CHAPTER 13

BIOLOGY

13.0 BIOLOGY

13.1 ENVIRONMENTAL SETTING

This chapter provides information on biological resources located in the study area, which includes the Bickford Ranch Specific Plan Area (project site) areas, the proposed PCWA water supply pipeline to the ranch, and the proposed sewer system pipeline alignment. Impacts on biological resources from implementation of the proposed project are discussed along with mitigation measures to reduce or avoid significant impacts. Impacts resulting from project alternatives are discussed in Chapter 16, "Other CEQA Sections."

Biological resources information reviewed during preparation of this chapter included the following:

- previous studies conducted in the study area (Dains, Holland, and Sanders, 1993, 1994; Glazner Environmental Consulting, 1998a; Caltrans, 1994; BioSystems Analysis, 1992; EIP Associates, 1993; RRM Design Group, 1997b);
- data gathered during reconnaissance surveys conducted in November 1998 by Jones & Stokes Associates on the project site, within the proposed water supply pipeline and along Sierra College Boulevard;
- CDFG's Natural Diversity Data Base (NDDB) (1998);
- other EIRs relevant to the study area (Planning Concepts, 1995, 1996; EIP Associates, 1993; RRM Design Group, 1997a; and
- pertinent literature and information from individuals knowledgeable about the study area (Ralph Osterling Consultants, Inc., 1998; Anders, 1998; Glazner, 1998).

Methods used in the vegetation, wildlife, and wetlands surveys are described in detail below.

Vegetation and wildlife surveys of the project site were conducted on August 10, 11, 12, 13, 19, and 25, 1993 (Dains, Holland, and Sanders, 1993). Surveys were conducted by car and on foot. Vegetation and wildlife habitats were mapped onto blueline aerial photographs (1" = 400') of the project site. Detailed data on tree densities and basal area per acre were taken within homogeneous vegetation types using replicate 0.1-acre plots. Objectives of the field survey were to map and describe biological communities, develop a list of species observed, and determine the potential for special-status species to occur on the project site. Additional spring surveys were conducted for special-status vernal pool plants (on March 21, April 9 and 22, and May 7, 1994) and for special-status wildlife, including nesting birds (on April 8, May 1, and May 9, 1994) (Dains, Holland, and Sanders, 1994) and valley elderberry longhorn beetle (in August 1998 and December 1998) (Glazner Environmental Consulting, 1999a). A reconnaissance-level survey was conducted at the project site by Jones & Stokes Associates biologists on November 13, 1998, to evaluate habitat conditions.

Jones & Stokes Associates biologists conducted reconnaissance-level surveys of the off-site and alternatives areas, including the proposed PCWA water system pipeline alignment and of the proposed area of widening along Sierra College Boulevard (Alternative 7), on November 19, 1998. General vegetation and wildlife habitat types were identified and sensitive resources, such as oak trees, elderberry shrubs, and wetlands, were identified and mapped.

A tree survey of most proposed building areas on the project site was conducted by Tree Care Incorporated in 1998. Each tree was tagged and the species, size, dripline radius, condition, and recommendation for each numbered tree was recorded and included in the arborist report (Tree Care Incorporated, 1998). The tree locations on the project site were also surveyed and identified by tree number on a site plan map by GW Consulting Engineers (no date).

A wetland delineation of the project site was originally conducted by Gibson and Skordal in 1994. Because of changes in irrigation practices, the site was redelineated by Glazner Environmental Consulting in 1998. The focus of the redelineation was to check the formerly irrigated area to determine if previous irrigation had substantially contributed to the wetland acreage. The remainder of the project site was also revisited for any necessary adjustments. Color aerial photography (photograph date: June 6, 1997, 1" = 200'), color infrared aerial photography (photograph date: December, 1991, 1" = 400'), and site-specific topography with 2-foot contour intervals were used to map wetland features.

The existing biological resources within the proposed sewer system pipeline alignment along SR 193 (BioSystems Analysis, 1992; Caltrans, 1994) have been previously evaluated, the impacts analyzed, and mitigation measures determined. The Twelve Bridges Specific Plan Area (EIP Associates, 1993; RRM Design Group, 1997) addresses impacts for the remainder of the sewer system pipeline alignment. The biological resources information in these documents is incorporated by reference and is not repeated in this chapter.

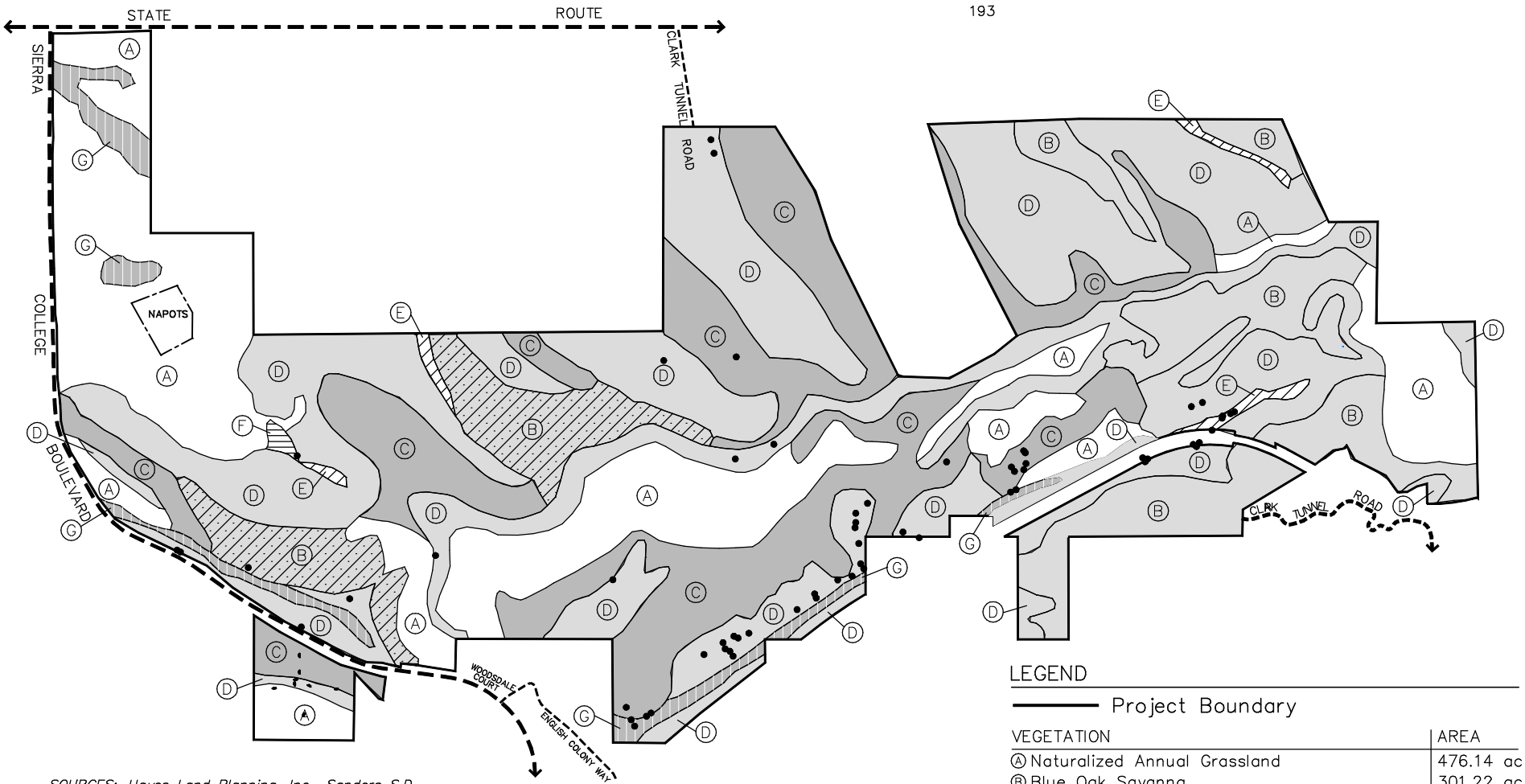
13.1.1 Regional Setting

The study area is in western Placer County within the California Floristic Province. Placer County has a Mediterranean climate and is a mosaic oak woodland and savanna, mixed evergreen and pine forests, grasslands, chaparral, wetland communities, and riparian scrub and forest communities. The area is within the transitional zone between the higher elevation Sierra Nevada and lowlands of the Central Valley. This position is within the range of several species common to either bioregion. At lower elevations, Placer County is characterized by annual grasslands, intermittent streams, and riparian vegetation. At higher elevations, oak woodland, mixed evergreen forest, scrub and chaparral, and riparian vegetation dominate. For many years, the principal land use of the region was cattle grazing, logging, and farming. These land uses are still prevalent in Placer County but are being replaced with residential, commercial, and industrial land uses.

13.1.2 Local Plant Communities and Wildlife Habitats

The following sections describe the plant communities and associated wildlife habitat in the study area. Scientific and common names for species mentioned in the text or observed during the study are included in Appendix F. For the purposes of this document the plant communities are identified based on the CDFG's wildlife-habitat relationships system (Mayer and Laudenslayer, 1988). However, the previous documents for the reconnaissance surveys conducted on the project site (Dains, Holland, and Sanders, 1993 and 1994) use a classification system most similar to Holland (1986). Table 13-1 identifies the correlation between the two systems and the approximate acreages of vegetation types present on the project site. Figure 13-1 illustrates plant communities on the property. Minor additional acreages of vegetation types are present within the PCWA water supply pipeline project area. These off-site acreages are not included in Tables 13-1 or 13-2; however, they are small relative to the project site acreages.

The wetland delineation identifies several types of wetlands, including seasonal wetlands, wetland swales, riparian wetlands, and vernal pools, and other waters of the United States, intermittent drainage and stock ponds, that are not included in either plant community classification system. Table 13-2 summarizes the acreage for each type. Figure 13-2 shows all waters of the United States delineated on the project site.



SOURCES: Hayes Land Planning, Inc., Sanders S.D. and Holland R. F., and Jones & Stokes Associates, Inc.

LEGEND

Project Boundary

VEGETATION	AREA
Ⓐ Naturalized Annual Grassland	476.14 ac
Ⓑ Blue Oak Savanna	301.22 ac
Ⓒ Blue Oak Woodland	423.54 ac
Ⓓ Mixed Interior Live Oak–Blue Oak Woodland	690.75 ac
Ⓔ Ravine Riparian–Interior Live Oak Woodland	12.38 ac
Ⓕ Valley Oak Savanna	2.97 ac
Ⓖ Valley Oak–White Alder Riparian Forest	39.72 ac
• Elderberry Clumps Found	Total 1,946.72 ac

BICKFORD RANCH

0 1000 2000

SCALE IN FEET

VEGETATION AND WILDLIFE HABITATS

1999 Bickford Ranch Specific Plan EIR

Job No. 21305–002–038 Placer County, California

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FIGURE 13–1

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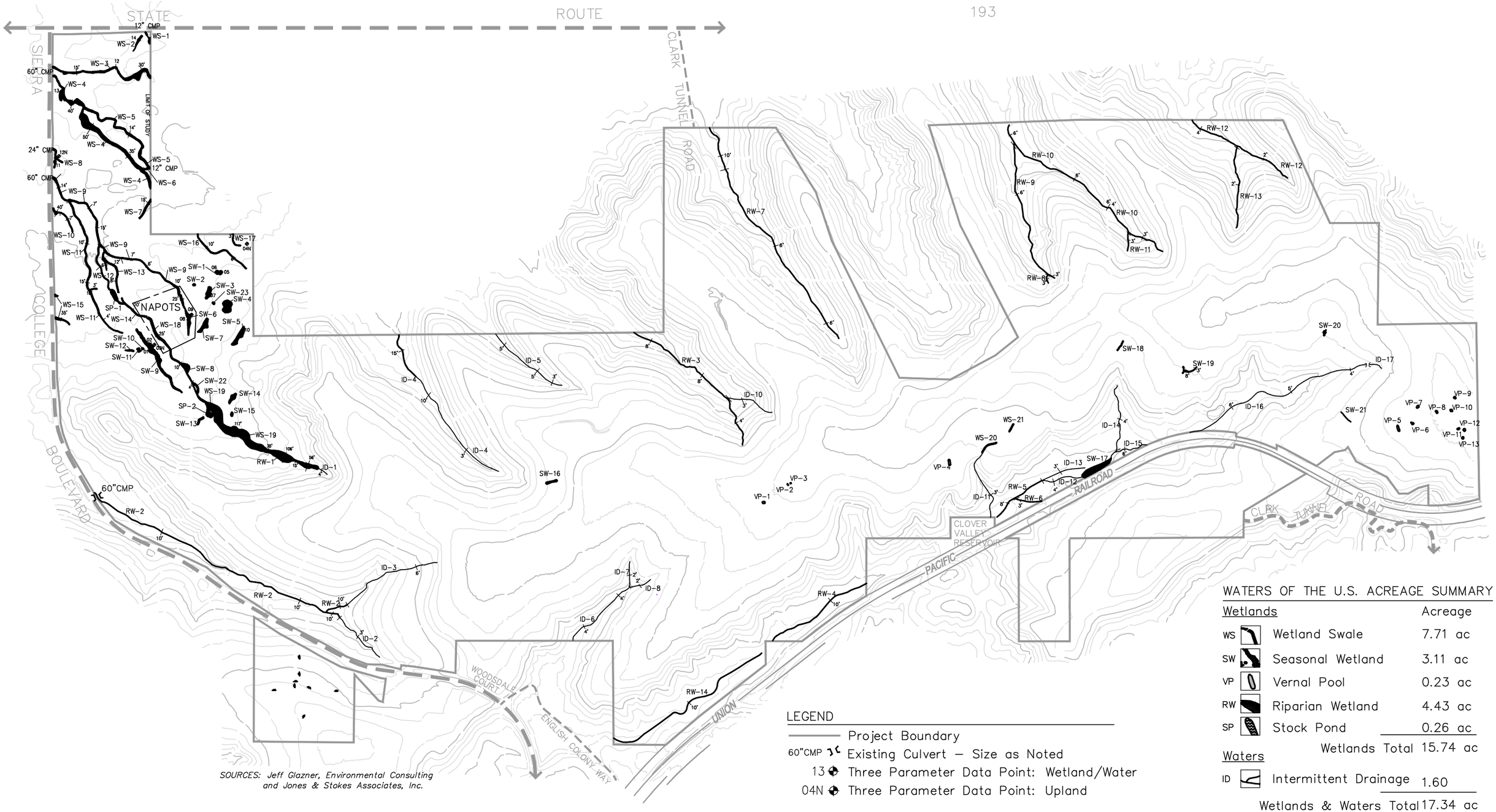

SOURCES: Jeff Glazner, Environmental Consulting and Jones & Stokes Associates, Inc.

LEGEND

- Project Boundary
- 60"CMP — Existing Culvert – Size as Noted
- 13 — Three Parameter Data Point: Wetland/Water
- 04N — Three Parameter Data Point: Upland

WATERS OF THE U.S. ACREAGE SUMMARY

Wetlands		Acreage
WS	Wetland Swale	7.71 ac
SW	Seasonal Wetland	3.11 ac
VP	Vernal Pool	0.23 ac
RW	Riparian Wetland	4.43 ac
SP	Stock Pond	0.26 ac
	Wetlands Total	15.74 ac
Waters		
ID	Intermittent Drainage	1.60
	Wetlands & Waters Total	17.34 ac

BICKFORD RANCH

0 400 800 1200
SCALE IN FEET

WATERS OF THE UNITED STATES

1998 — Bickford Ranch Specific Plan EIR
Job No. 21305-002-038 — Placer County, California

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FIGURE 13-2

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Some additional acreages of these wetland types are present within off-site portions of the study area. A formal wetland delineation has not been conducted within the PCWA water system pipeline right-of-way. These additional acreages are based on a reconnaissance-level survey and are approximate. Potential locations of waters of the United States are shown on Figure 13-3 for the PCWA water system pipeline.

Table 13-1
Vegetation Types in the Study Area

Wildlife-Habitat Relationships Types[1]	Reconnaissance Report Types[2]	Acreage
Annual grassland	Naturalized annual grassland	476
Blue oak woodland	Blue oak savanna Blue oak woodland Mixed interior live oak-blue oak woodland	1,416
Valley oak woodland	Valley oak savanna	3
Valley-foothill riparian	Ravine riparian-interior live oak woodland Valley oak-white alder riparian forest	52
	Total Acreage of vegetation types	**1,947**

Notes:
[1] Based on Mayer and Laundenslayer, 1988
[2] Based on Daines, Holland, and Sanders, 1993

Table 13-2
Waters of the United States in the Study Area

Wetland Delineation Types[1]	Acreage
Seasonal Wetland	
On-site PCWA pipeline[2]	3.11 0.02
Wetland Swale	
On-site PCWA pipeline[2]	7.71 0
Riparian Wetland	
On-site PCWA pipeline[2]	4.43 0.3
Intermittent Drainage	
On-site PCWA pipeline[2]	1.60 0.02
Vernal Pool[3]	
On-site PCWA pipeline[2]	0.23 0
Stock Pond	
On-site PCWA pipeline[2]	0.26 0
Total acreage of waters of the United State on-site PCWA pipeline	**17.34 0.34**

Notes:
[1] Based on Glazner Environmental Consulting, 1998b
[2] Acreages for the PCWA pipeline right-of-way are approximations based on a reconnaissance-level wetland survey. A delineation according to the U.S. Army Corps of Engineers' 1987 methodology has not been conducted in the PCWA pipeline project area.
[3] Included in annual grassland

Currently, the project site is undeveloped and used for cattle grazing. The following sections describe plant communities and wildlife use of the site.

Annual Grassland

Plant Community. Annual grassland occurs on the project site in two distinct areas: on shallow soils derived from volcanic mudflows along the central ridgeline and on formerly irrigated ground with deeper soils derived from decomposed granite. The ridgeline grasslands are dominated by filaree, soft chess, with other associated annuals, such as nitgrass and silver hair grass. Prominent lines of deeper soil along contraction cracks in the mudflow support a taller, more productive component of the grassland dominated by wild oats, ripgut brome, and tarweed. Vernal pools that occur in this low grassland near the antenna east of Clark Tunnel Road are described under "Waters of the United States."

On the granitic soils north of the ridgeline in the northwest area, the grasslands appear to have been tilled in the past. Several areas were formerly irrigated hay fields. These deeper soils now support vigorous stands of star-thistle with interspersed ripgut brome, wild oat, and occasional patches of medusa-head grass. Seasonal wetlands, wetland swales, and stock ponds occur within this grassland area. These wetland types are described under "Waters of the United States."

Annual grassland is also a common vegetation community within the PCWA water system pipeline alignment. Because of the proximity of roadways along all of the off-site portions of the study area, much of the annual grassland vegetation is dominated by weedy species and would be considered ruderal. Inclusions of seasonal wetlands, riparian wetlands, intermittent drainages, vernal pools, and freshwater marsh are present along both alignments. These wetlands are described under "Waters of the United States."

