

**DRAFT**  
**BIOLOGICAL RESOURCES EVALUATION**

**CRYSTAL BAY**



**LSA**

May 2006

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**BIOLOGICAL RESOURCES EVALUATION**

**CRYSTAL BAY**  
**SAN JOAQUIN COUNTY, CALIFORNIA**

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LSA Project No. AGS438

**LSA**

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## **CHAPTER 1.0 INTRODUCTION**

This report presents the findings of a biological resources evaluation prepared by LSA Associates, Inc. (LSA) for the 173-acre Crystal Bay residential development project site (hereafter referred to as “project site”). This report discusses vegetation communities and associated wildlife, special-status species and potential jurisdictional waters occurring on the project site, and evaluates impacts to these resources from the proposed project.

### **1.1 PROJECT LOCATION**

The project site is located on Bishop Tract (Figures 1 and 2), an agricultural tract in northwest Stockton that extends from Interstate 5 (I-5) on the east to Bishop Slough on the west, and Disappointment and Pixley Slough on the south to Telephone Cut on the north. The project is located to the north and west of the proposed Westlake Villages development, and south of Eight Mile Road. The western project boundary borders Rio Blanco Road and Bishop Cut. Local roadways from the project site will connect with Westlake Villages and ultimately with Spanos Park West (to the east). The project area is comprised entirely of agricultural land (i.e., row crops).

### **1.2 PROPOSED PROJECT**

The project proposes a General Plan Amendment, Rezoning, Master Development Plan, Vesting Tentative Map, and annexation of three parcels comprising the 173 + acre project site. The proposed project consists of residential uses at a variety of densities. The community is anticipated to include approximately 1,360 total units, consisting of four residential product types: traditional single family units; small lot, cluster type development or courtyard units; and high-density residential units. Other features of the proposed project include parks, a lake, levee/open space with a bike and pedestrian trail, and a temporary stormwater detention basin.

Figure 1: Project Location

Figure 2: Project Vicinity

## CHAPTER 2.0 METHODS

### 2.1 LITERATURE SEARCH

Prior to conducting any field work, LSA performed database searches of the California Natural Diversity Database (CNDDDB) (2006), and California Native Plant Society (CNPS) Online Inventory (CNPS 2006), referencing the Bouldin Island, Holt, Isleton, Lockeford, Lodi North, Lodi South, Stockton East, Stockton West, Terminous, Thornton, Waterloo, and Woodward Island quadrangles . LSA also downloaded a U.S. Fish and Wildlife (USFWS) list of special status species, referencing the Terminous quadrangle. The individual lists are contained in Appendix A.

The special status species lists obtained from the CNDDDB, CNPS, and USFWS were reviewed to determine which species could potentially occur within the project area. In addition, the list of covered species in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) was reviewed and incorporated into this analysis. Those species with potential to occur based on habitat requirements were compiled into a cumulative list (Appendix B). The list includes each species' protection status, habitat information, status on the project site, and supporting comments as necessary. Species requiring specific habitat not present in the vicinity of the project (e.g., vernal pools) were eliminated as potentially occurring and are not discussed further. Those species that could potentially occur on the project site are discussed in Sections 5.2 and 5.3.

### 2.2 FIELD SURVEYS

Field surveys are summarized in Table 1, below. During these surveys, all habitat in the project area was inspected to determine if it was suitable to support any special status species. Vegetation in the project area was characterized and mapped, and an inventory was taken of all wildlife and plant species observed. A comprehensive list of species observed on the project site is contained in Appendix C. All potential waters of the U.S. in the project area were delineated in accordance with the 1987 Corps of Engineers Wetland Delineation Manual (Routine Method). The limit of California Department of Fish and Game jurisdiction was also delineated. The delineation report is contained in Appendix D.

