3.3 BIOLOGICAL RESOURCES

3.3.1 AFFECTED ENVIRONMENT

The SPA is located in the southeastern portion of Sacramento County within the City of Rancho Cordova. The SPA is characterized by annual grassland and vernal pools on undulating topography with elevations ranging from approximately 120 to 230 feet above mean sea level. The SPA is within the Laguna Formation, and is located in the Southeastern Sacramento Valley Vernal Pool Region. A tributary of Laguna Creek traverses the SPA entering at the northwest corner of the Grantline 220 property and flows generally to the southwest. Historic land uses in the surrounding area include cattle ranching, farming, and mining activities, primarily gold mining. The SPA has been used for cattle grazing since the early 1970s.

AECOM biologists conducted reconnaissance-level surveys of the SPA on November 10, 2005 and May 29, 2007. These surveys consisted of walking meandering transects throughout the SPA. The purpose of the surveys was to characterize and map biological resources present on the SPA.

Biological resource surveys that have been conducted at the SPA and were used as sources of information for this document include:

- *Draft Biological Resources Assessment for ±1260-Acre Sunrise Douglas 2 Specific Plan City of Rancho Cordova, California* (Foothill Associates 2004);
- *Special-status Species Determination for Participating Members of the Sunrise Douglas Property Owners Association within the Sunrise-Douglas Specific Plan Area, Sacramento County, California* (Sugnet & Associates 1993);
- *Special Status Plant Survey for Shalako Property*. Dated: November 29, 2005. Unpublished report prepared for Pardee Homes (ECORP 2005a);
- *Special Status Plant Survey for Sierra Sunrise.* Dated: December 21, 2005. Unpublished report prepared for Lennar Communities (ECORP 2005b);
- *Special Status Plant Survey for Shalako Property.* Dated: 6 August 2008. Unpublished report prepared for Shalako Investors (ECORP 2008a);
- *Special Status Plant Survey for Sierra Sunrise.* Dated: 15 August 2008. Unpublished report prepared for Lennar Communities (ECORP 2008b);
- *Special Status Plant Survey for Jaeger Ranch*. Dated: 9 September 2008. Unpublished report prepared for Investek Properties, LLC (ECORP 2008c);
- *Special Status Plant Survey for Smith Property.* Dated: 15 August 2008. Unpublished report prepared for Sierra Holdings (ECORP 2008d);
- *Memo: Orcutt Grass Surveys on Sunrise Douglas II Project* (Foothill Associates 2003);
- *Wetlands Map, Sun Creek* (formerly known as Sunrise Douglas II) Project (Davis[2], no date provided);
- *Delineation of Waters of the United States, Grant Line ±220 Acre Site* (Foothill Associates 2005) and *Final Map - Grant Line 220 Delineated Waters of the United States* (Foothill Associates 2007);

- *Delineation of Waters of the United States, Kamilos ±160 Acre Site* (Foothill Associates 2005) and *Final Map – Kamilos 160 Delineated Waters of the United States* (Foothill Associates 2007);
- *Wetland Delineation for Shalako Property*. Dated: 2001. (ECORP 2007a);
- *Wetland Delineation for Jaeger Ranch*. Dated: 2001. (ECORP 2007b); and
- *Revised Wetland Delineation for Sierra Sunrise Property*. Dated: 21 August 2007. (ECORP 2007c).

VEGETATION

The landscape in the SPA is characterized by undulating topography. This undulating topography and an underlying hardpan soil support a mosaic of vernal pools and seasonal wetland swales interspersed within a matrix of annual grassland vegetation. A large seasonal drainage that is tributary to Laguna Creek also traverses the SPA in a north to southwest direction. The drainage is not formally named on area maps, but is known locally as Sun Creek and referred to as Kite Creek in County drainage plans. In this DEIR/DEIS, the tributary drainage is referred to as Kite Creek. Several clusters of trees and shrubs are present in the SPA, primarily at the sites of the four existing and former residences, and these consist of nonnative ornamental species including eucalyptus (*Eucalyptus* spp.), silk tree (*Albizia julibrissin*), and white mulberry (*Morus alba*), as well as willow (*Salix* spp.), Fremont cottonwood (*Populus fremontii*), and blue elderberry (*Sambucus mexicana*) around the two on-site ponds.

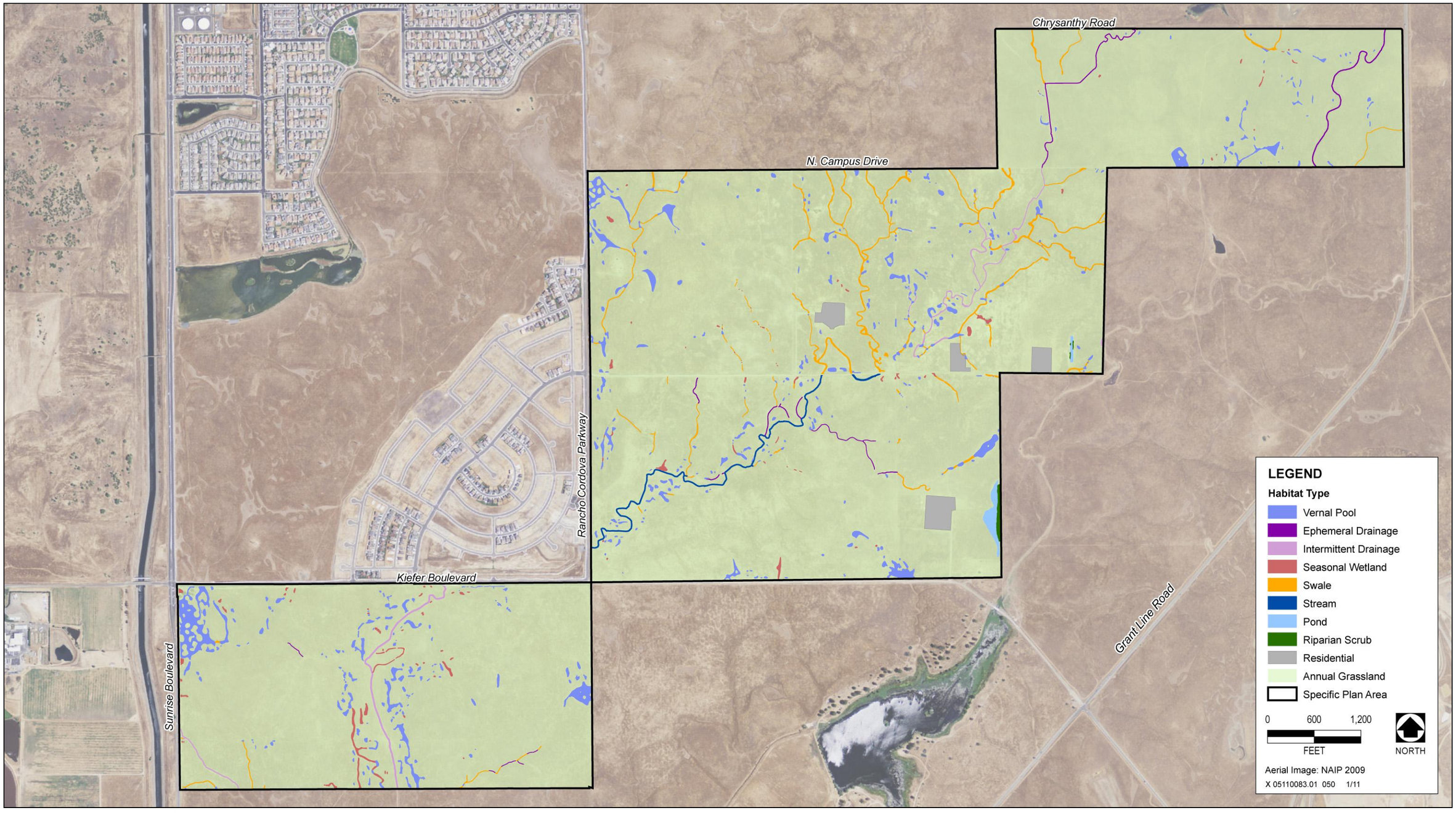
The annual grassland community present in the SPA is described below and depicted in Exhibit 3.3-1. Plant community nomenclature and descriptions are based on Holland (1986) with some modifications to reflect local variation. Vernal pools and other wetlands are discussed under the "Sensitive Biological Resources" section below.

WILDLIFE

Annual Grassland

Annual grassland covers the entire SPA with the exception of the seasonal drainage channel (Kite Creek), the vernal pools and swales, ponds, and impervious surfaces associated with the four existing residences. Annual grasslands are typically composed of a diverse assemblage of native and nonnative annual grasses and native and nonnative forbs, also predominantly annuals, but generally also containing a lot of perennial forbs, especially members of the lily family. Species composition and abundance vary considerably in annual grasslands depending on site factors such as soil chemistry and texture, topography, and disturbance regime. In addition, species composition and abundance vary temporally from season to season and year to year (Sawyer, Keeler-Wolf, and Evans 2009:30). Annual grassland in the SPA is characterized by dense herbaceous cover dominated by nonnative grasses and forbs including medusa head (*Taeniatherum caput-medusae*), soft chess (*Bromus hordeaceus*), barley (*Hordeum murinum* ssp. *leporinum*), ripgut brome (*Bromus diandrus*), and yellow starthistle (*Centaurea solstitialis*). However, native plants are an important component of the on-site annual grassland community and include harvest brodiaea (*Brodiaea elegans*), wild hyacinth (*Triteleia hyacinthina*), miniature lupine (*Lupinus bicolor*), Fitch's tarweed (*Hemizonia fitchii*), and California poppy (*Eschscholzia californica*).

The habitat in the SPA attracts numerous common wildlife and special-status species found within Sacramento County. The vernal pools, swales, seasonal wetlands, seasonal drainages, and stock ponds in the SPA provide shelter, food, and nursery habitat for a great number of special-status and common invertebrates, amphibians, reptiles, birds, and mammal species. Annual grassland habitat is abundant, contiguous, and relatively flat making it popular for foraging raptors and many common wildlife species. Patches of isolated trees provide breeding habitat for resident raptors. The special-status wildlife species known and expected to occur on the SPA are addressed under "Sensitive Biological Resources".



Sources: MacKay & Somps 2010 and ECORP 2010, Adapted by AECOM in 2010

Plant Communities and Waters of the United States in the SPA **Exhibit 3.3-1**

SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources addressed in this section include those that are afforded special protection through the California Environmental Quality Act (CEQA), California Fish and Game Code (including the California Endangered Species Act [CESA]), Federal Endangered Species Act (ESA), Clean Water Act (CWA), Porter Cologne Act, and local planning documents including the County of Sacramento General Plan (1993), the proposed *Draft South Sacramento Habitat Conservation Plan* (SSHCP), and the *Rancho Cordova General Plan* (City General Plan) (City of Rancho Cordova 2006).

Special-Status Species

Special-status species are defined as species that are legally protected or that are otherwise considered sensitive by Federal, state, or local resource agencies. Special-status species are species, subspecies, or varieties that fall into one or more of the following categories, regardless of their legal or protection status:

- officially listed by California or the Federal government as endangered, threatened, or rare;
- a candidate for state or Federal listing as endangered, threatened, or rare;
- taxa (i.e., taxonomic category or group) that meet the criteria for listing, even if not currently included on any list, as described in California Code of Regulations (CCR) Section 15380 of the State CEQA Guidelines;
- species identified by the California Department of Fish and Game (DFG) as Species of Special Concern;
- species afforded protection under local planning documents; and
- taxa by the DFG to be "rare, threatened, or endangered in California" and included in the California Rare Plant Rank (CRPR). The DFG system includes five rarity and endangerment ranks for categorizing plant species of concern, which are summarized as follows:
    - CRPR 1A - Plants presumed to be extinct in California;
    - CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere;
    - CRPR 2 - Plants that are rare, threatened, or endangered in California but more common elsewhere;
    - CRPR 3 - Plants about which more information is needed (a review list); and
    - CRPR 4 - Plants of limited distribution (a watch list).

All plants with a CRPR are considered "special plants" by DFG. The term "special plants" is a broad term used by DFG to refer to all of the plant taxa inventoried in DFG's California Natural Diversity Database (CNDDB), regardless of their legal or protection status. Plants ranked as CRPR 1A, 1B, and 2 may qualify as endangered, rare, or threatened species within the definition of State CEQA Guidelines CCR Section 15380. DFG recommends, and local governments may require, that CRPR 1A, 1B, and 2 species be addressed in CEQA projects. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to CEQA Section 15380; however, these species may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

The term "California species of special concern" is applied by DFG to animals not listed under the Federal ESA or the CESA, but that are nonetheless declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist. DFG's fully protected status was California's first attempt to identify and protect animals that were rare or facing extinction. Most species listed as fully protected

were eventually listed as threatened or endangered under CESA, however some species remain listed as fully protected but do not have simultaneous listing under CESA. Fully protected species may not be taken or possessed at any time and no take permits can be issued for these species except for scientific research purposes or for relocation to protect livestock.

Tables 3.3-1 and 3.3-2 below provide a list of special-status species known or with potential to occur in the SPA. These lists were developed through a review of biological studies previously conducted in the SPA and vicinity and habitat observations made during field surveys conducted for this project. The CNDDB (2010) and CNPS Inventory (CNPS 2010) were also reviewed for specific information on previously documented occurrences of special-status species in the Buffalo Creek, Carbondale, Carmichael, Citrus Heights, Clarksville, Elk Grove, Folsom, Folsom SE, and Sloughhouse U.S. Geological Survey quadrangles. A number of special-status species have been documented elsewhere in Sacramento County but are not addressed in this DEIR/DEIS. These consist of species that occurred historically but are considered to be extirpated from the County; species that are restricted to higher elevations (i.e., foothill locations) in the County; and species that are restricted to habitats that are not present in the SPA. Exhibit 3.3-2 shows all of the special-status species occurrences that have been documented in the CNDDB within 5 miles of the SPA.

Special-status Plants

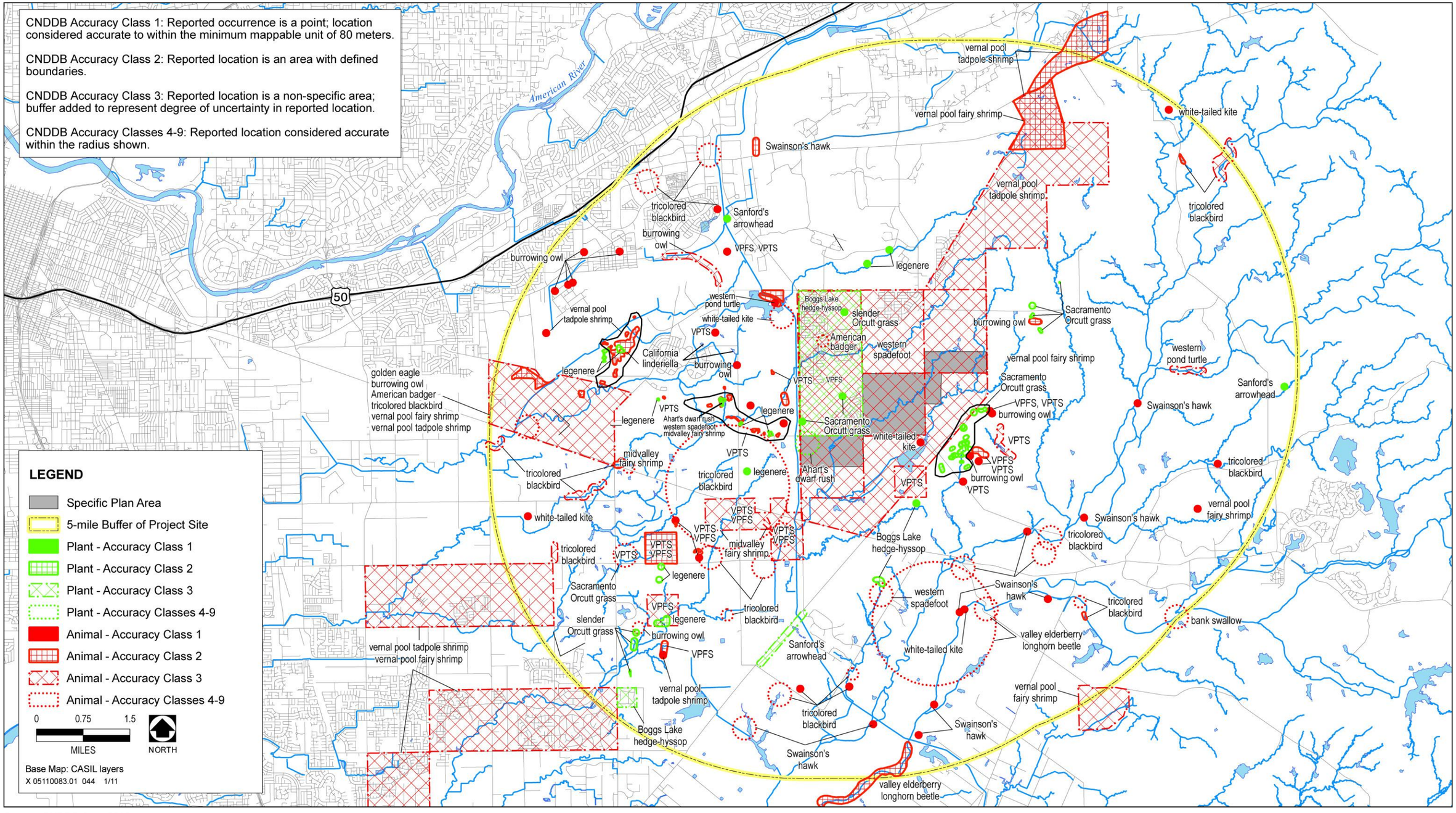
Based on review of the CNDDB and California Native Plant Society (CNPS) database searches, previously prepared biological reports for the project and surrounding areas (which included field surveys), and reconnaissance-level field surveys conducted by AECOM, it was determined that the SPA supports potentially suitable habitat for 10 special-status plant species. Brief descriptions of these species and their potential to occur in the SPA are provided in Table 3.3-1.

Special-status plant surveys have been conducted in the SPA in accordance with guidelines established by the U.S. Fish and Wildlife Service (USFWS) and DFG. Surveys for all potentially occurring special-status plant surveys were conducted by Sugnet & Associates in 1993 and by ECORP in 2005 and 2008. In addition, protocol surveys of the SPA were conducted specifically for Sacramento Orcutt grass and slender Orcutt grass by Foothill Associates during July 2003. No special-status plants were identified during any of these surveys.

There is a CNDDB record of Ahart's dwarf rush in the SPA. Four plants were reportedly found in a vernal pool near the southeast corner of Keifer Boulevard and Sunrise Boulevard on the Shalako property, but there is no date given for this record. This species was not found during special-status plant surveys conducted by Sugnet & Associates in spring 1993 or during surveys conducted by ECORP in 2005 and 2008. Therefore, it is assumed that this reported occurrence of Ahart's dwarf rush has been extirpated.

Because multiple surveys have been conducted during the appropriate blooming periods when target species would have been clearly identifiable, special-status plant species are considered to be absent from the SPA at this time. The results of protocol-level special-status plant surveys are typically considered valid by the resource agencies for a period of approximately 5 years, given that circumstances on the SPA can be assumed to remain largely unchanged during this amount of time.

Several other special-status plant species were identified in the data base searches for the selected quadrangles. These species are Ione manzanita (*Arctostaphylos myrtifolia*), Pine Hill buckbrush (*Ceanothus roderickii*), Red Hills soaproot (*Chlorogalum grandiflorum*), Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeae*), Ione buckwheat (*Eriogonum apricum* var. *apricum*), Irish Hill buckwheat (*Eriogonum apricum* var. *prostratum*), Pine Hill fremontia (*Fremontodendron decumbens*), El Dorado bedstraw (*Galium californicum* ssp. *sierrae*), Bisbee Peak rush-rose (*Helianthemum suffrutescens*), Parry's horkelia (*Horkelia parryi*), Layne's ragwort (*Senecio layneae*), and El Dorado wyethia (*Wyethia reticulata*). These species do not have the potential to occur in the SPA due to specific habitat requirements that do not exist in the SPA such as chaparral or cismontane woodland habitats or gabbroic, serpentinite, or Ione soils. Although there is a CNDDB record of Hartweg's golden sunburst



Source: CNDDB June 2010

CNDDB Occurrences within 5 Miles of the SPA **Exhibit 3.3-2**

Table 3.3-1
Special-Status Plant Species Known or with Potential to Occur in the SPA

Species	Listing Status			Habitat and Blooming Period	Potential for Occurrence
	Federal[a]	State[b]	CRPR[c]		
Plants					
Dwarf downingia *Downingia pusilla*	--	--	2.2	Vernal pools and other mesic sites in valley and foothill grassland. Blooms March-May	Not present. Suitable habitat is present in vernal pools and swales. The nearest CNDDB occurrence is greater than 5 miles from the SPA and this species was not found during protocol-level surveys.
Tuolumne button-celery *Eryngium pinnatisectum*	--	--	1B.2	Vernal pools or other seasonal wetlands in cismontane woodland and lower montane coniferous forest. Blooms June-August	Not present. No woodland or coniferous forest habitat is present in the SPA and this species was not found during protocol-level surveys.
Bogg's Lake hedge hyssop *Gratiola heterosepala*	--	E	1B.2	Lake margin marshes and swamps, vernal pools, and other seasonal wetlands, primarily in clay soils. Blooms April–August	Not present. Suitable habitat is present in vernal pools and there are known CNDDB occurrences within 2 miles of the SPA, but this species was not found during protocol-level surveys.
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	--	--	1B.2	Vernal pools and swales in areas of low cover of competing vegetation; most often on gopher turnings along margins of pools or swales (Witham 2006:38). Blooms March–May	Not present. Suitable habitat is present in vernal pools and swales and there is a historic record of this species documented in the SPA, but this species was not found during protocol-level surveys.
Greene's legenere *Legenere limosa*	--	--	1B.1	Relatively deep and wet vernal pools. Blooms April-June	Not present. Suitable habitat is present in vernal pools and there are known CNDDB occurrences within 1 mile of the SPA but this species was not found during protocol-level surveys.
Pincushion navarretia *Navarretia meyersii* ssp. *meyersii*	--	--	1B.1	Vernal pools. Blooms in May	Not present. Suitable habitat is present in vernal pools and swales, but this species was not found during protocol-level surveys.
Slender Orcutt grass *Orcuttia tenuis*	T	E	1B.1	Vernal pools. Blooms May-October	Not present. Suitable habitat is present in vernal pools and swales. The nearest CNDDB occurrence is approximately 1 mile from the SPA. This species was not found during protocol-level surveys.

Table 3.3-1
Special-Status Plant Species Known or with Potential to Occur in the SPA

Species	Listing Status			Habitat and Blooming Period	Potential for Occurrence
	Federal[a]	State[b]	CRPR[c]		
Sacramento Orcutt grass *Orcuttia viscida*	E	E	1B.1	Vernal pools. Blooms April-July	Not present. Suitable habitat is present in vernal pools and swales. The nearest CNDDB occurrence is less than a quarter mile from the SPA, but this species was not found during protocol-level surveys.
Hartweg's golden sunburst *Pseudobahia bahiifolia*	E	E	1B.1	Shallow, well-drained, medium-textured soils in cismontane woodland and valley and foothill grassland; predominantly on northern slopes of mima mounds but also near vernal pools. Blooms March-April	Not present. The SPA is outside of species' currently known range. Nearest known record is from 1939 in El Dorado County. This species was not found during protocol-level surveys.
Sanford's arrowhead *Sagittaria sanfordii*	--	--	1B.2	Shallow freshwater marshes and swamps. Blooms May-October	Not present. Suitable marsh habitat is lacking from the on-site stock ponds. The nearest CNDDB occurrence is approximately 2 miles from the SPA. This species was not found during protocol-level surveys.

