# 3.4 BIOLOGICAL RESOURCES

## 3.4.1 INTRODUCTION

This section describes effects to biological resources that could result from implementation of the Proposed Action or its alternatives, and is based on information drawn from the following sources:

- Biological Resources Assessment prepared by North Fork Associates for the City of Roseville, dated June 9, 2009;
- Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon dated December 15, 2005;
- West Roseville Specific Plan Environmental Impact Report (EIR), February 2009;
- Sierra Vista Specific Plan EIR Technical Memorandum: Effects of Changed Water Management operations on Fisheries and Water Quality Impacts Previously Disclosed in the Water Forum Proposal EIR, prepared by Robertson-Bryan, Inc., and HDR for the City of Roseville, dated October 2009;
- Memorandum Report of Findings for Southwest Alternative Site prepared by Helix Environmental Planning dated March 2011; and
- Conceptual Mitigation Plan for the Sierra Vista Project prepared by Gibson & Skordal LLC, dated February 2011.

## 3.4.2 AFFECTED ENVIRONMENT

### 3.4.2.1 Key Terms Used in this Section

The term "Project Site" in this section refers to the nine properties that make up the approximately 1,612 acre- (652-hectare) Sierra Vista Specific Plan (SVSP) area and are under application for the Department of Army (DA) permits. All resources, activities, and impacts within the 1,612-acre project site are described in this section as being "on the project site" or "on site."

The Proposed Action (and all alternatives) also includes infrastructure improvements that would be constructed outside of the SVSP area. The alignments of the infrastructure improvements as well as a 250-foot zone extending on both sides of the alignments are referred to as "off site" throughout this section. The term "off site" is also used to characterize the resources and impacts in a 250-foot zone extending out from the SVSP area or the project site. Due to its adjacency with the development areas on the project site, this zone is considered likely to experience indirect effects from on-site development. The total acreage of this off-site impact area is approximately 260 acres (105 hectares).

In summary, "on site" refers to all properties within the SVSP area and "off site" includes all lands outside of the plan area where project-related direct and indirect impacts are anticipated.

### 3.4.2.2 Regional Setting

For the purposes of this section, the project region is defined as the southwestern portion of Placer County. The Proposed Action is located in the transition zone between land developed with urban uses

to the east and land developed for intensive agriculture to the west. This transition zone is marked by older alluvial soils with well-developed hardpans and some dense clay pans. The poorly drained soils of this transition zone are primarily utilized for grazing, while level, well-drained soils on the valley floor to the west have been largely converted to agriculture. Evidence of hardpans and claypans throughout the eastern Sacramento Valley is demonstrated most effectively at the soils' surface by the presence of seasonally inundated areas—vernal pools and swales. Habitat types typical of the region include annual grasslands, oak woodlands, vernal pool and swale complexes, seasonal seeps and marshes, ponds, riparian forest and scrub, perennial streams, cropland (especially irrigated rice fields), and scattered areas of ruderal vegetation.

### 3.4.2.3 Project Site – Location and Setting

The project site consists of flat to gently rolling topography with elevations ranging from approximately 75 to 110 feet above mean sea level. The project site supports non-native annual grassland and is mostly uncultivated, although it was historically used for wheat cultivation and pastureland and there are two fields currently supporting intensive agriculture (see subsection **Intensive Agriculture** below). There is also evidence of recent disking throughout the site. Three former farmstead residences are located in the western portion of the project site and contain ornamental trees and stock ponds (see subsection **Rural Mix Landscape**, below). Other developed features at the project site include a transmission line corridor that transects the northern half of the project site, dirt ranch roads, and fences (North Fork Associates 2009).

The main hydrologic feature in the project site is Curry Creek, a perennial drainage that flows from east to west through the southern portion of the project site and drains into the Natomas Main Drainage Canal, which ultimately drains into the Sacramento River. Curry Creek supports scattered riparian and emergent vegetation. An intermittent tributary to Curry Creek (locally known as Federico Creek) flows through the north-central portion of the project site and joins Curry Creek near Watt Avenue. Other water features on the project site include vernal pools and seasonal wetland swales embedded within the annual grassland, and other seasonal wetlands that are saturated and/or inundated during the rainy season. The predominant plant communities are annual grassland and agricultural land (North Fork Associates 2009).

The climate in the project region is mild with average annual maximum temperature of 73.6 degrees Fahrenheit and average annual minimum temperature of 49.0 degrees Fahrenheit. Summers are typically dry and the average annual rainfall (usually in winter) is approximately 20 inches.

As described in more detail in **Section 3.8**, **Geology, Soils, and Minerals**, the site is situated on Pleistocene-aged sediments and the western portion of the site consists of fan deposits. Neither of these geological formations is known to support soil-specific special-status plant species that occur primarily in the Sierra Nevada foothills. In addition, most of the soils mapped at the site are categorized as Alfisols, which have a dense clay layer or have a duripan that restricts the percolation of water. As such, these soils tend to become inundated in swales and depressions during the rainy season. Several of these soils

are known to support vernal pools and swales in this part of the Central Valley (North Fork Associates 2009).

Similar to the project site, the areas to the northwest and west of the project site consist of mostly grazed annual grasslands and dispersed vernal pools. Further west, the land is used more for cultivated agricultural uses. To the south of the site, the landscape is fragmented with sparse rural residential developments. The area to the east and northeast is urbanized with residential developments and roadways (North Fork Associates 2009).

### 3.4.2.4 Project Site – Biological Communities

The project site has four general biological communities, namely annual grasslands, stream complex, intensive agriculture, and rural mix landscape. **Figure 3.4-1, On-Site Biological Communities,** presents the biological communities on the project site and **Table 3.4-1, Project Site Biological Communities,** presents the acreage of each community on the site**.** The site also supports a number of wetland features. The project site wetlands are discussed in **Subsection 3.4.2.5 Project Site - Waters of the United States** below**.**

**Table 3.4-1**
**Project Site Biological Communities**

| Type | Acres |
|---|---|
| ***Biological Communities*** | |
| Annual grassland | 1,549 |
| Stream complex | 10 |
| Intensive agriculture | 16 |
| Rural mix landscape | 12 |

*Source: North Fork Associates 2009*

#### *Annual Grassland*

The dominant plant community within the project site is California annual grassland (Sawyer and Keeler-Wolf 1995). California annual grassland, also known as non-native grassland, is typically dominated by non-native annual grass species but can also contain a diversity of native grasses and native and non-native forbs. The annual grassland on the project site is highly disturbed because it has been managed in different ways. Although most of the project site is currently fallow, there is evidence of former wheat cultivation, regular disking, and cattle grazing. Most of the project site has been disked over the years and there is evidence that portions were used for crop cultivation. The western portions of the project site appear to have been historically heavily grazed; however, during the field surveys no cattle were observed on any portion of the project site. The areas along the southern site boundary appeared to be recently and regularly disked. The fallow areas are dominated by non-native grass species such as medusahead grass (*Taeniatherum caput-medusae*), soft chess (*Bromus hordeaceus*), ripgut grass (*Bromus*

*diandrus*), slender wild oats (*Avena barbata*), yellow star-thistle (*Centaurea solstitialis*), bindweed *(Convolvulus arvensis*), vetch (*Vicia* spp.), filaree (*Erodium* spp.), Fitch's spikeweed *(Centromadia fitchii*), and virgate tarweed (*Holocarpha virgata* ssp. *virgata*). Native plant species observed on the project site within the annual grassland include common fiddleneck (*Amsinckia menziesii*), rusty popcornflower (*Plagiobothrys nothofulvus)*, ookow (*Dichelostemma congestum*), white brodiaea (*Triteleia hyacinthina*), and Ithruriel's spear (*Triteleia laxa*) (North Fork Associates 2009).

The open grassland provides suitable habitat for several raptors, particularly for foraging. Several prey species were detected during surveys, including pocket gopher, meadow vole, and black-tailed jackrabbit. During the spring and summer seasons, locally breeding raptors such as Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), and American kestrel (*Falco sparverius*) are dependent on grassland and agricultural foraging habitats. During the field surveys in April 2007, four active red-tailed hawk nests, one active Swainson's hawk nest, one possible active white-tailed kite nest, and one active great-horned owl (*Bubo virginianus*) nest were found on the project site or on adjacent land to the west. Nest locations are identified in **Figure 3.4-1**. Northern harrier and American kestrel were observed foraging in the project area. During winter, additional species, such as ferruginous hawk (*Buteo regalis*), rough-legged hawk (*Buteo lagopus),* Cooper's hawk (*Accipiter cooperii*), and sharp-shinned hawk (*Accipiter striatus*) also utilize these landscapes (North Fork Associates 2009).

The grassland habitats are also important nesting habitat for many ground-nesting birds, such as western meadowlark (*Sturnella neglecta*) and California horned lark (*Eremophila alpestris*) and are home to several common reptiles such as gopher snake (*Pituophis melanoleucus),* valley garter snake (*Thamnophis sirtalis fitchi),* and western fence lizard (*Sceloporus occidentalis)* (North Fork Associates 2009).

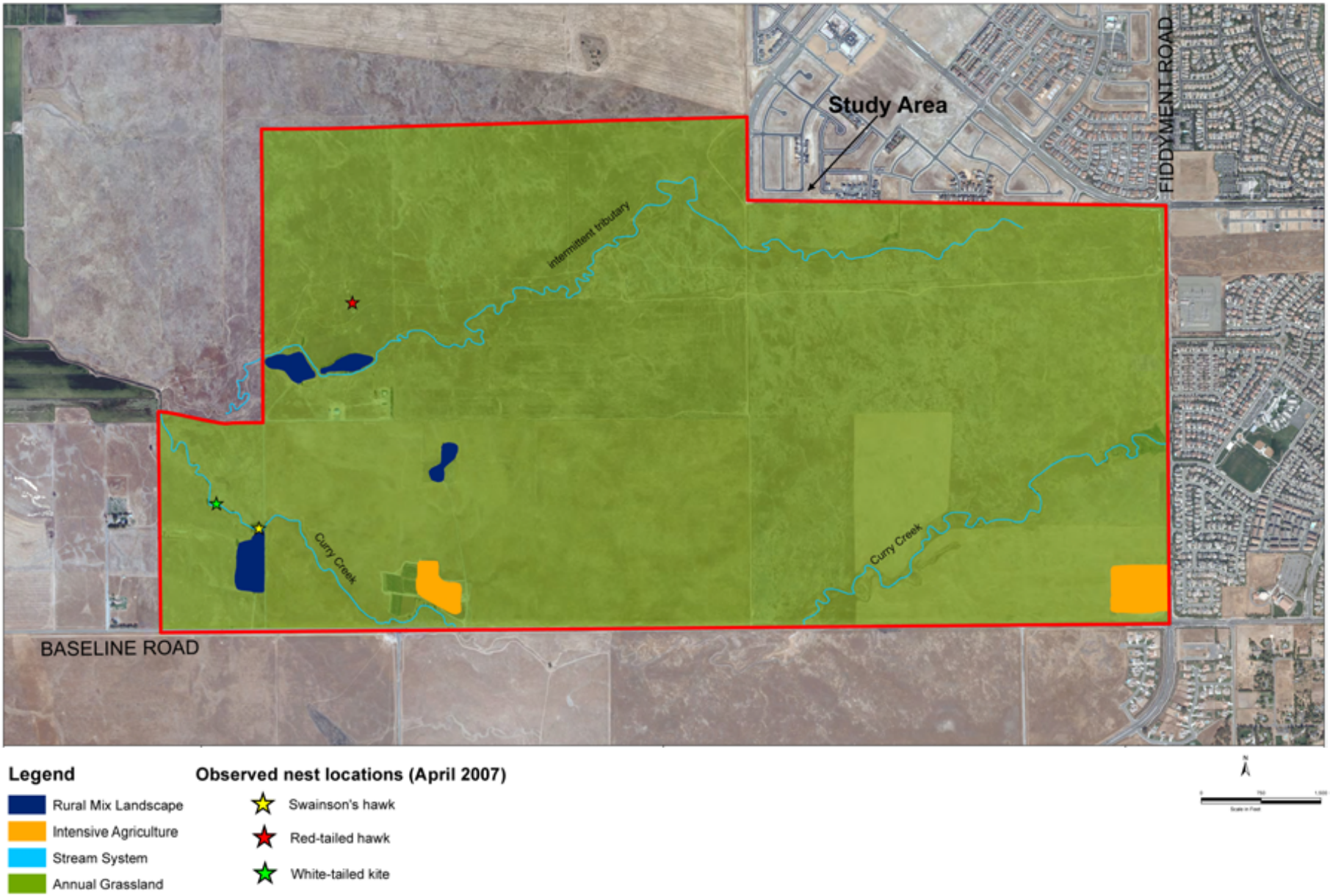
Wetlands, seasonal drainages, vernal pools, and other seasonal wetlands are dispersed throughout the annual grassland community. These water features are described in detail in **Subsection 3.4.2.5 Project Site – Waters of the United States**, below. Curry Creek and Federico Creek that also transect this community are discussed as a separate biological community in subsection **Stream Complex,** below.

## *Stream Complex*

The project site contains two drainages, Curry and Federico Creeks. These are considered waters of the US.

### Curry Creek

Curry Creek is a perennial drainage that enters the project site from the east via a culvert under Fiddyment Road approximately 0.5 mile north of Baseline Road. It meanders through the southeast corner of the site before crossing Baseline Road approximately 1 mile west of Fiddyment Road. It re-enters the project site approximately 0.4 mile east of the western boundary and then traverses the project site until it exits the site in a northwesterly direction. Curry Creek was historically an intermittent stream that has changed to more of a perennial condition through the addition of irrigation runoff from upstream development (North Fork Associates 2009).




**SOURCE:** North Fork Associates 2009

FIGURE **3.4-1**

On-Site Biological Communities

1061.001•05/11

Certain reaches of Curry Creek contain riparian habitat and emergent marsh. The reach of Curry Creek that meanders through the southeastern corner of the project site supports a continuous cattail (*Typha latifolia*) marsh along nearly its entire course. Small patches of emergent marsh are also present along the length of Curry Creek in the western portion of the site. Curry Creek supports small, scattered patches of willow (*Salix* spp.) - dominated riparian scrub occurring in association with the cattail marsh between Fiddyment Road and Baseline Road. The reach that meanders through the southwest corner supports some scattered willows as well as a few large Fremont cottonwood trees. The emergent marsh vegetation is largely contained within the channel of Curry Creek (North Fork Associates 2009).

The portion of Curry Creek that crosses the project site is shallow and does not contain sufficient depths of water to support fish for most of the year. Curry Creek supports only resident warm-water fish species. Anadromous fish species, such as Central Valley spring and winter-run Chinook salmon and steelhead, do not occur within Curry Creek at the project site (North Fork Associates 2009). The portion of Curry Creek on the project site is not designated Essential Fish Habitat by NOAA's National Marine Fisheries Service.

**Intermittent Drainage (Federico Creek)**

Intermittent streams flow during rain events and for a period of time after rain events. An intermittent tributary to Curry Creek, locally known as Federico Creek, runs east to west across the north-central portion of the project site and drains into Curry Creek off site to the west.

At the time of the field surveys in April 2007, Federico Creek was mostly dry. However, there were small pools of water at several locations throughout its path. Specifically, a low terrace adjacent to Federico Creek supports relatively deep vernal pools that appear less disturbed than vernal pools occurring elsewhere within the project site. This is likely due to the limited disking that has occurred adjacent to the streams. These deeper areas supported native creeping spike rush (*Eleocharis macrostachya*) and fringed water-plantain (*Damasonium californicum*). The creek bed supports a diversity of non-native plant species and native vernal pool flora (North Fork Associates 2009). Where present, the dominant plants in Federico Creek are primarily species typical of seasonal wetlands, including perennial rye (*Lolium perenne*), creeping spike rush, soft rush (*Juncus effus*es), coyote thistle (*Eryngium vaseyi*), and rabbit's-foot grass (*Polypogon monspelliensis*).

The stream complex on the project site supports nesting habitat for red-winged blackbirds (*Agelaius phoeniceus*) and other species that also forage in grassland habitats. The stream complex also provides denning opportunities for coyote and other mammals, and is an important source of drinking water for many birds and mammals. The wooded riparian areas of the stream complex provide nesting habitat for breeding raptors and many other birds common to the area, including American crow, western scrub jay, yellow-billed magpie, mourning dove, and a variety of songbirds.

## *Intensive Agriculture*

Two small portions of the project site (approximately 16 acres in all) support intensive agricultural activities. These are the small fields that have been planted with strawberries and are irrigated. One of the

fields is at the corner of Baseline Road and Fiddyment Road, and the other is east of Watt Avenue, north of Curry Creek (North Fork Associates 2009).

### *Rural Mix Landscape*

The western portion of the project site is developed with farmsteads. These farmsteads include ornamental tree groves and other farming and ranching features such as buildings, barns, and five stock ponds. The rural mix landscape, which covers approximately 12 acres of the project site, supports the only trees within the project site other than the trees along the drainages. These tree groves include ornamental pines (*Pinus* sp.), eucalyptus (*Eucalyptus* spp.), olive (*Olea europaea*), white mulberry (*Morus alba*), elm (*Ulmus* spp.), fig (*Ficus carica),* English walnut (*Juglans regia*), and catalpa (*Catalpa* sp.). The landscape is mostly disturbed; however, the edges of the rural mix landscape support some natural wetland features and native tree species such as valley and interior live oaks.

## 3.4.2.5 Project Site – Waters of the United States

The project site contains a total of 36.07 acres of waters of the US, which consist of the ephemeral/intermittent streams, perennial streams, perennial marsh, seasonal wetlands, vernal pools, wetland swales, and stock ponds (**Table 3.4-2, Project Site and Off-Site Waters of the US**). Information about these waters is based on several wetland delineations that were combined and presented to the US Army Corps of Engineers (USACE) by ECORP in 2006 and confirmed by the USACE in 2010. The following summarizes the water features that occur on the project site (North Fork Associates 2009).

**Table 3.4-2**
**Project Site and Off-Site Waters of the US**

| Type | On Site | Off Site | Total |
|---|---|---|---|
| Vernal pools | 9.31 | 2.68 | 11.99 |
| Wetland swales | 10.52 | 2.57 | 13.09 |
| Seasonal wetlands | 6.10 | 2.18 | 8.28 |
| Perennial marsh | 0.86 | 0.80 | 1.66 |
| Stock ponds | 2.07 | 0 | 2.07 |
| Stream aquatic areas[1] | 7.22 | 1.56 | 8.78 |
| **Total** | **36.07** | **8.97** | **45.04** |

*Source: Gibson & Skordal 2012.*

### *Vernal Pools*

Vernal pools are seasonally inundated wetlands occurring within topographic depressions in areas that are underlain by an impermeable subsurface layer, such as hardpan, claypan, or bedrock. These topographic depressions can occur as isolated features in the landscape or in association with swales. Vernal pools at the project site are underlain by claypans that do not allow water from winter rains to

seep into the lower soil column. Instead, the water accumulates or "ponds," in depressions above the claypan.

Vernal pools typically flood to a depth of 2 inches to over 1 foot in the winter and spring and dry out completely in the summer and fall months. Subsequently, vernal pools support specialized vegetation and wildlife restricted primarily to vernal pools. They typically support a variety of invertebrate populations, including federally listed branchiopods. The plant communities within vernal pools are typically dominated by vernal pool endemics, a majority of which are native annuals. The vernal pool plant species and some of the wildlife species (e.g., vernal pool invertebrates) are adapted to, and depend on, the cyclical inundation of water and complete desiccation of the soil that occurs in vernal pools. Most vernal pool-associated plant and wildlife species life cycles can only be completed by the progression of inundation and desiccation.

There are approximately 9.31 acres of vernal pools on the project site (Gibson & Skordal 2012). Due to past land practices (cultivation, grazing, and disking), most of the vernal pools on the project site show signs of disturbance. Plant species found in these vernal pools include double-horned downingia (*Downingia bicornuta*), Fremont's goldfields (*Lasthenia fremontii),* stipitate popcornflower (*Plagiobothrys stiptatus*), dwarf wooly-heads (*Psilocarphus brevissimus*), Vasey's coyote-thistle (*Eryngium vaseyi*), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), Pacific foxtail (*Alopecurus saccatus*), and annual hairgrass (*Deschampsia danthonioides*) (North Fork Associates 2009). Depending on their depth and level of disturbance, other non-native species common to seasonal wetlands may also be present as dominants or associates. Under the USACE's classification system, vernal pools are differentiated from depressional seasonal wetlands based on the dominance of vernal pool endemic plants.

### *Wetland Swales*

Wetland swales are sloping linear vegetated wetlands that do not exhibit the bed-and-bank morphology typical of streams. They are inundated in the winter and early spring during and for up to several weeks following rainfall events. They often have embedded depressions that pond water to a greater depth and duration similar to depressional seasonal wetlands and vernal pools. Swales can connect vernal pools into large complexes. Swales provide important hydrology to the pool and wetland basins and also provide linkages between plant and invertebrate populations for genetic exchange. Swales are essential to the health of vernal pool ecosystems and provide habitat values similar to vernal pools.

There are about 10.52 acres of wetland swales on the project site. Wetland swales are scattered throughout the project site and flow to either Curry Creek or Federico Creek. Most of these features are relatively disturbed due to regular disking. Seasonal wetland swales along the northern site boundary support upland species such as cultivated wheat (*Triticum* sp.), along with wetland species such as creeping spikerush, Vasey's coyote-thistle, and iris-leaved rush (*Juncus xiphioides*), Italian rye (*Lolium multiflorum*), Mediterranean barley (*Hordeum marinum*), and clover (*Trifolium varigatum).*

The swales typically do not pond for an adequate period of time to support vernal pool branchiopods. However, depressional areas embedded within these swales do pond in a manner similar to vernal pools and often support a vernal pool flora (North Fork Associates 2009) and may pond for an adequate period

of time to support vernal pool branchiopods. Branchiopods may rely on swales for transport between pools and are frequently found in swales during high water.

### *Seasonal Wetlands*

The term seasonal wetland is used within the context of this EIS to describe depressions that fill naturally during the winter through direct precipitation and are dry during most of the year. Although their hydrology may be similar to that of vernal pools, they do not support typical vernal pool vegetation diversity and abundance. They support mostly a non-native, "wetland generalist" flora and are not dominated by vernal pool endemics.

There are about 6.17 acres of seasonal wetlands on the project site (Gibson & Skordal 2012). Within the project site, these depressions collect rainwater or receive water from base flow and/or overbank flooding from adjacent stream during high flows. Depths of these seasonal wetlands range from a few inches up to 2 feet. These depressional seasonal wetlands have been degraded as a result of disturbance from past farming and/or disking for fire suppression. These seasonal wetlands are essentially vernal pools that have been disturbed to the extent that they no longer support a vernal pool plant community (Gibson & Skordal 2011). Common vegetation within the seasonal wetlands includes curly dock (*Rumex crispus*), perennial rye, spiny-fruit buttercup (*Ranunculus muricatus*), tall flatsedge (*Cyperus eragrostis*), Vasey's coyote thistle, and European mannagrass (*Glyceria declinata*) (North Fork Associates 2009).

### *Perennial Marsh*

One 0.86-acre perennial marsh is located on the project site. At the time of field surveys conducted by North Fork Associates in 2007, this marsh received irrigation from adjacent agricultural fields, so was inundated year-round and had the characteristics of a perennial marsh (North Fork Associates 2009; Gibson & Skordal 2012). Since that time, the agricultural practices on adjacent lands have changed and the wetland no longer receives enough irrigation runoff to support the perennial marsh. The marsh functions more like a seasonal marsh now since it inundates seasonally and supports a plant community more characteristic of seasonal wetlands and wetland swales described above (Gibson & Skordal 2012).

Subsequent to the delineation, the upstream reach of Curry Creek has been receiving more irrigation runoff from developed lands and has experienced beaver activity. This reach of Curry Creek now supports a perennial marsh that is inundated or saturated throughout the growing season. The dominant plant in this marsh is cattail.