**Table 1: Summary of Survey Effort**

<b>Date</b>	<b>Personnel</b>	<b>Task</b>
January 6, 2005	M. Trueblood	Reconnaissance survey
July 19, 2005	J. Bray, M. Trueblood	Wetland delineation
August 18, 2005	C. Meigs, M. Trueblood	Special status plant survey

## **CHAPTER 3.0 SETTING**

### **3.1 GENERAL DESCRIPTION**

The project is located near the eastern edge of the Sacramento/San Joaquin River delta, which is created by the confluence of the Sacramento and San Joaquin Rivers. In addition to these two major rivers, several smaller rivers confluence in the Delta (e.g., Cosumnes and Mokelumne Rivers), and numerous sloughs, channels, and backwater areas also occur. Topography in the Delta is very flat, generally near (i.e., above or below) sea level. Drainages generally flow from east to west. In the vicinity of the project area, the extensive network of canals and sloughs and associated lowland areas of the primary Delta give way to more defined drainages with abrupt transitions to upland areas.

Vast areas of freshwater and brackish marsh and riparian habitats occur along many of the waterways in the Delta. The majority of upland areas within and adjacent to the Delta are in agricultural production or are developed. The predominant natural habitats in the region are limited to the sloughs and undeveloped islands, and include freshwater and brackish marsh, riparian scrub, and riparian forest.

Topography on the project site is mainly flat, sloping slightly from northeast to southwest. The elevation on the project site ranges from approximately 5 to 10 feet below mean sea level.

### **3.2 SOILS**

Two soil types are mapped within the study area according to the Soil Survey of San Joaquin County, California (USDA-SCS 1992). Approximate boundaries of the soil types, based on the Soil Survey, are shown in Figure 3. Characteristics of these soil types are described below.

#### **3.2.1 Kingile Muck, Partially Drained, 0 To 2 Percent Slopes**

This very deep, very poorly drained, nearly level soil occurs on deltas. Permeability is slow and runoff is very slow. Most areas of this soil type are used for irrigated crops. The main limitations of this soil type are subsidence, the high water table, and slow permeability.

#### **3.2.2 Ryde Clay Loam, Partially Drained, 0 To 2 Percent Slopes**

This very deep, very poorly drained, nearly level soil is on flood plains and deltas. Permeability is moderately slow and runoff is very slow. Most areas of this soil type are used for irrigated crops. The main limitations of this soil unit are subsidence and the high water table.

Figure 3: Soils Map

### 3.3 PLANT COMMUNITIES/LAND USES AND ASSOCIATED WILDLIFE

#### 3.3.1 Plant Communities

The study area is a highly altered environment and natural communities have been largely displaced. The property has a long history of agricultural crop production, although there are currently no crops being grown on the site. The vegetation occurring on the site is limited to two plant communities/land uses: ruderal uplands and agricultural lands. Plant communities/land uses are shown in Figure 4.

##### 3.3.1.1 Ruderal Uplands.

Ruderal uplands consist of disturbed upland areas within the project area, including the levee embankment adjacent to the west boundary of the project, and other miscellaneous upland areas adjacent to the ditches. Vegetation is often entirely lacking in these areas or consists of a very low diversity of species adapted to disturbed conditions, including milk thistle (*Silybum marianum*), poison hemlock (*Conium maculatum*), and wild radish (*Raphanus sativus*). Approximately 10.3 acres of ruderal uplands occur on the project site.

##### 3.3.1.2 Agricultural Lands.

Most of the property (approximately 162.7 acres) consists of agricultural lands. These areas are regularly in crop production but are currently fallow and recently disced. As a result, they are primarily unvegetated.

A toe drain adjacent to the east levee of Bishop Cut and two drainage ditches also occur in the agricultural areas. These ditches collect and convey runoff water and are dominated by wetland species typically associated with freshwater marsh habitat including cattail (*Typha latifolia*), tule (*Scirpus acutus*), Goodding's willow (*Salix gooddingii*), water primrose (*Ludwigia peploides*), nutsedge (*Cyperus* sp.), and smartweed (*Polygonum punctatum*).