[a] U.S. Fish and Wildlife Service—Federal Listing Categories:
T =Threatened
E =Endangered
– =No status
[b] California Department of Fish and Game—State Listing Categories:
R =Rare
E =Endangered
– =No status
[c] California Rare Plant Ranks:
1A =Presumed extinct
1B =Plants rare, threatened, or endangered in California and elsewhere
2 =Plants rare, threatened, or endangered in California, but more common elsewhere
Extensions:
.1 =Seriously endangered in California (>80 percent of occurrences are threatened and/or high degree and immediacy of threat)
.2 =Fairly endangered in California (20–80 percent of occurrences are threatened)
.3 =Not very endangered in California (<20 percent of occurrences are threatened or no current threats are known)
Sources: CNDDB 2010, CNPS 2010, Sugnet & Associates 1993, Foothill Associates 2003, ECORP 2005, ECORP 2008,Compiled by AECOM in 2011

Table 3.3-2
Special-Status Wildlife Species Known or with Potential to Occur on the SPA

Species	Listing Status[1]		Habitat	Potential for Occurrence
	Federal	State		
Invertebrates				
Vernal pool fairy shrimp *Branchinecta lynchi*	T	--	Vernal pools, swales, and ephemeral freshwater habitat in valley and foothill grasslands.	Known to occur; species presence was documented in 1993 and 2004.
Vernal pool tadpole shrimp *Lepidurus packardi*	E	--	Vernal pools, swales, and ephemeral freshwater habitat in valley and foothill grasslands.	Known to occur; species presence was documented in 1993 and 2004.
Conservancy fairy shrimp *Branchinecta conservatio*	E	--	Most often in relatively large, muddy vernal pools in valley grasslands. All known pools containing this species are at least moderately turbid. Requires an average of 49 days of continual inundation to mature (Eriksen and Belk 1999:88-89).	Unlikely to occur; pools in the SPA do not meet typical habitat conditions. Currently known distribution does not include Sacramento County or the Southeastern Sacramento Valley Vernal Pool Region (USFWS 2005, 2007).
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/PD	--	Elderberry shrubs.	Could occur; elderberry shrubs present. Nearest CNDDB occurrence (1987) approximately 2 miles south of the SPA.
Amphibians and Reptiles				
Western pond turtle *Actinemys marmorata*	--	SC	Freshwater marsh, ponds, lakes, and rivers with basking sites.	Could occur; suitable habitat present. The nearest CNDDB occurrence (2007) is approximately 2 miles northwest of the SPA.
California tiger salamander *Ambystoma californiense*	T	SC	Vernal pools and seasonal wetlands with a minimum 10-week inundation period and surrounding uplands, primarily grasslands, with burrows and other belowground refugia (e.g., rock or soil crevices).	Unlikely to occur; potentially suitable habitat present on-site but extensive surveys in the project vicinity have not detected this species north of the Cosumnes River (69 FR 47212, August 4, 2004).
Western spadefoot *Spea hammondii*	--	SC	Vernal pools and other seasonal ponds in valley and foothill grasslands.	Known to occur; suitable breeding and foraging habitat present. CNDDB occurrence (1978) in the SPA and species was observed on the Shalako property in 1993.
California red-legged frog *Rana aurora draytonii*	T	SC	Foothill streams with dense shrubby or emergent riparian vegetation, minimum 11-20 weeks of water for larval development, and upland refugia for aestivation.	Unlikely to occur; presumed extirpated from the valley floor.

Table 3.3-2
Special-Status Wildlife Species Known or with Potential to Occur on the SPA

Species	Listing Status[1]		Habitat	Potential for Occurrence
	Federal	State		
Giant garter snake *Thamnophis gigas*	T	T	Slow-moving streams, sloughs, ponds, marshes, inundated floodplains, rice fields, and irrigation and drainage ditches on the Central Valley floor with mud bottoms, earthen banks, and emergent vegetation. Also require upland refugia not subject to flooding during inactive season.	Unlikely to occur; no suitable habitat is present in the SPA and southern Sacramento Valley populations are known only from the American Basin and Delta Basin (USFWS 2006a).The nearest CNDDB occurrence is greater than 5 miles from the SPA.
Birds				
Tricolored blackbird *Agelaius tricolor* (nesting colony)	--	SC	Forages in agricultural land and grasslands; nests in marshes and other areas that support cattails or dense thickets.	Unlikely to occur; may currently forage on site, but no suitable nesting habitat is present. Flocks observed foraging on the Grantline 220 and Shalako properties in 1993.
Grasshopper sparrow *Ammodramus savannarum* (nesting)		SC	Forages and nests in dense grasslands; favors a mix of native grasses, forbs, and scattered shrubs.	Could occur; suitable foraging and nesting habitat present. The nearest CNDDB occurrence is greater than 5 miles from the SPA.
Golden eagle *Aquila chrysaetos* (nesting)	–	FP	Open grassland and oak savannah with large trees or cliffs for nesting.	Unlikely to occur; may forage on site during non-breeding season, but no suitable nesting habitat is present. An immature golden eagle was observed foraging on the Sierra Sunrise property in April 1993.
Short-eared owl *Asio flammeus* (nesting)	--	SC	Forages and nests in grasslands and other open habitats.	Unlikely to occur; SPA is outside species' known breeding range. Could forage on site; one short-eared owl was observed foraging on the Shalako property in April 1992.
Western burrowing owl *Athene cunicularia* (burrow sites)	--	SC	Forages and nests in grasslands, agricultural land, and open woodlands.	Known to occur; suitable foraging and nesting habitat are present. Observed on-site during reconnaissance surveys by AECOM biologists on November 10, 2005.
Swainson's hawk *Buteo swainsoni* (nesting)	--	T	Forages in grasslands and agricultural land, nests in riparian and isolated trees.	Could occur; suitable foraging and nesting habitat present. Species was observed nesting on the adjacent Waegell (Arboretum project) property in 2007 (EDAW [now AECOM] 2007).
Northern harrier *Circus cyaneus* (nesting)	--	SC	Forages and nests in grasslands, marshes, and agricultural areas.	Known to occur; suitable foraging and nesting habitat present. Observed by Foothill Associates (Foothill Associates 2004) and by AECOM biologists on November 10, 2005.

Table 3.3-2
Special-Status Wildlife Species Known or with Potential to Occur on the SPA

Species	Listing Status[1]		Habitat	Potential for Occurrence
	Federal	State		
White-tailed kite *Elanus leucurus* (nesting)	–	FP	Forages in grasslands and agricultural fields; nests in trees in riparian zones, oak woodlands, and isolated trees.	Could occur; suitable foraging habitat and limited nesting habitat present. There are several records of white-tailed kite nesting in the project vicinity and the species has been observed foraging in the SPA. The nearest CNDDB nesting occurrence (1990) is at Blodgett Reservoir, south of the SPA on the Arboretum project site.
Southern bald eagle *Haliaeetus leucocephalus* (nesting and wintering)	D	E	Lake margins and rivers for both nesting and wintering. Uses large trees for nesting. Roosts communally in winter.	Unlikely to occur; no suitable nesting or foraging habitat present.
Loggerhead shrike *Lanius ludovicianus* (nesting)	--	SC	Forages in grasslands, shrublands, and open woodlands. Nests in trees or shrubs.	Could occur; suitable foraging habitat and limited nesting habitat present. This species was observed nesting on the adjacent Waegell property (Arboretum project) in 2007 (EDAW [now AECOM] 2007) and was observed foraging on the Shalako property in 1993.
Bank swallow *Riparia riparia* (nesting)	–	T	Nests in colonies in unvegetated vertical banks with fine-textured, sandy soils, typically next to streams, rivers, or lakes, occasionally in gravel quarries or other eroding bluffs. Forages in a variety of habitats near nests.	Unlikely to occur; no suitable habitat present.
Mammals				
Pallid bat *Anthrozous pallidus*	–	SC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats. Roosts in rock crevices, oak hollows, bridges, or buildings.	Unlikely to occur; no suitable nesting or roosting habitat present.
American Badger *Taxidea taxus*	--	SC	Forages and burrows in open shrub, forest, and herbaceous habitats with friable soils.	Likely to occur; suitable burrowing habitat present. Nearest CNDDB occurrence (1990) approximately 1 mile north of SPA in grazed annual grassland with vernal pools.

Notes: SPA = specific plan area; FR = Federal Register; CNDDB = California Natural Diversity Database

[1] **Legal Status Definitions**

U.S. Fish and Wildlife Service (USFWS)

E Endangered (legally protected)
T Threatened (legally protected)

California Department of Fish and Game (DFG)

E Endangered (legally protected)
T Threatened (legally protected)
FSC Federal Species of Concern (no formal protection)
CSC California Species of Concern (no formal protection)
FP Fully Protected (legally protected)

Sources: CNDDB 2010; Foothill Associates 2004, Sugnet & Associates 1993, Compiled by AECOM in 2010

(*Pseudobahia bahiifolia*) within the nine quadrangle search area, the species is not expected to occur in the SPA because there is just one historic record of this species in the area from 1939 in El Dorado County. All other records of this species are from Fresno, Madera, Merced, Stanislaus, and Yuba Counties (Yuba occurrence thought to be extirpated) and so the SPA is outside of the currently known range of this species.

Special-status Wildlife

Based on the results of the CNDDB search, previously prepared biological reports for the project and surrounding areas (including field surveys), and the reconnaissance-level surveys conducted by AECOM on November 10, 2005 and June 7, 2007, it was determined that 12 special-status wildlife species have potential to be present in the SPA (Table 3.3-2). An additional 11 species were determined to be unlikely to occur in the SPA either because suitable habitat is lacking for at least some portion of their life cycle or because the SPA is outside of the species' currently known range.

Vernal Pool Invertebrates. Several invertebrate species are specially adapted to life in vernal pools and other seasonal wetland habitats for at least part of their life cycle. Vernal pool fairy shrimp and vernal pool tadpole shrimp are small crustaceans (1/2–2 inches long) that are restricted to vernal pools, swales, and other seasonal wetlands. Eggs of these species lie dormant during most of the year in the form of cysts, which are capable of withstanding extreme environmental conditions, such as heat, cold, and prolonged desiccation. The cysts hatch when the pools fill with rainwater, and the young rapidly develop into sexually mature adults. Not all of the cysts hatch with the first rainfall; some remain dormant to hatch during subsequent events or in later years.

Vernal pool invertebrates occupy a variety of seasonal aquatic habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. They can live in wetlands ranging from small pools several square feet in area to large vernal lakes of more than 50 acres (USFWS 2005). In addition, vernal pool tadpole shrimp are adapted to life in water bodies that convey flows, such as Kite Creek. Vernal pool fairy shrimp, however, are not adapted for life in flowing water bodies and Kite Creek does not provide suitable habitat for this species. Habitat for vernal pool invertebrates has become highly fragmented and continues to be threatened by conversion to urban and agricultural uses. Almost three-quarters of the historic vernal pool habitat in the Central Valley was estimated to have been lost by 1997 (USFWS 2005). An additional 13% of Central Valley vernal pools were lost as a result of habitat conversion between 1997 and 2005 (Holland 2009).

Federally listed vernal pool fairy shrimp and vernal pool tadpole shrimp were identified during field surveys by Sugnet & Associates in 1993 (Sugnet & Associates 1993) and surveys conducted by Foothill Associates biologists in February 2004. The CNDDB lists 55 occurrences of these Federally listed vernal pool crustaceans within a 5-mile radius around the SPA.

The SPA lies within the Southeastern Sacramento Valley vernal pool region, which supports the highest concentration of documented vernal pool tadpole shrimp occurrences (35% of the CNDDB records for this species). Sacramento County supports the highest percentage (28%) of vernal pool tadpole shrimp occurrences of any county in California (USFWS 2005). Furthermore, the SPA is within the Mather Core Area, an area identified by USFWS in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (recovery plan) (USFWS 2005) as vital not only to the recovery of vernal pool tadpole shrimp, but to preventing the extinction or irreversible decline of the species. USFWS estimates that approximately 74% of the vernal pool tadpole shrimp occurrences in Southeastern Sacramento Valley are in the Mather Core Area.

Valley Elderberry Longhorn Beetle. The valley elderberry longhorn beetle (VELB) is Federally listed as threatened. It is completely dependent on its host plant, blue elderberry (*Sambucus mexicana*), during its entire life cycle, and is generally restricted to California's Central Valley and adjacent foothills. Larvae of these beetles live within the soft pith of the elderberry shrub where they feed for 1 to 2 years. Adults emerge from inside the wood of elderberry shrubs during the spring as the plant begins to flower. The adults feed on the elderberry foliage up until they mate. Females lay their eggs in the crevices of elderberry bark. Upon hatching, the larvae

tunnel into the stems of the shrub to feed. The beetles typically use stems that are greater than one inch in diameter at ground level. Beetle populations in the state have decreased largely due to historical loss of riparian habitat in the Central Valley. However, a 5-year review of the species, required by Section 4(c)(2)(A) of the ESA, was completed by USFWS in October 2006 and the recommendation was that the beetle be delisted as a result of recent restoration efforts that have led to an increase in available habitat for the species (USFWS 2006b). This recommendation is not a guarantee that the species will be delisted, however, because formal changes in the classification of listed species require a separate USFWS rulemaking process distinct from the 5-year review.

A large elderberry shrub that could provide suitable habitat for VELB was observed at the pond in the southeast corner of the Sierra Sunrise property during the June 2007 reconnaissance survey conducted by AECOM. No characteristic exit holes were observed on the stems of this shrub. The nearest known occurrence of VELB is approximately 2 miles south of the SPA. Given the presence of suitable habitat and known occurrence of VELB nearby, this species could be present in the SPA.

Amphibians and Reptiles. Western pond turtle is a California species of concern. Western pond turtle habitat includes streams, large rivers, and slow-moving water. They are most common in areas with large rocks and boulders, where they bask in the sun. Nests are typically located on unshaded upland slopes in dry substrates with sandy clay or silt soils excavated by the female up to 1,300 feet (but usually less) from the aquatic habitats where they occur. Suitable aquatic habitat in the SPA consists of the two stock ponds. Grassland slopes on the site may provide suitable upland nesting habitat. The nearest known occurrence of western pond turtle is at Mather Lake approximately 2 miles northwest of the SPA. The stock ponds in the SPA are potential aquatic and breeding habitat for western pond turtle. However, the ponds lack basking sites, are not hydrologically connected to a larger, moving water body, and the banks are regularly treaded upon and grazed by horses and cattle. Nonetheless, given the presence of potentially suitable habitat and a known occurrence of western pond turtle within 5 miles of the SPA, this species could be present in the SPA.

California tiger salamander is Federally listed as threatened. California tiger salamander use vernal pools and other seasonal ponds for reproduction and seemingly suitable habitat of this type is present in the SPA. However, the nearest known CNDDB occurrence of California tiger salamander is approximately 11 miles southeast of the SPA along a tributary of Laguna Creek located 0.5 mile east of the intersection of Carbondale and Meiss Roads. Furthermore, the USFWS does not consider Sacramento County north of the Cosumnes River to be within the species' range because California tiger salamander has not been found in suitable habitat in this area despite extensive surveys (69 Federal Register 47212, August 4, 2004). Therefore, this species is not expected to occur in the SPA.

Western spadefoot is a California species of concern. To complete its life cycle, it needs appropriate aquatic habitats as well as adjacent upland habitats. A nonspecific CNDDB occurrence of western spadefoot encompasses the entire SPA (CNDDB 2010) and this species was identified in a vernal pool at the eastern edge of the Shalako property in 1993 (Sugnet and Associates 1993). Given the presence of suitable habitat and past documentation of western spadefoot presence on the SPA and in the immediate project vicinity, this species is assumed to be present in the SPA.

Swainson's Hawk and Other Raptors. Swainson's hawk is state-listed as threatened. Historically, Swainson's hawks nested throughout lowland California. As many as 17,000 Swainson's hawk pairs may have nested in California at one time (Bloom 1980). Currently, there are 700–1,000 breeding pairs in California, of which 600–900 are in the Central Valley (Estep 2003, Swainson's Hawk Technical Advisory Committee [SHTAC] 2000). Swainson's hawks are typically found in California only during the breeding season (March through September) and winter in Mexico and South America, although a small number of individuals have been wintering in the San Francisco Bay-Delta area for several years (City of Sacramento et al. 2003). The Central Valley population migrates only as far south as Central Mexico. Swainson's hawks begin to arrive in the Central Valley in March. Nesting territories are usually established by April, with incubation and rearing of young taking place through June (Estep 1989).

Swainson's hawks are most commonly found in grasslands, low shrublands, and agricultural habitats that include large trees for nesting. They nest in riparian woodlands, roadside trees, trees along field borders, and isolated trees. Corridors of remnant riparian forest along drainages contain the majority of known nests in the Central Valley (England et al. 1997; Estep 1984; Schlorff and Bloom 1984). Nesting pairs frequently return to the same nest site for multiple years and decades.

Prey abundance and accessibility are the most important features determining the suitability of Swainson's hawk foraging habitat. In addition, agricultural operations (e.g., mowing, flood irrigation) have a substantial influence on the accessibility of prey and thus create important foraging opportunities for Swainson's hawk. Crops that are tall and dense enough to preclude the capture of prey do not provide suitable habitat except around field margins, but prey animals in these habitats are accessible during and soon after harvest. Swainson's hawks feed primarily on small rodents, but also consume insects and birds. Although the most important foraging habitat for Swainson's hawks lies within a 1-mile radius of each nest (City of Sacramento et. al 2003), Swainson's hawks have been recorded foraging up to 18.6 miles from nest sites (Estep 1989). Any habitat within the foraging distance may provide food at some time in the breeding season that is necessary for reproductive success.

The SPA provides suitable nesting and foraging habitat for Swainson's hawk. There are 12 CNDDB recorded occurrences within 5 miles southeast of the SPA, the closest of which is located approximately 2 miles southwest of the SPA along Meiss Road. An active Swainson's hawk was also observed by AECOM biologists on the adjacent Arboretum project site near Blodgett Reservoir in June 2007 (EDAW [now AECOM] 2007). Although this species was not observed in the SPA during field visits, Swainson's hawk could occur because there is suitable nesting and foraging habitat within the SPA.

Western burrowing owl is known to nest in the SPA. Burrowing owl is a California species of special concern. Burrowing owls and their nests are also protected under Section 3503.5 of the California Fish and Game Code. Burrowing owls typically inhabit grasslands and other open habitats with low-lying vegetation. They are also known to nest and forage in idle agricultural fields, ruderal fields, and the edges of cultivated fields, although these areas provide lower-quality habitat than grasslands. Burrow availability is an essential component of suitable habitat. Burrowing owls are capable of digging their own burrows in areas with soft soil, but they generally prefer to adopt those excavated by other animals, typically ground squirrels. In areas where burrows are scarce, they can use pipes, culverts, debris piles, and other artificial features.

AECOM wildlife biologists identified three western burrowing owls in the SPA during the November 10, 2005 field visit conducted in support of this analysis. Signs of burrowing owls (i.e., presence of excrement (whitewash) and prey pellets) were observed near burrows in the central southwest portion of the SPA, along the banks of Kite Creek, and within an abandoned well. In addition, there are three CNDDB occurrences within 1 mile of the SPA for western burrowing owl (CNDDB 2010).

Northern harrier, Cooper's hawk, white-tailed kite, ferruginous hawk, red-tailed hawk, and great horned owl are raptor species that have been observed in the SPA and could nest in the SPA. Foothill Associates observed a northern harrier and a pair of Cooper's hawks in the SPA during a field survey in 2004 (Foothill Associates 2004). White-tailed kite, a fully protected species, is known to forage in the SPA and nest in the project vicinity. There is a 1990 CNDDB record of a breeding pair of white-tailed kites at the north side of Blodgett Reservoir, south of Kiefer Boulevard (CNDDB 2010), and this species was observed foraging near Blodgett Reservoir by AECOM biologists in 2007. Sugnet & Associates observed white-tailed kites foraging in the SPA in 1993 and Foothill Associates (Foothill Associates 2004) also observed a white-tailed kite foraging in the southern section of the SPA south of Kiefer Boulevard during the 2004 field visit. Other raptors that could nest in the SPA include American kestrel, red-tailed hawk, red-shouldered hawk, and barn owl. A number of large nests were observed in the SPA by Foothill Associates in 2004 and by AECOM biologists in 2007, but none of these nests were confirmed to be active. All raptors and their nests are protected under Section 3503.3 of the California Fish and Game Code.

Other Nesting Birds. Grasslands in the SPA provide suitable year-round habitat for loggerhead shrike and potential breeding habitat for grasshopper sparrow. Sugnet & Associates observed a loggerhead shrike foraging in the SPA in 1993 (Sugnet & Associates 2003), and two loggerhead shrike nests were observed by AECOM biologists on the adjacent Arboretum project site in 2007 (EDAW [now AECOM] 2007). Grasshopper sparrow has not been documented on the SPA or immediate vicinity, but it is known from the region and could nest on site.

American Badger. American badger, a California species of concern, prefers open grassland habitats with friable soils. An occurrence less than 1 mile north of the SPA was identified in the CNDDB (Exhibit 3.3-2). Since there is suitable habitat for American badger and known occurrences within the vicinity of the SPA, this species has the potential to occur in the SPA.

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration through CEQA, Section 1602 of the California Fish and Game Code, Section 404 of the CWA, and the State's Porter Cologne Act, as discussed under "Regulatory Framework" below. Sensitive natural habitat may be of special concern to these agencies and conservation organizations for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat to common and special-status species. Many of these communities are tracked in DFG's Natural Diversity Database, a statewide inventory of the locations and conditions of the state's rarest plant and animal taxa and vegetation types. Habitat types on the SPA that would be considered sensitive by regulatory agencies consist of vernal pools, depressional seasonal wetlands, and riverine seasonal wetlands.

Wetlands and Other Waters of the United States

Wetland delineations were conducted on the SPA by Davis[2] Consulting Earth Scientists in 2000 and 2001, and by Foothill Associates and ECORP in 2004 and 2005 (Foothill Associates 2005a and 2005b, ECORP 2007a, 2007b, and 2007c). These wetland delineations were verified by USACE in 2007. Verified wetland delineation maps identify a total of 42.48 acres of jurisdictional wetlands and other waters of the U.S. in the SPA.

Wetlands in the SPA that are subject to USACE jurisdiction consist of 26.29 acres of vernal pools, 6.35 acres of swales, and 2.54 acres of seasonal wetlands. Other waters of the U.S. identified in the SPA consist of 2.06 acres of ponds, 0.90 acre of ephemeral drainage, 0.98 acre of intermittent drainage, and 3.34 acres of streams, including a tributary of Laguna Creek. This tributary is identified as Sun Creek on local road signs, but is referred to as Kite Creek in County drainage plans and in baseline hydrology reports. For consistency with the hydrology studies, the tributary is referred to as Kite Creek throughout this DEIR/DEIS. The locations of wetlands and other waters of the U.S., as mapped by Davis[2], Foothill Associates, and ECORP, have been included on Exhibit 3.3-1. A large portion of the vernal pools and seasonal wetland swales and most of the drainage tributary to Laguna Creek is concentrated within a corridor traversing the central portion of the SPA, where approximately 204 acres of habitat are designated for preservation as part of the Proposed Project Alternative. Wetlands and other waters of the United States that would be retained within the on-site wetland preserve consist of 12.716 acres of vernal pools, 1.943 acres of swales, 1.524 acres of seasonal wetlands, 0.808 acre of intermittent drainage, and 2.507 acres of streams. Additional acreage would be preserved within the "Wetland Preserve" land use classification under the No USACE Permit, Biological Impact Minimization, and Conceptual Strategy Alternatives, which would provide 607,411, and 310 acres of wetland preserve, respectively. A lesser amount of habitat acreage would be preserved under the Increased Development Alternative, which would provide approximately 97 acres of wetland preserve. The areas designated as Wetland Preserve under each alternative are depicted on Exhibits 3.3-3 through 3.3-7.