### *Stock Ponds*

There are five large stock ponds (totaling 2.07 acres) in the far western portion of the project site (North Fork Associates 2009). One of the ponds located on the western boundary of the project area is inundated year round while the other four ponds are inundated seasonally and dry up in the late summer and fall (Gibson & Skordal 2012). They are associated with farmsteads, with trees and patches of emergent vegetation (cattails, water plantain, and creeping spikerush) around the perimeter (North Fork Associates 2009).

### *Stream Aquatic Areas*

There are three types of stream channels occurring within the project area: perennial streams, intermittent streams, and ephemeral streams. Curry Creek is the only perennial stream in the project site, and comprises 3.94 acres. Federico Creek includes both intermittent and ephemeral channels. The intermittent channels of Federico Creek comprise 3.26 acres, while the small portion of Federico Creek that is classified as ephemeral stream encompasses 0.02 acre. The stream aquatic areas on the project site are described in **Subsection 3.4.2.4 Project Site – Biological Communities.**

## 3.4.2.6 Off-Site – Waters of the United States

As described earlier in this section, the Proposed Action also includes infrastructure improvements that would be constructed outside of the SVSP area. The alignments of the infrastructure improvements as well as a 250-foot zone extending on both sides of the alignments and a 250-foot zone extending out from the SVSP area or project site are defined as off-site areas that would be affected directly or indirectly by the Proposed Action. As shown in **Table 3.4-2** above, this off-site impact area also contains approximately 9 acres of the waters of the US, including vernal pools, wetland swales, seasonal wetlands, perennial marsh, and stream channels.

## 3.4.2.7 Project Site – Tree Resources

The Arborist Survey Report prepared by ECORP identified 42 Fremont cottonwood, 18 willow, eight black walnut, five interior live oak (*Quercus wislizenii*), three Oregon ash, and one valley oak (*Quercus lobata*) on the project site. In addition, the report identified three small eucalyptus stands associated with the farmsteads. Oak woodlands, defined as groups of oak trees that have at least 30 percent canopy cover, do not occur on the project site (City of Roseville 2010).

## 3.4.2.8 Project Site – Wildlife

The project site and surrounding undeveloped landscapes provide suitable habitat for many wildlife species. During the winter and spring months when vernal pools, swales and other seasonal wetlands are inundated, these habitats support a variety of aquatic invertebrates including several special-status species, and are key habitats for wintering waterfowl, wading birds, and several amphibian species (North Fork Associates 2009).

Four red-tailed hawk nests, one Swainson's hawk nest, one possible white-tailed kite nest, and one great-horned owl nest were found on the project site or in adjacent land to the west during 2007 field surveys (see **Subsection 3.4.2.4 Project Site – Biological Communities**). Northern harrier and American kestrel were observed foraging in the project area. During the winter, additional species, such a ferruginous hawk, rough-legged hawk, Cooper's hawk, and sharp-shinned hawk, also forage in these landscapes (North Fork Associates 2009).

## 3.4.2.9 Project Site – Special-Status Species

Special-status species are plants and wildlife that are legally protected under the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) or other regulations, and other

plants and wildlife that are considered sufficiently rare to qualify for consideration under the National Environmental Policy Act (NEPA). Special-status plants and animals are defined as:

- Species listed or proposed for listing as Threatened or Endangered under the ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the Federal Register [FR] [proposed species])
- Species that are candidates for possible future listing as Threatened or Endangered under the ESA (72 FR 69034, December 6, 2007)
- Species listed or candidates for listing by the State of California as Threatened or Endangered under CESA (14 CCR 670.5)
- Species that meet the definitions of Rare, Threatened, or Endangered under the California Environmental Quality Act (CEQA) (*State CEQA Guidelines*, Section 15380)
- Plants listed as Rare or Endangered under the California Native Plant Protection Act (NPPA) (California Fish and Game Code, Section 1900 et seq.)
- Plants considered by the California Native Plant Society (CNPS) to be Rare, Threatened, or Endangered in California (Lists 1B and 2 in California Native Plant Society [2008])
- Plants listed by CNPS as those about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4 in California Native Plant Society [2008]) that may be included as special-status species on the basis of local significance or recent biological information
- Animals listed on California Department of Fish and Game's Special Animals List (California Fish and Game 2008)Animals fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians])

The California Natural Diversity Data Base and the California Native Plant Society Inventory for lists of species identifies 13 special-status plants and 34 special-status wildlife species for the project region. Of the 13 plant species and 34 wildlife species, 12 plants and 23 animals either occur within the project site or have some potential to occur because the project site has some areas of suitable habitat or the species are known from nearby locations (North Fork Associates 2009).

The Applicants conducted special-status species surveys at the project site in 2005, 2006, and 2007. These included surveys of wet-season branchiopods, western spadefoot, raptors, and special-status plants. Information from these surveys is also presented below (North Fork Associates 2009).

## *Special-Status Plants*

Dwarf downingia is the only special-status plant species known to occur within the project site. It is not state or federally listed, but is on the CNPS List 2.2. Potential habitat for other special-status plant species is present but no other special-status plant species were detected during presence/absence surveys. Twelve plant species have the potential to occur on or near the project site (North Fork Associates 2009). Special-status plant species that occur or have potential to occur in or near the project site are presented in **Table 3.4-3, Special-Status Plants with Potential to occur on the Project Site**, below. The Applicants

conducted determinant-level special-status plant surveys of the project site throughout the spring and early summer of 2006. In addition, North Fork Associates surveyed the site in winter 2006 and April 2007.

**Table 3.4-3**
**Special-Status Plants with Potential to occur on the Project Site**

| Name | Status* Federal/State/ CNPS | Habitat | Likelihood of Occurrence in Project Region/Site |
|---|---|---|---|
| Henderson's bentgrass<br>*Agrostis hendersonii* | –/–/3.2 | Moist places in grasslands, vernal pool | Marginal habitat is present. |
| Big-scale balsam-root<br>*Balsamorhiza macrolepis var. macrolepis* | –/–1B.2 | Cismontane woodland; valley and foothill grassland | Disturbance may preclude this species. Not observed during presence/absence surveys. |
| Dwarf downingia<br>*Downingia pusilla* | –/–/2.2 | Valley and foothill grassland; vernal pools | Found at several locations during surveys in the project site. |
| Bogg's Lake hedge-hyssop<br>*Gratiola heterosepala* | –/E/1B.2 | Vernal pools | Marginal habitat is present. |
| Rose mallow<br>*Hibiscus lasiocarpus* | –/–/2.2 | Marshes and swamps (freshwater) | Marginal habitat is present. |
| Ahart's dwarf rush<br>*Juncus leiospermus var. ahartii* | –/–/1B.2 | Vernal pools | Suitable habitat is present. |
| Red Bluff dwarf rush<br>*Juncus leiospermus* var. *leiospermus* | –/–/1B.2 | Vernal pools | Nearest known occurrence is considered to be a misidentification (CDFG 2007). |
| Legenere<br>*Legenere limosa* | –/–/1B.1 | Vernal pools and seasonal wetlands | Marginal habitat is present. |
| Pincushion navarretia<br>*Navarretia myersii* spp. *myersii* | –/–/1B.1 | Vernal pools | Suitable habitat is present. |
| Slender Orcutt grass<br>*Orcuttia tenuis* | T/E/1B.1 | Vernal pools | Marginal habitat occurs in the project area. Prefers larger, deeper pools. Not known in Placer County. Not observed during presence/absence surveys. |
| Sacramento Valley Orcutt grass<br>*Orcuttia viscida* | T/E/1B.1 | Vernal pools | Marginal habitat occurs in the project area. Prefers larger, deeper pools. Not known in Placer County. Not observed during presence/absence surveys. |

| Name | Status* Federal/State/ CNPS | Habitat | Likelihood of Occurrence in Project Region/Site |
|---|---|---|---|
| Sanford's arrowhead<br>*Sagittaria sanfordii* | –/–/1B.2 | Marshes, swamps, and other wetlands | Suitable habitat is present along streams. |

**Status explanations:*
***Federal***
*– = No status*
*E = Listed as "endangered" under the federal Endangered Species Act.*
*T = Listed as "threatened" under the federal Endangered Species Act.*
***State***
*= No status*
*E = Listed as "endangered" under the California Endangered Species Act.*
*R = Listed as "rare" under the California Endangered Species Act.*
***California Native Plant Society***
*1B = List 1B species: rare, threatened, or endangered in California and elsewhere.*
*2 = List 2 species: rare, threatened, or endangered in California, but more common elsewhere.*
*3 = List 3 species: plants about which we need more information.*
*4 = List 4 species: Plants of limited distribution.*
*0.1= Seriously endangered in California*
*0.2= Fairly endangered in California*
*0.3 = Not very endangered in California*

## *Special-Status Wildlife*

**Table 3.4-4, Special Status Wildlife Species with Potential to occur on the Project Site,** below, presents wildlife species that were observed on the project site during field surveys or have some potential to occur because the project site has some areas of suitable habitat or because the species are known from nearby locations.

**Table 3.4-4**
**Special Status Wildlife Species with Potential to Occur on the Project Site**

| Common and Scientific Names | Status Federal/State/ Other | Habitat Requirements | Likelihood of Occurrence on Project Site |
|---|---|---|---|
| **Invertebrates** | | | |
| Conservancy fairy shrimp<br>*Branchinecta conservatio* | E/--/-- | Vernal pools, swales, seasonal wetlands | Not detected during field surveys or reported from adjacent properties. Only one known location in western Placer County. |
| Vernal pool fairy shrimp<br>*Branchinecta lynchi* | T/--/-- | Vernal pools, swales, seasonal wetlands | Known to occur on site based on field surveys. |
| Vernal pool tadpole shrimp<br>*Lepidurus packardi* | E/--/-- | Vernal pools, swales, seasonal wetlands | Not detected during field surveys. |

| Common and Scientific Names | Status Federal/State/ Other | Habitat Requirements | Likelihood of Occurrence on Project Site |
|---|---|---|---|
| **Amphibians** | | | |
| California tiger salamander *Ambystoma californiense* | T/SSC/-- | Vernal pools, vernal pool grasslands, ponds | Suitable habitat. Not observed on site. No recent or historic records of occurrence in western Placer County. |
| California red-legged frog *Rana aurora draytonii* | T/SSC/-- | Deeper pools and streams with emergent or overhanging vegetation | Marginal habitat. Not observed on site. No recent records from western Placer County. |
| Western spadefoot *Spea hammondii* | --/SSC/-- | Vernal pools, upland grasslands | Suitable habitat. Not observed on-site but is known to occur at nearby locations. |
| **Reptiles** | | | |
| Western pond turtle *Actinemys marmorata* | --/SSC/-- | Ponds, marshes, river, streams and ditches with basking sites and vegetation | Marginal habitat. Not observed on site. |
| Giant garter snake *Thamnophis couchi gigas* | T/T/-- | Streams, irrigation channels, seasonal wetlands | Marginal habitat. Not observed on site. |
| **Birds** | | | |
| Tricolored blackbird *Agelaius tricolor* | --/SSC/-- | Open water areas with tall emergent vegetation or in willow and blackberry thickets | Suitable nesting and foraging habitat. Not observed on site. |
| Great egret (rookery) *Ardea alba* | * | Colonial nester in tall trees | Marginal habitat. Rookery not observed on site. |
| Great blue heron (rookery) *Ardea herodias* | * | Colonial nester in tall trees | Marginal habitat. Rookery not observed on site. |
| Western burrowing owl *Athene cunicularia* | --/SSC/-- | Grasslands, agricultural lands. | Known to occur on site. Suitable nesting and foraging habitat. |
| Swainson's hawk *Buteo swainsoni* | --/T/--/-- | Grasslands, agricultural lands | Known occur on site. Suitable nesting and foraging habitat. |
| Ferruginous hawk *Buteo regalis* | --/SSC/-- | Grasslands, agricultural lands | Winter foraging habitat only. |
| Northern harrier *Circus cyaneus* | --/SSC/-- | Grasslands, seasonal wetlands, agricultural lands | Known to occur on site. Suitable nesting and foraging habitat. |
| Snowy egret (rookery) *Egretta thula* | * | Colonial nester in dense tules | Marginal habitat. Rookery not observed on site. |
| White-tailed kite *Elanus leucurus* | --/ FP/-- | Open grassland, and farmlands. Nests in tall trees near foraging areas | Known to occur on site. Potential nest observed on site. Suitable nesting and limited habitat. |
| Greater sandhill crane *Grus candadensis tabida* | --/-T/-- | Seasonal wetlands, irrigated pastures, alfalfa and corn fields | Marginal winter foraging habitat. Has not been observed on site. |
| Loggerhead shrike *Lanius ludovicianus* | --/SSC/-- | Grasslands, pastures, agricultural lands | Known to occur on site. Observed foraging on site. Suitable foraging and limited nesting habitat. |
| California black rail *Laterallus jamaicesis* | --/T/-- | Shallow, perennial freshwater marshes | Suitable nesting habitat not present on site. Has not been observed on site. |
| Black-crowned night-heron (rookery) *Nycticorax nycticorax* | * | Colonial nester in trees and tule patches | Marginal habitat. Rookery has not been observed on site. |

| Common and Scientific Names | Status Federal/State/ Other | Habitat Requirements | Likelihood of Occurrence on Project Site |
|---|---|---|---|
| **Mammals** | | | |
| Pallid bat *Antrozous pallidus* | --/SSC/WBWG: High priority | Shrublands, grasslands, woodlands, forests; rocky areas, caves, hollow trees | Suitable foraging habitat only. |
| Townsend's big-eared bat *Corynorhinus townsendii townsendii* | --/SSC/WBWG: High priority | Most low to mid elevation habitats; caves, mines, and buildings for roosting | Suitable foraging habitat only. |
| Yuma myotis *Myotis yumanensis* | --/SSC/ WBWG: Low priority | Forests and woodlands; caves, mines, and buildings for roosting | Suitable foraging habitat only. |

*Status explanations:*
***Federal***
*E = listed as endangered under the federal Endangered Species Act.*
*T = listed as threatened under the federal Endangered Species Act.*
*C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.*
*– = no listing.*
***State***
*E = listed as endangered under the California Endangered Species Act.*
*T = listed as threatened under the California Endangered Species Act.*
*FP= fully protected under the California Fish and Game Code.*
*SSC = species of special concern in California.*
*– = no listing.*
***Other***
*IUCN-NT = The World Conservation Union, near threatened species*
*– = no listing.*
**- Rookeries are tracked and are of special interest to CDFG*
*Western Bat Working Group (WBWG) Available: http://www.wbwg.org/)*
*High priority = species are imperiled or at high risk of imperilment*
*Moderate priority = this designation indicates a level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat*
*Low priority = While there may be localized concerns, the overall status of the species is believed to be secure.*

### Special-Status Invertebrates

Three special-status invertebrates have a potential to occur in seasonal wetland habitats on the project site: vernal pool tadpole shrimp (*Lepidurus packardi)* and Conservancy fairy shrimp (*Branchinecta conservatio*), both federally listed as endangered species, and vernal pool fairy shrimp (*Branchinecta lynchi*), federally listed as a threatened species. These species occur in vernal pools and other seasonal wetland habitats throughout the Central Valley, and are known to occur or potentially occur in western Placer County. There are numerous records of vernal pool fairy shrimp in southwestern Placer County. There are few records of vernal pool tadpole shrimp. The Conservancy fairy shrimp was recently detected in western Placer County, which has resulted in an expansion of the range for this species that includes the project site (North Fork Associates 2009; USFWS 2007). As a result of urbanization, populations of these species have declined throughout their range.

These species occur within a range of specific environmental conditions that include soil type, vegetation characteristics, water depth, water temperature, inundation duration, and water quality (North Fork Associates 2009). The US Fish and Wildlife Service (USFWS) requires two-year protocol surveys to assume absence (North Fork Associates 2009; USFWS 1995).

Based on protocol surveys for listed invertebrates in the 2005–2006 and 2006–2007 wet seasons, the Applicants' consultant reports that two watersheds were occupied by listed invertebrates, while the rest of the watersheds on the project site were not occupied (**Figure 3.4-2, Project Site Jurisdictional Wetlands and Watersheds**) (ECORP 2006a and ECORP 2007c). Vernal pool fairy shrimp were detected during these surveys, but not vernal pool tadpole shrimp or Conservancy fairy shrimp. Both of these species have a very restricted known distribution in western Placer County compared with the vernal pool fairy shrimp making them unlikely to occur on the project site. The Applicants survey methods were somewhat unusual in that instead of sampling throughout the site or sampling until presence is confirmed and then assuming presence in suitable habitat throughout the site, they divided the site into watersheds and sampled each watershed. If a listed branchiopod was detected the Applicants stopped further sampling in that watershed and assumed that all suitable habitat within that watershed was occupied. In watersheds where no listed invertebrates were detected in the first wet season, the Applicants continued sampling for two full wet seasons (Gibson & Skordal 2010).

Within the two watersheds where listed invertebrates were detected, there are a total of 2.95 acres of vernal pools, 0.89 acre of seasonal wetlands, and 3.62 acres of seasonal wetland swales; this amounts to 7.42 acres of wetlands in these watersheds. Of the 3.62 acres of seasonal wetland swales within the two watersheds where listed invertebrates were detected, 0.49 acre is swale depressional habitat that could support listed branchiopods (Gibson & Skordal 2010).

Swale depressional habitat was not specifically delineated in the watersheds where listed invertebrates were not detected. That acreage was estimated for this EIS by applying the ratio of swale depressional to total swale habitat in the watersheds where listed invertebrates were detected to the total swale habitat in the watersheds where listed invertebrates were not detected.

The off-site areas to the north and west of the project site that would be graded in conjunction with on-site improvements or off-site infrastructure were also surveyed concurrent with on-site surveys for listed invertebrates. Areas south of Baseline Road were surveyed in conjunction with the Placer Vineyards Specific Plan project. These surveys provided data with respect to the presence of habitat for listed invertebrates in the off-site impact area.

**Table 3.4-5, Listed Invertebrates Potential Habitat on Project Site and Off-Site Impact Area,** below presents the potential habitat for listed invertebrates present on the project site, organized in terms of potential habitat within watersheds where invertebrates were detected and potential habitat within watersheds where the species were not detected, as well as the total potential habitat on the project site.

**Table 3.4-5**
**Listed Invertebrates Potential Habitat on Project Site and Off-Site Impact Area**

| Type | Acres of Potential Habitat within Occurrence Detected Watersheds | Acres of Potential Habitat within No Occurrence Detected Watersheds | Total Potential Habitat |
|---|---|---|---|
| Vernal Pools | 5.27 | 6.71 | 11.98 |
| Seasonal Wetlands | 1.95 | 6.33 | 8.28 |
| Wetland Swales | 4.97 | 8.11 | 13.08 |
| Swale Depressional | 0.55 | 0.00 | 0.55 |
| **Total*** | 12.20 | 21.14 | 33.35 |

*Source: Gibson & Skordal 2012; Impact Sciences 2012*
** Total includes vernal pools, seasonal wetlands, and swale depressional habitat.*

**Federal Special-Status Wildlife Species**

**California tiger salamander** (CTS) is a federally Threatened species and a state species of special concern. It can be found in vernal pools and seasonal ponds, including stock ponds, in grassland, from sea level to about 1,500 feet in central California. There are no known CTS occurrences in the vicinity of the project site. No species-specific surveys were conducted for the salamander. However, the species was not detected during extensive vernal pool and seasonal wetland surveys for listed branchiopods and western spadefoot (North Fork Associates 2009). While CTS is unlikely to occur on the project site, the site is within CTS range and suitable habitat exists on the site.

**California red-legged frog** (CRLF) is a federally listed Threatened species and is designated as a state species of special concern. Once common, most of the remaining populations occur in the Coast Ranges. The nearest known occurrence in Placer County is at Michigan Bluff, approximately 50 miles northeast of the project site in the Sierra foothills. No CRLF have been found in the site vicinity. Although Curry Creek provides marginal habitat, predators including bullfrogs were detected within Curry Creek which makes it highly unlikely that the CRLF is present within the project site (North Fork Associates 2009).

**Giant garter snake** is a state and federally listed Threatened species. The Natomas Basin contains the nearest known occurrence, approximately 5 miles to the west. While occurrence is unlikely, there remains the potential for the species to occur on the site. The project site is not within the known current distribution of giant garter snake. However Curry Creek is hydrologically connected to the Natomas Basin. The site supports marginally suitable habitat for the snake (North Fork Associates 2009).

N
W E
S

0 250 500 1,000
Feet

## Legend

- Brachiopod Location
- Action Area
- Sierra Vista SP Boundary
- Property Lines
- Open Space
- Proposed Infrastructure
- Occupied Watersheds
- Within 250' of Development

### Wetland Type

- Ephemeral Stream
- Intermittent Drainage
- Intermittent Stream
- Perennial Marsh
- Perennial Stream
- Pond
- Seasonal Wetland
- Vernal Pool
- Wetland Swale
- SwaleDepressional

Pleasant Grove Blvd

Fiddyment Road

Baseline Road

**SOURCE:** MacKay & Somps – 2011

FIGURE **3.4-2**

Project Site Jurisdictional Wetlands and Watersheds

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**State Special-Status Wildlife Species**

**Western spadefoot toad** is a state species of special concern. It occurs throughout the Central Valley and adjacent foothills up to 4,500 feet. These toads are round with short legs and protruding eyes. As suggested by their name, this toad has hard, keratinous protrusions present on their feet, which helps them to dig. There are four occurrences within 5 miles of the project (ECORP 2006d and 2007b). All of the recorded sites have likely been disturbed or are Threatened due to past and ongoing urbanization in the Roseville area. While the project site contains suitable habitat for the spadefoot, species-specific surveys conducted by the Applicants in 2006 and 2007 on the majority of the site did not detect the species (North Fork Associates 2009).

**Greater sandhill crane** is a state listed Threatened species. Portions of the Sacramento-San Joaquin Delta and Cosumnes River basin are principal wintering grounds for the crane. Most traditional foraging areas are near communal roost sites (within 2-3 miles) that are flooded with several inches of standing or slowly moving water. Foraging habitat includes harvested fields, irrigated pastures, alfalfa fields, and seasonally flooded habitats. Due to marginal foraging habitat on the project site and the fact that the site does not provide suitable nesting habitat, the potential for the species to occur on the project site is low (North Fork Associates 2009).

**Northern harrier** is a state species of special concern. While population declines in California have been noted for many years, the species can be locally abundant. They occur primarily in open wetland, grassland, and agricultural habitats. The northern harrier is a ground-nesting raptor, which nests on the ground in marsh, grassland, and some agricultural habitats, particularly grain fields. They forage in seasonal wetland, grassland, and agricultural habitats. Several adult northern harriers were observed foraging in the project site during the raptor survey conducted by the Applicants (ECORP 2006b). The cattail marsh and associated seasonal wetland habitats along Curry Creek, particularly in the eastern portion of the site, provide suitable nesting habitat for this species. Although no nests were observed at the time of the survey, suitable nesting habitat exists in some portions of the project site (North Fork Associates 2009).

**White-tailed kite** is a state species of special concern and a state fully protected species. The white-tailed kite nests in riparian forests and woodlands, and occasionally in isolated trees. They forage in grasslands, seasonal wetlands, and agricultural fields. A possible white-tailed kite nest was observed in a locust tree along Curry Creek in the southwestern corner of the project area during 2007 surveys. An adult kite was observed exhibiting defensive behavior; however, the nest was positioned such that no activity could be discerned. Due to the presence of the kite and its behavior, nesting activity is likely at the site. The project site also provides suitable foraging habitat for the white-tailed kite (North Fork Associates 2009).

**Swainson's hawk** is a state listed Threatened species. It forages in open grassland in the Central Valley and Great Basin and nests in riparian forests, remnant oak woodlands, isolated trees, and roadside trees. It forages primarily in agricultural habitats, particularly those that optimize availability of prey, and also uses irrigated pastures and annual grasslands. The scattered valley oak, cottonwood, willow, and eucalyptus trees located in the project site provide suitable nesting opportunities. One Swainson's hawk

nest was observed in the southwestern corner of the project site during surveys in April 2007. It is located in a eucalyptus tree on the north side of the farmstead. Numerous nest sites are known to occur in the vicinity of the site. The entire site is considered suitable foraging habitat for Swainson's hawk (North Fork Associates 2009).