#### 3.3.2 Wildlife Usage

Generally, agricultural lands do not provide high quality habitat for resident wildlife species. This is due, in part, to extensive land manipulation and pesticide application associated with agricultural operations. Some species, however, inhabit agricultural lands. Wildlife species observed in this community during the field surveys include: song sparrow (*Melospiza melodia*), mourning dove (*Zenaidura macroura*), northern mockingbird (*Mimus polyglottos*), western kingbird (*Tyrannus verticalis*), bullfrog (*Rana catesbeiana*), and California ground squirrel (*Spermophilus beechyi*). Other wildlife species likely to occur in these areas include raccoon (*Procyon lotor*), coyote (*Canis latrans*), Brewer's blackbird (*Euphagus cyanocephalus*), opossum (*Didelphis virginiana*), and California meadow vole (*Microtus californicus*). In addition, several raptor species are likely to forage over crop lands, including American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsonii*).

The drainage ditches provide irrigation to the surrounding agricultural fields and collect irrigation discharge. Many wildlife species potentially utilize the drainage ditches, including snowy egret (*Egretta thula*), mallard (*Anas platyrhynchos*), great blue heron (*Ardea herodias*), and great egret

Figure 4: Plant Communities/Land Uses

(*Ardea alba*). In addition, many bat and bird species potentially forage over the irrigation ditches and the adjacent agricultural lands.

### **3.4 AQUATIC RESOURCES ON THE PROJECT SITE**

Aquatic resources located on the project site are limited to a toe drain adjacent to the east levee of Bishop Cut and two drainage ditches within the agricultural areas. These ditches collect and convey runoff water and are dominated by wetland species typically associated with freshwater marsh habitat, as described above.

The toe drain and drainage ditches on the project site are isolated from navigable waters by the levees. These drainages all originate in the study area and there is currently no connection between the drainage system and navigable waters.

## **CHAPTER 4.0 REGULATORY BACKGROUND**

### **4.1 SPECIAL STATUS SPECIES**

Special status plants and wildlife are those species that are 1) listed as rare, threatened, or endangered by USFWS or CDFG under State or federal endangered species acts (see Section 4.1.1); 2) are on formal lists as candidates for listing as threatened or endangered; 3) are on formal lists as species of concern; or 4) are otherwise recognized at the federal, State, or local level as sensitive.

#### **4.1.1 Federal and California Endangered Species Acts**

Under the Federal Endangered Species Act (FESA), it is unlawful to “take” any species listed as threatened or endangered. “Take” is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” An activity is defined as “take” even if it is unintentional or accidental. Take provisions under FESA apply only to listed fish and wildlife species under the jurisdiction of the USFWS and/or the National Oceanic & Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries). Consultation with USFWS or NMFS is required if a project “may affect”, or result in “take” of, a listed species.

When a species is listed, the USFWS and/or NOAA Fisheries, in most cases, must officially designate specific areas as critical habitat for the species. Consultation with USFWS and/or the NMFS is required for projects that include a federal action or federal funding if the project will modify designated critical habitat.

Under the California Endangered Species Act (CESA), it is unlawful to “take” any species listed as rare, threatened, or endangered. “Take” means to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA take provisions apply to fish, wildlife, and plant species. Take may result whenever activities occur in areas that support a listed species. Consultation with CDFG is required if a project will result in “take” of a listed species.

#### **4.1.2 Magnuson-Stevens Fishery Conservation and Management Act**

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), essential fish habitat (EFH) must be designated in every fishery management plan. EFH includes “...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The MSA requires consultation with NOAA Fisheries for projects that include a federal action or federal funding and may adversely modify EFH.

### **4.1.3 Migratory Bird Treaty Act and California Department of Fish and Game Code (Breeding Birds)**

The Migratory Bird Treaty Act (MBTA) prohibits actions that will result in “take” of migratory birds, their eggs, feathers, or nests. “Take” is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof.

Migratory birds are also protected, as defined in the MBTA, under Section 3513 of the California Fish and Game Code. In addition, Section 33503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird, except as otherwise provided by the California Fish and Game Code or other regulation.