3.3.2 REGULATORY FRAMEWORK

Biological resources in California are protected and/or regulated by a variety of Federal and state laws and policies. In addition, in many parts of California, there are local or regional habitat and species conservation

planning efforts in which a project applicant may participate. Key regulatory and conservation planning issues applicable to the project and alternatives under consideration are discussed below.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Section 404 of the Clean Water Act

Section 404 of the CWA establishes a requirement for a project applicant to obtain a permit before engaging in any activity that involves any discharge of dredged or fill material into "waters of the U.S.," including wetlands. Fill material is material placed in waters of the U.S. where the material has the effect of replacing any portion of a water of the U.S. with dry land, or changing the bottom elevation of any portion of a water of the U.S. Waters of the U.S. include traditional navigable waters of the U.S. (TNWs) and adjacent wetlands, relatively permanent waters (RPWs) (i.e., waters that flow continuously at least on a seasonal basis, typically at least 3 months of the year) that are tributary to TNWs, and wetlands with a continuous surface connection to RPWs, and non-relatively permanent tributaries of TNWs and adjacent wetlands if they have a significant nexus to a TNW. Non-RPWs and adjacent wetlands are determined to have a significant nexus to a TNW if they significantly affect the chemical, physical, or biological integrity of a downstream TNW. Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater 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. Jurisdictional wetlands must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Wetlands that meet the delineation criteria may be jurisdictional under Section 404 of CWA pending USACE and the U.S. Environmental Protection Agency (EPA) review.

In 2008, the USACE and EPA issued regulations governing compensatory mitigation for activities authorized by permits issued by the USACE. The rule establishes a preference for the use of mitigation banks because they provide established wetland habitats that have already met success criteria thereby reducing some of the risks and uncertainties associated with compensatory mitigation involving creation of new wetlands that cannot yet demonstrate functionality at the time of project implementation.

Federal Endangered Species Act

The USFWS and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) have authority over projects that may result in take of a species listed as threatened or endangered under the ESA (i.e., a Federally listed species). In general, persons subject to ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species on private property, and from "taking" endangered or threatened plants in areas under Federal jurisdiction or in violation of state law. Under the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take. If a project would result in take of a Federally listed species, either an incidental take permit, under Section 10(a) of the Federal ESA, or a Federal interagency consultation, under Section 7 of the Federal ESA, is required prior to the take. Such a permit typically requires various types of mitigation to compensate for or to minimize the take.

Section 401 Water Quality Certification

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state's water quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board to the nine Regional Water Quality Control Boards (RWQCBs).

TOTAL AVOIDANCE & IMPACT

	Avoided	Direct Impacts		Wetlands within 250' of Development[2]		Existing Acreage
		Onsite	Offsite[3]	Onsite	Offsite[3]	
Vernal Pool	12.716	13.573	0.930	9.952	7.515	27.219[1]
Seasonal Wetland	1.524	1.021	0.093	1.222	3.136	2.638
Swale	1.943	4.406	0.115	1.677	2.362	6.464
Ephemeral Drainage	0.000	0.903	0.000	0.000	0.000	0.903
Intermittent Drainage	0.808	0.174	0.000	0.543	0.000	0.982
Pond	0.000	2.056	0.000	0.000	0.649	2.056
Stream	2.507	0.831	0.078	1.689	1.633	3.416
Isolated Vernal Pool	0.000	0.012	0.000	0.000	0.000	0.012
Total	*19.498*	*22.976*	*1.216*	*15.083*	15.295	43.690

NOTES

Gross project acreage: +/- 1265 ac.

Gross preserve acreage: +/- 198 ac.

Base data source: Wade Associates.

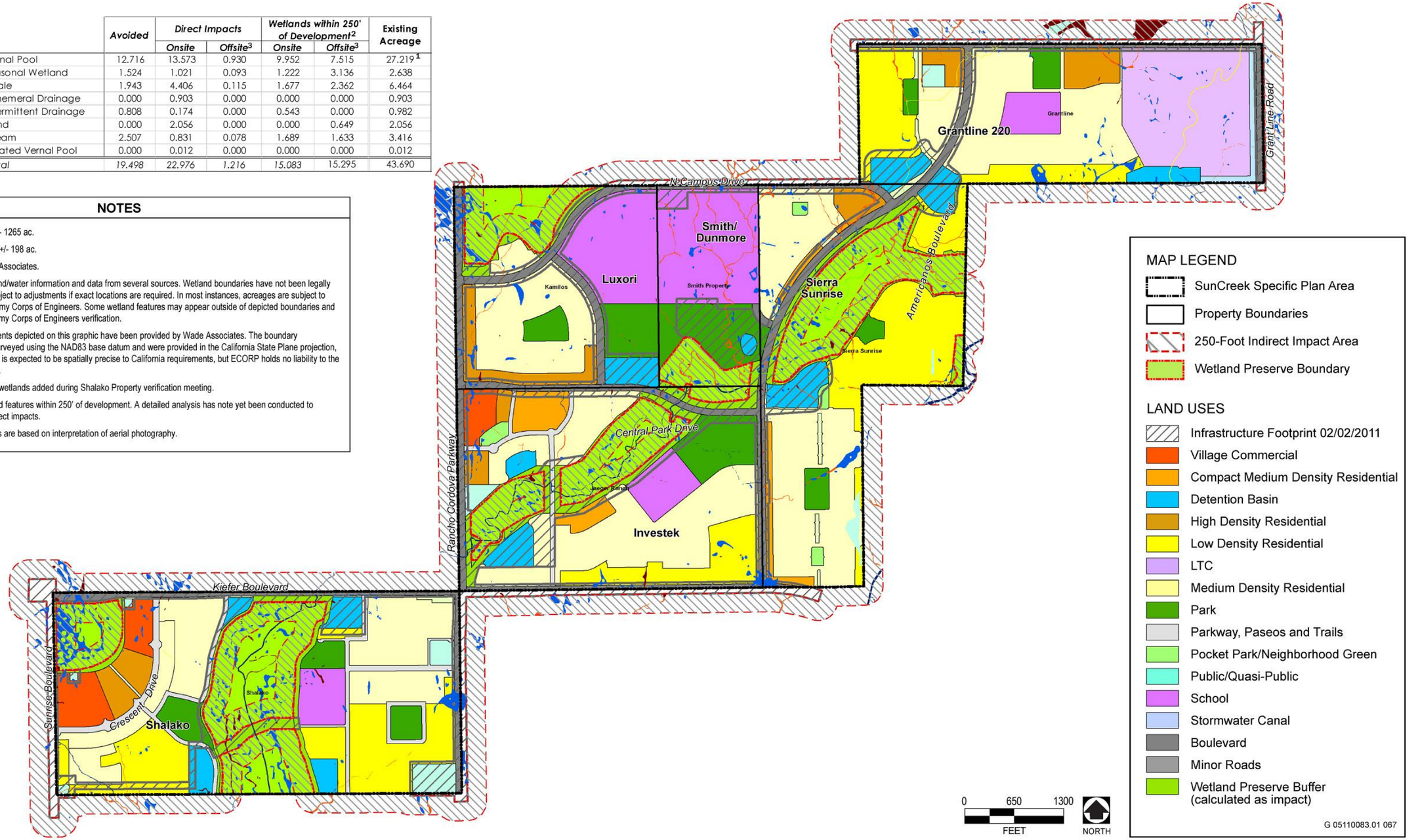
This exhibit depicts wetland/water information and data from several sources. Wetland boundaries have not been legally surveyed and may be subject to adjustments if exact locations are required. In most instances, acreages are subject to verification by the U.S. Army Corps of Engineers. Some wetland features may appear outside of depicted boundaries and were left as is pending Army Corps of Engineers verification.

The project boundary extents depicted on this graphic have been provided by Wade Associates. The boundary coordinates have been surveyed using the NAD83 base datum and were provided in the California State Plane projection, Grid Units. This boundary is expected to be spatially precise to California requirements, but ECORP holds no liability to the accuracy of the boundary.

[1] Includes 0.771 acres of wetlands added during Shalako Property verification meeting.

[2] Acreage is for all wetland features within 250' of development. A detailed analysis has note yet been conducted to determine potential indirect impacts.

[3] Offsite wetland acreages are based on interpretation of aerial photography.



Source: ECORP 2012, Adapted by AECOM in 2012

Proposed Project Alternative – Impacts on Wetlands and Other Waters **Exhibit 3.3-3**

TOTAL AVOIDANCE & IMPACT

	Avoided	Direct Impacts [4]		Wetlands within 250' of Development [2]		Existing Acreage
		Onsite	Offsite [3]	Onsite	Offsite [3]	
Vernal Pool	27.237	0.000	0.000	15.585	6.948	27.237 [1]
Seasonal Wetland	2.643	0.000	0.000	1.671	3.047	2.643
Swale	6.392	0.000	0.000	3.265	1.663	6.392
Ephemeral Drainage	0.904	0.000	0.000	0.846	0.000	0.904
Intermittent Drainage	0.984	0.000	0.000	0.173	0.047	0.984
Pond	2.056	0.000	0.000	2.015	0.632	2.056
Stream	3.421	0.000	0.000	2.054	0.949	3.421
Isolated Vernal Pool	0.012	0.000	0.000	0.012	0.000	0.012
Total	*43.649*	*0.000*	*0.000*	*25.621*	*13.286*	*43.649*

Note 4: Areas where clear spans & bridges would be necessary for roadways and jack & bore installation techniques would be necessary for underground utilities to avoid all impacts to wetlands.

NOTES

Gross project acreage: +/- 1265 ac.

Gross preserve acreage: +/- 601 ac.

Base data source: Wade Associates.

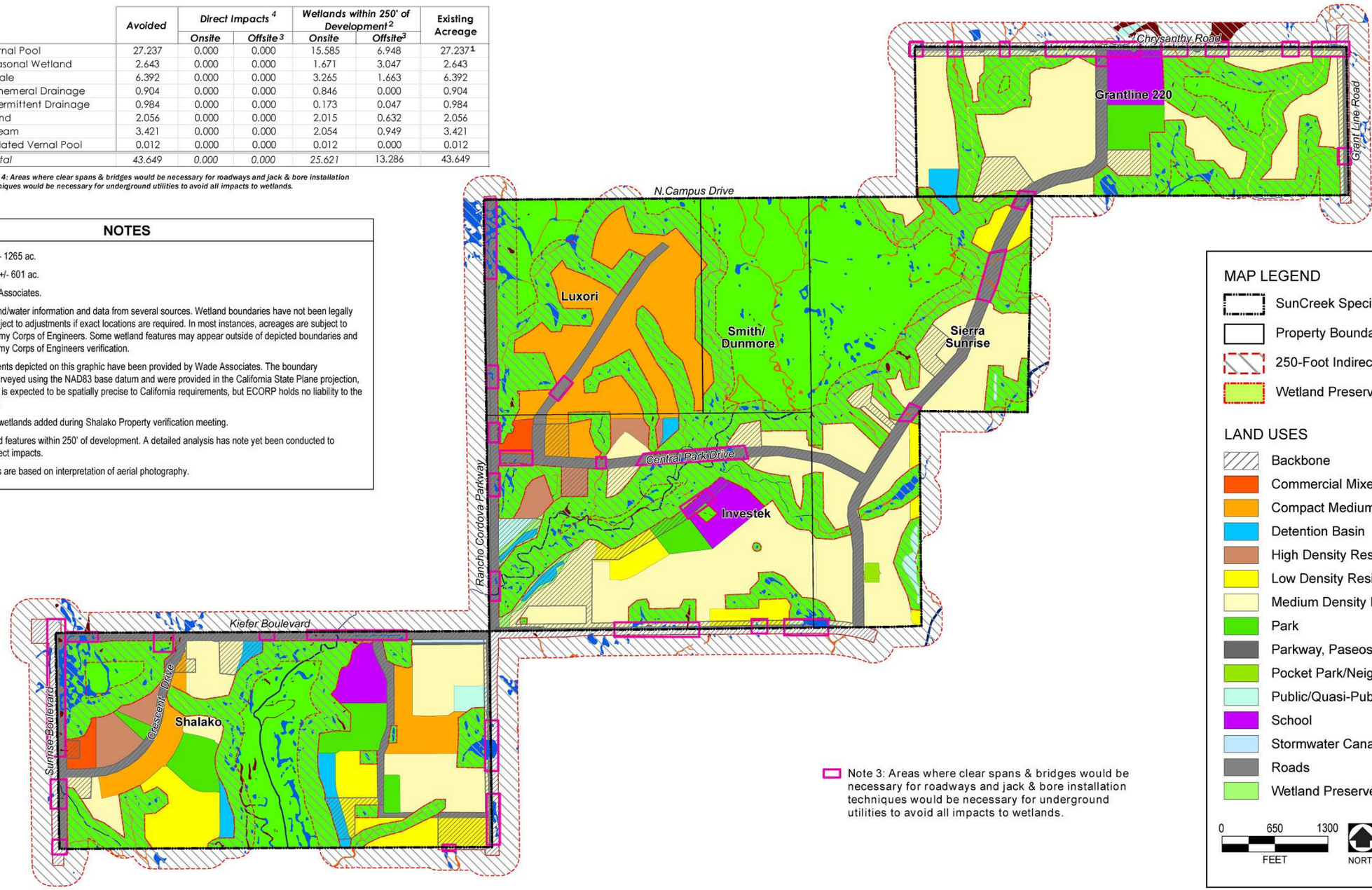
This exhibit depicts wetland/water information and data from several sources. Wetland boundaries have not been legally surveyed and may be subject to adjustments if exact locations are required. In most instances, acreages are subject to verification by the U.S. Army Corps of Engineers. Some wetland features may appear outside of depicted boundaries and were left as is pending Army Corps of Engineers verification.

The project boundary extents depicted on this graphic have been provided by Wade Associates. The boundary coordinates have been surveyed using the NAD83 base datum and were provided in the California State Plane projection, Grid Units. This boundary is expected to be spatially precise to California requirements, but ECORP holds no liability to the accuracy of the boundary.

[1] Includes 0.771 acres of wetlands added during Shalako Property verification meeting.

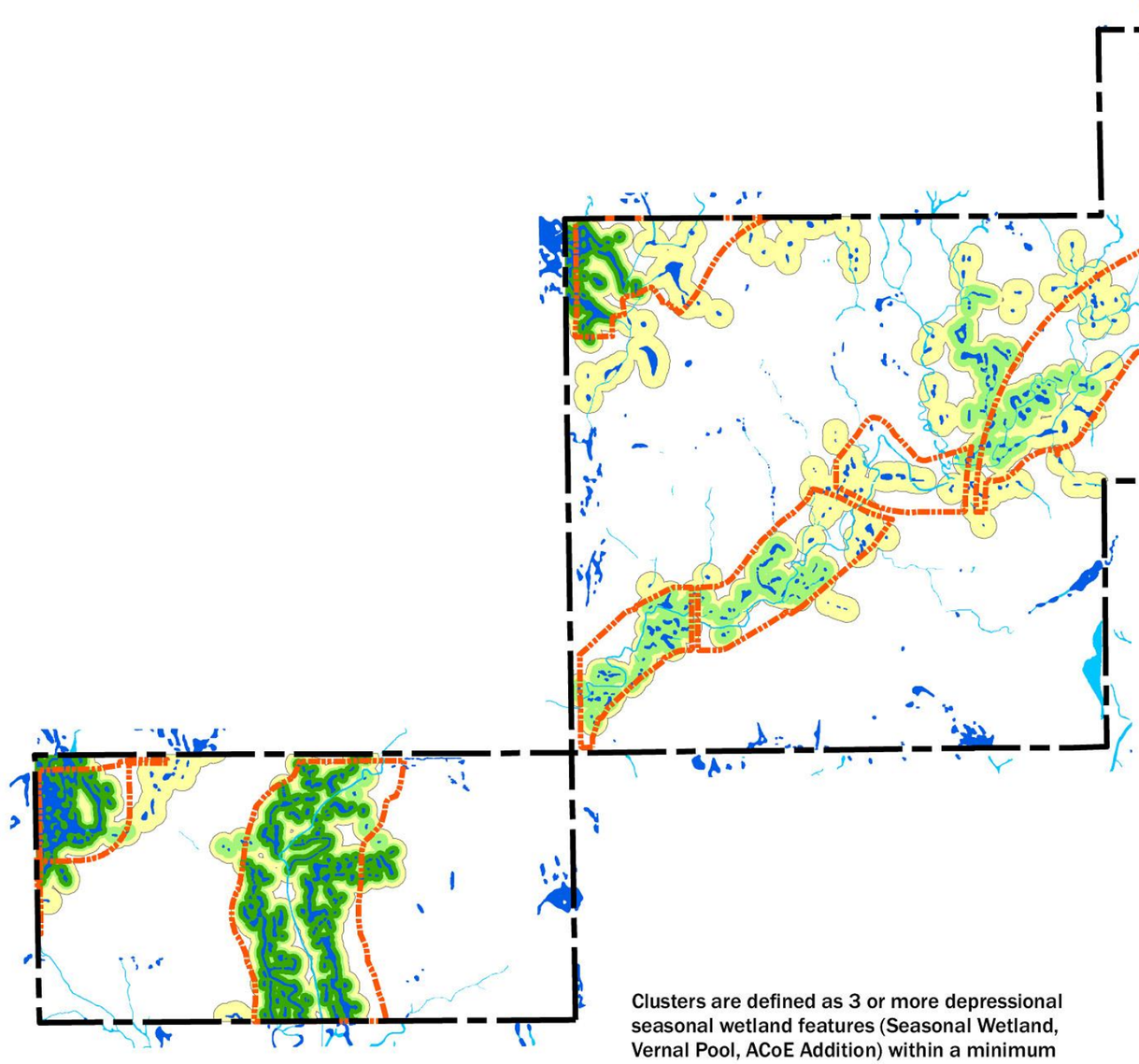
[2] Acreage is for all wetland features within 250' of development. A detailed analysis has note yet been conducted to determine potential indirect impacts.

[3] Offsite wetland acreages are based on interpretation of aerial photography.



Source: ECORP 2011, Adapted by AECOM in 2011

No USACE Permit Alternative – Impacts on Wetlands and Other Waters **Exhibit 3.3-4**



Clusters are defined as 3 or more depressional seasonal wetland features (Seasonal Wetland, Vernal Pool, ACoE Addition) within a minimum distance of *X* feet of each other (where *X* is the defined distance of analysis) that result in a buffered area totaling a minimum of 10 acres onsite.

Depressional Seasonal Wetlands

	100' Minimum Distance		150' Minimum Distance		250' Minimum Distance	
	Area (Ac.)	%	Area (Ac.)	%	Area (Ac.)	%
IMPACT	**1.79**	**14.9%**	**4.10**	**25.0%**	**7.49**	**34.9%**
ACoE Addition	0.07		0.07		0.07	
Seasonal Wetland	0.27		0.33		0.60	
Vernal Pool	1.44		3.71		6.82	
PRESERVE	**10.22**	**85.1%**	**12.27**	**75.0%**	**13.95**	**65.1%**
ACoE Addition	0.52		0.53		0.53	
Seasonal Wetland	1.10		1.28		1.52	
Vernal Pool	8.60		10.46		11.90	
Total DSW Complex in Scenario	**12.00**		**16.38**		**21.44**	

Source: ECORP 2011

Microwatershed Cluster Analysis **Exhibit 3.3-5**

TOTAL AVOIDANCE & IMPACT

	Avoided	Direct Impacts		Wetlands within 250' of Development[2]		Existing Acreage
		Onsite	Offsite[3]	Onsite	Offsite[3]	
Vernal Pool	18.076	8.221	0.946	12.082	7.212	27.243[1]
Seasonal Wetland	1.732	0.812	0.109	1.178	3.086	2.653
Swale	4.580	1.772	0.044	3.142	2.050	6.396
Ephemeral Drainage	0.812	0.092	0.000	0.812	0.000	0.904
Intermittent Drainage	0.981	0.004	0.000	0.390	0.000	0.985
Pond	0.000	2.056	0.000	0.000	0.641	2.056
Stream	2.764	0.573	0.087	1.424	1.634	3.424
Isolated Vernal Pool	0.000	0.012	0.000	0.000	0.000	0.012
Total	*28.945*	*13.542*	*1.186*	*19.028*	14.623	43.673

NOTES

Gross project acreage: +/- 1265 ac.

Gross preserve acreage: +/- 399 ac.

Base data source: Wade Associates.

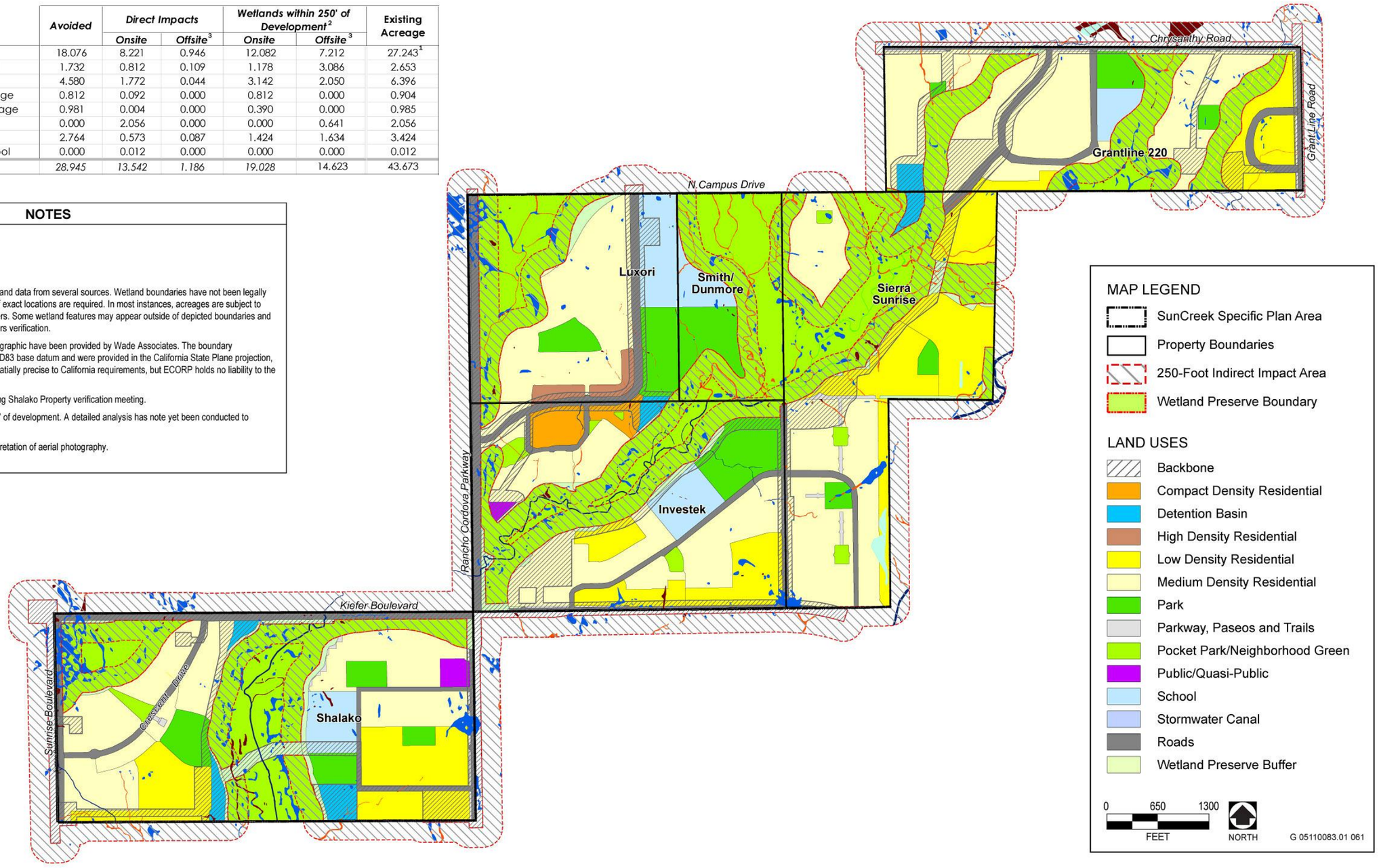
This exhibit depicts wetland/water information and data from several sources. Wetland boundaries have not been legally surveyed and may be subject to adjustments if exact locations are required. In most instances, acreages are subject to verification by the U.S. Army Corps of Engineers. Some wetland features may appear outside of depicted boundaries and were left as is pending Army Corps of Engineers verification.