**Ferruginous hawk** is designated as a state species of special concern. It typically does not nest in California. Individuals migrate into California during the winter where they utilize open grassland and agricultural land for foraging and roosting. The project site provides suitable grassland wintering habitat for this species. While it probably is only an occasional visitor, its potential for occurrence during the winter is high (North Fork Associates 2009).

**California black rail** is a state-listed Threatened species. Until recently, the current range of this species was thought to be restricted mainly to coastal marshes. In the 1990s populations were discovered in freshwater marshes in Yuba County. Recently the black rail was detected in the City of Rocklin in Clover Valley and along Yankee Slough southeast of Sheridan. The black rail typically inhabits marshes dominated by bulrushes and cattails. A relatively narrow range of conditions is required for occupancy and successful breeding. Too much water will prevent nesting and too little water will lead to abandonment of the site. Suitable nesting habitat is currently lacking on the project site and it is highly unlikely that this species could nest on the project site (North Fork Associates 2009).

**Western burrowing owl** is a state species of special concern. It is a small ground-dwelling owl that typically occupies the burrows created by ground squirrels. They also occupy artificial habitats, such as those created by pipes and small culverts. Burrowing owls forage in grassland and agricultural habitats with low vegetative height. The Applicants recorded a burrowing owl occupying a debris pile on the project site in October 2005. It was not observed during subsequent surveys in 2006 (North Fork Associates 2009) and no burrowing owls or active burrows were detected during the most recent field survey in 2007 (North Fork Associates 2009). The nearest recorded burrowing owl occurrence is approximately 1 mile north of the project site and that owl has presumably been displaced as a result of the development of the West Roseville Specific Plan. An evaluation of the habitat during the April 2007 field surveys determined that the project site had relatively little ground squirrel activity and thus few potential nesting opportunities for burrowing owl. The entire site is otherwise considered suitable for burrowing owls and is likely occasionally used for foraging (North Fork Associates 2009).

**Tri-colored blackbird** is a state species of special concern that is almost entirely restricted to California. In any given year, more than 75 percent of the breeding population can be found in the Central Valley. The species breeds in colonies that require open accessible water, a protected nesting area (including either flooded or thorny or spiny vegetation), and a suitable foraging area providing adequate insect prey within a few miles of the nesting colony. The tri-colored blackbird was not observed during the field surveys. However, the cattail marsh along Curry Creek in the southeastern portion of the project site provides potential nesting habitat, and the surrounding grasslands provide suitable foraging habitat. The nearest known reported occurrence is in Lincoln (North Fork Associates 2009).

**Loggerhead shrike** is a state species of special concern. It is a permanent resident and winter visitor throughout California. The species prefers open habitats with scattered trees, shrubs, posts, fences, utility lines or other perches. It nests in small trees and shrubs, and forages in pastures and agricultural lands. One loggerhead shrike was observed during the field survey in April 2007. No nests were located. The entire project site is suitable foraging habitat, while nesting habitat is limited (North Fork Associates 2009).

**Heron and Egret Rookeries** are colonial nesting sites for heron and egret species. While these species are not considered special-status species, rookeries are included on the California Department of Fish and Game's (CDFG's) special animals list because these breeding colonies can support a large segment of local populations. There are currently no rookeries on the project site. The eucalyptus groves may provide potential rookery sites for these species and the cattail marsh associated with Curry Creek may provide potential breeding habitat for black-crowned night heron and snowy egret. However, these species typically nest in association with marshes and irrigated pastureland or irrigated cropland that provides a greater source of food than do the un-irrigated pasturelands on the project site. Thus, the occurrence of a rookery on the site is considered unlikely (North Fork Associates 2009).

### 3.4.2.10 Alternative 4 Site – Location and Setting

The 2,398-acre Alternative 4 site is located on Baseline Road near the Placer-Sutter County line, approximately 7 miles west of the City of Roseville and almost 2 miles west of the project site. Elevations on the site range from approximately 50 to 65 feet above mean sea level (Helix Environmental Planning 2011).

The primary land uses within the alternative site are agricultural operations and rural residential, as shown in **Figure 3.4-3a, Alternative 4 Site – Biological Communities.** Much of the site has been previously or is currently used for agriculture. Agricultural operations include active and inactive rice fields, pastures, and fallow fields. Scattered single-family residences and associated outbuildings and barns occur throughout the Alternative 4 site. Fallow fields and larger pasture areas occur throughout the site and support primarily non-native annual grassland. A former orchard, a water ski complex, a plant nursery, and a small airfield are located in the southwestern corner of the site, near the Baseline Road/Locust Road intersection. An existing conservation area, owned by Wildlands, is located in the western portion of the Alternative 4 site adjacent to Locust Road and contains constructed vernal pools. Curry Creek runs in a northwesterly direction through the northeastern portion of the site. The site also contains a series of agricultural canals that drain from east to west (Helix Environmental Planning 2011).

### 3.4.2.11 Alternative 4 Site – Biological Communities

#### *Plant Communities and Habitat Types*

The Alternative 4 site contains four general biological communities and habitat types. These are agriculture, annual grassland, riparian woodland, and disturbed/developed. **Table 3.4-6, Alternative 4 Site Biological Communities and Waters of the US,** below provides the estimated acreage of the habitat types (Helix Environmental Planning 2011).

**Table 3.4-6**
**Alternative 4 Site Biological Communities and Waters of the US**

| Type | Estimated Acres[1] |
|---|---|
| ***Biological Communities*** | |
| Agriculture – includes existing and former rice fields, fallow fields | 716 |
| Annual Grassland – includes larger areas used as pasture | 1,440 |
| Riparian Woodland | 10 |
| Disturbed/Developed | 232 |
| ***Waters of the US***[2] | |
| Perennial Stream | 7 |
| Wetland Swale | 5 |
| Vernal Pools and Seasonal Wetlands | 25 |
| Stock Ponds | 13 |

*Source: Helix Environmental Planning 2011*

[1] *Acreage values are approximate and are not based on data from wetland delineations.*

[2] *The site also contains 9 acres of fallow contour rice and about 60 acres of active rice fields. Those acreages are not included in the totals above.*

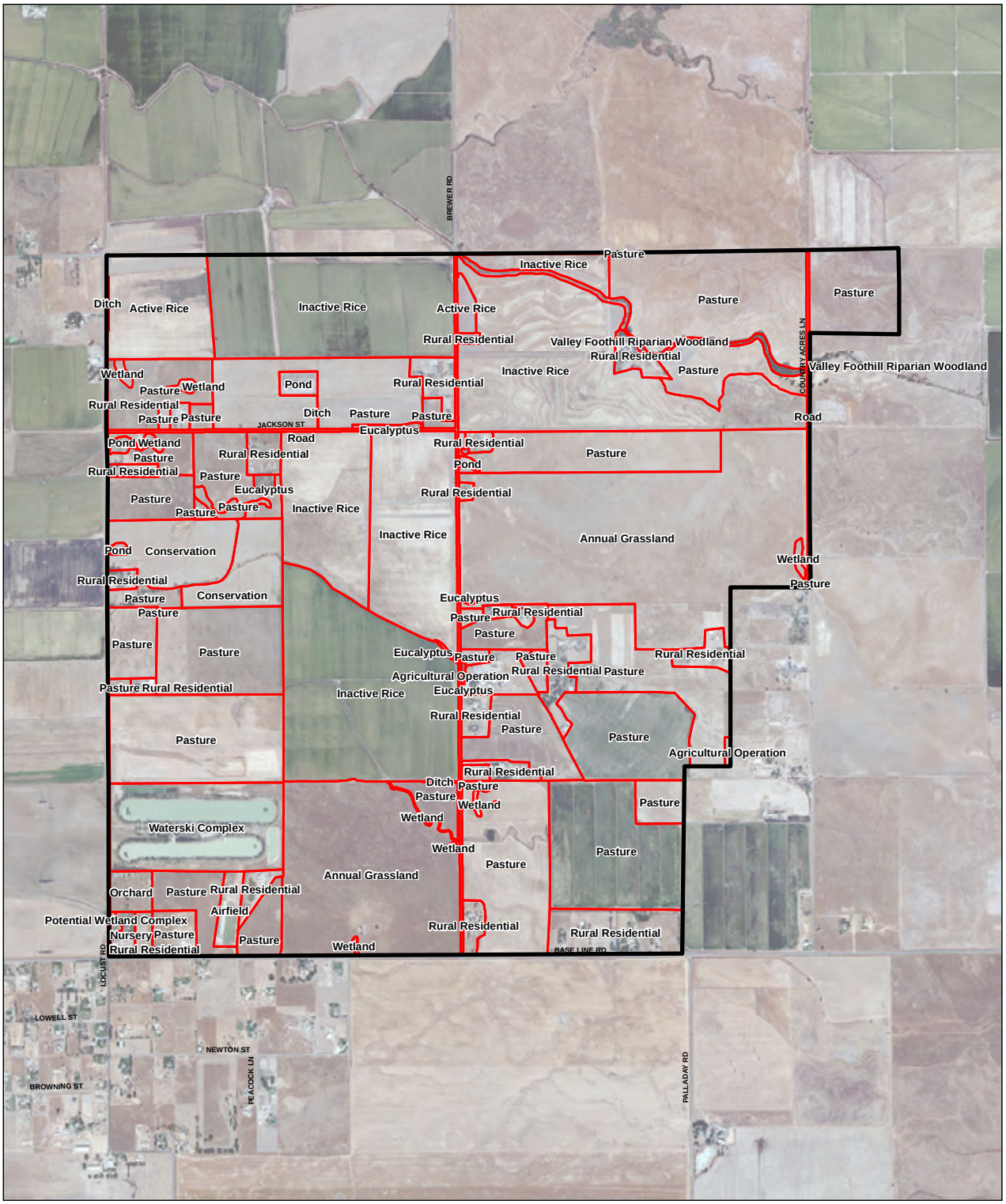
### Agriculture

A large portion of the site supports active rice crops or fields that are currently inactive but were used for rice cultivation in the past. Other areas show evidence of recent disking and may be actively managed for other row crops or grazing (Helix Environmental Planning 2011).

During the preliminary field survey, swallows, turkey vultures, red-tailed hawk, American kestrel, white-tailed kite, and a northern harrier were observed foraging or flying over the study area in various locations, including the agricultural areas. Black-tailed hare and California ground squirrel were also observed (Helix Environmental Planning 2011).

### Annual Grassland

Large portions of the site consist of fallow fields or pastureland, much of which is covered with non-native annual grassland. Common plant species in the annual grassland habitat throughout the site include filaree, common chickweed, wild radish, smooth catsear, soft chess, wild oat, ryegrass, and several clover species. Wetlands, including vernal pools, seasonal wetlands and wetland swales, occur in scattered locations throughout annual grassland and fallow fields within the Alternative 4 site. Typical species in these vernal pool and seasonal wetland habitats within the annual grasslands include vernal pool buttercup, water starwort, coyote thistle, common blennosperma, whitetip clover, spikerush, toad rush and Mediterranean barley (Helix Environmental Planning 2011).




**SOURCE:** Helix Environmental, Aerial Photo: Placer County 2008

FIGURE **3.4-3a**

# Alternative 4 Site - Biological Communities

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During the preliminary field survey conducted at the Alternative 4 site, the following wildlife were observed in association with annual grassland communities, including grasslands within fallow fields and pasture areas: western meadowlark, American crow, Brewer's blackbird, white-crowned sparrow, killdeer, savannah sparrow, yellow-billed magpie, mourning dove, and European starling. Black-tailed hare and California ground squirrel were also observed (Helix Environmental Planning 2011).

**Riparian Woodland**

The portion of Curry Creek that runs through the alternative site supports areas of riparian woodland and herbaceous emergent wetland vegetation along the banks. Typical plant species observed in association with riparian areas along Curry Creek include several willow species, Himalayan blackberry, common and Baltic rush, and tall flatsedge (Helix Environmental Planning 2011).

Species observed or detected in and around areas with standing water, including areas along Curry Creek, included American bullfrog, Sierran treefrog, red-winged blackbird, northern pintail, mallard, snowy egret, great egret, Canada goose, and greater white-fronted goose. Numerous black-crowned night herons were also observed roosting in mature willows located in the southwestern portion of the site during the field survey. No anadromous fish species, such as Chinook salmon or steelhead, are known to occur in Curry Creek. Curry Creek is expected to support a variety of resident warm-water fish species, as well as aquatic invertebrates such as crayfish (Helix Environmental Planning 2011).

**Disturbed/Developed**

Developed portions of the Alternative 4 site primarily include the scattered residences, farms, and agricultural buildings. In addition, the southwestern portion of the site contains a water ski complex, a plant nursery, and an airfield. While no significant bat roosting activity or maternity colonies are expected to occur on the site, it is likely that some limited day roosting activity may occur in various structures within the developed area (Helix Environmental Planning 2011).

Eucalyptus groves occur in scattered locations throughout the Alternative 4 site and primarily occur in the vicinity of existing residences and associated agricultural buildings. During the preliminary field survey of the site, northern flicker, red-shouldered hawk, and mourning dove species were observed in and around the few scattered trees. It is likely that some nesting occurs in the few taller trees throughout the site. Stock ponds also occur in scattered locations in the vicinities of residences or farms and occasionally contain a narrow strip of emergent vegetation around the perimeter (Helix Environmental Planning 2011).

### 3.4.2.12 Alternative 4 Site – Waters of the United States

A wetland delineation was not prepared for the Alternative 4 site. However, based on the preliminary field assessment and a review of aerial photographs, Helix Environmental Planning identified several habitats throughout the alternative site that would qualify as waters of the US. These are described below.

### *Perennial Stream*

One perennial stream, Curry Creek, occurs in the northeastern portion of the Alternative 4 site. As noted earlier, riparian woodland habitat is associated with Curry Creek and narrow bands of emergent wetland vegetation also occurs along the edge of the stream. Approximately 7 acres of perennial stream habitat are estimated to occur on the alternative site (Helix Environmental Planning 2011).

### *Wetland Swale*

Wetland swales occur in many locations within the Alternative 4 site, primarily in less altered landform areas of annual grassland and pastures. Most of the wetland swales on the site appear to be natural features, but some are manmade drainage ditches. Approximately 5 acres of wetland swales are estimated to occur on the alternative site (Helix Environmental Planning 2011).

### *Vernal Pools and Seasonal Wetlands*

Vernal pools and many seasonal wetlands are relatively deep depressional wetlands that support a mostly native flora. These are characterized by Vasey's coyote-thistle, stipitate popcornflower, dwarf wooly marbles, needle-leaved navarretia, and white-flowered navarretia, separating them from other depressional seasonal wetlands and wetland swales that are dominated by non-native facultative species. Precipitation is likely the main source of water for most of the pools on the site, although some may receive runoff from surrounding uplands. Approximately 25 acres of seasonal wetlands are estimated to occur on the alternative site (Helix Environmental Planning 2011).

### *Stock Ponds*

There are several stock ponds on the alternate site. They are associated with farmsteads, with trees and patches of emergent vegetation around the perimeter. Approximately 13 acres of stock ponds are estimated to occur on the alternative site (Helix Environmental Planning 2011).

## 3.4.2.13 Alternative 4 Site – Tree Resources

Willow trees occur in the Curry Creek riparian area as well as in the southwestern portion of the site. Stands of eucalyptus trees also occur in several locations on the site associated with the farmsteads.

## 3.4.2.14 Alternative 4 Site – Wildlife

The habitat value for wildlife is limited within the agricultural portions of the site due to ongoing agricultural operations and lack of diversity of plant species and structure. However, the less managed portions of the Alternative 4 site are likely to support a wider diversity of wildlife because important habitat features such as nesting sites, escape and thermal cover, and foraging areas are available. Various drainages and ditches located throughout the site provide a source of water for wildlife. Scattered trees and eucalyptus groves provide potential roosting and nesting opportunities for raptors such as great horned owl, barn owl, and red-tailed hawk. Curry Creek, other smaller drainages, and scattered wetlands provide seasonal nesting and foraging habitat for a variety of migratory waterfowl and wading birds.

Various structures located throughout the site, including barns and associated out-buildings, are expected to provide some nesting and roosting habitat for owls and limited roosting for some bat species known from the region. Larger areas of open grassland, including areas currently used as pasture, are expected to provide year-round foraging habitat for resident raptors such as American kestrel, red-tailed hawk and white-tailed kite, and seasonal foraging habitat for migratory raptors that winter in the region, such as ferruginous hawk (Helix Environmental Planning 2011).

### 3.4.2.15 Alternative 4 Site – Special-Status Plant and Wildlife Species

**Table 3.4-7, Special-Status Species with Potential to occur on the Alternative 4 Site,** below provides an overview of special-status plant and wildlife species with the potential to occur on the Alternative 4 site.

**Table 3.4-7**
**Special-Status Species with Potential to occur on the Alternative 4 Site**

| Name | Federal/ State/ CNPS* | Habitat | Likelihood of Occurrence in Project Region/Alternative 4 Site |
|---|---|---|---|
| **Plants** | | | |
| Big-scale balsam-root *Balsamorhiza macrolepis var. macrolepis* | –/–1B.2 | Cismontane woodland; valley and foothill grassland (sometimes serpentinite) | Marginal habitat is present on site. |
| Dwarf downingia *Downingia pusilla* | –/–/2.2 | Valley and foothill grassland (mesic); vernal pools, seasonal wetlands, and wetland swales | Several occurrences in region surrounding Alternative 4 site. |
| Bogg's Lake hedge-hyssop *Gratiola heterosepala* | –/E/1B.2 | Marshes and swamps (lake margins); vernal pools. Below 1200 m | Known occurrences to south and northeast of Alternative 4 site. |
| Ahart's dwarf rush *Juncus leiospermus* var. *ahartii* | –/–/1B.2 | Vernal pools | Suitable habitat is present on site. |
| Legenere *Legenere limosa* | –/–/1B.1 | Vernal pools and seasonal wetlands | Known occurrences in region surrounding Alternative 4 site. |
| Pincushion navarretia *Navarretia myersii* spp. *myersii* | –/–/1B.1 | Vernal pools | Suitable habitat is present on site. |
| Slender Orcutt grass *Orcuttia tenuis* | T/E/1B.1 | Vernal pools | Marginal habitat present on site. No known occurrences within Placer County. |
| Sacramento Valley Orcutt grass *Orcuttia viscida* | T/E/1B.1 | Vernal pools | Marginal habitat present on site. No known occurrences within Placer County. |
| Sanford's arrowhead *Sagittaria sanfordii* | –/–/1B.2 | Marshes, swamps, and other wetlands | Suitable habitat present on site. |

| Name | Federal/ State/ CNPS* | Habitat | Likelihood of Occurrence in Project Region/Alternative 4 Site |
|---|---|---|---|
| **Invertebrates** | | | |
| Conservancy fairy shrimp *Branchinecta conservatio* | E/--/-- | Vernal pools, swales, seasonal wetlands | Very rare in region. Only one known location in western Placer County. |
| Vernal pool fairy shrimp *Branchinecta lynchi* | T/--/-- | Vernal pools, swales, seasonal wetlands | Potential habitat occurs on site. Numerous known occurrences in the vicinity of Alternative 4 site. |
| Vernal pool tadpole shrimp *Lepidurus packardi* | E/--/-- | Vernal pools, swales, seasonal wetlands | Potential habitat occurs on site. Several known occurrences in the vicinity of Alternative 4 site. |
| Valley elderberry longhorn beetle *Desmocerus californicus dimorphus* | T/--/-- | Elderberry shrubs with stems greater than 1 inch in diameter are considered potential habitat. | No elderberry shrubs observed on site but may occur in scattered locations not observed during reconnaissance. |
| **Amphibians** | | | |
| California tiger salamander *Ambystoma californiense* | T/SSC/-- | Vernal pools, vernal pool grasslands, ponds | No recent or historic records of occurrence in western Placer County. |
| California red-legged frog *Rana aurora draytonii* | T/SSC/-- | Deeper pools and streams with emergent or overhanging vegetation | Marginal habitat occurs on site. No recent records from western Placer County. |
| Western spadefoot *Spea hammondii* | --/SSC/-- | Vernal pools, upland grasslands | Known occurrences in vicinity. Suitable habitat present on site. |
| **Reptiles** | | | |
| Western pond turtle *Actinemys marmorata* | --/SSC/-- | Ponds, marshes, river, streams and ditches with basking sites and vegetation | Suitable habitat occurs on site along Curry Creek and scattered stock ponds. |
| Giant garter snake *Thamnophis couchi gigas* | T/T/-- | Streams, irrigation channels, seasonal wetlands | Marginally suitable aquatic habitat occurs on site. Known occurrences in the vicinity (in Sutter County). |
| **Birds** | | | |
| Tricolored blackbird *Agelaius tricolor* | --/SSC/-- | Open water areas with tall emergent vegetation or in willow and blackberry thickets | Limited potential nesting habitat along Curry Creek. May forage throughout site. |
| Great egret (rookery) *Ardea alba* | * | Colonial nester in tall trees | Possible rookery habitat occurs in scattered woodland within Alternative 4 site. |
| Great blue heron (rookery) *Ardea herodias* | * | Colonial nester in tall trees | Possible rookery habitat occurs in scattered woodland within Alternative 4 site. |

| Name | Federal/ State/ CNPS* | Habitat | Likelihood of Occurrence in Project Region/Alternative 4 Site |
|---|---|---|---|
| Western burrowing owl *Athene cunicularia* | --/SSC/-- | Grasslands, agricultural lands. | Suitable foraging and nesting habitat occurs throughout Alternative 4 site. Known occurrences in vicinity of Alternative 4 site. |
| Swainson's hawk *Buteo swainsoni* | --/T/--/-- | Grasslands, agricultural lands | Known nesting occurrences adjacent to Alternative 4 site. Suitable foraging and nesting on site. |
| Northern harrier *Circus cyaneus* | --/SSC/-- | Grasslands, seasonal wetlands, agricultural lands | Observed foraging during preliminary field survey. Suitable foraging and nesting present on Alternative 4 site. |
| White-tailed kite *Elanus leucurus* | --/ FP/-- | Open grassland, and farmlands. Nests in tall trees near foraging areas | Observed foraging during preliminary field survey. Suitable foraging and nesting present on Alternative 4 site. |
| Greater sandhill crane *Grus candadensis tabida* | --/-T/-- | Seasonal wetlands, irrigated pastures, alfalfa and corn fields | Marginal habitat for foraging and nesting. |
| Loggerhead shrike *Lanius ludovicianus* | --/SSC/-- | Grasslands, pastures, agricultural lands | Suitable foraging and nesting habitat present on Alternative 4 site. Known occurrences in vicinity of Alternative 4 site. |
| California black rail *Laterallus jamaicesis* | --/T/-- | Shallow, perennial freshwater marshes | Limited suitable habitat within the Alternative 4 site. No known occurrences in project region. |
| Black-crowned night-heron (rookery) *Nycticorax nycticorax* | * | Colonial nester in trees and tule patches | Potential rookery habitat occurs in scattered woodland on site. Numerous individuals observed in southwestern portion of Alternative 4 site. |
| **Mammals** | | | |
| Pallid bat *Antrozous pallidus* | --/SSC/WBWG: High priority | Shrublands, grasslands, woodlands, forests; rocky areas, caves, hollow trees | Suitable foraging habitat; unlikely to roost due to lack of suitable habitat. |
| Townsend's big-eared bat *Corynorhinus townsendii townsendii* | --/SSC/WBWG: High priority | Most low to mid elevation habitats; caves, mines, and buildings for roosting | Suitable foraging habitat; unlikely to roost due to lack of suitable habitat. |

| Name | Federal/ State/ CNPS* | Habitat | Likelihood of Occurrence in Project Region/Alternative 4 Site |
|---|---|---|---|
| Yuma myotis<br>*Myotis yumanensis* | --/SSC/ WBWG: Low priority | Forests and woodlands; caves, mines, and buildings for roosting | Suitable foraging habitat; unlikely to roost due to lack of suitable habitat. |

**Status explanations:*
***Federal***
*E = listed as endangered under the federal Endangered Species Act.*
*T = listed as threatened under the federal Endangered Species Act.*
*C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.*
*– = no listing.*
***State***
*E = listed as endangered under the California Endangered Species Act.*
*R = Listed as "rare" under the California Endangered Species Act.*
*T = listed as threatened under the California Endangered Species Act.*
*FP= fully protected under the California Fish and Game Code.*
*SSC = species of special concern in California.*
*– = no listing.*
***California Native Plant Society***
*1B= List 1B species: rare, threatened, or endangered in California and elsewhere.*
*2 = List 2 species: rare, threatened, or endangered in California, but more common elsewhere.*
*3 = List 3 species: plants about which we need more information.*
*4 = List 4 species: Plants of limited distribution.*
*0.1 = Seriously endangered in California*
*0.2 = Fairly endangered in California*
*0.3 = Not very endangered in California*
***Other***
*IUCN-NT = The World Conservation Union, near threatened species*
*– = no listing.*
**- Rookeries are tracked and are of special interest to CDFG*
*Western Bat Working Group (WBWG) Available: http://www.wbwg.org/)*
*High priority = species are imperiled or at high risk of imperilment*
*Moderate priority = this designation indicates a level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat*
*Low priority = While there may be localized concerns, the overall status of the species is believed to be secure.*

### 3.4.2.16 Alternative 4 Infrastructure Improvements – Biological Communities

Off-site utility improvements required to serve development under Alternative 4 include water, sewer, and recycled water pipelines. A water main connecting to the City of Roseville water distribution would be constructed west along Baseline Road from the intersection of Fiddyment Road and Baseline Road to the Alternative 4 site. To provide a looped water supply system, a second pipeline would be constructed that would commence at the project site on Brewer Road and then trend east to a location 0.5 mile northwest of the Pleasant Grove Wastewater Treatment (WWTP) Plant. A sewer force main would be constructed from a sewer pump station on the alternative site in a northerly and then easterly direction to the Pleasant Grove WWTP and a recycled water line would be constructed along the alignment of the sewer main

Biological communities present in the area of these pipelines are shown in **Figure 3.4-3b, Alternative 4 Off-Site Improvements – Biological Communities,** and consist of agricultural land mainly in rice production, annual grassland, pasture, fresh emergent wetlands, ponds, a limited area of valley foothill riparian woodland, and developed land uses such as industrial, rural residential, and suburban development. The annual grassland and pasture areas likely contain vernal pools and seasonal wetlands, similar to the manner in which these wetlands occur throughout the region. As these biological communities are similar to the communities and habitats present on the Alternative 4 site, the same special-status plant and wildlife species identified in **Table 3.4-5** above as having a potential to occur on the Alternative 4 site, are likely to occur in the area of the off-site improvements.