## **4.2 JURISDICTIONAL WATERS**

### **4.2.1 Army Corps of Engineers Jurisdictional Waters**

Under Section 404 of the Clean Water Act (CWA), the Army Corps of Engineers (Corps) regulates the discharge of dredged or fill material into waters of the U.S. Waters of the U.S. are those waters that have a connection to interstate commerce, either direct via a tributary system or indirect through a nexus identified in the Corps regulations. In non-tidal waters, the lateral limit of jurisdiction under Section 404 extends to the ordinary high water mark (OHWM) of a waterbody or, where adjacent wetlands are present, beyond the OHWM to the limit of the wetlands. The OHWM is defined as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the 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 area” (33 CFR 328.3). In tidal waters, the lateral limit of jurisdiction extends to the high tidal line (HTL) or, where adjacent wetlands are present, beyond the HTL to the limit of the wetlands.

**Wetlands.** 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 that under normal circumstances do support, a prevalence of vegetation typically adapted for a life in saturated soil conditions.”

**Nonwetland Waters.** Nonwetland waters essentially include any body of water, not otherwise exempted, that displays an OHWM.

### **4.2.2 Regional Water Quality Control Board**

Under Section 401 of the CWA, the State Water Resources Control Board must certify all activities requiring a 404 permit. The Regional Water Quality Control Board (RWQCB) regulates these activities and issues water quality certification for those activities requiring a 404 permit. In addition, the RWQCB has authority to regulate the discharge of “waste” into waters of the State pursuant to the Porter-Cologne Water Quality Control Act (P-C).

### **4.2.3 California Department of Fish and Game Jurisdiction**

CDFG, through provisions of Sections 1600-1616 of the State of California Code of Regulations, is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be substantially adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and the conveyance of at least ephemeral flows. CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by CDFG.

CDFG generally includes, within the jurisdictional limits of streams and lakes, any riparian habitat present. Riparian habitat includes willows, cottonwoods, and other vegetation typically associated with the banks of a stream or lake shoreline. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFG jurisdiction based on riparian habitat will automatically include any wetland areas. CDFG has not defined wetlands for jurisdictional purposes. Wetlands not associated with a lake, stream, or other regulated area are generally not subject to CDFG jurisdiction.

### **4.3 EXECUTIVE ORDER 13112 – INVASIVE SPECIES**

Under EO 13112, an invasive species is defined as “an alien species (a species not native to a particular ecosystem) whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Invasive species are determined by the Invasive Species Council. In addition to other mandates, EO 13112 mandates federal agencies whose actions may affect the status of invasive species to “not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species...”

### **4.4 SAN JOAQUIN COUNTY MULTI-SPECIES HABITAT CONSERVATION AND OPEN SPACE PLAN**

The SJMSCP, in accordance with ESA Section 10(a)(1)(B) and CESA Section 2081(b) Incidental Take Permits, provides compensation for the conversion of open space to non-open space uses which affect the plant, fish and wildlife species covered by the SJMSCP. The SJMSCP compensates for conversions of open space for the following activities: urban development, mining, expansion of existing urban boundaries, non-agricultural activities occurring outside of urban boundaries, levee maintenance undertaken by the San Joaquin Area Flood Control Agency, transportation projects, school expansions, non-federal flood control projects, new parks and trails, maintenance of existing facilities for non-federal irrigation district projects, utility installation, maintenance activities, managing Preserves, and similar public agency projects. These activities will be undertaken by both public and private individuals and agencies throughout San Joaquin County and within the County's incorporated cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy. Public agencies including Caltrans (for transportation projects), and the San Joaquin Council of Governments (for transportation projects) also will undertake activities which will be covered by the SJMSCP.

The SJMSCP is implemented by SJCOG in coordination with the plan participants.

## CHAPTER 5.0 SPECIAL STATUS SPECIES AND SENSITIVE HABITATS

### 5.1 REGIONAL SPECIES AND HABITATS OF CONCERN

Appendix B provides a listing of special status species that could potentially occur in the region. Special status species that were observed or determined likely to occur on the project site are discussed below.