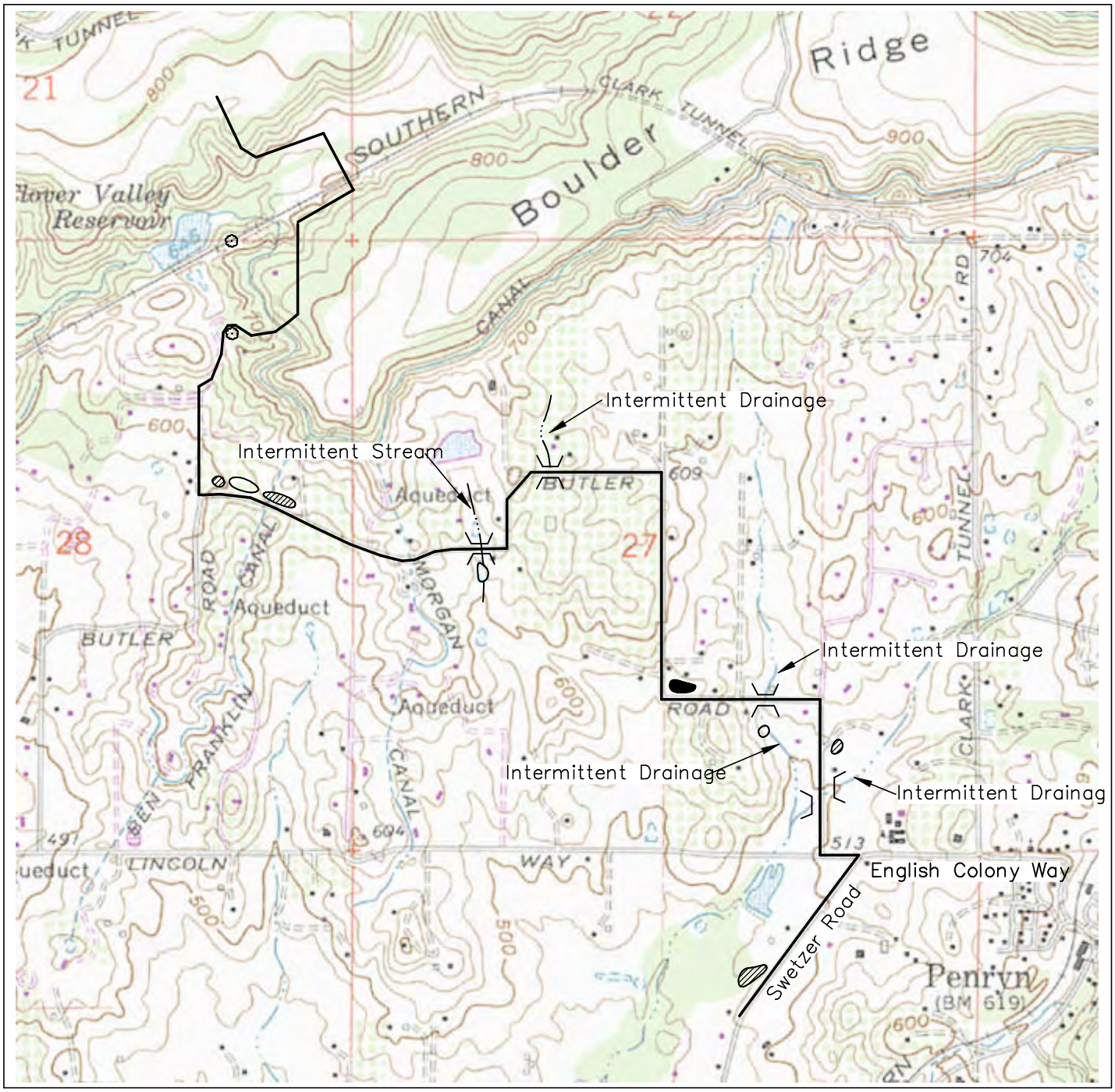
Wildlife. Many wildlife species use annual grasslands and associated habitats for all or part of their life cycle, but some require special habitat features, such as seasonal wetlands, vernal pools, ponds, swales, trees, cliffs, or caves for breeding, roosting, or escape cover. Grasslands found on granite soils off the ridgelines provide foraging habitat for lark sparrows, savannah sparrows, rufous-crowned sparrows, lesser goldfinches, American pipits, and other grassland birds. Typical reptiles of the open grassland area include western fence lizards, western and Gilbert skinks, western rattlesnake, and gopher snakes.

In areas with deep soils and dense cover, the seeds and vegetative parts of grasses and forbs provide food for California voles, California deer mice, Botta's pocket gophers, western harvest mice, California ground squirrels, and other small mammals. Small mammal burrows and runways in the thick grass and forbs were apparent during the field surveys, indicating an abundant rodent population. The abundant rodent population and other small prey in the grasslands attract red-tailed hawks, red-shouldered hawks, great horned owls, rattlesnakes, gopher snakes, coyotes, bobcats, and other predators.

The grassland atop the mudflows, with its shallow soil and sparse growth of grass and forbs, is less productive for wildlife than the deep-soiled grassland. Fewer foraging birds, small mammals, and reptiles are attracted to this type of grassland. Therefore, fewer birds and mammals were observed in this area.

The vernal pools in the grassland habitat atop the mudflows are small, few, and isolated from other vernal pools and probably do not support typical vernal pool wildlife species. However, these pools probably provide water for local animals during winter and early spring months.

The seasonal wetlands in the northwest corner of the site occupy only a small portion of the project area but are important to wildlife. Most of these wetlands are dominated by blackberry, with some emergent cattails and smartweed in the drainage that is fed by excess irrigation water draining from the farm



SOURCES: USGS 7.5 Minute Quadrangle, Rocklin, CA, 1967, Photorevised 1981 and Jones & Stokes Associates, Inc.

LEGEND

- Valley–Foothill Riparian
- Pond
- Intermittent Drainage
- Potential Seasonal Wetland
- Elderberry Shrub
- Culvert

BICKFORD RANCH

0 1255

APPROXIMATE SCALE IN FEET

PCWA WATER PIPELINE ALIGNMENT BIOLOGICAL RESOURCES

1998 Bickford Ranch Specific Plan EIR

Job No. 21305–002–038 Placer County, California

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FIGURE 13–3

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upstream. These seasonal wetlands produce lush vegetative growth, attracting deer and other browsers, and support an abundant supply of insects and other invertebrates for violet green swallows, tree swallows, black phoebes, western kingbirds, and other insectivores. Pacific treefrogs, bullfrogs, and common garter snakes are likely to occur in the seasonal wetlands, which attract predators, such as great blue herons, great egrets, raccoons, and striped skunks.

Annual grassland habitat within the PCWA water system pipeline alignment has low wildlife value. The close proximity of vehicles reduces wildlife use of the grassland vegetation along the roadway.

Blue Oak Woodland

Plant Community. Within the project site, sparse blue oak woodland occurs on the central ridgeline, but trees in this area are of generally poor health. Blue oak woodland occurs primarily on the slopes below the main ridges on volcanic mudflow soils and on side slopes with deeper, granitic-derived soils. Areas of blue oaks with a grassland understory and an open canopy occur on south- and southwest-facing slopes. A denser oak woodland occurs on slopes, with some interior live oak, and has an understory with additional shade-tolerant species, such as dogtail grass and bedstraw. The densest oak woodland includes more interior live oak than blue oak and occurs most extensively on north- and east-facing slopes with deeper soils. These dense woodland areas also tend to have a shrub, rather than herbaceous, understory that includes sapling oaks, poison oak, and buckbrush.

Blue oak woodland is also a common vegetation community within the PCWA water system pipeline alignment.

Riparian wetlands and intermittent drainages occur within the blue oak woodland/interior live oak areas on the project site. One seasonal wetland and one intermittent drainage were mapped within the blue oak dominant woodlands. These features are described under “Waters of the United States.”

Wildlife. Blue oak woodland provides a number of important wildlife resources, including food, cover, and roosting and breeding sites. Oak acorns are preferred or essential food items in the diets of western gray squirrels, mule deers, wild turkeys, California quails, scrub jays, acorn woodpeckers, and northern flickers. Oak foliage and bark insects attract birds, such as bushtits, ash-throated flycatchers, white-breasted nuthatches, western kingbirds, and ruby-crowned kinglets. In addition, oak-dependent fungi, lichen, mistletoe, and galls provide food for species, such as northern mockingbirds, gray squirrels, raccoons, and deer mice.

Oak trees also offer shade, cover, and breeding substrates for many wildlife species. Woodpeckers (e.g., Nuttall’s woodpeckers, acorn woodpeckers, and northern flickers) excavate nest holes (cavities) in snags, dead limbs, and broken-top trees. These cavities are subsequently used by other cavity-nesting birds and small mammals, including western bluebirds, white-breasted nuthatches, oak titmice, American kestrels, and squirrels. Many species feed in the adjacent grasslands and nest or roost in the oak woodlands. These species include American kestrels, red-tailed hawks, western kingbirds, and western bluebirds.

The dense, impenetrable thickets of poison oak and toyon in the mixed interior live oak woodlands support shrub-dependent wildlife species, including Bewick’s wrens, spotted towhees, California towhees, California quails, woodrats, and cottontails.

Blue oak woodland within the PCWA water system pipeline alignment has high wildlife value, similar to the blue oak woodland at the main project site.

Valley Oak Woodland

Plant Community. On the project site, this community type is limited to a single stand near the lower tree line south and east of the ranch buildings in the northwest area. The valley oaks occur on previously cultivated land that now supports a dense stand of yellow star-thistle and prickly lettuce.

Wildlife. The wildlife resources of valley oak woodland are similar to blue oak woodland described above.

Valley-Foothill Riparian

Plant Community. The riparian corridor along the section of Clover Valley Creek downstream of Clover Valley Reservoir and its tributaries along the central southern project site boundary is a dense, closed-canopy forest dominated by valley oak, with many interior live oaks and scattered California buckeye. Fremont cottonwood, Oregon ash, and Goodding's black willow are scattered along the corridor, while white alder lines the main stream channel. The understory includes the same species and arroyo willow, buttonbush, and occasional elderberry. Trees and shrubs are draped with wild grape or poison oak, creating an impassible barrier.

The steepest, most northeasterly facing slopes on the project site support a closed-canopy riparian woodland dominated by interior live oak, almost to the exclusion of blue oak. These areas also support several large black oaks and scattered oracle oaks, which are hybrids between black oak and interior live oak. The bottoms of the steepest ravines contain riparian associated species, including valley oak, Fremont cottonwood, wild grape, and Himalayan blackberry. The shrub canopy includes poison oak and toyon.

Riparian vegetation occurs at two areas along the PCWA water system pipeline alignment. These locations are generally associated with drainages.

A few wetland swales, the Clover Valley Creek riparian wetland, and intermittent drainages were mapped within the valley-foothill riparian vegetation on the project site. Drainages were also associated with this vegetation type in the off-site parts of the study area in the PCWA water system pipeline alignment. These features are described under "Waters of the United States."

Wildlife. Downstream of the Clover Valley Reservoir, Clover Valley Creek is perennial, unlike many streams in the Sierra Nevada foothills, and the riparian canopy along the creek is relatively contiguous. This feature has high value for wildlife that use it as a corridor for movement and dispersal.

The thickets of blackberry shrubs and other riparian shrubs provide cover, foraging habitat, and breeding habitat for many animals. Song sparrows, California quails, bushtits, white-crowned sparrows, cottontails, Virginia opossums, striped skunks, and raccoons are all likely inhabitants of the riparian forest and scrub along Clover Valley Creek.

The valley oaks, tree willows, and alders of the riparian corridor are likely to support nesting red-shouldered hawks, violet-green swallows, Nuttall's and downy woodpeckers, northern orioles, and many other birds.

Because the bottom portion of Clover Valley Creek downstream of the Clover Valley Reservoir is perennial, it supports a lush riparian forest and offers a source of drinking water and aquatic foraging habitat. Amphibians, such as western toads, Pacific treefrogs, and California newts, breed in foothill

streams, such as Clover Valley Creek. Reptiles, such as common garter snakes, racers, and southern alligator lizards, forage along foothill creeks.

The closed-canopy forest of the ravine riparian-interior live oak woodland at the project site offer many of the same wildlife resources as the riparian forest described above. The shrub understory also provides cover and foraging habitat for many birds, mammals, and amphibians, and reptiles. While the ravine riparian habitat has many of the structural components of the riparian forest along Clover Valley Creek, it is seasonally intermittent and, therefore, is less attractive to wildlife than Clover Valley Creek. The ravine riparian habitat remains an important wildlife resource, but the density and diversity of wildlife found in the ravine riparian habitat is lower than that along Clover Valley Creek.

The riparian habitat and drainages along the PCWA water system pipeline have high wildlife value.

13.1.3 Special-Status Species

Special-status species are plants and animals that are legally protected under the state and federal Endangered Species Acts (ESAs) or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants are species in the following categories:

- plants listed or proposed for listing as threatened or endangered under the federal ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants] and various notices in the Federal Register [FR] [proposed species]);
- plants that are candidates for possible future listing as threatened or endangered under the federal ESA (62 FR 49397, September 19, 1997);
- plants listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 CCR 670.5);
- plants listed as rare under the California Native Plant Protection Act (Cal. Fish and Game Code, Section 1900 et seq.);
- plants that meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA) (State CEQA Guidelines, Section 15380);
- plants considered by the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (Lists 1B and 2 in Skinner and Pavlik, 1994); and
- plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4 in Skinner and Pavlik 1994), which may be included as special-status species on the basis of local significance or recent biological information.

Special-status animals are species in the following categories:

- animals listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.11 [listed animals] and various notices in the FR [proposed species]);
- animals that are candidates for possible future listing as threatened or endangered under the federal ESA (54 FR 554, January 6, 1989);
- animals that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines, Section 15380);

- animals listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 California Code of Regulations [CCR] 670.5);
- animal species of special concern to CDFG (Remsen, 1978 [birds] and Williams, 1986 [mammals]); and
- animals fully protected in California (Cal. Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Special-Status Plants

A list of special-status plants that could occur in the study area was compiled based on the California Natural Diversity Data Base (NDDB) record search, a review of the CNPS Inventory of Rare and Endangered Plants of California (Skinner and Pavlik, 1994), previous special-status plant survey information (Dains, Holland, Sanders, 1993, 1994), and Jones & Stokes Associates file information. A search of the NDDB (1998) for the U.S. Geological Survey Gold Hill and Rocklin 7.5-minute quadrangles contained no records of special-status plant species in the study area boundaries. In the project vicinity, within several miles of the study area, the records search did indicate the presence of northern volcanic mudflow vernal pools, which have been identified and mapped on the project site, and Bogg's Lake hedge-hyssop.

Habitats on the project site that have the potential to support special-status plant species include annual grassland, oak woodland, vernal pool, riparian woodland, and emergent wetland communities. Table 13-3 summarizes the legal status, distribution, habitat association, identification period, and suitability of habitats in the study area for special-status plant species with the potential to occur in the study area. Based on species distribution and habitat requirements, it was determined that three special-status plant species had at least moderate potential to occur in the study area. These three species, big-scale balsamroot, rose-mallow, and Sanford's arrowhead were not part of the special-status plant surveys conducted in the study area by Dains and Holland in 1993 and 1994.

No special-status plant species were observed at the project site during the reconnaissance survey or the subsequent springtime survey of vernal pools (Dains, Holland, and Sanders 1993, 1994). However, no blooming-period surveys were conducted at the appropriate time within oak woodland areas, which are potential habitat for big-scale balsamroot. Surveys within the PCWA water system pipeline alignment were conducted outside of the blooming period for the special-status plant species; therefore, only potential habitat was identified. Because most of the off-site study area is adjacent to roads and has a high level of disturbance, the habitat suitability for seasonal wetland or vernal pool species was determined to be low. However, marsh and riparian areas within the road rights-of-way have moderate potential to support Sanford's arrowhead and rose mallow.

Special-Status Wildlife

Based on the review of wildlife-habitat relationships, NDDB, and other relevant information and studies, it was determined that 20 special-status wildlife species could occur at the project site or in project vicinity (Table 13-4).

The following species will be evaluated in this Draft EIR because suitable habitat is present, there is a nearby record of occurrence of the species, or surveys have not been conducted: vernal pool fairy shrimp; valley elderberry longhorn beetle; California red-legged frog; foothill yellow-legged frog; northwestern pond turtle; Cooper's hawk; California yellow warbler; yellow-breasted chat; and special-status bats, including pallid bat, Towsend's big-eared bat, spotted bat, greater western mastiff bat, small-footed myotis, long-eared myotis, fringed myotis, and Yuma myotis (Table 13-4).

Table 13-3
Special-Status Plant Species that Have the Potential to Occur in the Study Area

Common and Scientific Name	Listing Status *	Distribution	Habitat Associations	Period of Identification	Habitat Suitability at Study Area
	Federal/State/ CNPS				
Bogg's Lake hedge-hyssop *Gratiola heterosepala*	–/E/1B	Fresno, Merced, Sacramento, Placer, Lake, and Shasta Counties and Oregon	Vernal pools and margins of seasonally receding ponds and lakes	April-June	Low
California balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	–/–/1B	Alameda, Butte, Mariposa, Napa, Placer, Santa Clara, Sonoma, and Tehama Counties	Cismontane woodland, valley and foothill grasslands	March-June	Moderate to high
Hoover's spurge *Chamaesyce hooveri*	T/–/1B	Central Valley from Tehama County to Tulare County	Below the high-water marks of large vernal pools	July-October	Low
Hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus*	–/–/1B	Widespread but spotty in Sacramento and San Joaquin Valleys and Coast Ranges	Alkaline or saline flats in alkali meadow, iodine bush scrub, and alkali grassland	June-July	No habitat present
Dwarf downingia *Downingia humilis*	–/–/2	Central Valley from Stanislaus County to Butte County	Vernal pools and swales	April-May	Low
Rose mallow *Hibiscus lasiocarpus*	–/–/2	Central Valley from Butte County to San Joaquin County and adjacent Delta areas	Riparian habitats with freshwater marsh vegetation in areas with slow water velocities, such as canals, sloughs, ponds, and oxbows	August-September	Moderate
Ahart's rush *Juncus leiospermus* var. *ahartii*	–/–/1B	Southern Butte County and Sacramento County	Vernal pools	April-May	Low
Red Bluff dwarf rush *Juncus leiospermus* var. *leiospermus*	–/–/1B	Central Valley from Red Bluff (Tehama County) south to Merced County	Vernal pools, ephemeral drainages, and seasonal seeps in grassland, oak woodland, and chaparral	April-May	Moderate
Legenere *Legenere limosa*	–/–/1B	Primarily in the lower Sacramento Valley in Lake and Solano Counties; San Joaquin Valley in Stanislaus County; San Mateo County in the Santa Cruz Mountains	Seasonally saturated habitat, such as vernal pools, swales, drainages, marsh edges, and riverbanks	May-September	Low
Veiny monardella *Monardella douglasii* var. *venosa*	–/–/1A	Eastern side of Sacramento Valley	Heavy clay soils in valley and foothill grasslands, blue oak woodland	June-July	Low

Table 13-3
Special-Status Plant Species that Have the Potential to Occur in the Study Area
(Continued)

Common and Scientific Name	Listing Status *	Distribution	Habitat Associations	Period of Identification	Habitat Suitability at Study Area
	Federal/State/ CNPS				
Pincushion navarretia *Navarretia myersii*	–/–/1B	Central Valley	Edges of vernal pools	March-May	Low
Slender orcutt grass *Orcuttia tenuis*	T/E/1B	Widespread but spotty in eastern Shasta County, Lake County; Sacramento Valley from Sacramento to Shasta County	Bottom of vernal pools; mostly at sites underlain by volcanic substrates	July-October	Moderate
Hartweg's pseudobahia *Pseudobahia bahiifolia*	E/E/1B	Eastern side of Sacramento-San Joaquin Valleys	Rocky, bare areas along rolling hills; usually with heavy clay soils	March-May	Low
Sanford's arrowhead *Sagittaria sanfordii*	–/–/1B	Widespread but infrequent; Del Norte, Fresno, Sacramento, Santa Barbara, and Ventura Counties	Sloughs and sluggish streams with silty or muddy substrate; associated with emergent marsh vegetation	May-June	Moderate
Greene's tuctoria *Tuctoria greenei*	E/R/1B	Central Valley	Vernal pools	May-July	Low

Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
-- = no listing status.

