

4.8

BIOLOGICAL RESOURCES

INTRODUCTION

This section of the EIR, which was prepared by Foothill Associates, evaluates potential biological resource impacts associated with the implementation of the proposed Covell Village Project and includes a discussion of the mitigation measures necessary to reduce impacts to a less-than-significant level where possible. In addition to analyzing potential on-site impacts to biological resources, the Biological Resources Section also analyzes the potential off-site impacts created by the development of project infrastructure based on data collected during field surveys of the proposed site and a review of existing literature, maps, and aerial photography pertaining to the biological resources of the area.

ENVIRONMENTAL SETTING

The following sections describe the regional and local setting of the site as well as the biological resources occurring in the Covell Village proposed project area (site).

Regional Setting

The site is located within the Great Central Valley region of California within southeastern Yolo County. The Great Central Valley is a north-south oriented valley that extends approximately 430 miles from southern Tehama County to south-central Kern County in southern California. Elevations in the Great Central Valley range from approximately zero to 400 feet above Mean Sea Level (MSL). In general, the borders of the Great Central Valley are considered to be those areas where alluvial soils grade into bedrock features. The landscape is dominated by woodland biological communities, typically referred to as the foothills. Now predominantly agricultural, biological communities in the Great Central Valley once supported vast areas of grassland, marshes, and riparian woodland.

The dominant biological community found throughout the Great Central Valley is annual grassland. This type of habitat generally occupies what was once a native grassland dominated by native perennial bunch grasses. However, annual grassland habitats today are composed largely of non-native annuals, which have effectively displaced the native perennial species. Typical herbaceous species observed throughout the Great Central Valley are non-native grasses and forbs such as medusa head (*Taeniatherum caput medusae*), soft chess (*Bromus hordeaceus*), wild oats (*Avena fatua*), and star thistle (*Centaurea solstitialis*). Freshwater marsh habitat typically occurs in flatlands where water accumulates in shallow depressions and supports a predominance of rushes (*Juncus* spp.), bulrushes (*Scirpus* spp.), sedges (*Carex* spp.), and willows (*Salix* spp.) Riparian woodland occurs along permanent bodies of freshwater and is dominated by water-loving

trees and shrubs such as western sycamore (*Platanus racemosa*), box elder (*Acer negundo*), cottonwood (*Populus fremontii*), willows (*Salix* spp.), and valley oak (*Quercus lobata*). Additionally, the Great Central Valley is situated in the Pacific Flyway, a major migration route for waterfowl and other birds in North America (City of Davis General Plan, 2001).

Local Setting

The site is located approximately one mile north of the City of Davis, in southeastern Yolo County within Township 8 north, Range 2 east, Section 3 of the USGS 7.5-minute series Davis, California quadrangle. The ±422-acre site primarily consists of actively cultivated agricultural land (cropland). Land uses surrounding the project site to the east, west and south are primarily urban and residential development. The land north of the site is owned by the City of Davis and includes a closed landfill, a shooting range, and the Blue Max Kart Club (See Figure 4.8-1). The former Hunt Wesson Tomato Factory is located directly adjacent to, and southwest of, the site. The site is bounded by Pole Line Road to the west, County Road 101A to the east, and Covell Boulevard to the south.

The valley landscape that once existed in this region was predominantly a mixture of native valley grassland types, with small groves and scattered oak trees as well as bands of riparian woodland along natural drainageways. Today the area does not consist of pristine biological conditions because most of the non-urbanized land has been converted to agriculture uses (City of Davis General Plan, 2001). Areas that provide habitat value within the vicinity of the site include marshy wetland in slough channels, irrigation and drainage ditches, riparian woodlands along the North and South Forks of the Putah Creek, the old channel of Willow Slough, parts of Dry Slough, and ponds. Similarly, the majority of the project site consists of cropland, providing limited biological resources for wildlife. Areas of significant habitat value on the project site include irrigation and drainage ditches, riparian woodland, perennial marsh, oak trees, and seasonal wetlands.

Some of the key areas managed for wildlife habitat value within the City of Davis vicinity are the 125-acre UC Davis Putah Creek Riparian Reserve, which supports riparian habitats for highly diverse plants and animals; the 119-acre UC Davis Arboretum, with 1,400 species of plants (not all native); the Audubon/Hunt-Wesson Hawk-Owl Reserve in the northern portion of the planning area west of the County landfill site; the City-owned South Fork Preserve on Putah Creek; the demonstration wetlands east of the Wastewater Pollution Control Plant; and the State-owned Yolo Basin Wetlands Project in the Yolo Bypass, east of the project site. The City of Davis also contains wildlife habitat in the Wildhorse agricultural buffer, Mace Ranch Community Park habitat area, and several drainage/wildlife areas.

Figure 4.8-1: Covell Village Study Area



Existing structures on-site include a single residential home and associated farm buildings, which are located within the southern portion of the site. Additionally, two irrigation ditches with perennial water flow are located in the north-central portion of the site. The existing Covell Drain enters the site at the extreme northwestern corner, runs south along the railroad tracks, and then crosses the property eastward in what is labeled Channel "A." The site exhibits minimal topographic relief and has been modified from the original natural topography due to agricultural activity. Topography on the site ranges from 33 to 40 feet above MSL.

Biological Communities

Biological communities occurring on the site are described below. The discussion includes the common and special-status species observed, or expected to occur, in these communities. Biological communities on the project site include cropland, valley foothill riparian, seasonal wetland, perennial marsh, and irrigation and drainage ditch. In addition to these biological communities occurring on-site, sensitive biological resources observed on-site include special-status plant species, potential Jurisdictional Waters of the U.S., protected trees, and elderberry shrubs (see Figure 4.8-2).

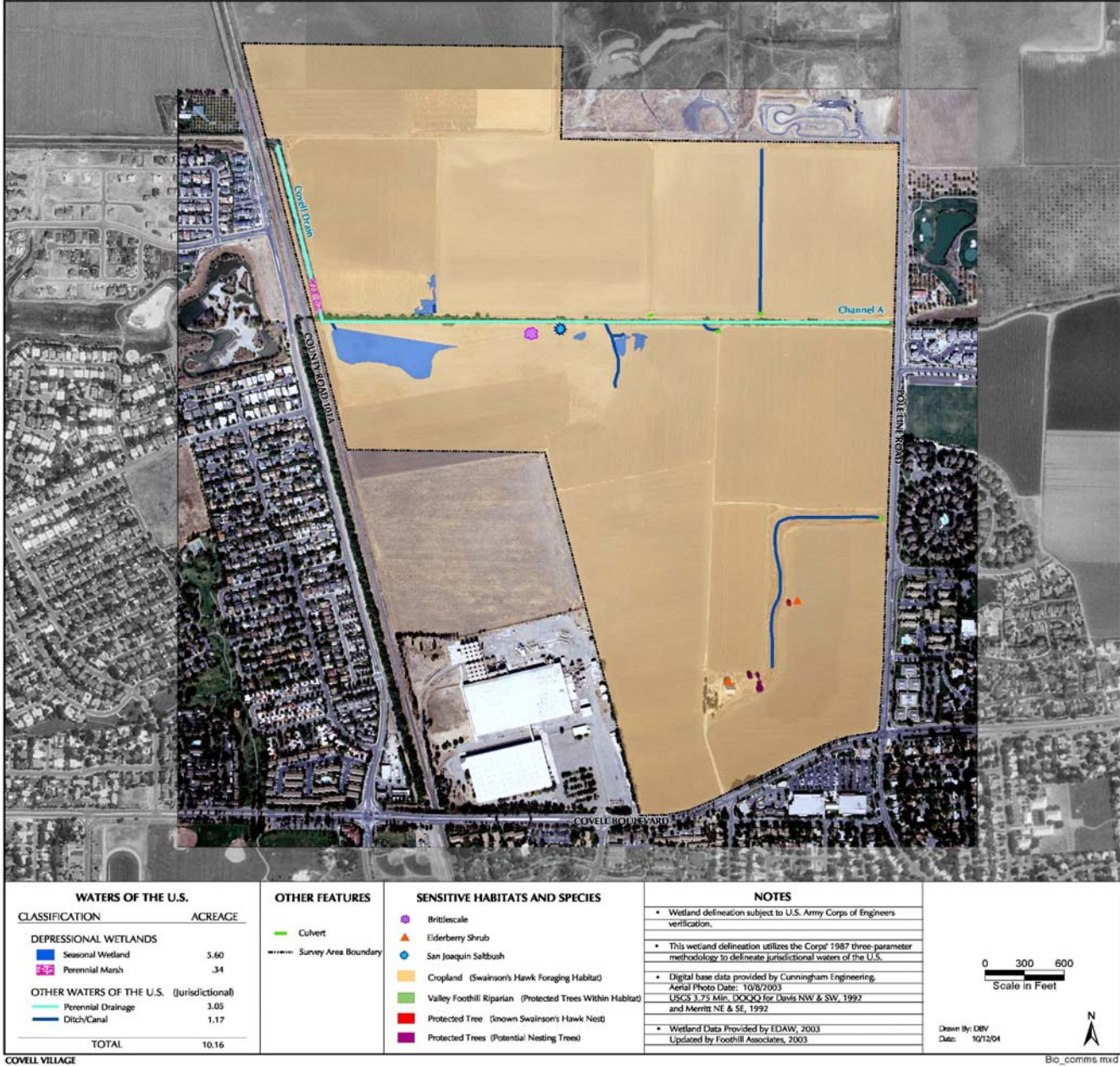
Cropland

The majority of the site consists of actively cultivated cropland. Typically, croplands of California support annuals planted in the spring and harvested during summer or fall. In the 2003 growing season the majority of the site was planted with wheat (EDAW, 2003). During surveys in October 2003, the project site was devoid of vegetation, having recently been disced. Due to the disturbance regime, this community type is expected to provide only marginal suitable habitat for plant and wildlife species (Mayer and Laudenslayer, 1988). Patches of weedy vegetation are located within fallow areas adjacent to the active agricultural fields. Species such as soft chess (*Bromus hordeaceus*), wild oat (*Avena fatua*), salt grass (*Distichlis spicata*), and star thistle (*Centaurea solstitialis*) were observed during site surveys.

Wildlife use of the project site is typical for the agricultural region in Yolo County. Cropland generally provides minimal breeding habitat for wildlife species due to the high level and frequency of disturbance (Mayer and Laudenslayer, 1988). Additionally, cropland typically provides little cover for small birds and mammals, but introduces optimal foraging opportunities for birds of prey. Row crops are particularly important to migratory raptors for foraging (Snyder, 1997). Small mammals expected to occur on the site include deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), and pocket gopher (*Thomomys bottae*), which are potential prey for raptors including white-tailed kite (*Elanus leucurus*), Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), and northern harrier (*Circus cyaneus*).

Figure 4.8-2: Biological Communities

BIOLOGICAL COMMUNITIES
 FIGURE 4.8-2



Species observed within the cropland community during the 2003 site surveys include California ground squirrel (*Citellus beecheyi*), black-tailed jackrabbit (*Lepus californicus*), rock dove (*Columba livia*), Brewer's blackbird (*Euphagus cyanocephalus*), American crow (*Corvus brachyrhynchos*), white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), and western fence lizard (*Sceloporus occidentalis*).

Table 4.8-1 lists species observed on the site or known to occur in the vicinity of the site.

Table 4.8-1 Common Plant and Wildlife Species Observed on Site or Known to Occur in the Vicinity	
PLANTS	
Scientific Name	Common Name
<i>Alnus rhombifolia</i>	White alder
<i>Fraxinus latifolia</i>	Oregon ash
<i>Quercus douglasii</i>	Blue oak
<i>Quercus lobata</i>	Valley oak
<i>Salix laevigata</i>	Red willow
<i>Salix sp.</i>	Salix species
<i>Catalpa bignonioides</i>	Catalpa
<i>Avena fatua</i>	Wild oat
<i>Sorghum halepense</i>	Johnson grass
<i>Hirschfeldia incana</i>	Wild mustard
<i>Atriplex depressa</i>	Brittlescale
<i>Atriplex joaquiniana</i>	San Joaquin saltbush
<i>Atriplex subspicata</i>	Saltbush
<i>Atriplex triangularis</i>	Spearscale
<i>Sporobolus airoides</i>	Alkali sacaton
<i>Atriplex rosea</i>	Tumbling oracle
<i>Xanthium strumarium</i>	Cocklebur
<i>Cyperus eragrostis</i>	Nutsedge
<i>Rumex conglomeratus</i>	Dock
<i>Rumex crispus</i>	Curly dock
<i>Hordeum marinum ssp. gussoneanum</i>	Mediterranean barley
<i>Hordeum murinum ssp. murinum</i>	Barley
<i>Lythrum hyssopifolium</i>	Lythrum
<i>Amaranthus sp.</i>	Pigweed
<i>Lolium multiflorum</i>	Italian ryegrass
<i>Lolium perenne</i>	Perennial ryegrass
<i>Cardaria draba</i>	Hoary cress

<i>Typha latifolia</i>	Broad leaved cattail
<i>Typha angustifolia</i>	Narrow leaved cattail
<i>Centaurea solstitialis</i>	Star thistle
<i>Epilobium sp.</i>	Fireweed
<i>Polygonum lapathifolium</i>	Willow weed
<i>Bromus hordeaceus</i>	Brome
<i>Chenopodium sp.</i>	Goosefoot
<i>Bassia hyssopifolia</i>	Bassia
<i>Distichlis spicata</i>	Saltgrass
<i>Echinochloa (colona)</i>	Hedgehog grass
<i>Phalaris aquatica</i>	Harding grass
<i>Eremocarpus setigerus</i>	Doveweed
<i>Hemizonia pungens</i>	Common spikeweed
<i>Holocarpha virgata</i>	Tarweed
<i>Hemizonia fitchii</i>	Fitch's tarplant
<i>Paspalum dilatatum</i>	Dallis grass
<i>Crypsis vaginiflora</i>	Prickle grass
<i>Eryngium vaseyi</i>	Vasey's button celery
<i>Cynodon dactylon</i>	Bermuda grass
<i>Plagiobothrys stipitatus</i>	Popcorn flower
<i>Juncus bufonius</i>	Toad rush
<i>Medicago polymorpha</i>	California bur-clover
<i>Melilotus indica</i>	Sour-clover
<i>Erodium cicutarium</i>	Filaree
<i>Convolvulus arvensis</i>	Bindweed
<i>Sambucus mexicana</i>	Elderberry
<i>Lactuca serriola</i>	Prickly lettuce
<i>Bromus diandrus</i>	Ripgut grass
<i>Raphanus sativus</i>	Radish
<i>Plantago lanceolata</i>	Plantain
<i>Bromus tectorum</i>	Cheat grass
<i>Leptochloa sp.</i>	Sprangletop
<i>Poa annua</i>	Annual bluegrass
WILDLIFE	
Scientific Name	Common Name
<i>Guiraca caerulea</i>	Blue grosbeak
<i>Tyrannus verticalis</i>	Western kingbird
<i>Picoides nuttallii</i>	Nuttall's woodpecker
<i>Petrochelidon pyrrhonota</i>	Cliff swallow
<i>Zonotrichia leucophrys</i>	White-crowned sparrow
<i>Zonotrichia atricapilla</i>	Golden-crowned sparrow

<i>Mephitis mephitis</i>	Striped skunk
<i>Didelphus virginiana</i>	Opossum
<i>Anas platyrhynchos</i>	Mallard
<i>Anas cyanoptera</i>	Cinnamon teal
<i>Anas americana</i>	American widgeon
<i>Ardea herodias</i>	Great blue heron
<i>Ardea alba</i>	Great egret
<i>Charadrius vociferus</i>	Killdeer
<i>Canis latrans</i>	Coyote
<i>Haematopus palliatus</i>	American avocet
<i>Branta canadensis</i>	Canada goose
<i>Peromyscus maniculatus</i>	Deer mouse
<i>Microtus californicus</i>	California vole
<i>Thomomys bottae</i>	Pocket gopher
<i>Elanus leucurus</i>	White-tailed kite
<i>Buteo swainsoni</i>	Swainson's hawk
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Circus cyaneus</i>	Northern harrier
<i>Falco sparverius</i>	American kestrel
<i>Athene cunicularia</i>	Burrowing owl
<i>Agelaius tricolor</i>	Tricolored blackbird
<i>Bubo virginianus</i>	Great horned owl
<i>Junco hyemalis</i>	Dark eyed junco
<i>Pipilo erythrophthalmus</i>	Rufous-sided Towhee
<i>Sayornis saya</i>	Say's phoebe
<i>Sayornis nigricans</i>	Black phoebe
<i>Ceryle alcyon</i>	Belted kingfisher
<i>Lanius ludovicianus</i>	Loggerhead shrike
<i>Citellus beecheyi</i>	California ground squirrel
<i>Sciurus griseus</i>	Western Gray Squirrel
<i>Lepus californicus</i>	Blacktail jackrabbit

Valley Foothill Riparian

The riparian habitat on-site can best be described as valley foothill riparian. This biological community occurs along Channel "A" and the southern portion of the Covell Drain. Typically, valley foothill riparian habitat is found in valleys bordered by sloping alluvial fans, terraces, and lower foothills (Mayer and Laudenslayer, 1988). Valley foothill riparian vegetation varies from a two-layered canopy of trees and herbs (riparian woodland) to a multi-layered canopy of canopy trees, subcanopy trees, shrubs, and herbs (riparian forest). Based on the dominant trees observed within the study area, this

biological community is best classified as Fremont Cottonwood Series (Sawyer and Keeler-Wolf, 1995).