### 3.4.2.17 Regional Aquatic Resources

The Proposed Action and alternatives would receive its water supply from various surface water supply sources **(Section 3.15, Utilities and Service Systems)**. The City's surface water supply source is American River[1] water diverted from Folsom Reservoir. While Folsom Reservoir and lower American River are the source of water for the Proposed Action and alternatives, because the American River is a tributary to Sacramento River and both rivers are components of the Central Valley Project (CVP), fish species and fisheries habitat present in the American River and the Sacramento River are described below along with the fisheries in the Folsom Reservoir.

#### *American River*

The American River, from which the City of Roseville draws its surface water, is one of two major tributaries of the Sacramento River, with the Feather River as the second major tributary. Based on historic data from 1905 through 2003, the average annual flow of the American River at Fair Oaks (US Geological Survey [USGS] Station No. 11446500) is approximately 2.7 million acre-feet per year (City of Roseville 2010).

The lower American River provides a diversity of aquatic habitats, including shallow, fast-water riffles, glides, runs, pools, and off-channel backwater habitats. The lower American River from Nimbus Dam (river mile [RM] 23) to approximately Goethe Park (RM 14) is primarily unrestricted by levees, but is bordered by some developed areas. Natural bluffs contain this reach of the river. The river reach downstream of Goethe Park, extending to its confluence with the Sacramento River (RM 0), is bordered by levees. The construction of levees changed the channel geomorphology and has reduced river meanders and increased depth (City of Roseville 2010).

At least 43 species of fish occur in the lower American River system, including numerous resident native and introduced species, as well as several anadromous species (City of Roseville 2010). Although each fish species fulfills an ecological niche, several species are of primary management concern, either as a result of their declining numbers or their importance to recreational and/or commercial fisheries. Both Central Valley steelhead (*Oncorhynchus mykiss*), listed as "threatened" under the Federal ESA, and

1 American River from its confluence with Sacramento River up to the Nimbus Dam is designated a Wild and Scenic River, for its recreational value.

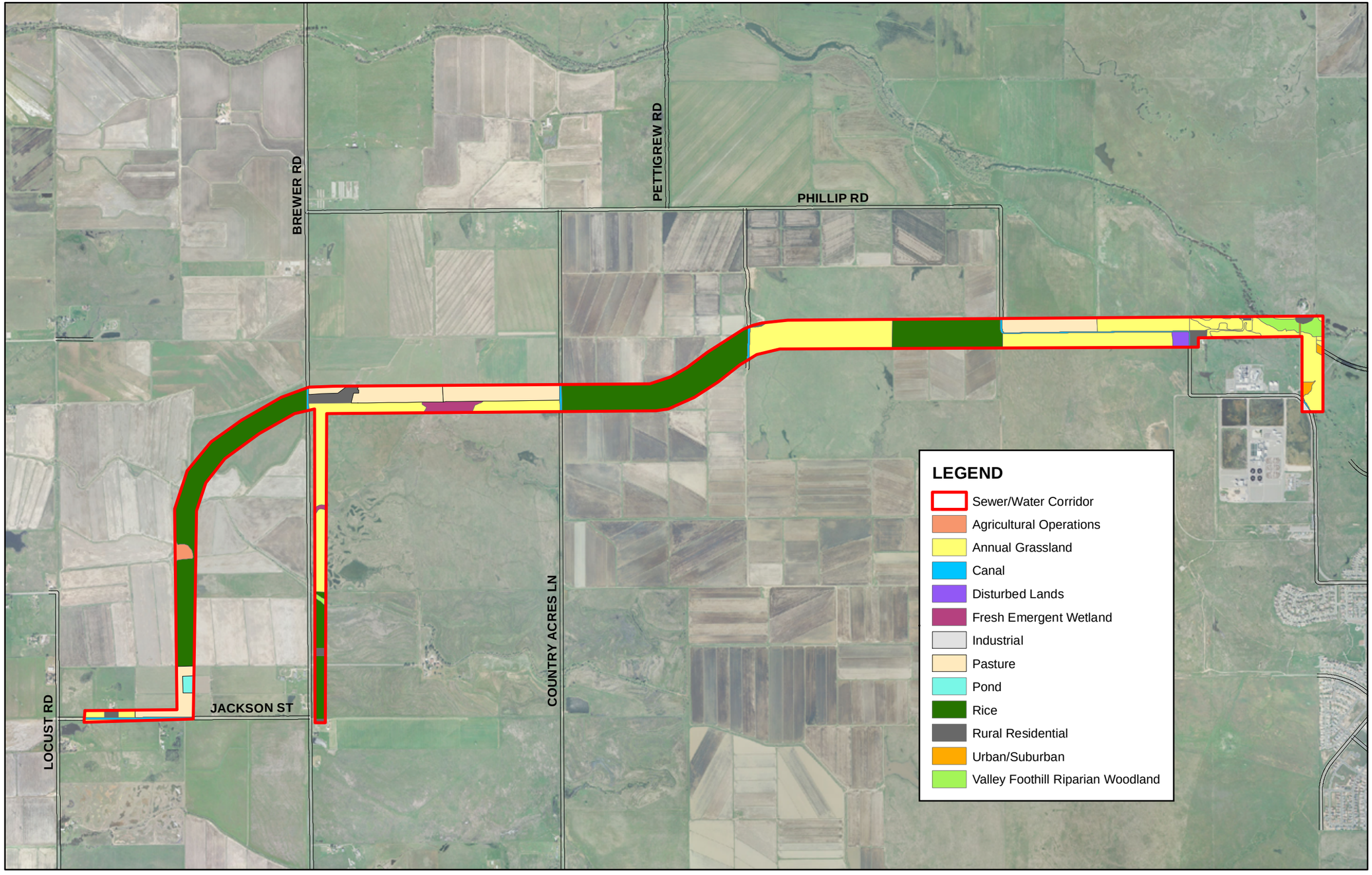
Sacramento splittail (*Pogonichthys macrolepidotus*), a California species of special concern and, informally, a Federal species of concern, occur in the lower American River. Additionally, the lower American River from the outfall of the Natomas East Main Drainage Canal (NEMDC, and also known as Steelhead Creek) downstream to the confluence with the Sacramento River is designated as critical habitat for spring-run Chinook salmon (70 FR 52512). Current recreationally and/or commercially important anadromous species include fall-run Chinook salmon (*Oncorhynchus tshawytscha*), steelhead, striped bass (*Morone saxatilis*), and American shad (*Alosa sapidissima*) (City of Roseville 2010).

### *Folsom Reservoir*

Folsom Reservoir is the largest reservoir in the American River basin, with a maximum storage capacity of approximately 977 thousand acre-feet and a maximum depth of 466 feet above mean sea level (msl). The Folsom Reservoir is a component of the CVP and owned and operated by the US Bureau of Reclamation (BoR) (City of Roseville 2010).

With respect to its qualities as fish habitat, strong thermal stratification occurs within Folsom Reservoir annually between April and November. Thermal stratification establishes a warm surface water layer (epilimnion), a middle water layer characterized by decreasing temperature with increasing depth (metalimnion or thermocline), and a bottom, cold-water layer (hypolimnion) within the reservoir. In terms of aquatic habitat, the warm epilimnion of Folsom Reservoir provides habitat for warm-water fishes, whereas the reservoir's lower metalimnion and hypolimnion form a "coldwater pool" that provides habitat for cold-water fish species throughout the summer and fall portions of the year. Hence, Folsom Reservoir supports a “two-story” fishery during a major portion of the year (April through November), with warm-water species (both centrarchids and ictalurids) using the upper, warm-water layer and cold-water species using the deeper, colder portion of the reservoir (City of Roseville 2010). The maximum water surface elevation in the reservoir is 480 feet (BoR 2009) and the thickness of thermal layers varies seasonally. Temperature control devices have been installed in the reservoir to allow water supply operators the flexibility to selectively draw water from varying depths in Folsom Reservoir, using or conserving the coldest water in Folsom Reservoir. A temperature control device is operated by the Bureau of Reclamation at the Folsom Dam. The device allows the Bureau of Reclamation to conserve the cold water in Folsom Reservoir so that it can be released when it is most beneficial to fish in the lower American River (Water Forum 2005).

Native species that occur in the reservoir include hardhead (*Mylopharodon conocephalus*) and Sacramento pikeminnow (*Ptychocheilus grandis*). However, introduced largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), spotted bass (*Micropterus punctulatus*), bluegill (*Lepomis macrochirus*), crappie (*Pomoxis*), and catfish (*Amereiurus spp.* and *Ictalurus spp.*) constitute the primary warm-water sport fisheries of Folsom Reservoir. The reservoir’s cold-water sport species include rainbow and brown trout (*Oncorhynchus mykiss* and *Salmo trutta*), kokanee salmon (*Oncorhynchus nerka*) and Chinook salmon, all of which are currently or have been stocked by the California Department of Fish and Game (CDFG).




**SOURCE:** Salix Consulting, Inc., – 2012

FIGURE **3.4-3b**

Alternative 4 Off-Site Improvements – Biological Communities

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Although brown trout are no longer stocked, a population still remains in the reservoir. Salmonids are stream spawners and, therefore, do not reproduce within the reservoir. However, some spawning by one or more of these species may occur in the American River upstream of Folsom Reservoir (City of Roseville 2010).

Folsom Reservoir's cold-water pool is important not only to the reservoir's cold-water fish species identified above, but also is important to lower American River fall-run Chinook salmon and steelhead. Seasonal releases from the reservoir's cold-water pool provide thermal conditions in the lower American River that support annual in-river production of these salmonid species. Folsom Reservoir's cold-water pool is not large enough to allow for cold-water releases during the warmest months (July through September) to provide maximum thermal benefits to lower American River steelhead, and cold-water releases during October and November that would maximally benefit fall-run Chinook salmon immigration and holding, spawning, and embryo incubation. Nonetheless, management of the reservoir's cold-water pool on an annual basis is essential to providing thermal benefits to both fall-run Chinook salmon and steelhead within the constraints of cold-water pool availability (City of Roseville 2010).

### *Sacramento River*

The Sacramento River is the largest river in California, providing water for municipal, agricultural, recreational, and environmental purposes throughout Northern and Southern California. Water originating from the upper Sacramento River drainages represents a significant component of the total CVP supply, which provides high-quality water to meet downstream urban and agricultural demands. The Sacramento River enters the Sacramento –San Joaquin Delta at Freeport, downstream of its confluence with the American River, where its average annual flow is about 17 million acre-feet (City of Roseville 2010).

The upper Sacramento River, the portion of the river above Princeton (RM 163), provides a diversity of aquatic habitats, including fast-water riffles and shallow glides, slow-water deep glides and pools, and off-channel backwater habitats. Streamflow is greatly influenced by managed releases from Shasta Reservoir and, during the rainy season, by stormwater runoff. The stream channel is in a natural state, with no artificial levees. The drainage basin area includes parts or all of the Great Basin, Middle Cascade Mountains, Klamath Mountains, Coast Ranges, and Sacramento Valley physiographic provinces. Land cover in the area is mainly forestland; cropland, pastures, and rangeland cover most of the remaining land area. Water quality effects from past and present mining activities in the Klamath Mountains are likely to be detected in the upper Sacramento River (USGS 2002).

The upper Sacramento River is of primary importance to native anadromous species, and is presently utilized for spawning and early-life-stage rearing, to some degree, by all four runs of Chinook salmon (fall-, late fall-, winter-, and spring-runs) and steelhead. Consequently, various life stages of the four runs of Chinook salmon and steelhead can be found in the upper Sacramento River throughout the year (City of Roseville 2010).

The lower Sacramento River, the portion of the river from Princeton to the Delta, is predominantly channelized, leveed, and bordered by agricultural lands. Aquatic habitat in the lower Sacramento River is

characterized primarily by slow-water glides and pools, is depositional in nature, and has reduced water clarity and channel habitat diversity compared to the upper portion of the river (City of Roseville 2010).

Many of the fish species utilizing the upper Sacramento River also use the lower river to some degree, even if only as a migratory pathway to and from upstream spawning and rearing grounds. For example, adult Chinook salmon and steelhead primarily use the lower Sacramento River as an immigration route to upstream spawning habitats and an emigration route to the Delta. The lower river is also used by other fish species (e.g., Sacramento splittail and striped bass) that make little to no use of the upper river (upstream of RM 163). Overall, fish species composition in the lower portion of the Sacramento River is quite similar to that of the upper Sacramento River and includes resident and anadromous cold- and warm-water species. Many fish species that spawn in the Sacramento River and its tributaries depend on river flows to carry their larval and juvenile life stages to downstream nursery habitats. Native and introduced warm-water fish species primarily use the lower river for spawning and rearing, with juvenile anadromous fish species also using the lower river and non-natal tributaries, to some degree, for rearing (City of Roseville 2010).

Over 30 species of fish are known to use the Sacramento River. Anadromous species include Chinook salmon, steelhead, green and white sturgeon (*Acipenser medirostris* and *Acipenser transmontanus*), striped bass, and American shad. Other Sacramento River fishes are considered resident species, which complete their lifecycles entirely within freshwater, often in a localized area. Resident species include rainbow and brown trout, largemouth and smallmouth bass, channel catfish (*Ictalurus punctatus*), sculpin (*Cottus asper*), Sacramento pikeminnow, Sacramento sucker (*Catostomus occidentalis*), hardhead, and common carp (*Cyprinus carpio*) (Moyle 2002).

## 3.4.3 REGULATORY FRAMEWORK – APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

### 3.4.3.1 Federal Laws and Regulations

Federal laws and regulations for the protection of biological resources that applicable to the Proposed Action and its alternatives are summarized below. The federal Clean Water Act, which regulates the placement of fill in the waters of the US, is summarized in **Section 3.10, Hydrology and Water Quality**, and is not repeated below.

#### *Federal Endangered Species Act*

The federal ESA protects fish and wildlife species, and their habitats that have been identified as Threatened or Endangered. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range; Threatened refers to those likely to become Endangered in the near future.

The USFWS in the Department of the Interior and the National Oceanic and Atmospheric Administration (NOAA)-Fisheries in the Department of Commerce share responsibility for administration of the federal ESA. Provisions of Section 7 of the ESA relevant to the Proposed Action and alternatives are summarized below.

Section 7 provides a means for authorizing take of Threatened and Endangered species by federal agencies. "Take" is defined by the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Section 7 applies to actions that are conducted, permitted, or funded by a federal agency. Under Section 7, the federal agency conducting, funding, or permitting an action (the federal lead agency) must consult with the USFWS, as appropriate, to ensure that the Proposed Action will not jeopardize Endangered or Threatened species or destroy or adversely modify designated critical habitat. If a Proposed Action "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the expected effect. In response, the USFWS issues a biological opinion, with a determination that the Proposed Action:

- may jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding); or
- will not jeopardize the continued existence of any listed species (no jeopardy finding) or result in adverse modification of critical habitat (no adverse modification finding).

The biological opinion may stipulate discretionary "reasonable and prudent" alternatives. If the Proposed Action would not jeopardize a listed species, the USFWS will issue an incidental take statement to authorize incidental take associated with the Proposed Action.

### *Fish and Wildlife Coordination Act*

The Fish and Wildlife Coordination Act (16 USC 661-667e) provides the basic authority for the USFWS's involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It also requires federal agencies that construct, license or permit water resource development projects to first consult with the USFWS (and the National Marine Fisheries Service in some instances) and state fish and wildlife agency regarding the impacts on fish and wildlife resources and measures to mitigate these impacts.

### *Vernal Pool Recovery Plan*

The project and alternative sites are located within the area covered by the "Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon" prepared by the US Fish and Wildlife Service (US Fish and Wildlife Service 2005). The plan is a voluntary guidance program that broadly addresses conservation needs for 20 species of animals and plants listed as Endangered or Threatened so that these species will no longer require protection under the Endangered Species Act. The plan identifies many options and strategies that may contribute to recovery. The recovery plan identifies a number of vernal pool regions throughout California and within each region, designates certain areas as core areas for initial focus of protection measures. The plan notes that while a goal of the recovery plan is to protect the long-term viability of existing populations within each vernal pool region, core areas within each vernal pool region have been identified where recovery actions will be focused. Each core area is further classified as Zone 1, 2, or 3 in order of overall priority for recovery.

The project site is located within the Western Placer County core area of the Southeast Sacramento Valley vernal pool region. A small portion of the Alternative 4 site is also located within the Western Placer County core area. The Western Placer County core area is ranked as Zone 2. The recovery plan notes that although most species covered in the plan can be recovered primarily through the protection of "Zone 1" core areas, protection of Zone 2 core areas will significantly contribute to the recovery of species.

### *Migratory Bird Treaty Act*

The Migratory Bird Treaty Act (MBTA) protects migratory bird species from take. "Take," under the MBTA, is defined as the action of, or an attempt to, pursue, hunt, shoot, capture, collect, or kill (50 Code of Federal Regulations [CFR] 10.12). The definition differentiates between "intentional" take (take that is the purpose of the activity in question) and "unintentional" take (take that results from, but is not the purpose of, the activity in question).

Executive Order (EO) 13186 (signed January 10, 2001) directs each federal agency taking actions that would have or would likely have a negative impact on migratory bird populations to work with the USFWS to develop a Memorandum of Understanding (MOU) to promote the conservation of migratory bird populations. Protocols developed under the MOU must include the following agency responsibilities:

- Avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting federal agency actions.
- Restore and enhance habitat of migratory birds, as practicable.
- Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The EO is designed to assist federal agencies in their efforts to comply with the MBTA; it does not constitute any legal authorization to take migratory birds.

Numerous migratory bird species have potential to nest in the project site. Mitigation is proposed in this Draft EIS to avoid impacts to nesting migratory birds from construction of the Proposed Action or any of its alternatives.

### *Executive Order 13112: Prevention and Control of Invasive Species*

EO 13112, signed February 3, 1999, directs all federal agencies to prevent and control introduction of invasive species in a cost-effective and environmentally sound manner. It established a National Invasive Species Council (NISC) composed of federal agencies and departments and a supporting Invasive Species Advisory Committee (ISAC) composed of state, local, and private entities. NISC and ISAC prepared a national invasive species management plan that recommends objectives and measures to implement the EO and to prevent the introduction and spread of invasive species (National Invasive Species Council & Invasive Species Advisory Committee 2001). The EO requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them.

### 3.4.3.2 State Laws and Regulations

## *California Endangered Species Act*

The California Endangered Species Act (CESA) (California Fish and Game Code Section 2050 et seq.) establishes state policy to conserve, protect, restore, and enhance Threatened or Endangered species and their habitats. CESA mandates that state agencies should not approve projects that jeopardize the continued existence of Threatened or Endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that would affect a species that is both federally and state-listed, compliance with ESA satisfies CESA if the California Department of Fish and Game (CDFG) determines that the federal incidental take authorization is consistent with CESA under California Fish and Game Code Section 2080.1. CDFG administers CESA and authorizes take of Endangered, Threatened, or candidate species that is incident to an otherwise lawful activity through issuance of Section 2081 permits (except for species designated as fully protected).

Development of the Proposed Action or any of its alternatives could result in direct and indirect effects to state-listed species, or their habitat. The applicants would be required to consult with CDFG regarding the Proposed Action's effects on species listed as Threatened or Endangered, or proposed for listing as Threatened or Endangered under CESA. The applicants would either be required to obtain a 2081 take permit from CDFG prior to conducting activities that result in the potential take of state-listed species (take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.") or a consistency determination in accordance with CDFG Code Section 2080.1.

## *California Fish and Game Code*

**Streambed Alteration Agreements (Section 1600 *et seq*.)**

Under Section 1602 of the Fish and Game Code, agencies are required to notify CDFG before implementing any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake (Fish and Game Code Section 1602). Preliminary notification and project review generally occur during the environmental review process. When an existing fish or wildlife resource may be substantially adversely affected, CDFG is required to propose reasonable changes to the project to protect the resources. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications, and bid documents for the project. Development of the Proposed Action or any of the alternatives would require a 1602 streambed alteration agreement from CDFG.

**Unlawful Destruction of Nests or Eggs and Birds-of-Prey or their Eggs (Sections 3503 and 3503.5)**

Under these sections of the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, or to take, possess, or destroy any birds of prey or their nest or eggs. Numerous birds-of-prey have potential to nest within the project site. Mitigation measures are proposed to ensure that active bird-of-prey nests will not be disturbed by the Proposed Action or its alternatives.

**California Fully Protected Species**

The California Fish and Game Code provides protection from take for a variety of species, referred to as "fully protected species." Section 5050 lists fully protected amphibians and reptiles; Section 3515 lists fully protected fish; Section 3511 lists fully protected birds; and Section 4700 lists fully protected mammals. Except for take related to scientific research, all take of fully protected species is prohibited. White-tailed kite is the only fully protected species that has a potential to nest on the project site, and a possible nest was observed in the southwestern corner of the project site.

### *California Native Plant Protection Act*

The California Native Plant Protection Act (CNPPA) preserves, protects, and enhances Endangered native plants in California. The act gave the California Fish and Game Commission the power to designate native plants as Endangered, Threatened, or Rare, and to require permits for collecting, transporting, or selling such plants. The Department of Fish and Game recommends that species listed in the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California be addressed under the California Environmental Quality Act. As indicated in **Table 3.4-3,** dwarf downingia is the only special-status plant species that is known to occur within the project site.