State

E = listed as endangered under the California Endangered Species Act.
R = listed as rare under the California Endangered Species Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
-- = no listing status.

California Native Plant Society

1A = List 1A species: presumed extinct in California.
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.

Table 13-4
Special-Status Wildlife Species that are Known or Have the Potential to Occur in the Study Area

Common Name and Scientific Name	Status *	California Distribution	Habitats	Reason for Decline or Concern	Occurrence in Study Area
	Federal/ State				
Vernal pool fairy shrimp *Branchinecta lynchi*	T/--	Central Valley; central and south Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	Habitat loss to agricultural and urban development	No records; recorded at the Twelve Bridges development; suitable habitat occurs on the ridge where vernal pools occur
Vernal pool tadpole shrimp *Lepidurus packardi*	E/--	Shasta County south to Merced County	Vernal pools and ephemeral stock ponds	Habitat loss to agricultural and urban development	No records; the vernal pools at the project site are too small to support tadpole shrimp
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/--	Streamside habitats below 3,000 feet through the Central Valley of California	Riparian and oak savanna habitats with elderberry shrubs; elderberries are host plant	Loss and fragmentation of riparian habitats	No records; 59 elderberry plants were located on the Bickford Ranch; 52 of the shrubs had stems at least 1 inch or greater at ground level; 13 elderberry shrubs exhibited potential VELB exit holes
Central Valley Steelhead *Oncorhynchus mykiss*	T/--	Sacramento and San Joaquin Rivers and their tributaries	Cold, clear water with clean gravel of appropriate size for spawning; most spawning occurs in headwater streams; steelhead migrate to the ocean to feed and grow until sexually mature	Habitat degradation, restricted access to spawning habitat; increased water temperatures and sedimentation; decreased water quality; flow alterations	No records; steelhead are known to occur in Antelope Creek (Clover Valley Creek is a tributary to Antelope Creek); possibility exists for steelhead to use Clover Valley Creek
Fall-Run Chinook Salmon Oncorhynchus tshawytscha	PT/--	Sacramento and San Joaquin Rivers and their tributaries	Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	Reduced access to spawning habitat; habitat degradation	No records; fall-run chinook salmon are known to occur in Antelope Creek (Clover Valley Creek is a tributary to Antelope Creek), therefore the possibility exists for fall-run chinook salmon to use Clover Valley Creek

Table 13-4
Special-Status Wildlife Species that are Known or Have the Potential to Occur in the Study Area
(Continued)

Common Name and Scientific Name	Status * Federal/ State	California Distribution	Habitats	Reason for Decline or Concern	Occurrence in Study Area
California tiger salamander *Ambystoma californiense (=A. tigrinum c.)*	C/SSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet; coastal region from Butte County south to Santa Barbara County	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy	Loss of grasslands, vernal pools, and other wetlands to agricultural development and urbanization	No records; probably out side the species' known range
California red-legged frog *Rana aurora draytoni*	T/SSC	Found along the coast and coastal mountain ranges of California from Humboldt County to San Diego County; Sierra Nevada (midelevations [above 1,000 feet] from Butte County to Fresno County)	Permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation and riparian species along the edges; may estivate in rodent burrows or cracks during dry periods	Alteration of stream and wetland habitats, overharvesting (historically), habitat destruction, competition and predation by fish and bullfrogs	No records; could be extirpated in the region, but the study area is in the species' historic range and suitable habitat is present throughout the project site and other affected areas; suitable habitat in the study area includes Clover Valley Creek, the seasonal wetlands in the western portion of the site, and, drainages along Sierra College Boulevard and the PCWA water system pipeline
Foothill yellow-legged frog *Rana boylii*	SC/SSC	Occurs in the Klamath, Cascade, north Coast, south Coast, and Transverse Ranges; through the Sierra Nevada foothills up to approximately 6,000 feet south to Kern County	Creeks or rivers in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge; usually found near riffles with rocks and sunny banks nearby	Reduced habitat quality from alteration of stream hydrology, predation by non-native aquatic fauna, loss of habitat from urban development	No records; none observed; Clover Valley Creek is considered potential habitat

Table 13-4
Special-Status Wildlife Species that are Known or Have the Potential to Occur in the Study Area
(Continued)

Common Name and Scientific Name	Status * Federal/ State	California Distribution	Habitats	Reason for Decline or Concern	Occurrence in Study Area
Northwestern pond turtle *Clemmys marmorata marmorata*	SC/SSC	Range extends from Oregon border of Del Norte and Siskiyou Counties south along coast to San Francisco Bay, inland through Sacramento Valley, and on the western slope of Sierra Nevada; range overlaps with that of southwestern pond turtle through the Delta and Central Valley to Tulare County	Woodlands, grasslands, and open forests; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation	Loss and alteration of aquatic and wetland habitats, habitat fragmentation	No records; possible inhabits upper Clover Valley Creek; they are known to occur 5 miles downstream of the project site
California horned lizard *Phrynosoma coronatum frontale*	SC/SSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging		No records; none observed during field surveys
Cooper's hawk *Accipiter cooperii*	--/SSC	Throughout California except high altitudes in the Sierra Nevada; winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range; permanent residents occupy the rest of the state	Nests primarily in riparian forests dominated by deciduous species; also nests in densely canopied forests from digger pine-oak woodland up to ponderosa pine; forages in open woodlands	Human disturbance at nest sites, loss of riparian habitats, especially in the Central Valley; pesticide contamination	No breeding records; riparian habitat along Clover Valley Creek provides suitable nesting habitat; one individual observed on May 9, 1994 over Clover Valley Creek; no nests have been observed

Table 13-4
Special-Status Wildlife Species that are Known or Have the Potential to Occur in the Study Area
(Continued)

Common Name and Scientific Name	Status *	California Distribution	Habitats	Reason for Decline or Concern	Occurrence in Study Area
	Federal/ State				
California yellow warbler *Dendroica petechia brewsteri*	--/SSC	Nests throughout California except the Central Valley, the Mojave Desert region, and high altitudes in the Sierra Nevada; winters along the Colorado River and in parts of Imperial and Riverside Counties; two small permanent populations in San Diego and Santa Barbara Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Loss of riparian breeding habitats, nest parasitism by brown-headed cowbirds	No records; Clover Valley Creek provides suitable nesting and foraging habitat; none observed during field surveys
Yellow-breasted chat *Icteria virens*	--/SSC	Uncommon migrant in California; nests in a few locations with appropriate habitat, such as Sweetwater and Weber Creeks, El Dorado County; Pit River, Shasta County; Russian River, Sonoma County; Little Lake Valley, Mendocino County; and upper Putah Creek, Yolo County	Nests in dense riparian habitats dominated by willows, alders, Oregon ash, tall weeds, blackberry vines, and grapevines	Loss of riparian breeding habitat	Observed in riparian habitats at Twelve Bridges; Clover Valley Creek provides suitable nesting and foraging habitat; none observed during field surveys

Table 13-4
Special-Status Wildlife Species that are Known or Have the Potential to Occur in the Study Area
(Continued)

Common Name and Scientific Name	Status * Federal/ State	California Distribution	Habitats	Reason for Decline or Concern	Occurrence in Study Area
Tricolored blackbird *Agelaius tricolor*	SC/SSC	Largely endemic to California; permanent residents in the Central Valley from Butte County to Kern County; at scattered coastal locations from Marin County south to San Diego County; breeds at scattered locations in Lake, Sonoma, and Solano Counties; rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields; nesting habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony; requires large foraging areas, including marshes, pastures, agricultural wetlands, dairies, and feedlots, where insect prey is abundant	Loss of wetland and upland breeding habitats from conversion to agriculture and urban development and to water development projects, pesticides contamination, human disturbance of nesting colonies	No records; blackberry thickets along the seasonal wetlands could provide marginal-quality nesting habitat; the nearest nesting record is from 1971 near Lincoln; unlikely to nest at the project site because of the marginal-quality nesting and foraging habitat; none observed during field surveys
Pallid bat *Antrozous pallidus*	--/SSC	Low elevations throughout California	Rocky outcrops, cliffs, and crevices for roosting; access to open habitats required for foraging	Human disturbance at roost sites	No records; none observed at Twelve Bridges; mines at the project site are potential roosting habitats
Townsend's (=western) big-eared bat *Plecotus townsendii*	SC/SSC	Coastal regions from Del Norte County south to Santa Barbara County ; Klamath Mountains, Cascades, Sierra Nevada, Central Valley, Transverse and Peninsular Ranges, Great Basin, and the Mojave and Sonora Deserts	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; very sensitive to disturbances and may abandon a roost after on-site visit; gleans insects from brush or trees and feeds along habitat edges	Unclear; possibly human disturbance	No records; none observed at Twelve Bridges; mines at the project site are potential roosting habitats

Table 13-4
Special-Status Wildlife Species that are Known or Have the Potential to Occur in the Study Area
(Continued)

Common Name and Scientific Name	Status * Federal/ State	California Distribution	Habitats	Reason for Decline or Concern	Occurrence in Study Area
Spotted bat *Euderma maculatum*	SC/SSC	Occurs throughout eastern and southern California, the central Sierra Nevada, and the Sierra Nevada foothills bordering the San Joaquin Valley; probably occurs in other portions of the state where habitat is suitable	Roosts primarily in rock crevices; uses arid deserts and open pine forests set in rocky terrain; females may favor ponderosa pine forests during reproduction	Unclear; possibly human disturbance and habitat alteration	No records; none observed at Twelve Bridges; mines at the project site are potential roosting habitats
Greater western mastiff-bat *Eumops perotis californicus*	SC/SSC	Occurs along the eastern San Joaquin Valley from El Dorado County through Kern County; also found along the south Coast, Peninsular, and Transverse Ranges from San Francisco to the Mexico border	Roosts and breeds in deep, narrow rock crevices; may also use crevices in trees, buildings, and tunnels; forages in a variety of semiarid to arid habitats	Unclear; possibly insecticide contamination and loss of foraging habitat, possibly disturbance to roosting sites	No records; none observed at Twelve Bridges; mines at the project site are potential roosting habitats
Small-footed myotis *Myotis ciliolabrum*	SC/	Sierra Nevada; south Coast, Transverse, and Peninsular Ranges; and the Great Basin	Open stands in forests and woodlands, as well as shrublands; uses caves, crevices, and abandoned buildings	Unclear; possibly insecticide contamination and loss of foraging habitat, possibly disturbance to roosting sites	No records; none observed at Twelve Bridges; mines at the project site are potential roosting habitats
Long-eared myotis *Myotis evotis*	SC/	Sierra Nevada, Klamath Mountains, Coast Ranges, and Transverse and Peninsular Ranges	Woodlands	Unclear; possibly insecticide contamination and loss of foraging habitat, possibly disturbance to and loss of roosting sites	No records; none observed at Twelve Bridges; mines at the project site are potential roosting habitats
Fringed myotis *Myotis thysanodes*	SC/--	Sierra Nevada, Klamath Mountains, Coast Ranges, and Transverse and Peninsular Ranges	Open woodlands	Unclear; possibly disturbance to and loss of roosting sites	No records; none observed at Twelve Bridges; mines at the project site are potential roosting habitats

Table 13-4
Special-Status Wildlife Species that are Known or Have the Potential to Occur in the Study Area
(Continued)

Common Name and Scientific Name	Status *	California Distribution	Habitats	Reason for Decline or Concern	Occurrence in Study Area
	Federal/ State				
Yuma myotis *Myotis yumanensis*	SC/--	Considered common and widespread in northern California; colonies known from Marin and San Francisco Counties	Roosts colonially in a variety of natural and human-made sites, including caves, mines, buildings, bridges, and trees; in northern California, maternity colonies are usually in fire-scarred redwoods, pines, or oaks; forages for insects over water bodies	Unclear; possibly disturbance to and loss of roosting sites	No records; none observed at Twelve Bridges; mines at the project site are potential roosting habitats

Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
PT = proposed for federal listing 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.
SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
-- = no listing.

State

SSC = species of special concern in California.
-- = no listing.

The following special-status wildlife species are not expected to occur at the project site because they were not observed there or no suitable habitat is present: vernal pool tadpole shrimp, California tiger salamander, tricolored blackbird (none observed), California horned lizard (none observed) (Table 13-4).

Vernal Pool Fairy Shrimp. The vernal pool fairy shrimp is a federally listed as threatened species. This fairy shrimp is found at scattered localities throughout the Central Valley. Vernal pool fairy shrimp occur in seasonally inundated wetlands, primarily in vernal pools; however, this species has also been observed in roadside ditches and artificial pools (Jones & Stokes Associates, 1997). Loss of vernal pool habitat to urban development, water supply and flood control activities, and agricultural uses is the primary cause for the decline of fairy shrimp populations (57 FR 19856, May 8, 1992).

Vernal pool fairy shrimp have been found in vernal pools in the Twelve Bridges specific Plan Area, west of the project site (EIP Associates, 1993). There are several small vernal pools in the annual grassland habitat within the volcanic mudflow along the ridgeline. Most of them are concentrated near the antenna east of Clark Tunnel Road. According to the wetland delineation, there is about 0.23 acre of vernal pool habitat at the project site (Figure 13-2). There are no vernal pools or other potential fairy shrimp habitats along the proposed PCWA water system pipeline alignment.

The vernal pools along the ridge on the project site are considered suitable habitat for the vernal pool fairy shrimp. No surveys were conducted for this species at the project site. For this project, the Applicant assumed that the vernal pools are occupied by vernal pool fairy shrimp.

Valley Elderberry Longhorn Beetle. The valley elderberry longhorn beetle (VELB) is a federally listed as threatened species. VELB habitat is restricted to elderberry shrubs in riparian and oak savanna habitats of California's Central Valley, and VELB is dependent on elderberry shrubs for breeding and feeding habitat. VELBs are pith borers on elderberry shrubs. Female beetles lay their eggs in living elderberry plants. The larvae hatching from these eggs bore into the pith of larger stems and roots to pupate. Adults emerge from pupation in spring at about the same time the elderberry shrubs are flowering. The entire life cycle from egg to adult takes about 2 years.

There are no VELB records in the project vicinity, although elderberry shrubs are common in the area. Sixty-three elderberry shrubs were located on the project site during 1998 and 1999 field surveys (Glazner Environmental Consulting, 1998b, 1999a). Fifty-two had stems a least one inch or greater at ground level. Thirteen of the elderberry shrubs exhibited potential VELB exit holes. Most of the elderberry shrubs were located along the draws along the southern portion of the project site (Figure 13-1).

Two elderberry shrubs were found along the PCWA water system pipeline alignment (Figure 13-3).

Central Valley Steelhead. Central Valley steelhead have been federally listed as threatened (63 FR 13347, March 19, 1998). Central Valley steelhead inhabit the streams and rivers of the Sacramento-San Joaquin Valley. They spawn in or near the headwaters of coldwater streams and rivers, and the juveniles rear throughout cool-water systems. Adult steelhead begin migrating into the Sacramento River and its tributaries in July. Peak adult migration occurs in fall, but some fish continue to move upstream through February or March (McEwan and Jackson, 1996). Most steelhead spawn from December through April, with most spawning occurring from January through March. Newly emerged steelhead fry move to shallow, protected areas along streambanks but move to faster, deeper areas as they grow. Juvenile steelhead emigrate downstream to the ocean in November through May (Schaffter, 1980).

Central Valley steelhead may use Clover Valley Creek as juvenile rearing habitat; however, there is probably no steeelhead spawning habitat because Clover Valley Reservoir would restrict upstream

movement. The thick riparian vegetation gives cover and provides sources of food (i.e., terrestrial invertebrates) necessary for the survival and growth of juvenile steelhead.

Fall-Run Chinook Salmon. Central Valley fall-run chinook salmon have been proposed for listing as threatened under the federal ESA (63 FR 11481, March 9, 1998). Adult fall-run chinook salmon migrate into the Sacramento River and its tributaries from July through December. Fall-run chinook salmon spawn between early October through late December, and incubation takes place during October through March. Juvenile rearing and outmigration in the Sacramento River system occur from January through June. However, most juveniles leave upstream rearing areas by mid-May.

Fall-run chinook salmon may use Clover Valley Creek as juvenile rearing habitat, and there may be spawning habitat below Clover Valley Reservoir. The thick riparian vegetation gives cover and provides sources of food (i.e., terrestrial invertebrates) necessary for the survival and growth of juvenile chinook salmon.

California Red-Legged Frog. The California red-legged frog is listed as a threatened species under the federal ESA. This frog is also designated as a species of special concern by CDFG. The species was once common from Redding south to Baja California, including the Sierra Nevada. Its current range is much reduced, and most remaining populations are found in central California along the Pacific Coast from Marin County to Ventura County.

The red-legged frog requires coldwater pond and stream habitats with emergent and submergent vegetation. Habitats with the highest density of red-legged frogs are deepwater pools (at least 2.5 feet deep) with dense stands of overhanging willows and a fringe of cattails or tules (Jennings and Hayes, 1994). Juvenile frogs prefer open, shallow aquatic habitats with dense submergent vegetation. Although red-legged frogs can inhabit either ephemeral or permanent streams or ponds, populations probably cannot be maintained in ephemeral streams from which all surface water disappears (Jennings and Hayes, 1994).

Adult red-legged frogs are highly aquatic when active, but they depend less on permanent water bodies than many other frog species (Bode and Bury, 1984). Adults may take refuge during dry periods in rodent holes or near litter in riparian habitats. Recent information suggests that these frogs are capable of moving 1 mile or more into upland habitats or through ephemeral drainages.

The decline of this frog is attributable to many factors, including large-scale commercial harvesting of the species; loss and fragmentation of wetland habitats; alteration of stream habitats; and the introduction of non-native predators and competitors, including bullfrogs, crayfish, and fish (Jennings and Hayes, 1994).