Within the study area, the valley foothill riparian community is made up of ash (*Fraxinus latifolia*), white alder (*Alnus rhombifolia*), willow (*Salix* sp.), cottonwood (*Populus fremontii*) and sycamore (*Platanus racemosa*). Understory shrub layer plants include wild grape (*Vitis californica*), wild rose (*Rosa californica*), poison oak (*Toxicodendron diversilobum*), and yellow star-thistle. The herbaceous layer consists of sedges and rushes.

Riparian habitats are unique and ecologically important habitats that provide an important source of food, water, and protection for wildlife, as well as breeding and nesting habitat for both resident and migratory bird species. Birds observed during site visits include blue grosbeak (*Guiraca caerulea*), western kingbird (*Tyrannus verticalis*), Nuttall's woodpecker (*Picoides nuttallii*), Say's phoebe (*Sayornis saya*), and great horned owl (*Bubo virginianus*). In addition, bird species such as herons and egrets are expected to forage in the riparian habitat on the site. Cliff swallows (*Petrochelidon pyrrhonota*) are known to have nested under the Pole Line Road crossing over Channel "A" in 2003 (EDAW, 2003).

In winter, the riparian woodland habitat provides cover and foraging habitat for a number of migrating bird species including white-crowned sparrow (*Zonotrichia leucophrys*). Reptiles reported from previous field surveys include gopher snake (*Pituophis catenifer*), common kingsnake (*Lampropeltis getula*), and common garter snake (*Thamnophis sirtalis*) (EDAW, 2003). Other resident wildlife expected to forage along the channel banks include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), opossum (*Didelphis virginiana*), California ground squirrel and California vole, as well as resident aquatic reptiles, amphibians, and invertebrate species.

Seasonal Wetland

Depressional seasonal wetlands on-site are associated with Channel "A" and occur along the north and south banks. When inundated, depressional seasonal wetlands provide breeding and foraging habitat for a number of wildlife species. Plant species observed, or expected to occur in seasonal wetlands on the site, include prickle grass (*Crypsis vaginiflora*), salt grass (*Distichlis spicata*), dove weed (*Eremocarpus setigerus*), perennial ryegrass (*Lolium perenne*), rabbits foot grass (*Polypogon monspeliensis*), Italian ryegrass (*Lolium multiflorum*), Mediterranean barley (*Hordeum marinum ssp. gussoneanum*), brittle scale (*Atriplex depressa*), and San Joaquin saltbush (*Atriplex joaquiniana*).

Seasonal wetlands on the site provide foraging and breeding habitat for several species of wildlife. Wildlife species observed in or near the seasonal wetlands include mallard (*Anas platyrhynchos*), cinnamon teal (*Anas cyanoptera*), American widgeon (*Anas americana*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), greater yellowlegs (*Tringa melanoleuca*) and killdeer (*Charadrius vociferous*). Additional

wildlife observed in or near the on-site seasonal wetlands include American avocets (*Haematopus palliatus*) and Canada goose (*Branta canadensis*) (EDAW, 2003).

Perennial Marsh

Perennial marsh on the site occurs within the Covell Drain near the junction of Channel "A." The on-site portion of Covell Drain is predominantly sparsely vegetated with forbs and ruderal annual plant species in the northern end, while the southern end is composed of perennial herbaceous plant species, including cattail (*Typha latifolia*), horned sea blite (*Suaeda calceoformis*), Bermuda grass (*Cynodon dactylon*), and alkali sacaton (*Sporobolus airoides*).

Perennial marsh provides shelter and foraging habitat for several species of wildlife on the site, including resident and migratory bird species, amphibians, reptiles, aquatic invertebrates, and foraging mammals. Wildlife expected to occur in the perennial marsh habitat on the site include bullfrog (*Rana catesbiana*), pacific treefrog (*Hyla regilla*), and foraging herons and egrets. Wildlife species observed during site surveys include blue grosbeak, and western kingbird. Reptiles reported from previous surveys in the riparian habitat on the site include gopher snake, common kingsnake, and common garter snake (EDAW, 2003).

Irrigation and Drainage Ditch

The irrigation drainages on-site include Channel "A," Covell Drain, and various irrigation ditches throughout the site. These features can best be categorized as riverine communities. Riverine communities are those that support intermittent or continually running water which originates at some elevated source and flows at a rate relative to slope or gradient. Riverine habitats can occur in association with many terrestrial habitats (Mayer and Laudenslayer, 1988). The irrigation and drainage ditches on the site occur in association to the riparian, perennial marsh, and seasonal wetland habitats. The majority of the seasonal wetlands on the site drain into Channel "A" by way of culverts or trenches, with the exception of one seasonal wetland south of Channel "A," which appears to be isolated from the channel. The aforementioned riparian and perennial marsh communities occurring along Channel "A" and portions of the Covell Drain are dependent upon these water sources.

The open water zones of the irrigation and drainage ditches provide resting and escape cover for many species of waterfowl as well as aquatic reptiles, amphibians, and insects. Open water zones also provide suitable foraging habitat for waterfowl, herons, shorebirds, belted kingfisher (*Ceryle alcyon*), and American dipper (*Cinclus mexicanus*). Many species of insectivorous birds (swallow, swifts, and flycatchers) hunt their prey over open water. Some of the more common mammals found in riverine habitats include river otter (*Lutra canadensis*) and muskrat (*Ondatra zibethicus*) (Mayer and Laudenslayer, 1988).

Special-Status Species

Special-Status species are defined as plants and wildlife that may meet one or more of the following:

1. Legally protected under the Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA) or under other regulations;
2. Considered sufficiently rare by the scientific community to qualify for such listing; or,
3. Considered sensitive because they are unique, declining regionally or locally, or at the extent of their natural range.

Special-status plant species may meet one or more of the following:

- Plants listed or proposed for listing as threatened or endangered under the FESA (50 CFR 17.12 for listed plants and various notices in the Federal Register for proposed species);
- Plants that are candidates for possible future listing as threatened or endangered under the FESA (64 FR 205, October 25, 1999; 57533-57547);
- Plants that meet the definitions of rare or endangered species under the California Environmental Quality Act (CEQA) (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 species in CNPS [2001]);
- Locally important occurrences of plants listed by CNPS as plants for which more information is needed and plants of limited distribution (Lists 3 and 4, respectively, species in CNPS [2001]);
- Plants listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 CCR 670.5);
- Plants listed under the California Native Plant Protection Act (California Fish and Game Code 1900 et seq.). Plants considered sensitive by other federal agencies (i.e., U.S. Forest Service, Bureau of Land Management) or state and local agencies or jurisdictions; or,
- Plants considered sensitive or unique by the scientific community or occurring at the limits of its natural range (CEQA Guidelines, Appendix G).

Special-status wildlife species may meet one or more of the following:

- Wildlife listed or proposed for listing as threatened or endangered under the FESA (50 CFR 17.11 for listed wildlife and various notices in the Federal Register for proposed species);
- Wildlife that are candidates for possible future listing as threatened or endangered under the FESA (54 CFR 554);
- Wildlife that meet the definitions of rare or endangered species under the CEQA (CEQA Guidelines, Section 15380);

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

The following table identifies listed and special-status species listed on the USFWS species lists for the Davis 7.5-minute USGS quadrangle, all of which have occurred at least once in the vicinity of the site. Species recorded in the California Natural Diversity Database (CNDDDB) within five miles of the site are also included in Table 4.8-2 below and shown in Figure 4.8-3. Definitions of species potential for occurrence on the site are as follows:

- **Present:** Species known to occur on the site, based on CNDDDB records, and/or was observed to occur on-site during the field survey(s).
- **High:** Species known to occur on or near the site (based on CNDDDB records within 8 km or 5 mi, and/or based on professional expertise specific to the site or species) and suitable habitat exists on-site.
- **Low:** Species known to occur in the vicinity of the site, and there is marginal habitat on the site. Or, species are not known to occur in the vicinity of the site; however, suitable habitat exists on-site.
- **No:** Species are not known to occur on or in the vicinity of the site and suitable habitat for the species does not exist on the site. Or, species were surveyed for during the appropriate season with negative results for the species occurrence on the site.

Only those species that are known to be present or that have a high or low potential for occurrence will be discussed further following the species table below.

**Table 4.8-2
Listed and Special-Status Species Potentially Occurring
on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Plants				
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	FSC; --; --; 1B	Alkali playas, vernal pools and moist grasslands with heavy clay soils.	March - January	High
Brittlescale <i>Atriplex depressa</i>	--; --; --; 1B	Playas, valley and foothill grassland, vernal pools with alkaline and clay soils, meadows and seeps.	May - October	Present
Colusa grass <i>Neostapfia colusana</i>	FT; SE; --; 1B	This grass occurs only in the muddy areas of large or deep vernal pools in Merced, Stanislaus, Solano, and Yolo Counties (CDFG 2000).	May - August	No ; this species was not observed during site surveys. Additionally, based on this species' known distribution and no known CNDDB occurrences within five miles of the site, it is unlikely to occur.
Crampton's tuctoria <i>Tuctoria mucronata</i>	FE; CE; --; 1B	Grows in the clay bottoms of vernal pools of the Central Valley grassland. Known from only three locations in Solano and Yolo Counties.	April - August	No ; this species was not observed during site surveys. Additionally, based on this species' distribution within Yolo County and no known CNDDB occurrences within five miles of the site, it is unlikely to occur.
Heartscale <i>Atriplex cordulata</i>	--; --; --; 1B	Valley and foothill grassland saline or alkaline, meadows and seeps.	April - October	High
Heckard's pepper-grass <i>Lepidium latipes</i> var. <i>heckardii</i>	--; --; --; 1B	Valley and foothill grassland, alkaline flats.	March - May	Low

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Listed and Special-Status Species Potentially Occurring
on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Palmate-Bracted Bird's Beak <i>Cordylanthus palmatus</i>	FE; CE; --; 1B	Chenopod scrub, valley and foothill grassland alkaline.	May - October	High
San Joaquin saltbush <i>Atriplex joaquiniana</i>	--; --; --; 1B	Valley and foothill grassland with alkaline soils, meadows, seeps, and playas.	April - October	Present
Invertebrates				
Midvalley fairy shrimp <i>Branchinecta mesovallensis</i>	FSC; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat.		Low
Sacramento anthicid beetle <i>Anthicus sacramento</i>	FSC; --; --; --	Sand dunes and sand bars within riparian areas of the Sacramento-San Joaquin Delta.	Year round	No; the project site is out of the known range of this species. Additionally, there is no suitable habitat within the project site.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT; --; --; --	Associated with its host plant Elderberry (<i>Sambucus</i> spp.).	Year round	Low
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat.		Low
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat.		Low

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Listed and Special-Status Species Potentially Occurring
on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Amphibians/Reptiles				
California red-legged frog <i>Rana aurora draytonii</i>	FT; CSC; --; --	Requires slow moving streams, ponds, or marsh communities with emergent vegetation.	late November-late April	No ; the project site is out of the known range of this species.
California tiger salamander <i>Ambystoma californiense</i>	PT; CSC; --; --	Central Valley and adjacent foothills and coastal grassland, breeds from late winter into early spring in large temporary ponds.	Active following relatively warm (50.0-55 F) rains in November – February	No ; the seasonal wetlands on-site are shallow and are not considered to be suitable breeding habitat.
Giant garter snake <i>Thamnophis gigas</i>	FT; CT; --; --	Agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and their associated uplands.	May 1 – October 1	Low
Northwestern pond turtle <i>Emys (=Clemmys) marmorata marmorata</i>	FSC; CSC; --; --	Permanent ponds or streams.	Year Round	Low
Western spadefoot toad <i>Spea(=Scaphiopus) hammondi</i>	FSC; CSC; --; --	Grassland communities with long-lasting rain pools.	Active following relatively warm (50.0-55 F) rains in late winter-spring and fall.	Low

**Table 4.8-2
Listed and Special-Status Species Potentially Occurring
on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Fish				
Chinook salmon, Central Valley fall/late fall-run <i>Oncorhynchus tshawytscha</i>	--; CSC; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Fall	No ; although the channels on-site eventually drain into Yolo Bypass via Willow Slough, it is not a direct tributary to Sacramento River. Additionally, Central Valley fall/late fall-run Chinook salmon is not known to occur in the Yolo Bypass.
Chinook salmon, Central Valley spring-run <i>Oncorhynchus tshawytscha</i>	FT; CT; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Spring	No ; although the channels on-site eventually drain into Yolo Bypass via Willow Slough, it is not a direct tributary to Sacramento River. Additionally, Central Valley spring-run Chinook salmon is not known to occur in the Yolo Bypass.
Steelhead, Central Valley ESU <i>Oncorhynchus mykiss</i>	FT; --; --; --	Coastal basins from the Russian River, south to Soquel Creek, and San Francisco and San Pablo Bay basins. Excludes the Sacramento-San Joaquin River basins.	Year Round	No ; the project site is out of the known range of Central Valley steelhead.
Delta smelt <i>Hypomesus transpacificus</i>	FT; CT; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Year Round	No ; although the channels on-site eventually drain into Yolo Bypass via Willow Slough, it is not a direct tributary to Sacramento River. Additionally, Delta smelt is not known to occur in the Yolo Bypass.

**Table 4.8-2
Listed and Special-Status Species Potentially Occurring
on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Green sturgeon <i>Acipenser medirostris</i>	--; CSC; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Year Round	No ; although the channels on-site eventually drain into Yolo Bypass via Willow Slough, it is not a direct tributary to Sacramento River. Additionally, green sturgeon is not known to occur in the Yolo Bypass.
Longfin smelt <i>Spirinchus thaleichthys</i>	FSC; CSC; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Year Round	No ; although the channels on-site eventually drain into Yolo Bypass via Willow Slough, it is not a direct tributary to Sacramento River. Additionally, longfin smelt is not known to occur in the Yolo Bypass.
River lamprey <i>Lampetra ayresi</i>	FSC; CSC; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Year Round	No ; although the channels on-site eventually drain into Yolo Bypass via Willow Slough, it is not a direct tributary to Sacramento River. Additionally, river lamprey is not known to occur in the Yolo Bypass.
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	FSC; CSC; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Year Round	No ; although the channels on-site eventually drain into Yolo Bypass via Willow Slough, it is not a direct tributary to Sacramento River. Additionally, Sacramento splittail is not known to occur in the Yolo Bypass.
Birds				
Aleutian Canada goose <i>Branta canadensis leucopareia</i>	FD (FSC); --; - (wintering)	Winter resident of agricultural lands.	Wintering: September - January	Low

**Table 4.8-2
Listed and Special-Status Species Potentially Occurring
on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
American peregrine falcon <i>Falco peregrinus anatum</i>	FD (FSC); Fully protected; --; -- (nesting)	Nests on high cliffs, banks, dunes, or mounds in woodland, forest, and coastal communities near permanent water sources.	Nesting: late April – late September	No ; the project site does not support suitable nesting habitat for this species.
Bald eagle <i>Haliaeetus leucocephalus</i>	FT (FPD); CE (fully protected); --; - (nesting and wintering)	Nesting restricted to the mountainous communities near permanent water sources. Winters throughout most of California at lakes, reservoirs, river systems, and coastal wetlands.	Nesting: N/A Wintering: September – January 1	No ; the project site does not support suitable habitat for this species.
Bank swallow <i>Riparia riparia</i>	--; CT; -- (nesting)	Restricted to riparian areas with vertical cliffs and banks with fine-textured or sandy soils while breeding.	Nesting: April - September	No ; there is no suitable nesting habitat present on the project site.
Ferruginous hawk <i>Buteo regalis</i>	FSC; CSC; --; -- (wintering)	A winter resident of open habitats in California including grasslands and brushy forests.	Wintering: September - January	Low

**Table 4.8-2
Listed and Special-Status Species Potentially Occurring
on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Great blue heron <i>Ardea herodias</i>	--; (Sensitive); --; -- (Rookery)	Colonial nester in tall trees, cliff sides and sequestered spots on marshes. Rookery sites in close proximity to foraging habitats such as marches, lake margins, tidal flats, rivers, streams, and wet meadows.	Year Round Rookery: February – August	No; suitable rookery habitat is not present on the site.
Great egret <i>Ardea alba</i>	--; (Sensitive);--; -- (Rookery)	Colonial nester in large trees. Rookery sites generally located near marshes, tidal flats, irrigated pastures, and margins of rivers, streams, and lakes	Year Round Rookery: February – August	No; suitable rookery habitat is not present on the project site.
Greater sandhill crane <i>Grus canadensis tabida</i>	FSC; CT (Fully Protected); -- ; -- (nesting and wintering)	Nests in wet meadows interspersed with emergent marsh habitat. Winters in agricultural croplands and irrigated pastures.	Nesting: N/A Wintering: September - January	Low
Lawrence’s goldfinch <i>Carduelis lawrencei</i>	FSC; --; --; -- (nesting)	Nests in open oak or other arid woodland and chaparral habitats near water.	Year Round: Nesting February - August	No; suitable nesting habitat is not present on the project site.