### *Porter-Cologne Water Quality Control Act*

The Porter-Cologne Water Quality Control Act authorizes the State Water Resources Control Board (SWRCB) to regulate state water quality and protect beneficial uses. The SWRCB certifies activities subject to CWA Section 404 permits. The applicants would be required to obtain a Section 401 water quality certification for their federal wetlands permits.

## 3.4.4 SIGNIFICANCE THRESHOLDS AND ANALYSIS METHODOLOGY

### 3.4.4.1 Significance Thresholds

The Council on Environmental Quality (CEQ) regulations requires an evaluation of a proposed action's ecological effects such as the effects on natural resources and on the components, structures and functioning of affected ecosystems (40 CFR 1508.8), as well as effects in Endangered or Threatened species or their habitat (40 CFR 1508.27). NEPA does not specify significance thresholds to evaluate the effects of a proposed action on biological resources. For purposes of evaluating the effects in this EIS, the USACE has determined that the Proposed Action or its alternatives would result in significant effects on biological resources if the Proposed Action or an alternative would involve:

- Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, Threatened, Endangered, or special-status species, in local or regional plans, policies, or regulations, or by CDFG or USFWS;
- Have a substantial adverse effect on riparian habitat;
- Have a substantial adverse effect on waters of the United States; or
- Interfere substantially with the movement of any native, resident, or migratory wildlife species.

### 3.4.4.2 Analysis Methodology

This impact analysis addresses both direct and indirect effects of the Proposed Action and its alternatives on both on-site and off-site biological resources. As noted earlier, the term "on-site" refers to the 1,612-acre SVSP area or project site, whereas the term "off-site" refers the off-site impact area that could be directly or indirectly affected by the Proposed Action.

#### *Direct Effects*

With respect to direct effects, the analysis assumes full buildout of the project or alternative site resulting in loss of all habitats within those portions of the site that are designated for development. In addition, the analysis covers off-site areas that would be directly affected by the construction of infrastructure improvements such as roadways as well as those portions of on-site open space areas that lie immediately adjacent to the development areas. The following activities would result in direct effects:

- Vegetation clearing (including trees), grading, excavating/trenching, and paving activities during construction;
- Temporary stockpiling and side-casting of soil, construction materials, or other construction wastes;
- Soil compaction, dust, and water runoff from the construction site;
- Short-term construction-related noise (from equipment); and
- Degradation of water quality in drainages and wetlands, resulting from construction runoff containing petroleum products.

**Figure 3.4-4, Proposed Action – Waters of the US On-Site Impacts,** presents the direct effects of the Proposed Action on wetlands on the project site and was developed by superimposing the development footprint under the Proposed Action on a map showing the delineated on-site wetlands. To calculate direct effects, the limits of disturbance, including slopes and construction zones, were first determined and mapped. Where disturbance would occur within any part of a vernal pool or seasonal wetland, the entire wetland polygon was presumed to be directly affected. Where the disturbance would occur within linear features, including perennial streams, intermittent streams, ephemeral streams, and wetland swales as well as ponds and emergent marsh, the direct effect was presumed to be the footprint of disturbance within the wetland polygon.

The Proposed Action would preserve approximately 234 acres (95 hectares) on the project site, including approximately 197 acres of primary open space and about 37 acres of secondary open space. Primary open space areas are those portions of the site where no grading or land disturbance would occur. The primary open space areas will be put under conservation easements prior to commencement of construction on a property that contains the primary open space and wetlands or other resources present within the primary open space will not be filled or disturbed. With respect to the secondary open space, this is the open space that lies immediately adjacent to the areas to be developed and therefore could be subject to some development-related grading and filling. Once these grading and filling activities are completed, the secondary open space areas would be placed under conservation easements. Because wetlands or other resources present within the secondary open space could be potentially affected, the

analysis below assumes that all of these resources will be affected and their acreage is counted in the direct effects of the Proposed Action or an on-site alternative.

### *Indirect Effects*

With respect to indirect effects, the analysis covers on-site areas that would not be developed but would be conserved long term as open space. The following activities could result in indirect effects:

- Altering light and noise levels;
- Altering hydrology;
- Causing damage through toxicity associated with herbicides, pesticides, and rodenticides;
- Introducing pet and human disturbance (including trash dumping);
- Increasing habitat for native competitors or predators; and
- Introducing invasive nonnative species.

## 3.4.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

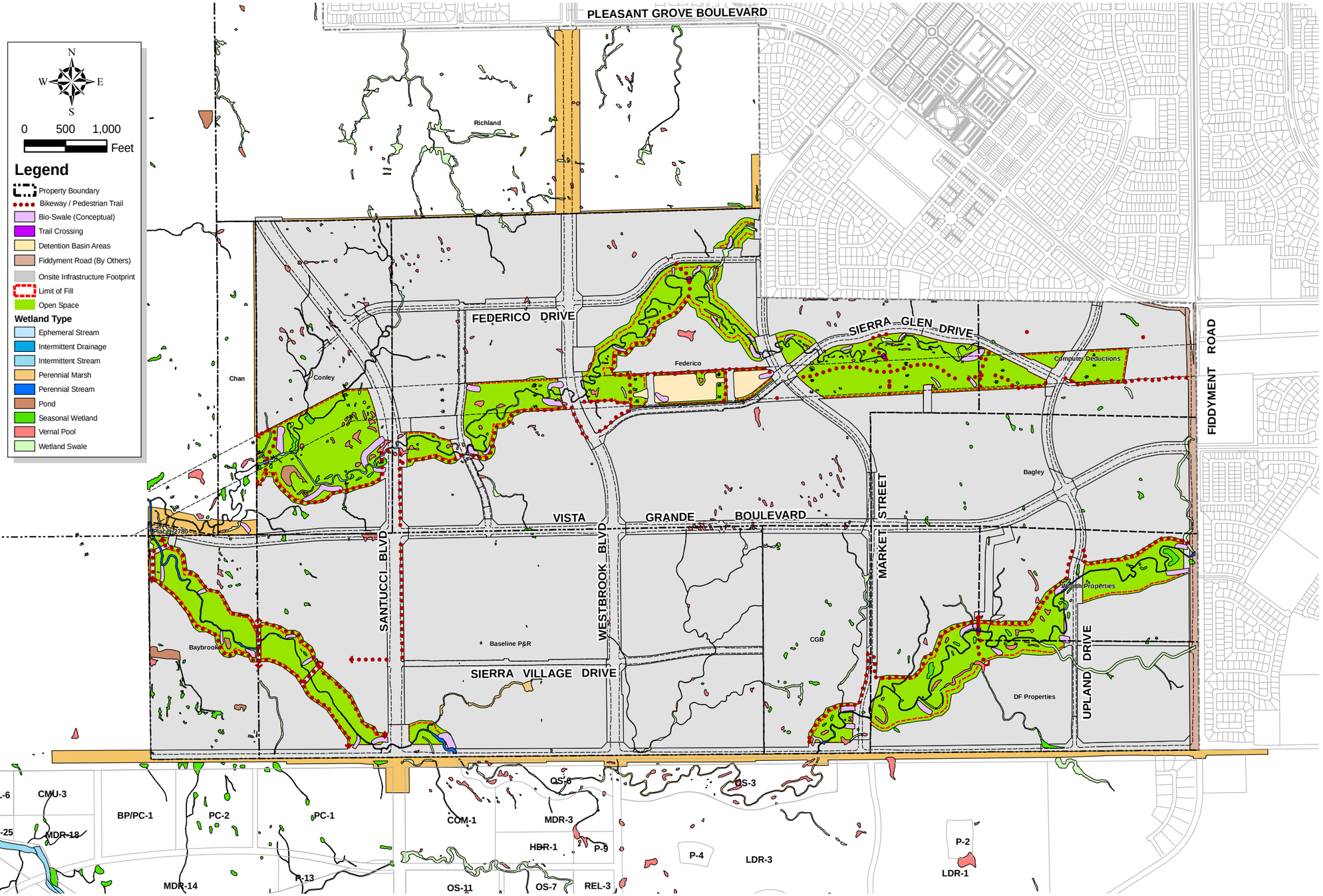
### Impact BIO-1 Loss of Wetlands through Direct Removal, Filling, Hydrological Interruption, or Other Means

**Proposed Action**

A total of 36.07 acres of waters of the US have been identified on the project site. In addition, there are about 8.98 acres of waters of the US within 250 feet of the project site boundary and adjacent to the alignment of the off-site infrastructure improvements. As shown in **Table 3.4-8a, Proposed Action Impacts to Waters of the US,** implementation of the Proposed Action would result in the filling of 24.81 acres of wetlands and "other waters" of the US, resulting in the loss of wetland area and functions. This total includes 22.37 acres of on-site impacts and 2.44 acres of off-site impacts and comprises placement of fill in 0.34 acre (0.02 acre on site and rest off-site) of ephemeral stream, 0.56 acre of intermittent stream, 0.90 acre of perennial stream, 1.05 acres of pond habitat, 0.85 acre of perennial marsh, 4.73 acres of seasonal wetlands, 9.50 acres of wetland swales, and 6.90 acres of vernal pools. **Figure 3.4-4** shows the affected wetlands on the project site and **Figure 3.4-5, Proposed Action – Water of the US Off-Site Impacts,** shows the off-site affected wetlands.

Within the project site boundaries, 22.37 acres of the 36.07 acres of wetlands would be filled. Loss of wetlands would occur as a result of grading in preparation for development, construction of roads and utility corridors, and other ground-disturbing activities related to construction. Impacts would also result from construction of Westbrook Boulevard from the project site north to Pleasant Grove Boulevard and the widening of Baseline Road.

To minimize wetland impacts, some portions of the project site containing vernal pools have been designated as open space in the Sierra Vista Specific Plan. Some of these open space preservation areas are aligned along drainage courses and include moderate concentrations of both vernal pools and seasonal wetlands located in proximity to these drainage courses.

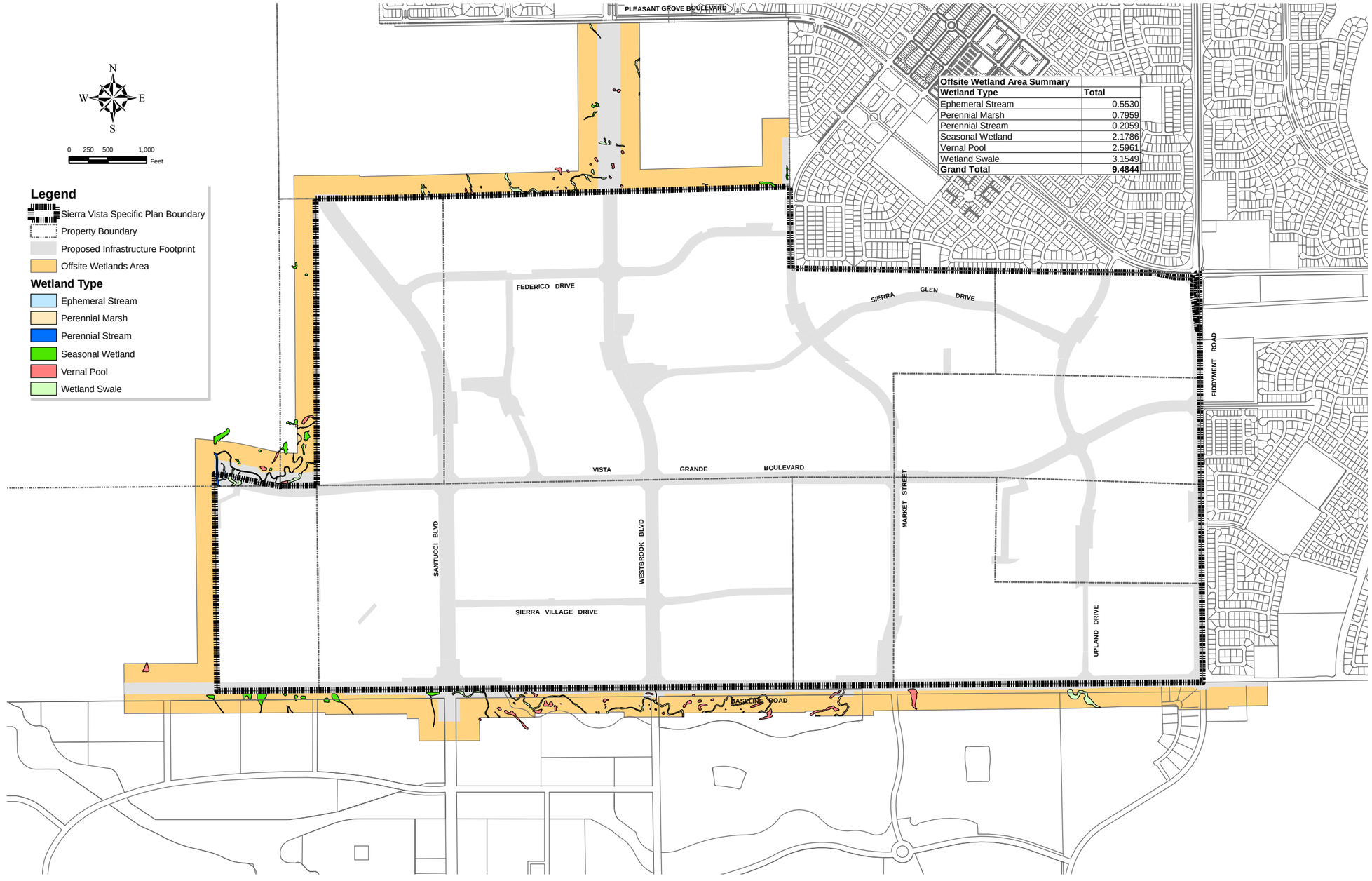



**SOURCE:** MacKay & Somps, February 2011

FIGURE **3.4-4**

Proposed Action - Waters of the US On-Site Impacts

1061-001•03/12




| Offsite Wetland Area Summary | |
|---|---|
| **Wetland Type** | **Total** |
| Ephemeral Stream | 0.5530 |
| Perennial Marsh | 0.7959 |
| Perennial Stream | 0.2059 |
| Seasonal Wetland | 2.1786 |
| Vernal Pool | 2.5961 |
| Wetland Swale | 3.1549 |
| **Grand Total** | **9.4844** |

**SOURCE:** MacKay & Somps, March 2011

FIGURE **3.4-5**

Proposed Action - Waters of the US Off-Site Impacts

The entire length of the two primary streams draining the project area, Curry Creek and Federico Creek, would be preserved. In addition, 100-foot buffers would be established along these stream corridors to minimize indirect impacts on wetlands from the proposed development. As a result of designating open space areas on the project site, 13.71 acres of wetlands would be preserved within the project site as part of the Proposed Action. No indirect impacts to the preserved wetlands within the open space areas are anticipated because grading or other ground disturbance would not occur within 100 feet of the preserved wetlands.

Although some of the on-site vernal pools and other wetlands would be preserved, and those on-site vernal pools and seasonal wetlands that would be filled are highly disturbed from disking, grazing, and cultivation, however, due to the increasing rarity of vernal pool habitat, the value of vernal pools and seasonal wetlands to plants and wildlife, their hydrologic function, and their association with many special-status species, the filling of the project site wetlands is considered to be a **significant** effect.

The Applicants have proposed a mitigation plan to compensate for the loss of wetlands and other waters of the US that will consist of preservation, restoration, and creation of wetlands on the project site and purchase of constructed vernal pools creation/restoration credits and vernal pool preservation credits from an approved conservation bank in western Placer County. The conceptual mitigation plan is described in **Mitigation Measure BIO-1a** below. Implementation of this mitigation measure would reduce the Proposed Action's effects to wetlands and other waters of the US such that there would be no net loss of wetland area and functions as a result of project implementation. With mitigation, the effect would be **less than significant.**

**Table 3.4-8a**
**Proposed Action Impacts to Waters of the US**

| Wetland Type | Waters of US on Project Site | Waters of the US within 250 feet of Project Site Boundary | On-Site Impacts | Off-Site Impacts |
|---|---|---|---|---|
| Ephemeral Stream | 0.02 | 0.55 | 0.02 | 0.32 |
| Intermittent Stream | 3.26 | 0 | 0.56 | 0 |
| Perennial Stream | 3.94 | 0.21 | 0.74 | 0.16 |
| Perennial Marsh | 0.86 | 0.80 | 0.85 | 0 |
| Pond | 2.07 | 0 | 1.05 | 0 |
| Seasonal Wetland | 6.10 | 2.18 | 4.36 | 0.37 |
| Vernal Pool | 9.31 | 2.68 | 6.12 | 0.78 |
| Wetland Swale | 10.52 | 2.56 | 8.68 | 0.82 |
| **Total** | **36.07** | **8.98** | **22.37** | **2.44** |

*Source: Gibson & Skordal 2012*

**No Action (On Site)**

Under the No Action Alternative, although the project site would be developed, all wetland areas would be avoided and no fill would be placed within the waters of the US. Furthermore, the site plan developed for the No Action Alternative also ensures that no grading or other ground disturbance would occur within 100 feet of the on-site and off-site wetlands, thereby precluding any indirect effects. There would be **no direct or indirect effects** to wetlands and no mitigation is required.

**Alts. 1 & 2 (On site)**

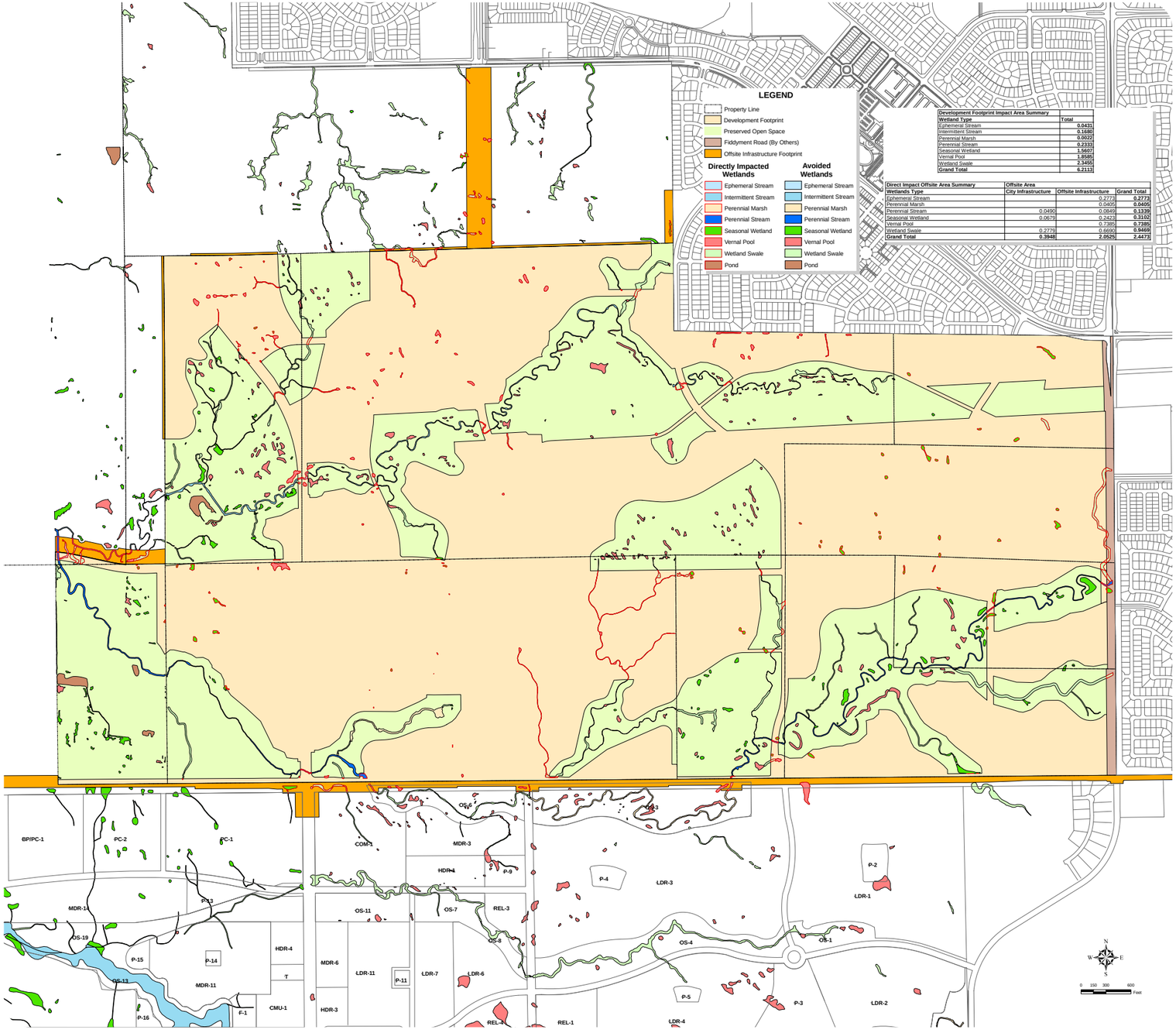
Alternatives 1 and 2 would have the same development footprint and are therefore evaluated together. Both alternatives would reduce the footprint of development within the project site by increasing the acreage designated as open space, with the additional open space focused in areas that contain the greatest concentrations of sensitive habitat (vernal pools and/or drainages). Under these alternatives, total acreage to be developed would be reduced to 1,027 acres and open space would increase to 599 acres. As a result of the reduced footprint of development, as shown in **Table 3.4-8b Alternatives 1 and 2 Impacts to Waters of the US**, these alternatives would result in the filling of 6.43 acres of wetlands on the project site and 2.18 acres off site for a total of 8.61 acres. **Figure 3.4-6, Alternatives 1 & 2 – Waters of the US On-Site Impacts**, shows the affected wetlands. The loss of these wetlands would be a **significant** effect.

**Mitigation Measure BIO-1b** would require preparation and implementation of a wetland avoidance and mitigation plan. Implementation of this mitigation measure would reduce effects to wetlands under Alternatives 1 and 2 such that there would be no net loss of wetland area and functions as a result of implementation of either alternative. With mitigation, the effect would be **less than significant.**

**Table 3.4-8b**
**Alternatives 1 and 2 Impacts to Waters of the US**

| Wetland Type | Waters of US on Project Site | Waters of the US within 250 feet of Project Site Boundary | On- Site Impacts | Off-Site Impacts |
|---|---|---|---|---|
| Ephemeral Stream | 0.02 | 0.55 | 0.04 | 0.28 |
| Intermittent Stream | 3.26 | 0 | 0.17 | 0 |
| Perennial Stream | 3.94 | 0.21 | 0.23 | 0.08 |
| Perennial Marsh | 0.86 | 0.80 | 0.002 | 0.04 |
| Pond | 2.07 | 0 | 0 | 0 |
| Seasonal Wetland | 6.10 | 2.18 | 1.93 | 0.24 |
| Vernal Pool | 9.31 | 2.68 | 1.86 | 0.74 |
| Wetland Swale | 10.52 | 2.56 | 2.20 | 0.80 |
| **Total** | **36.07** | **8.98** | **6.432** | **2.18** |

*Source: Gibson & Skordal 2012*




| Development Footprint Impact Area Summary | |
|---|---|
| **Wetland Type** | **Total** |
| Ephemeral Stream | **0.0431** |
| Intermittent Stream | **0.1580** |
| Perennial Marsh | **0.0022** |
| Perennial Stream | **0.2333** |
| Seasonal Wetland | **1.5607** |
| Vernal Pool | **1.8585** |
| Wetland Swale | **2.3455** |
| **Grand Total** | **6.2113** |

| Direct Impact Offsite Area Summary | Offsite Area | | |
|---|---|---|---|
| **Wetlands Type** | **City Infrastructure** | **Offsite Infrastructure** | **Grand Total** |
| Ephemeral Stream | | 0.2773 | **0.2773** |
| Perennial Marsh | | 0.0405 | **0.0405** |
| Perennial Stream | 0.0490 | 0.0849 | **0.1339** |
| Seasonal Wetland | 0.0678 | 0.2423 | **0.3102** |
| Vernal Pool | | 0.7385 | **0.7385** |
| Wetland Swale | 0.2779 | 0.6660 | **0.9439** |
| **Grand Total** | **0.3948** | **2.0525** | **2.4473** |

**SOURCE:** MacKay & Somps, March 2010

FIGURE **3.4-6**

Alternatives 1 & 2 - Waters of the US On-Site Impacts

**Alt. 3 (On Site)**

Under Alternative 3, in addition to the areas preserved as open space under the Proposed Action, an additional 219 acres, located primarily in the central and western portions of the project site, would be preserved. This would reduce the development footprint to 1,150 acres. As a result, as shown in **Table 3.4-8c Alternative 3 Impacts to Waters of the US**, this alternative would involve filling of 12.35 acres of wetlands on the project site and 2.41 acres of wetlands off site for a total of 14.76 acres. **Figure 3.4-7, Alternative 3 – Waters of the US On-Site Impacts**, shows the affected wetlands. The loss of these wetlands would be a **significant** effect of this alternative.