The project boundary extents depicted on this graphic have been provided by Wade Associates. The boundary coordinates have been surveyed using the NAD83 base datum and were provided in the California State Plane projection, Grid Units. This boundary is expected to be spatially precise to California requirements, but ECORP holds no liability to the accuracy of the boundary.

[1] Includes 0.771 acres of wetlands added during Shalako Property verification meeting.

[2] Acreage is for all wetland features within 250' of development. A detailed analysis has note yet been conducted to determine potential indirect impacts.

[3] Offsite wetland acreages are based on interpretation of aerial photography.



Source: ECORP 2011, Adapted by AECOM in 2011

Biological Impact Minimization Alternative – Impacts on Wetlands and Other Waters **Exhibit 3.3-6**

TOTAL AVOIDANCE & IMPACT

	Avoided	Direct Impacts		Wetlands within 250' of Development [2]		Existing Acreage
		Onsite	Offsite	Onsite[3]	Offsite [3]	
Vernal Pool	13.349	12.941	1.039	7.902	7.553	27.329 [1]
Seasonal Wetland	1.549	0.995	0.106	0.983	3.075	2.650
Swale	2.722	3.629	0.145	1.185	2.333	6.496
Ephemeral Drainage	0.000	0.903	0.000	0.000	0.000	0.903
Intermittent Drainage	0.869	0.112	0.002	0.519	0.000	0.983
Pond	0.000	2.056	0.000	0.000	0.628	2.056
Stream	2.790	0.547	0.088	0.919	1.629	3.425
Isolated Vernal Pool	0.000	0.012	0.000	0.000	0.000	0.012
Total	*21.279*	*21.195*	*1.380*	*11.508*	15.218	43.854

NOTES

Gross project acreage: +/- 1265 ac.

Gross preserve acreage: +/- 204 ac.

Base data source: Wade Associates.

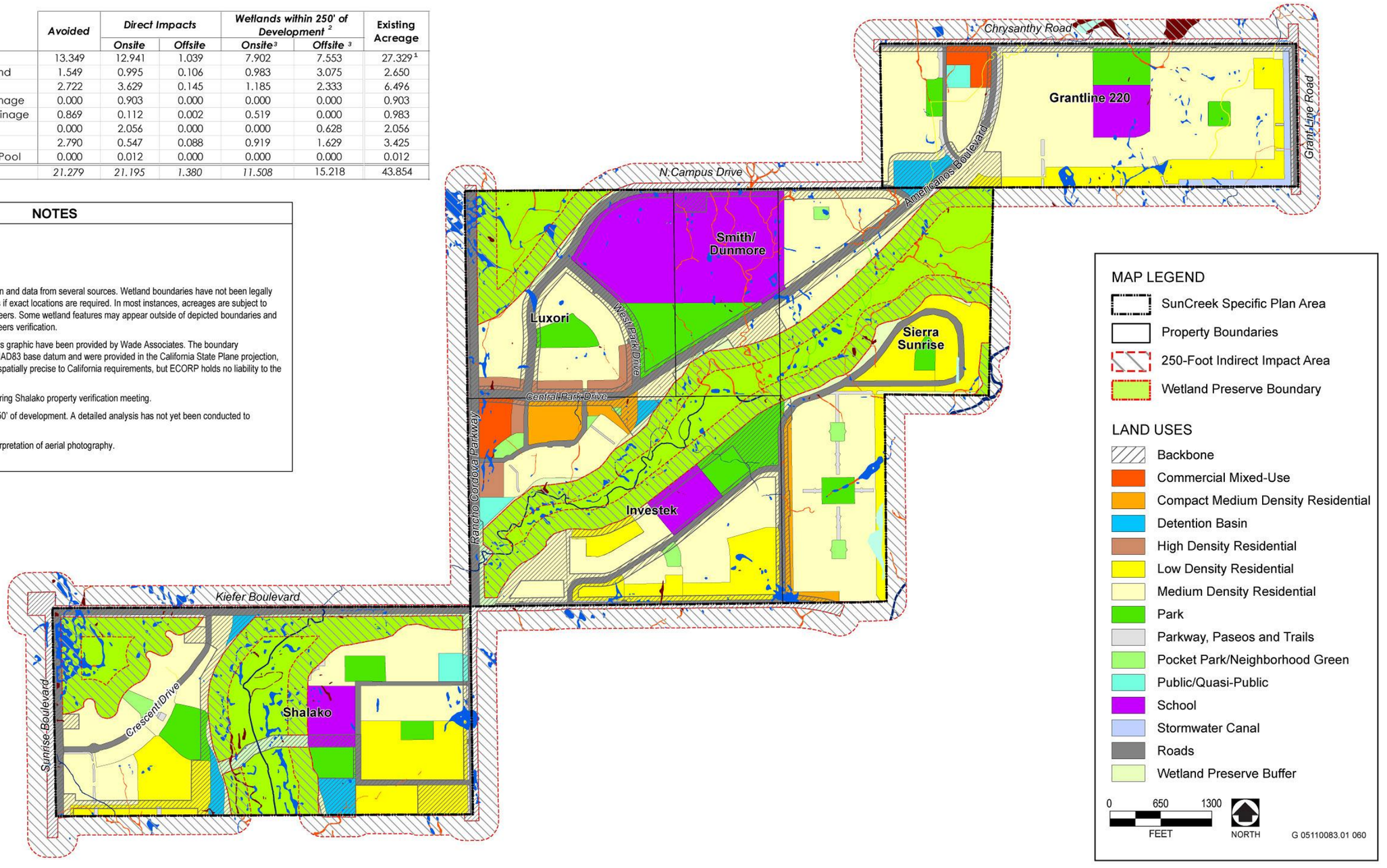
This exhibit depicts wetland/water information and data from several sources. Wetland boundaries have not been legally surveyed and may be subject to adjustments if exact locations are required. In most instances, acreages are subject to verification by the U.S. Army Corps of Engineers. Some wetland features may appear outside of depicted boundaries and were left as is pending Army Corps of Engineers verification.

The project boundary extents depicted on this graphic have been provided by Wade Associates. The boundary coordinates have been surveyed using the NAD83 base datum and were provided in the California State Plane projection, Grid Units. This boundary is expected to be spatially precise to California requirements, but ECORP holds no liability to the accuracy of the boundary.

[1] Includes 0.771 acres of wetlands added during Shalako property verification meeting.

[2] Acreage is for all wetland features within 250' of development. A detailed analysis has not yet been conducted to determine potential indirect impacts.

[3] Offsite wetland acreages are based on interpretation of aerial photography.



Source: ECORP 2011, Adapted by AECOM in 2011

Conceptual Strategy Alternative – Impacts on Wetlands and Other Waters **Exhibit 3.3-7**

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for international migratory bird protection and authorizes the Secretary of the Interior to regulate the taking of migratory birds. MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird. The current list of species protected by MBTA can be found in Title 50, Code of Federal Regulations (CFR) Section 10.13. The list includes nearly all birds native to the United States.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Endangered Species Act

In accordance with the CESA and Section 2081 of the California Fish and Game Code, a permit from DFG is required for projects that could result in the take of a wildlife species state-listed as threatened or endangered. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include "harm" or "harass," as the Federal act does.

Section 1602 of the California Fish and Game Code

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by DFG under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by DFG, or use any material from the streambeds, without first notifying DFG of such activity and obtaining a final agreement authorizing such activity. "Stream" is defined as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life. DFG's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A DFG Streambed Alteration Agreement must be obtained for any project that would result in an impact on a river, stream, or lake.

Porter Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act requires that each of the nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes Federally protected waters as well as areas that meet the definition of "waters of the state." Waters of the state is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not Federally protected under Section 401 provided they meet the definition of waters of the state. Mitigation requiring no net loss of wetlands functions and values of waters of the state is typically required by the RWQCB.

California Fish and Game Code Section 3503.5 (Protection of Raptors)

Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations include destruction of active raptor nests as a result of tree removal and failure of nesting attempts, resulting in loss of eggs and/or young, because of disturbance of nesting pairs by nearby human activity.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Rancho Cordova General Plan

Goals and policies from the *City of Rancho Cordova General Plan* (City General Plan 2006) relating to biological resources that are applicable to the Proposed Project and alternatives under consideration are listed in Appendix K.

Proposed South Sacramento Habitat Conservation Plan

The SPA is located within the proposed South Sacramento County Habitat Conservation Plan (SSCHCP) area. The SSCHCP is intended to provide a regional approach to issues related to urban development, habitat conservation, agricultural production, and open-space planning. The SSCHCP would provide strategies to conserve habitat for nine special-status plants and 42 special-status wildlife species. The conservation strategy has four components: conservation (habitat acquisition), restoration, enhancement, and a limited amount of avoidance and minimization. If adopted, it would serve as a multispecies, multihabitat conservation plan addressing the biological impacts of future urban development within the Urban Services Boundary (USB) in the southern portion of the County. The emphasis of the SSCHCP is to secure large, interconnected blocks of habitat that focus on protecting intact subwatersheds while minimizing edge effects and maximizing heterogeneity. Habitat losses within the USB would be offset primarily through the establishment of large preserves outside the USB, but three core preserves would be established within the USB and two satellite preserves would be established within the USB in the vicinity of the SPA. Habitat mitigation for impacts resulting from a particular project must take place on the same geological formation as the affected area. As currently conceived, land developers that convert habitat within the USB would pay a defined per-acre fee to mitigate impacts. These fees would be used to protect, restore, maintain, and monitor habitat. The process for developing the SSCHCP was initiated in 1992. The SSCHCP is currently undergoing environmental review and the best-case estimate for completion and implementation is late 2011-early 2012 (McCormick, pers. comm., 2010). At this time, the SSCHCP is in draft form and still being developed. Since the SSCHCP is still being drafted, it would be premature to attempt to analyze the project's consistency with the SSCHCP. Also, since it is not an adopted plan, the project's consistency is not required to be analyzed under CEQA or NEPA. Therefore, an analysis of the project's consistency with the SSCHCP is not included in this EIR/EIS.

When a final draft SSHCP is adopted, projects applying to the City of Rancho Cordova, a participating entity in the SSHCP, will be evaluated for compliance with the SSHCP. Projects that do not comply with the SSHCP cannot be permitted under the plan. If a project is in compliance with requirements of the SSHCP, the project can obtain take authorization through participation in the SSHCP and impacts on biological resources resulting from project implementation can be mitigated by payment of appropriate fees to the plan participant, which in this case would be the City of Rancho Cordova.

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon

The Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005) was released by USFWS on December 15, 2005. This plan focuses on 33 species of plants and animals that occur exclusively or primarily within vernal pool ecosystems, including the Federally listed vernal pool fairy shrimp and tadpole shrimp. The plan outlines recovery priorities and provides goals, objectives, strategies, and criteria for recovery. One of the overall objectives of the recovery plan is to promote natural ecosystem processes and functions by protecting and conserving intact vernal pools and vernal pool complexes. Habitat protection under the recovery plan includes the protection of the topographic, geographic, and edaphic features that support hydrologically interconnected systems of vernal pools, swales, and other seasonal wetlands within an upland matrix that together form hydrologically and ecologically functional vernal pool complexes. The project site is located within the Mather Core Area under the Recovery Plan. The preservation goal established by USFWS for the vernal pool habitat in this Core Area is 85%–95%. However, this preservation goal was established for the entire area, not necessarily on a project-by-project basis. In addition, the general mapping for areas to be preserved under the

Recovery Plan is difficult to accurately apply on a project-by-project basis. The Recovery Plan is not regulatory in nature; however, it may be taken into consideration when analyzing potential impacts on vernal pools and associated biota although consistency with the Plan is not required by law. It is used by the USFWS to determine recommendations and requirements during endangered species consultation for vernal pool dependent species. For these reasons, an analysis of the project's consistency with the Recovery Plan is not required under CEQA or NEPA, and, therefore, is not included in this EIR/EIS.

3.3.3 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. The Proposed Project or alternatives under consideration were determined to result in a significant impact related to biological resources if they would do any of the following:

- have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by DFG and USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by DFG and USFWS;
- have a substantial adverse effect on Federally protected waters of the U.S., including wetlands, as defined by Section 404 of the CWA through direct removal, filling, hydrological interruption or other means;
- interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan; or
- substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

ANALYSIS METHODOLOGY

This analysis of impacts on biological resources resulting from project implementation is based on data collected during reconnaissance-level field surveys conducted by AECOM biologists on November 10, 2005 and June 7, 2007; extensive review of existing documentation that addresses biological resources and previous surveys conducted on or near the SPA, including CNDDB and CNPS records, the proposed SSHCP; and surveys conducted by Foothill Associates and ECORP, as described previously. Additional information was obtained from Geographic Information System (GIS) analysis and data gathered from the project applicants' biological resources consultants.

The Proposed Project Alternative includes the creation of a 204-acre wetland preserve network primarily concentrated within a corridor traversing the central portion of the SPA from northeast to southwest along Kite

Creek (Exhibit 3.3-3). This proposed 204-acre preserve would be preserved and maintained in perpetuity for wetland conservation and wildlife habitat through deed restrictions and conservation easements. An additional 45-acre buffer area with passive recreational uses (e.g., bike paths) would be provided around the wetland preserve areas. The Proposed Project Alternative also includes the creation of 5 acres of stormwater canal and 47 acres of detention basins, much of which would be constructed adjacent to the wetland preserve. Five additional alternatives are evaluated at an equal level of detail and compared to the Proposed Project Alternative. Each alternative includes a wetland preserve network concentrated primarily along the Kite Creek corridor, but the size and shape of the wetland preserve network varies with each alternative. It is assumed that full project buildout, under each alternative, would result in loss of all existing habitat outside of the wetland preserve network for that alternative.

It is assumed that mitigation recommended herein would occur as defined in the Section 404 permit, if issued. Compensatory mitigation would be phased with project implementation as required by the Section 404 permit for the project, if issued. The timing of compensatory mitigation is expected to be established to offset temporal losses.

To provide a comprehensive approach to the impact analysis and provide that impacts to resources of concern to more than one agency are discussed together, the impact analysis has been structured to include three broad impact categories: impacts to sensitive habitats, impacts to special-status wildlife, and impacts to special-status plants. The evaluation of impacts to sensitive habitats incorporates both quantitative and qualitative aspects. Impacts were evaluated by calculating the acreage of each sensitive habitat by land use designation. It is assumed that development in areas that would require grading would result in the elimination of all wetland and other sensitive habitats within that land use designation. Therefore, the only land use designation that would be expected to afford some level of protection for wetland and other sensitive habitats is the proposed "Wetland Preserve" (see Exhibit 3.3-3). Sensitive habitats that would be affected by implementation of the Proposed Project, Conceptual Strategy, and Increased Development Alternatives consist of vernal pool, seasonal wetland, swale, ephemeral drainage, intermittent drainage, pond, stream, and riparian scrub. Implementation of the Biological Impact Minimization Alternative would also affect these sensitive habitats but to a lesser degree than the Proposed Project, Conceptual Strategy, and Increased Development Alternatives as discussed below. The No USACE Permit Alternative and No Project Alternative would not directly affect sensitive habitats on the SPA.

The project includes a proposal to install two on-site groundwater wells and an on-site groundwater treatment plant. Hydrologic modeling determined that installation and operation of the groundwater wells and groundwater treatment plant would not have a significant effect on water levels in the Cosumnes River and, consequently, in the Delta. Thus, the project would not adversely affect delta smelt. The potential impact to water levels in the Cosumnes River from groundwater drawdown as a result of installing the two on-site wells is evaluated in Section 3.9, "Hydrology and Water Quality."

ISSUES NOT DISCUSSED FURTHER IN THIS EIR/EIS

Conflict with any Local Policies or Ordinances Protecting Biological Resources—The project has been designed to be consistent with City of Rancho Cordova General Plan policies and ordinances protecting biological resources. In general, the No UASCE Permit and Biological Impact Minimization Alternatives protect the most biological resources; the Proposed Project Alternative and the Conceptual Strategy Alternatives protect nearly the same amount of biological resources, and the Increased Development Alternative protects the least amount biological resources. The only inconsistency with City General Plan policies would occur under the Increased Development Alternative as discussed below in Impact 3.3-5, related to a lack of connectivity with wildlife corridors. Therefore, this issue is not evaluated as a separate impact in this EIR/EIS.

Substantial Adverse Effects on Special-status Plant Species—Special-status plant surveys conducted according to established protocols and over multiple years, the last in 2008, have not identified any special-status plants in

the SPA. Therefore, special-status plants are considered absent from the SPA and therefore this issue is not evaluated further in this EIR/EIS.

IMPACT ANALYSIS

Impacts that would occur under each alternative development scenario are identified as follows: NP (No Project), NCP (No USACE Permit), PP (Proposed Project), BIM (Biological Impact Minimization), CS (Conceptual Strategy), and ID (Increased Development). The impacts for each alternative are compared relative to the PP at the end of each impact conclusion (i.e., similar, greater, lesser).

IMPACT 3.3-1 **Loss and Degradation of Jurisdictional Wetlands and Other Waters of the U.S.** *Implementing the project would result in the placement of fill material into jurisdictional waters of the U.S., including wetlands subject to USACE jurisdiction under the Federal Clean Water Act. Wetlands and other waters of the U.S. that would be affected by project implementation consist of vernal pool, seasonal wetland, swale, ephemeral drainage, intermittent drainage, pond, and stream.*

NP

Under the No Project Alternative no development would occur, thereby resulting in no project-related ground-disturbing activities that would affect USACE jurisdictional wetlands and other waters of the U.S. or other wetland habitats protected by state and local regulations. Therefore, **no direct** or **indirect impacts** would occur under the No Project Alternative. ***[Lesser]***

NCP

The No USACE Permit Alternative would not result in fill of wetlands or other waters subject to USACE jurisdiction under the CWA. No development would occur within 50 feet of wetland features and free spanning bridges would be constructed wherever roadways cross waters to avoid impacts on these waters. This alternative would designate an additional 403 acres of Wetland Preserve compared to the Proposed Project Alternative (a total of 607 acres). However, mixed-use development would still be constructed adjacent to aquatic resources resulting in topographic modifications, creation of impervious surfaces, urban runoff, erosion, and siltation; intrusion of humans and domestic animals; and introduction of invasive plant species that could result in habitat degradation.

Relative to the other project alternatives, excluding the No Project Alternative, the No USACE Permit Alternative would preserve a larger proportion (100% of wetted acreage) of the wetland and drainage complexes within the SPA, provide a larger buffer to minimize impacts of adjacent land uses, and preserve a greater proportion of upland habitat to support species that use both wetland and upland habitats and provide ecological services to vernal pool species. This alternative would also preserve the 0.01 acre of isolated vernal pool considered waters of the state, although this pool would be subject to indirect effects from development within 250 feet. Table 3.3-3 provides a side-by-side comparison of preserved versus affected acreage of wetlands and other waters of the U.S. for each project alternative. Exhibit 3.3-4 depicts aquatic resources in the SPA relative to the Wetland Preserve areas and impact areas for the No USACE Permit Alternative.

Because this alternative would not result in fill of waters of the U.S., **no direct** impacts would occur. ***[Lesser]***

However, this alternative would still result in changes to site topography and increased impervious surfaces and urban development would still occur within 250 feet of waters of the U.S., potentially resulting in indirect impacts. There are approximately 39 acres of waters of the U.S. within 250 feet of development under the No USACE Permit Alternative compared to approximately 30 acres under the Proposed Project Alternative. Therefore, **indirect significant** impacts would result on a comparable scale to that of the Proposed Project Alternative. ***[Similar]***

Table 3.3-3
Summary of Direct Wetland Impacts and Preservation for each Alternative[1]

Alternative	Acres Existing[2]	Acres of Direct Impact	Acres Preserved	Percent Preserved
NP	42.48	0.00	42.48	100
NCP	43.65	0.00	43.65	100
PP	43.69	24.19	19.50	45
BIM	43.67	14.73	28.94	66
CS	43.86	22.58	21.28	48
ID	44.23	31.86	12.37	28

Note:
[1] Acreages have been rounded.
[2] Existing acreage of wetlands and other waters differs among the alternatives because each alternative has a different backbone infrastructure footprint outside of the SPA boundary.
Source: ECORP 2011

Mitigation Measure 3.3-1a: Include in Drainage Plans All Wetlands that Remain On-site, Submit Plans to the City and USACE for Review and Approval, and Implement all Measures in Drainage Plans.

To minimize indirect impacts on water quality and wetland hydrology, the project applicants for any particular discretionary development application shall include drainage plans in their improvement plans and shall submit the drainage plans to the City Public Works Department for review and approval. Before approval of these improvement plans, the project applicants for all project phases shall commit to implement all measures in their drainage plans, to avoid and minimize erosion and runoff into Laguna Creek, its tributaries, and all wetlands to remain on-site. Appropriate runoff controls such as berms, storm gates, detention basins, overflow collection areas, filtration systems, and sediment traps shall be implemented to control siltation and the potential discharge of pollutants. See Section 3.9, "Hydrology and Water Quality," for further discussion of the project's NPDES permit and associated Stormwater Pollution Prevention Plan, which would also reduce erosion and siltation.

The project shall result in no-net change to peak flows into Laguna Creek and associated tributaries off site or in the wetland preserve areas. The applicant shall establish a baseline of conditions for drainage on site. The baseline flow conditions shall be established for 2-, 5-, 10- and 20-year storm events. These baseline conditions shall be used to develop monitoring standards for the stormwater system in the SPA. The baseline conditions, monitoring standards, and a monitoring program shall be submitted to the City for their approval. The detention basins shall be designed and constructed so that performance standards described in Section 3.9, "Hydrology and Water Quality" are met. The discharge site into Kite Creek and associated tributaries shall be monitored so that preproject conditions are being met. Corrective measures shall be implemented as necessary. The mitigation measures shall be considered satisfied when the monitoring standards are met for 5 consecutive years without undertaking corrective measures.