**Table 4.8-2
Listed and Special-Status Species Potentially Occurring
on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Lewis' woodpecker <i>Melanerpes lewis</i>	FSC; --; --; -- (nesting)	Open, deciduous and coniferous communities with brushy understory, and scattered snags and live trees for nesting and perching.	N/A	No ; the project site is out of this species' known nesting range.
Little willow flycatcher <i>Empidonax traillii brewsteri</i>	FSC; --; --; -- (nesting)	Nests in shrubby riparian vegetation with some surface water or saturated soil conditions.	N/A	No ; the project site is out of this species' known nesting range.
Loggerhead shrike <i>Lanius ludovicianus</i>	FSC; CSC; --; -- (nesting)	Open habitats with scattered shrubs, trees, post, fences, utility lines, or other perches.	Year Round Nesting: February–August	Low
Long-billed curlew <i>Numenius americanus</i>	FSC; CSC; --; -- (nesting)	Frequents wet meadow habitats, large coastal estuaries, upland herbaceous areas and croplands.	N/A	No ; the project site is out of the known nesting range for this species.
Mountain plover <i>Charadrius montanus</i>	FSC; CSC; --; -- (wintering)	Short grasslands and plowed fields of the Central Valley from Sutter and Yuba Counties south. Winters below 1000 m (3200ft).	Wintering: November - April	High
Nuttall's woodpecker <i>Picoides nuttallii</i>	FSC; --; SLC; -- (nesting)	Permanent resident of low-elevation riparian deciduous and oak habitats.	Year Round Nesting: February - August	Low

**Table 4.8-2
Listed and Special-Status Species Potentially Occurring
on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Oak titmouse <i>Baeolophus inornatus</i>	FSC; --; SLC; -- (nesting)	Oak and pine-oak woodland, chaparral, and oak-riparian communities.	Year Round Nesting: February - August	No ; suitable nesting habitat is not present on the project site.
Rufous hummingbird <i>Selasphorus rufus</i>	FSC; --; SLC; -- (nesting)	Nests within berry tangles, shrubs, and conifers in areas north of California and in the Trinity Mountains of Trinity and Humboldt Counties, California.	N/A	No ; the project site is out of this species' known nesting range.
Swainson's hawk <i>Buteo swainsoni</i>	FSC; CT; SLC; -- (nesting)	Nests in isolated trees or riparian woodlands adjacent to suitable foraging habitat (agricultural fields, grasslands, etc.).	Nesting: February - October	Present
Tricolored blackbird <i>Agelaius tricolor</i>	FSC; CSC; SLC; -- (nesting colony)	Nests in dense blackberry, cattail, tule, willow, or wild rose within emergent wetlands throughout the Central Valley and foothills surrounding the valley.	Nesting: mid-April into late July	Low
Vaux's swift <i>Chaetura vauxi</i>	FSC; CSC; -- (nesting)	Nests within large hollow trees and snags in conifer habitats.	N/A	No ; suitable nesting habitat for this species does not exist within the project site.

**Table 4.8-2
Listed and Special-Status Species Potentially Occurring
on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Western burrowing owl <i>Athene cunicularia hypugaea</i>	FSC; CSC; --; -- (burrowing sites)	Nests in burrows in the ground, often in old ground squirrel or badger burrows, within open valley and foothill grassland and desert habitat.	Year Round Nesting: April - July	High
Western snowy plover (inland population) <i>Charadrius alexandrinus</i>	--; CSC; --; -- (nesting and wintering)	Beaches, sandy flats, and isolated sites on the shores of alkali lakes in northeastern California, the Central Valley, and southeastern deserts.	Nesting: N/A Wintering: September - April	Low
White-faced ibis <i>Plegadis chihi</i>	FSC; CSC; -- (rookery site)	Nests in dense, fresh emergent wetlands.	April - September	No; suitable rookery habitat is not present on the project site.
White-tailed kite <i>Elanus leucurus</i>	FSC; Fully Protected; --; - (nesting)	Yearlong resident in valley and coastal lowlands and is rarely found away from agricultural areas.	Year Round	High
Other raptors and migratory birds (hawks, owls, vultures and passerines)	MBTA and § 3503.5 Department of Fish and Game Code	Nests in a variety of communities including oak woodland, cismontane woodland, mixed coniferous forest, chaparral, montane meadow, riparian, and urban communities.	Nesting: February - August	High

**Table 4.8-2
 Listed and Special-Status Species Potentially Occurring
 on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Mammals				
Long-legged myotis bat <i>Myotis volans</i>	FSC; --; --; --	Woodland and forest communities approximately 4,000 feet above MSL. Roosts in rock crevices, buildings, under tree bark, in snags, mines, and caves.	N/A	No ; the project site is out of this species' known range.
Townsend's western big-eared bat <i>Corynorhinus townsendii townsendii</i>	FSC; CSC; --	Found at elevations ranging from sea level to 3,500 feet and is dependent on cliffs, caves, and old mines for roosting, nursery, and hibernation-sites.	Year Round	Low
San Joaquin pocket mouse <i>Perognathus inornatus inornatus</i>	FSC; --; --	Annual grassland and scrub habitats with fine-textured soils between 1,100 and 2,000 feet in the Central and Salinas Valleys.	N/A	No ; the project site is outside of this species' known range.
Small-footed myotis bat <i>Myotis ciliolabrum</i>	FSC; --; --	Occurs in a wide variety of habitats, primarily in relatively arid wooded and brushy uplands near water; also roosts in caves, buildings, mines, and crevices.	N/A	No ; the project site is outside of this species' known range.

**Table 4.8-2
 Listed and Special-Status Species Potentially Occurring
 on the Project Site or in the Vicinity**

Common Name	Regulatory Status (Federal; State; Local; CNPS)*	Habitat Requirements	Period of Identification**	Potential for Occurrence
Yuma myotis bat <i>Myotis yumanensis</i>	FSC; --; --	Resides in open forests and woodland habitats with sources of water over which to feed. Roosts in buildings, mines, caves, and crevices.	Year Round	Low

FE = federal endangered FT = federal threatened FSC = federal species of concern FD = de-listed FC = candidate PT = proposed threatened FPD = proposed for delisting

CE = state endangered CT = state threatened CR = state rare CSC = California Species of Special Concern

SLC = species of local or regional concern or conservation significance

MBTA = Federal Migratory Bird Treaty Act

83503.5 DFG Code = Section 3503.5 of the California Fish and Game Code

CNPS* Categories: 1A = plants presumed extinct in California 1B = plants rare, threatened, or endangered in California and elsewhere 2 = plants rare, threatened, or endangered in California, but common elsewhere 3 = plants about which we need more information 4 = plants of limited distribution

*CNPS is a private non-profit organization that works closely with CDFG throughout the state. CNPS-developed information serves as an important source of data for consideration by CDFG and USFWS in recommendations for listing state and federal threatened and endangered plant species.

** Sources:

Plants = CNPS on-line Inventory

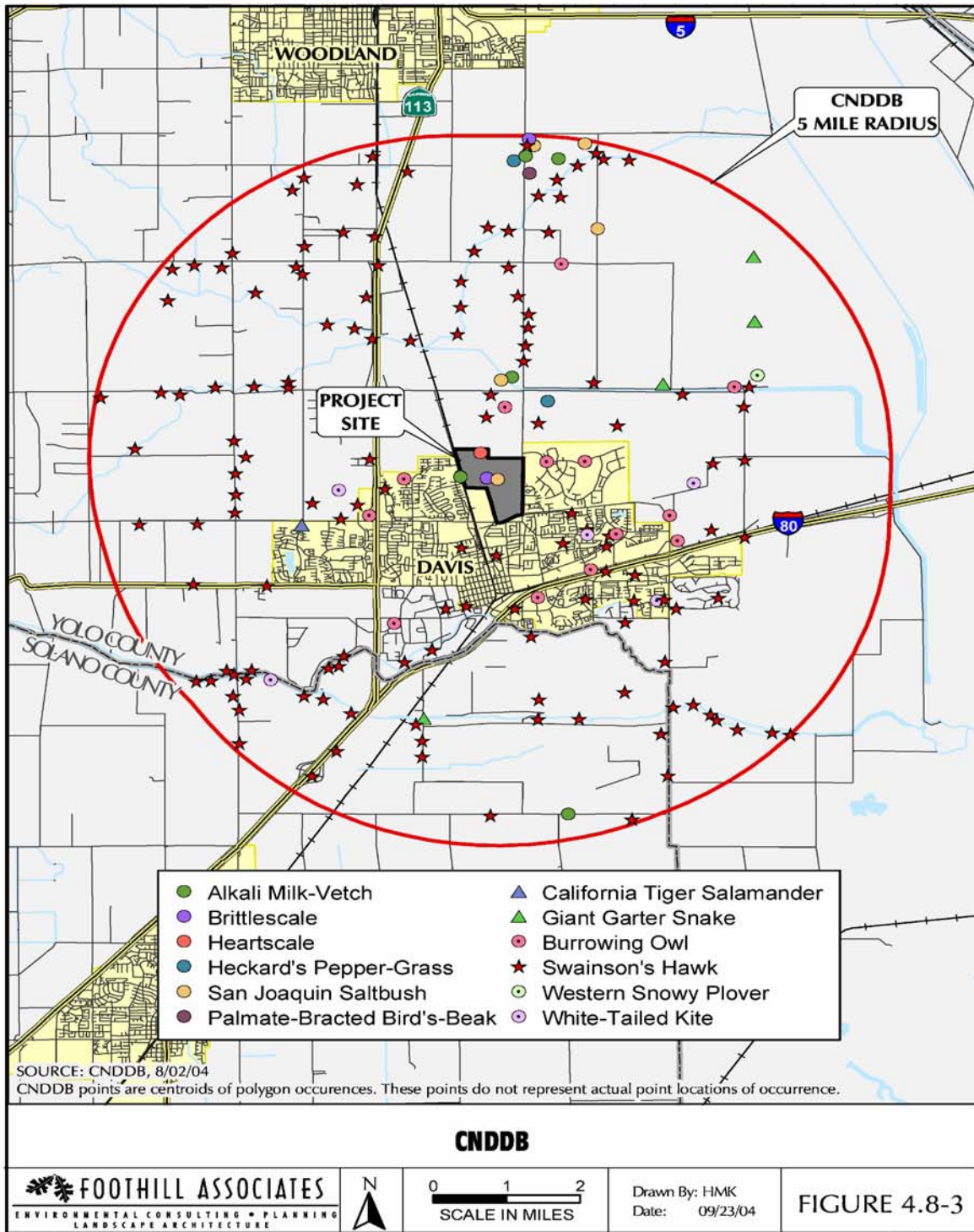
Amphibians/Reptiles = California Department of Fish and Game, on-line Species Accounts

Birds = Checklist of the Birds of Sacramento Area. Revised 1998. Compiled and Published by Sacramento Audubon Society.

Mammals = Zeiner D.C., W.F., Laudenslayer Jr., K.E., Mayer, and M. White, eds. 1990b. California's Wildlife Vol. III: Mammals. State of California: The Resource Agency, Department of Fish and Game, Sacramento, CA

Foothill Associates, 2004.

Figure 4.8-3: CNDDB Search Results



Listed and Special-Status Plants

Based on known CNDDDB occurrence records and direct observation in the field, brittlescale (*Atriplex depressa*) and San Joaquin saltbush (*Atriplex joaquiniana*) are present on-site. Alkali milk vetch (*Astragalus tener* var. *tener*), heartscale (*Atriplex cordulata*), and palmate-bracted bird's-beak (*Cordylanthus palmatus*) have a high potential to occur on-site according to an examination of the USFWS threatened and endangered species list of the area, CNDDDB occurrence records on or near the site, CNPS literature, and other documents pertaining to the biological resources of the site. Based on field observations and a search of CNDDDB occurrence records, Heckard's pepper grass (*Lepidium latipes* var. *heckardii*) has a low potential to occur on-site.

Alkali Milk-vetch

Alkali milk-vetch is a CNPS List 1B species and a federal Species of Concern. Alkali milk-vetch is a delicate, 4 to 30-cm tall, annual herb in the pea family (Fabaceae), and the leaves are pinnately compound, 2 to 9 cm long, with 7 to 17 well separated leaflets. The inflorescence is dense, consisting of 3 to 12 pink-purple, pea-like flowers. Historically, alkali milk-vetch occurred in the Central Valley and coastal foothills from Monterey County in the south to Sonoma County in the north, and from San Francisco in the west to Merced and Stanislaus Counties in the east; however, the plant is considered extirpated from much of its former range, although it is still found in Alameda, Merced, Napa, Solano, and Yolo counties (Tibor, 2001). Alkali milk-vetch grows in alkaline/saline soils in vernal wet playas, flats, and valley and foothill grassland, and flowers (February) March through June (Tibor, 2001). Alkali milk-vetch is threatened primarily by loss of habitat through agricultural conversion.

Although alkali milk-vetch was not observed during field surveys, one occurrence was reported for this species near the railroad tracks along the west boundary of the site (CNDDDB 2004). Additional occurrences have not been reported within five miles of the site in recent years. Alkali milk-vetch was not observed during Foothill Associates' focused surveys, but other alkali-associated plant species, such as San Joaquin saltbush, are present on-site. Based on the presence of alkaline soils, alkali-associated plant species, and the historic occurrence record west of the project site, alkali milk-vetch has a high potential to be present on-site.

Brittlescale

Brittlescale is a federal Species of Concern and a CNPS List 1B species. Brittlescale is a grayish annual herb up to 2 dm tall in the goosefoot family (Chenopodiaceae), with stems that are prostrate to decumbent. Unlike many *Atriplex* species, the densely white-scaly leaves, 4 to 8 mm long and ovate to heart-shaped, can be opposite each other. The flowers are inconspicuous. Species of *Atriplex* are most easily identified when the plants are bearing fruit (Hickman, 1993). The range of brittlescale extends from Kern County in the south to Butte and Glenn Counties in the north, and from Alameda County in the west to Madera and Tulare Counties in the east. Brittlescale has been extirpated from

Stanislaus County and has not been reported in Sacramento or San Joaquin Counties (Tibor, 2001). Brittle scale grows in relatively barren areas with alkaline clay soils within chenopod scrub, meadows, playas, vernal pools, and valley and foothill grassland. Occasionally, it is found in riparian marshes. Atriplex species are somewhat tolerant of disturbance. Brittle scale blooms from May through October, depending on local environmental conditions (Tibor, 2001). Habitat destruction due to development, along with cattle grazing and the invasion of exotic species, has probably been the greatest threat to brittle scale in the recent past and present. The management of marshland to increase waterfowl forage is also a threat to the persistence of brittle scale populations (Tibor, 2001).

Brittle scale is known to occur on the site (CNDDDB, 2004). In 1996, Jones and Stokes reported approximately 70 plants occurring in the vicinity of Channel "A." Focused surveys performed by Foothill Associates in October 2003 re-confirmed this occurrence. However, due to the conditions on the site (recent discing) and the time of year the surveys were conducted, only one individual was found and positively identified. Consequently, based on known occurrences and field observations, brittle scale is considered to be present on-site.