There are no recent records of this species in the region. The nearest recent record is along Webber Creek in El Dorado County, about 30 miles from the project site. No field surveys were conducted for this species at the project site.

From examination of topographic maps, vegetation maps, and a reconnaissance-level field survey, several areas were identified in the study area that provides suitable habitat for red-legged frogs. Clover Valley Creek is considered high-quality, potential breeding habitat and a movement corridor. The seasonal wetlands and ponds in the western portion of the project site are potential low-quality breeding areas and possible dispersal habitats for red-legged frogs. There are also two or three potential breeding ponds adjacent to the northern boundary of the project site. Several drainages along the PCWA water system pipeline alignment are also potential dispersal corridors for these frogs and possible low-quality breeding areas.

Foothill Yellow-Legged Frog. The foothill yellow-legged frog is a federal species of concern and a state species of special concern. The foothill yellow-legged frog occurs in the foothills of mountains throughout California. This species occurs in creeks or rivers in woodlands, forests, and scrub with rock or gravel substrate and low overhanging vegetation along the edge. It is usually found near riffles with rocks or gravel and sunny banks nearby. This species has declined from reduced habitat quality from alteration of stream hydrology, predation by non-native aquatic animals, and loss of habitat from urban development in foothill areas.

There are no records of foothill yellow-legged frogs in the study area. Clover Valley Creek is considered potential aquatic habitat. None were seen during 1993, 1994, 1998 field surveys, but no extensive surveys were conducted for this species.

Northwestern Pond Turtle. The northwestern pond turtle is a federal species of concern and a state species of special concern. In California, this subspecies of western pond turtle occurs throughout the mountains and valleys of northern California. The pond turtle occurs in ponds and streams in grasslands, meadows, wetlands, woodlands, forests, and brushlands. They lay their eggs in upland areas, such as grasslands, savannas, woodlands, and open brushlands. This species has declined for a variety of reasons, including loss and alteration of aquatic and wetland habitats, loss of breeding areas near aquatic habitats, and habitat fragmentation.

Pond turtles are possible in habitats of upper Clover Valley Creek, because perennial stream habitat at the project site provides suitable aquatic habitat. The adjacent grasslands and savannas are considered suitable nesting habitat. Pond turtles have been observed about 5 miles downstream of the project site (Dains, Holland, and Sanders, 1993). None were seen during the field surveys at the project site.

Cooper's Hawk. The Cooper's hawk is a state species of special concern. The Cooper's hawk nests in valleys and mountains throughout California. These hawks occur in dense-canopied trees in riparian habitats, oak woodlands, and conifer forests. They nest from early April to late August, with a peak from early June to early August. During winter, Cooper's hawks are found in a variety of woodlands and savannas (Verner and Boss, 1980).

The riparian habitat along Clover Valley Creek provides suitable nesting and foraging habitat for Cooper's hawk. The woodlands and savannas at the project site are suitable foraging habitat for this hawk. On May 9, 1994, a Cooper's hawk was heard calling over Clover Valley Creek. This bird could have been nesting on or near the project site or it could have been a non-breeding individual. No nest site was found during the field surveys.

California Yellow Warbler. The California yellow warbler is a state species of special concern. The California yellow warbler breeds throughout California, except the Central Valley and the deserts. In the foothills, they nest in riparian habitats dominated by willows, alders, cottonwoods, and oaks. This species has declined in the Central Valley and foothills from riparian habitat loss and fragmentation and nest parasitism by brown-headed cowbirds.

The riparian habitat along Clover Valley Creek is considered high-quality habitat because the perennial stream supports dense riparian vegetation. No yellow warblers were observed during the field surveys, and no yellow warblers were observed in suitable habitat at the Twelve Bridges specific Plan Area, which is west of the Bickford project site. Yellow warblers could nest along Clover Valley Creek, although they were not observed during field surveys.

Yellow-Breasted Chat. The yellow-breasted chat is a state species of special concern. The yellow-breasted chat breeds throughout California where suitable habitat occurs. In the foothills, they nest in

riparian habitats dominated by willows, Oregon ash, alders, cottonwoods, and oaks. This species has declined in the Central Valley and foothills from riparian habitat loss and fragmentation.

The riparian habitat along Clover Valley Creek is considered high-quality habitat because the perennial stream supports dense riparian vegetation. No chats were observed during the field surveys. Yellow-breasted chats were observed during the breeding season in suitable habitat at the Twelve Bridges specific Plan Area, which is west of the Bickford project site (EIP Associates, 1993). Chats could nest along Clover Valley Creek, although they were not seen during field surveys.

Special-Status Bats. Several special-status bats could occur in the project area (Table 13-4). These include the pallid bat, Townsend's big-eared bat, spotted bat, greater western mastiff-bat, small-footed myotis bat, long-eared myotis bat, fringed myotis bat, and Yuma myotis bat. These species are designated as federal special concern or state species of special concern (Table 13-4). These bats tend to roost in crevices, tunnels, caves, or abandoned buildings. They forage on insects over grasslands, woodlands, streams, and wetlands. Many of these bat species have declined because of human disturbance at roost sites, removal of roost sites, and loss of habitat.

The Bickford Ranch area probably supports several species of bats. Bats roost in trees in oak woodlands and riparian forests and in caves and abandoned buildings. Although bats are known to host a variety of microbial organisms, disease transmission to humans is rare. The danger of rabies has been vastly exaggerated, and media coverage involving bats in the past was often inaccurate (Tuttle and Kern, 1981). During a 30-year period, the United States reported a total of nine rabies cases of human rabies from bats (Greenhall, 1982). Most human exposures to infected bats result from careless handling of partially paralyzed, infected individuals. Bats, even infected bats, are not aggressive towards humans. Human exposure to wildlife-related diseases can be minimized by avoiding picking up sick animals, including bats.

None of the bat species described above have been recorded in the project area, but bats could roost or feed at the project site. Approximately five mining tunnels have been recorded at the project site (Wallace-Kuhl & Associates, 1998). These tunnels could be used by bats as roost sites, but no surveys have been conducted to determine presence/absence at the project site. The grasslands, seasonal wetlands, woodlands, and riparian habitats are suitable foraging habitats for these species.

13.1.4 Waters of the United States

All waters of the United States, including wetlands, have been delineated on the project site (Glazner Environmental Consulting, 1998a) (Figure 13-2). Within the PCWA water system pipeline alignment (Figure 13-3), only reconnaissance-level wetland assessments were performed to identify potential wetland areas, estimate their extent, and estimate the width of drainages at the apparent ordinary high-water mark. Specific acreages of wetland and other waters of the United States have not been determined for the water system pipeline and road right-of-way areas, pending a delineation according to U.S. Army Corps of Engineers' (Corps') 1987 delineation protocol.

Seasonal Wetlands

Seasonal wetlands occur predominantly in the northwest corner of the project site, with a few wetlands also occurring at the east end along Clover Valley Creek and on the ridge top. Most of the seasonal wetlands are dominated by Himalayan blackberry with some emergent cattails and willow weed in wetter areas.

Within the PCWA water system pipeline alignment, seasonal wetland vegetation occurs within nonjurisdictional roadside ditches and in a potential wetlands along Butler Road. Most of the potential wetlands are dominated by Himalayan blackberry, with the exception of one area dominated by grassy species.

Wetland Swales

Wetland swales are ephemeral drainages with vegetation similar to seasonal wetlands or freshwater marshes. On the project site, wetland swales occur predominantly in the northwest area. These swales generally drain from seasonal wetlands or riparian wetlands. No areas specifically defined as wetland swales were identified within the PCWA water system pipeline alignment.

Riparian Wetlands

On the project site, riparian wetlands occur along Clover Valley Creek, drainages down canyons on the north side of the property, the drainage on the southwest corner of the property, and at the upstream end of seasonal drainages in the northwest area. These drainages carry natural and/or irrigation water outside of the normal wet season. The dominant vegetation includes woody riparian species, such as Fremont's cottonwood, valley oak, willow, and alder.

The PCWA water system pipeline alignment contains two areas of potential riparian wetland, both within apparent depressions that were not obviously connected to a drainage. One area is on the east side of Swetzer Road, and the other is on Butler Road several hundred feet north of the intersection with English Colony Road.

Intermittent Drainages

On the project site, intermittent drainages are unvegetated bed and bank features that occur primarily within the side canyons of the main ridge. These features are classified as "other waters of the United States," because of the lack of vegetation. Within the PCWA water system pipeline alignment, four intermittent drainages cross Butler Road. Patches of freshwater marsh vegetation and/or woody riparian vegetation occur along these drainages.

Vernal Pools

Project site vernal pools occur within the volcanic mudflow area on the ridgeline and are dominated by Mediterranean barley and purple hair grass with small patches of goldfields, small-flowered popcorn flower, and downingias.

No vernal pools were identified within the PCWA water system pipeline alignment.

Stock Ponds

Two stock ponds are located on the project site in the northwest area near the farmhouse. The ponds are along drainages and support emergent vegetation at the edges, including cattail and Himalayan blackberry.

The off-site portions of the study area contain artificial ponds that support similar vegetation. Several ponds occur near Butler Road, outside of the right-of-way. One receives inflow from an intermittent stream that crosses under Butler Road in a culvert. The others are either located in depressions that

receive runoff from the surrounding area or may be maintained by homeowners with developed water sources.

13.1.5 Other Sensitive Biological Resources

Oak Trees

The tree survey of the project site (Tree Care Incorporated, 1998) identified a total of 22,991 trees with a diameter at breast height (DBH) of 6 inches or greater. An additional 55,709 trees with a DBH of 6 inches or greater were estimated to occur within the proposed open space areas not included in the tree survey. The tree population of those areas outside the tree survey area was estimated by establishing six sample plots of 1 acre each, and one sample plot of less than 1 acre, in areas representative of differing densities and species distributions. Tree counts and species were assessed within the individual plots and comparisons were made using aerial photographs of the project site. The additional areas were then divided according to apparent canopy cover and species distribution, and a density was assigned based on those samples.

A total of 78,700 trees are estimated to occur on the project site. The majority of these trees are protected under the Placer County Tree Preservation Ordinance, which excludes only gray pines. Approximately 95% of the trees are oaks, including mostly blue oak, but also interior live oak and valley oak. Most trees are in poor to fair health. The land has been heavily grazed, particularly on the ridge tops, which has likely affected tree density and health. A fire occurred on the site in 1934, which burned many of the trees. Some of the older oaks apparently survived the fire, however, because core sampling at three areas on-site identified trees that were possibly over 150 years old (Benassini, pers. comm.).

Within the water supply pipeline alignment, a total of between 60 and 100 oaks and native trees with a DBH of 6 inches or greater were identified. Approximately 30 of these trees occur within the public road rights-of-way and the remainder are on private property between Plum Tree Lane and the Union Pacific Railroad right-of-way. Reconnaissance surveys were conducted within two alternative routes in the private property section of the alignment. Approximately 30 oaks occur within route 1A (along the existing unpaved driveway), and approximately 70 oaks occur within route 1B (along a trail and through an area of blue oak woodland). The remainder of the water supply pipeline alignment is within the project site boundaries, and oak trees are accounted for in the project site total.

Fisheries

Clover Valley Creek is a valley floor stream used for irrigation conveyance. On a year round basis, this stream likely sustains warmwater species including Sacramento pikeminnow, hitch, Sacramento sucker, golden shiners, carp, catfish, bluegill, and green sunfish. Most of the resident species spawn during spring and summer. Spawning generally is related to increasing water temperature through spring. In response to warmer water temperature, introduced species (i.e., golden shiners, carp, bluegill, green sunfish, and catfish) generally spawn later in the year than native species (i.e., pikeminnow, hitch, and Sacramento sucker).

Other Sensitive Wildlife

The project site supports other wildlife species of special interest. Wildlife species of special interest are animals that have high value to the public, such as game animals, but are not listed as threatened or endangered or do not have other designations. Mule deer, California quail, and wild turkey are common at the project site. Mountain lions may prey on mule deer and wild turkey in the project area. These animals forage in the oak woodlands and riparian habitats. They also use these habitats for shelter.

13.2 REGULATORY SETTING

The following section includes information on local- (County), state-, and federal-level regulations that govern study area biological resources.

13.2.1 Placer County Regulations

Placer County's General Plan contains policies governing development within Placer County. The policies relating to biological resources are identified in the General Plan Consistency discussion in Section 13.3.

Placer County acknowledges the value of native trees and has a tree preservation ordinance that prohibits the following actions from occurring without County approval: removal of landmark or preserved trees or groves of native trees, native tree corridors, and significant stands of native tree habitats. Placer County's Tree Preservation Ordinance also prohibits the removal of trees from riparian areas without prior identification of environmental impacts and mitigation measures (Placer County Code 36.310 B). This ordinance is applicable to the site because the project will require discretionary permit approval from Placer County of the Specific Plan and tentative map application.

13.2.2 State Regulations

California state regulations that apply to resources at the project site include the California ESA and Section 1600 of the California Fish and Game Code. These regulations are briefly described below.

California Endangered Species Act

The California ESA is similar to the federal ESA but pertains only to state listed endangered and threatened species. The California ESA requires state agencies to consult with CDFG when preparing documents under CEQA to ensure that the actions of the state lead agency do not jeopardize the continued existence of listed species. The California ESA directs agencies to consult with CDFG on projects or actions that could affect listed species, directs CDFG to determine if jeopardy to listed species would occur, and allows CDFG to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if the agency determines that there are "overriding considerations"; however, the agencies are prohibited from approving projects that would cause the extinction of a listed species.

Mitigating impacts on state listed species involves avoidance, minimization, and compensation (listed in order of preference). Unavoidable impacts on state listed species are typically addressed in a detailed mitigation plan prepared in accordance with CDFG guidelines. CDFG exercises authority over mitigation projects involving state listed species, including those resulting from CEQA mitigation requirements.

The California ESA prohibits the "take" of state listed as endangered or threatened plant and wildlife species. CDFG may authorize take if there is an approved habitat management plan or management agreement that avoids or compensates for impacts on listed species.

Fish and Game Code Section 1600: Streambed Alteration Agreements

Under Chapter 6 of the California Fish and Game Code, CDFG is responsible for the protection and conservation of the state's fish and wildlife resources. Section 1600 et seq. of the code defines the responsibilities of CDFG and the requirement for public and private applicants to obtain an agreement to

"divert, obstruct, or change the natural flow or bed, channel, or bank of any river, stream, or lake designated by the department [CDFG] in which there is at any time an existing fish or wildlife resource or from which those resources derive benefit, or will use material from the streambeds designated by the department." Public agencies file 1601 applications and private parties file 1603 applications for streambed alteration agreements.

The local CDFG warden or unit biologist typically has responsibility for issuing streambed alteration agreements. These agreements usually include specific requirements related to construction techniques and remedial and compensatory measures to mitigate for adverse impacts. CDFG may also require long-term monitoring as part of an agreement to assess the effectiveness of the proposed mitigation.

Additionally, CDFG has adopted a no-net-loss policy for wetlands (Executive Order 11190, California Fish and Game Commission 1987).

13.2.3 Federal Regulations

Federal regulations that apply to biological resources present at the project site include the federal ESA and Section 404 of the Clean Water Act. These regulations are briefly described below.

Federal Endangered Species Act

The federal ESA prohibits the take of endangered or threatened wildlife species. Take is defined to include harassing, harming (includes significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (16 United States Code [USC] 1532, 50 CFR 17.3). Actions that result in take can result in civil or criminal penalties.

The federal ESA and U.S. EPA Section 404 guidelines prohibit the issuance of wetland permits for projects that would jeopardize the existence of a threatened or endangered wildlife or plant species. The Corps must consult with the U.S. Fish and Wildlife Service (USFWS) when threatened or endangered species may be affected by a proposed project to determine if issuance of a Section 404 permit would jeopardize the species. In the context of the project site, the federal ESA would be triggered if the project would result in the take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could adversely affect or jeopardize a threatened or endangered species.

Section 404 of the Clean Water Act

The Corps and EPA regulate the discharge of dredged and fill material into "waters of the United States" under Section 404 of the Clean Water Act. Corps jurisdiction over nontidal "waters of the United States" extends to the "ordinary high-water mark provided the jurisdiction is not extended by the presence of wetlands" (33 CFR Part 328 Section 328.4).

The Corps will typically exert jurisdiction over that portion of the project site that contains waters of the United States and adjacent or isolated wetlands. This jurisdiction equals approximately the bank-to-bank portion of a creek along its entire length up to the ordinary high-water mark and adjacent wetland areas that will either be directly or indirectly adversely affected by a proposed project.

13.3 IMPACTS

This section identifies and discusses the environmental impacts resulting from the proposed project, and suggests mitigation measures to reduce the levels of impact. A detailed discussion of mitigation measures is included in Section 13.4.

Potential significant impacts associated with biological resources have been evaluated using the following criteria:

- substantial interference with the movement of any resident or migratory fish or wildlife species;
- substantially diminished habitat for fish, wildlife, or plants;
- substantial effect on rare or endangered species of animals or plants or the habitat of the species; or,
- conflict with adopted goals, policies, or regulations of relevant regulatory agencies.

The significance criteria identified above are based on CEQA Guidelines, Section 15065. A number of other agencies have promulgated criteria and definitions relevant to the implementation of CEQA significance criteria, as described below.

CEQA Section 15206 states that a project is of statewide, regional, or areawide significance if it has the potential to substantially affect sensitive wildlife habitats, including but not limited to riparian lands, wetlands, bays, estuaries, marshes, and habitats for rare and endangered species, as defined by Fish and Game Code Section 903. CEQA Section 15380 further provides that a plant or animal species may be treated as rare or endangered even if not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future.

Based on guidelines established by the USFWS and the CDFG, a project could be considered to have a significant adverse impact on biological resources if it would result in substantial disruption to, or destruction of, any special-status species, its habitat, or breeding grounds. A project would also be considered to have a significant impact if it would result in a substantial loss of important plant or animal species; would cause a change in species composition, abundance, or diversity beyond that of normal variability; would result in the direct or indirect measurable degradation of sensitive habitats (e.g., wetlands, riparian corridors, vernal pools, oak woodlands); or would result in loss of a significant plant community.

A project would normally have a significant impact on the environment if it would physically affect communities or species protected by adopted environmental plans and goals of the community(ies) where it is located. Any action that would conflict with these policies might be considered a significant impact. The Placer County General Plan includes a no net loss of wetlands policy; encourages the preservation of native plant communities, wetlands, and riparian areas; and requires protection of deer and anadromous fish habitat. Impacts on oak woodland, indirect impacts to water quality in Auburn Ravine, and creation of fenced parcels throughout the area are also evaluated in the context of the general plan. The Placer County Tree Preservation Ordinance protects native oaks and other native tree species, as well as all trees in riparian areas. Impacts on mature native trees (except gray pine) and trees within riparian communities would be considered significant on the basis of this local ordinance.