Implementation: Project applicants for any particular discretionary development application requiring fill of wetlands or other waters of the U.S. or waters of the state.

Timing: Before the approval of grading or improvement plans or any ground-disturbing activities for any project development phase containing wetland features or other waters of the U.S. The wetland mitigation and monitoring plan must be approved before any impact on wetlands can occur. Mitigation shall be implemented on an ongoing basis throughout and after construction, as required.

Enforcement: Central Valley Regional Water Quality Control Board as appropriate depending on agency jurisdiction, and as determined during the Section 401 and Section 404 permitting processes; and the City of Rancho Cordova Planning Department.

PP

Under the Proposed Project Alternative, a total of approximately 24 acres of USACE-jurisdictional waters of the U.S. would be permanently lost. Direct impacts consist of approximately 23 acres of impacts within the SPA and approximately 1 acre of impacts in off-site backbone infrastructure. In addition, there are a total of approximately 30 acres of waters of the U.S located within 250 feet of proposed project development. Waters of the U.S. within 250 feet of project development consist of approximately 15 acres within the SPA and approximately 15 acres off-site. Wetland habitats within 250 feet of project development may be subject to indirect effects, as described below. Table 3.3-4 provides a summary of existing, affected, and preserved wetlands and other waters of the U.S. for the Proposed Project Alternative. Implementing the project would also result in loss of approximately 0.01 acre of non-USACE-jurisdictional vernal pools that are considered waters of the state.

Table 3.3-4
Summary of Impacts and Preservation of Waters of the U.S. for the Proposed Project Alternative[1]

Habitat Type	Acres Existing	Acres of Direct Impacts	Acres of On-site Preservation2	Acres of On-site Wetlands within 250 Feet of Development	Acres of Off-site Wetlands within 250 Feet of Development[3]
Vernal Pool	27.22	14.50	12.72	9.95	7.51
Seasonal Wetland	2.64	1.11	1.53	1.22	3.14
Swale	6.46	4.52	1.94	1.68	2.36
Ephemeral Drainage	0.90	0.90	0.00	0.00	0.00
Intermittent Drainage	0.98	0.17	0.81	0.54	0.00
Pond	2.06	2.06	0.00	0.00	0.65
Stream	3.42	0.91	2.51	1.69	1.63
Total	**43.68**	**24.17**	**19.50**	**15.08**	**15.29**

Notes:
[1] Acreages have been rounded.
[2] Preservation acreage listed includes acreage within 250 feet of developed land uses.
[3] Wetlands that are off-site, but within 250 feet of on-site project development.
Source: ECORP 2011

Although a substantial loss of wetlands would occur, a total of just over19 acres (approximately 45%) of the existing wetland acreage, including most of the Laguna Creek tributary stream channel (i.e., Kite Creek), would be protected within a proposed 204-acre network of designated wetland preserves. Exhibit 3.3-3 depicts aquatic resources in the SPA relative to the wetland preserve areas and impact areas for the Proposed Project Alternative. The proposed wetland preserve network connects to an existing wetland preserve on the Anatolia development adjacent to the northwest corner of the Luxori property and the northwest corner of the Shalako property. The proposed preserve would also connect with a planned wetland preserve on the Ranch at Sunridge project site adjacent to the north of the Kamilos property and a planned wetland preserve on the Arboretum project site adjacent to the south of the Shalako property.

A cluster analysis was performed by ECORP (2011) to identify wetland complexes within the SPA. The cluster analysis used a GIS model to determine spatial relationships between individual vernal pools based on distances between pools and pool densities within buffer intervals of 100 feet, 150 feet, and 250 feet. The model works by dissolving the boundaries between overlapping buffers and grouping wetlands into discrete wetland cluster

polygons. A cluster was defined as three or more depressional seasonal wetlands within the specified buffer distance. The results of the cluster analysis are depicted in Exhibit 3.3-5. This analysis shows that the proposed wetland preserve design would maintain 85% of the wetland clusters within a 100-foot buffer, 75% within a 150-foot buffer, and 65% within a 250-foot buffer.

Vernal pools and other wetland habitat types within the wetland preserve and on adjacent land uses could be adversely affected by habitat fragmentation and resulting indirect impacts. Habitat fragmentation can result when development occurs within larger regions of natural habitat. The effects of habitat fragmentation can extend beyond the boundaries of an area proposed for development. Changes to the hydrologic pattern as a result of project development, including fragmentation of tributaries to Laguna Creek, could adversely affect the wetlands within the on-site wetland preserve and other off-site wetlands by altering hydration periods. Construction of the proposed extension of Americanos Boulevard and other roadway improvements could disrupt or eliminate hydrologic connectivity that is important to support vernal pools and the plant and wildlife species that inhabit the pools. Construction design includes measures to avoid interference with the hydrology that sustains vernal pools on site including a culverted design where the southern portion of Rancho Cordova Parkway crosses the wetland preserve adjacent to the Anatolia development and the use of bridge systems such as, but not limited to, Con/Span®, as natural substrate span crossings over Kite Creek. Americanos Boulevard and two other roadways would cross Kite Creek with a clear span of the delineated wetlands within the channel bank. These natural substrate span crossings would be sized to provide for wildlife movement and minimize habitat fragmentation. Bridge design would include a large enough span area to provide movement corridors for terrestrial wildlife even during high flows (i.e., dry land would be present beneath the bridge span during high flows).

Potential significant indirect effects of the Proposed Project Alternative on vernal pools and other wetlands resulting from increased urbanization and population include reduction in water quality caused by urban runoff, erosion, and siltation; intrusion of humans and domestic animals into the wetland preserve and off-site areas that support sensitive habitats; introduction of invasive plant species that could result in habitat degradation; and changes in management regimes, such as elimination of grazing and implementation of stronger fire suppression policies, that degrade current habitat values.

Indirect effects on preserved wetlands from hydrological alteration would be minimized by maintaining sufficient watershed area to preserve preconstruction hydrological functions and values. ECORP performed an analysis of surface flows and watershed requirements using Sacramento County Light Detection and Ranging (LiDAR) data (2004, cited by ECORP 2011) and GIS modeling (a sink modified version of the industry standard D8 flow model developed by Jenson and Dominguez [1988, cited by ECORP 2011]), to help configure preserve boundaries in a manner that would minimize changes in wetland hydrology. The flow model identifies discrete watershed areas and detailed flow patterns across the wetland complexes on site. The preserve design was refined based on the watershed analysis resulting in a configuration ensuring that future development on adjacent properties would maintain appropriate watersheds for the preserved habitat, provide sufficient buffers, and minimize potential indirect impacts. Based on the watershed analysis, approximately 18 acres of the 19 acres of wetlands in the Proposed Project Alternative preserve area boundary would have sufficient watershed and buffer areas to fully maintain preproject functions and conditions and only 1 acres of preserved wetlands would be subject to indirect effects as a result of hydrological modification.

Although there are approximately 15 acres of off-site wetlands and other waters within 250 feet of proposed project development, all but approximately 1 acre of these habitats are either separated from the SPA by an existing road or are within areas proposed for development as part of other planned projects. While none of these projects have been approved, CEQA/NEPA documentation for these projects is underway and USACE has received CWA Section 404 permit applications for fill of these waters of the U.S. USACE has indicated that they would not hold the Sun Creek Specific Plan project applicants responsible for indirect impacts on these waters because impacts on these waters are being addressed as part of other projects that would affect them directly. Waters that are separated from the SPA by existing roads and would not be affected by road widening as part of the SunCreek project would not be expected to be substantially affected by hydrological or water quality changes

resulting from project implementation, unless they are connected to affected drainages in the SPA that cross under the road.

The loss and degradation of USACE-jurisdictional vernal pools and other wetland habitats under the Proposed Project Alternative constitutes a substantial adverse effect on Federally protected waters of the U.S., including wetlands, as defined by Section 404 of the CWA. Even with creation of the wetland preserve, this would be a **direct** and **indirect significant** impact.

Mitigation Measure: Implement Mitigation Measure 3.3-1a.

Mitigation Measure 3.3-1b: Secure CWA Section 404 Permit and Implement All Permit Conditions, and Ensure No Net Loss of Wetlands and other Waters of the United States and Associated Functions.

Before the approval of grading and improvement plans and before any ground-disturbing activity associated with each distinct discretionary development entitlement, the project applicants for any particular discretionary development application requiring fill of wetlands or other waters of the U.S. or waters of the state shall obtain all necessary permits under Sections 401 and 404 of the CWA or the state's Porter-Cologne Act for the respective phase. For each respective discretionary development entitlement, all permits, regulatory approvals, and permit conditions for effects on wetland habitats shall be secured before implementation of any grading activities within 250 feet (or lesser distance deemed sufficiently protective by a qualified biologist approved by USFWS and USACE) of waters of the U.S. or wetland habitats, including waters of the state, that potentially support Federally listed species, or within 100 feet of any other waters of the U.S. or wetland habitats, including waters of the state. The project applicants shall commit to replace or restore on a "no net loss" of function basis (in accordance with USACE and the Central Valley RWQCB) the acreage of all wetlands and other waters of the U.S. that would be removed, lost, and/or degraded as a result of implementing project plans for that phase.

Wetland habitat shall be restored or replaced at an acreage and location and by methods agreeable to USACE, the Central Valley RWQCB, and the City, as appropriate, depending on agency jurisdiction, and as determined during the Section 401 and Section 404 permitting processes, sufficient to achieve the "no net loss" standard.

As part of the Section 404 permitting process, a draft wetland mitigation and monitoring plan (MMP) shall be developed for the project and submitted to USACE, the Central Valley RWQCB, and the City for review and approval of those portions of the plan over which they have jurisdiction. The MMP would have to be finalized and approved prior to issuance of a grading permit for any project phase that would adversely affect wetlands or other waters of the U.S. or waters of the state. The MMP shall be implemented before beginning ground-disturbing activities in any project phase that would adversely affect wetlands or other waters of the U.S. or waters of the state. Once the final MMP is approved and implemented, mitigation monitoring shall continue for a minimum of 5 years from completion of mitigation, or approved human intervention (including recontouring and grading), or until the performance standards identified in the approved MMP have been met, whichever is longer.

As part of the MMP, the project applicants shall prepare and submit plans for the creation of aquatic habitat to adequately offset and replace the aquatic functions and services that would be lost at the SPA, account for the temporal loss of habitat, and contain an adequate margin of safety to reflect anticipated success. Restoration of previously altered and degraded wetlands shall be a priority of the MMP for offsetting losses of aquatic functions in the SPA because it is typically easier to achieve functional success in restored wetlands than in those created from uplands. The MMP must demonstrate how the aquatic functions that would be lost through project implementation will be replaced.

The habitat MMP for jurisdictional wetland features shall be consistent with USACE's and EPA's April 10, 2008 Final Rule for Compensatory Mitigation for Losses of Aquatic Resources (73 CFR 19594) and

USACE's October 26, 2010 *Memorandum Re: Minimum Level of Documentation Required for Permit Decisions* (USACE 2010). According to the Final Rule, mitigation banks should be given preference over other types of mitigation because much of the risk and uncertainty regarding mitigation success is alleviated by the fact that mitigation bank wetlands must be established and demonstrating functionality before the USACE will approve the sale of credits. The use of mitigation bank credits also alleviates temporal losses of wetland function while compensatory wetlands are being established. Mitigation banks also tend to be on larger, more ecologically valuable parcels and are subjected to more rigorous scientific study and planning and implementation procedures than typical permittee-responsible mitigation sites (USACE and EPA 2008). Permittee-responsible on-site mitigation areas can be exposed to long-term negative effects of surrounding development since they tend to be smaller and less buffered than mitigation banks. The Final Rule also establishes a preference for a "watershed approach" in selecting locations for compensatory mitigation project locations, that mitigation selection must be "appropriate and practicable" and that mitigation banks must address watershed needs based on criteria set forth in the *Final Rule*. The watershed approach accomplishes this objective by expanding the informational and analytic basis of mitigation project site selection decisions and ensuring that both authorized impacts and mitigation are considered on a watershed scale rather than only project by project. This requires a degree of flexibility so that district engineers can authorize mitigation projects that most effectively address the case-specific circumstances and needs of the watershed, while remaining practicable for the permittee. The majority of the SPA is within the Laguna Creek Watershed, but the northwest portion of the Kamilos property is within the Morrison Creek Watershed. Both of these watersheds are part of the Lower Sacramento River Watershed. As shown in Table 3.3-5, as of the writing of this document, mitigation credits are available within the Laguna Creek Watershed at the Bryte Ranch, Laguna Terrace East, and the Sunrise Douglas Conservation Banks; however, there are no available mitigation credits within the Morrison Creek Watershed. If USACE determines that the use of mitigation bank credits is not sufficient mitigation to offset impacts within the SPA, the October 26, 2010 *Memorandum Re: Minimum Level of Documentation Required for Permit Decisions* requires USACE to specifically demonstrate why the use of bank credits is not acceptable to USACE in accordance with Section 33 CFR 332.3(a)(1).

Mitigation for SunCreek impacts must be consistent with the USACE's *Record of Decision for the Sunridge Properties*, as stated below:

> The Corps recognizes the significant cumulative loss of vernal pool wetlands within the Mather Core Recovery Area. For future unavoidable impacts to vernal pool wetlands within the Mather Core Recovery Area, including those associated with the Arista del Sol project, compensatory mitigation shall be:
>
> (1) Based on a method for assessing the functions of all waters of the U.S. on the project site;
>
> (2) Accomplished at a ratio of greater than 1:1 (final ratio will be based, in part, on wetland functional condition determined during the functional assessment), after considering direct and indirect impacts, temporal loss and difficulties creating vernal pool wetlands; and
>
> (3) Located in the Mather Core Recovery Area, unless determined impracticable or inappropriate by the Corps.

If the SSHCP is adopted and available before the project is fully implemented, project applicants may participate in the SSHCP mechanisms, such as payment of fees, purchase of mitigation bank credits, acquisition of conservation easement(s), and/or acquisition of mitigation land(s) in fee title to mitigate project effects on wetland habitats. In the event that mitigation is not available through the SSCHP, the applicants shall mitigate by purchasing a combination of appropriate credits from an agency-approved

Table 3.3-5
Mitigation Banks Expected to Have Credits Available for Purchase to Compensate for Project Effects on Wetlands and Other Habitats

Bank Name	Location	Owner	Credit Types	Credits Available
Apple Road[1,2]	Sacramento County	Westervelt	Swainson's hawk foraging habitat	300
			Vernal pool preservation	~50
			Vernal pool creation/restoration	~20
Bryte Ranch[2]	Sacramento County	Stephan Hughes	Swainson's hawk foraging habitat	250
			Vernal pool preservation (vernal pool fairy shrimp and vernal pool tadpole shrimp)	47
Clay Station	Sacramento County	Elliott Conservancy	Seasonal Wetland	pending
			Vernal pool creation (vernal pool fairy shrimp and vernal pool tadpole shrimp)	~10
Cosumnes Floodplain Mitigation Bank	Sacramento County	Westervelt	Floodplain Mosaic wetlands (i.e., Seasonal wetland, freshwater marsh, emergent marsh)	300
			Shaded Riparian Aquatic Habitat	9.4
			Non-Jurisdictional Riparian Habitat (i.e., Riparian woodland, riparian scrub)	126
Deer Creek[1]	Sacramento County	Wildlands	Swainson's hawk foraging habitat	279.91
			Seasonal Wetland Preservation	1.81
			Vernal Pool Creation	9
Gill Ranch Conservation[2]	Sacramento County	Conservation Resources	Vernal Pool Preservation (vernal pool fairy shrimp and vernal pool tadpole shrimp)	60
Laguna Terrace East[2]	Sacramento County	Wildlands	Swainson's hawk*	152.41
			Vernal pool preservation (vernal pool fairy shrimp)	31.57
Locust Road Mitigation Preserve[1]	Placer County	Wildlands	Seasonal wetland creation	1.62
			Vernal pool creation	11.52
			Swainson's hawk foraging habitat	59.3
Placer Fitzgerald Ranch[1,2]	Placer County	Placer Fitzgerald Ranch	Seasonal Swale	0.235
			Seasonal Wetland	3.833
			Swainson's hawk foraging habitat	61.504
			Vernal pool preservation (some legenere)	2.847
			vernal swale preservation	0.205
SMUD Mitigation Preserve[1]	Sacramento	SMUD	Swainson's hawk foraging habitat	~1,140
			Vernal Pool Creation	25
			Waters of the U.S. preservation	56
Toad Hill Ranch	Placer County	Wildlands	Vernal pool creation/restoration	48
Twin City[1,2]	Sacramento County	Wildlands	Riparian scrub	1.76
			Seasonal wetland/riparian	2.8
			Swainson's hawk foraging habitat	186.21
			Vernal pool creation	2.19
			Vernal pool preservation	12.04
Van Vleck Ranch	Sacramento County	Westervelt	Vernal pool preservation (vernal pool fairy shrimp)	8.13
			Vernal pool creation/restoration	0.19 + 14
			Swainson's hawk foraging habitat	505

Note:
[1] Bank is currently going through the entitlement process and has not yet received approval of service areas or available credits.
[2] There are no USACE approved or pending banks and may be USFWS potential bank.
Source: ECORP 2010

mitigation bank or providing an agency-approved off-site mitigation area. The applicants' biological consultant, ECORP, has identified a number of mitigation banks whose service areas appear to include the SPA (Table 3.3-5). However, some of these banks are not yet approved and the availability of credits at the other banks is subject to change. Therefore, a combination of mitigation bank credits and permittee-responsible on and off-site mitigation may be necessary to fully offset project impacts on wetlands and other waters of the U.S.

Compensatory mitigation for losses of stream and ephemeral and intermittent drainage channels shall be achieved through in-kind preservation, restoration, or enhancement, as specified in the Final Rule guidelines. The wetland MMP shall address how to mitigate impacts on vernal pool, seasonal wetland, swale, pond, and intermittent and ephemeral stream habitat, and shall describe specific method(s) to be implemented to avoid and/or mitigate any off-site project-related impacts. The wetland compensation section of the habitat MMP shall include the following:

- compensatory mitigation sites and criteria for selecting these mitigation sites. In General, compensatory mitigation sites should meet the following criteria, based on the Final Rule;
    - located within the same watershed as the wetland or other waters that would be lost, as appropriate and practicable;
    - located in the most likely position to successfully replace wetland functions lost on the impact site considering watershed-scale features such as aquatic habitat diversity, habitat connectivity, available water sources and hydrologic relationships, land use trends, ecological benefits, the likelihood of success and sustainability, and compatibility with adjacent land uses,
- a complete assessment of the existing biological resources in both the on-site preservation areas and off-site compensatory mitigation areas, including wetland functional assessment using the California Rapid Assessment Method (Collins et al. 2008), to establish baseline conditions;
- specific creation and restoration plans for each mitigation site;
- use of CRAM to compare compensatory wetlands to the baseline CRAM scores from wetlands in the SPA. The compensatory wetland CRAM scores shall be compared against the highest quality wetland of each type from the SPA;
- CRAM scores, or other wetland assessment protocol scores, from the compensatory wetlands shall be compared against the highest quality wetland scores for each wetland type to document success of compensatory wetlands in replacing the functions of the affected wetlands to be replaced;
- monitoring protocol, including schedule and annual report requirements, and the following elements:
    - ecological performance standards, based on the best available science, that can be assessed in a practicable manner (e.g., performance standards proposed by Barbour et al. 2007). Performance standards must be based on attributes that are objective and verifiable;
    - CRAM, or other USACE-approved wetland assessment protocol, conducted annually for 5 years after construction or restoration of compensatory wetlands to determine whether these areas are acquiring wetland functions and to plot the performance trajectory of compensatory wetlands over time.

For each phase of development, the project applicants shall secure the permits and regulatory approvals described below and shall implement all permit conditions. All permits, regulatory approvals, and permit conditions for effects on wetland habitats shall be secured prior to implementing any grading activities

within 250 feet of waters of the U.S. or wetland habitats that potentially support Federally listed species. The setback may be reduced to a distance approved by the City and USFWS if a wetland avoidance plan is developed and implemented by a qualified biologist. The wetland avoidance plan must be approved by USFWS and the City and shall demonstrate that all direct and indirect impacts on wetlands will be avoided. Project phases in upland areas with no wetlands or waters of the U.S. within 250 feet, and no overland hydrologic flow patterns, the disturbance of which may affect such waters, may begin construction before these particular permits are obtained. Buffers around wetlands that do not support Federally listed species shall be a minimum of 50 feet from the edge of these features in accordance with conditions of the NPDES permit and associated best management practices (BMPs).

Water Quality certification pursuant to Section 401 of the Clean Water Act will be required prior to issuance of a Section 404 permit. Before construction in any areas containing wetland features, the project applicants shall obtain water quality certification for the applicable phase of the project. Any measures required as part of the issuance of water quality certification shall be implemented.

Implementation: Project applicants for any particular discretionary development application requiring fill of wetlands or other waters of the U.S. or waters of the state.

Timing: Before the approval of grading or improvement plans or any ground-disturbing activities for any project development phase containing wetland features or other waters of the U.S. The MMP must be approved before any impact on wetlands can occur. Mitigation shall be implemented on an ongoing basis throughout and after construction, as required.

Enforcement: U.S. Army Corps of Engineers, Sacramento District; Central Valley Regional Water Quality Control Board as appropriate depending on agency jurisdiction, and as determined during the Section 401 and Section 404 permitting processes; and the City of Rancho Cordova Planning Department.

BIM

Impacts on waters of the U.S., including wetlands, would be considerably less under the Biological Impact Minimization Alternative than under the Proposed Project, Conceptual Strategy, or Increased Development Alternative (Table 3.3-3) because the acreage of wetland preserve would be increased to 411 acres, nearly double the acreage preserved under the Proposed Project. Approximately 15 acres of jurisdictional wetlands and other waters of the U.S. would be permanently lost under the Biological Impact Minimization Alternative (Exhibit 3.3-6). That is substantially lower than under the Proposed Project, Conceptual Strategy, or Increased Development Alternatives, which would directly affect approximately 24, 23, and 33 acres of waters of the U.S., respectively. The loss of waters of the U.S., including wetlands, that would result from implementing this alternative would be a **direct significant** impact, but would be substantially less than the Proposed Project Alternative. ***[Lesser]***

Indirect effects would be similar to those discussed above under the Proposed Project Alternative; however, establishment of a larger wetland preserve would create a greater buffer area (i.e., greater distance between preserved wetlands and developed land uses) around many of the wetlands in the preserve and maintain greater hydrological connectivity between on-site and off-site aquatic habitats. Furthermore, there would be no roadways constructed through the wetland preserves under this alternative so the indirect effects of habitat fragmentation would be reduced. These measures would reduce but not eliminate disturbance to wetlands. The total acreage of waters of the U.S. within 250 feet of development proposed under this alternative would be approximately 34 acres compared to approximately 30 acres under the Proposed Project Alternative. Therefore, the Biological Impact Minimization Alternative would result in similar **indirect significant** impacts as the Proposed Project Alternative. ***[Similar]***

Mitigation Measure: Implement Mitigation Measures 3.3-1a and 3.3-1b.