Heartscale

Heartscale is a federal Species of Concern and a CNPS List 1B species. This species is a gray-scaly annual herb in the goosefoot family (Chenopodiaceae). Heartscale is 1 to 5 dm tall, with one to a few branches arising from its base. The species takes its name from the shape of the 6 to 15 mm-long ovate leaves, the lower ones with round lobes at the base. The flowers are inconspicuous and the plant is most easily identified after flowering. Heartscale occurs in the Central Valley, from Kern County in the south to Butte and Glenn Counties in the north, and from Alameda County in the west to Madera and Tulare Counties in the east. Heartscale is believed to be extirpated from San Joaquin, Stanislaus, and Yolo Counties and has not been reported in Sacramento County (Tibor, 2001). The species grows in sandy, saline or alkaline flats, alkaline depressional seasonal wetland, in chenopod scrub, meadows, and valley and foothill grassland. Heartscale has been found growing with or near three other special-status species: dwarf downingia (*Downingia pusilla*), Carquinez goldenbush (*Isocoma arguta*), and legenere (*Legenere limosa*). Heartscale blooms April through October, depending on local environmental conditions (Tibor, 2001). Development and conversion to agriculture were the greatest threat to heartscale in the recent past. Presently, grazing is most often cited as a threat to the persistence of heartscale populations (Tibor, 2001).

Heartscale is reported as occurring within the very northwestern portion of the site in 1952 (CNDDDB, 2004). Additional occurrences have not been reported within five miles of the site in recent years. Heartscale was not observed during Foothill Associates' focused surveys in October 2003. Based on the presence of alkaline soils and the known occurrence record, heartscale has a high potential to occur on-site.

Heckard's Pepper-grass

Heckard's pepper-grass is a federal Species of Concern and a CNPS List 1B species. This pepper-grass is an annual herb in the mustard family (Brassicaceae), 3 to 25 cm tall, densely hairy, with 5 to 10 cm-long linear leaves. Small, greenish flowers with ciliate petals are borne in dense spikes. Heckard's pepper-grass is distinguished from dwarf peppergrass (*Lepidium latipes* var. *latipes*) by its erect stems with well-spaced nodes. The flat, oval fruits are deeply notched at the top. Heckard's pepper-grass is known from Glenn, Solano, and Yolo Counties (Tibor, 2001) and grows on alkaline flats and in alkaline grasslands along the edges of vernal pools. This variety flowers March through May (Hickman 1993, Tibor, 2001). Current threats to Heckard's peppergrass consist of agricultural conversion, grazing, and urban development (Tibor, 2001).

In 1957 Heckard's pepper-grass was reported as occurring approximately one mile northeast of the site (CNDDDB, 2004). Heckard's pepper-grass was not observed on the project site during Foothill Associates' focused special-status plant surveys in October 2003. Additionally, based on the active agricultural nature of the site and the proximity of the reported occurrence to the project site, Heckard's pepper-grass is not expected to occur on the site. However, the seasonal wetlands on-site are considered suitable habitat for this species and therefore a low potential exists for Heckard's pepper-grass to occur.

Palmate-bracted Bird's Beak

Palmate-bracted bird's beak is a state endangered, federal endangered, and CNPS List 1B species. Palmate-bracted bird's beak is an annual herbaceous species in the snapdragon family (Scrophulariaceae). Individual plants are 10 to 40 cm tall and highly branched. The stems and leaves are grayish-green, soft-hairy and often covered with salt crystals. The length of the hairiness in palmate-bracted bird's beak is an important character in identifying the species as well as the diagnostically lobed floral bracts. Typically, this species occurs at elevations below 60 meters in seasonally flooded, saline-alkali soils in lowland plains and basins of the Great Central Valley. Palmate-bracted bird's beak flowers between the months of July and August and is unusual among plants of the Great Central Valley in growing, reproducing and setting seed so late in the summer. This phenomenon is made possible because it is a hemi-parasite on perennial plants such as salt-grass (*Distichlis spicata*), whose moisture and nutrient reserves can be drawn upon late in the summer. Typically, palmate-bracted bird's beak grows in saline alkali soils. Primary threats to palmate-bracted bird's beak include soil reclamation, draining of seasonal wetlands, agricultural land conversion and urbanization, grazing, and, more recently, off-road vehicle use and trash dumping (Tibor, 2001).

Palmate-bracted bird's beak has been observed approximately five miles north of the site (CNDDDB, 2004). However, this species was not observed during Foothill Associates' focused special-status plant surveys in October 2003. However, relatively undisturbed areas supporting salt-grass were observed in the northern most portion of the site. Based on the presence of salt grass and the soil type within the project site, a high potential exists for palmate-bracted bird's beak to occur.

San Joaquin Saltbush

San Joaquin saltbush (*Atriplex joaquiniana*) is a federal Species of Concern and a CNPS List 1B species. This species is an erect, 1 to 10 dm-tall annual herb in the goosefoot family (Chenopodiaceae), with ovate to triangular leaves are 1 to 7 cm long. The flowers are congested on the ends of the main stem and branches, resembling little “sausages.” San Joaquin saltbush has been historically found in grasslands from Tulare County in the south to Glenn County in the north, and from Monterey County in the west to Tulare County in the east, but is currently believed to be extirpated from Santa Clara, San Joaquin, and Tulare Counties (Tibor, 2001).

The species grows in seasonal alkali wetlands and alkali sinks in chenopod scrub, meadows, playas, and valley and foothill grassland, with Mediterranean barley (*Hordeum marinum ssp. gussoneanum*), alkali mallow (*Malvella leprosa*), and other alkali-associated plants. San Joaquin saltbush has been found growing with rare plants such as Contra Costa goldfields (*Lasthenia conjugens*), alkali milkvetch (*Astragalus tener var. tener*), and crowscale (*Atriplex coronata*). San Joaquin saltbush blooms April through October, depending on environmental conditions (Tibor, 2001). Threats to San Joaquin saltbush include grazing, agricultural land conversion, and development (Tibor, 2001).

In 1996, Jones and Stokes reported that approximately 85 individual plants were found in the vicinity of Channel “A.” Surveys performed by Foothill Associates in October 2003 re-confirmed this occurrence. However, due to the conditions on the site (recent discing) and the time of year the surveys were conducted, only one individual was found and positively identified. Consequently, San Joaquin saltbush is considered to be present on-site.

Listed and Special-Status Wildlife

Based on a review of the USFWS lists, a records search of the CNDDDB, documents pertaining to the biological resources of the site, and field surveys, potential habitat for the following special-status wildlife species occurs on the site: midvalley fairy shrimp (*Branchinecta mesovallensis*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), giant garter snake (*Thamnophis gigas*), northwestern pond turtle (*Clemmys marmorata marmorata*), western spadefoot toad (*Spea hammondi*), Aleutian Canada goose (*Branta canadensis leucopareia*), ferruginous hawk (*Buteo regalis*), greater sandhill crane (*Grus Canadensis tabida*), loggerhead shrike (*Lanius ludovicianus*), mountain plover (*Charadrius montanus*), Nuttall’s woodpecker (*Picoides nuttallii*), Swainson’s hawk (*Buteo Swainsoni*), tricolor blackbird (*Agelaius tricolor*), western burrowing owl (*Athene cunicularia hypugaea*), western snowy plover (*Charadrius alexandrinus*), and white-tailed kite (*Elanus leucurus*). In addition, migratory birds, raptors, and special-status bats could potentially occur on the project site.

Invertebrates

Vernal Pool Crustaceans

Three federally listed vernal pool crustacean species could potentially occur within the seasonal wetland habitat on the project site. The vernal pool tadpole shrimp is listed as endangered; the vernal pool fairy shrimp is listed as threatened; and the midvalley fairy shrimp is listed as a Species of Concern.

Typical habitat for special-status vernal pool crustaceans in California include vernal pools, seasonally ponded areas, rock outcrop ephemeral pools, playas, and alkali flats. Other kinds of depressions that hold water of a similar volume, depth and area, similar to vernal pools and ponded areas, also may be potential habitat (Eriksen and Belk, 1999). These other depressions, however, are typically artificial habitats and are partially or completely un-vegetated (e.g., railroad toe-drains, road side ditches, abandoned agricultural drains, ruts left by heavy construction vehicles, and depressions in fire breaks).

Fairy shrimp swim upside down with graceful, rhythmic beats of their eleven pairs of delicate legs. They filter bacteria, algae, and protozoa from their aquatic habitat. They are short-lived animals that hatch and reproduce during a short interval in the winter when the vernal pools are filled with water. Fairy shrimp cysts fall to the bottom of the pool where they withstand the hot, dry summers of California's grasslands. After one or more dry seasons, the cysts will hatch when the pools are once again inundated, and the cycle of life begins again.

The primary dispersal method for vernal pool crustaceans is thought to have been large scale flooding resulting from winter and spring rains. This dispersal method has been disrupted in the Central Valley by flood control measures and widespread urbanization, and agricultural conversion. Waterfowl and shorebirds are believed to be the current primary dispersal agents for vernal pool crustaceans: the eggs are either ingested and/or adhere to the legs and feathers where they are transported to new habitats. However, this type of dispersal is believed to be less effective than overland flow between pools.

Midvalley Fairy Shrimp

The midvalley fairy shrimp is a small, soft-bodied crustacean that lives in vernal pools, which are seasonal wetlands that fill with water during fall and winter rains. This species is known to inhabit pools in only a handful of counties within the Great Central Valley, including Sacramento, Solano, Merced, Madera, San Joaquin, Fresno, and Contra Costa Counties. The midvalley fairy shrimp is closely related to three other federally listed species: the vernal pool fairy shrimp, conservancy fairy shrimp, and longhorn fairy shrimp. These three species were listed under the ESA in 1994, primarily due to the threats posed by destruction of their vernal pool habitat. The midvalley fairy shrimp is at an even greater risk of extinction than these species, because it has a more restricted

range and inhabits the most shallow, ephemeral vernal pools. The wetland features observed within the project site would be considered suitable habitat; however, occurrences of this species within five miles of the project site have not been reported (CNDDDB, 2004).

As previously discussed, the seasonal wetlands within the project site provide marginal habitat for fairy shrimp species. The seasonal wetlands on the site are generally small and have culverts or ditches that drain the water into Channel "A." This draining would result in fairly shallow ponding. Midvalley fairy shrimp can inhabit shallow pools and consequently could occur within the project site.

Vernal Pool Fairy Shrimp

Vernal pools that support vernal pool fairy shrimp are often grass- or mud-bottomed with clear to tea-colored water. The vernal pool fairy shrimp is capable of living in vernal pools of relatively short ponding duration (pools that pond from six to seven weeks in winter and three weeks in the spring). This species is considered to be both uncommon and common. Vernal pool fairy shrimp is considered common due to the fact that it appears to be rather widely distributed in the grassland of California, occurring near Red Bluff in Shasta County, south through much of the Central Valley, and ultimately to the Santa Rosa Plateau in Riverside County where several disjunctive populations exist. However, vernal pool fairy shrimp is at the same time considered uncommon because *B. lynchi* is not abundant in the locations where it occurs. In addition, when vernal pool fairy shrimp co-occurs with other fairy shrimp species, which is reasonably often, it is always far outnumbered (Eriksen and Belk, 1999).

Occurrences of vernal pool fairy shrimp within five miles of the project site have not been recorded in the CNDDDB (CNDDDB, 2004). As previously discussed, the seasonal wetlands within the project site provide marginal habitat for fairy shrimp species. Although the seasonal wetlands within the project site are generally small and have culverts or ditches that drain into Channel "A," this draining could result in fairly short ponding duration. The vernal pool fairy shrimp are capable of living in vernal pools of relatively short ponding duration and consequently could occur within the seasonal wetlands on the project site.

Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp has a different appearance than the previously discussed fairy shrimp. This species has compound eyes, a large shield-like shell that covers most of the body, and a pair of long appendages at the end of the last abdominal segment. Vernal pool tadpole shrimp adults are much larger, reaching a length of 2 inches. Additionally, in regards to the difference in appearance, vernal pool tadpole shrimp mature more slowly than fairy shrimp, and are longer lived. Typically, adults will survive until the vernal pool dries, or until temperatures of 10 to 15 degrees Celsius are reached. These animals may not emerge every year, sometimes taking as long as four years to hatch (Eriksen and Belk, 1999).

The vernal pool tadpole shrimp is endemic to the Central Valley of California, with the majority of populations in the Sacramento Valley portion. The greatest numbers of records for this species come from Sacramento, Solano, Butte, and Tehama Counties. This species has also been reported from the Sacramento River Delta on the east side of San Francisco Bay, and from a few scattered localities in the eastern San Joaquin Valley from San Joaquin County to Madera County (CNDDDB, 2004).

Occurrences of vernal pool tadpole shrimp within five miles of the project site have not been recorded (CNDDDB, 2004). As previously discussed, the seasonal wetlands within the project site provide marginal habitat for fairy shrimp species. The tadpole fairy shrimp are known to mature at a slower rate than vernal pool fairy shrimp, a phenomenon which means they need a longer duration of ponding. During the field visit in October of 2003, the seasonal wetlands of concern showed obvious signs of ponding due to the presence of hydrologic indicators. Due to the evidence of ponding, these wetland features could pond long enough to complete the life cycle of tadpole fairy shrimp. Consequently, this fairly common species of fairy shrimp could occur within the project site.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (VELB) is a federal threatened species and is associated with its host plant, the blue elderberry shrub. The VELB is found in remnants of riparian and elderberry savanna habitats in the Central Valley and foothill locations. The beetle's larval food plants are elderberry (*Sambucus* spp.), primarily *S. mexicana* and *S. racemosa* var. *microbotrys* (USFWS, 1999). However, these elderberry species are often difficult to identify to the species level because they are known to hybridize with other elderberry taxa.

VELB larvae are wood borers and feed internally on the roots and pith of main stems of the elderberry. Adults feed on the flowers and foliage of the elderberry plant. Adult beetles are active when the elderberry is in flower, usually between about mid-March through mid-June. Fresh emergence holes made by larvae are generally found in younger elderberry plants or older plants with new growth, whose stem diameters are no more than 3 to 4 inches. These observations suggest that larvae may prefer to feed on younger plants (USFWS, 1999).

Adult beetles have generally been observed in areas where there is other associated riparian vegetation, especially larger trees such as valley oaks, sycamores, elder, ash, cottonwood, and other trees and shrubs characteristic of riparian vegetation. The U.S. Fish and Wildlife Service suggests that riparian areas with a greater diversity of riparian tree and shrub taxa provide higher quality habitat for the beetle.

In 1996 Jones and Stokes reported a mature elderberry shrub, located near the northeastern-most valley oak on-site, which had several holes in the stems that may have been created by VELB (EDAW, 2003). Additionally, Foothill Associates biologists

observed an elderberry shrub near the residence on the project site. At the time of the surveys, evidence of VELB (i.e., emergence holes) was not detected on either elderberry shrub. Even though the shrubs are not situated among riparian vegetation, the elderberry shrub is the vital host for VELB's life cycle; consequently, the VELB has a low potential to occur within the project site.

Amphibians/Reptiles

Giant Garter Snake

The giant garter snake was federally listed as threatened in 1993. A draft recovery plan for the species was published in 1999. A final recovery plan has not been published and critical habitat has not been formally designated to date. This species is listed by California Department of Fish and Game as threatened.

Giant garter snakes generally inhabit marshland areas supported by perennial fresh water and low gradient streams, but will also inhabit temporary water such as sloughs, irrigation canals, drainage ditches, and flooded rice fields. Giant garter snakes show a preference for the slower flowing sloughs that are not found along major rivers. Giant garter snake habitat is typically devoid of a dense tree canopy and usually contains tule, cattail, blackberry, mustard, various thistles and annual and perennial grasses (Zeiner, 1988). This species requires upland habitat for basking and burrowing during winter. The giant garter snake is not known to occur in larger bodies of water such as the Sacramento Delta and the large rivers of the Sacramento Valley such as the American, Cosumnes, and Sacramento (USFWS, 1999).

Giant garter snakes are typically observed between the months of April and October, and spend the remainder of the year in their winter retreats. They emerge from winter retreats in late March or early April. By April 15 most of the snakes are active and foraging. They generally begin seeking winter retreats around the first part of October; foraging at this time is sporadic and dependent on weather conditions. By the first of November, most giant garter snakes are in winter retreats and will remain there until spring.