In conducting the impact analysis, three principal components of the guidelines outlined above are considered:

- magnitude of the impact (i.e., substantial/not substantial)
- uniqueness of the affected resource (i.e., rarity of the resource)

- susceptibility of the affected resource to perturbation (i.e., sensitivity of the resource)

The evaluation of the significance of project impacts considered the interrelationship of these three components. For example, a relatively small-magnitude impact on a State or federally listed species would be considered significant because the species is rare and is believed to be susceptible to disturbance. Conversely, a plant community, such as annual grassland, is not necessarily rare or sensitive to disturbance. Therefore, a larger magnitude of impact would be required to result in a significant impact.

The following assumptions were applied to the analysis of biological resource impacts.

- Impact analysis and acceptance of mitigation has been completed for the SR 193 project area, which is the same area as the sewer system pipeline project area (BioSystems Analysis, 1992; Caltrans, 1994; EIP Associates, 1993; RRM Design Group, 1997b). The analysis and mitigation in these certified documents are assumed to be adequate, and no further impact analysis for this part of the project is included in this impact section.

- The Applicant has proposed a mitigation plan for on-site project impacts on oak trees, as summarized in Mitigation Measure B-A. Mitigation for project site oak tree impacts will be implemented onsite.

- The Applicant has proposed a wetland mitigation plan for all project impacts on waters of the United States, as summarized in Mitigation Measure B-D. All wetland mitigation will occur onsite, with the exception of vernal pool mitigation which will occur at the Wildlands Mitigation Bank in Sheridan.

- The Applicant will construct any necessary improvements to the existing PCWA canal system from which water will be used for irrigation. The net result will be no loss of existing flows in Clover Valley Creek downstream of Clover Valley Reservoir.

- Construction activity for installation of the water system pipeline within Swetzer Road, English Colony Way, Butler Road, and Plum Tree Lane will occur only within existing roadbeds.

13.3.1 Construction Impacts

IMPACT B-1:	Loss of annual grassland
SIGNIFICANCE:	Less Than Significant
MITIGATION	
Proposed:	None
Recommended:	Mitigation Measure B-S (Preserve and enhance annual grassland vegetation adjacent to golf course)
RESIDUAL SIGNIFICANCE:	Less Than Significant

Construction of the proposed project would result in the loss of most of the 483 acres of annual grassland on the project site. Annual grassland is common and abundant locally, regionally, and statewide. Furthermore, it is dominated by non-native annual grasses and is of little botanical value. Annual grassland at the project site has undergone significant disturbance from years of intensive grazing and retains few native species, creating low-quality wildlife and foraging habitat for raptors. The loss of annual grassland vegetation as a result of project construction is considered less than significant, and no mitigation is required.

Installation of the off-site water supply pipeline would occur primarily within existing roads, with the exception of the approximately 2,000-foot-long segment south of the Union Pacific Railroad. A minor amount of annual grassland (less than 1 acre) would be temporarily disturbed during construction. For the reasons discussed above for the project site, and because impacts on annual grassland within the water supply pipeline project area would be temporary, this impact is considered less than significant, and no mitigation is required.

■

IMPACT B-2:	Loss of oak and other native trees
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	Mitigation Measures B-A (Implement the Applicant's oak forest conservation and revegetation plan); and B-B (Hire a project biologist for construction monitoring)
Significance After Proposed Mitigation:	Significant
Recommended:	Mitigation Measures B-C (Implement off-site tree mitigation); and B-D (Implement a tree protection plan)
RESIDUAL SIGNIFICANCE:	Significant

Approximately 10,653 native trees protected by the Placer County Tree Preservation Ordinance (protected trees), which includes native trees measuring over 6 inches in DBH, would be removed because of proposed project construction. Most of these affected trees would be oaks, although other species within oak woodlands and riparian forests would also be affected. Because young oak trees are necessary for continued regeneration of the woodland, all native oaks, regardless of size, are considered biologically valuable. Because of declining oak populations in Placer County and the state and the recognized value of oaks and native trees by the County, loss of oaks and other native trees would be considered a significant impact. Many of the oaks to be removed onsite are 50-150+ years old and cannot be replaced in the short term. Although 33 percent of the on-site oaks are characterized as being in "poor" health (Tree Care Incorporated, 1998), they retain value as wildlife habitat. This impact would also be unavoidable.

The Bickford Ranch Specific Plan designates natural open space areas that would retain many of the protected trees that occur within dense oak woodlands. Some of the trees on residential lots would be removed within the construction area (lot impact area) for each home. Over an approximately eight-year period, an estimated 10,653 protected trees would be lost because of construction of residences for the proposed project.

To determine the number of protected trees that would be affected by project construction on residential lots, a 70-foot by 90-foot impact area was considered within each lot. This preliminary lot impact area would not necessarily be the final location of home construction, but was used as a conceptual location for the purpose of estimating the number of trees that could be affected on a lot-by-lot basis. Removal of all protected trees within the lot impact area was assumed to be required for construction. The placement of the impact area for each lot in the project area would be included in the development notebook, which would be on file with the County.

The number of protected trees to be affected by project construction was determined separately for graded and non-graded areas. The number of protected trees to be removed within the conceptual impact area for each graded lot was counted using a project lotting map overlaid with the tree survey. A tree removal plan (GW Consulting Engineers, no date) was developed to show which surveyed trees would be removed

and which would be retained. Approximately 6,506 protected trees would be removed within graded areas.

To estimate tree loss in non-graded lots, all protected trees within six 1-acre sample sites throughout the natural open space area were counted to determine an average density for the woodland. This density was then applied to the impact area within each non-graded lot to estimate the number of trees that would be removed for construction. An estimated 4,147 protected trees would be removed within non-graded areas, based on this method.

Oaks and other protected native trees would be directly or indirectly affected by installation of the off-site water supply pipeline (see Figure 3-16). Approximately 30 trees within the road rights-of-way would be indirectly affected because of construction activity within the driplines of the trees. An additional 30 oaks would also be indirectly affected because they are adjacent to the existing dirt road. A total of approximately 60 trees would be indirectly affected because of installation of the PCWA water supply pipeline.

The loss of oak and other native trees would remain significant and unavoidable following implementation of the proposed mitigation measures and following implementation of the recommended mitigation measures.

■

IMPACT B-3:	Loss of oak woodland habitat
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	Mitigation Measure B-A (Implement the Applicant's oak forest conservation and revegetation plan); and B-B (Hire a project biologist for construction monitoring)
Significance After Proposed Mitigation:	Significant
Recommended:	Mitigation Measures B-C (Implement off-site tree mitigation); and B-D (Implement a tree protection plan)
RESIDUAL SIGNIFICANCE:	Significant

The removal of oak woodland would result in a permanent loss of important plant and wildlife habitat. The private open space areas between construction envelopes would lose wildlife habitat value for understory-dependent species if understory vegetation is removed. Loss of oak woodland would substantially decrease suitable habitat for woodland-dwelling wildlife, such as black-tailed deer.

In addition to the trees and areas that would be directly affected by clearing for home sites, portions of the oak woodland within the private open space in residential lots could lose their value as oak woodland habitat. Woodland areas that are substantially reduced in size or that become isolated as a result of project development might not provide enough food for animals or might not allow movement to other areas of similar habitat. Areas on the project site that could experience such a loss include the areas along roadways, areas that border building impact areas, and wooded areas completely surrounded by development.

Up to 960 acres of oak woodland would be lost because of project construction. The majority of the affected oak woodland would be within proposed residential development areas. A minor amount of the oak woodland within natural open space would be lost because of clearing for pedestrian and equestrian trails. Additional impacts on the wildlife habitat value of oak woodland retained within natural open

space areas could occur because of the proposed removal of dead and down wood and understory vegetation within fuel modification zones in order to reduce fire hazards and provide emergency and fire access. This removal would reduce available cover for some wildlife species, but would increase foraging habitat for deer and rodents.

Nearly 460 acres of oak woodland would be retained in the natural open space areas. In addition, the oak forest conservation and revegetation plan (Ralph Osterling Consultants, 1998) would enhance retained oak woodland by planting young trees in mature woodland areas where regeneration has been poor, and implementing an avian habitat improvement program.

Construction of the off-site water supply pipeline within Route 1A, which is primarily within existing paved and dirt roads, would result in minimal impacts on oak woodland habitat beyond that occurring on the project site. Implementation of Route 1B would result in the loss of less than 1 acre of oak woodland habitat in addition to the project site loss.

The loss of a large acreage of oak woodland habitat and the loss of wildlife habitat value would be a significant impact of the proposed project. This impact would remain significant following implementation of the proposed mitigation measures and would remain significant and unavoidable following implementation of the recommended mitigation measures.

■

IMPACT B-4:	Potential loss of riparian vegetation
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	Mitigation Measures B-A (Implement the Applicant's oak forest conservation and revegetation plan); B-B (Hire a project biologist for construction monitoring); and B-E (Implement the Applicant's wetland preservation and impact plan)
Significance After Proposed Mitigation:	Significant
Recommended:	Mitigation Measures B-C (Implement off-site tree mitigation); B-D (Implement a tree protection plan); and B-F (Protect riparian buffer zones)
RESIDUAL SIGNIFICANCE:	Less Than Significant

A small amount of riparian vegetation could be affected by project construction. Impacts on riparian vegetation in the project site would include loss of protected trees, which is discussed under Impact B-2, as well as loss of riparian habitat for wildlife. The amount of valley and foothill riparian habitat has significantly declined locally, regionally, and statewide. Valley and foothill riparian habitat is considered a sensitive natural habitat because of its high value to wildlife and its documented scarcity in California. County policies recognize the sensitivity of riparian habitat and require buffer areas of 50 feet from the edge of riparian vegetation. Loss of riparian vegetation or encroachment into the 50-foot required buffer would be considered a significant impact.

The proposed natural open space area within the southwest corner of the Meadows community includes an approximately 9.33-acre riparian area along a perennial stream. Because of public trail construction along this stream, a minor acreage of impact may occur within the 50-foot buffer. Less than one acre of riparian habitat may be indirectly affected by public trails immediately adjacent to the riparian zone along Clover Valley Creek.

Riparian habitat is present at two locations along the PCWA water system pipeline alignment. The pipeline would be constructed within the road at these locations; therefore, no direct impact on riparian vegetation would occur.

The potential loss of riparian vegetation on the proposed project site would be a significant impact. This impact would remain significant with implementation of proposed mitigation measures, and would be reduced to a less than significant level with implementation of recommended measures.

■

IMPACT B-5:	Loss of special-status plant habitat
SIGNIFICANCE:	Potentially Significant
MITIGATION	
Proposed:	Mitigation Measure B-B (Hire a project biologist for construction monitoring)
Significance After Proposed Mitigation:	Potentially Significant
Recommended:	Mitigation Measure B-G (Conduct pre-construction surveys for special-status plants)
RESIDUAL SIGNIFICANCE:	Less Than Significant

No occurrences of special-status plants were found at the project site during surveys conducted in 1993 and 1994 (Dains, Holland, and Sanders, 1993 and 1994). However, three additional special-status species were not included in these surveys:

- big-scale balsamroot (CNPS List 1B), which has potential to occur in project site oak woodlands, and
- Sanford's arrowhead (CNPS List 1B) and rose-mallow (CNPS List 2), which have potential to occur within the road rights-of-way along the PCWA water system pipeline alignment.

Potential impacts on big-scale balsamroot could occur within all communities and the golf course where oak woodland would be removed. Potential impacts on Sanford's arrowhead and rose-mallow could occur within the Butler Road right-of-way, where drainages cross the road. However, construction for the PCWA water supply pipeline will occur within the existing roadbed, and no direct impacts on adjacent habitats are anticipated. Therefore, no significant impacts on Sanford's arrowhead or rose-mallow are expected to occur within the water supply pipeline corridor.

Because big-scale balsamroot could be affected by project construction if it occurs within the project site, the proposed project would have a potentially significant impact on this special-status species. This impact would remain significant with implementation of the proposed mitigation measures, and would be reduced to a less than significant level following implementation of the recommended mitigation measure.

■

IMPACT B-6:	Loss of vernal pool fairy shrimp habitat
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	Mitigation Measure B-H (Compensate for loss of vernal pool fairy shrimp)
Recommended:	None
RESIDUAL SIGNIFICANCE:	Less Than Significant

Construction of the proposed project would result in the loss of 0.23 acre of vernal pool habitat that is considered suitable vernal pool fairy shrimp habitat. No surveys have been conducted on the project site for special-status fairy shrimp, but the Applicant is assuming that vernal pool habitat at the project site is occupied by vernal pool fairy shrimp. All 0.23 acre of the vernal pool habitat would be removed by project construction.

Installing the off-site PCWA water supply pipeline would not adversely affect vernal pool fairy shrimp habitat. Therefore, this fairy shrimp species would not be directly or indirectly affected by water supply pipeline construction. This impact is considered significant because the vernal pool fairy shrimp is federally listed as threatened. Implementation of the proposed mitigation measure would reduce this impact to a less than significant level.

■

IMPACT B-7:	Loss of valley elderberry longhorn beetle habitat
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	Mitigation Measures B-B (Hire a project biologist for construction monitoring); and B-I (Protect VELB habitat [elderberry shrubs] during construction)
Significance After Proposed Mitigation:	Significant
Recommended:	Mitigation Measure B-J (Compensate for loss of VELB habitat [elderberry shrubs])
RESIDUAL SIGNIFICANCE:	Less Than Significant

VELB habitat (elderberry shrubs) exists throughout the project site, and construction of the project would remove elderberry shrubs. Based on the master lotting plan map, eight elderberry plants with a total of 30 stems greater than one inch at ground level are proposed to be removed by construction. No evidence of VELB exit holes was observed in these shrubs.

Two elderberry shrubs were found in the off-site water supply pipeline area. Construction of the PCWA water supply pipeline could inadvertently damage these two elderberry shrubs. No VELB exit holes were observed on these elderberry shrubs, but the shrubs are considered suitable VELB habitat. Damaging or removing elderberry shrubs or conducting construction activities within 20 feet of an elderberry shrub is considered significant because VELB is a federally listed species. This impact would remain significant with implementation of the proposed mitigation measures, and would be reduced to a less than significant level following implementation of the recommended mitigation measures.

■

IMPACT B-8:	Loss of fish habitat as a result of degradation in water quality during construction
SIGNIFICANCE:	Potentially Significant
MITIGATION	
Proposed:	Mitigation Measures G-A (Comply with Placer County ordinances for all grading, drainage and construction of improvements); G-B (Prepare and implement a grading and erosion control plan); H-D (Prepare and implement a Storm Water Pollution Prevention Plan for construction activities); and H-E (Monitor erosion and sediment control measures during construction)
Recommended:	None
RESIDUAL SIGNIFICANCE:	Less Than Significant

Construction of the project would result in indirect impacts caused by erosion, sedimentation, or discharge by pollutants from construction equipment to Clover Valley Creek, which sustains resident fish species and may also be used as juvenile rearing habitat by Central Valley fall-run chinook salmon and steelhead. Clover Valley Creek follows the southern border of the project site. The locations of all impacts on waters of the United States and protection easements are identified by Glazner Environmental Consulting (1998c). A 50-foot buffer from the edge of riparian vegetation along drainages is included.

These impacts could result in reduced growth, reproduction, and survival in fish species. Indirect impacts during construction would be controlled by requiring BMPs, consistent with County requirements. This impact would be reduced to less than significant levels following the implementation of the proposed mitigation measures.

■

IMPACT B-9:	Loss of California red-legged frog habitat
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	Mitigation Measures G-A (Comply with Placer County Ordinances for all grading, drainage, and construction of improvements); G-B (Prepare and implement a grading and erosion control plan); H-D (Prepare and implement a Storm Water Pollution Prevention Plan for construction activities); and H-E (Monitor erosion and sediment control measures during construction);
Significance After Proposed Mitigation:	Less Than Significant
Recommended:	None
RESIDUAL SIGNIFICANCE:	Less Than Significant

No records of California red-legged frogs have been found in the region, but the drainages, streams, and ponds in the project site are considered suitable red-legged frog habitat. If California red-legged frogs occur in the study area, construction of the proposed project could directly or indirectly adversely affect red-legged frogs. Constructing the residential development, golf course and driving range, the on-site portions of the water supply and sewer pipelines, and piping of the unimproved portion of Antelope Canal, and modification of the drainage in the western portion of the project could eliminate and modify existing habitat, fragment existing drainages where red-legged frogs could occur, prevent or modify local

red-legged frog movements and dispersal, harm adult or juvenile red-legged frogs, and reduce water quality.

Several drainages along the PCWA water system pipeline alignment are potential dispersal corridors for red-legged frogs and possible low-quality breeding areas. Construction of the PCWA water system pipeline alignment would not directly affect potential red-legged frog habitat in these drainages because the pipeline would be constructed in the roadbed. Indirect impacts because of discharge of pollutants from construction equipment would not likely exceed the existing level of pollutants that occur from local runoff. These potential impacts are considered less than significant because they would not adversely affect the red-legged frog.

This potential impact is considered less than significant because no red-legged frogs were found on the site during a survey conducted in July 1999 by ECORP Consulting, Inc., the report for which is included as Appendix B in the FEIR.

■

IMPACT B-10:	Loss of foothill yellow-legged frog habitat
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	Mitigation Measures G-A (Comply with Placer County ordinances for all grading, drainage, and construction of improvements); G-B (Prepare and implement a grading and erosion control plan); H-D (Prepare and implement a Storm Water Pollution Prevention Plan for construction activities); and H-E (Monitor erosion and sediment control measures during construction)
Significance After Proposed Mitigation:	Significant
Recommended:	Mitigation Measure B-F (Protect riparian buffer zones)
RESIDUAL SIGNIFICANCE:	Less Than Significant

Foothill yellow-legged frogs and northwestern pond turtles could occur in Clover Valley Creek. The loss of riparian vegetation or encroachment into the 50-foot required buffer along Clover Valley Creek could reduce habitat quality for these species. Pedestrian and equestrian trails could also be placed immediately adjacent to the riparian zone along Clover Valley Creek.

Construction of the project could increase residential runoff into Clover Valley Creek. Increased residential runoff could reduce water quality for pond turtles and yellow-legged frogs, if present. These potential impacts on the pond turtle and foothill yellow-legged frog are considered significant because they are state and federal species of concern. This impact would remain significant following implementation of the proposed mitigation measures; implementation of recommended the mitigation measure would minimize these impacts on these species and reduce the potential impacts to a less than significant level.

■

IMPACT B-11:	Loss of raptor nests
SIGNIFICANCE:	Significant
MITIGATION	

Proposed:	Mitigation Measures B-L (Conduct preconstruction surveys for nesting raptors in affected areas); and B-M (Develop buffer zones around nesting raptors during construction)
Recommended:	None
RESIDUAL SIGNIFICANCE:	Less Than Significant

Red-tailed hawks, red-shouldered hawks, and Cooper's hawks could nest in the affected areas of the residential development and golf course and driving range. These species could nest in oak and riparian trees in the study area. If construction activities occur within 500 feet of an active hawk nest, these birds could abandon the nest(s), which would cause nesting failure. Disturbing an active raptor nest would violate the federal Migratory Bird Treaty Act and Sections 3503 and 3503.5 of the California Fish and Game Code and would be considered a significant impact. This impact would be reduced to a less than significant level following implementation of the proposed mitigation measures.