### 5.2 SPECIAL STATUS PLANTS

No special status plant species were observed during the focused plant survey on August 18, 2005, which was conducted during the blooming period for the targeted species, or the targeted species would be otherwise identifiable during the survey. As a result, special status plant species are considered absent from the project site.

The project site is not located within critical habitat for any special status plants.

### 5.3 SPECIAL STATUS WILDLIFE

#### 5.3.1 Bat Species

The project site does not contain suitable roosting sites for bat species. The project site contains potential foraging habitat for several special status bat species, including pale western big-eared bat (*Corynorhinus townsendii pallescens*), Pacific western big-eared bat (*Corynorhinus townsendii townsendii*), greater western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevilli*), small-footed myotis (*Myotis ciliolabrum*), long-eared myotis (*Myotis evotis*), fringed myotis (*Myotis thysanodes*), long-legged myotis (*Myotis volans*), and Yuma myotis (*Myotis yumanensis*). None of these species are on formal lists, but are State species of special concern or are covered under the SJMSCP. Bats forage over water or fields where insects are abundant. Bat surveys were not conducted on the project site, but potential foraging habitat occurs.

#### 5.3.2 Tricolored Blackbird.

The tricolored blackbird (*Agelaius tricolor*) is a State species of special concern. Tricolored blackbirds are highly colonial and nomadic, and are largely endemic to the lowlands of California. They prefer to nest in freshwater marshes or in nearby uplands with dense growths of herbaceous vegetation, such as mustard and thistle. Red-winged blackbirds (*Agelaius phoeniceus*) were observed on the project site during field surveys, but no tricolored blackbirds were observed. The CNDDB contains several records of this species within 10 miles of the project site. No suitable nesting habitat is present on the project site, but suitable foraging habitat occurs.

### 5.3.3 Western Burrowing Owl

The western burrowing owl (*Athene cunicularia*) is a State species of concern. Burrowing owls occur in warmer valleys, open, dry grasslands, deserts, and scrublands associated with agriculture and urban areas that support populations of California ground squirrels. Burrowing owls nest below ground, utilizing abandoned burrows of other species, most commonly ground squirrel burrows, and feed on insects and small mammals. The closest recorded occurrence of this species in the CNDDDB is approximately 2.2 miles southeast of the project site on Atlas Tract. Surveys of the project site in 2005 did not identify any suitable burrows for this species or any signs of burrowing owls utilizing the project site. However, California ground squirrels were observed on the project site, and the presence of ground squirrels and squirrel burrows are attractive to burrowing owls. Burrowing owls could migrate onto the project site prior to project implementation.

### 5.3.4 Aleutian Canada Goose

The Aleutian Canada goose (*Branta canadensis leucopareia*) is a federal delisted species. This species forages in flooded, disced, cut, or irrigated fields during fall migration. Canada geese are highly mobile while foraging, and can relocate to nearby foraging habitat if they are disturbed. No Canada geese were observed on the project site, and the CNDDDB does not contain any records for this species within 10 miles of the project site. However, this species could forage on the project site.

### 5.3.5 Ferruginous Hawk

The ferruginous hawk (*Buteo regalis*) is a State species of concern. This species occurs in open grasslands, sagebrush flats, desert scrub, low foothills, and fringes of pinyon-juniper habitats. The ferruginous hawk is an uncommon winter resident and migrant at lower elevations and open grasslands in the Modoc Plateau, Central Valley, and Coast Ranges, and is a fairly common winter resident of grasslands and agricultural areas in southwestern California. The CNDDDB does not contain any records of ferruginous hawk within 10 miles of the project site, and this species was not observed during surveys. However, ferruginous hawks could forage on the project site.

### 5.3.6 Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is a State threatened species. It has no formal federal status. Swainson's hawks are long distance migrants, wintering primarily in South America, and returning north to breed. Swainson's hawks are large, broad-winged hawks that occur in open country throughout the western half of the United States. In California, Swainson's hawks occur in the northeastern portion of the state, in the Great Basin Province, and in the Central Valley. They return to the Central Valley in mid-March, and begin migrating south in August. Nests are built in the tops of large trees, primarily those associated with riparian habitats. Swainson's hawks are known to forage up to 10 miles from their nest sites (Estep 1989).