Four occurrences of the giant garter snake within five miles of the project site have been recorded (CNDDDB, 2004). More specifically, the CNDDDB record contains an occurrence of the giant garter snake approximately two miles northeast of the site within Willow Slough. Channel "A" and Covell Drain, which eventually connect with Willow Slough, are mapped as blue line features on the U.S.G.S. Davis and Merritt 7.5-minute quadrangle topographic maps. A hydrologic connection is shown between Willow Slough and the project site, presenting an opportunity for the giant garter snake to potentially travel throughout these areas. According to a survey conducted by Jones and Stokes in 1996, the drainages on-site are unsuitable habitat for most of the snake's active season because the water is too shallow to be used for cover and periodic draw-downs eliminate most of the snake's prey base (e.g., small fish, frogs) (EDAW, 2003).

Based on field observations made by Foothill Associates in October 2003, Channel "A" and the Covell Drain provide marginal suitable foraging and basking opportunities for giant garter snake; however, minimal winter retreat habitat exists on-site due to agricultural activities such as discing and planting of crops. The area to the west of the Covell Drain could provide suitable winter retreat habitat; however, this area is outside of the project boundary. Consequently, a chance exists that the giant garter snake could occur within the drainages on-site, but the likelihood of disturbing a winter retreat through project implementation is low.

Northwestern Pond Turtle

The western pond turtle (*Clemmys marmorata*) is currently divided into two subspecies: 1) the northwestern pond turtle, which is a federal and state Species of Concern occurring from the vicinity of the American River in California northward to the lower Columbia River in Oregon and Washington, and 2) the southwestern pond turtle (*Clemmys marmorata pallida*; FSC, CSC), which occurs in coastal drainages from the vicinity of Monterey, California south to northwestern Baja California, Mexico. An intergraded zone is situated south of the American River and north of Monterey (Stebbins, 1985).

Western pond turtles are habitat generalists and occur in a wide variety of permanent or nearly permanent aquatic habitats, normally ponds, lakes, streams and irrigation ditches, with basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks (Zeiner, 1988). Western pond turtles are also known to occur in concrete-lined canals, using the sloped banks as basking sites. Turtles usually leave aquatic sites to reproduce, aestivate, and over-winter in upland habitats such as annual grasslands and oak woodlands (Jennings and Hayes, 1994). Breeding occurs in late April or early May and eggs may be laid from April through August (Stebbins, 1985). Nests are typically dug in a substrate with a high clay or silt content and located on an unshaded slope. Females lay between 3 and 11 eggs and may lay additional clutches during a year (Jennings and Hayes, 1994). Northwestern pond turtles can be seen from February through mid-November in the north, and all year in the south. As an omnivorous species, northwestern pond turtles feed on aquatic plant material and a variety of aquatic invertebrates (Stebbins, 1985).

The northwestern pond turtle is not known to occur within five miles of the project site (CNDDDB, 2004). Channel "A" and the Covell Drain associated with the project site provide suitable foraging and basking opportunities; however, minimal nesting habitat exists on-site due to agricultural activities such as discing and planting of crops. The area to the west of the Covell Drain could provide suitable nesting habitat; however, this area is outside of the project boundary. Consequently, the northwestern pond turtle could occur within the drainages on-site, but the likelihood of disturbing a nesting site is low.

Western Spadefoot Toad

Western spadefoot toad is a federal and state Species of Concern occurring throughout the Central Valley and adjacent foothills, and is usually quite common where it occurs.

This species occurs primarily in grassland situations, but occasional populations also occur in orchard-vineyard habitats (Zeiner, 1988). Western spadefoot are dusky green or gray with four irregular, light-colored stripes on the back. The central pair of stripes sometimes set off a dark, hourglass-shaped area. Western spadefoot toad is whitish below without markings and has a wedge-shaped, glossy black spade on each hind foot (Stebbins, 1985).

Western spadefoot toads are rarely found on the ground surface. They spend most of the year in underground burrows up to 36 inches deep, which they construct themselves or from mammal burrows (Zeiner, 1988). This species relies on rainfall for formation and maintenance of breeding ponds. Most surface movements by adults are associated with rains or high humidity at night. During dry periods, the moist soil inside burrows provides water for absorption through the skin. The first fall rains usually trigger the adults to emerge from underground burrows, and subsequently, breeding and egg laying normally occur in nearby ponds from late winter to the end of March. Undisturbed grasslands with shallow temporary pools are optimal habitats for the western spadefoot (Zeiner, 1988).

The western spadefoot toad is not known to occur within five miles of the project site (CNDDDB, 2004). Additionally, on-site agricultural activities such as discing would reduce the chance of this species to burrow on the site. However, during the site visit in October of 2003, several mammal burrows were observed west of the Covell Drain, adjacent to a perennial marsh. The perennial marsh is located at the south end of the Covell Drain where it merges with Channel "A." Through sedimentation buildup, this area has very slow drainage and supports emergent vegetation. This area, as well as the seasonal wetlands on-site, could be suitable breeding habitat for western spadefoot toad. Consequently, the western spadefoot toad has a low potential to occur on-site.

Birds

Aleutian Canada Goose

The Aleutian Canada goose winters in wet meadows and agricultural fields throughout the Central Valley, but does not breed in California. This subspecies of Canada goose feeds primarily on grasses and other emergent wetland vegetation. The Aleutian Canada goose is not known to exist within five miles of the project site (CNDDDB, 2004), and the species was not observed on-site during field surveys in October 2003. However, the agricultural fields and rice fields in the vicinity of the project site do provide potential wintering habitat for this species. Consequently, this species has a low potential to occur on-site.

This species would only be expected to occur during the rainy season. Because initial grading of the site would not occur during the rainy season and suitable wintering habitat occurs within adjacent lands, implementation of the proposed project is not expected to impact this species. Therefore, the Aleutian Canada goose is not expected to be impacted

by the proposed project, and no further discussion of mitigation for this species is expected to be necessary.

Ferruginous Hawk

The ferruginous hawk is a winter resident and migrant of California. In the winter this species can be found throughout California, with the exception of the extreme northeastern and northwestern regions (Zeiner, 1990a). Ferruginous hawks migrate to California in August or September and return to their breeding grounds in late February or early March. This species occurs in open habitats, including grasslands, shrub steppes, sagebrush, deserts, saltbush-greasewood shrublands, and the outer edges of pinyon pine and other forest. Ferruginous hawks forage for prey (rabbits [*Lepus* sp.], ground squirrels [*Spermophilus* sp.], and mice [*Peromyscus* sp.]) by low flights over open, treeless areas, and glide to intercept prey on the ground.

Ferruginous hawk is not known to exist within five miles of the project site (CNDDDB, 2004). Although this species was not observed during the assessment, suitable wintering habitat for ferruginous hawks exists within the agricultural fields. Consequently, this species has a low potential to occur on-site. This species would only be expected to occur during the rainy season. Therefore, no significant impacts to this species are expected since initial grading would not be expected to occur during the rainy season. Therefore, no impacts to this species are expected and no further discussion of mitigation is expected to be necessary.

Greater Sandhill Crane

Greater sandhill cranes are state threatened and fully protected by the California Department of Fish and Game. Greater sandhill cranes are the largest of the six subspecies of sandhill cranes. The general appearance of sandhill cranes is pale gray with darker primary feathers. The cheeks, ear coverts, and chin are white, and all but juveniles have bare, reddish foreheads. Fledglings are similar in size to adults but can be distinguished by rust-brown feathers on the nape of the neck. Greater sandhill cranes eat a variety of foods, but are primarily vegetarians. Historically, greater sandhill cranes nested in eastern Siskiyou County and northeastern Shasta County southward to Honey Lake in Lassen County. Presently, greater sandhill cranes nest in Lassen, Modoc, Plumas, Shasta, Sierra, and Siskiyou Counties (CDFG, 2000a).

Favorable roost sites and an abundance of cereal grain crops characterize the cranes' Central Valley wintering ground. Rice is used extensively by cranes near the Butte Sink area of Butte County, and corn is the principal food source at most other Central Valley wintering areas, particularly in the Sacramento-San Joaquin Delta near Lodi, San Joaquin County (CDFG, 2000a). Sandhill cranes often choose irrigated pastures for resting sites throughout the wintering ground. A communal roost site consisting of an open expanse of shallow water is a key feature of wintering habitat. Currently, the estimate for greater sandhill cranes within their Pacific Flyway range is between 5,000 and 6,000 individuals.

Approximately 25,000 lesser sandhill cranes winter in California each year (CDFG, 2000a).

However, the greater sandhill crane is not known to occur within five miles of the project site (CNDDDB, 2004). In recent years the farmed crops on-site consisted of wheat and tomato. Greater sandhill crane is not known to utilize these types of crops for wintering habitat. Additionally, the project site is out of the known nesting range for this species. However, the on-site channels do provide foraging opportunities for migrating birds. Consequently, the potential for this species to winter on the project site is low. This species would only be expected to occur during the rainy season. Because initial grading of the site would not occur during the rainy season and suitable wintering habitat occurs within adjacent lands, implementation of the proposed project is not expected to significantly impact this species. Therefore, the proposed project is not expected to impact the greater sandhill crane, and no further discussion of mitigation for this species is expected to be necessary.

Swainson's Hawk

Swainson's hawk is a federal Species of Concern and state threatened. This species is a breeding resident and migrant of California. Migration occurs from early March through early April, from their wintering grounds in the open pampas and agricultural areas of South America (Argentina, Uruguay, southern Brazil) to their breeding grounds in east-central Alaska, southwest Canada, eastern Washington and Oregon, and the Central Valley of California. On breeding grounds, Swainson's hawks prefer open habitats, including mixed and short grasslands with scattered trees or shrubs for perching, dry grasslands, irrigated meadows, and edges between two habitat types. This species is monogamous, with a breeding season that extends from late March through late August, peaking in late May through July (Zeiner, 1990a). Nests are built on a platform of bark, sticks, and fresh leaves in a tree, bush, or utility pole. Clutch size ranges from 3 to 4 eggs, and incubation is approximately 34 days. Swainson's hawks leave their breeding grounds to return to their wintering grounds in late August or early September (Zeiner, 1990a).

In the Central Valley, Swainson's hawk nests are generally found in scattered trees or along riparian habitats in close proximity to agricultural fields and pastures. Major prey for Central Valley birds include invertebrates such as crickets (*Gryllidae* sp.) and grasshoppers (*Conocephalinae* sp.); birds such as meadowlark (*Sturnella neglecta*), mourning dove, and other passerines; and mammals such as California ground squirrel, California vole (*Microtus californicus*), deer mice (*Peromyscus maniculatus*), and valley pocket gopher (*Thomomys bottae*).

Swainson's hawk has occurred multiple times within five miles of the project site (CNDDDB, 2004). Additionally, Swainson's hawks have been documented nesting and foraging on the project site. A pair of Swainson's hawks nested on the project site from 1984 to 1990 (CNDDDB, 2004). From 1984 to 1988, the pair nested in a large, isolated oak tree near the center of the project site, northeast of the residence. In 1989, the pair nested in a valley oak tree located east of the residence. In 1990, the pair moved back to

the original site, but the nest blew out of the tree early in the season and the pair failed to reproduce (EDAW, 2003). Based on the site visit and past occurrence records, foraging and nesting habitat for Swainson's hawk is present on-site.

Western Burrowing Owl

Western burrowing owl is a federal and state Species of Concern and a yearlong resident of the Central Valley (CDFG, 2000b). This bird species uses rodent or other types of burrows for roosting and nesting cover. Oftentimes, this species is found perching in open sunlight in the early morning, and moves to shade or to the burrow in hotter temperatures. Burrowing owls primarily feed on insects, small mammals, reptiles, birds, and carrion. Breeding occurs from March through August, with the peak breeding time occurring in April and May. Young emerge from the burrow at about 2 weeks and fly at about 4 weeks (Zeiner, 1990a).

This species was formerly a common, even locally abundant, permanent resident throughout much of California, but a decline noticeable by the 1940s (Zeiner, 1990a) has continued through to the present time. The decline has been almost universal throughout California (CDFG, 2000b). Conversion of grasslands and pasturelands to agriculture and destruction of ground squirrel colonies have been the main factors causing the decline of the burrowing owl population (Zeiner, 1990a). Assimilation of poisons applied to ground squirrel colonies has probably also taken a toll. The burrowing owls' propensity for nesting in roadside banks also makes them particularly vulnerable to roadside shooting, being hit by cars, road maintenance operations, and general harassment (CDFG, 2000b).

The burrowing owl has occurred several times within five miles of the project site (CNDDDB, 2004). Additionally, during the site visit in October of 2003, multiple rodent burrows were observed along the banks of the Covell Drain. Based on the presence of potential burrowing habitat and known occurrences of this species in the surrounding areas, the western burrowing owl has a high potential to occur on the project site.

Western Snowy Plover

The western snowy plover is a small shorebird distinguished from other plovers (family *Charadriidae*) by its small size, pale brown upper parts, dark patches on either side of the upper breast, and dark gray to blackish legs. Typically an ocean shore bird, large numbers have been found inland at Mono Lake, Mono County, and Owens Lake, Inyo County. This species has also on occasion nested in the Central Valley and might do so regularly if more suitable habitat were available (i.e., a pair bred at Woodland, Yolo County, in 1963 and 1970). The nesting season extends from early March through late September. In the habitats remaining for the snowy plover, human activity continues to be a key factor adversely affecting snowy plover breeding populations in California (USFWS, 1993).

Western snowy plover occurrence records do not exist for the project site (CNDDDB, 2004). The 1970 nesting bird occurrence was located in the Davis sewage treatment

ponds, and it is not known whether this location is an active nest site. Based on field observations as well as the high disturbance on-site from active agricultural practices and the urban development surrounding the site to the west, south, and east, the western snowy plover is not expected to nest on-site. Therefore, the proposed project is not expected to impact the western snowy plover, and no further discussion of mitigation for this species is expected to be necessary.

White-tailed Kite

White-tailed kite is a federal Species of Concern and fully protected by the California Department of Fish and Game. White-tailed kites have recovered from near extinction in the 1930s and are now common throughout most of California today, although possible declines since the 1980s is a concern in some areas. White-tailed kites occur in nearly all lowlands in California, except the southeast deserts. They require relatively open habitat for foraging, as well as trees (isolated or within stands) for nesting and roosting. Habitats with abundant prey populations (ungrazed or little grazed grasslands, agriculture, and grass dominated wetlands) support more kites. Primary concerns include the response of white-tailed kites to reduced foraging and nesting opportunities as prey habitats are urbanized (e.g. conversion of agricultural lands), and as nest site competition increases with the loss of nesting habitats (e.g. riparian corridors and wooded grasslands).

Several occurrences of the white-tailed kite have occurred within five miles of the project site (CNDDDB, 2004). Additionally, during Foothill Associates' site survey in October 2003, a single white-tailed kite was observed foraging within the project site. The isolated trees and tall trees within the riparian woodland are considered suitable nesting habitat for this species. Due to the proximity of the known nesting occurrences of white-tailed kite and Foothill's direct observation, white-tailed kites are known to occur and have a high potential to nest on-site.

Other Raptors

Other raptor species forage and nest in a variety of habitats throughout Yolo County. Raptor nests are protected under the Migratory Bird Treaty Act and Section 3503.5 of the California Fish and Game Code, which makes it illegal to destroy any active raptor nest. Several raptor species, including ferruginous hawk, red-tailed hawk, Cooper's hawk (*Accipiter cooperii*), and northern harrier (*Circus cyaneus*), forage and nest in various habitats throughout Yolo County. The large trees and riparian habitats within the project site are considered potential nesting habitat for raptor species. In addition, the open cropland and riparian habitats support a strong prey base and are considered suitable foraging habitat for both nesting and wintering raptors. As discussed above, occurrence records exist for Swainson's hawk nesting in the isolated oak trees within the project site. Additionally, a red-tailed hawk, ferruginous hawk, great horned owl, northern harrier, and American kestrel (*Falco sparverius*) were observed during the field surveys. Consequently, raptors are known to occur and have a high potential to nest on-site.

Migratory and Resident Birds

Several special-status migratory and resident bird species, such as loggerhead shrike, mountain plover, Nuttall's woodpecker, and tricolored blackbird, have the potential to occur within the project site. Migratory and resident birds forage and nest in various natural and artificial habitat communities including coniferous forest, oak woodlands, agricultural croplands, riparian woodlands, cattail and blackberry thickets, and horticultural/landscaped areas. The nests of all migratory birds are protected under the Migratory Bird Treaty Act, which makes it illegal to destroy any active migratory bird nest. The riparian woodland, perennial marsh, and isolated oak trees within the project site provide suitable nesting habitat for migratory and resident bird species. Consequently, nesting migratory or resident birds could occur within the project site.

