mourning Dove
CUCULIDAE	TYPICAL CUCKOOS
<i>Geococcyx californianus</i>	Greater Roadrunner
TYTONIDAE	BARN OWLS
<i>Tyto alba</i>	Barn Owl
APODIDAE	SWIFTS
<i>Aeronautes saxatalis</i>	White-Throated Swift
TROCHILIDAE	HUMMINGBIRDS
<i>Calypte anna</i>	Anna's Hummingbird
<i>Selasphorus sasin</i> ⁺	Allen's Hummingbird
PICIDAE	WOODPECKERS
<i>Melanerpes formicivorus</i>	Acorn Woodpecker
<i>Picoides nuttallii</i> ⁺	Nuttall's Woodpecker
<i>Colaptes auratus</i>	Northern Flicker
TYRANNIDAE	TYRANT FLYCATCHERS
<i>Empidonax difficilis</i>	Pacific-Slope Flycatcher
<i>Sayornis nigricans</i>	Black Phoebe
<i>Sayornis saya</i>	Say's Phoebe
<i>Tyrannus vociferans</i>	Cassin's Kingbird
<i>Tyrannus verticalis</i>	Western Kingbird
CORVIDAE	JAYS, MAGPIES & CROWS
<i>Aphelocoma californica</i>	Western Scrub-Jay
<i>Corvus brachyrhynchos</i>	American Crow
<i>Corvus corax</i>	Common Raven
ALAUDIDAE	LARKS
<i>Eremophila alpestris actia</i> ⁺	California Horned Lark
HIRUNDINIDAE	SWALLOWS

<i>Stelgidopteryx serripennis</i>	Northern Rough-Winged Swallow
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow
<i>Hirundo rustica</i>	Barn Swallow
AEGITHALIDAE	LONG-TAILED TITS
<i>Psaltriparus minimus</i>	Bushtit
TROGLODYTIDAE	WRENS
<i>Thryomanes bewickii</i>	Bewick's Wren
SYLVIIDAE	OLD-WORLD WARBLERS & GNATCATCHERS
<i>Polioptila californica californica</i> ⁺	Coastal California Gnatcatcher
TIMALIIDAE	BABBLERS
<i>Chamaea fasciata</i>	Wrentit
MIMIDAE	MOCKINGBIRDS & THRASHERS
<i>Mimus polyglottos</i>	Northern Mockingbird
<i>Toxostoma redivivum</i> ⁺	California Thrasher
STURNIDAE	STARLINGS & ALLIES
<i>Sturnus vulgaris</i>	European Starling
PTILOGONATIDAE	SILKY-FLYCATHERS
<i>Phainopepla nitens</i>	Phainopepla
PARULIDAE	WOOD WARBLERS & RELATIVES
<i>Dendroica petechia brewsteri</i> ⁺	Yellow Warbler
<i>Geothlypis trichas</i>	Common Yellowthroat
EMBERIZIDAE	EMBERIZINES
<i>Pipilo maculatus</i>	Spotted Towhee
<i>Pipilo crissalis</i>	California Towhee
<i>Chondestes grammacus</i> ⁺	Lark Sparrow
<i>Melospiza melodia</i>	Song Sparrow
ICTERIDAE	BLACKBIRDS, ORIOLES & ALLIES
<i>Agelaius phoeniceus</i>	Red-Winged Blackbird
FRINGILLIDAE	FRINGILLINE FINCHES
<i>Carpodacus mexicanus</i>	House Finch
<i>Carduelis psaltria</i>	Lesser Goldfinch
<i>Carduelis tristis</i>	American Goldfinch
MAMMALIA	MAMMALS
LEPORIDAE	RABBITS & HARES
<i>Sylvilagus audubonii</i>	Desert Cottontail
SCIURIDAE	SQUIRRELS, CHIPMUNKS & MARMOTS
<i>Spermophilus beecheyi</i>	California Ground Squirrel
GEOMYIDAE	POCKET GOPHERS
<i>Thomomys townsendii</i>	Townsend's Pocket Gopher
MURIDAE	MICE, RATS & VOLES
<i>Peromyscus maniculatus</i>	Deer Mouse
<i>Neotoma fuscipes</i>	Dusky-Footed Woodrat
CANIDAE	FOXES, WOLVES & RELATIVES
<i>Canis latrans</i>	Coyote
PROCYONIDAE	RACCOONS, RINGTAILS & COATIS
<i>Procyon lotor</i>	Northern Raccoon
MEPHITIDAE	SKUNKS

Sources:

- Reptiles and amphibians: North American Herpetology (NAH) nomenclature updates:
<http://www.naherpetology.org/nameslist>
- Birds: American Ornithologists' Union Checklist of North American Birds - 7th Edition (2005):
<http://www.aou.org/checklist/index.php3>
- Mammals: Baker, R. J., L. C. Bradley, R. D. Bradley, J. W. Drago, M. D. Engstrom, R. S. Hoffmann, C. A. Jones, F. Reid, D. W. Rice, and C. Jones. 2003. Revised Checklist of North American Mammals North of Mexico. Museum of Texas Tech University. OP-229.
<http://www.nsl.ttu.edu/pubs/opapers.htm>
- 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.
- Special Status Designations + : California Department of Fish and Game, California Natural Diversity Database (February 2011): <http://www.dfg.ca.gov/whdab/html/cnddb.html>;