**Mitigation Measure BIO-1b** would require preparation and implementation of a wetland avoidance and mitigation plan. Implementation of this mitigation measure would reduce effects to wetlands under Alternative 3 such that there would be no net loss of wetland area and functions. With mitigation, the effect would be **less than significant.**

**Table 3.4-8c**
**Alternative 3 Impacts to Waters of the US**

| Wetland Type | Waters of US on Project Site | Waters of the US within 250 feet of Project Site Boundary | On-Site Impacts | Off-Site Impacts |
|---|---|---|---|---|
| Ephemeral Stream | 0.02 | 0.55 | 0.05 | 0.28 |
| Intermittent Stream | 3.26 | 0 | 0.18 | 0 |
| Perennial Stream | 3.94 | 0.21 | 0.15 | 0.08 |
| Perennial Marsh | 0.86 | 0.80 | 0.85 | 0.04 |
| Pond | 2.07 | 0 | 0 | 0 |
| Seasonal Wetland | 6.10 | 2.18 | 2.36 | 0.36 |
| Vernal Pool | 9.31 | 2.68 | 2.52 | 0.78 |
| Wetland Swale | 10.52 | 2.56 | 6.24 | 0.82 |
| **Total** | **36.07** | **8.98** | **12.35** | **2.41** |

*Source: Gibson & Skordal 2012*

**Alt. 4 (Off Site)**

Under Alternative 4, the proposed mixed-use community would be built on the alternative site. As shown in **Table 3.4-8d**, **Alternative 4 Impacts to Waters of the US**, this alternative would involve filling of approximately 24 acres of wetlands.[2] Construction of off-site improvements associated with this alternative would result in additional discharge of dredged or fill materials into Waters of the US along the alignments of the water and wastewater pipelines. However, the exact acreage that would be filled cannot be determined at this time because infrastructure alignments are approximate and access was not available

2 This number does not include active rice fields and fallow contour rice fields on the site; the USACE has not conducted a detailed evaluation of these areas; further evaluation could potentially find that some of these areas contain jurisdiction wetlands.

to the affected areas so wetland delineations could not be conducted. The loss of the wetlands associated with the development of Alternative 4 is considered a **significant** effect.

**Mitigation Measure BIO-1b** would require preparation and implementation of a wetland avoidance and mitigation plan. Implementation of this measure would reduce effects to wetlands under Alternative 4 such that there would be no net loss of wetland area and functions. With mitigation, the effect would be **less than significant.**

**Table 3.4-8d**
**Alternative 4 Impacts to Waters of the US**

| Wetland Type | Waters of US on Alternative 4 Site | Alternative 4 Impacts[1] |
|---|---|---|
| Ephemeral Stream | * | 0 |
| Intermittent Stream | * | 0 |
| Perennial Stream | 7 | 0 |
| Perennial Marsh | 0 | 0 |
| Pond | 12.8 | 11.3 |
| Seasonal Wetland | 25 | 12.5 |
| Vernal Pool | ** | 0 |
| Wetland Swale | 4.5 | 0 |
| **Total** | **49.3** | **23.8** |

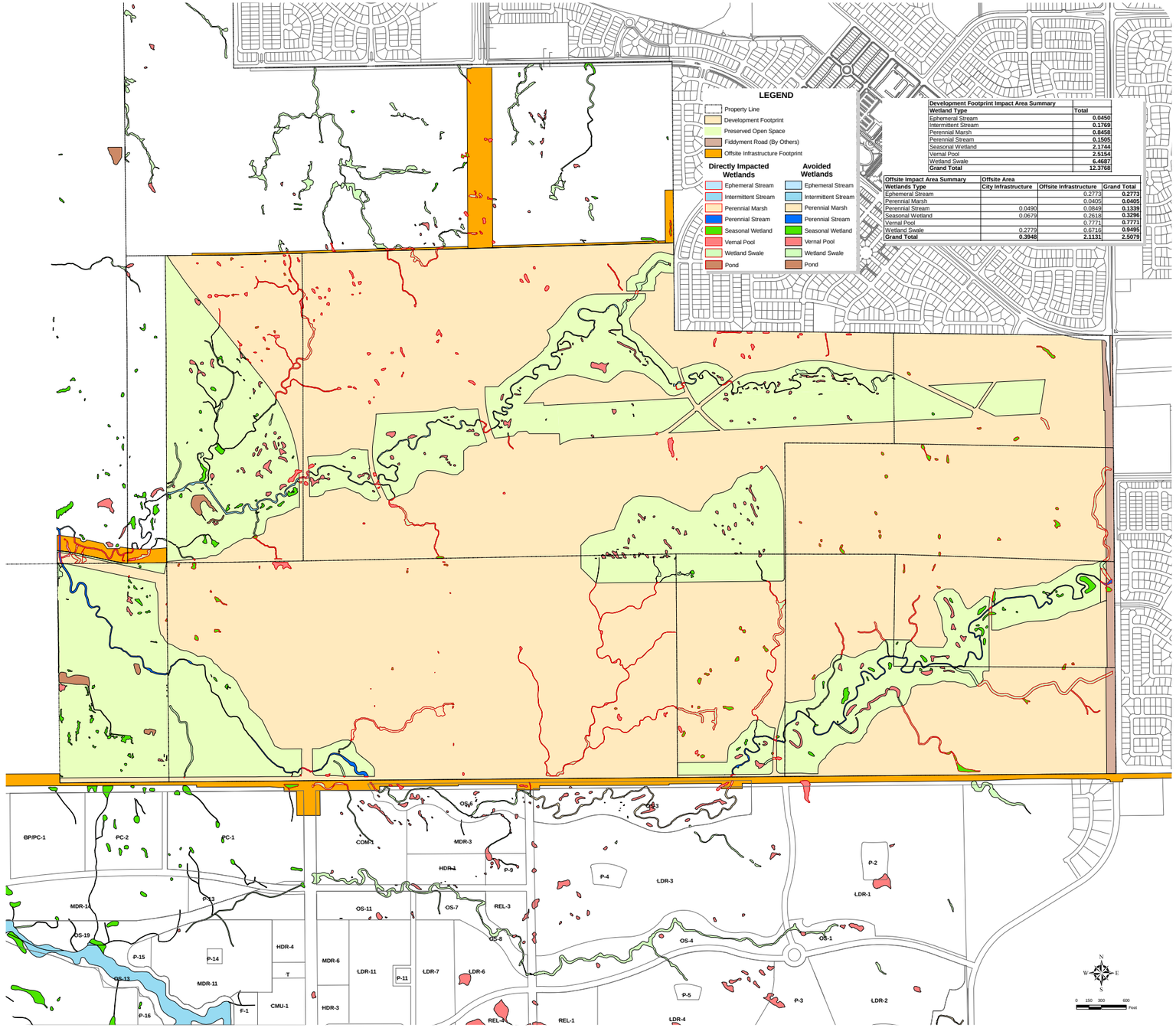
*Source: Helix Environmental Planning 2011*
[1] *Totals are approximate and are not based on wetland delineations*
* *acreage included in Perennial Stream*
** *acreage included in Seasonal Wetland*

**Mitigation Measure BIO-1a** **Wetland Compensatory Mitigation (*Applicability – Proposed Action)***

*To mitigate for the unavoidable loss of wetlands and other waters of the US, the Applicants will develop and implement a wetlands mitigation plan that will consist of preservation, restoration, and establishment of wetlands on the project site and purchase of vernal pool creation/restoration and preservation credits, and/or provide permittee-responsible preservation and/or restoration at an off-site location.* ***Table 3.4-9, Proposed Action Wetlands Impacts and Mitigation Area Summary,*** *presents acres of wetlands that would be affected under the Proposed Action and acres of wetlands that would be created or preserved under the Applicant's proposed conceptual mitigation plan.*

*On-Site Preservation and Restoration*

*The conceptual mitigation plan proposes preservation of 13.7 acres of wetlands and other waters of the US on the project site in perpetuity and managed to maintain their resource functions and values. These would be preserved within the designated open space on the project site. The open space areas include stream corridors of Curry Creek and Federico Creek and wetlands in close proximity to these streams. Approximately 100-foot buffers would be established along the two corridors to minimize indirect impacts to the preserved wetlands from the Proposed Action.*




| Development Footprint Impact Area Summary | |
|---|---|
| **Wetland Type** | **Total** |
| Ephemeral Stream | **0.0450** |
| Intermittent Stream | **0.1769** |
| Perennial Marsh | **0.8458** |
| Perennial Stream | **0.1505** |
| Seasonal Wetland | **2.1744** |
| Vernal Pool | **2.5154** |
| Wetland Swale | **6.4687** |
| **Grand Total** | **12.3768** |

| Offsite Impact Area Summary | Offsite Area | | |
|---|---|---|---|
| **Wetlands Type** | **City Infrastructure** | **Offsite Infrastructure** | **Grand Total** |
| Ephemeral Stream | 0.2773 | | **0.2773** |
| Perennial Marsh | | 0.0405 | **0.0405** |
| Perennial Stream | 0.0490 | 0.0849 | **0.1339** |
| Seasonal Wetland | 0.0679 | 0.2618 | **0.3296** |
| Vernal Pool | | 0.7771 | **0.7771** |
| Wetland Swale | 0.2779 | 0.6716 | **0.9495** |
| **Grand Total** | **0.3948** | **2.1131** | **2.5078** |

**SOURCE:** IMacKay & Somps, March 2010

FIGURE **3.4-7**

Alternative 3 - Waters of the US On-Site Impacts

*On-Site Wetlands Creation*

*The proposed on-site wetlands creation plan for the Proposed Action is shown in* ***Figure 3.4-8, Proposed On-Site Wetlands Creation****. The on-site wetland creation is designed to compensate for impacts to streams, ponds, perennial marsh, seasonal wetland swales, and a portion of the impacts to seasonal wetlands. In addition to providing partial replacement of wetland losses, it is also designed to restore, as much as possible, the function of the preserved streams that have been degraded by historic agricultural practices and upstream development.*

*According to the conceptual mitigation plan, a total of 28.24 acres of wetlands will be constructed on the project site. The wetlands will be located on low terraces excavated adjacent to the existing stream channels along the inside of stream meanders and along relatively straight reaches so as to avoid being intercepted by the natural meandering of the creek channel.*

*Off-Site Creation/Restoration and Preservation*

*According to the conceptual mitigation plan, the Applicants will provide permittee-responsible preservation and/or restoration at an off-site location or secure creation/restoration credits for 7.98 acres of constructed vernal pools and preservation credits for 14.93 acres of vernal pools from an approved mitigation bank in western Placer County within the bank's approved service area.*

**Table 3.4-9**
**Proposed Action Wetlands Impacts and Mitigation Area Summary (in Acres)**

| Wetland Type | Preserved Wetlands | Direct Impacts (Occurrence Detected Watersheds) | Direct Impacts (Occurrence Not Detected Watersheds) | On-Site Creation | Off-Site Preservation | Off-Site Restoration/ Creation |
|---|---|---|---|---|---|---|
| Ephemeral Stream | 0.00 | 0.00 | 0.34 | 0.57 | 0.00 | 0.00 |
| Intermittent Stream | 2.70 | 0.00 | 0.56 | 0.94 | 0.00 | 0.00 |
| Perennial Marsh | 0.01 | 0.00 | 0.85 | 1.42 | 0.00 | 0.00 |
| Perennial Stream | 3.20 | 0.07 | 0.83 | 1.51 | 0.00 | 0.00 |
| Pond | 1.02 | 0.00 | 1.05 | 1.75 | 0.00 | 0.00 |
| Seasonal Wetland | 1.74 | 0.71 | 4.02 | 6.74 | 3.90 | 0.71 |
| Swale Depressional | 0.11 | 0.38 | 0.00 | 0.00 | 1.02 | 0.38 |
| Vernal Pool | 3.19 | 2.81 | 4.08 | 0.00 | 10.01 | 6.89 |
| Wetland Swale | 1.73 | 3.25 | 5.88 | 15.31 | 0.00 | 0.00 |
| **Total** | **13.70** | **7.22** | **17.59** | **28.24** | **14.93** | **7.98** |

**Mitigation Measure BIO-1b** **Wetland Mitigation Plan**
**(*Applicability – Alternatives 1 through 4)***

*A wetlands mitigation plan similar to the Applicant's proposed mitigation described above for the Proposed Action will be implemented in conjunction with each alternative. The plan will incorporate similar elements, including*

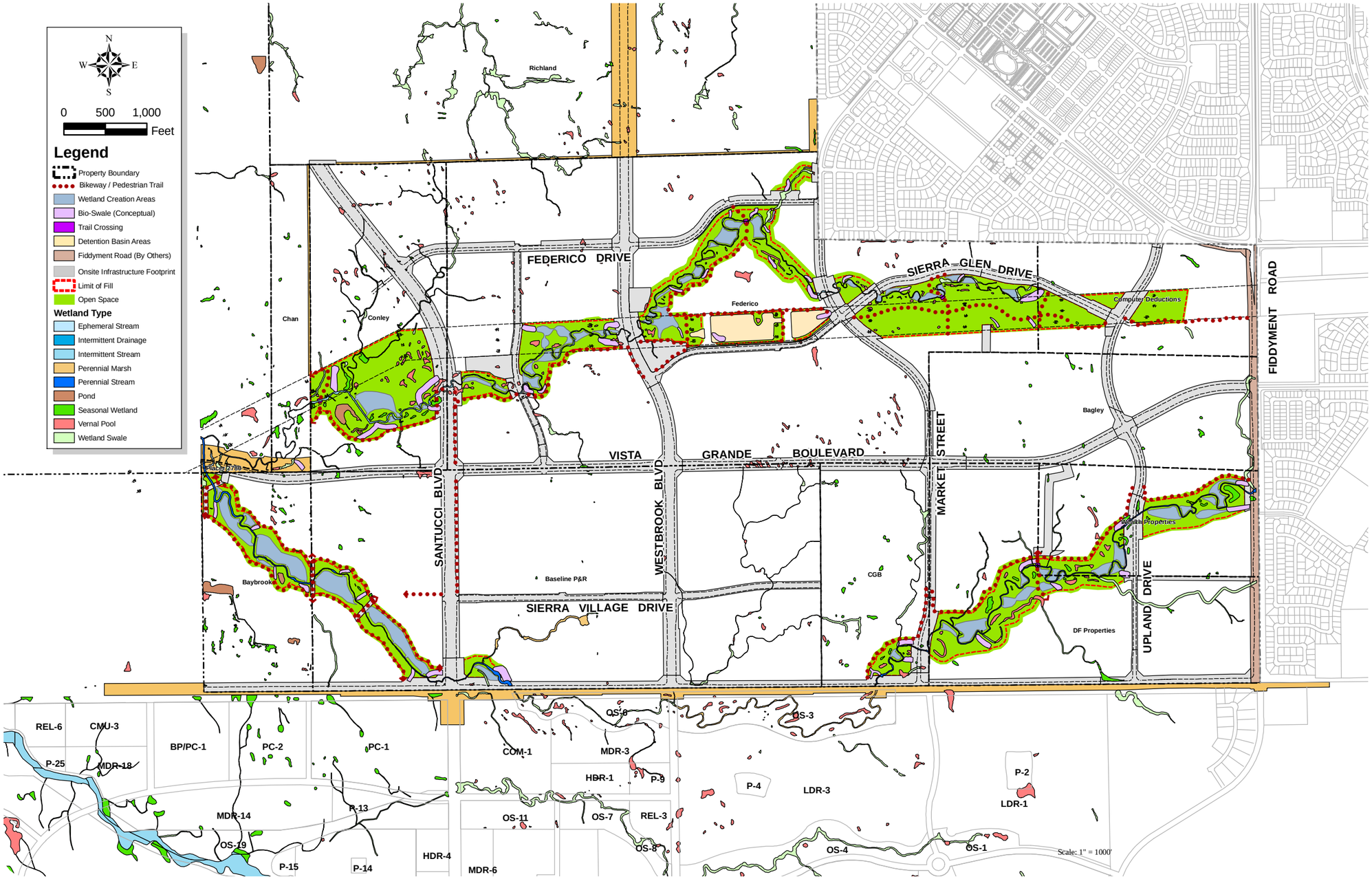
*preservation and creation of wetlands on-site, as well as permittee-responsible preservation and/or restoration at an off-site location or purchase of constructed vernal pool creation/restoration credits and preservation credits by the Applicants. The USACE would require detailed, specific mitigation plans for a given alternative and would evaluate the specifics of this plan to determine the actual mitigation requirement based on a number of factors, including functions, location, change in surface area, uncertainty or risk of failure, and temporal loss of function.*

## Impact BIO-2 Effects on Listed Vernal Pool Invertebrates and Their Habitat

**Proposed Action**

The Proposed Action would directly and indirectly affect listed vernal pool invertebrates and their habitat. As noted earlier, the project site is located in the Placer County core area (Zone 2) identified by the US Fish and Wildlife Service for the recovery of vernal pool crustacean species. Vernal pool fairy shrimp have been observed within two watersheds on the project site. Suitable habitat for listed vernal pool invertebrates such as vernal pool fairy shrimp and vernal pool tadpole shrimp is present on the project site. Crustacean habitat is recognized here as all wetlands with vernal pool hydrology. Because the line between vernal pools and seasonal wetlands is often obscure, it is reasonable to apply a geomorphic standard rather than a vegetation standard to determine whether or not a particular feature could support a breeding population of listed crustaceans. Vernal pool hydrology means those wetlands that fill with winter rains and dry by mid spring and do not receive any dry season supplemental water. On the project site, this includes vernal pools, seasonal wetlands, and depressional areas within wetland swales.

The Proposed Action would directly affect listed vernal pool invertebrates and their habitat by grading and placing fill in vernal pools, seasonal wetlands, and swale depressional areas. Grading activities would result in species mortality and permanent loss of vernal pool habitat. In addition, the Proposed Action could indirectly affect habitat in that some vernal pools/wetlands that would not be filled would be located within 250 feet of development, and their habitat value could be adversely affected because construction activities and development would encroach near them. **Table 3.4-10a, Proposed Action Impacts to Listed Vernal Pool Invertebrate Habitat – On Site,** presents the total amount of crustacean habitat present on the project site, acres of habitat present within watersheds where listed vernal pool invertebrates were detected, acres of habitat present within watersheds where listed vernal pool invertebrates were not detected, the total acres of habitat that would be directly and indirectly affected in watersheds where listed vernal pool invertebrates were detected, and the total acres of habitat that would be directly and indirectly affected in watersheds where listed vernal pool invertebrates were not detected. As the table shows, of the 15.90 acres of potential crustacean habitat on the project site, the Proposed Action would affect about 4 acres within watersheds where listed vernal pool invertebrates were detected and an estimated 11.57 acres in watersheds where listed vernal pool invertebrates were not detected. **Table 3.4-10b, Proposed Action Impacts to Listed Vernal Pool Invertebrate Habitat – Off Site,** presents the total amount of crustacean habitat outside of the project site that could be indirectly affected by on-site development or directly filled during the construction of off-site improvements. As shown in this table, the Proposed Action would affect another 4.95 acre of potential habitat off site.




**SOURCE:** MacKay & Somps, January 2011

FIGURE **3.4-8**

Proposed On-Site Wetlands Creation

**Table 3.4-10a**
**Proposed Action Impacts to Listed Vernal Pool Invertebrate Habitat – On Site**

| Type | Total Potential Habitat | Total Wetlands Filled | Occurrence Detected Watersheds | | | Occurrence Not Detected Watersheds | | |
|---|---|---|---|---|---|---|---|---|
| | | | Direct Impacts | Indirect Impacts | Total Impacts | Estimated Direct Impacts | Estimated Indirect Impacts | Estimated Total Impacts |
| Vernal Pools | 9.31 | 6.12 | 2.09 | 0.56 | **2.65** | 4.03 | 2.36 | **6.39** |
| Seasonal Wetlands | 6.10 | 4.36 | 0.53 | 0.36 | **0.89** | 3.84 | 1.34 | **5.18** |
| Wetland Swales | 10.52 | 8.30 | 2.80 | 0.29 | **3.09** | 5.50 | 1.41 | **6.91** |
| Swale Depressional | 0.49 | 0.38 | 0.38 | 0.08 | **0.46** | 0.00 | 0.00 | **0.00** |
| **Total*** | 15.90 | **10.86** | 3.00 | 1.00 | **4.00** | 7.87 | 3.70 | **11.57** |

*Source: Gibson & Skordal 2012*
** Total includes vernal pools, seasonal wetlands, and swale depressional habitat*

**Table 3.4-10b**
**Proposed Action Impacts to Listed Vernal Pool Invertebrate Habitat – Off Site**

| Type | Total Acres Off Site | Occurrence Detected Watersheds | | | Occurrence Not Detected Watersheds | | |
|---|---|---|---|---|---|---|---|
| | | Direct Impacts | Indirect Impacts | Total Impacts | Estimated Direct Impacts | Estimated Indirect Impacts | Estimated Total Impacts |
| Vernal Pools | 2.68 | 0.73 | 1.63 | **2.36** | 0.05 | 0.27 | **0.32** |
| Seasonal Wetlands | 2.18 | 0.18 | 0.88 | **1.06** | 0.18 | 0.94 | **1.12** |
| Wetland Swales | 2.56 | 0.45 | 0.84 | **1.29** | 0.37 | 0.83 | **1.20** |
| Swale Depressional | 0.09 | 0.02 | 0.07 | **0.09** | 0.00 | 0.00 | **0.00** |
| **Total*** | 4.95 | 0.93 | 2.58 | **3.51** | 0.23 | 1.21 | **1.44** |

*Source: Gibson & Skordal 2012*
** Total includes vernal pools, seasonal wetlands, and swale depressional habitat*

Based on the above, the USACE has determined that the loss of listed vernal pool invertebrates or their habitat as a result of grading, filling, or indirect degradation would be a **significant** effect.

As discussed under **Impact BIO-1**, above, **Mitigation Measure BIO-1a** will be implemented to mitigate the impacts of the Proposed Action on waters of the US, including vernal pools. The conceptual mitigation plan (**Mitigation Measure BIO-1a**) includes the preservation of 3.19 acres of on-site vernal pools, permittee-responsible preservation and/or restoration at an off-site location or purchase of 7.98 acres of created/restored vernal pool credits, and purchase of 14.94 acres of vernal pool preservation credits. This plan would therefore also

mitigate the Proposed Action's effects on listed vernal pool invertebrates. In addition, **Mitigation Measure BIO-2a** will be implemented to mitigate the Proposed Action's effects on listed vernal pool invertebrates.

As stated earlier, the Sierra Vista Specific Plan designates some portions of the project site as open space and crustacean habitat present within these open space areas would not be directly affected. The proposed pedestrian trails under the Proposed Action would be located along the edge of the open space area and would include educational signage at open space boundaries. This would minimize the potential for indirect effects from passive recreational use and human access. However, potential indirect impacts to avoided crustacean habitat could result from construction activities near crustacean habitat, changes to hydrological conditions or erosion of adjacent uplands that could result in the deposition of sediment within the avoided wetlands, discharge of urban runoff containing fertilizers, pesticides and herbicides, and an increase in exotic weed species. Maintenance activities such as firebreak maintenance, weed abatement, and construction and maintenance of trails and utilities, could also degrade habitat. **Mitigation Measure BIO-2b** would avoid and reduce any indirect impacts on preserved vernal pools and wetlands from construction. In summary, with mitigation, the effect would be **less than significant**.