Mammals

Bats

Special-status bat species have the potential to occur within the project site, including Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*) and Yuma myotis bat (*Myotis yumanensis*). Habitats for bats include foraging, day, maternity roost, and wintering. Bats are nocturnal mammals, leaving day roosts around dusk to forage. Solitary species pass the day hanging among the foliage of trees in various communities, while social species pass the day hanging in colonies in buildings, caves, mines, rock crevices, or other protected places. The majority of North American bats feed on insects, which are captured on the wing using echolocation. Most bats mate in the fall. However, fertilization is delayed until spring in hibernating species (Zeiner, 1990b). Although the gestation period varies with species, a typical period is approximately 40 days. Most bats give birth to one, rarely two, offspring annually (Zeiner, 1990b).

CNDDDB records do not exist for special-status bat species within five miles of the project site (CNDDDB 2004). Bats or evidence of bats (i.e., grease marks, urine stains, or guano) were not observed during the field survey. Although foraging opportunities exist within the project site, maternity or wintering roosting habitats were not observed. Based on field observations and the lack of roosting habitat, these bat species are not expected to occur on-site. Therefore, no impact is expected to occur to roosting habitat for special-status bats due to the proposed project, and no further discussion of mitigation for this species is expected to be necessary.

Sensitive Biological Resources

Sensitive biological resources include those that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the California Fish and Game Code, or Section 404 of the federal Clean Water Act (CWA). Additionally, sensitive habitats can also be protected under local regulations and policies. Sensitive

biological resources on the project site include special-status plant species, potential Jurisdictional Waters of the U.S., protected trees, and elderberry shrubs.

Habitat, Wildlife, and Natural Areas

Most of the non-urbanized land in the City of Davis is currently used for agriculture. The City's General Plan recognizes that habitats, wildlife, and natural areas have the need to be identified, protected, and restored or enhanced in order to maintain biodiversity within the region (City of Davis General Plan, 2001).

Areas considered to have wildlife habitat value within the project site include the following:

- riparian woodland;
- seasonal wetlands;
- perennial marsh;
- irrigation and drainage ditches;
- raptor or migratory/resident bird nesting trees;
- cropland (foraging habitat); and,
- elderberry shrubs.

In addition, the City of Davis is situated in a strategic position in the Pacific Flyway, a major migration route for waterfowl and other birds in North America (City of Davis General Plan, 2001).

Jurisdictional Waters of the U.S.

Jurisdictional Waters of the U.S. include jurisdictional wetlands, as well as all other Waters of the U.S. such as creeks, ponds, and intermittent drainages. Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Corps, 1987). The majority of jurisdictional wetlands in the United States meet three wetland assessment criteria: hydrophilic vegetation, hydric soils, and wetland hydrology. Jurisdictional Waters of the U.S. can also be defined by exhibiting a defined bed and bank and ordinary high water mark (OHWM).

Potential Jurisdictional Waters of the U.S. within the site consist of depression seasonal wetlands totaling approximately 5.59 acres, as well as Channel "A," Covell Drain and other associated irrigation and drainages ditches totaling approximately 4.22 acres. To date, the potential wetland areas within the site have been formally delineated; however, the U.S. Army Corps of Engineers has not verified these acreages.

Protected Trees

A total of 256 trees representing 17 species have been inventoried on the project site. Of this total, 30 trees are native valley oak, and 125 trees are common riparian species such as alder, ash, willow, box elder, cottonwood, and sycamore. The remaining 101 trees consist of native and non-native ornamental tree species such as catalpa, tree of heaven, acacia, elm, Monterey pine, casuarina, fruit, and pistache.

Although native trees such as oaks are not afforded special protection under state or federal law, loss of these species is a concern of the California Department of Fish and Game and California Native Plant Society because of their continued depletion throughout California. In addition, the City of Davis Municipal Code 37.04 regulates both the removal of significant and landmark trees, and the encroachment of construction activities into the protected zones of these trees. Landmark trees can be designated if a tree meets at least one of the following four criteria: 1) is considered an outstanding specimen, 2) is a large or old tree, 3) is of historical interest, or 4) has a distinctive form. Significant trees fall into two size classes: 1) a small tree of significance can be considered significant at 5 inches and greater, and 2) a large tree of significance is considered significant at 10 inches and greater.

Habitat Managed for Wildlife

The City of Davis has a long commitment to parks and open space that provide habitat for wildlife. Two areas managed for wildlife that are located in the vicinity of the project site are the North Area Pond and the Davis Wetlands.

The North Area Pond, located next to Northstar Park, serves as valuable wildlife habitat while performing an important function as part of the City's storm drainage system (City of Davis General Plan, 2001). Because the North Area Pond is surrounded by roads and development, wildlife use is mostly limited to common species that have adapted to urban parks and lakes.

The 400-acre Davis Wetlands, located northeast of the project site near the Davis Wastewater Treatment Plant, provides habitat for shorebirds, waterfowl, and other wildlife that is of statewide importance. The project is one of the largest constructed wetlands in the United States, relying on treated wastewater and stormwater runoff as the water sources (City of Davis General Plan, 2001).

In addition, the Wildhorse agricultural buffer (bordering the Wildhorse golf course across Pole Line Road from the Proposed Project) supports the City's largest colony of burrowing owls.

REGULATORY CONTEXT

The following is a description of federal, state, and local environmental laws and policies that are relevant to the California Environmental Quality Act (CEQA) review process.

Federal

Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

The FESA prohibits the “take” of endangered or threatened wildlife species. “Take” is defined as harassing, harming (including 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 USC 1532, 50 CFR 17.3). Taking can result in civil or criminal penalties.

The FESA and NEPA Section 404 guidelines prohibit the issuance of wetland permits for projects that would jeopardize the existence of threatened or endangered wildlife or plant species. The U.S. Army Corps of Engineers must consult with the U.S. Fish and Wildlife Service (USFWS) and National Oceanic Atmospheric Administration (NOAA) when threatened or endangered species may be affected by a proposed project to determine whether issuance of a Section 404 permit would jeopardize the species.

Migratory Bird Treaty Act

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of state and federal laws. The federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior. Section 3503.5 of the California Fish and Game Code states that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.”

Clean Water Act

The U.S. Army Corps of Engineers regulates discharge of dredged or fill material into Waters of the United States under Section 404 of the Clean Water Act (CWA). “Discharge of fill material” is defined as the addition of fill material into Waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 C.F.R. §328.2(f)). In addition, Section 401 of the CWA

(33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 C.F.R. §328.3(b)).

Furthermore, Jurisdictional Waters of the U.S. can be defined by exhibiting a defined bed and bank and ordinary high water mark (OHWM). The OHWM is defined by the Corps as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 C.F.R. §328.3(e)).

State

California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. The CESA is similar to the FESA but pertains to state-listed endangered and threatened species. CESA requires state agencies to consult with the California Department of Fish and Game (CDFG) when preparing California Environmental Quality Act (CEQA) documents to ensure that the state lead agency actions do not jeopardize the existence of listed species. CESA directs agencies to consult with CDFG on projects or actions that could affect listed species, directs CDFG to determine whether jeopardy 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 they determine that “overriding considerations” exist; however, the agencies are prohibited from approving projects that would result in the extinction of a listed species.

The CESA prohibits the taking of state-listed endangered or threatened plant and wildlife species. CDFG exercises authority over mitigation projects involving state-listed species, including those resulting from CEQA mitigation requirements. CDFG may authorize taking if an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy is implemented. CDFG requires preparation of mitigation plans in accordance with published guidelines.

CDFG Species of Special Concern

In addition to formal listing under FESA and CESA, plant and wildlife species receive additional consideration during the CEQA process. Species that may be considered for review are included on a list of “Species of Special Concern” developed by the CDFG. CDFG tracks species in California whose numbers, reproductive success, or habitat may be threatened.

Natural Community Conservation Planning Act

The Natural Communities Conservation Planning Act (NCCP) program is an unprecedented effort by the State of California, as well as numerous private and public partners that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. The program, which began in 1991 under the California Natural Community Conservation Planning Act, is broader in its orientation and objectives than CESA and ESA; these laws are designed to identify and protect individual species that are already listed as threatened or endangered. The primary objective of the NCCP program is to conserve natural communities at the ecosystem scale while accommodating compatible land use (CDFG, 2003).

In 1991, Yolo County and its member cities began the process of developing a Habitat Conservation Plan (HCP) to obtain an incidental take permit under §10(a) (1) (B) of ESA. In 2001, the participating jurisdictions agreed with a request from the CDFG to extend the planning process so that the HCP could be rewritten as an NCCP.

In 2002, Yolo County was awarded USFWS Section 6 funding to complete the NCCP. However, at this time, when and exactly how much funding will actually be available for this effort is unclear. Yolo County is currently seeking additional funding to update the biological data, rewrite the HCP into an NCCP document, and develop an EIR and EIS. Currently, the date of the NCCP’s completion is unknown (EDAW, 2003).

Local

Draft Yolo County Habitat Conservation Plan

The Draft Yolo County Habitat Conservation Plan (HCP) addresses impacts resulting from 11,672 acres of development within a 403,052-acre plan area in eastern Yolo County. The Draft Yolo County Habitat Conservation Plan is under development to comply with the requirements of the federal Endangered Species Act (ESA) of 1973, as amended, and the California Endangered Species Act (CESA). Specifically, the Draft HCP is designed to mitigate for the “take” of threatened and endangered species as a result of urban development. The Draft HCP will also establish a long-range strategy or framework for the conservation and enhancement of the habitats of the Plan’s 26 covered species. The Draft HCP has not yet been adopted; however, a 2001 draft is currently out for review.

City of Davis General Plan

In addition to federal and state regulations, the City of Davis General Plan (May 2001) identifies the following goals, objectives, and policies to provide further protection to biological resources within the City's limits:

Habitat and Natural Areas

- | | |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Goal HAB 1 | Identify, protect, restore, enhance, and create natural habitats. Protect and improve biodiversity consistent with the natural biodiversity of the region. |
| Policy HAB 1.1 | Protect existing natural habitat areas, including designated Natural Habitat Areas. |
| Policy HAB 1.2 | Enhance and restore natural areas and create new wildlife habitat areas. |
| Policy HAB 1.3 | Commit adequate City resources and staff time so as to protect habitat and other natural resources. |
| Goal HAB 2 | Increase public awareness of habitat, wildlife, and sensitive species. |
| Policy HAB 2.1 | Develop environmental educational programs and public access areas and programs to allow viewing of wildlife and habitat through controlled interactions of people with natural areas. |

Other Statutes, Codes, and Policies Affording Limited Species Protection

California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (Tibor, 2001). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. The following identifies the definitions of the CNPS listings:

- | | |
|----------|------------------------------------------------------------------------------------|
| List 1A: | Plants believed extinct. |
| List 1B: | Plants rare, threatened, or endangered in California and elsewhere. |
| List 2: | Plants rare, threatened, or endangered in California, but more numerous elsewhere. |
| List 3: | Plants about which we need more information - a review list. |
| List 4: | Plants of limited distribution - a watch list. |

IMPACTS AND MITIGATION MEASURES

Standards of Significance

For the purposes of this EIR, impacts are considered potentially significant if implementation of the Proposed Project would do any one or more of the following:

- Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory (CEQA Guidelines Section 15065(a)).
- Adversely affect, either directly or through habitat modification, any endangered, threatened or rare species, as listed in Title 14 of the California Code of Regulations (Sections 670.5) or in Title 50, Code of Regulations (Sections 17.11 or 17.12) or their habitats (including but not limited to plants, fish, insects, animals, and birds);
- Have a substantial adverse impact, either directly or through habitat modification, on any species identified as a candidate, sensitive or special-status species in local or regional plans, policies, or regulations or by the CDFG or USFWS, including CNPS plants listed as 1B;
- Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulation or by the CDFG or USFWS;
- Allow development that would be inconsistent with the City's General Plan;
- Allow development that would be inconsistent with other City plans, policies, or ordinances;
- Adversely affect federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means;
- Have a substantial adverse effect on significant ecological resources including:
 - Wetland areas including vernal pools;
 - Large areas of non-fragmented natural communities that support endangered, threatened or rare species;
 - Wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian routes, and known concentration areas of waterfowl within the Pacific Flyway;
- Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites;

- Conflict with any local or regional policies or ordinances designed to protect or enhance biological resources, such as a tree preservation policy or ordinance;
- Substantially fragment, eliminate or otherwise disrupt foraging areas, access to food sources, range and/or movement;
- Disrupt critical time periods (i.e., nesting and breeding) for fish and other wildlife species; or,
- Conflict with local, state, or federal resource conservation plans, goals, or regulations that would result in a physical impact on the environment.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish or result in the loss of an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important, but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of a defined important resource on a population-wide or region-wide basis (CEQA Guidelines – Article 5, Section 15065).

Methods of Analysis

Sources of information used for this section include the results of biological studies associated with previous development applications for the property. Additionally, this section includes the results from Foothill Associates' independent biological studies, as well as local, state, and federal resource agencies. Nomenclature for biological communities was based on *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, Jr., 1988) with additional information provided by *A Manual of California Vegetation* (Sawyer and Keeler-Wolf, 1995).

Documents pertaining to the biological resources of the site that were reviewed by Foothill Associates include the following:

- California Department of Fish and Game (CDFG). California Natural Diversity Data Base (CNDDDB) (query for U.S. Geological Survey Davis, Clarksburg, Woodland, Grays Bend, Taylor Monument, Merritt, Sacramento West, Dixon, and Saxon 7.5-minute quadrangles). Sacramento, CA. October 2004.
- City of Davis General Plan. 2001. Section VII: Community Safety. Chapter 19: Hazards. May 2001.
- City of Davis General Plan. 2001. Section VI: Community Resources Conservation. Chapter 14: Habitat and Natural Areas. May 2001.
- EDAW, 2003. Preliminary Delineation of Waters of the United States for the Covell Village Project.
- U.S. Fish and Wildlife. 2004. Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Davis, Clarksburg, Woodland,

Grays Bend, Taylor Monument, Merritt, Sacramento West, Dixon, and Saxon California USGS 7.5-minute series topographic quadrangles: October 2004.

- Yolo County General Plan. Yolo County Planning Commission. July 17, 1983.

Foothill Associates' biologists conducted field surveys on the site on October 10, 27, and 28 of 2003 (see Figure 4.8-1). The field surveys included general plant and wildlife surveys, wetland delineation and habitat assessment, a focused special-status plant survey, and an arborist survey. Special attention was given to those areas on the site with the potential to support special-status plant and wildlife species and sensitive habitats, including wetlands. Recent aerial photography (2003) was examined to identify biological resources and map biological communities in conjunction with field surveys.

Foothill Associates' International Society of Arboriculture (ISA) certified arborists conducted tree surveys on January 6-8 and 13, 2004. The site was systematically surveyed on foot to ensure total search coverage. All existing trees were closely examined to determine their species type and diameter at breast height (DBH). All of the inventoried trees were numbered in the field with an aluminum tag, which corresponds to a tree inventory list and location map included in the arborist's report.

Project Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the Covell Village proposed project. Because the project incorporates open space, but would alter existing on-site natural resources, this impact discussion reflects full build-out of the project.

Mitigation Incorporated into the Proposed Project

The proposed project includes a number of elements that are designed to enhance wildlife habitat on the project site and reduce impacts on the existing biological resources. The proposed project involves the expansion of the existing Channel "A" into a 200 by 300-foot wide habitat corridor with bicycle access to and from existing trails in surrounding neighborhoods. Native landscaping and carefully designed grading would enable the area to remain integrated with the Covell Village plan.

Another natural habitat area proposed to be located on the Covell Village project site is a large wetland habitat, which would be located in the northwestern corner of the Covell Village site. As part of the proposed project, this area would be restored in order to function as a large riparian area and stormwater detention pond. The pond area and surrounding habitat encompass approximately 34.8 acres. Similar to the nearby Northstar Pond, the pond/habitat area would include islands, watercourses, and plantings. The area would also include paths, observation points, and interpretive signs. At times of high water flow in the Covell Drain, excess runoff would flow into the Habitat Pond. Upon exiting the habitat pond, water would flow back into the Covell Drain, and ultimately into Channel "A."

Impacts and Mitigation Measures

4.8-1 Elimination of the depression seasonal wetlands on-site, which serve as habitat for brittlescale, San Joaquin saltbush, heartscale, palmate-bracted bird's beak, and Heckard's pepper grass.