No raptor nests are expected to occur along the proposed PCWA water supply pipeline alignment because most of the alignments are along existing paved and unpaved roads that are marginal-quality raptor nesting sites.

■

IMPACT B-12:	Possible disturbance and harm to roosting special-status bats
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	Mitigation Measures B-B (Hire a project biologist for construction monitoring); and B-N (Install bat gates at tunnel entrances)
Recommended:	None
RESIDUAL SIGNIFICANCE:	Less Than Significant

Special-status bats (Table 13-4) could roost in the five mine tunnels that occur in the study area. Although no development would occur in the tunnel areas, the Applicant intends to close the entrances to the tunnels to reduce the likelihood that humans would be trapped in the tunnels. If special-status bats use one or more of the tunnels for roosting, closing the tunnels could trap and kill bats in the tunnels. This potential impact is considered significant because these bat species are State species of special concern or federal species of concern. However, it is also important to prevent encounters with hazardous materials, as well as remove the physical hazards associated with open and abandoned mine workings. All open mine tunnels located on the project site will be located and permanently secured from human intrusion with the use of "bat gates" that will restrict human access but allow egress by bats. This impact would be reduced to a less than significant level following implementation of the proposed mitigation measures.

■

IMPACT B-13:	Loss and degradation of waters of the United States, including wetlands
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	Mitigation Measures G-A (Comply with the Placer County ordinances for all grading, drainage, and construction of improvements); B-E (Implement the Applicant's wetland preservation and impact plan); G-B (Prepare and implement a grading and erosion control plan); H-D (Prepare and

	implement a Storm Water Pollution Prevention Plan for construction activities); H-E (Monitor erosion and sediment control measures during construction); B-O (Obtain and implement conditions of state and federal permits for impacts on waters of the United States); and B-P (Protect wetlands during construction)
Recommended:	None
RESIDUAL SIGNIFICANCE:	Less Than Significant

Construction of the proposed project would result in direct impacts to approximately 2.83 acres of waters of the United States, including wetlands, in the study area. This acreage includes 0.21 acre of intermittent drainage (a water of the United States) and 2.62 acres of wetlands as listed below:

Wetlands Swale	0.49 acre
Seasonal Wetland	1.48 acre
Vernal Pool	0.23 acre
Riparian Wetland	0.42 acre

Additional wetland and other waters of the United States areas could be indirectly affected during construction by erosion and sedimentation or discharge of pollutants from construction equipment. Indirect impacts during construction would be controlled by requiring BMPs, consistent with County requirements.

The amount of wetlands has significantly declined, both historically and recently, throughout the Central Valley of California. A number of endemic vernal pool plants and animals are currently listed as endangered or threatened under the federal ESA, primarily because of habitat loss. Locally, many wetlands and drainages have been converted to agriculture or are on sites proposed for development. Seasonal wetlands, wetland swales, riparian wetlands, vernal pools, stock ponds, and intermittent drainages in the study area qualify as waters of the United States and are subject to Corps jurisdiction. Additionally, the Corps and CDFG have adopted no-net-loss policies for wetlands, requiring compensation for lost wetland functions and values. Because of the documented scarcity of wetlands in the Central Valley, loss of wetlands would be considered a significant impact and mitigation for their loss is required.

The Applicant's wetland impact assessment (Glazner Environmental Consulting, 1998c) is included in Appendix H. The locations of all impacts on waters of the United States and protection easements are identified by Glazner Environmental Consulting (1998). According to this assessment, construction of the proposed project would result in direct impacts on approximately 2.62 acres of wetlands and 0.21 acre of other waters of the United States on the project site. Loss of jurisdictional wetlands and other waters of the United States would occur because of construction of the residential communities, golf course, and driving range. Wetland protection easements would be placed over the remaining 14.51 acres of wetlands and other waters of the United States, including 50-foot buffers from the edge of riparian vegetation along drainages.

Additional indirect wetlands impacts could occur during construction, including:

- within the Meadows community area, where excavation for lake construction and grading for the Bio Filters would occur within less than 25 feet of the existing wetland swales;
- golf course construction would occur within 25 feet of intermittent drainages (ID-16 and ID-17 on Figure 13-2);

- the loss of a substantial number of trees throughout the project site could increase erosion and sedimentation into lower-lying wetlands and drainages; and
- installation of the on-site water supply pipeline, if bore and jack construction under Antelope Canal is not the construction method used.

These grading and other construction activities could result in the discharge of sediments into wetlands or increases in permeability due to fracturing of the Mehrten mudflow, indirectly causing loss and/or degradation of the habitat.

Construction of the PCWA water supply pipeline within the road rights-of-way would avoid direct impacts on adjacent waters of the United States by restricting construction to the roadbed. Indirect impacts because of discharge of pollutants from construction equipment to the roadway and into adjacent waters of the United States would not likely exceed the existing level of pollutants that occur in runoff from the road to adjacent areas. These impacts would be less than significant.

Loss and degradation of waters of the United States, including wetlands, would be reduced to a less than significant level following implementation of the proposed mitigation measures.

13.3.2 Operations

IMPACT B-14: Loss of common wildlife species
SIGNIFICANCE: Less Than Significant
MITIGATION: None Warranted

The project site supports many wildlife species that are locally and regionally common. These species include bushtits, white-crowned sparrows, house finches, pocket gophers, voles, snakes, lizards. Other sensitive wildlife species, such as mule deer, wild turkeys, and California quail, are also locally and regionally common. The loss of annual grasslands and oak woodlands would not have substantial impacts on common wildlife species and other sensitive wildlife species that occupy these habitats. Construction of the PCWA water supply pipeline would not adversely affect common wildlife species and other sensitive wildlife species because only small amounts of habitat would be disturbed during construction and the construction disturbance would be temporary.

The proposed project would have a less than significant impact to loss of common wildlife species.

■

IMPACT B-15: Additional loss of oak trees during project operation phase
SIGNIFICANCE: Potentially Significant
MITIGATION
Proposed: None
Recommended: Mitigation Measures B-D (Implement a tree protection plan); and B-Q (Develop and implement an open space management plan)
RESIDUAL SIGNIFICANCE: Potentially Significant

Following construction of proposed residences and project facilities, additional loss of oaks could occur within individual residential lots. Homeowners could remove trees that are outside of the construction impact area accounted for in the development notebook on file with the County (see discussion under Impact B-2). Homeowners will be required to obtain a tree removal permit from Placer County and from the Homeowners Association prior to tree removal. The number of trees potentially affected cannot be

precisely determined, however loss of protected oaks and other native trees would be considered potentially significant.

This impact is unavoidable because of the lack of available mitigation to replace 50-150 year old trees in the short term. The impact could be potentially significant following implementation of the recommended mitigation measures depending on the magnitude of additional tree loss.

IMPACT B-16:	Loss of blackberry riparian habitat during fire management activities
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	None
Recommended:	Mitigation Measure B-R (Avoid removal of blackberry riparian vegetation)
RESIDUAL SIGNIFICANCE:	Less Than Significant

The removal of approximately 71 acres of blackberry shrubs in the Blackberry Eradication Zone (BEZ), as indicated on the Specific Plan fuel modification areas exhibit, during the operation phase of the project would have substantial impacts on wildlife. The blackberry thickets are a component of the riparian habitats along Clover Valley Creek and other drainages in the Bickford Ranch Plan Area. The blackberry shrubs provide cover and forage for a variety of riparian wildlife species. Also, because blackberries grow where there is high soil moisture and because blackberries have a high moisture content, these shrubs can provide a buffer and help protect native riparian vegetation and wildlife habitat during grassland and woodland fires. Additionally, after a grassland or woodland fire, blackberries can reduce sedimentation in creeks and drainages, which frequently occurs after fires.

These impacts would be reduced to a less than significant level following implementation of the recommended mitigation measure because the impacts on biological resources would be avoided.

■

IMPACT B-17:	Degradation of fish habitat as a result of degradation in water quality
SIGNIFICANCE:	Potentially Significant
MITIGATION	
Proposed:	Mitigation Measures H-A (Prepare and implement a post-development stormwater management program); H-F (Monitor site erosion and sediment control measures for two years after implementation of final erosion control measures); HW-F (Finalize and implement the Applicant's Golf Course Chemical Application Management Plan); and H-G (Design runoff detention basins to promote solids settling and provide capacity for accumulated sediment)
Significance After Proposed Mitigation:	Potentially Significant
Recommended:	Mitigation Measure B-F (Protect riparian buffer zones)
RESIDUAL SIGNIFICANCE:	Less Than Significant

Clover Valley Creek follows the southern border of the project site. The locations of all impacts on waters of the United States and protection easements are identified by Glazner Environmental Consulting (1998b).

Auburn Ravine is north of the project site by at least 1,500 feet. A small reservoir near the northern end of the project site connects directly to Auburn Ravine. However, a detention basin is below the reservoir, reducing the potential runoff to the reservoir, and ultimately, to Auburn Ravine. Auburn Ravine has a relatively low elevation watershed; therefore, surface runoff from rainfall and groundwater accretion from springs and seeps constitute the base streamflow. Most of the flow in Auburn Ravine during spring and summer is composed of water diverted from the Bear River, including water released by Nevada Irrigation District and Pacific Gas and Electric. The City of Auburn discharged treated effluent to Auburn Ravine, and the City of Lincoln is working towards discharging tertiary treated effluent to Auburn Ravine.

Implementation of the project would result in indirect impacts caused by erosion, sedimentation, or runoff to Clover Valley Creek and Auburn Ravine, which sustain resident fish species and juvenile rearing habitat for Central Valley fall-run chinook salmon and steelhead. These impacts could result in reduced growth, reproduction and survival in fish species. The degradation of water quality and corresponding potential degradation of fish habitat is a significant project impact.

This impact would remain significant following implementation of the proposed mitigation measures and would be reduced to less than significant levels following the implementation of the recommended mitigation measures.

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IMPACT B-18:	Degradation of aquatic habitats for California red-legged frog, foothill yellow-legged frog, and northwestern pond turtle
SIGNIFICANCE:	Significant
MITIGATION	
Proposed:	Mitigation Measures H-A (Prepare and implement a post-development stormwater management program); H-F (Monitor erosion and sediment control measures for two years after implementation of final erosion control measures); H-G (Design runoff detention basins to promote solids settling and provide capacity for accumulated sediment); and HW-F (Finalize and implement the Applicant's Golf Course Chemical Application Management Plan); and H-H (Finalize and implement the Applicant's Lake Management Plan for constructed lakes and wetlands)
Significance After Proposed Mitigation:	Significant
Recommended:	Mitigation Measure B-R (Avoid removal of blackberry riparian vegetation)
RESIDUAL SIGNIFICANCE:	Less Than Significant

Potential degradation of California red-legged frog habitat within the proposed wetland easements could occur during operation phase of the project because of the proximity of proposed homes sites. The potential would exist for intrusion into and damage to the habitat by residents and pets. This could adversely affect California red-legged frogs and northwestern pond turtles that could occur in the area. This potential impact is considered significant because the red-legged frog and pond turtle are special-status species.

The removal of approximately 71 acres of blackberry shrubs in the Blackberry Eradication Zone (BEZ) during the operation phase of the project could have substantial impacts on California red-legged frogs, if present. The blackberry thickets are a component of the riparian habitats along Clover Valley Creek and other drainages in the Bickford Ranch Plan Area. The blackberry shrubs provide cover and forage for a variety of riparian wildlife species, including red-legged frogs. Also, because blackberries grow where there is high soil moisture and because blackberries have a high moisture content, these shrubs can provide a buffer and help protect red-legged frog habitat (native riparian vegetation) during grassland and woodland fires. Also, after a grassland or woodland fire, blackberries can reduce sedimentation in creeks and drainages where red-legged frogs could occur. This impact is considered significant because the red-legged frog is a special-status species.

Potential degradation of Clover Valley Creek could occur during the operation phase of the project because of golf course run-off containing fertilizers and pesticides. The Bickford Ranch Specific Plan would include a chemical maintenance element for the golf course that would require implementation of BMPs to minimize introduction of sediment and chemicals into streams by providing dense vegetation buffers, controlling fertilizer and pesticide use, and controlling irrigation. However, development of a maintenance plan to address these requirements would be necessary. Golf course operation impacts on special-status amphibians (California red-legged frogs, yellow-legged frogs, and pond turtles) is considered significant because these species could be adversely affected by water quality degradation.

Potential indirect impacts could occur offsite because of increased run-off and degradation of water quality of run-off from the project site. The proposed drainage plan would direct run-off from developed areas and toward reservoirs and streams north of the project site. Therefore, California red-legged frogs and pond turtles could be adversely affected by water quality degradation, if they are present. These potential impacts are considered significant because these special-status species could be adversely affected by water quality degradation.

This impact would remain significant following implementation of the proposed mitigation measures and would be reduced to less than significant levels following the implementation of the recommended mitigation measures.

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IMPACT B-19:	Degradation of wetlands and other waters of the United States during project operation phase
SIGNIFICANCE:	Potentially Significant
MITIGATION	
Proposed:	Mitigation Measures H-A (Prepare and implement a post-development stormwater management program); H-F (Monitor erosion and sediment control measures for two years after implementation of final erosion control measures) and H-H (Finalize and implement the Applicant's Lake Management Plan for constructed lakes and wetland areas)
Recommended:	None
RESIDUAL SIGNIFICANCE:	Less Than Significant

Potential degradation of Clover Valley Creek could occur during the operation phase of the project because of golf course run-off containing fertilizers and pesticides. The Bickford Ranch Specific Plan would include a chemical maintenance element for the golf course that would require implementation of BMPs to minimize introduction of sediment and chemicals into streams by providing dense vegetation buffers, controlling fertilizer and pesticide use, and controlling irrigation. However, development of a

maintenance plan to address these requirements would be necessary. Golf course operation phase impacts on Clover Valley Creek and other waters of the United States in the study area would be anticipated to be potentially significant.

Indirect impacts could occur offsite because of increased run-off from the increased impermeable surface on the project site and potential degradation of water quality of run-off from the project site as a result of golf course runoff. The proposed drainage plan would direct a portion of the project site run-off to reservoir and streams north of the project site. This would be a potentially significant impact.

This impact would be reduced to a less than significant level following implementation of the proposed mitigation measures.

13.3.3 General Plan Consistency

The Placer County General Plan policies addressing biological resources are identified below, and a determination of the proposed project's consistency is made. The proposed project is consistent with Placer County's biological resources policies.

Water Resources

6.A.1 The County shall require the provision of sensitive habitat buffers which shall, at a minimum, be measured as follows: 100 feet from the centerline of perennial streams, 50 feet from centerline of intermittent streams, and 50 feet from the edge of sensitive habitats to be protected including riparian zones, wetlands, old growth woodlands, and the habitat of rare, threatened or endangered species (see discussion of sensitive habitat buffers in Part I of this *Policy Document*). Based on more detailed information supplied as a part of the review for a specific project, the County may determine that such setbacks are not applicable in a particular instance or should be modified based on the new information provided. The County may, however, allow exceptions, such as in the following cases:

a. Reasonable use of the property would otherwise be denied;

b. The location is necessary to avoid or mitigate hazards to the public;

c. The location is necessary for the repair of roads, bridges, trails, or similar infrastructure; or

The location is necessary for the construction of new roads, bridges, trails, or similar infrastructure where the County determines there is no feasible alternative and the project has minimized environmental impacts through project design and infrastructure placement.

Consistent.
The proposed project includes setbacks as described in Part I of the Placer County General Plan Policy Document. Setbacks are to be implemented within common open space and through protective easements on private lots. Specific monitoring of project construction is recommended to ensure compliance with these buffer areas.

6.A.3 The County shall require development projects proposing to encroach into a creek corridor or creek setback to do one or more of the following, in descending order of desirability:

a. Avoid the disturbance of riparian vegetation;

b. Replace riparian vegetation (on-site, in-kind);

c. Restore another section of creek (in-kind); and/or

d. Pay a mitigation fee for restoration elsewhere (e.g., wetland mitigation banking program).

Consistent.
Mitigation measures to ensure implementation of this policy are included in the Biology chapter of this document.

6.A.4 Where creek protection is required or proposed, the County should require public and private development to:

a. Preserve creek corridors and creek setback areas through easements or dedications. Parcel lines (in the case of a subdivision) or easements (in the case of a subdivision or other development) shall be located to optimize resource protection. If a creek is proposed to be included within an open space parcel or easement, allowed uses and maintenance responsibilities within that parcel or easement should be clearly defined and conditioned prior to map or project approval;

b. Designate such easement or dedication areas (as described in a. above) as open space;

c. Protect creek corridors and their habitat value by actions such as: 1) providing an adequate creek setback, 2) maintaining creek corridors in an essentially natural state, 3) employing creek restoration techniques where restoration is needed to achieve a natural creek corridor, 4) utilizing riparian vegetation within creek corridors, and where possible, within creek setback areas, 5) prohibiting the planting of invasive, non-native plants (such as vinca major and eucalyptus) within creek corridors or creek setbacks, and 6) avoiding tree removal within creek corridors;

d. Provide recreation and public access near creeks consistent with other *General Plan* policies;

e. Use design, construction, and maintenance techniques that ensure development near a creek will not cause or worsen natural hazards (such as erosion, sedimentation, flooding, or water pollution) and will include erosion and sediment control practices such as: 1) turbidity screens and other management practices, which shall be used as necessary to minimize siltation, sedimentation, and erosion, and shall be left in place until disturbed areas; and/or are stabilized with permanent vegetation that will prevent the transport of sediment off site; and 2) temporary vegetation sufficient to stabilize disturbed areas.

f. Provide for long-term creek corridor maintenance by providing a guaranteed financial commitment to the County which accounts for all anticipated maintenance activities.

Consistent.
Creek corridors are indicated in the Specific Plan as riparian wetlands, intermittent drainages and swales. Wetlands to be protected within the project are located in common open space or in easements within private lots. Non-disturbance restrictions and setbacks will be included in project CC&Rs. Long term maintenance will be the responsibility of the Homeowners Association or the individual homeowner. Water quality protection measures are included in project plans. Please refer to Chapters 10 and 12 of this document.

6.A.5 The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff and to encourage the use of BMPs for agricultural activities.

Consistent.
Construction activities include the use of BMPs to protect streams from water quality degradation. Please refer to Chapters 10 and 12 of this document for specific features.

6.A.6 The County shall require that natural watercourses are integrated into new development in such a way that they are accessible to the public and provide a positive visual element.

Consistent.
Natural waterways have been integrated within the proposed project through both common open space area and protective easements on private lots.

6.A.9 The County shall require that newly-created parcels include adequate space outside of watercourses' setback areas to ensure that property owners will not place improvements (e.g., pools, patios, and appurtenant structures), within areas that require protection.

Consistent.
Easements proposed on private lots will include restrictions prohibiting accessory structures, uses or land disturbance.

Wetland and Riparian Areas

6.B.2 The County shall require new development to mitigate wetland loss in both regulated and non-regulated wetlands to achieve "no net loss" through any combination of the following, in descending order of desirability: (1) avoidance; (2) where avoidance is not possible, minimization of impacts on the resource; or (3) compensation, including use of a mitigation banking program that provides the opportunity to mitigate impacts to rare, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas.