CS

Direct impacts on waters of the U.S., including wetlands, would be comparable under the Conceptual Strategy Alternative to the Proposed Project Alternative even though the acreage of wetland preserve would be increased to 310 acres, nearly 100 acres more than under the Proposed Project Alternative. Exhibit 3.3-7 depicts aquatic resources in the SPA relative to the wetland preserve areas and impact areas for the Proposed Project Alternative. Approximately 23 acres of waters of the U.S. would be permanently lost under the Conceptual Strategy Alternative compared to approximately 24 acres under the Proposed Project Alternative (Table 3.3-3), a difference of about 1 acre. Therefore, **direct significant** impacts would occur. ***[Similar]***

Indirect effects would be similar to those discussed above under the Proposed Project Alternative. Establishment of a larger wetland preserve would create a greater buffer area around some of the wetlands in the preserve, which would reduce but not eliminate disturbance to wetlands. Furthermore, roadways would not be constructed through the wetland preserves under this alternative as they would under the Proposed Project Alternative, so the indirect effects of habitat fragmentation would be reduced. The total acreage of waters of the U.S. within 250 feet of development under this alternative would be approximately 27 acres compared to approximately 30 acres under the Proposed Project. Therefore, the Conceptual Strategy Alternative would result in **indirect significant** impacts, but to a lesser extent than the Proposed Project Alternative. ***[Lesser]***

Mitigation Measure: Implement Mitigation Measures 3.3-1a and 3.3-1b.

ID

Direct impacts on waters of the U.S., including wetlands, would be greater under the Increased Development Alternative compared to the Proposed Project Alternative (Table 3.3-3), because more wetlands would be filled. Under this alternative, approximately 12 acres of waters of the U.S. would be preserved within a 97-acre wetland preserve network. Exhibit 3.3-8 depicts aquatic resources in the SPA relative to the wetland preserve areas and impact areas for the Increased Development Alternative. Approximately 33 acres of waters of the U.S. would be permanently lost under the Increased Development Alternative compared to approximately 24 acres under the Proposed Project. Therefore, **direct significant** impacts would occur and would be greater than under the Proposed Project Alternative. ***[Greater]***

Indirect effects would be similar to those discussed above under the Proposed Project Alternative. The total acreage of waters of the U.S. within 250 feet of project development under this alternative would be approximately 31 acres compared to approximately 30 acres under the Proposed Project. Therefore, the Increased Development Alternative would result in **indirect significant** impacts. ***[Similar]***

Mitigation Measure: Implement Mitigation Measures 3.3-1a and 3.3-1b.

Implementation of Mitigation Measures 3.3-1a and 3.3-1b would reduce direct significant impacts on jurisdictional wetlands and other waters of the U.S. resulting from the Proposed Project, Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives, but not necessarily to a less-than-significant level. After a mitigation plan has been accepted by USACE and is implemented as required (including on-site preservation and purchase of credits at a mitigation bank and/or in-lieu fee mitigation), the direct impacts resulting from project implementation could be mitigated by providing "no net loss" of overall wetland acreage resulting from the project, as required in USACE permit conditions, if a permit is issued. However, USACE requires mitigation resulting in no net loss of wetland functions. Removal of approximately 24 acres of waters of the U.S., including vernal pools and other similar wetland habitats is a substantial loss, especially when considered in the context of rate and acreage of habitat losses in the region and within the Mather Core Area, which is considered vital to the recovery of Federally listed vernal pool fairy shrimp and vernal pool tadpole

TOTAL AVOIDANCE & IMPACT

	Avoided	Direct Impacts		Wetlands within 250' of Development[2]		Existing Acreage
		Onsite	Offsite[3]	Onsite	Offsite[3]	
Vernal Pool	7.579	18.703	1.059	7.494	8.267	27.341[1]
Seasonal Wetland	0.228	2.316	0.148	0.228	3.223	2.692
Swale	0.734	5.617	0.118	0.734	2.776	6.469
Ephemeral Drainage	0.458	0.445	0.000	0.458	0.000	0.903
Intermittent Drainage	0.781	0.200	0.004	0.781	0.004	0.985
Pond	0.000	2.056	0.151	0.000	2.599	2.207
Stream	2.585	0.752	0.276	2.585	1.953	3.613
Isolated Vernal Pool	0.000	0.012	0.000	0.000	0.000	0.012
Total	*12.365*	*30.101*	*1.756*	*12.280*	18.822	44.222

NOTES

Gross project acreage: +/- 1265 ac.

Gross preserve acreage: +/- 95 ac.

Base data source: Wade Associates.

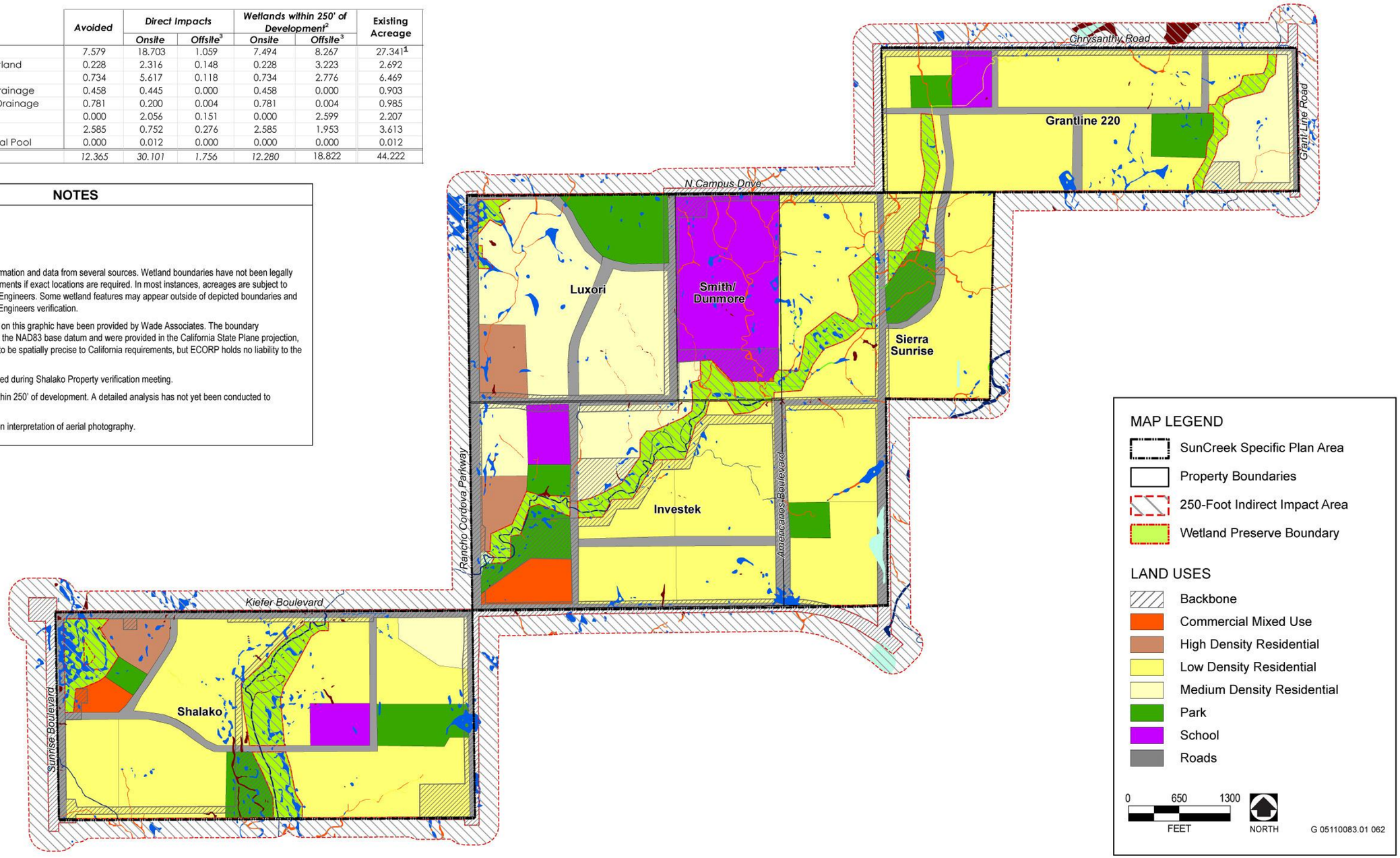
This exhibit depicts wetland/water information and data from several sources. Wetland boundaries have not been legally surveyed and may be subject to adjustments if exact locations are required. In most instances, acreages are subject to verification by the U.S. Army Corps of Engineers. Some wetland features may appear outside of depicted boundaries and were left as is pending Army Corps of Engineers verification.

The project boundary extents depicted on this graphic have been provided by Wade Associates. The boundary coordinates have been surveyed using the NAD83 base datum and were provided in the California State Plane projection, Grid Units. This boundary is expected to be spatially precise to California requirements, but ECORP holds no liability to the accuracy of the boundary.

[1] Includes 0.771 acres of wetlands added during Shalako Property verification meeting.

[2] Acreage is for all wetland features within 250' of development. A detailed analysis has not yet been conducted to determine potential indirect impacts.

[3] Offsite wetland acreages are based on interpretation of aerial photography.



Source: ECORP 2011, Adapted by AECOM in 2011

Increased Development Alternative – Impacts on Wetlands and Other Waters **Exhibit 3.3-8**

shrimp. Temporal losses would occur unless all impacts could be mitigated through purchase of fully functioning, established, in-kind wetlands from an approved mitigation bank and the loss of function would remain significant and unavoidable unless wetland habitat losses were compensated within the Mather Core Area and within the affected watersheds. At this time there are no mitigation credits available within the Mather Core Area and it appears unlikely that suitable land would be available within the Mather Core Area to feasibly create replacement habitat to offset losses that would result from the project.

Mitigation and conservation banks are established through a lengthy review and approval process with the Interagency Review Team (IRT). The IRT is made up of staff members from the EPA, USACE, USFWS, and DFG. Other agencies that are included on the IRT on an as needed basis include the RWQCB and the NMFS. Through the IRT approval process, each bank is responsible for developing performance and success criteria for their respective bank, including watershed level needs. Once approved, this bank is authorized for a phased release of credits based on meeting certain established performance/success criteria occurs. The banks are required to submit annual monitoring reports showing the status of the bank, status of endowment, and performance of habitat. Failure to meet established performance/ success criteria will result in either bank closure or inability to release additional credits until performance/success criteria standards are met. Various agencies from the IRT also serve as third party beneficiaries to the banks; thus, they have the ability to enter the bank at any time to monitor the bank status independently of the bank proprietor's monitoring.

The performance/success criteria standards for each bank are typically based on agency approved templates; however, they can be adjusted to reflect site-specific and watershed conditions. The specific performance/success criteria standards for each bank are considered public information; however, this information is currently only available through a Freedom of Information Act (FOIA) petition. There is limited information available for a few banks on USACE's Regional Internet Banking Information Tracking System (RIBITS); however, the site is limited to banks that offer waters of the U.S. credits and has yet to fully integrate information on banks that offer other types of credits.

The lengthy process that bank proprietors have to follow to begin selling credits was designed to essentially eliminate/reduce the potential for credits to fail to meet established success criteria. Additionally, as each bank is closely monitored by the IRT, this further reduces the potential for credits to fail to meet established success criteria.

Creation and preservation of wetlands within smaller and more fragmented areas surrounded by urban development cannot fully compensate for the whole suite of ecological services provided by larger expanses of interconnected wetland complexes surrounded by open space. Also, if compensatory wetland mitigation could not be provided in the same watershed, an overall loss of function up to the subbasin level could result.

Under the Biological Impact Minimization and No USACE Permit Alternatives, a much larger area of vernal pool habitat would be preserved. Under the No USACE Permit Alternative, no waters of the U.S. or wetlands subject to USACE jurisdiction under the CWA would be filled. However, indirect impacts would remain **significant and unavoidable** for the No USACE Permit, Proposed Project, Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives for the following reasons:

- The extent of habitat loss and degradation is extensive and contributes significantly to the loss of this habitat type in the region and within the Mather Core Area.

- Vernal pools and other wetland habitats within the wetland preserve and on adjacent parcels could be adversely affected by habitat fragmentation and indirect impacts for which no feasible mitigation measures are available.

The conclusion that direct and indirect impacts would remain significant and unavoidable pursuant to CEQA and NEPA, however, is separate from the ultimate determination the USACE must make in order to issue permits to fill on-site wetlands, which is whether the project would cause "significant degradation of waters of the United

States." (40 CFR 230.10[c].) This subsequent determination has, by the express terms of the regulation, a necessarily broader focus than the individual watershed approach followed in this analysis. Therefore, the significant and unavoidable conclusion in this analysis does not preclude the USACE from issuing fill permits for the project if it finds the project mitigation is sufficient to avoid "significant degradation of the waters of the United States."

IMPACT 3.3-2 **Loss and Degradation of Sensitive Natural Communities.** *Implementation of the project would result in modifications to a tributary stream regulated under the California Fish and Game Code and in the loss of riparian scrub habitat considered sensitive by state and local resource agencies and requiring consideration under CEQA.*

NP

Because no development would occur under the No Project Alternative, there would be no project-related ground-disturbing activities that would affect riparian habitat or other sensitive natural communities; thus, **no direct** or **indirect** impacts would occur. ***[Lesser]***

NCP

Because the riparian habitat on the SPA is within jurisdictional waters of the U.S. that would be avoided under the No USACE Permit Alternative, there would be no project-related ground-disturbing activities that would affect riparian habitat or other sensitive natural communities; thus, **no direct** or **indirect** impacts would occur. ***[Lesser]***

Mitigation Measure: No mitigation measures are required.

PP, BIM, CS, ID

Riparian Habitat

Riparian habitat that would be lost as a result of implementing the Proposed Project, Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives consists of 0.78 acre of riparian scrub. The riparian scrub habitat is found within the two on-site ponds and consists of relatively young trees and shrubs. Because these two patches of riparian habitat are extremely small and do not support large trees for raptor nesting, they do not, by themselves, provide important functions and values for wildlife (e.g., nesting, foraging, and shelter) and loss of this minimal amount of riparian vegetation would not substantially contribute to the overall loss and alteration of naturally occurring riparian habitat in the City or the region. Therefore, **direct** impacts from the loss of riparian habitat under the Proposed Project, Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives are considered **less than significant**. **No indirect** impacts would occur.

Streambed Alteration

Implementing the Proposed Project, Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives would result in changes to the natural flow and modifications to the bed, channel, and bank of Kite Creek, which is a tributary of Laguna Creek. This tributary supports wildlife resources that are subject to regulation by DFG under Section 1602 of the California Fish and Game Code and construction affecting the bed, channel, or bank would require issuance of a streambed alteration agreement. In addition, DFG may take jurisdiction of the on-site stock ponds when it evaluates project requirements resulting from issuance of a streambed alteration agreement for modifications to portions of Kite Creek. Stream alteration, including fragmentation of tributaries to Laguna Creek, could result in indirect impacts from changes to the hydrologic

pattern that could adversely affect downstream aquatic habitats both on and off the SPA. Therefore, a **direct** and **indirect significant** impact would occur.

Mitigation Measure: Implement Mitigation Measures 3.3-1a and 3.3-1b.

Mitigation Measure 3.3-2: Secure Section 1602 Streambed Alteration Agreement and Implement all Conditions of the Agreement.

A Section 1602 Streambed Alteration Agreement from DFG shall be obtained by the project applicants prior to construction affecting the bed and bank of Kite Creek or the on-site ponds. Issuance of the Streambed Alteration Agreement requires the preparation of a habitat mitigation plan by the project applicants. The habitat mitigation plan would be developed to adequately cover impacts to the stream channel of Kite Creek at adequate ratios as determined by the City in cooperation with DFG. It is likely that mitigation developed for impacts on waters of the U.S. would be satisfactory to mitigate the impacts from streambed alteration and that DFG would not require additional mitigation for the streambed alteration agreement. Any conditions of issuance of the streambed alteration agreement shall be implemented as part of project construction activities that affect any portion of Kite Creek or the on-site ponds.

Implementation: Project applicants for any particular discretionary development application that requires fill or alteration of the bed or bank of Kite Creek or the on-site ponds.

Timing: Prior to any construction within 250 feet of Kite Creek or the on-site ponds.

Enforcement: California Department of Fish and Game and the City of Rancho Cordova Planning Department.

Implementing Mitigation Measure 3.3-2 would reduce the direct and indirect significant impact from alteration of Kite Creek and the on-site ponds to a **less-than-significant** level because it would require the project applicants to consult with and obtain agreements from DFG, which would result in project replacement of stream and pond habitats, including riparian habitats on the banks of the streams and ponds, on a no-net-loss basis, because the project applicants would be required to implement all permit conditions.

IMPACT 3.3-3 **Loss and Degradation of Habitat for Special-Status Wildlife.** *Implementation of the project would result in the loss and degradation of habitat for vernal pool invertebrates, VELB, western spadefoot, western pond turtle, American badger, loggerhead shrike, Swainson's hawk, white-tailed kite, and other raptors. Take of listed species, including vernal pool invertebrates, VELB, and Swainson's hawk, could also occur.*

NP

Under the No Project Alternative no development would occur, therefore no project-related ground-disturbing activities that would affect wildlife habitat would occur. Therefore, **no direct** or **indirect** impacts on special-status wildlife would occur under the No Project Alternative. ***[Lesser]***

NCP

Federally Listed Vernal Pool Invertebrates and Western Spadefoot

The No USACE Permit Alternative would not result in fill of vernal pools, seasonal wetlands, and swales, which are potential habitat for vernal pool fairy shrimp, vernal pool tadpole shrimp, and western spadefoot. No development would occur within 50 feet of wetland features and free spanning bridges would be constructed over waterways to avoid impacts from roadways. This alternative would designate an additional 403 acres of open

space compared to the Proposed Project Alternative. Compared to the other project action alternatives, the No USACE Permit Alternative would preserve a larger portion of wetlands within the SPA, provide a larger buffer to minimize impacts of adjacent land uses, and preserve a greater proportion of upland habitat to support species that use both wetland and upland habitats. However, mixed-use development would still be constructed in adjacent uplands. Although they would be lessened, indirect effects on wetlands from topographic modifications, creation of impervious surfaces, urban runoff, erosion, siltation, contaminants present in runoff, intrusion of humans and domestic animals, and introduction of invasive plant species could result in habitat degradation. Implementation of the No USACE Permit Alternative would result in **no direct** impacts to wildlife species associated with vernal pools; however **indirect significant** impacts would still occur because of alteration of site topography, increased impervious surfaces, and urban development adjacent to wetland habitats, but to a lesser degree because there would be a larger buffer between vernal pool habitats and adjacent land uses. Under this alternative, approximately 32 acres of wetland habitat potentially suitable for vernal pool invertebrates and western spadefoot could be subject to indirect impacts because development would occur within 250 feet. Indirect impacts could also include mortality related to an increase in vehicular traffic on and near the project site, noise and vibration disturbance causing toads to break dormancy, and exposure to herbicides, pesticides, and other toxins. In addition, if present, western spadefoot could be killed during construction activities. Furthermore, over 600 acres of grassland habitat would be developed and would no longer be available as aestivation habitat for western spadefoot; however, less annual grassland habitat would be converted to development under this alternative than under any of the other action alternatives. ***[Lesser]***

Valley Elderberry Longhorn Beetle

Under the No USACE Permit Alternative, the single elderberry shrub present on the SPA would not be removed because it is on the bank of a pond that is a water of the U.S. and would be preserved. Therefore, **no direct** or **indirect** impacts on VELB would occur under this alternative. ***[Lesser]***

Western Pond Turtle

Under the No USACE Permit Alternative, **no direct** impacts on western pond turtle would occur because the on-site stock ponds plus a 50-foot upland buffer would be preserved. However, indirect impacts from topographic modifications, creation of impervious surfaces, urban runoff, erosion, siltation, and contaminants present in runoff, intrusion of humans and domestic animals, and introduction of invasive plant species could result in habitat degradation and would reduce potential nest habitat because land outside of the 50-foot buffer would be converted to urban uses. Therefore, **indirect significant** impacts would occur. ***[Lesser]***

Swainson's Hawk and Other Raptors

Implementation of the No USACE Permit Alternative would result in the direct loss of approximately 659 acres of grassland that provides foraging habitat for Swainson's hawk and other raptors and provides nesting and foraging habitat for burrowing owl and northern harrier. This is approximately 381 acres less than would be lost under the Proposed Project Alternative. Under the No USACE Permit Alternative, scattered trees that provide potential nest sites for tree nesting raptors would still be removed. In addition, this alternative would result in indirect effects to the nesting and foraging habitat remaining in the SPA due to disturbance from use of adjacent development, which could reduce nest success and foraging habitat quality. Therefore, **direct** and **indirect** impacts to Swainson's hawk and other raptors would be **significant**, but to a lesser extent than the Proposed Project Alternative. ***[Lesser]***

Grasshopper Sparrow and Loggerhead Shrike

Implementing the No USACE Permit Alternative would permanently remove 659 acres of annual grassland that provides suitable nesting and foraging habitat for grasshopper sparrow and suitable foraging habitat for loggerhead shrike. Shrubs and trees that provide potential nesting habitat for loggerhead shrike would also be removed. Grassland habitat preserved on the SPA may no longer be suitable for these species because of

disturbances from surrounding development. However, these species generally require smaller tracts of habitat relative to the raptors discussed above. Annual grassland habitat would remain relatively abundant in the region and loss of habitat from the SPA is not likely to result in a substantial decline in local population numbers. Therefore, **direct** and **indirect** impacts on loggerhead shrike and grasshopper sparrow are considered **less than significant**. ***[Lesser]***

American Badger

Under the No USACE Permit Alternative approximately 659 acres of dry, open, annual grassland habitat suitable for American badger would be permanently removed from the SPA. American badger requires a large home range for survival; therefore, the removal of habitat and resulting fragmentation from implementing the No USACE Permit Alternative could result in indirect impacts to American badger through habitat modification. However, the loss of habitat from the SPA would not be likely to cause loss of individuals because there would still be adequate suitable foraging and denning habitat in the area to support the local population. Therefore, **direct** and **indirect** impacts to American badger are considered **less than significant**. ***[Similar]***

Mitigation Measure: Implement Mitigation Measure 3.3-1a (to reduce indirect impacts on vernal pool invertebrates, western spadefoot, and western pond turtle).

Mitigation Measure 3.3-3a: Conduct Preconstruction Surveys for Nesting Swainson's Hawk, White-Tailed Kite, Burrowing Owls, and Other Raptors, and if Found, Establish Appropriate Buffers, and Implement Avoidance or Appropriate Mitigation.

To mitigate impacts on Swainson's hawk and other raptors (including burrowing owl), the project applicants for any particular discretionary development application shall retain a qualified biologist to conduct preconstruction surveys and to identify active nests on and within 0.5 mile of the SPA and active burrows in the SPA. The surveys shall be conducted before the approval of grading and/or improvement plans (as applicable) and no less than 14 days and no more than 30 days before the beginning of construction for all project phases. To the extent feasible, guidelines provided in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley* (Swainson's Hawk Technical Advisory Committee 2000) shall be followed for surveys for Swainson's hawk. If no nests are found, no further mitigation is required.

If active nests are found, impacts on nesting Swainson's hawks and other raptors shall be avoided by establishing appropriate buffers around the nests. No project activity shall commence within the buffer area until the young have fledged, the nest is no longer active, or until a qualified biologist has determined in coordination with DFG that reducing the buffer would not result in nest abandonment. DFG guidelines recommend establishing buffers of 0.25- to 0.5-mile, but the size of the buffer may be adjusted if a qualified biologist and the City, in consultation with DFG, determine that such an adjustment would not be likely to adversely affect the nest. Monitoring of the nest by a qualified biologist during and after construction activities will be required if the activity has potential to adversely affect the nest.