No Swainson's hawks were observed on the project site during field surveys in 2005. The CNDDDB contains many records for Swainson's hawks within 5 miles of the project. The agricultural fields on the project site provide suitable foraging habitat for Swainson's hawk. No nesting habitat is present on or adjacent to the project site.

### 5.3.7 Mountain Plover

The mountain plover (*Charadrius montanus*) is a State species of concern. This species winters in short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Mountain plovers do not nest in California.

The CNDDDB does not contain any records of mountain plover within 10 miles of the project site, and this species was not observed during 2005 field surveys. However, mountain plovers could forage on the project site during the winter.

### 5.3.8 Northern Harrier

The northern harrier (*Circus cyaneus*) is a State species of concern. It has no federal status. Northern harriers occur in a variety of habitats, including grasslands, grain fields, sagebrush flats, emergent wetlands, and alpine meadows. This species usually nests in emergent wetlands or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats.

The CNDDDB does not contain any records for northern harrier within 10 miles of the project site, and no northern harriers were observed during the 2005 surveys. However, this species could nest and/or forage on the project site.

### 5.3.9 White-Tailed Kite

The white-tailed kite (*Elanus leucurus*) is fully protected under California Fish and Game Code and the federal Migratory Bird Treaty Act (MBTA). This raptor species uses scattered trees for breeding, and open grasslands and marshes for foraging. The CNDDDB does not contain any records of white-tailed kites nesting within 10 miles of the project site, and no nesting habitat is present on the project site. The agricultural fields on the project site provide suitable foraging habitat for white-tailed kite.

### 5.3.10 Merlin

The merlin (*Falco columbarius*) is a State species of special concern, but has no federal status. This species is an uncommon winter migrant from September to May. Merlins nest in Alaska and Canada; they do not nest in California. This species winters in a variety of habitats, including open grasslands, savannahs, woodlands, edges, and early successional stages.

The CNDDDB does not contain any records of the merlin within 10 miles of the project site, and this species was not observed during the 2005 surveys. However, merlins could forage on the project site during the winter.

### 5.3.11 Prairie Falcon

The prairie falcon (*Falco mexicanus*) is a State species of concern, but has no federal status. This species nests on cliffs in dry, open terrain, and forages in open areas such as grasslands, rangeland, savannahs, desert scrub, and agricultural fields.

Prairie falcon nesting habitat does not occur on the project site. The CNDDDB does not contain any records of the prairie falcon within 10 miles of the project site, and this species was not observed during the 2005 surveys. However, prairie falcons could forage on the project site.

### **5.3.12 Loggerhead Shrike**

The loggerhead shrike (*Lanius ludovicianus*) is a State species of concern. This species nests in broken woodlands, savannahs, riparian, and other woodlands. Loggerhead shrikes prefer open country with perches for scanning and hunting, and dense shrubs and brush for nesting.

The CNDDDB does not contain any records of loggerhead shrike within 10 miles of the project site. Suitable habitat occurs on the project site, and this species could nest and/or forage here.

### **5.3.13 Western Pond Turtle**

The western pond turtle (*Clemmys marmorata*), a California species of concern, ranges from western Washington State south to northwestern Baja California. Pond turtles are an aquatic species, found in ponds, marshes, rivers, streams, and irrigation ditches that typically have rocky or muddy bottoms and are vegetated with aquatic vegetation. Eggs are laid at upland sites, away from the water, from April through August. The CNDDDB contains several records of western pond turtle within 10 miles of the project site. Marginal habitat for this species occurs in the toe drain in the southwest portion of the project site; the other two drainage ditches do not provide suitable habitat for western pond turtle. No suitable breeding habitat is present on the project site.