Consistent.
The proposed project design includes ±529 acres of natural open space, containing both wetland preservation and open space easements. Approximately 2.62 acres of the site's 17.3 acres of wetlands will be impacted. Where avoidance of wetland areas is infeasible, the property owners propose to replace wetlands offsite at an approved wetlands mitigation banking facility at a ratio in keeping with Placer County's no-net-loss policy.

6.B.5 The County shall require development that may affect a wetland to employ avoidance, minimization, and/or compensatory mitigation techniques. In evaluating the level of compensation to be required with respect to any given project, (a) on-site mitigation shall be preferred to off-site, and in-kind mitigation shall be preferred to out-of-kind; (b) functional replacement ratios may vary to the extent necessary to incorporate a margin of safety reflecting the expected degree of success associated with the mitigation plan; and (c) acreage replacement ratios may vary depending on the relative functions and values of those wetlands being lost and those being supplied, including compensation for temporal losses. The County shall continue to implement and refine criteria for determining when an alteration to a wetland is considered a less than significant impact under CEQA.

Consistent.
The proposed project design includes ±490 acres of natural open space which contains wetland preservation easements. Mitigation for most of the 2.62 acres of wetland impacts will be on-site, in keeping with County policy. As mitigation for the 0.23 acre of impacted vernal pool wetlands, however, the property owners propose to replace vernal pool wetlands off-site at an approved wetlands mitigation banking facility at a ratio in keeping with Placer County's no-net-loss policy.

Because vernal pools require a specific substrate and habitat type to become successfully established, off-site mitigation in a monitored mitigation bank is preferable to re-creation of an isolated on-site vernal pool mitigation. Similarly, off-site mitigation banking can provide more ecological benefit for protection of other wetland types if suitable on-site habitat is not present. Although a survey of suitable wetlands habitat within the project boundary has not been performed, the area of Mehrten formation that currently supports vernal pools and would provide suitable substrate for vernal pool creation is proposed for development.

The Applicant will mitigate impacted waters of the United States through re-creation of wetlands on-site where suitable habitat for the successful establishment of wetlands is available. Vernal pool mitigation will be provided at an off-site mitigation bank.

Fish and Wildlife Habitat

6.C.1 The County shall identify and protect significant ecological resource areas and other unique wildlife habitats critical to protecting and sustaining wildlife populations. Significant ecological resource areas include the following:

a. Wetland areas including vernal pools.

b. Stream environment zones.

c. Any habitat for rare, threatened or endangered animals or plants.

d. Critical deer winter ranges (winter and summer), migratory routes and fawning habitat.

e. Large areas of non-fragmented natural habitat, including Blue Oak Woodlands, Valley Foothill Riparian, vernal pool habitat.

f. Identifiable wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian migratory routes, and known concentration areas of waterfowl within the Pacific Flyway.

g. Important spawning areas for anadramous fish.

Consistent.
The proposed project contains measures protect several ecological resources areas. Refer to Chapter 13 of this document for a specific discussion of these measures.

6.C.5 The County shall require mitigation for development projects where isolated segments of stream habitat are unavoidably altered. Such impacts should be mitigated on-site with in-kind habitat replacement or elsewhere in the stream system through stream or riparian habitat restoration work.

Consistent.
Mitigation measure B-E contains recommended measures to protect stream corridors and riparian habitat. Implementation of this measure will ensure policy consistency.

6.C.9 The County shall require new private or public developments to preserve and enhance existing native riparian habitat unless public safety concerns require removal of habitat for flood control or other public purposes. In cases where new private or public development results in modification or destruction of riparian habitat for purposes of flood control, the developers shall be responsible for acquiring, restoring, and enhancing at least an equivalent amount of like habitat within or near the project area.

Consistent.
Mitigation measure B-E contains recommended measures to protect stream corridors and riparian habitat. Implementation of this measure will ensure policy consistency.

6.C.11 Prior to approval of discretionary development permits involving parcels within a significant ecological resource area, the County shall require, as part of the environmental review process, a biotic resources evaluation of the sites by a wildlife biologist, the evaluation shall be based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of rare, threatened, or endangered species of plants or animals. Such evaluation will consider the potential for significant impact on these resources, and will identify feasible measures to mitigate such impacts or indicate why mitigation is not feasible. In approving any such discretionary development permit, the decisionmaking body shall determine the feasibility of the identified mitigation measures.

Significant ecological resource areas shall, at a minimum, include the following:

a. Wetland areas including vernal pools.

b. Stream environment zones.

c. Any habitat for rare, threatened or endangered animals or plants.

d. Critical deer winter ranges (winter and summer), migratory routes and fawning habitat.

e. Large areas of non-fragmented natural habitat, including Blue Oak Woodlands, Valley Foothill Riparian, vernal pool habitat.

f. Identifiable wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian migratory routes, and known concentration areas of waterfowl within the Pacific Flyway.

g. Important spawning areas for anadramous fish.

Consistent.
Several biological studies have been conducted on the project site and their findings and recommended mitigation measures are summarized in this document. Please refer to Chapter 10.

Vegetation

6.D.1 The County shall encourage landowners and developers to preserve the integrity of existing terrain and natural vegetation in visually-sensitive areas such as hillsides, ridges, and along important transportation corridors.

Consistent.
The design utilizes the natural landforms and vegetation to screen hillside and ridge development and preserve the integrity of existing terrain and natural vegetation in visually sensitive areas. No important transportation corridors are affected by the proposed project.

6.D.2 The County shall require developers to use native and compatible non-native species, especially drought-resistant species, to the extent possible in fulfilling landscaping requirements imposed as conditions of discretionary permits or for project mitigation.

Consistent.
Landscape guidelines to be implemented within the Specific Plan area emphasize native and compatible non-native plat materials.

6.D.3 The County shall support the preservation of outstanding areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.

Consistent.
The proposed project will have significant impacts on native vegetation and vernal pools and potentially significant impacts on riparian areas. Development of this site as contemplated under the Placer County General Plan anticipated that this type of impact would occur. The Applicant proposes compensatory measures to reduce impacts to these natural features.

6.D.4 The County shall ensure that landmark trees and major groves of native trees are preserved and protected. In order to maintain these areas in perpetuity, protected areas shall also include younger vegetation with suitable space for growth and reproduction.

Consistent.
A detailed tree survey has been completed on the project site. The survey indicates the presence of approximately 78,700 trees six inches diameter breast height or larger on the project site. It is estimated approximately 10,653 trees will be removed for site development purposes. An oak woodland conservation plan and a revegetation plan have been prepared by the project Applicant. Recommended measures also include a tree protection plan be implemented during project development.

6.D.9 The County shall require that development on hillsides be limited to maintain valuable natural vegetation, especially forests and open grasslands, and to control erosion.

Consistent.
Development on hillsides has been limited to areas of less than 30% slope in accordance with Placer County requirements.

6.D.12. The County shall support the retention of heavily vegetated corridors along circulation corridors to preserve their rural character.

Consistent.
The Bickford Ranch Specific Plan includes the preparation and implementation of an oak woodland conservation and revegetation plan. An exhibit within the Specific Plan entitled Oak Tree Planting Areas indicates concentrations of oak tree planting along circulation corridors.

6.D.13. The County shall support the preservation of native trees and the use of native, drought-tolerant plant materials in all revegetation/landscaping projects.

Consistent.
The proposed Bickford Ranch Design Guidelines include landscaping materials to be utilized within the proposed project. The plant materials include the use of native and compatible drought-tolerant species. As described above, many native trees are proposed for retention within the proposed project open spaces and common areas.

Open Space for the Preservation of Natural Resources

6.E.1 The County shall support the preservation and enhancement of natural land forms, natural vegetation, and natural resources as open space to the maximum extent feasible. The County shall permanently protect, as open space, areas of natural resource value, including wetlands preserves, riparian corridors, woodlands, and floodplains.

Consistent.
Areas proposed as protected open space on the project site include woodlands, riparian corridors and wetland areas.

6.E.2 The County shall require that new development be designed and constructed to preserve the following types of areas and features as open space to the maximum extent feasible:

a. High erosion hazard areas;

b. Scenic and trail corridors;

c. Streams, streamside vegetation;

d. Wetlands;

e. Other significant stands of vegetation;

f. Wildlife corridors; and

g. Any areas of special ecological significance.

Consistent.
The proposed project preserves many steep areas, scenic and trail corridors, the majority of streams, riparian vegetation and wetlands on the project site.

6.E.4 The County shall encourage either private or public ownership and maintenance of open space.

Consistent.
The proposed project contains both public and private open space.

13.4 MITIGATION MEASURES

Mitigation Measure B-A: Implement the Applicant's oak forest conservation and revegetation plan

Mitigation Measure B-A applies to Impacts B-2, B-3, and B-4.

The Applicant proposes to include an on-site oak replacement plan in its proposed oak forest conservation and revegetation plan (Ralph Osterling Consultants, 1998). The plan will require replacement of approximately 10,653 oak trees at a ratio of 2:1 using native oak trees grown from acorns collected onsite or in the immediate vicinity. A total of approximately 21,200 trees will be planted at an average density of 100 trees per acre. Plantings will be installed within two years of tree removal. The plan will be developed and implemented in cooperation with the CDFG, U.S. Department of Agriculture Natural Resource Conservation Service, the California Department of Forestry and Fire Protection, and the University of California Cooperative Extension.

Planting sites will be indicated on a project site map and will include areas within all proposed Bio Filter zones, the proposed nature area in the Meadows community park, along selected portions of the project site edges, between natural open space areas and roads, in the Ridges community park, and in additional areas of existing oak woodland where young trees do not currently exist. Site selection criteria will include slope aspect, soil conditions, accessibility for maintenance and monitoring, irrigation water availability, potential for ecosystem enhancement, and potential for prescribed burning to prepare and manage planting sites.

- Tree spacing will be as follows:

Trees per Acre (approximate)	Spacing Between Trees (feet)
10	66
20	46
40	33
80	23
100	21
200	15
400	10

- Irrigation will occur from May through September for the three years after planting, unless post-irrigation monitoring determines that tree survival requires additional irrigation – see Response I4-217 in the FEIR. This timing can be modified as necessary for extremely wet or dry years.

- Maintenance will occur according to the following schedule:

Year Following Planting	Irrigation Schedule	Weed Removal	Replanting
1	Weekly	4 times per year	Once per year in fall
2	Every other week	4 times per year	Once per year in fall
3	Every other week	4 times per year	Once per year in fall
4	Every fourth week	4 times per year	Once per year in fall
5	Every fourth week	4 times per year	Once per year in fall

- The 80 percent survival rate applies to each planting area.
- Survival will be measured in late summer of each year to allow for assessment of replacement needs in fall.
- Minimum survival rate will be as follows for each year:

Year Following Initial Planting	Percent Survival
1	95
2	90
3	90
4	90
5	80

Species to be planted will be native oaks and riparian species, including interior live oak, blue oak, California sycamore, willows, Fremont cottonwood, California buckeye, big-leaf maple, flowering ash, and native shrubs. Revegetation size stock (2- by 2- by 10-inch containers) will be used for plantings.

Plants installed will be drip irrigated for the first three years of growth. The Applicant's staff will monitor the irrigation systems for damage. Maintenance of all plantings will include biannual fertilization, spring and summer weed control, and replacement of damaged or dead plants.

Plantings will be required to meet a minimum survival rate of 80 percent at the end of a five-year establishment period. If this rate is not met at the end of the five years, replanting and continued monitoring will be conducted. Monitoring of the replacement plantings will be conducted annually for a minimum of five years to collect survival and growth data and provide photographic documentation of tree growth. An annual inventory and inspection of the growth and condition of all plants will be conducted annually by a qualified arborist approved by Placer County. A meeting to report on research and need for mitigation refinements will be conducted annually for five years following the planting.

Additional habitat conservation programs to be developed with the University of California Cooperative Extension, University of California at Davis, and Sierra College will include an inventory of natural open space areas to assess potential as habitat enhancement sites, an avian habitat improvement program, and a fire-safe fuel management program.

The project area oak woodland currently supports minimal regeneration of young oak trees. The oak revegetation plan will provide a substantial number of young oak trees within the on-site mitigation area. Over the long-term, the oak tree mitigation area will support more valuable wildlife nesting and foraging habitat than the existing sparse stands of oaks along the ridge area by increasing the plant density and species diversity of oak woodland. Portions of the oak mitigation area will also be contiguous with the natural open space areas containing oak woodland in the northern project area. The overall acreage of oak woodland habitat, however, will be decreased after project development.

The level of significance after mitigation must be considered speculative because of the magnitude of the identified impact. Over the long term, successful implementation of these measures may eventually replace lost habitat values, but the habitat would be compressed into a smaller acreage of oak woodland than currently exists on-site. Short-term impacts would remain significant and unavoidable because tree replacement would not create similar habitat (tree size and acorn crop) for at least 50 to 100 years. In addition, proposed planting densities may be too high for the mitigation area to support. Use of additional

off-site acreage is proposed in Mitigation Measure B-C to reduce the on-site planting density to approximately 70 to 80 trees per acre.

Mitigation Measure B-B: Hire a project biologist for construction monitoring

Mitigation Measure B-B applies to Impacts B-2, B-3, B-4, B-5, B-7, and B-12.

The Applicant will retain a County-approved biologist to monitor all construction in areas of sensitive biological resources, including oaks and other protected trees to be retained, red-legged frog habitat, and wetlands and other waters of the United States. The monitor will be responsible for the following:

- scheduling and/or conducting pre-construction surveys identified in other mitigation measures (e.g., special-status plant and wildlife surveys, raptor nest surveys);
- approving placement of the orange barrier fencing and performing weekly monitoring to ensure the fencing remains in good condition for the duration of construction activity in the area affected by the particular phase of development;
- monitoring construction activities occurring near sensitive biological resources, as defined above, and delaying construction activities that threaten these resources until appropriate mitigation measures can be implemented; and
- identifying any impacts occurring within areas protected by the orange barrier fencing and reporting to Placer County for additional compensatory mitigation.

Mitigation Measure B-C: Implement off-site tree mitigation

Mitigation Measure B-C applies to Impacts B-2, B-3 and B-4.

Inadequate open space is likely available for implementation of on-site compensation of approximately 21,200 oak trees and riparian tree species. The proposed planting density of approximately 100 trees per acre is likely too high to support the trees at maturity. The Applicant may, therefore, partially mitigate loss of trees with off-site plantings and contribution of in-lieu fees to the Placer County Tree Preservation Fund. Suitable off-site planting areas will be established in coordination with Placer County and may include a site along SR 193 in the vicinity of the proposed Caltrans improvements.

Mitigation Measure B-D: Implement a tree protection plan

Mitigation Measure B-D applies to Impacts B-2, B-3, B-4, and B-15.

Unless stated otherwise, all measures will be the sole responsibility of the Applicant. The Applicant will develop and implement a tree protection plan to minimize direct and indirect impacts on oaks and other native trees that are to be retained on the project site. The elements of this plan will be included as standards in the tentative map conditions and, where applicable, in the CC&Rs for homeowners on the project site. At a minimum, the plan will include the following measures:

- If the proposed construction area for an individual lot matches that shown in the development notebook on file with Placer County, the Applicant's proposed mitigation will be sufficient, and no further tree mitigation will be required. If the proposed construction area for an individual lot differs from the development notebook, a final tree count within the new construction area will be prepared to identify all trees with a DBH of 6 inches or more. For mitigation of removing any

trees in excess of those identified in the Applicant's tree removal plan, the home builder will pay into either the Placer County Tree Preservation Fund or into a mitigation fund to be established by the Applicant and used to plant additional native trees onsite. Home builders owning a cluster of lots may remove the net total of trees for the lots as identified in the Applicant's tree removal plan. Any additional trees removed will be mitigated by payment into either the County's Tree Preservation Fund or a mitigation fund for on-site plantings.

- During construction on the project site, measures will be taken to protect trees, including erecting orange construction barrier fencing, that will remain for the duration of construction activity in the area affected by the particular phase of development, at least one foot outside the dripline of each tree or groves of trees to be retained; minimizing trenching for installation of utility lines; and conducting by hand any work within driplines of trees to be retained.

- A contractor seeking a variance to machine excavate within tree driplines will be required to minimize damage to roots over two inches in diameter. The project biological monitor (see Mitigation Measure B-B) will report root damage to Placer County and have a certified arborist inspect the tree damage prior to backfilling. The arborist will determine if the damage is likely to be fatal to the tree. Any fatally damaged tree will be mitigated by payment into either the Placer County Tree Preservation Fund or into a mitigation fund to be established by the Applicant and used to plant additional native trees on site.

- Tree preservation notes and specifications will be included on all plans and in contractor contracts.

- Irrigation and other potential sources of runoff associated with the constructed project will be diverted away from oak trees retained within all areas outside of the designated natural open space. To protect oaks from fungal root infection, drainage features will be constructed to intercept runoff from development upslope of the retained trees.

- Before any tree removal following home construction, homeowners will be required to obtain approval from the Homeowners Association and a permit from Placer County for any protected trees.

- Homeowners will be provided with information regarding the care of native trees and landscaping measures to use beneath oak trees. An example of such literature includes Living Among the Oaks, a publication of the University of California Cooperative Extension, Natural Resources Program.

- Construction of all equestrian, bicycle, and pedestrian trails, in particular the trails to be constructed within the natural open space, will avoid removal of protected trees, except where infeasible.

Mitigation Measure B-E: Implement the Applicant's wetland preservation and impact plan

Mitigation Measure B-E applies to Impacts B-4 and B-13.

The Applicant proposes a wetlands preservation and impact plan. All wetland mitigation, with the exception of vernal pool mitigation, will occur on-site within the natural open space in the Meadows community area. Creation of 8.49 acres of seasonal wetland/emergent marsh/riparian habitats is proposed as mitigation for impacts to 2.62 acres of wetlands and 0.21 acre of intermittent drainage, for a total mitigation ratio of more than 3:1. Upon construction of the wetland habitats, an as-built map will be

created and submitted to the Corps. Annual monitoring will commence after the first growing season and continue for five years. Annual monitoring reports will be submitted to the Corps.

An additional 15.07 acres of open water will be created within the 7 constructed lakes, and 3.80 acres of emergent marsh wetland will be constructed along the fringes of the lakes. These lakes are proposed for use as additional on-site retention storage for the increased run-off created by project development. In order to accommodate the on-site runoff, the lake surface elevations will be drawn down by approximately ten feet each year prior to rainy season. The emergent marsh wetlands at the lake edges may experience periods of drying when this occurs. Because the biological functions of these wetlands may vary during the dry periods and they will be artificially manipulated systems, they are not included in the calculations of wetland mitigation acreage. The lakes and emergent marsh wetlands will, however, increase the overall functions of on-site wetland habitat for wildlife.