**No Action (On Site)**

Under the No Action Alternative, no wetlands would be filled. In addition to avoiding all wetlands, the land use plan for the No Action Alternative would create a 100-foot buffer around all wetlands that would further protect the preserved wetlands. Therefore, there would be no direct impact to listed crustacean' habitat from development under the No Action Alternative. However, as noted earlier, should construction activities occur within 250 feet of vernal pools and wetlands, the habitat value of the pools could decline. In addition, impervious surfaces added to the site under this alternative could change the hydrology and geomorphology of the wetlands, and the development of the site would substantially fragment the vernal pool habitat. For all of these reasons, development of the No Action Alternative could result in indirect effects on listed vernal pool invertebrates and their habitat. The effect on listed vernal pool invertebrates or their habitat under the No Action Alternative would be a **significant** effect.

**Mitigation Measure BIO-2a and Mitigation Measure BIO-2b** would be implemented to avoid or reduce potential impacts on listed vernal pool invertebrate habitat. With mitigation, the effect would be **less than significant**.

**Alts. 1&2 (On Site)**

Alternatives 1 and 2 would have the same development footprint and are therefore evaluated together. As shown in **Tables 3.4-11a** and **3.4-11b,** the alternatives would affect 3 acres of listed vernal pool invertebrate habitat on the project site and 4 acres off the project site for a total of 7 acres within watersheds where listed vernal pool invertebrates were detected and would affect about 10 acres of habitat in watersheds where the species were not detected. The loss of listed vernal pool invertebrates or their habitat as a result of grading, filling, or indirect degradation under Alternatives 1 and 2 would be a **significant** effect.

**Mitigation Measure BIO-1b and Mitigation Measure BIO-2a** would reduce direct effects on listed vernal pool invertebrate habitat by providing replacement habitat and preserving wetlands similar to those removed by the alternative. **Mitigation Measure BIO-2b** would also be implemented to avoid or reduce potential construction-phase indirect impacts on vernal pool species habitat within the preserved areas on the project site. With mitigation, the effect would be **less than significant**.

**Table 3.4-11a**
**Alternatives 1 and 2 Impacts to Listed Vernal Pool Invertebrate Habitat – On Site**

| | | | Occurrence Detected Watersheds | | | Occurrence Not Detected Watersheds | | | Total Potential Impacts in all Watersheds |
|---|---|---|---|---|---|---|---|---|---|
| Type | Total Potential Habitat | Total Wetlands Filled | Direct Impacts | Indirect Impacts | Total Impacts | Estimated Direct Impacts | Estimated Indirect Impacts | Total Impacts | |
| Vernal Pools | 9.31 | 1.86 | 0.63 | 1.60 | **2.23** | 1.23 | 3.84 | **5.07** | **7.30** |
| Seasonal Wetlands | 6.10 | 1.93 | 0.14 | 0.34 | **0.48** | 1.79 | 2.00 | **3.79** | **4.27** |
| Wetland Swales | 10.52 | 2.09 | 0.91 | 1.39 | **2.30** | 1.18 | 4.65 | **5.83** | **8.13** |
| Swale Depressional | 0.49 | 0.11 | 0.11 | 0.21 | **0.32** | 0.00 | 0.00 | **0.00** | **0.32** |
| **Total*** | 15.90 | 3.90 | 0.88 | 2.15 | **3.03** | 3.02 | 5.84 | **8.86** | **11.89** |

*Source: Gibson & Skordal 2012*
** Total includes vernal pools, seasonal wetlands, and swale depressional habitat*

**Table 3.4-11b**
**Alternatives 1 and 2 Impacts to Listed Vernal Pool Invertebrate Habitat – Off Site**

| | | Occurrence Detected Watersheds | | | Occurrence Not Detected Watersheds | | |
|---|---|---|---|---|---|---|---|
| Type | Total Acres Off Site | Direct Impacts | Indirect Impacts | Total Impacts within | Estimated Direct Impacts | Estimated Indirect Impacts | Estimated Total Impacts |
| Vernal Pools | 2.68 | 0.69 | 1.47 | **2.16** | 0.05 | 0.27 | **0.32** |
| Seasonal Wetlands | 2.18 | 0.18 | 0.88 | **1.06** | 0.06 | 0.82 | **0.88** |
| Wetland Swales | 2.56 | 0.43 | 0.83 | **1.26** | 0.35 | 0.85 | **1.20** |
| Swale Depressional | 0.09 | 0.02 | 0.04 | **0.06** | 0.00 | 0.00 | **0.00** |
| **Total*** | 4.95 | 0.89 | 2.39 | **3.60** | 0.11 | 1.09 | **1.20** |

*Source: Gibson & Skordal 2012*
** Total includes vernal pools, seasonal wetlands, and swale depressional habitat.*

**Alt. 3 (On Site)**

Alternative 3 would focus the area of disturbance on the project site such that there would be contiguity within the preserved areas. As shown in **Table 3.4-12a, Alternative 3 Impacts to Listed Vernal Pool Invertebrate Habitat – On Site,** and **Table 3.4-12b, Alternative 3 Impacts to Listed Vernal Pool Invertebrate Habitat – Off Site,** the alternative would directly impact 2.5 acres of listed species' habitat on the project site and 3.4 acres off the project site for a total of about 6 acres within watersheds where the species were detected and about 11 acres in watersheds where the species were not detected. The loss of listed vernal pool invertebrates or their habitat as a result of grading, filling, or indirect degradation would be a **significant** effect of the alternative.

**Mitigation Measure BIO-1b** and **Mitigation Measure BIO-2a** would reduce impacts on listed vernal pool invertebrate habitat by providing replacement habitat and preserving wetlands similar to those removed by the alternative. **Mitigation Measure BIO-2b** would also be implemented to avoid or reduce potential construction-phase indirect impacts on vernal pool species habitat within the preserved areas on the project site. The effect would be **less than significant** with mitigation.

**Table 3.4-12a**
**Alternative 3 Impacts to Listed Vernal Pool Invertebrate Habitat – On Site**

| Type | Total Potential Habitat | Total Wetlands Filled | Occurrence Detected Watersheds | | | Occurrence Not Detected Watersheds | | | Total Potential Impacts in all Watersheds |
|---|---|---|---|---|---|---|---|---|---|
| | | | Direct Impacts | Indirect Impacts | Total Impacts | Estimated Direct Impacts | Estimated Indirect Impacts | Total Impacts | |
| Vernal Pools | 9.31 | 2.52 | 1.03 | 0.75 | **1.79** | 1.48 | 4.10 | **5.58** | **7.37** |
| Seasonal Wetlands | 6.10 | 2.36 | 0.28 | 0.13 | **0.41** | 2.08 | 1.95 | **4.03** | **4.44** |
| Wetland Swales | 10.52 | 5.97 | 2.09 | 0.30 | **2.39** | 3.88 | 2.49 | **6.37** | **8.76** |
| Swale Depressional | 0.49 | 0.27 | 0.27 | 0.02 | **0.29** | 0.00 | 0.00 | **0.00** | **0.29** |
| **Total*** | 15.90 | 4.96 | 1.58 | 0.91 | **2.49** | 3.56 | 6.05 | **9.61** | **12.10** |

*Source: Gibson & Skordal 2012*
** Total includes vernal pools, seasonal wetlands, and swale depressional habitat.*

**Table 3.4-12b**
**Alternatives 3 Impacts to Listed Vernal Pool Invertebrate Habitat – Off Site**

| Type | Total Potential Habitat | Occurrence Detected Watersheds | | | Occurrence Not Detected Watersheds | | |
|---|---|---|---|---|---|---|---|
| | | Direct Impacts | Indirect Impacts | Total Impacts | Estimated Direct Impacts | Estimated Indirect Impacts | Estimated Total Impacts |
| Vernal Pools | 2.68 | 0.73 | 1.50 | **2.23** | 0.05 | 0.27 | **0.32** |
| Seasonal Wetlands | 2.18 | 0.18 | 0.88 | **1.06** | 0.18 | 0.63 | **0.81** |
| Wetland Swales | 2.56 | 0.43 | 0.84 | **1.27** | 0.37 | 0.83 | **1.20** |
| Swale Depressional | 0.09 | 0.02 | 0.07 | **0.09** | 0.00 | 0.00 | **0.00** |
| **Total*** | 4.95 | 0.93 | 2.45 | **3.38** | 0.23 | 0.90 | **1.13** |

*Source: Gibson & Skordal 2012*
** Total includes vernal pools, seasonal wetlands, and swale depressional habitat*

**Alt. 4 (Off Site)**

Suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp occurs on the alternative site in association with vernal pools and seasonal wetlands embedded within annual grassland and located throughout the site. As shown in **Table 3.4-13, Alternative 4 Approximate Impacts to Listed Vernal Pool Invertebrate Habitat**, this alternative would involve direct impacts on approximately 17 acres and indirect impacts on 7.6 acres of listed crustacean habitat. Additional impacts to vernal pool crustacean habitat would result from off-site improvements associated with this alternative as portions of those improvements traverse annual grassland habitat that contains seasonal wetlands and vernal pools. However, for reasons presented under Impact BIO-1, the effects of the off-site improvements cannot be quantified. Direct loss and indirect degradation of this habitat as a result of the development of Alternative 4 is considered a **significant** impact.

**Mitigation Measure BIO-1b and Mitigation Measure BIO-2a** would reduce effects associated with impacts on listed vernal pool crustacean habitat by providing replacement habitat and preserving wetlands similar to those removed by the alternative. **Mitigation Measures BIO-2b** would also be implemented to avoid or reduce potential construction-phase indirect impacts on vernal pool species within the preserved areas on the alternative site. With mitigation, the effect would be **less than significant**.

**Table 3.4-13**
**Alternative 4 Approximate Impacts to Listed Invertebrate Habitat***

| Type | Total Potential Habitat | Direct Impacts | Indirect Impacts | Total Impacts |
|---|---|---|---|---|
| Vernal Pools** | 15 | 9.9 | 4.8 | 14.7 |
| Seasonal Wetlands | 10 | 7.2 | 2.8 | 10.0 |
| Wetland Swales | 4.5 | 3.7 | 0.8 | 4.5 |
| Swale Depressional | 0.05 | 0.03 | 0.01 | 0.04 |
| **Total*** ** | **25** | **17.1** | **7.6** | **24.6** |

*Source: Helix Environmental 2011*

* *These acreages are approximate and are not based on wetland delineations. The acreages do not include off-site infrastructure impacts.*

** *Based on proportion of vernal pools to seasonal wetlands within the project site.*

*** *Total includes vernal pools, seasonal wetlands, and swale depressional habitat.*

**Mitigation Measure BIO-2a** **Secure Take Authorization for Federally Listed Vernal Pool Invertebrates and Implement Permit Conditions (*Applicability – Proposed Action and All Alternatives*)**

*No project construction shall proceed on the project until a biological opinion (BO) has been issued by USFWS. The USACE will consult with the USFWS and incorporate the BO conditions into the terms and conditions of the DA permits. The project applicant(s) will abide by permit conditions (including conservation and minimization measures) intended to be completed before on-site construction.*

*The 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.*

**Mitigation Measure BIO-2b** **Mitigation Measures to Avoid and Minimize Long-Term Effects on Preserved/Avoided Crustacean Habitat (*Applicability – Proposed Action and All Alternatives*)**

- *The Applicants/developer shall place created and/or avoided preserved wetlands, other aquatic areas, and any vegetative buffers preserved as part of mitigation for impacts into a separate "preserve" parcel prior to initiation of construction activities within waters of the US Permanent legal protection shall be established for all preserve parcels, following Sacramento District approval of the legal instrument.*
- *The Applicants/developer shall develop a specific and detailed preserve management plan for the on-site and off-site mitigation, preservation, and avoidance areas. This plan shall be submitted to and specifically approved, in writing, by the USACE prior to initiation of construction activities within waters of the US. This plan shall describe in detail any activities that are proposed within the preserve area(s) and the long term funding and maintenance of each of the preserve area(s).*

## Impact BIO-3 Effects on Federally Listed Plant Species

**Proposed Action** Vernal pools on the project site represent potential habitat for special-status plant species. Although focused special-status plant surveys were conducted during the blooming period for all special-status plant species likely to occur in the area, none of the federally listed-plant species were observed on the project site or in the off-site impact area. Furthermore, as discussed in **Subsection 3.4.2.9**, it is unlikely that federally listed vernal pool species such as Red Bluff dwarf rush, slender orcutt grass, and Sacramento Valley orcutt grass would occur on the project site because the habitat on the site is marginal and there are no known occurrences of the species in Placer County. Specifically, the federally listed slender orcutt grass, and Sacramento Valley orcutt grass species are unlikely to occur at the project site because the species prefer larger, deeper vernal pools than those that occur within the project site. As there are no federally listed species known to or are likely to occur on the project site, implementation of the Proposed Action would not affect federally listed plant species. The effect would be **less than significant**. No mitigation is required.

**No Action, Alts. 1, 2 &3 (On Site)** As there are no federally listed plant species known to or are likely to occur on the project site, implementation of the No Action and Alternatives 1, 2, and 3 would not affect federally listed plant species. The effect would be **less than significant.** No mitigation is required.

**Alt. 4 (Off Site)**

Alternative 4 site contains potential habitat for special-status plant species. As discussed in **Subsection 3.4.2.15**, it is unlikely that listed vernal pool plant species such as slender orcutt grass and Sacramento Valley orcutt grass would occur on the site because the habitat on the site is marginal and there are no known occurrences of the species in Placer County. As there are no federally listed plant species known to or are likely to occur on the Alternative 4 site, implementation of Alternative 4 would not affect federally listed plant species. The effect would be **less than significant.** No mitigation is required.

## Impact BIO-4 Effects on Federally Listed Amphibian and Reptile Species

**Proposed Action**

*Red-legged Frog*

As discussed in **Subsection 3.4.2.9**, the project site does not support red-legged frog. Therefore, the Proposed Action would not affect this species. The effect of the Proposed Action on red-legged frog would be **less than significant**. No mitigation is required.

*California Tiger Salamander*

As discussed in **Subsection 3.4.2.9**, the project site does not support California tiger salamander. The effect of the Proposed Action on California tiger salamander would be **less than significant**. No mitigation is required.

*Giant Garter Snake*

The project site is within giant garter snake historic range and does support marginally suitable habitat along portions of Curry Creek. However, there are no documented occurrences of giant garter snakes in western Placer County and the nearest occurrence is 5 miles from the project site. As the potential for the species to occur in or near the project site drainages is low, construction activities associated with the Proposed Action are not likely to adversely affect giant garter snake. The effect would be **less than significant**. No mitigation is required.

**No Action, Alts. 1, 2 & 3 (On Site)**

*Red-legged Frog*

As discussed above, the project site does not support red-legged frog. Therefore the effect of the No Action Alternative on red-legged frog would be **less than significant.** No mitigation is required.

*California Tiger Salamander*

As discussed above, the project site does not support California tiger salamander. The effect of the No Action Alternative on California tiger salamander would be **less than significant**. No mitigation is required.

*Giant Garter Snake*

As discussed above, the project site is within the historic range of giant garter snake and

provides marginally suitable habitat along portions of Curry Creek. As the potential for the species to occur in or near the project site drainages is low, construction activities associated with the on-site alternatives are not likely to adversely affect giant garter snake. The effect would be **less than significant**. No mitigation is required.

**Alt. 4 (Off Site)**

*Red-legged Frog*

As discussed in **Subsection 3.4.2.15**, Alternative 4 site does not support red-legged frog. The effect of the alternative on red-legged frog would be **less than significant.** No mitigation is required.

*California Tiger Salamander*

As discussed in **Subsection 3.4.2.15**, Alternative 4 site does not support California tiger salamander. The effect of the alternative on California tiger salamander would be **less than significant**. No mitigation is required.

*Giant Garter Snake*

As discussed above, Alternative 4 site is within giant garter snake range and does support suitable habitat. Portions of the alternate site contain seasonally flooded rice fields, perennial waterways, ditches, and Curry Creek, all of which are potential habitat for giant garter snake. This alternative therefore has a greater potential to affect the snake and its habitat. Therefore, the effect on giant garter snake would be **significant**. **Mitigation Measure BIO-4** would ensure that giant garter snakes, if encountered during construction, are not adversely affected. With mitigation, the effect would be **less than significant**.

**Mitigation Measure BIO-4** **Giant Garter Snake Impact Mitigation (*Applicability – Alternative 4)***

*The Applicants shall develop a mitigation plan that is designed to avoid take of the species. The plan would be implemented during construction within giant garter snake aquatic and upland habitat on the alternative site.*

## Impact BIO-5 Effects on Valley Elderberry Longhorn Beetle

**Proposed Action, No Action, Alts. 1, 2 & 3 (On Site)**

Numerous field surveys conducted on the project site did not detect any elderberry shrubs which provide habitat for the valley elderberry longhorn beetle (VELB), a federally listed species. Therefore, the Proposed Action will not adversely affect this species. The effect on VELB would be **less than significant**. No mitigation is required.

**Alt. 4 (Off Site)**

Elderberry shrubs were not observed on the alternative site during the reconnaissance survey. Furthermore, the nearest known occurrences are to the northeast and east along the Bear River near Wheatland and from the Rocklin area. However, the absence of elderberry shrubs could not be conclusively established for the alternative site due to

limited access. Therefore elderberry shrubs could occur in some portions of the site. To the extent that these occur outside of riparian areas, they are less likely to support VELB. However, elderberry shrubs within Curry Creek riparian area would be more likely to support VELB and all elderberry shrubs are considered potential habitat. Alternative 4 development, therefore, has the potential to result in a **significant** effect on VELB and its habitat. **Mitigation Measure BIO-5** would mitigate this effect to **less than significant.**

**Mitigation Measure BIO-5** **Valley Elderberry Longhorn Beetle (VELB) (*Applicability – Alternative 4*)**

*Prior to any ground disturbing or construction activities within 100 feet of the identified elderberry shrub, the Applicants shall consult with the USFWS. The Applicants shall install and maintain a 4-foot-high construction fence around the perimeter of the elderberry shrub. No grading or any other ground disturbing activities shall be conducted within the fenced protected area without prior verification that the requirements of the USFWS have been satisfied, including the issuance of any necessary permits.*

*The Applicants shall avoid and protect the VELB habitat (elderberry stalks 1 inch in diameter or greater) where feasible. Where avoidance is infeasible, the Applicants shall develop and implement a VELB mitigation plan in accordance with the most current USFWS mitigation guidelines for unavoidable take of VELB habitat pursuant to either Section 7 or Section 10(a) of the Federal Endangered Species Act. The mitigation plan shall include, but might not be limited to, relocation of elderberry shrubs, planting of elderberry shrubs, and monitoring of relocated and planted elderberry shrubs.*

## Impact BIO-6 Effects on State Special-Status Wildlife Species

**Proposed Action**

*Western Spadefoot Toad*

Western spadefoot toad is a state and federal species of concern, and is fully protected pursuant to the California Fish and Game Code. Although the species was not observed on the site during surveys, there is a potential that it is present on the site. Western spadefoot has been detected in the past in the vicinity of the project site (West Roseville EIR 2004). Furthermore, the project site contains suitable habitat for this species, which includes vernal pools, seasonal wetlands, and adjacent grassland habitat. Filling and grading of vernal pools, seasonal wetlands, and the adjacent upland habitat could result in the loss of individual western spadefoot toads and/or their habitat. This would be a **significant** effect.

**Mitigation Measure BIO-6** would minimize the potential for loss of individuals during site grading activities. In compliance with this mitigation measure, prior to earth moving, measures would be implemented to capture any adult or larval western spadefoot toads, or western spadefoot egg masses, and relocate them to suitable habitat. Additionally, implementation of the mitigation plan for loss of wetlands described under **Mitigation Measure BIO-1a**, which requires preservation and protection of existing vernal pools, would protect individual western spadefoot toads by avoiding impacts on areas that are

designated open space. **Mitigation Measure BIO-1a** would also require creation and preservation of wetlands both on site and off site. Ensuring no net loss of wetlands would provide protection of potential habitat for western spadefoot by preserving or enhancing and protecting habitat that is capable of supporting this species. Furthermore, pursuant to mitigation measures incorporated in the Proposed Action to address impacts to Swainson's hawk foraging habitat, more than 1,300 acres of grassland habitat would be preserved. All of these measures would reduce potential effects to this species to **less than significant**.

*Western Pond Turtle*

No pond turtles were found during surveys of the project site, and Curry Creek and the stock ponds are considered marginal habitat. The Proposed Action would have a less than significant effect through habitat modification because Curry Creek will remain as open space as part of the project. Further, land immediately adjacent to Curry Creek will be modified to increase in-stream wetlands for stormwater detention and habitat enhancement. At the completion of the project, the Proposed Action would provide additional habitat for the turtle, should they occur in the area. Therefore, there would be a **less than significant** effect on this species from the Proposed Action. No mitigation is required.

**No Action**

*Western Spadefoot*

**(On Site)**

As noted above, the project site contains habitat for western spadefoot, including vernal pools, seasonal wetlands, and adjacent grassland habitat. While the No Action Alternative would not directly affect vernal pools or seasonal wetlands, it would replace grassland habitats with urban uses. In addition, the No Action Alternative could indirectly affect western spadefoot habitat in the long term by adding impervious surfaces that could change the hydrology and geomorphology of the wetted areas. This would be a **significant** effect. Implementation of **Mitigation Measure BIO-6** would reduce effects on western spadefoot to **less than significant**.

*Western Pond Turtle*

The No Action Alternative would not result in development in the creeks that could affect western pond turtles. The effect on the species would be **less than significant**. No mitigation is required.

**Alts. 1, 2, & 3**

*Western Spadefoot*

**(On Site)**

Alternatives 1, 2, and 3 would result in similar direct and indirect impacts on western spadefoot as described above for the Proposed Action. Based on the significance criteria and for the reasons presented above, the effects on western spadefoot would be **significant**. The same mitigation measure (**Mitigation Measure BIO-6)** would be implemented to mitigate the effects. With mitigation, the effect would be **less than**

**significant**.

*Western Pond Turtle*

The alternatives would not result in development in the creeks that could affect western pond turtles or western pond turtle habitat although creek crossings would be constructed. The effect on the species would be **less than significant**. No mitigation is required.

**Alt. 4** *Western Spadefoot*

**(Off Site)** Alternative 4 would result in similar direct and indirect effects on western spadefoot as described above for the Proposed Action. This impact is considered **significant**. The same mitigation measure (**Mitigation Measure BIO-6)** would be implemented to mitigate the effects. With mitigation, the effect would be **less than significant**.

*Western Pond Turtle*

The alternative would not result in development in the creeks that could affect western pond turtles. The effect on the species would be **less than significant**. No mitigation is required.

**Mitigation Measure BIO-6** **Relocate Western Spadefoot Toad (*Applicability – Proposed Action and All Alternatives*)**[3]

*The location of pools that are occupied by western spadefoot toad shall be determined through surveys conducted during the appropriate season (generally February) by a qualified biologist. Those pools that are found to support western spadefoot toad shall be avoided if feasible. If avoidance is not feasible, the CDFG shall be consulted for its recommendation with respect to an adult or larval or egg masses capture and relocation plan.*

## Impact BIO-7 Effects on Protected Raptor Species and Other Nesting Birds

**Proposed Action** Ground disturbing activities and tree removal under the Proposed Action would affect potential nesting habitat of protected bird species. Construction disturbance as part of the project site development could result in active nest abandonment, removal of an active nest, or otherwise injure a raptor or nesting birds. This would be a **significant** effect.

Grassland and trees within the project site provide suitable foraging habitat and nesting sites for several protected raptor species. Special-status species surveys in the project site (2006-2009) documented the presence of several protected raptor species, including Swainson's hawk, burrowing owl, white-tailed kite, and northern harrier. Disturbance resulting in active nest abandonment or removal of an active nest or otherwise injuring, pursuing, or killing a protected raptor is prohibited under the Federal Migratory Bird Treaty Act, the California Endangered Species Act, and/or the California Fish and Game

3 This measure is substantially the same as Mitigation Measure 4.8-2 in the Sierra Vista Specific Plan EIR and was adopted by the City of Roseville at the time of project approval and will be enforced by the City.