### **5.3.14 Giant Garter Snake**

The giant garter snake (*Thamnophis gigas*) is a federal and State threatened species. It occurs in the Sacramento and San Joaquin Valleys in California. This species inhabits areas in the vicinity of freshwater marshes, ponds, and slow moving streams with dense aquatic vegetation, and prefers water depths of at least one foot. Optimal giant garter snake habitat includes still or slow moving waters with emergent vegetation, overhanging tree canopy, and pools deeper than approximately 30 inches. Adjacent upland habitat above flood elevations is also important. The giant garter snake occupies small mammal burrows and other soil crevices above prevailing flood elevations during its winter dormancy period.

The drainage ditches on the project site do not provide suitable aquatic habitat for giant garter snake, but potential aquatic habitat is present in the drainage ditch adjacent to the southern border of the project site. The banks of this drainage ditch are very steep, limiting access to the adjacent upland habitat by giant garter snakes that may be utilizing the ditch. Potential upland habitat is present within 200 feet of this ditch. The croplands on the project site do not provide suitable giant garter snake upland habitat due to frequent disturbance from agricultural operations (i.e., discing). The closest CNDDDB occurrence for giant garter snake is approximately 2.7 miles north of the project site on Shin Kee Tract.

## 5.4 POTENTIAL JURISDICTIONAL WATERS

### 5.4.1 Waters of the U.S.

As described previously, the drainage system for the study area consists of a levee toe drain and two drainage ditches (see Figure 5). Per Corps regulations (Preamble Section 328.3 Definitions) the Corps does not generally consider non-tidal drainage and irrigation ditches excavated on dry land to be waters of the U.S. The Corps does, however, reserve the right to regulate these ditches on a case by case basis.

The Corps Sacramento District has issued additional guidance regarding the regulation of man-made ditches. Guidance for regulatory actions involving Delta levees, issued in March 2004, stipulates that toe drains are not considered waters of the U.S. unless they were constructed through wetlands or are channelized streams. The guidance further stipulates that the Corps will assume a ditch (e.g., a toe drain) was constructed through wetlands if wetlands exist on both sides of the ditch. Based on LSA's findings, wetlands do not occur on either side of the toe drain.

To determine whether these ditches were constructed through wetlands, LSA reviewed a number of historic aerial photos and other mapping of the study area dating back to 1940. The photos show that except for the northern end, the toe drain was located in essentially the same location in 1940 as it is now. The northern 500-600 feet of the toe drain was relocated approximately 200 feet east of the levee sometime before 1940, until at least 1949. The USGS quadrangle (Terminous), dated 1978, indicates several structures in the area where the north end of the toe drain was relocated. The 1940 and 1949 photos also show the drainage ditches in different locations than where they are currently located. Based on this information, it appears the toe drain and drainage ditches were constructed in uplands, and are not waters of the U.S.

In a recent Corps verification of the adjacent property to the south of the Crystal Bay property, the Westlake Village Site (File No. 200400279), dated January 17, 2006 the Corps determined that the smaller "feeder irrigation ditches", which included levee toe drains along Bishop Cut and Disappointment Slough and other irrigation ditches, were constructed in uplands subsequent to the site being drained and, therefore, are not waters of the U.S. The levee toe drains and irrigation ditches in the study area are equivalent to the "feeder irrigation ditches" on the Westlake Village Site.

Approximately 0.86 acre of areas meeting Corps criteria for wetlands was identified in the levee toe drain and irrigation ditches in the study area. However, in light of the Corps verification of the Westlake Village Site delineation, the wetlands on the project site are not expected to be regulated as waters of the U.S.

### 5.4.2 CDFG Jurisdictional Waters

The drainage levee toe drain and drainage ditches on the project site were constructed in uplands and are not hydrologically connected to a stream or river. In addition, no riparian habitat is present on the project site. Consequently, the aquatic features on the project site are not CDFG jurisdictional waters.

Figure 5: Aquatic Resources on the Project Site

## **CHAPTER 6.0 PROJECT IMPACTS AND RECOMMENDED MITIGATION MEASURES**

This section provides an analysis of the project impacts that may occur with development of the project site, and the recommended mitigation measures for offsetting those impacts. The evaluation of impacts is based on the resources present, or reasonably likely to be present, on the project site and the proposed project as described herein.