Vernal pool mitigation will occur offsite at the Wildlands Mitigation Bank in Sheridan and the Wildlands Preservation Bank in Lincoln. Loss of vernal pool wetland acreage will be mitigated as vernal pool fairy shrimp habitat. This mitigation will include creation of vernal pool habitat at a ratio of 1:1 and preservation of vernal pool habitat at a ratio of 2:1, for a total mitigation ratio of 3:1. Mitigation for vernal pool impacts is discussed below under Mitigation Measure B-H.

In addition, the Applicant's wetland preservation plan will include the following components:

- Establishment of vegetated wetland preservation easements of at least 50 feet and up to 100 feet around wetlands within Bickford Ranch Park and golf course areas;
- Construction of Bio Filters (shallow depressions) between upland areas and wetlands within the Meadows community areas to protect water quality;
- Construction of wildlife travel corridors (in culverts) beneath roadways where wetlands are located near roads;
- Placement of fencing around wetlands during construction;
- Placement of public awareness signs with information on Wetlands throughout Bickford Ranch; and
- Dedication of some open space areas to Placer County, and maintenance of the other common open space areas by the Homeowners Association.

Mitigation Measure B-F: Protect riparian buffer zones

Mitigation Measure B-F applies to Impacts B-4, B-10, and B-17.

Riparian buffer zones are necessary for the protection of stream water quality and habitat quality for red-legged frog and anadromous fish, including steelhead. The Applicant will implement the following measures during construction to ensure adequate protection for riparian buffer zones on the project site:

- Erect orange construction barrier fencing at the outside edge of the dripline of riparian vegetation adjacent to project construction areas. No construction activity or vegetation removal will be allowed past the barrier. The barriers will be maintained by a biological monitor and will remain in place until all adjacent construction activity is completed.

- Construct all equestrian and pedestrian trails within the designated natural open space at least 25 feet from the outer edge of riparian vegetation.

- Bore and jack pipeline crossings of any drainages. Keep all pipeline construction activity at least 50 feet from the outside edge of riparian vegetation.

- Increase the buffer area to 100 feet from outermost edge of riparian vegetation along Clover Valley Creek and along the stream in the Meadows community natural open space adjacent to Sierra College Boulevard.

The Homeowners Association will be responsible for implementing the following measures to ensure adequate protection of riparian buffer zones after construction during the operation phase of the project:

- Develop additional protection for the wetland protection easement along Clover Valley Creek, which is part of the rural estate lot R-19. No structures may be erected or landscaping placed within this easement.

- No removal of vegetation may occur within the riparian buffer zone, except for essential maintenance (e.g., fire prevention activities). Prior to removal of blackberry or other riparian vegetation for proposed fire prevention or other maintenance activities within the riparian buffer zone, the Applicant must notify CDFG of the activity. If CDFG determines that the activity "may substantially adversely affect existing fish or wildlife resources," the Applicant will be required to obtain a 1603 Streambed Alteration Agreement. CDFG has jurisdiction within the entire riparian corridor and regulates removal of riparian vegetation, even if the streambed is not directly affected (Hobgood, 2000). Removal of any riparian vegetation, whether or not the streambed or bank is altered, must be coordinated with CDFG through a Section 1603 Streambed Alteration Agreement.

Mitigation Measure B-G: Conduct pre-construction surveys for special-status plants

Mitigation Measure B-G applies to Impact B-5.

Before construction, the Applicant will hire a County-approved botanist to survey oak woodlands within all proposed construction areas for big-scale balsamroot. In all areas of oak woodland that will be graded, a survey should be conducted between March and May for big-scale balsamroot. If no special-status plants are identified within construction areas, no further mitigation is required. However, if one or more populations are found within proposed construction areas, the Applicant will implement measures to be developed in coordination with the CDFG to avoid the population, minimize impacts on the population, and/or compensate for removal of the population. Potential compensation measures may include avoidance of populations, where feasible; minimization of impacts on populations; purchase and preservation of another known population of the affected species; or attempts to transplant the species to an undisturbed area within the project site.

Before construction and/or approval of improvement plans, the Applicant will hire a County-approved botanist to survey oak woodlands within all proposed construction areas for big-scale balsamroot and vernal pools within all proposed construction areas for Bogg's Lake hedge-hyssop, Hoover's spurge, dwarf downingia, Ahart's rush, Red Bluff dwarf rush, legenere, pincushion navarretia, slender orcutt grass, and Greene's tuctoria. In all areas of oak woodland that will be graded, a survey should be conducted between March and May for big-scale balsamroot. All vernal pools that will be graded should be surveyed in late April/early May and July for the special-status vernal pool species listed above. If no special-status plants are identified within construction areas, no further mitigation is required. However, if any special-status plant populations are found within proposed construction areas, the project biological monitor will evaluate the significance of the population(s). If any special-status plant population is too small and isolated to be sustainable, the impact will be considered less than significant. If any special-status plant population is large enough to be potentially sustainable, the loss of the population will be considered significant and the Applicant will implement mitigation. Potential mitigation measures for the loss of a special-status plant population include complete avoidance of the population, if feasible;

minimization of the impact, i.e., partial avoidance; purchase and preservation of another known population of the affected species; transplantation of the plants or collection and sowing of the seeds to another on-site location; collection and sowing of seeds to an off-site location.

The most feasible of these potential mitigation measures for any California balsamroot population that could not be avoided would be to transplant or seed the population to an undisturbed area of open-canopied oak woodland or grassy slope on the site. A recommended location is within the natural open space area off the northwestern corner of the proposed driving range.

Avoidance or on-site transplantation is not feasible for the vernal pool plants, due to the proposed removal of all vernal pool habitat. The most feasible mitigation for special-status vernal pool species would be to scrape the topsoil (approximately two inches deep) from any vernal pool that supports a special-status plant population and place the soil within vernal pool habitat in a mitigation bank. The project site supports Mehrten formation vernal pools, which are not currently available at a mitigation bank. However, the special-status plants with potential to occur in the project area are not endemic to Mehrten pools and should survive in pools on other substrates. The Wildlands, Inc., is willing to accept a seed bank from the project site to transplant within vernal pool habitat at one of their wetland mitigation banks in Placer County (Berry, 2000).

If a state or federal listed plant species population is identified within the proposed construction area, i.e., Bogg's Lake hedge-hyssop, Hoover's spurge, slender orcutt grass, or Greene's tuctoria, the Applicant will notify CDFG (for state-listed species) and/or the USFWS (for federally listed species). CDFG and/or the USFWS may impose alternative or additional mitigation requirements to the soil transplantation for impacts to listed species. If alternative mitigation requirements are imposed, the Applicant will implement the alternatives in lieu of the proposed soil transplantation. If additional mitigation requirements are imposed, the Applicant will implement both the soil transplantation mitigation and the agency mitigation.

Mitigation Measure B-H: Compensate for loss of vernal pool fairy shrimp habitat

Mitigation Measure B-H applies to Impact B-6.

The Applicant will compensate for direct effects on vernal pool fairy shrimp habitat associated with the project. This compensation will be achieved by implementation of one or a combination of the following measures, as described in the programmatic agreement between USFWS and the Corps (USFWS, 1995):

- Create suitable off-site habitat for vernal pool fairy shrimp at a 1:1 ratio, for a total of 0.23 acre of vernal pool habitat. The Applicant will purchase suitable vernal pool habitat credits at an off-site wetlands mitigation bank within Placer County, and approved by Placer County.

- Preserve suitable vernal pool fairy shrimp habitat at a 2:1 ratio, for a total of 0.46 acre of vernal pool habitat. The Applicant will purchase suitable vernal pool habitat credits at an off-site wetlands mitigation bank within Placer County, and approved by Placer County.

- Obtain authorization from USFWS to take listed fairy shrimp species that would be affected by the project. A biological opinion under the federal ESA is required from the USFWS before construction begins.

The mitigation credits purchased for the fairy shrimp impacts will apply to the vernal pool impacts, and no additional wetland credits will need to be purchased for the vernal pool impacts. In wetland areas

other than vernal pools, the Applicant-proposed mitigation discussed under Mitigation Measure B-E will still apply.

Mitigation Measure B-I: Protect VELB habitat (elderberry shrubs) during construction

Mitigation Measure B-I applies to Impact B-7.

For elderberry shrubs that will not be removed or damaged by the project, the Applicant will protect elderberry shrubs from inadvertent harm during construction as described in the USFWS's VELB mitigation guidelines. The Applicant will:

- Fence and flag all areas to be avoided with a minimum setback of at least 20 feet from the dripline of each elderberry plant.
- Brief contractors on the need to avoid damaging elderberry plants and the possible penalties for not complying with these requirements.
- Install signs every 50 feet along the edge of the avoidance areas with the following information, "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet and must be maintained for the duration of construction.
- Restore the disturbed area to its original condition. Provide erosion control and revegetate with appropriate plant species, if needed.
- The Applicant will provide a written description of how the core and buffer avoidance areas are to be restored, protected, and maintained after construction is completed.

Mitigation Measure B-J: Compensate for loss of VELB habitat (elderberry shrubs)

Mitigation Measure B-J applies to Impact B-7.

The Applicant will compensate for direct effects on VELB habitat associated with the project. This compensation will be achieved by implementation of the following measures, as described in the programmatic agreement between USFWS and the Corps (USFWS, 1996):

- Confirm the number of elderberry stems one inch or greater at ground level that would be affected by the project. Any elderberry shrub that has stems of at least one inch at ground level, and the project will permanently encroach within 100 feet of the shrub dripline, will be considered a removed shrub and will need to be compensated for.
- Determine the VELB units that would need to be mitigated for the project pursuant to the programmatic agreement between USFWS and the Corps.
- Compensate for the loss of VELB habitat determined above at an off-site location approved by the USFWS and the Corps. All elderberry shrubs removed for construction will be transplanted to the approved off-site location. In-lieu fees will be paid to purchase mitigation banking credits for off-site mitigation.

- Obtain authorization from USFWS to take VELB that would be affected by the project. A biological opinion under the federal ESA is required from the USFWS before construction begins.

- In addition to the off-site mitigation for elderberry shrub removal, the Applicant will plant elderberry cuttings on-site within a suitable part of the oak tree mitigation area approved by the County. The number of cuttings planted will be based on a ratio of 2:1 for each removed elderberry stem of at least one inch in diameter. The elderberry plantings will be irrigated, maintained, and monitored in conjunction with the oak tree plantings, as described under Mitigation Measure B-A. Survival criteria and replanting requirements for the elderberry plantings will also meet those set forth in Mitigation Measure B-A.

Mitigation Measure B-K: (deleted)

Mitigation Measure B-L: Conduct preconstruction surveys for nesting raptors in affected areas

Mitigation Measure B-L applies to Impact B-11.

Before construction of any phase of the project between March and August in oak woodlands or riparian habitats, the project proponent will conduct preconstruction surveys to determine if nesting raptors are present on or near (within 500 feet) construction areas. Night-time surveys will be performed to determine the presence of nesting owls.

Mitigation Measure B-M: Develop buffer zones around nesting raptors during construction.

Mitigation Measure B-M applies to Impact B-11.

If nesting raptors are found on or near active construction areas, a no-disturbance buffer zone will be established until nesting activity or construction activity is completed. The distance and placement of the buffer area will be determined in consultation with CDFG. Typically, buffer zones consist of a 500-foot radius area around the nest tree. If construction will occur outside of the raptor nesting season (September – February), no raptor surveys are required.

Mitigation Measure B-N: Install bat gates at tunnel entrances

Mitigation Measure B-N applies to Impacts B-12 and HW-5.

The Applicant will coordinate with Bat Conservation International (BCI) to prepare designs for bat gates designed to prevent human entry and provide free access to tunnels and shafts for bats. Final designs will depend on the mine opening configuration. Bat gates will be placed over all tunnel and shaft entrances that have been identified on the project site.

To avoid or minimize impacts on special-status bats, the Applicant will retain a qualified bat specialist to conduct surveys in the oak woodlands and human-made structures to determine if special-status bats are present within areas of the project site proposed for development. If no special-status bats are present, no additional mitigation is required. If special-status bats are present within development areas, the Applicant will incorporate into Mitigation Measure B-A a bat management and habitat improvement program. This program may include the installation of bat roost boxes in the open space areas or vegetation management in the open spaces areas to enhance and manage bat habitat. The Applicant will consult with CDFG regarding appropriate bat management.

Mitigation Measure B-O: Obtain and implement conditions of state and federal permits for impacts on waters of the United States

Mitigation Measure B-O applies to Impact B-13.

The Applicant will obtain and implement all conditions in the following permits:

- Section 404 permit from the Corps for fill of waters of the United States, including wetlands. The permitting process will require verification of the preliminary delineation of waters of the United States and wetlands in the project area that was conducted as part of the surveys for this document. Before project construction, the Applicant will submit a pre-construction notification to the Corps for the acreage of impact based on the verified wetland delineation. Because of the small acreage of direct impact proposed, the project would likely qualify for approval under the Nationwide Permit Program.

  As part of the Section 404 permitting process, the Corps must ensure project compliance with Section 106 of the National Historic Preservation Act and with the federal ESA. To comply with Section 106, the Corps will obtain concurrence from the State Historic Preservation Officer that the project will have no effect on any historic property. Information regarding cultural resources that was compiled for this project in Chapter 14 will be used to demonstrate compliance with Section 106. Compliance with the federal ESA may require consultation with the USFWS under Section 7 of the act, which will result in completion of a biological opinion for all listed species affected by the project. The biological opinion is further addressed under Mitigation Measures B-G, B-H, and B-J.

- Section 401 water quality waiver or certification from the Regional Water Quality Control Board. This permit will require implementation of measures to protect water quality during construction.

- Section 1603 Streambed Alteration Agreement from CDFG. This agreement will be required for any impacts within the normal high water mark of drainages within the project area or within riparian habitat, potentially also including crossings of culverted drainages within the PCWA water supply pipeline alignment. The Streambed Alteration Agreement will include any CDFG-required conditions and mitigation for work within drainages and associated riparian areas. This agreement will include conditions that CDFG chooses to impose on the project, which may include revegetation of the affected area with appropriate species and timing vegetation removal to avoid impacts on water quality and disturbance of breeding wildlife. Specific conditions and mitigation for the project are developed by the local CDFG game warden on a case-by-case basis. However, the area cannot be left bare, and revegetation with appropriate native species will be required (Watkins, 1999; Hobgood, 2000). The species used for revegetation will depend on the site and will include riparian species in riparian areas.

Mitigation Measure B-P: Protect wetlands during construction

Mitigation Measure B-P applies to Impact B-13.

To minimize indirect impacts on jurisdictional waters of the United States that are connected to, but outside of, the project area, the Applicant will implement the following:

- Identify waters of the United States in the project area by fencing before construction activity. Fencing of wetlands within the Meadows community area will be placed to keep all construction equipment out of the wetlands during excavation of the lakes and grading of the Bio Filters.

- Avoid sidecasting material into or near the stream channels and wetlands adjacent to project construction.

- Grade drainage beds and banks of waters of the United States that are temporarily disturbed during construction to the preconstruction contours and replace the top 12 inches of soil and plant material.

Impacts on water quality within jurisdictional waters of the United States will be additionally reduced through implementation of Mitigation Measure G-B (Prepare and implement a grading and erosion control plan), which is discussed in Chapter 10; Mitigation Measures H-D (Prepare and implement a Stormwater Pollution Prevention Plan for construction activities) and H-K (Notify Placer County Department of Environmental Health and affected property owners if off-site sewer pipeline breaks), which are discussed in Chapter 12; and Mitigation Measure B-F (Protect riparian buffer zones) discussed above.

Mitigation Measure B-Q: Develop and implement an open space management plan

Mitigation Measure B-Q applies to Impact B-15.

The Applicant will develop and implement an open space management plan pertaining to the designated natural open space and open space easement areas on the project site. A management plan will be established to protect the habitat quality of wetlands, oak woodlands, and riparian habitat in the open space areas. The natural open space designation will be designed to preclude future development activities other than the proposed trail construction. The open space management plan will also be coordinated with the Applicant's oak woodland conservation and revegetation plan discussed under Mitigation Measure B-A, the Applicant's Wetlands Preservation and Impact Plan, and the proposed fuel modification zones. At a minimum, the plan will include the following information regarding designated natural open space and the open space easements:

- land use activities compatible with preservation of existing habitats, such as construction of linear infrastructure projects that minimize impacts on sensitive resources and trail construction designed to avoid or minimize impacts on wetlands and protected trees;

- land uses and practices that would be incompatible with habitat preservation, such as road or building construction, grazing, and use of pesticides or herbicides;

- establishment of adequate buffers between natural open space and planned development, which could include guidelines for placement of equestrian and pedestrian trails within the buffer zone to keep the remaining open space area intact and specific landscaping guidelines to design a transition zone between ornamentally landscaped development and natural open space;

- placement of interpretive signage at the beginning of, and along, trails to provide information about the on-site habitats and sensitive biological resources, including special-status species and wetlands;

- locations and methods for fuel modification in open space areas, such as vegetation removal methods;

- design methods for wetland easements to minimize mosquito nuisance conditions while retaining wetland habitat value;

- performance standards, such as the extent of vegetative cover and native species diversity, and a five-year interval monitoring program to evaluate responses of habitat in the open space according to the performance standards;

- potential remedial actions if habitat conditions show downward trends that are not related to natural factors such as extended drought; and

- fences that are placed along the perimeter of the Specific Plan area, especially near open space areas, shall be designed to allow small mammals as well as deer and other wildlife to pass through them without harming or trapping them. Where fencing is installed along the perimeter of the Specific Plan area, it shall be open wire rather than screen, net, or woven wire.

Mitigation Measure B-R: Avoid removal of blackberry riparian vegetation

Mitigation Measure B-R applies to Impacts B-16 and B-18.

The Applicant will avoid removal of blackberry shrubs in creeks and other drainages in the Bickford Ranch Plan Area. Avoiding removal of blackberry shrubs is necessary for the protection of riparian wildlife habitat, stream water quality, and potential California red-legged frog habitat.

Mitigation Measure B-S: Preserve and enhance annual grassland vegetation adjacent to golf course

Mitigation Measure B-S applies to Impact B-1.

The Applicant will incorporate into the golf course design the preservation of annual grassland vegetation within undeveloped areas adjacent to the fairways. Vegetation in these areas will be enhanced by seeding with a locally collected native annual wildflower seed mix that includes species already present on site.

Other Mitigation Measures: Mitigation Measures G-A, Comply with Placer County ordinances for all grading, drainage, and construction of improvements; and G-B, Prepare and implement a grading and erosion control plan, are discussed in Chapter 10. Mitigation Measure HW-F, Finalize and implement the Applicant's Golf Course Chemical Application Management Plan, is discussed in Chapter 11. Mitigation Measures H-A, Prepare and implement a post-development stormwater management program; H-D, Prepare and implement a Storm Water Pollution Prevention Plan for construction activities; H-E, Monitor erosion and sediment control measures during construction; H-F, Monitor site erosion and sediment control measures for two years after implementation of final erosion control measures; H-G, Design runoff detention basins to promote solids settling and provide capacity for accumulated sediment; and H-H, Finalize and implement the Applicant's Lake Management Plan for constructed lakes and wetlands, are described in Chapter 12.