If active burrows are found, a mitigation plan shall be submitted to the City for review and approval before any ground-disturbing activities. The City shall consult with DFG regarding appropriate mitigation before approving the mitigation plan. The mitigation plan may consist of installation of one-way doors on all burrows to allow owls to exit, but not reenter, and construction of artificial burrows within the project vicinity, as needed; however, burrowing owl exclusions may only be used if a qualified biologist verifies that the burrow does not contain eggs or dependent young. If active burrows contain eggs and/or young, no construction shall occur within 50 feet of the burrow until young have fledged. Once it is confirmed that there are no owls inside burrows, these burrows may be collapsed.

Implementation: Project applicants for any particular discretionary development application.

Timing: Before approval of grading or improvement plans or any ground-disturbing activities, including grubbing or clearing, for any project phase.

Enforcement: City of Rancho Cordova Planning Department; California Department of Fish and Game (if applicable)

Mitigation Measure 3.3-3b: Prepare and Implement a Swainson's Hawk Mitigation Plan.

To mitigate for the loss of Swainson's hawk foraging habitat, the project applicants for any particular discretionary development application shall prepare and implement a Swainson's hawk mitigation plan including, but not limited to the requirements described below.

- Before the approval of grading and improvement plans or before any ground-disturbing activities, whichever occurs first, the project applicants shall preserve, to the satisfaction of the City, suitable Swainson's hawk foraging habitat to ensure 1:1 mitigation of habitat value for Swainson's hawk foraging habitat lost as a result of the project, as determined by the City after consultation with DFG and a qualified biologist.

- The 1:1 habitat value shall be based on Swainson's hawk nesting distribution and an assessment of habitat quality, availability, and use within the City's planning area. The mitigation ratio shall be consistent with the 1994 DFG Swainson's Hawk Guidelines included in the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California*. Such mitigation shall be accomplished through either the transfer of fee title or perpetual conservation easement. The mitigation land shall be located within the known foraging area and within Sacramento County. The City, after consultation with DFG, will determine the appropriateness of the mitigation land.

- Before approval of such proposed mitigation, the City shall consult with DFG regarding the appropriateness of the mitigation. If mitigation is accomplished through conservation easement, then such an easement shall ensure the continued management of the land to maintain Swainson's hawk foraging values, including but not limited to ongoing agricultural uses and the maintenance of all existing water rights associated with the land. The conservation easement shall be recordable and shall prohibit any activity that substantially impairs or diminishes the land's capacity as suitable Swainson's hawk habitat.

- The project applicants shall transfer said Swainson's hawk mitigation land, through either conservation easement or fee title, to a third-party, nonprofit conservation organization (Conservation Operator), with the City and DFG named as third-party beneficiaries. The Conservation Operator shall be a qualified conservation easement land manager that manages land as its primary function. Additionally, the Conservation Operator shall be a tax-exempt nonprofit conservation organization that meets the criteria of Civil Code Section 815.3(a) and shall be selected or approved by the City, after consultation with DFG. The City, after consultation with DFG and the Conservation Operator, shall approve the content and form of the conservation easement. The City, DFG, and the Conservation Operator shall each have the power to enforce the terms of the conservation easement. The Conservation Operator shall monitor the easement in perpetuity to assure compliance with the terms of the easement.

- The project applicants, after consultation with the City, DFG, and the Conservation Operator, shall establish an endowment or some other financial mechanism that is sufficient to fund in perpetuity the operation, maintenance, management, and enforcement of the conservation easement. If an endowment is used, either the endowment funds shall be submitted to the City to be distributed to an appropriate third-party nonprofit conservation agency, or they shall be submitted directly to the third-party nonprofit conservation agency in exchange for an agreement to manage and maintain the lands

in perpetuity. The Conservation Operator shall not sell, lease, or transfer any interest of any conservation easement or mitigation land it acquires without prior written approval of the City and DFG.

- If the Conservation Operator ceases to exist, the duty to hold, administer, manage, maintain, and enforce the interest shall be transferred to another entity acceptable to the City and DFG. The City Planning Department shall ensure that mitigation habitat is properly established and is functioning as habitat by conducting regular monitoring of the mitigation site(s) for the first 10 years after establishment of the easement.

Implementation: Project applicants for any particular discretionary development application.

Timing: Before issuance of occupancy permit for Phase 1 and future, subsequent improvement plans.

Enforcement: City of Rancho Cordova Planning Department and California Department of Fish and Game

PP, CS

Development under the Proposed Project and Conceptual Strategy Alternatives would result in an increase in development and human population that would result in adverse effects to a number of special-status wildlife species. Special-status wildlife species listed under the Federal ESA that could be substantially affected by the Proposed Project and Conceptual Strategy Alternatives are vernal pool fairy shrimp, vernal pool tadpole shrimp, and VELB. Adverse impacts on Swainson's hawk, listed under CESA as threatened, could also result. In addition, the following fully protected or California species of special concern could be adversely affected by project development: western pond turtle, western spadefoot, grasshopper sparrow, burrowing owl, northern harrier, white-tailed kite, loggerhead shrike, and American badger. Impacts to these species are discussed below.

Federally Listed Vernal Pool Invertebrates and Western Spadefoot

The vernal pool fairy shrimp and vernal pool tadpole shrimp have been identified in several vernal pools on the SPA by Sugnet & Associates (Sugnet & Associates 1993) and Foothill Associates (Foothill Associates 2004). Implementation of the Proposed Project Alternative would permanently remove approximately 20 acres of vernal pools and other wetlands considered habitat for these vernal pool invertebrates. In addition to the direct removal of habitat, the Proposed Project Alternative could have indirect impacts on approximately 26 acres of habitat for Federally listed vernal pool invertebrates that is within 250 feet of lands that would be developed under the Proposed Project.

The Proposed Project Alternative includes a 204-acre Wetland Preserve that would provide some level of protection to portions of the SPA containing the highest density of vernal pools and seasonal wetlands. Wetland acreages within the Wetland Preserve that provide potential habitat for Federally listed vernal pool invertebrates include approximately 13 acres of vernal pools, 1.5 acres of seasonal wetland, and 2 acres of swale. Under the Conceptual Strategy Alternative, the size of the wetland preserve would be increased to 310 acres and would protect roughly 13 acres of vernal pools, 2 acres of seasonal wetland, and 3 acres of swale. The purpose of establishing the on-site wetland preserve is to preserve and enhance existing wetland function and values. However, given the large anticipated increase in urbanization on the adjacent land, indirect impacts from topographic modifications, creation of impervious surfaces, urban runoff, erosion, siltation, contaminants present in runoff, intrusion of humans and domestic animals, and introduction of invasive plant species could result in habitat degradation that could adversely affect vernal pool fairy shrimp and vernal pool tadpole shrimp.

Habitat fragmentation could result in serious indirect effects on vernal pool invertebrates including loss of genetic diversity, vulnerability to extinction due to random catastrophic events, isolation from source populations for

recolonization, and reduction of avian dispersal agents. Studies of genetic variation in vernal pool tadpole shrimp indicate that vernal pool systems define populations of vernal pool tadpole shrimp and not individual pools (King et al. 1996, cited in USFWS 2005). Therefore, maintaining intact vernal pool systems is critical to promoting genetic diversity and maintaining the health of individual populations. Implementing the Proposed Project or Conceptual Strategy Alternatives would disrupt vernal pool systems in the SPA by filling portions of these systems and constructing urban development within their microwatersheds. Even within the wetland preserve areas, many of the vernal pool systems would not remain intact, especially following construction of the road crossings through the preserves that would occur under the Proposed Project Alternative. The Proposed Project and Conceptual Strategy Alternatives would result in direct removal of approximately 20 and 19 acres, respectively, of potentially suitable aquatic habitat for vernal pool invertebrates. In addition, approximately 26 acres under the Proposed Project, and 11 acres under the Conceptual Strategy Alternative could be subject to indirect impacts because development would occur within 250 feet. Therefore, implementation of the Proposed Project and Conceptual Strategy Alternatives would result in **direct** and **indirect significant** impacts on Federally listed vernal pool invertebrates.

Western spadefoot was found on the Shalako property during surveys conducted in 1993 (Sugnet & Associates 1993). Implementation of the Proposed Project and Conceptual Strategy Alternatives would permanently remove approximately 16 acres and 15 acres, respectively, of vernal pool and other wetland habitat suitable for western spadefoot. Upland grassland habitat (approximately 1,040 acres under the Proposed Project and 934 acres under the Conceptual Strategy) used for aestivation would also be permanently lost because of development. In addition to the direct removal of potential habitat, the Proposed Project and Conceptual Strategy Alternatives are expected to have indirect impacts on potential habitat for western spadefoot through habitat modifications (see Impact 3.3-1 for a description of potential indirect impacts on vernal pools and other wetland habitats). Indirect impacts could also include mortality related to an increase in vehicular traffic on and near the project site, noise and vibration disturbance causing toads to break dormancy, and exposure to herbicides, pesticides, and other toxins. In addition, if present, western spadefoot could be killed during construction activities. Therefore, **direct** and **indirect** impacts on western spadefoot are potentially **significant**.

Valley Elderberry Longhorn Beetle

It is not known whether VELB occurs on the SPA, but because the site is within the range of the species and suitable habitat is present (i.e., an elderberry shrub), it is assumed that the species could be present. One elderberry shrub is present in the riparian habitat next to the stock pond near Kiefer Boulevard and would be removed with implementation of the Proposed Project or Conceptual Strategy Alternative. However, the loss of a single elderberry shrub would not have a substantial impact on the regional VELB population. Therefore, potential **direct** impacts to VELB from implementation of the Proposed Project and Conceptual Strategy Alternative are considered **less than significant**. **No indirect** impacts on VELB would occur.

Western Pond Turtle

Implementing the Proposed Project or Conceptual Strategy Alternatives would permanently remove approximately 2 acres of stock pond and associated upland annual grassland considered potential habitat for western pond turtle. If western pond turtles are present, draining and grading of suitable habitat during construction could strand or smother western pond turtles. Therefore, implementation of the Proposed Project and Conceptual Strategy Alternatives could result in **direct significant** impacts to western pond turtle. **No indirect** impacts would occur.

Swainson's Hawk and Other Raptors

Implementation of the Proposed Project and Conceptual Strategy Alternatives would remove approximately 1,040 acres and 934 acres, respectively, of annual grasslands that provides foraging habitat for Swainson's hawk and white-tailed kite and foraging and nesting habitat for burrowing owl and northern harrier. Trees that provide

suitable nest sites for Swainson's hawk, white-tailed kite, and other raptors would also be removed. Implementing the Proposed Project or Conceptual Strategy Alternatives would not only remove foraging and nesting habitat, they would also fragment the remaining habitat in the vicinity of the SPA, which could cause the habitat to become unsuitable for foraging by some raptors. Large raptors generally require large areas of suitable foraging habitat and the loss and fragmentation of large tracts of foraging habitat can reduce local population numbers. Potential indirect impacts to burrowing owl include increased nest failure due to disruption of essential breeding and foraging behavior resulting from human disturbances in adjacent developed areas and increased nest predation by wildlife species associated with human development, such as crows and raccoons, as well as domestic cats and dogs. Thus, implementing the Proposed Project and Conceptual Strategy Alternatives could eventually lead to the permanent displacement of some raptors from the SPA. Therefore, the Proposed Project and Conceptual Strategy Alternatives would result in **direct** and **indirect significant** impacts to Swainson's hawk, western burrowing owl, northern harrier, white-tailed kite, and other raptors.

Grasshopper Sparrow and Loggerhead Shrike

Implementing the Proposed Project and Conceptual Strategy Alternatives would permanently remove 1,040 acres and 934 acres, respectively, of annual grassland that provides suitable nesting and foraging habitat for grasshopper sparrow and suitable foraging habitat for loggerhead shrike. Shrubs and trees that provide potential nesting habitat for loggerhead shrike would also be removed. Grassland habitat preserved on the SPA may no longer be suitable for these species because of disturbances from surrounding development. However, these species generally require smaller tracts of habitat relative to the raptors discussed above. Annual grassland habitat would remain relatively abundant in the region and loss of habitat from the SPA is not likely to result in a substantial decline in local population numbers. Therefore, **direct** and **indirect** impacts on loggerhead shrike and grasshopper sparrow under the Proposed Project and Conceptual Strategy Alternatives are considered **less than significant**.

American Badger

The 1,040 acres and 934 acres of dry, open annual grassland on the SPA, which would be permanently removed by implementing the Proposed Project and Conceptual Strategy Alternatives, respectively, is suitable habitat for American badger. American badger requires a large home range for survival, therefore, the removal of habitat and resulting fragmentation from implementing the Proposed Project and Conceptual Strategy Alternatives could result in indirect impacts to American badger through habitat modification. However, the loss of habitat from the SPA would not be likely to cause loss of individuals because there would still be adequate suitable foraging and denning habitat in the area to support the local population. Therefore, **direct** and **indirect** impacts to American badger under the Proposed Project and Conceptual Strategy Alternatives are considered **less than significant**.

Mitigation Measure: Implement Mitigation Measures 3.3-1a, 3.3-1b, 3.3-3a, and 3.3-3b.

Mitigation Measure 3.3-3c: Secure Take Authorization of Federally Listed Vernal Pool Invertebrates and Implement Permit Conditions, Develop and Implement a Habitat Mitigation and Monitoring Plan.

No project construction shall proceed in areas supporting potential habitat for Federally listed vernal pool invertebrates or within adequate buffer areas (250 feet or lesser distance deemed sufficiently protective by a qualified biologist with approval from USFWS) until a biological opinion (BO) and incidental take permit has been issued by USFWS and the project applicant has abided by conditions in the BO, including all conservation and minimization measures. A similar process shall be followed for future subsequent improvement plans and conservation and minimization measures for those phases shall also be implemented according to the BO. Conservation and minimization measures shall include preparation of supporting documentation describing methods to protect existing vernal pools during and after project construction, a detailed monitoring plan, and reporting requirements. Western spadefoot also requires the

protection of vernal pool habitat for survival; therefore, implementation of Mitigation Measure 3.3-3c would also reduce impacts to western spadefoot.

The project applicants shall identify mitigation acceptable to the City, USACE, and USFWS for the impacts to vernal pools and other seasonal wetland habitats that support or potentially support Federally listed vernal pool invertebrates in such a manner that there will be no net loss of habitat (acreage and function) for these species following project implementation. As described under Mitigation Measure 3.3-1a, project applicants shall complete and implement a habitat MMP describing how loss of vernal pool and other wetland habitats shall be offset, including details for creating habitat; accounting for the temporal loss of habitat, performance standards to ensure success, and remedial actions to be implemented if performance standards are not met. Mitigation shall include, where feasible and practicable, preservation and or restoration of in-kind wetland habitats within the Mather Core Area at ratios satisfactory to ensure no net loss of habitat acreage, function, and value within the Mather Core Area.

The project applicants shall preserve acreage of vernal pool habitat for each wetted acre of any indirectly affected vernal pool habitat at a ratio approved by USFWS at the conclusion of the Section 7 consultation. This mitigation shall occur before the approval of any grading or improvement plans for any project phase that would allow work within 250 feet of such habitat, and before any ground-disturbing activity within 250 feet of the habitat. Unless otherwise agreed to by USFWS, vernal pool habitat within 250 feet of development will be considered indirectly affected. The project applicants will not be required to complete this mitigation measure for direct or indirect impacts that have already been mitigated to the satisfaction of USFWS through another BO or mitigation plan.

A standard set of BMPs shall be applied when working in areas within 250 feet of off-site vernal pool habitat or within any lesser distance deemed by a qualified biologist to constitute a sufficient buffer from such habitat with approval from USFWS. Refer to Section 3.9 "Hydrology and Water Quality" for the details of BMPs to be implemented.

Implementation: Project applicants for any particular discretionary development application requiring work within 250 feet of aquatic habitat.

Timing: Before the approval of any grading or improvement plans, before any ground-disturbing activities within 250 feet of vernal pool or other seasonal wetland habitat, and on an ongoing basis throughout construction as applicable for all project phases as required by the mitigation plan, biological opinion, and BMPs.

Enforcement: U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and City of Rancho Cordova Planning Department.

Mitigation Measure 3.3-3d: Obtain Incidental Take Permit for Impacts to Valley Elderberry Longhorn Beetle and Implement All Permit Conditions.

No project construction shall proceed in areas containing VELB habitat (i.e., elderberry shrubs) until a BO and an Incidental Take Permit have been issued by USFWS and the project applicant has abided by all pertinent conditions in the BO relating to the proposed construction, including all conservation and minimization measures. Conservation and minimization measures are likely to include preparation of supporting documentation describing methods for relocating the existing shrub. Relocation of existing elderberry shrubs and planting of new elderberry seedlings shall be implemented on a no-net-loss basis. Detailed information on monitoring success of relocated and planted shrubs, and measures to compensate should success criteria not be met, would also likely be required in the BO. Ratios for mitigation of VELB habitat will ultimately be determined through the Federal ESA Section 7 consultation process with USFWS, but shall be a minimum of "no net loss."

Implementation: Project applicants of all project phases containing elderberry shrubs.

Timing: As required by the BO and prior to ground-disturbing activities that would remove elderberry shrubs.

Enforcement: U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and City of Rancho Cordova Planning Department.

Mitigation Measure 3.3-3e: Conduct Preconstruction Surveys to Avoid Western Pond Turtle.

A preconstruction survey for western pond turtle shall be conducted by a qualified biologist prior to work in suitable aquatic habitat. If no pond turtles are observed, no further mitigation is necessary.

If pond turtles are found, they shall be relocated by a qualified biologist to the nearest area with suitable aquatic habitat that will not be disturbed by project-related construction activities.

Implementation: Project applicants for any particular discretionary development application containing suitable aquatic habitat.

Timing: Before approval of grading or improvement plans or any ground disturbing activities, including grubbing or clearing, for any project phase affecting suitable aquatic habitat.

Enforcement: City of Rancho Cordova Planning Department.

BIM

Under the Biological Impact Minimization Alternative, adverse impacts on wetlands, other waters, and annual grassland that provide potential habitat for special-status wildlife species would be substantially less than under the Proposed Project Alternative. The wetland preserve under the Biological Impact Minimization Alternative would be approximately 411 acres and would incorporate a comprehensive array of wetland complexes on the SPA. The wetland preserve would be almost double the size of the Proposed Project Alternative wetland preserve network. Indirect effects on vernal pool species would also be less because the Biological Impact Minimization Alternative generally provides larger buffer areas around preserved wetlands than the Proposed Project Alternative, leaves more vernal pool systems intact, and preserves larger, more contiguous habitat patches. Under this alternative, road crossings throughout the preserve would be eliminated. The Biological Impact Minimization Alternative would preserve approximately 200 more acres of suitable foraging habitat for Swainson's hawk and other raptors, nesting habitat for burrowing owl, and northern harrier, and habitat for American badger. However, permanent loss of habitat for all of these species, as well as habitat for western pond turtle, would still occur and direct take of individuals could occur, as a result of implementing this alternative. Indirect effects to these species would still occur as a result of habitat fragmentation and development in uplands adjacent to wetland habitats, including alteration of the topography and hydrologic function, increased runoff from adjacent impervious surfaces, and degraded water quality from contaminants. The elderberry shrub that provides potentially suitable habitat for VELB would be removed; however, the loss of a single elderberry shrub would not have a substantial impact on the regional VELB population. Therefore, **direct** and **indirect significant** impacts to Swainson's hawk, burrowing owl, northern harrier and other raptors, and western pond turtle would occur, but to a lesser extent compared to the Proposed Project Alternative. ***[Lesser]*** **Direct** and **indirect** impacts on grasshopper sparrow, loggerhead shrike, VELB, and American badger would be **less than significant** under the Biological Impact Minimization Alternative. ***[Similar]***

Mitigation Measure: Implement Mitigation Measures 3.3-1a, 3.3-1b, 3.3-3a, 3.3-3b, 3.3-3c, 3.3-3d, and 3.3-3e.

Impacts on special-status wildlife associated with grasslands, vernal pools, and other seasonal wetlands would be increased under the Increased Development Alternative relative to the Proposed Project Alternative. The size of the wetland preserve under the Increased Development Alternative would be reduced to approximately 97 acres, as opposed to 204 acres under the Proposed Project Alternative. The total acreage of vernal pools and other wetlands lost under the Increased Development Alternative would also increase from approximately 19 acres under the Proposed Project Alternative, to approximately 26 acres under the Increased Development Alternative. Direct and indirect impacts on Federally listed vernal pool invertebrates and western spadefoot would be increased under the Increased Development Alternative because land designated for residential or other land uses would be expanded. The 97-acre preserve proposed under this alternative would result in a fragmented vernal pool landscape that would be completely isolated from vernal pool grasslands to the east of the project site. The amount of foraging habitat for Swainson's hawk and other raptors and nesting habitat for burrowing owl removed would increase substantially under this alternative with an additional 107 acres being converted to development, compared to the Proposed Project Alternative. Because the size of the habitat preserve areas would be smaller, it is less likely that remaining grassland habitat would be suitable for raptors or for northern harrier and loggerhead shrike. Under this alternative, the ponds that provide potentially suitable habitat for western pond turtle would still be removed. A greater amount of suitable habitat for American badger would be removed under the Increased Development Alternative than under the other action alternatives, but the impact would remain less than significant because the loss of habitat from the SPA would not be likely to cause loss of individuals because there would still be adequate suitable foraging and denning habitat in the area to support the local population. The elderberry shrub that provides potentially suitable habitat for VELB would be removed; however, the loss of a single elderberry shrub would not have a substantial impact on the regional VELB population. Therefore, **significant direct** and **indirect** impacts on Swainson's hawk and other raptors, loggerhead shrike, burrowing owl, northern harrier, grasshopper sparrow, and western pond turtle would occur under the Increased Development Alternative and to a greater extent than under the Proposed Project. ***[Greater]*** **Direct** and **indirect** impacts on American badger and VELB would be **less than significant** under the Increased Development Alternative. ***[Similar]***

Mitigation Measure: Implement Mitigation Measures 3.3-1a, 3.3-1b, 3.3-3a, 3.3-3b, 3.3-3c, 3.3-3d, and 3.3-3e.

Impact 3.3-3 related to VELB is less than significant before mitigation. However, implementing Mitigation Measure 3.3-3d would further reduce impacts on VELB under the No USACE Permit, Proposed Project, Biological Impact Minimization, Agency Conceptual Strategy, and Increased Development Alternatives because it would require that the one elderberry shrub present on the site that would be removed as a result of project implementation would be replaced on a no-net-loss basis to maintain habitat for breeding populations in the region.

Implementing Mitigation Measures 3.3-1a, 3.3-1b, and 3.3-3c would reduce significant impacts on western spadefoot to a **less-than-significant** level under the No USACE Permit, Proposed Project, Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives because it would ensure that wetland habitat removed from the SPA would be replaced on a no net loss basis and requires measures to minimize adverse effects on water quality and wetland hydrology that could indirectly affect western spadefoot.

Implementing Mitigation Measure 3.3-3e would reduce significant impacts on western pond turtle to a **less-than-significant** level under the No USACE Permit, Proposed Project, Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives because it would ensure that no pond turtles are killed as a direct result of implementing the project.