Proposed Project

As previously discussed, Brittlescale and San Joaquin saltbush are known to occur with the seasonal wetlands south of Channel "A." Additionally, suitable habitat for heartscale, palmate-bracted bird's beak, and Heckard's pepper-grass occurs on-site. The Proposed Project involves widening Channel "A," constructing an off-street pedestrian path, and developing the entire northwestern most portion of the site into a habitat pond and hospice. Implementation of the Proposed Project would directly impact the location of the brittlescale and San Joaquin saltbush populations and result in the loss of suitable habitat for heartscale, palmate-bracted bird's beak, Heckard's pepper-grass. As a result, loss of this habitat is considered a *significant* impact.

High Density Alternative

Although the development intensity would be greater under the High Density Alternative, the same 422-acre area would be impacted as under the Proposed Project. Because the Alternative, like the Proposed Project, would result in the loss of important seasonal wetland habitat, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following mitigation measures would reduce adverse effects to brittlescale, San Joaquin saltbush, palmate-bracted bird's beak, and heartscale to a *less-than-significant* level.

The following measure is identified for the Proposed Project and the High Density Alternative.

- 4.8-1 *Prior to the issuance of grading permits, the project applicant shall retain a botanist that has experience in identifying rare plants and is CDFG approved to conduct a survey for brittlescale, San Joaquin saltbush, palmate-bracted bird's beak, Heckard's pepper-grass, and heartscale. To properly assess the size and location of the plant populations, the seasonal wetlands and areas of known occurrences shall remain undisturbed for at least one growing season. In addition, the survey shall be conducted at the appropriate time of year (see Table 4.8-2) when the species are most likely to be detected. All special-status plant populations will be described and mapped. The results of the survey shall be submitted to the Community Development Department. If feasible, special-status plant populations shall be avoided and protected*

using methods developed through consultation with the CNPS and CDFG. Feasibility of avoidance shall be determined by the City at the time of tentative map approval. If special-status plant populations observed during the focused plant survey cannot be avoided, land supporting known populations of the species impacted shall be purchased by the applicant. If no land supporting the species can be located, the populations within the project site must be preserved. At a minimum, offsite mitigation shall occur at a 1:1 ratio (one plant preserved for each plant impacted). CNPS and CDFG shall be consulted to evaluate the suitability for transplanting impacted species to suitable habitats within the established offsite preserve. A detailed preservation management plan shall be prepared only for the special-status plant species found during the focused survey that includes the species found and the habitat type. Preservation management strategies shall be developed in consultation with the CNPS and CDFG.

4.8-2 Removal of riparian vegetation and potential loss of local wildlife movement and migration corridors.

Proposed Project

Approximately 4.7 acres of riparian vegetation is associated with the Channel “A” and Covell Drain on-site (see Figure 4.8-4). Riparian habitats provide breeding, foraging, and thermal cover, as well as migration corridors, for a high diversity of wildlife. Due to the continued decline of riparian vegetation and corridors for wildlife movements in the region and throughout the state, the loss of these habitats is of concern to CDFG, CNPS and the City of Davis (General Plan Policy 1.1e, 1.1k). However, because the overall size of the riparian corridor would increase due to restoration plans to link the habitat to adjacent corridors, it is likely wildlife species would return following construction, and continue to utilize this corridor for movements and migration. Therefore, because the Proposed Project plans to widen and restore the on-site riparian corridor, removal of riparian vegetation and effects on local wildlife migration corridors are anticipated to be *less-than-significant*.

Figure 4.8-4-Impacts to Biological Communities

IMPACTS TO BIOLOGICAL COMMUNITIES
 FIGURE 4.8-4



High Density Alternative

The High Density Alternative involves the construction of a 1,990-unit mixed-use project on the same 422-acre site as the Proposed Project. Because the amount of acreage utilized for the High Density Alternative would be equivalent to that of the Proposed Project, the Alternative would not decrease the restoration plans for the riparian corridor, increase the removal of riparian vegetation, or affect local wildlife migration corridors beyond that of the Proposed Project. Consequently, the removal of riparian vegetation and effects on local wildlife migration corridors associated with the implementation of the High Density Alternative would be considered *less-than-significant*.

Mitigation Measure(s)

None Required.

4.8-3 Elimination of depressional seasonal wetlands that cover approximately 5.59 acres and provide marginally suitable habitat for midvalley fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp.

Proposed Project

The proposed project includes widening of Channel “A” and construction of an off-street pedestrian path, which would occur in the location of the seasonal wetlands (see Figure 4.8-4). These wetlands provide habitat for midvalley fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Because the seasonal wetlands are considered potential vernal pool crustacean habitat and the loss of special-status vernal pool species habitat is of concern to USFWS and the City of Davis (General Plan Policy 1.1i, 1.1j, 1.1k), loss of this habitat would be considered *significant*.

High Density Alternative

The High Density Alternative involves the construction of a 1,990-unit mixed-use project on the same 422-acre site as the Proposed Project. Because the Alternative, like the Proposed Project, would result in the loss of depressional seasonal wetlands that provide habitat for vernal pool crustaceans, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following mitigation measures would reduce adverse effects to midvalley fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp to a *less-than-significant* level.

The following measures are identified for the Proposed Project and the High Density Alternative.

- 4.8-3(a) *Project design shall avoid vernal pool habitat if feasible. Feasibility shall be determined by the City at the time of tentative map approval.*

If habitat cannot be avoided then, prior to the issuance of grading permits, in order to document the presence or absence and distribution of vernal crustaceans within the project site, vernal pool crustacean surveys shall be conducted at the appropriate time of year and in accordance with the USFWS. If the project applicant assumes the presence of vernal pool crustaceans or if vernal pool crustaceans are found within the seasonal wetlands on-site, a USFWS approved buffer shall be established around the perimeter of the seasonal wetlands on-site. Suitable habitat and buffer areas shall be clearly identified in the field by staking or flagging, and no project activity shall occur within marked areas.

Or,

- 4.8-3(b) *If complete avoidance of the above mentioned special-status vernal pool crustacean habitat is not feasible as defined in Chapter 1313 of the CEQA, the following shall apply. Feasibility shall be determined by the City at the time of tentative map approval. During Corps consultation (per Mitigation Measure 4.8-12), determination shall be made as to whether an incidental take permit shall be required and/or appropriate mitigation plan be developed and approved by USFWS. If determined necessary, the mitigation plan may include, but may not necessarily be limited to, one or more of the following take minimization measures: fencing seasonal wetlands by installation of hay bale erosion control barriers, and hydro-seeding of disturbed areas. Unavoidable impacts shall be mitigated through a combination of creation and preservation of vernal pool crustacean habitat. Offsite mitigation in a USFWS-approved mitigation banks such as Dolan Ranch Conservation Bank requires a ratio of 2:1 preservation acreage, plus a ratio of 1:1 creation acreage, for a total of 3 mitigation acres to 1 impacted acre. On-site mitigation ratios are slightly higher, requiring 3:1 for preservation and 2:1 for creation.*

4.8-4 Loss of habitat for, and removal of, valley elderberry longhorn beetle.

Proposed Project

At least two elderberry shrubs are present on the project site. Based on the location of the shrubs and the proposed development plans, implementation of the Proposed Project would require the removal of the shrubs. Evidence does not exist that either shrub is occupied by the valley elderberry longhorn beetle, but

because the possibility cannot be dismissed, loss of elderberry shrubs is considered *significant*.

High Density Alternative

The High Density Alternative involves the construction of a 1,990-unit mixed-use project on the same 422-acre site as the Proposed Project. Because the Alternative, like the Proposed Project, could result in the loss of habitat for and the removal of the valley elderberry longhorn beetle, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following mitigation measures would reduce adverse effects to valley elderberry longhorn beetle and their habitat to a *less-than-significant* level.

The following measures are identified for the Proposed Project and the High Density Alternative.

4.8-4(a) *If feasible, elderberry shrubs on the project site shall be protected and incorporated into the landscape. Feasibility shall be determined by the City at the time of tentative map approval. Prior to the commencement of construction activities, the applicant shall place protective fencing around the elderberry shrub creating a 100-foot buffer protection zone. All construction activities and equipment shall remain outside of the 100-foot buffer protection zone throughout the construction period. Construction activities shall be monitored by a qualified biologist.*

4.8-4(b) *If avoidance of the buffer protection zone is not feasible, the applicant shall consult with the USFWS for the appropriate action prior to encroaching upon the 100-foot buffer. If the elderberry shrub must be removed, an incidental take permit may be required by USFWS for take of valley elderberry longhorn beetle. During this consultation, an appropriate mitigation plan shall be developed and provided to the USFWS for approval.*

4.8-5 Impacts to giant garter snake.

Proposed Project

As stated previously, the project site has minimal upland habitat, which could support the giant garter snake. Temporary impacts are defined by the USFWS as project activities that temporarily remove essential habitat components, but can be restored to pre-project conditions of equal or greater habitat values. The site plan includes the widening of Channel "A" and the diversion of water flow from Channel "A" through a newly constructed drainageway and into a newly constructed natural habitat pond. This would increase the amount of aquatic habitat.

Permanent impacts are defined by the USFWS as project activities that result in loss of habitat and/or permanently remove essential habitat components. The Proposed Project includes the construction of an off-street pedestrian path, which could result in permanent loss to giant garter snake upland habitat. Therefore, although minimal upland habitat exists on-site due to agricultural activities such as discing and planting of crops, the possibility exists that the project would have *significant* temporary and permanent impacts to the loss of aquatic garter snake habitat and subsequently, giant garter snake.

High Density Alternative

The High Density Alternative involves the construction of a 1,990-unit mixed-use project on the same 422-acre site as the Proposed Project. Because the Alternative, like the Proposed Project, would result in temporary loss of aquatic habitat on-site and could result in permanent loss of giant garter snake upland habitat, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following USFWS measures would reduce adverse effects to the giant garter snake to a *less-than-significant* level.

The following measures are identified for the Proposed Project and the High Density Alternative.

4.8-5(a) *Prior to the issuance of grading permits, focused surveys approved by the USFWS shall be conducted for GGS. These surveys shall be conducted by a qualified biologist during the appropriate time of year for optimal detection. Results of the surveys will be provided to the Corps and USFWS as part of the Corps Section 404 permit application and, if the Corps determines that the project may affect the GGS, formal consultation and appropriate mitigation measures approved in consultation with the USFWS will be required. Alternatively, if this species is not found to occur on the project site, or the Corps determines that the project is not likely to adversely affect the GGS, no further mitigation is required.*

4.8-5(b) *If the GGS is found to occur in the project site, a Mitigation Plan shall be prepared and approved by USFWS that includes measures to avoid take of giant garter snake during construction activities. At a minimum, the following mitigation measures shall be incorporated into the mitigation plan:*

- *Construction activities within 200 feet from the banks of giant garter snake aquatic habitat will be avoided where possible.*

Confine movement of heavy equipment to existing roadways to minimize habitat disturbance.

- *Construction activity within habitat shall be conducted between May 1 and October 1 to minimize impacts to the GGS. For any activities needed between October 2 and April 30, contact the USFWS office to determine if additional measures are necessary to minimize and avoid take.*
- *Clearing shall be confined to the minimum area necessary to facilitate construction. Avoidance areas shall be flagged and marked as "Environmentally Sensitive Areas." These areas shall be avoided by construction personnel.*
- *Construction personnel shall receive USFWS-approved worker environmental awareness training. This training shall instruct workers to recognize GGS and its habitat.*
- *24 hours prior to construction activities, the project site shall be surveyed for GGS. Survey of the project site shall be repeated if a lapse in construction activity of two weeks or greater has occurred. If GGS is encountered during construction, activities shall not begin until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed. Any sightings and any incidental take will be reported immediately to the USFWS at (916) 414-6600.*
- *Any dewatered habitat shall remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.*
- *All construction debris and stockpiled materials shall be removed following construction.*
- *The construction area shall be regraded to preexisting contours, or a contour that would improve restoration potential of the site.*

4.8-5(c) *After construction is completed, disturbed areas within GGS habitat shall be revegetated. The goal of the revegetation is to attempt to restore conditions similar to that of adjacent or nearby habitats.*

Recommended plantings consist of the following: a) wetland emergents, b) low-growing cover on or adjacent to banks, and c) upland plantings/hydroseeding mix to encourage use by other wildlife. Riparian plantings are not appropriate because shading may result in lack of basking sites. Native plantings are encouraged except where non-natives will provide additional values to wildlife habitat and will not become invasive in native

communities. Cuttings, plantings, plugs or seeds from local sources should be used whenever possible.

- *Construction personnel completing site preparation and grading operations shall receive USFWS-approved environmental awareness training. This training instructs workers on how to identify the giant garter snake and what to do if a snake is encountered. This program shall be performed on-site by a qualified biological monitor.*

4.8-6 Impacts to northwestern pond turtle.

Proposed Project

The Proposed Project includes the construction of an off-street pedestrian path, which could potentially result in permanent loss to upland habitat surrounding Channel “A” and the Covell Drain. In addition, however, Channel “A” and Covell Drain are considered suitable aquatic habitat for northwestern pond turtle. Because northwestern pond turtle is a species of concern to CDFG and the City of Davis (General Plan Policy 1.1e, 1.1i, 1.1j, 1.1k), this impact would be considered significant. Because the possibility exists that upland and aquatic habitat associated with the project could support northwestern pond turtle, the project would have a *significant* to northwestern pond turtle.

High Density Alternative

The High Density Alternative involves the construction of a 1,990-unit mixed-use project on the same 422-acre site as the Proposed Project. Because the Alternative, like the Proposed Project, would result in temporary loss of aquatic habitat on-site and could result in permanent loss of northwestern pond turtle nesting habitat, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following mitigation measures would reduce adverse effects to northwestern pond turtle to a *less-than-significant* level.

The following measures are identified for the Proposed Project and the High Density Alternative.

4.8-6(a) Project design shall avoid construction activities within waterways on site. Feasibility of avoiding waterways during construction shall be determined by the City at the time of tentative map approval.

If avoidance is not feasible then a pre-construction survey shall be conducted no more than 24 hours prior to initial construction activities (clearing, grading) in Channel “A” and Covell Drain by

a qualified biologist. The biologist shall relocate any northwestern pond turtle outside of the impact area. The results of the survey shall be submitted for the review of the Community Development Department and CDFG.

4.8-6(b) *A qualified biological monitor shall be present when vegetation is removed from Channel "A" and Covell Drain. If northwest pond turtle is observed then CDFG shall be contacted for the appropriate avoidance or relocation measures.*

4.8-7 Temporary loss of aquatic habitat on-site and the potentially permanent loss of western spadefoot toad aestivation habitat.

Proposed Project

The Proposed Project includes the construction of an off-street pedestrian path, which could potentially result in permanent loss to upland habitat surrounding the perennial marsh and depression seasonal wetlands. Habitat protection is the primary strategy for conserving the western spadefoot toad. To complete its life cycle, the species needs appropriate aquatic habitats as well as adjacent upland habitats. Because western spadefoot toad is a species of concern to the CDFG, USFWS, and the City of Davis (General Plan Policy 1.1e, 1.1i, 1.1j, 1.1k), the loss of potential western spadefoot toad breeding habitat would be considered *significant*.

High Density Alternative

The High Density Alternative would be developed on the same site as the Proposed Project and would require the same acreage. Because the Alternative, like the Proposed Project, would result in temporary loss of aquatic habitat on-site and could result in permanent loss of western spadefoot toad breeding habitat, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following mitigation measures would reduce adverse effects to western spadefoot toad and their habitat to a *less-than-significant* level.

The following measure is identified for the Proposed Project and the High Density Alternative.

4.8-7 *Applicant shall re-locate off-street pedestrian path to avoid upland and wetland habitat. Feasibility of upland and wetland habitat avoidance shall be determined by the City at the time of tentative map approval.*

If avoidance is not feasible then, prior to the issuance of grading permits, a qualified biologist will conduct a nocturnal USFWS

protocol-level survey during the winter months, preferably between January and March. If western spadefoot toad is detected on-site, mitigation measures outlined for vernal pool crustaceans (MM 4.8-3 a,b) and Sensitive Habitats (MM 4.8-12 a,c) will adequately minimize and avoid adverse affects to western spadefoot toad. The results of the survey shall be submitted for the review and approval of the City of Davis and CDFG/USFWS. If western spadefoot toad is not found on-site, no further mitigation is required.

4.8-8 Loss of Swainson's hawk nesting habitat.

Proposed Project

As previously discussed, Swainson's hawk nests are located within a five-mile radius of the site, and one occurrence is known on-site within the large valley oak tree located in the central portion of the site. The project site plan would include the preservation of the large valley oak tree where Swainson's hawks have been recorded to nest. However, implementation of the proposed project could result in the loss of other potentially suitable nesting habitat, which would be considered *significant*.