Code. The potential effects on nesting birds are presented below.

*Swainson's hawk*

A Swainson's hawk nest was observed in the southwestern corner of the project site (**see Figure 3.4-1**). Development of the Proposed Action would eliminate approximately 1,300 acres of grassland foraging habitat for this species. CDFG recommends that projects that result in the loss of potential habitat for Swainson's hawk (which includes grasslands) within 10 miles of an active nest site provide mitigation for that loss. As part of the CEQA review process for the Proposed Action and in compliance with California Fish and Game Code, the Applicants have committed to mitigating the loss of Swainson's hawk foraging habitat by preserving grassland habitat at the CDFG-specified ratios. No additional mitigation is required.

*Other Raptors*

A possible white-tailed kite nest was observed in the eastern portion of the project site. Four red-tailed hawk nests were observed within the project site and nearby. In addition, one great-horned owl nest was observed within the project site. While these species are relatively common throughout their ranges, disturbances and habitat loss could cause permanent nest abandonment that could affect a portion of the local populations. Several adult northern harriers were observed foraging in the project site during the survey. The cattails on the eastern side of Curry Creek provide suitable nesting habitat for this species. Although few ground squirrel burrows are present, the entire project site is otherwise considered suitable for burrowing owls, and may be occasionally used for foraging by the species.

*Other Nesting Birds*

Tri-colored black birds, while not observed on site, could potentially nest in the marsh adjacent to Fiddyment Road. There are no known occurrences of California black rail on the project site or in its vicinity. The nearest reported occurrence is in Clover Valley, in Rocklin, approximately 5 miles east of the project site. Given the restricted range of the rail and the limited amount of marsh habitat on the site, it is unlikely that this species occurs in the project site. Specific surveys for black rail were not conducted as part of the project site surveys, however. Therefore, the potential exists that the black rail could be present in the project site. If black rails are present on the site, construction activities could adversely affect this species.

No heron rookeries are present within the project site. However, rookeries could be established prior to commencement of construction on the project site.

In summary, ground disturbing activities and tree removal for project implementation would affect potential nesting habitat of protected bird species. Construction disturbance as part of the project site development could result in active nest abandonment, removal

of an active nest, or otherwise injure a raptor or nesting birds. This would be a **significant** effect.

To ensure that protected bird species are not taken during project construction, **Mitigation Measure BIO-7** would require that, when feasible, tree removals or excavation near potential burrowing owl burrows occur during the period when these species are not nesting (September through February). If removal of trees or excavation near potential burrowing owl burrows during the nesting season is unavoidable, pre-construction surveys shall be conducted to determine whether or not active nests are present. In the event that active nests are present, construction will cease within the vicinity of the nest and appropriate protocols shall be followed in consultation with CDFG during the removal and relocations of those nests. With mitigation, the effect would be **less than significant**.

**No Action, Alts. 1, 2 & 3 (On Site)** Ground disturbing activities and tree removal for the development of the on-site alternatives would affect potential nesting habitat of protected bird species. This would be a **significant** effect. **Mitigation Measure BIO-7** would require avoidance and protection of active nest sites. With mitigation, the effect would be **less than significant**.

**Alt. 4 (Off Site)** Development of Alternative 4 would also involve ground disturbing activities and tree removal that could affect potential nesting habitat of protected bird species at the alternate site. This would be considered a **significant** effect. **Mitigation Measure BIO-7** would require avoidance and protection of active nest sites. With mitigation, the effect would be **less than significant**.

**Mitigation Measure BIO-7** **Protection of Nesting Sites (Applicability – Proposed Action and All Alternatives)[4]**

*To ensure that fully protected bird and raptor species are not injured or disturbed by construction in the vicinity of nesting habitat, the Applicants shall implement the following measures:*

*Raptors*

*a) If a nest of a legally protected species is located in a tree designated for removal, the removal shall occur between August 30th and February 15th or until the adults and young of the year are no longer dependent on the nest site as determined by a qualified biologist.*

*b) When feasible, all tree removal shall occur outside the nesting season to avoid the breeding season of any raptor species that could be using the area, and to discourage hawks from nesting in the vicinity of an upcoming construction area.*

4 This measure is substantially the same as Mitigation Measure 4.8-3 in the Sierra Vista Specific Plan EIR and was adopted by the City of Roseville at the time of project approval and will be enforced by the City.

*c) For Swainson's hawk, if avoidance of tree removal outside the breeding season is not feasible, and an active nest is present, the Applicants will be required to obtain a 2081 permit from CDFG to mitigate for potential "take" under CESA. If no active nesting is occurring, a take permit would not be required.*

*d) Prior to the beginning of mass grading, including grading for major infrastructure improvements, during the period between February 15th and August 30th, all trees and potential burrowing owl habitat within 350 feet of any grading or earthmoving activity shall be surveyed for active raptor nests or burrows by a qualified biologist no more than 30 days prior to disturbance. If active raptor nests or burrows are found, and the nest or burrow is within 350 feet of potential construction activity, a highly visible temporary fence shall be erected around the tree or burrow(s) at a distance of up to 350 feet, depending on the species, from the edge of the canopy to prevent construction disturbance and intrusions on the nest area.*

*e) Preconstruction and non-breeding season burrowing owl exclusion measures shall be developed in consultation with CDFG, and shall preclude burrowing owl occupation of the portions of the project site subject to disturbance such as grading.*

*f) No construction vehicles shall be permitted within restricted areas (i.e., raptor protection zones) unless directly related to the management or protection of the legally protected species.*

*Black Rails and Tri-colored Blackbirds*

*Prior to earth moving that would disturb marsh habitat, a qualified biologist shall conduct surveys to determine whether the California black rail or Tri-colored blackbird is present. If either of these species is found, all earth moving within 250 feet shall stop and measures, including establishing nest protection buffers along both sides of Curry Creek during the nesting season (generally February 1 through August 31st) shall be implemented.*

*Rookeries*

*Prior to earthmoving that would disturb marsh habitat or tree removal of the eucalyptus grove, pre-construction surveys should be conducted to verify that no rookeries have been established. If rookeries are found to be present, all earth moving within 250 feet shall stop during the breeding season.*

## Impact BIO-8 Effects on State Special-Status Bats

**Proposed Action, No Action, Alts. 1, 2 & 3 (On Site)**

The Proposed Action and all on-site alternatives (No Action, Alternatives 1, 2, and 3) would result in a **less than significant** effect on special-status bat species.

Three special-status bats potentially occur in the project site, including pallid bat, Townsend's big-eared bat, and Yuma myotis, which are all state species of special concern. Pallid bat occurs primarily in shrubland, woodlands, and forested habitats, but can also occur in grasslands. Townsend's bat occurs in a variety of woodland and open habitats, and the Yuma bat occurs primarily in forests and woodlands. All three species roost in mines, caves, large hollow trees, and occasionally in large open buildings that are usually abandoned or infrequently inhabited. While the project site may support suitable foraging habitat, there is very little to no suitable habitat that would support roosting or maternity sites. The two ranch residences that may have provided roosting habitat were

previously removed. The three existing residences are unlikely to support roosting habitat for special-status bats. There are no rocky areas, mines, caves, or other features that support roosts. Because of the absence of roosting habitat, the development of the project site with a mixed-use community under the Proposed Action or any of the on-site alternatives would result in a **less than significant** effect on special-status bat species. No mitigation is required.

**Alt. 4 (Off Site)** Similar to the project site, Alternative 4 site provides foraging habitat for bat species but does not contain features that would support roosts. Therefore, the development of the alternative site with a mixed-use community would result in a **less than significant** effect on special-status bat species. No mitigation is required.

## Impact BIO-9 Effects on Wildlife Movement

**Proposed Action** Development of the Proposed Action could impede the movement of wildlife by disturbing and/or blocking local movement corridors. The effect would be **significant**.

Wildlife movement activities generally fall into one of three movement categories: (1) dispersal (e.g., of juvenile animals from natal areas or individuals extending range distributions, (2) seasonal migration, and (3) movement related to home range activities (foraging for food or water, defending territories, or searching for mates, breeding areas, or cover).

Wildlife corridors link areas of suitable wildlife habitat that are otherwise separated by changes in vegetation or human disturbance. The fragmentation of open space areas by urbanization creates isolated islands of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, some wildlife species, especially the larger and more mobile mammals, would not likely persist over time because fragmentation prohibits the infusion of new individuals and genetic information. Corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk of catastrophic events, and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, and other needs.

Development of the Proposed Action could impede the movement of wildlife by disturbing and/or blocking local movement corridors. Additionally, many of those species that would normally use the grasslands as a foraging area would not as easily move across the future urbanized landscapes. Wildlife species that are adapted to live in grasslands or that move between isolated pockets of water would not easily move across the future urbanized landscapes and would be displaced, and/or concentrate their movements within the remaining open space.

With development of the Proposed Action, wildlife would be naturally restricted to the remaining areas of designated open space such as the streams and the Western Area Power Administration (WAPA) corridor. Thus, Curry Creek, Federico Creek, and the WAPA transmission corridor could become wildlife corridors through the urbanized landscape. However, the construction of culverts and bridges within these corridors could create constrictions that could prevent or hinder wildlife passage along these corridors. The introduction of outdoor lighting can also have a negative effect on wildlife by interfering with nocturnal movement and causing disorientation, making individuals more vulnerable to predation or making it more difficult for them to capture prey. Passive recreational use along nature or bicycle trails may also have indirect impacts such as interfering with foraging, breeding, or movement. These indirect effects would be **significant** effects of the Proposed Action.

**Mitigation Measure BIO-9** would ensure that wildlife movement within the open space corridors is not obstructed. In addition, **Mitigation Measure AES-4,** as described in **Section 3.1, Aesthetics**, requires that outdoor lighting be placed, designed, and directed to avoid spillover light into the Curry Creek corridor and open space preserve areas. With mitigation, the effect would be **less than significant**.

**No Action, Alts. 1, 2, & 3 (On Site)**

The on-site alternatives would also incorporate corridors for wildlife movement along Curry Creek, Federico Creek, and the WAPA corridor, as shown in the land use plans in **Chapter 2.0, Project Description and Alternatives**. As described above for the Proposed Action, construction of stream crossings and other activities, as well as the introduction of artificial light would alter the corridors and disturb the wildlife using the corridors. The potential loss of local travel routes and the potential future restriction of movement through the site due to obstructions to the stream/riparian open space corridor would be **significant** effects of the alternatives. Implementation of **Mitigation Measure BIO-9** would ensure that the wildlife movement corridors are not obstructed. In addition, implementation of **Mitigation Measure AES-4** would reduce the potential for indirect effects from spillover light into the Curry Creek and open space preserve areas. With mitigation, the effect would be **less than significant**.

**Alt. 4 (Off Site)**

Alternative 4 site plan designates substantial acreage of land adjacent to Curry Creek in the northeastern portion of the site as open space and therefore wildlife movement along the creek corridor is not expected to be affected under this alternative. The plan also designates open space along the western side of the alternative site, thus providing a north-south movement corridor. Both the Curry Creek open space area and the western open space area would not be developed with roads or bridges and therefore there would not be a potential for obstructing wildlife movement within these areas. The development of the mixed-use community in the remainder of the site would have the potential to obstruct wildlife movement. However, because the Curry Creek corridor would be preserved and a north-south movement area would be available along the

western boundary, the effect of this alternative on wildlife movement would be **less than significant**. No mitigation is required.

**Mitigation Measure BIO-9** **Wildlife Movement Protection Policies (*Applicability – Proposed Action, No Action, and Alternatives 1 through 3*)**[5]

*To protect the long-term habitat of the stream channels and the WAPA corridor and their potential use by wildlife as movement corridors, the Applicants shall ensure that movement corridors are not obstructed and human intrusion into the corridor is minimized. In compliance with Section 1600 of the CDFG Code, the Applicant(s) will enter into a Streambed Alteration Agreement prior to conducting any construction activities within a stream corridor, which sets forth mitigation measures that the Applicant must implement. These measures shall include, but not be limited to: the use of either bridges or culverts that are large enough that wildlife have enough space to pass through road crossings without having to travel over the road surface, the implementation of bank stabilization measures, and/or restoration and revegetation of stream corridor habitat that has been damaged due to the project's construction. Furthermore, the recreational trails shall be lined by post and cable fence and signage shall be used to direct trail users to stay within the designated trail corridor and discourage access to the riparian habitat by humans and pets. The trails shall be closed after dark and no exterior lighting shall be used.*

## Impact BIO-10 Loss of Riparian Habitat

**Proposed Action** Implementation of the Proposed Action would result in development that would occur within the riparian habitat and stream corridors along Curry Creek and other drainages. Some portions of the proposed development are entirely within or adjacent to the stream corridor. This proximity presents the possibility of direct effects from the removal of riparian habitat and secondary effects from spillover of human intrusion and domestic animals. Proposed improvements under the Proposed Action that could require removal of riparian habitat include widening of Baseline and Fiddyment Roads, which would include bridges and/or culverts over the Curry Creek crossings; internal bridges for Santucci Boulevard, Westbrook Boulevard, Market Street, Upland Drive, Sierra Glen Drive, and Federico Drive over the drainages; and channel improvements as part of the drainage strategy and in-stream mitigation outlined in **Mitigation Measure BIO-1a**.

Deterioration of the creek channel habitat could result from intrusion of artificial lighting, non-native invasive plant species, domestic animals, or human activity (i.e., jogging, walking, and biking) in or along the creek channel. Trampling of stream banks could occur when people descend or climb the banks. These effects could also occur during construction of the Proposed Action and would be **significant** effects.

Curry Creek and Federico Creek will remain in open space, and the riparian habitat will be protected and enhanced with the proposed instream improvements. In compliance

5 This mitigation measure is substantially the same as Mitigation Measure 4.8-5 in the Sierra Vista Specific Plan EIR and was adopted by the City of Roseville at the time of project approval and will be enforced by the City.

with **Mitigation Measure BIO-9**, above, any stream habitat disturbed during construction of bridges and culverts will be restored and revegetated. Further, the mitigation measure includes measures to control human intrusion into the creek corridors. With mitigation, the effect would be **less than significant**.

**No Action (On Site)** The No Action Alternative would not result in any direct removal of riparian habitat as no activities that would affect the Waters of the US would occur under this alternative. However, other indirect effects would occur from intrusion of artificial lighting, non-native invasive plant species, domestic animals, or human activity (i.e., jogging, walking, and biking) in or along the creek channel. The indirect effects on riparian habitat in Curry Creek and other drainages for the No Action Alternative would be **significant** effects. **Mitigation Measure BIO-9** would mitigate the impact on riparian habitat to **less than significant**.

**Alts. 1, 2, & 3 (On Site)** Implementation of Alternatives 1, 2, and 3 would result in some development that would occur within the riparian habitat and stream corridors along Curry Creek and other drainages. The alternatives would directly affect riparian habitats through implementation of **Mitigation Measure BIO-1b** that would include in-channel activities, and the alternatives would also include construction of culverts and bridges over Curry Creek which could require the removal of riparian habitat. Indirect effects would occur from intrusion of artificial lighting, non-native invasive plant species, domestic animals, or human activity (i.e., jogging, walking, and biking) in or along the creek channel. The direct and indirect effects on riparian habitat in Curry Creek and other drainages for the alternatives would be **significant** effects. **Mitigation Measure BIO-9** would mitigate the impact on riparian habitat to **less than significant**.

**Alt. 4 (Off Site)** Riparian habitat occurs only along Curry Creek in the northeastern portion of the alternative site. This area will be designated open space and no bridges or culverts would be constructed in this portion of the alternative site. Furthermore, the Curry Creek open space area would be in the northeastern corner of the alternative site, at a distance from the areas that would be developed with urban uses and therefore the potential for human intrusion in this area would be low. For these reasons, riparian habitat would not be directly or indirectly affected under this alternative. There would be **no effects**. No mitigation is required.

## Impact BIO-11 Effects on On-Site Fish Species

**Proposed Action, No Action, Alts 1, 2 & 3 (On Site)** Curry Creek within the project site is a relatively small drainage which is shallow and does not contain sufficient depths of water to support fish for most of the year. It historically has been dry during the summer months. The portion of Curry Creek located within the project site is expected to support only resident warm-water fish species. Anadromous fish species, such as Central Valley spring and winter-run Chinook salmon and steelhead, do not occur within Curry Creek. Therefore, direct and indirect impacts

on fish species would be **less than significant**. No mitigation is required.

**Alt. 4 (Off Site)** Curry Creek within the alternative site is a perennial creek which is expected to support only resident warm-water fish species. No anadromous fish species occur within Curry Creek. Therefore, direct and indirect impacts on fish species would be **less than significant**. No mitigation is required.

## Impact BIO-12 Effects on Fish Habitat from Water Diversions

**Proposed Action, No Action, Alts. 1, 2, 3 & 4** As described in **Section 3.15,** water demands from the Proposed Action, in addition to City buildout demands, would result in the total surface water supply need of approximately 62,194 acre-feet per year (afy) in 2025. This amount would be offset by the projected use of recycled water in the City, so the net demand for water in 2025 would be 57,806 afy. The on-site and the off-site alternatives would demand a similar or slightly lower volume of surface water supplies than the Proposed Action. This volume of water falls within the City's current Water Forum Agreement wet year water supply entitlement of 58,900 afy, as explained in **Section 3.15.**

The diversion of 58,900 afy from the American River could result in effects on fisheries resources and aquatic habitat by changing the existing hydrologic conditions. The environmental effects from this diversion were analyzed under the Water Forum Proposal EIR certified in 1999. Because the Water Forum Proposal (WFP) EIR is more than 10 years old, the City of Roseville conducted an additional analysis to confirm or update the American River and Delta related impacts that would result from the City of Roseville diverting 58,900 afy from the American River. The new analysis (referred to as Technical Memorandum prepared by RBI and HDR in 2009) is based on current regional water supply issues and conditions that have changed since publication of the WFP EIR in 1999. As documented in this study, these changed conditions include Central Valley Project operational changes implemented since the publication of the WFP EIR as well as other reasonably foreseeable actions that may impact Central Valley Project/ State Water Project operations (RBI and HDR 2009). The Sierra Vista Specific Plan Project's 3,609-afy water supply need is part of the City of Roseville's overall American River water supply previously assessed under the WFP EIR. Technical Memorandum is incorporated by reference and included in **Appendix 3.4**.

In all cases, the Technical Memorandum confirmed that the analysis and conclusions in the WFP EIR are still valid under the changed conditions and that no new or substantially more severe significant impacts to fisheries would occur. The mitigation measures identified in the WFP EIR for these impacts are still valid. The mitigation requires the implementation of the Lower American River Habitat Management Element, which includes measures for dry year flow augmentation, control of flow fluctuations at Folsom and Nimbus Dams, restoration of wetland/slough complexes, selective

incorporation of instream woody debris, and improvements to Chinook salmon spawning habitat. These measures are further discussed below. A summary of the impacts and mitigation measures in the WFP EIR are also included in **Appendix 3.4.**

In general, the WFP EIR concluded that increased surface water diversions could result in impacts to water quality by lowering reservoir storage and river flows. Lower volumes of water in both Folsom Reservoir and the Lower American and Sacramento rivers would provide less dilution for existing levels of nutrient, pathogen, total dissolved solids, total organic carbon, and priority pollutant loadings. Similarly, reduced Delta inflows could affect various Delta water quality parameters. The effects on fisheries resources and aquatic habitat from the diversions are summarized below.

*Folsom Reservoir and Lake Natoma*

As analyzed in the WFP EIR and Technical Memorandum, the changes in storage levels anticipated in the Folsom Reservoir would not adversely affect the habitat quality, quantity or prey availability for cold-water species. The impact to cold-water species would be less than significant and no mitigation would be required (WFP EIR Impact 4.5-1). Folsom Reservoir under the WFP would frequently reduce reservoir storage (and thus water levels) during the critical spawning and rearing period (i.e., March through September), which could reduce the availability of littoral (near shore) habitat containing vegetation. Reduced littoral habitat availability would be a potentially significant impact to Folsom Reservoir warm-water fisheries because it could result in increased predation on young warm-water fishes (WFP Impact 4.5-2). Implementation of the adopted mitigation measure, which would require plantings and related activities to encourage existing willow and terrestrial vegetative communities to become established at lower reservoir elevations, and provide artificial habitat structures to compensate for loss of littoral habitat, would enhance spawning and rearing conditions for warm-water fish.

The WFP EIR found the impacts to cold water and warm-water fish populations in Lake Natoma to be less than significant because changes to the lake parameters would be minor (WFP EIR Impact 4.5-3). The impacts to operations and fish production of the Nimbus Fish Hatchery were also determined to be less than significant (WFP EIR Impact 4.5-4).

*Lower American River*

The WFP EIR presented flow- and temperature-related impacts separately by species and life stage.

The WFP EIR found the impacts to fall-run Chinook salmon to be potentially significant, primarily as a result of frequent reductions in lower American River (LAR) flows during October through December (WFP EIR Impact 4.5-5). Mitigation included dry year flow augmentation, restoration, and maintenance of the wetland/slough complex, instream

cover, and habitat management.

The WFP EIR found that the combination of temperature and flow changes under the Water Forum Agreement would not be expected to adversely affect the long-term population trends of steelhead in the Lower American River. This would be a less than significant impact (WFP EIR Impact 4.5-6). The WFP EIR found flow-related impacts to splittail to be potentially significant as a result of reductions in inundated riparian spawning habitat in the LAR during the February through May period (WFP EIR Impact 4.5-7). Mitigation included flow fluctuation criteria and habitat management. The WFP EIR found the impacts to shad and striped bass to be less than significant (WFP EIR Impacts 4.5-8 and 4.5-9).

*Other CVP Reservoir Storage*

The WFP EIR found the impacts to cold-water and warm-water fisheries in Shasta Reservoir (WFP EIR Impacts 4.5-10 and 4.5-11), Trinity Reservoir (WFP EIR Impacts 4.5-12 and 4.5-13), and Keswick Reservoir (WFP EIR Impact 4.5-14) to be less than significant.

*Sacramento River*

The WFP EIR found the flow-related impacts to fisheries resources in the upper and lower Sacramento River to be less than significant (WFP EIR Impact 4.5-15) and the temperature-related impacts to fish resources in the lower Sacramento River to be less than significant (WFP EIR Impact 4.5-16).

*Delta*

The WFP EIR found the impacts to Delta fish resources to be less than significant (WFP EIR Impact 4.5-17).

As explained in the Technical Memorandum, all of the mitigation measures identified in the WFP EIR are still valid and no new or more significant impacts would occur as a result of changes since the WFP EIR was published.

The USACE independently evaluated the information provided in these previous analyses and also concluded that the diversion of surface water up to the amount of the City's current Water Forum Agreement wet year water supply entitlement of 58,900 afy, from the American River and Folsom Reservoir to serve the water supply needs of the Proposed Action or its alternatives, in conjunction with other development in the service area of the City of Roseville will result effects on fisheries that are **less than significant** or would be reduced to **less than significant** with previously identified mitigation measures. No additional mitigation is required.

## 3.4.6 RESIDUAL SIGNIFICANT IMPACTS

**Mitigation Measure BIO-1a** discussed above presents the mitigation for wetland impacts proposed as part of the Applicants' conceptual mitigation plan. As this plan is conceptual and not detailed or specific, there is a risk of residual impacts. The USACE anticipates receipt of a detailed specific mitigation plan or plans following publication of the Draft EIS. The USACE will evaluate the specifics of this plan to determine the actual mitigation requirement based on a number of factors including: functions, location, change in surface area, uncertainty or risk of failure, and temporal loss of function. The USACE will condition any permit issued based on a conceptual mitigation plan to require the submittal, review and approval of a specific mitigation plan prior to the discharge of dredged or fill materials into Waters of the US.

## 3.4.7 REFERENCES

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