In summary, implementing the Proposed Project, Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives would result in direct significant impacts on Federally listed vernal pool invertebrates, Swainson's hawk, and western spadefoot. Implementing the No USACE Permit Alternative would

result in direct and indirect significant impacts on Swainson's hawks and indirect significant impacts on Federally listed vernal pool invertebrates, western spadefoot, and western pond turtle. Implementation of Mitigation Measures 3.3-1a, 3.3-1b, 3.3-3a, 3.3-3b, and 3.3-3c would lessen direct and indirect significant impacts on special-status wildlife resulting from the No USACE Permit, Proposed Project, Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives; however, this impact would remain **significant and unavoidable,** except where noted for western spadefoot, VELB, and western pond turtle, because the removal of between approximately 650 acres (under the No USACE Permit Alternative) and 1,170 acres (under the Increased Development Alternative) of potential habitat for special-status wildlife and the indirect effects and associated fragmentation of surrounding potentially suitable habitat cannot be fully mitigated. Indirect impacts under the No USACE Permit Alternative would be reduced by implementing Mitigation Measure 3.3-1a because it requires measures to minimize adverse effects on water quality and wetland hydrology; however, indirect impacts would remain significant and unavoidable due to habitat fragmentation and edge effects, similar to the other action alternatives. The amount of grassland habitat lost could potentially contribute to the decline of Swainson's hawk populations in the region. This decline would constitute a substantial adverse effect under CEQA. Furthermore, the loss of between 10 and 26 acres of vernal pool fairy shrimp and vernal pool tadpole shrimp habitat and the habitat fragmentation that would occur under the Proposed Project, Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives could potentially contribute to the decline of listed vernal pool invertebrate populations in the region, especially considering that the SPA is within an area identified by USFWS as crucial to the recovery of these species (USFWS 2005) and considering the rate of habitat destruction in the region. However, the development under any of the Alternatives in and of themselves would not be expected to cause a decline in numbers of any of these species to the point where their regional populations are no longer viable.

Impacts to special-status wildlife species could only be fully mitigated through a combination of habitat preservation and restoration in the vicinity of the SPA. While parcels of similar habitat quality are currently present in the project vicinity, these parcels would be of lower value following development of the project because of the effects of habitat fragmentation and secondary impacts related to the project. Moreover, there would be a net loss of between 650 and 1,170 acres (1,062 acres under the Proposed Project Alternative) of vernal pool grassland regardless of the acreage preserved if any of the action alternatives are implemented and there is not sufficient undeveloped land in the Mather Core Area or the project vicinity to offset the effects of habitat fragmentation on special-status species, and thus, fully mitigate the impact or reduce it to a less-than-significant level.

IMPACT 3.3-4 **Potential for Substantial Interference with the Movement of any Native Resident or Migratory Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the use of Native Wildlife Nursery Sites.** *Project implementation could interfere with the movement of native resident or migratory wildlife species or with established native resident or migratory wildlife corridors.*

NP

Because no development would occur under the No Project Alternative, there would be no project-related activities that would affect wildlife movement. There are no native wildlife nursery sites in the SPA. Therefore, **no direct** or **indirect** impacts would occur. ***[Lesser]***

NCP, PP, BIM, CS

Wildlife corridors are features that provide connections between two or more areas of habitat that would otherwise be isolated and unusable. Often drainages, creeks, or riparian areas are used by wildlife as movement corridors as these features can provide cover and access across a landscape. Kite Creek flows southwesterly across the SPA. It is unknown the extent to which this creek corridor is used by wildlife in the area for movement, but the SPA is situated between the Anatolia Preserve (located north of the Shalako property and west of the

Kamilos property) and open areas to the north, east, and south that provide habitat for numerous common and special-status wildlife species associated with vernal pool grasslands. Therefore, it is likely that the creek corridor and the overall SPA are used extensively for wildlife movement. Since development is planned to the north, northeast, and south of the SPA, the SPA and its creek corridor provide a vital link to vernal pool grassland habitats to the east and to existing and proposed habitat preserve areas to the north, west, and south. The creek may serve as a dispersal corridor for vernal pool tadpole shrimp between vernal pool systems and provides opportunities for genetic exchange important to maintaining healthy populations of this species. However, the No USACE Permit, Proposed Project, Biological Impact Minimization, and Conceptual Strategy Alternatives each include preservation of an open space corridor along Kite Creek that would provide habitat linkage across the SPA between planned habitat preserve areas to the south and existing open space to the east, including habitat preserve areas in the Kiefer Buffer Lands. Regionally common wildlife species, such as coyote, fox, raccoon, skunk, possum, are expected to continue to use the Kite Creek corridor after project implementation and Kite Creek would continue to provide dispersal opportunities for vernal pool tadpole shrimp and other special-status species after implementing any of these project alternatives. Furthermore, the SPA is not known to contain an established wildlife movement corridor that is vital for the movement of any resident or migratory fish or wildlife species or population and there are no native wildlife nursery sites in the SPA. Therefore, **direct** and **indirect** impacts on wildlife movement from the No USACE Permit, Proposed Project, Biological Impact Minimization, and Conceptual Strategy Alternatives are considered **less than significant**. ***[Similar]***

ID

Under the Increased Development Alternative, a very narrow corridor would be preserved along a portion of Kite Creek within the SPA, but this preserved corridor would not link to natural habitat areas off site, except to the planned habitat preserve area to the south of the Shalako property. Therefore, implementing the Increased Development Alternative would eliminate habitat connectivity across the SPA between existing vernal pool grasslands to the east of the project and the vernal pool preserve planned as part of the Arboretum project to the south. Therefore, implementing this alternative would lower the value of the planned Arboretum preserve and limit the flow of genetic exchange between existing habitat patches adjacent to the project site. Furthermore, because the corridor proposed for habitat preservation under this alternative is extremely narrow (ranging from approximately 100 to 500 feet in width), habitat quality would be seriously diminished in this corridor and the corridor would not provide secure movement opportunities for many species following development. Furthermore, because the Increased Development Alternative would provide a partial habitat corridor that would allow wildlife to move from natural habitat areas to the south into the SPA, but provides no outlet to other habitat patches outside the SPA, this corridor could be detrimental to wildlife that would be routed to developed areas through this corridor rather than to other natural habitat areas. Therefore, implementing the Increased Development Alternative would virtually eliminate wildlife movement opportunities through the SPA for both common and special-status species, whereas every other alternative would provide a contiguous movement corridor across the SPA between natural habitats planned for preservation into the foreseeable future. Therefore, **direct** and **indirect** impacts on wildlife movement would be **significant**. ***[Greater]***

Mitigation Measure: No feasible mitigation measures are available.

There are no feasible mitigation measures available that would increase wildlife movement opportunities other than redesigning the Increased Development Alternative. Because this DEIR/DEIS already includes four other land use alternatives that have been designed to provide opportunities for wildlife movement, redesigning the Increased Development Alternative is not considered feasible. (The reader should note that, as described in Chapter 1, "Introduction" and Chapter 2, "Alternatives," the Increased Development Alternative was the original proposal for development of the project site. The need for additional wildlife connectivity was one of the reasons that the Proposed Project Alternative was designed in its current form.) The lack of wildlife connectivity is considered a significant and unavoidable impact under the Increased Development Alternative.

IMPACT 3.3-5 **Substantial Reduction in the Habitat of a Wildlife Species.** *Implementing the project would substantially reduce the habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp habitat.*

NP

Under the No Project Alternative no development would occur and there would be no project-related ground-disturbing activities that would affect wetland habitats suitable for vernal pool fairy shrimp and vernal pool tadpole shrimp. Therefore, **no direct** or **indirect impact** would occur under the No Project Alternative. ***[Lesser]***

NCP

The No USACE Permit Alternative would not result in fill of wetlands or other waters subject to USACE jurisdiction under the CWA, therefore habitat suitable for vernal pool fairy shrimp or vernal pool tadpole shrimp would not be removed from the SPA. No development would occur within 50 feet of wetland features and free spanning bridges would be constructed wherever roadways cross waters to avoid impacts on these waters. Mixed use development would still be constructed adjacent to aquatic resources resulting in topographic modifications, creation of impervious surfaces, urban runoff, erosion, and siltation; intrusion of humans and domestic animals; and introduction of invasive plant species that could result in habitat degradation. In some cases, this degradation could render the habitat unsuitable for vernal pool branchiopods. Under the No USACE Permit Alternative, 26 acres of suitable wetland habitat in the SPA and 2 acres of off-site suitable wetland habitat within 250 feet of proposed project development could be indirectly affected by project implementation. Therefore, there would be **no direct** impact and a **significant indirect** impact related to habitat loss. ***[Lesser]***

Mitigation Measure: Implement Mitigation Measure 3.3-1b.

PP, CS, ID

Under the Proposed Project Alternative, 20 acres of suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp would be permanently lost. This is a substantial reduction in the habitat of these species because it represents 55% of the suitable habitat for these species in the SPA and the SPA is within an area identified as being crucial not only to the recovery of these species, but also to the long-term survival of vernal pool tadpole shrimp (i.e., the Mather Core Area). Habitat loss under the Conceptual Strategy would be similar with 52%, or 19 acres, of existing habitat for these species being removed from the SPA. Under the Increased Development Alternative, 76% of the existing habitat for these species would be removed from the SPA. The largest concentration of extant vernal pool tadpole shrimp occurrences is in Sacramento County, and the majority of these occurrences is within the Mather Core Area. Because of the significance of the core area habitats, a loss of this magnitude from any SPA within the Mather Core Area would be considered a substantial reduction in the species' habitat. The project includes wetland buffer areas; however, habitat retained in the SPA could still become degraded from the indirect impacts of surrounding urbanization (see Impact 3.3 for a discussion of indirect impacts). In some cases, this degradation could render the habitat unsuitable for vernal pool branchiopods. Under the Proposed Project Alternative, 13 acres of suitable wetland habitat in the SPA and 13 acres of off-site suitable wetland habitat within 250 feet could be indirectly affected by project development. Implementing the Conceptual Strategy Alternative could result in indirect impacts to 10 acres of on-site habitat and 13 acres of off-site habitat that is within 250 feet of proposed development. Under the Increased Development Alternative, 8 acres of on-site habitat and 14 acres of off-site habitat could be subject to indirect impacts from project development because it is within 250 feet of proposed development. Therefore, **direct** and **indirect** impacts to wildlife habitat would be **significant**. ***[Similar]***

Mitigation Measure: Implement Mitigation Measures 3.3-1a, 3.3-1b, and 3.3-3a.

Implementing Mitigation Measures 3.3-1a, 3.3-1b, and 3.3-3a would lessen the significant impact of substantial loss in habitat for vernal fairy shrimp and vernal pool tadpole shrimp, but not to a less-than-significant level. Mitigation Measures 3.3-1a and 3.3-3a would require that aquatic habitat lost or degraded by implementing the project would be replaced according to USACE's and USFWS's no-net-loss standards. However, the only way to ensure no net loss of habitat acreage is to create aquatic habitats to replace those that would be filled. While created habitats can compensate for the loss of wetted habitat acreage, they cannot be guaranteed to replace the full spectrum of habitat functions and the value of the habitat lost. It is not known if aquatic habitats that might be created to compensate for project losses would support self-sustaining populations of vernal pool tadpole shrimp and vernal pool fairy shrimp and preservation of existing habitats at any ratio would still result in a net loss of habitat for these species. Furthermore, it is unlikely that habitat compensation can be accomplished within the Mather Core Area and mitigation outside of the Mather Core Area cannot fully compensate for the loss of habitat within the core area in terms of its value to vernal pool tadpole shrimp. Habitat within the Mather Core Area is considered vital to preventing the extinction or irreversible decline of vernal pool fairy shrimp and vernal pool tadpole shrimp. At the time this document was prepared, the rate of compensatory mitigation provided within the core area for CWA permits issued to projects removing vernal pool habitat from the core area was approximately 50% (i.e., for every 1 acre of wetland habitat removed, 0.5 acre of habitat was mitigated in the core area) and the amount of undeveloped, unspoken-for land within the Mather Core Area that could potentially be preserved is running out. Moreover, habitat that is preserved on the SPA and other project preserves in the vicinity would ultimately be of lower value following development because of the effects of habitat fragmentation.

Therefore, fully compensating for project impacts by preserving existing habitat in the project vicinity and within the Mather Core Area is infeasible and no feasible mitigation exists to reduce this impact to a less-than-significant level. This impact would remain **significant and unavoidable**.

BIM

Under the Biological Minimization Alternative 33%, or 12 acres, of existing habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp would be removed from the SPA. Any loss of habitat from the Mather Core Area would be a significant impact, as discussed under Impact 3.3-3; however, because the Biological Impact Minimization Alternative would preserve the majority (67%) of existing habitat for these species in the SPA, this alternative would not result in a substantial reduction in habitat for these species. Therefore, there would be a **less-than-significant direct** and **indirect** impact from loss of wildlife habitat. ***[Lesser]***

Mitigation Measure: No mitigation measures are required.

3.3.4 RESIDUAL SIGNIFICANT IMPACTS

Although impacts on some biological resources (i.e., streambed and pond habitats regulated by DFG, western spadefoot, western pond turtle, and special-status plants), would be reduced to less-than significant levels through implementation of the mitigation measures described in this section, direct and indirect impacts on jurisdictional waters of the U.S. including wetlands (with the exception of the No USACE Permit Alternative, which would only have indirect impacts), special-status wildlife species (vernal pool invertebrates and Swainson's hawk); and the substantial reduction in habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp (a mandatory finding of significance under CEQA) would remain significant and unavoidable even with implementation of the mitigation measures listed herein because the project would contribute substantially to the regional loss of these resources and habitat fragmentation and permanent loss/displacement of these special-status wildlife species would result and there are no feasible mitigation measures to fully reduce this impact to a less-than-significant level. Furthermore, it is unlikely that land suitable for restoration or creation of wetlands to replace those lost from the SPA would be available within the Mather Core Area, which is vital to preventing the extinction or irreversible decline of vernal pool fairy shrimp and vernal pool tadpole shrimp. If existing, functional, compensatory wetlands were not available from a mitigation bank at the time of project implementation, then there would be a temporal loss of habitat function until performance standards and success criteria of created

wetlands are met. The reduction in habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp would be less than significant under the Biological Impact Minimization Alternative, but would be significant and unavoidable under every other action alternative.

3.3.5 CUMULATIVE IMPACTS

The geographic extent of cumulative impacts on biological resources is based on the extent of the Laguna Creek and Morrison Creek watersheds, which include the SPA. Under the Proposed Project Alternative, there are approximately 35 acres of existing vernal pools and other seasonal wetlands considered habitat for special-status vernal pool invertebrates. Of these, 53% (19 acres) would be permanently destroyed by implementing the Proposed Project Alternative. The Biological Impact Minimization, Conceptual Strategy, and Increased Development Alternatives would remove roughly 10, 17, and 26 acres of existing wetlands (or 30%, 49%, and 75%), respectively. All past, present, and reasonably foreseeable future projects in the City of Rancho Cordova and within the Laguna Formation would result in a cumulative loss of approximately 53% (111 acres) of existing vernal pools, based on acreage calculations provided by the City of Rancho Cordova (Angell, pers. comm. 2005). The proposed project would contribute to the cumulative loss of approximately 8% of the vernal pools within the Laguna Formation. In addition to the direct loss of habitat, implementing the project in conjunction with the existing plans in the surrounding area would result in the fragmentation of the regional vernal pool resources of the Laguna Formation and the Morrison Creek and Laguna Creek watersheds. Therefore, vernal pools and other wetlands would be confined to a small geographic region and would be more vulnerable to the effect of habitat fragmentation and other indirect impacts.

Implementing the project would also result in the permanent removal of between 3 acres, under the Biological Impact Minimization Alternative, and 4 acres, under the Proposed Project Alternative, of other waters consisting of ephemeral and intermittent drainage channels and ponds.

Implementing the project would result in the loss of between 659 acres and 1,147 acres of annual grassland habitat, which serves as foraging habitat for raptors including Swainson's hawk. This loss would contribute significantly to the regional loss of this biological resource.

In addition to the related projects considered for all resource areas in this EIR/EIS as described in Section 3.0, the projects identified in Table 3.3-6 below are also considered in the cumulative analysis for biological resources because the USACE has specifically requested an additional level of detailed cumulative analysis related to biological resources that includes a variety of additional projects to determine cumulative impacts on wetlands and waters of the U.S.

The geographic extent of impacts on annual grassland, wetlands (e.g., vernal pools, swales, and seasonal wetlands) and other waters of the United States (e.g., ephemeral and intermittent drainage channels), and the biological resources associated with these habitats consists of the Morrison Creek and Laguna Creek watersheds. General discussion of overall losses of these resources is also included for Sacramento County and the Southeastern Sacramento Valley Vernal Pool Region.

Many projects near the SPA have been constructed recently or are in various stages of planning and entitlement (see Exhibit 3.0-1 in Section 3.0, "Approach to the Environmental Analysis and the Cumulative Context"). Some have already resulted in fill of wetlands and other waters of the U.S. and loss of wetland functions. Based on the data currently available and presented in Table 3.3-6, cumulative losses of wetlands and other waters of the U.S., including vernal pools, for specific projects within the Morrison Creek and Laguna Creek watersheds and surrounding areas of Sacramento County have been and are expected to be substantial. Thus, related projects throughout the region would result in a cumulatively significant impact to wetlands and other biological resources associated with these habitats. Project implementation would result in a cumulatively considerable incremental contribution to this cumulatively significant impact of regional loss because of the large acreage of habitats that would be lost as a result. In addition, road improvements and roadway construction within the City's planning

Table 3.3-6
Wetlands and Other Waters at Specific Projects in the Vicinity of the SunCreek Specific Plan

Project in Sacramento County	Total Waters of the U.S. (Approximate)	Acres of Waters of the U.S. Filled (Approximate)
Anatolia I, II, III, IV	86.43	44.29
Arboretum	116.86	31.75
Arista del Sol	17.41	13.88
Capital Village	None	None
Cordova Hills	103.67	39.4
Creekview Manor	25.90	7.72
DeSilva-Gates Quarry	NA	NA
Douglas 98	3.91	3.91
Douglas 103	5.40	1.98
Excelsior Estates	39.81	28.77
Florin-Vineyard Gap	33.46	22.9
Folsom South of U.S. 50	84.94	40.75
Glenborough at Easton and Easton Place	22.90	4.93
Grantline 208	11.19	No net loss
Heritage Falls	6.85	6.85
Mather East	2.68	0.19
Mather Specific Plan	198.5	40.3
Montelena	16.66	10.605
Newbridge (Rendering Plant)	22.23	10
North Douglas	5.36	6.17
North Douglas II	4.42	0.627
North Vineyard Station Drainage Master Plan	18.10	15.48
Rio del Oro	56.63	27.9
Sunridge Lot J	2.99	2.99
Sunridge Park	1.99	1.81
The Ranch at Sunridge	21.42	10.24
Teichert Quarry	7.41	3.63
Triangle Rock Expansion Project	11.03	9.1
Villages of Zinfandel	1.15	1.15
Vineyard Springs	53.34	16.07
Stoneridge Quarry	42.9	10.54
Westborough	2.49	2.5
Total (Approximate)	**945.3**	**403.72**

Notes: NA = Not Available
Sources: Data provided by City of Rancho Cordova, USACE, and ECORP in 2010 and 2011

area are estimated to result in direct impacts on an additional 25 acres of vernal pool and other wetland habitats that are not included in Table 3.3-6. These impacts were analyzed at a program level in the City General Plan Draft EIR (City of Rancho Cordova 2006), and mitigation for these impacts is included in the Natural Resources Element of the General Plan.

The project would result in degradation of wildlife habitat by developing new facilities that, when combined with other habitat impacts occurring from development within the region, would result in significant cumulative impacts. Despite the implementation of project-specific biological resource mitigation measures identified above, a temporal loss of wetlands and other waters of the U.S. would occur during mitigation implementation until performance standards and success criteria are met.

It is estimated that 75% to 90% of the historic California vernal pool habitat has been lost. Results of surveys of vernal pool distribution in the Central Valley indicate that 13% of the 1,032,853 acres of vernal pool habitat mapped in 1997 was gone by 2005 (Holland 2009). Losses of vernal pool habitat in the project region in that time period were substantial, with Sacramento County losing approximately 6,550 acres and El Dorado County losing approximately 260 acres. In the period between 1994 and 2005, Placer County lost approximately 17,115 acres of vernal pool habitat (Holland 2009). In Sacramento County, two large new growth areas—Jackson Highway New Growth Area and Grant Line East New Growth Area—are planned for major urbanization between now and 2030. These two new growth areas support a combined 316 wetted acres of vernal pools that could be converted to urban land uses by the year 2030 (Sacramento County 2009). Full buildout of the City of Rancho Cordova General Plan planning area is projected to convert up to 20,728 acres of vernal pool grasslands containing 630 wetted acres of vernal pools. Historic losses of vernal pool habitat in combination with projected losses from existing, proposed, planned, and approved projects constitute a cumulatively substantial reduction in vernal pool habitat in the region. Habitat losses of this magnitude have a substantial adverse effect on species that rely on this habitat type, including Federally-listed vernal pool crustaceans, and contribute to the decline of these species.

Direct and indirect habitat loss resulting from implementation of the project, would have a cumulatively considerable incremental contribution to the regional loss of the habitat types presented in Table 3.3-7. Therefore, project implementation would result in a cumulatively considerable incremental contribution to the decline of these species in the region. In addition, the project, when combined with surrounding planned projects, would result in the conversion of large, open habitat landscapes surrounded by other open space to smaller patches of habitat surrounded by urban development. Therefore, aquatic habitats would be confined to small geographic locations and would be more vulnerable to the effect of habitat fragmentation and other indirect impacts.

Considering the rate of development in Sacramento County and, specifically within the Morrison and Laguna Creek watersheds, and the limited amount of undeveloped, unspoken for land that supports existing wetlands that could be preserved, or that is suitable for creation of compensatory aquatic habitats similar to those that would be removed as a result of implementing the project, it may not be possible to fully mitigate the loss of habitat functions and values provided by the aquatic habitats that would be lost in the SPA.

Project implementation would also result in the loss of between 659 acres and 1,147 acres of annual grassland habitat, which serves as foraging habitat for raptors, including Swainson's hawk, and other grassland associated wildlife species, and nesting habitat for burrowing owl. Therefore, the project would result in a cumulatively considerable incremental contribution to this cumulatively significant impact from regional loss of this biological resource. Implementation of Mitigation Measure 3.3-4 would reduce the direct project-specific impacts on Ahart's dwarf rush and other special-status plant species to a less-than-significant level and implementing Mitigation Measure 3.3-3d would further reduce the less-than-significant VELB impacts. Implementation of Mitigation Measures 3.3-1b, 3.3-2, 3.3-3a, 3.3-3b, 3.3-3c, and 3.3-3e would reduce but not fully eliminate other project-specific significant impacts to biological resources. Even with implementation of the proposed mitigation and regional enforcement of the USACE "no net loss" standard, the project would contribute substantially to the diminished value of the region as it relates to the long-term viability of these resources. The SunCreek project would result in a cumulatively considerable incremental contribution to significant cumulative biological

resources impacts including the loss and degradation of sensitive habitats, habitat for special-status wildlife, and habitat for special-status plants; and loss/displacement of special-status wildlife.

Table 3.3-7
Special-Status Species Supported By the Habitat Types to Which the Project Would Contribute a Cumulatively Considerable Incremental Loss

Habitat Type	Special-Status Species Supported
Vernal Pools, Seasonal Wetlands, and Swales	Dwarf downingia Bogg's Lake hedge-hyssop Ahart's dwarf rush Greene's legenere Pincushion navarretia Slender Orcutt grass Sacramento Orcutt grass Vernal pool fairy shrimp Vernal pool tadpole shrimp Western spadefoot Northwestern pond turtle
Annual Grassland	Swainson's hawk White-tailed kite Tricolored blackbird Grasshopper sparrow Burrowing owl Northern harrier Loggerhead shrike American badger

Source: Data provided by AECOM in 2010