High Density Alternative

The High Density Alternative would be developed on the same site as the Proposed Project and would require the same acreage. Because the Alternative, like the Proposed Project, would result in the loss of potentially suitable known nesting habitat for Swainson's hawk, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following mitigation measures identified for the Proposed Project and the High Density Alternative would reduce adverse effects to Swainson's hawk to a *less-than-significant* level.

Because project construction is likely to be conducted during the Swainson's hawk breeding season (February 1 to October 30), the following measures shall be implemented.

- 4.8-8(a) *If avoidance of project activity during the breeding season is not feasible, CDFG-approved pre-construction surveys shall be conducted as a condition of grading permit issuance by a qualified biologist to identify active nests on-site and within 0.25 miles of the project site. Feasibility shall be determined by the City at the time of tentative map approval. The survey shall be conducted no less than 14 days and no more than 30 days before the beginning of construction between the months of April to early September. If no active nests are found during the focused survey, no further mitigation shall be required.*

4.8-8(b) *Because the on-site nest is known to be active and others are likely, potential adverse effects to this species shall be avoided by establishment of CDFG approved buffers. No construction activities shall take place within 0.25 mile of the nest until the young have fledged. Weekly monitoring reports summarizing nest activities shall be submitted to the City of Davis and CDFG until the young have fledged and the nest is determined to be inactive. Trees containing nests that must be removed as a result of project implementation shall be removed during the non-breeding season (late September to March) and in accordance with the CDFG “Staff Report Regarding Mitigation for Impacts to Swainson’s Hawks in the Central Valley of California”, November 8, 1994.*

4.8-9 Loss of 422 acres of suitable Swainson’s hawk foraging habitat.

Proposed Project

As previously discussed, Swainson’s hawk nests are located within a five-mile radius of the site, and one occurrence is known on-site. In addition, white-tailed kite and other raptors were observed or are known to use the site for foraging. Implementation of the Proposed Project would result in loss of Swainson’s hawk foraging habitat and would be considered *significant*.

High Density Alternative

The High Density Alternative would be developed on the same site as the Proposed Project and would require the same acreage. Because the Alternative, like the Proposed Project, would result in the loss of 422 acres of suitable foraging habitat for Swainson’s hawk, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following mitigation measures would reduce adverse effects to Swainson’s hawk to a *less-than-significant* level.

The following measure is identified for the Proposed Project and the High Density Alternative.

4.8-9 *An “Agreement Regarding Mitigation for Impacts to Swainson’s Hawk Foraging Habitat in Yolo County” was executed in August, 2002, between the Cities of Davis, West Sacramento, Winters, and Woodland, the County of Yolo, and the CDFG. The agreement currently requires 1.0 acre of habitat management lands as mitigation for each 1.0 acre of Swainson’s hawk foraging habitat lost. Prior to issuance of grading permits, the applicant shall pay \$4,900/acre per the Agreement to Yolo County HCP/NCCP Joint*

Powers Agency for 422 acres of potential foraging habitat affected.

4.8-10 Loss of western burrowing owl nesting and foraging habitat.

Proposed Project

As previously discussed, suitable nesting habitat for western burrowing owl occurs on-site. Implementation of the Proposed Project would result in the loss of potential nests sites and could displace nesting owls if present during construction. Consequently, this impact would be considered *significant*.

High Density Alternative

The High Density Alternative would be developed on the same site as the Proposed Project and would require the same acreage. Because the Alternative, like the Proposed Project, would result in the loss of burrowing owl nesting and foraging habitat, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following mitigation measures would reduce adverse effects to western burrowing owl to a *less-than-significant* level.

The following measures are identified for the Proposed Project and the High Density Alternative.

4.8-10(a) Prior to the issuance of grading permit a pre-construction survey shall be conducted to locate active burrowing owl burrows. This preconstruction survey shall be conducted by a qualified biologist or ornithologist during both the wintering and nesting season, unless the species is detected on the first survey. If possible, the winter survey shall be conducted between December 1 and January 31 (when wintering owls are most likely to be present) and the nesting season survey should be conducted between April 15 and July 15 (the peak of breeding season). Surveys conducted from two hours before sunset to one hour after, or from one hour before to two hours after sunrise, are preferable. The survey techniques shall be consistent with the Staff Report survey protocol and include a 250-foot-wide buffer zone surrounding the project area. Repeat surveys should also be conducted not more than 30 days prior to initial ground disturbance to inspect for re-occupation and the need for additional protection measures.

4.8-10(b) If no burrowing owls are detected during preconstruction surveys, then no further mitigation is required. If active burrowing owl burrows are identified, project activities shall not disturb the burrow during the nesting season (February 1–August 31) or until

a qualified biologist has determined that the young have fledged or the burrow has been abandoned. A no disturbance buffer zone of 160-feet is required to be established around each burrow with an active nest until the young have fledged the burrow as determined by a qualified biologist.

4.8-10(c) *If destruction of the occupied burrow is unavoidable during the non-breeding season, September 1– January 31, passive relocation of the burrowing owls may be conducted. Feasibility of avoiding destruction of burrows shall be determined by the City at the time of tentative map approval. Passive relocation involves installing a one-way door at the burrow entrance, encouraging owls to move from the occupied burrow. No permit is required to conduct passive relocation; however, this process shall be conducted by a qualified biologist and in accordance with CDFG mitigation measures. In addition, to offset the loss of foraging habitat on the project site, a minimum of 6.5 acres of foraging habitat (calculated on a 300 ft foraging radius around the burrow) per pair or unpaired resident bird, shall be acquired and permanently protected at a location acceptable to the CDFG.*

4.8-10(d) *If burrowing owls are identified on the project site, the City of Davis must receive copies of the Mitigation Agreement approved by the CDFG, prior to the issuance of grading permits for the project.*

4.8-11 Loss of nesting and foraging habitat for raptors and migratory birds.

Proposed Project

As previously discussed, suitable nesting and foraging habitat for white-tailed kite, loggerhead shrike, mountain plover, Nuttall's woodpecker, and tricolored blackbird occurs within the riparian vegetation along Channel "A" and the valley oak trees on the site. In addition, the site is situated within the Pacific Flyway, a major migration route for waterfowl and other birds in North America (City of Davis General Plan, 2001). Implementation of the Proposed Project would result in the loss of nesting and foraging habitat for raptors and migratory birds. This impact would be considered *significant*.

High Density Alternative

The High Density Alternative would be developed on the same site as the Proposed Project and would require the same acreage. Because the Alternative, like the Proposed Project, would result in the loss of nesting and foraging habitat for raptors and migratory birds, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following mitigation measures would reduce adverse effects to raptors and migratory birds to a *less-than-significant* level.

The following measure is identified for the Proposed Project and the High Density Alternative.

4.8-11(a) *Active raptor nests are protected by the California Fish and Game code Section 3503.5 as well as the MBTA. For this reason, if construction is expected to occur during the nesting season (February through August), a pre-construction raptor survey shall be conducted to determine if active raptor nests are present on the site. The survey shall be conducted by a qualified biologist no more than 30 days prior to the onset of construction and the results of the survey shall be submitted to the City of Davis Community Development Department for review. If active nests are found, construction activities shall not occur within 500 feet of the nests until the young have fledged or a qualified biologist has determined that a nest is no longer active. If construction activities are proposed to occur during non-breeding season (August-January), a survey is not required and no further studies are necessary.*

4.8-11(b) *Implementation of MM 4.8-3(a-b), MM 4.8-9, and MM 4.8-12(a-c) will adequately mitigate for the loss of foraging habitat.*

4.8-12 Removal of sensitive habitat associated with Channel “A” and Covell Drain, as well as cropland habitat and Jurisdictional Waters of the U.S.

Proposed Project

Impacts would include removal of approximately 4.7 acres of woody riparian vegetation and 0.34 acres of perennial marsh that provide habitat for a variety of native wildlife and plant species (see Figure 4.8-4). Approximately 4.22 acres of potentially Jurisdictional Waters of the U.S. would be filled or otherwise altered during reconfiguration of Channel “A” and Covell Drain and associated irrigation ditches. The project would also result in the removal of approximately 5.60 acres of seasonal wetlands (see Figure 4.8-4). The Proposed Project includes expansion and enhancement of the drainage channels, and creation of additional wetlands that would serve as wildlife habitat. Even though an increase in the overall amount of sensitive habitat is anticipated, this impact would be considered *significant* because existing habitat would be removed and it would take a number of years for the new habitat to mature into functional wildlife habitat.

High Density Alternative

The High Density Alternative would be developed on the same site as the Proposed Project and would require the same acreage. Because the Alternative, like the Proposed Project, would require removal of sensitive habitat associates with Channel “A” and Covell Drain as well as cropland habitat, the impacts associated with the High Density Alternative would be considered *significant*.

Mitigation Measure(s)

The following mitigation measures would reduce adverse effects to sensitive habitats to a *less-than-significant* level.

The following measures are identified for the Proposed Project and the High Density Alternative.

- 4.8-12(a) *Prior to the issuance of grading permits, authorization for fill of Jurisdictional Waters of the U.S., including wetlands, shall be secured from the Army Corps of Engineers through the Section 404 permitting process. It is anticipated that approximately 5.60 acres of depressional seasonal wetland, 0.34 acres of perennial marsh, 3.05 acres of perennial drainage (Channel “A” and Covell Drain), and 1.17 acres of associated irrigation ditch and canals would be impacted. An individual permit under Section 404 of the Clean Water Act would be required for impacts to Waters of the U.S. including wetlands greater than 0.5 acres. As part of the individual permit, National Environmental Protection Act (NEPA) compliance and a Section 404(b) (1) Alternatives Analysis must be completed. In addition, Regional Water Quality Control Board certification is required pursuant to Section 401 of the Clean Water Act to obtain an individual permit.*
- 4.8-12(b) *Prior to the issuance of grading permits, a CDFG Streambed Alteration agreement shall be obtained from CDFG for alteration of and removal of 4.70 acres riparian vegetation associated with Channel “A” and Covell Drain.*
- 4.8-12(c) *The acreage of jurisdictional habitat removed shall be replaced on a “no-net-loss” basis in accordance with Corps and CDFG regulations. Creation of the wetland and riparian habitat included as part of the project description is anticipated to be adequate to satisfy agency requirements. A conceptual on-site wetlands mitigation plan, including an agreed-upon replacement ratio of wetlands with the Corps. The mitigation plan shall quantify the total jurisdictional acreage lost, describe creation/replacement ratio for acres filled, annual success criteria, potential mitigation-sites, and monitoring and maintenance requirements. The plan shall be prepared by a qualified biologist pursuant to, and through*

consultation with, the Corps. The plan may include funding mechanisms for future maintenance of the wetland and riparian habitat, which may include an endowment or other funding from the project applicant.

4.8-13 Removal of protected trees.

Proposed Project

The City of Davis General Plan specifies guidelines for the preservation of as many valuable trees in Davis as possible to sustain aesthetic and physical benefits. The City also encourages the inclusion of existing trees into development design and planning. Some of the common factors associated with development practices that stress and shorten the lives of oaks are root wounds caused by excavation equipment, root death caused by oxygen deficiency in compacted or waterlogged soil, and root death caused by soil changes around new structures (Sinclair *et. al.*, 1987). Trees initially stressed by these factors become abnormally susceptible to further damage or killing by opportunistic insects, fungi, and other plant pathogens such as *Phytophthora ramorumpat*, which causes sudden oak death (Sinclair *et. al.*, 1987). The proposed project would retain the existing four large oak trees on the project site, including the familiar isolated snag near the center of the project area. Additionally, the planting of new trees is anticipated; however, this impact would be considered **significant** because existing trees would be removed and it would take a number of years for the new trees to mature into functional wildlife habitat.

High Density Alternative

The High Density Alternative would be developed on the same site as the Proposed Project and would require the same acreage. Because the Alternative, like the Proposed Project, could result in the removal of protected trees, the impacts associated with the High Density Alternative would be considered **significant**.

Mitigation Measure(s)

The following mitigation measures would reduce adverse effects to protected trees to a *less-than-significant* level.

The following measures are identified for the Proposed Project and the High Density Alternative.

- 4.8-13(a) *Prior to the submittal of tentative maps, a sheet shall be included with the maps which indicates all of the trees identified, and marks which of those trees are to be removed. The tree report with corresponding descriptions of each tree by species, health, etc. should also be included. In addition, notes shall be included on the maps, which clearly state protection procedures for trees that are to be preserved. Any tree care practices, such as cutting of*

roots, pruning the top, etc., shall be adequately described and shall have the approval of a representative of the Parks and Community Services Department prior to execution. A penalty clause in event of damage to existing trees shall be replacement tree(s) of equal size in D.B.H. unless specified otherwise by the Parks and Community Services Department.

4.8-13(b) *In conjunction with submittal of tentative map applications, a tree preservation plan, in compliance with Ordinance 37.03.010 in the City of Davis Municipal Code, shall be submitted to the Community Development Department and City arborist for review and approval, which shall ensure the following measures:*

- *Trees shall be fenced prior to construction as specified;*
- *Soil compaction under trees is to be avoided;*
- *The fence shall prevent equipment traffic and storage under the trees and should extend beyond the drip-line;*
- *Excavation within this zone shall be accomplished by hand, and roots ½” and larger shall be preserved;*
- *Proper fertilization and irrigation prior to and during the construction period shall be provided as specified;*
- *New landscaping under existing trees shall be carefully planned to avoid any grade changes and any excess moisture in trunk area. Existing plants which have compatible irrigation requirements and which complement the trees’ color, texture and form are to be saved;*
- *Trenching with drip-line shall be performed only with prior approval of the Park and Community Services Department. Boring is preferred when feasible;*
- *All paving plans and specifications shall clearly prohibit the use of soil sterilants adjacent to preserved trees;*
- *Grade changes greater than one foot within the drip-line shall be avoided, and nothing other than a saw shall be used for root cutting;*

- *The property owner or designated representative has the responsibility of ensuring that all trades/subcontractors and utility companies abide by preservation conditions; and*
- *From the conception of plans, architects, developers, engineers and/or planners shall locate and identify all existing trees on the tentative map and shall make every effort to comply with the City policies for tree preservation.*

A penalty clause in event of damage to existing trees shall be replacement tree(s) of equal size in D.B.H. unless specified otherwise by the Parks and Community Services Department.

Cumulative Impacts and Mitigation Measures

4.8-14 Cumulative loss of biological resources in the City of Davis and the effects of ongoing urbanization in the region.

Proposed Project

The project site consists of various habitat types including cropland, developed/landscaped areas, variety of wetland features (seasonal wetlands, marshes, open water, and riparian corridors). These biological communities provide habitat for endangered, threatened, and special concern plant and animal species. Many of the sensitive habitats and species found in the on-site are not only a concern in the City of Davis, but also regionally throughout Yolo County. Population growth and large amounts of clearing new roads and urban development within the next 20 years will likely be experienced regionally as well. Therefore, the cumulative impact on the environment must consider not only development within the project site, but also those developments occurring in surrounding areas such the City of West Sacramento, City of Winters, the City of Woodland, as well as surrounding counties.

Impacts likely to result from the implementation of the Proposed Project include disturbance of Jurisdictional Waters of the U.S., riparian habitat, habitat for listed invertebrate species, special-status plant species, aquatic amphibians, special-status reptiles, and migratory and listed bird species. While additional impacts may result from the implementation of individual projects within the City of Davis and surrounding areas, mitigation would be required of any discretionary projects impacting natural resources. These impacts would be adequately addressed by the establishment of mitigation requirements such as those recommended in this document. Additionally, an "Agreement Regarding Mitigation for Impacts to Swainson's Hawk Foraging Habitat in Yolo County," was executed in August, 2002, between the Cities of Davis, West Sacramento, Winters, and Woodland. This agreement ensures that an acreage-based mitigation fee is used to create and maintain foraging habitat that is lost to urban

development. This agreement along with the pending Yolo County HCP and the City of Davis General Plan policies and guidelines for preservation of wildlife habitats would ensure that the cumulative impacts would be properly mitigated for by preserving mitigation lands for wildlife and sensitive communities within Yolo County. With these measures in place the Proposed Project would not have substantial adverse effects to the populations of the special-status species and sensitive habitats, and therefore *less-than-significant* cumulative impacts are expected.

High Density Alternative

The High Density Alternative would be developed on the same site as the Proposed Project and would require the same acreage. Because the Alternative, like the Proposed Project, would not result in cumulative impacts related to loss of plant and wildlife habitat as well as other sensitive biological communities with implementation of the above mitigation measures, *less-than-significant* cumulative impacts would be associated with the High Density Alternative.

Mitigation Measure(s)

None required.