### **6.1 IMPACT EVALUATION**

#### **6.1.1 Plant Communities and Associated Wildlife**

Impacts to plant communities and associated wildlife will occur as a result of development of the project site. Plant communities affected will include agricultural land and ruderal uplands. Wildlife using these areas will be killed outright or displaced to other adjacent habitats, ultimately leading to locally reduced wildlife populations. Impacts to wildlife may be greater if work begins in spring, when many species are breeding/nesting. The loss of habitat in this region will contribute to the regional cumulative loss of wildlife habitat, including habitat for special status species.

Impacts to special status species and associated habitat are discussed more fully in the following sections of this report.

#### **6.1.2 Special Status Species**

In accordance with the SJMSCP conservation strategy, project impacts are expressed by determining the total area of undeveloped land that will be converted to developed area by implementation of the project (referred to as project footprint). The project will implement the SJMSCP conservation strategy for impacts to special status species covered under the SJMSCP, therefore presentation of the effects analysis consistent with the SJMSCP conservation strategy is appropriate.

The proposed project will have a total project footprint of 173 acres, which will result in direct, indirect, and cumulative effects to the special status species discussed below. The SJMSCP conservation strategy was developed to compensate for these effects to SJMSCP covered species.

##### **6.1.2.1 Bat Species**

Focused surveys for bat species were not conducted, but many species of bats are known to occur in San Joaquin County. No potential roost sites (i.e., buildings, trees, etc.) exist on the project site, but potential foraging habitat is present. Project construction will result in impacts to potential bat foraging habitat. Bat species are covered under the SJMSCP. No additional mitigation is required.

### **6.1.2.2 Tricolored Blackbird**

No nesting habitat for tricolored blackbirds occurs on the project site, but potential foraging habitat is present. Tricolored blackbirds were not observed on the project site during the field surveys, and the CNDDDB does not contain any records for this species within 10 miles. However, this species could forage on the project site. Project construction will result in impacts to potential tricolored blackbird foraging habitat. Loss of foraging habitat for tricolored blackbird is covered in the SJMSCP. No additional mitigation is required.

### **6.1.2.3 Western Burrowing Owl**

Since no suitable burrows were observed, burrowing owls are considered absent from the burrows on the project site. However, California ground squirrels were observed on the project site, and the presence of ground squirrels and squirrel burrows are attractive to burrowing owls. Since this species is migratory, burrowing owls could migrate onto the project site prior to construction.

The proposed project will result in potential impacts to suitable foraging habitat (i.e., croplands) for burrowing owls. Loss of foraging habitat for burrowing owls is covered under the SJMSCP. Mitigation may be required to offset potential impacts to nesting birds (see Section 6.2 below).

### **6.1.2.4 Aleutian Canada Goose**

The proposed project will impact Aleutian Canada goose wintering habitat. The risk of actually killing or harming a Canada goose during project construction is nearly non-existent because this species is highly mobile. Therefore, incidental take minimization measures for the Aleutian Canada goose are not included in the SJMSCP, and this is considered to be consistent with the provisions of the Migratory Bird Treaty Act. The Aleutian Canada goose is a covered species under the SJMSCP. No additional mitigation is required.

### **6.1.2.5 Ferruginous Hawk**

The risk of taking a ferruginous hawk during project construction is very low since this species can relocate if disturbed by construction activities. This species does not nest in California; consequently, impacts to nesting habitat will not occur. The project will remove potential wintering habitat for this species. The ferruginous hawk is a covered species under the SJMSCP. No additional mitigation is required.

### **6.1.2.6 Swainson's Hawk**

The proposed project will impact Swainson's hawk foraging habitat. The project will not impact Swainson's hawk nesting habitat as none occurs on or adjacent to the project site. Loss of foraging habitat for Swainson's hawk is covered under the SJMSCP. No additional mitigation is required.

### **6.1.2.7 Mountain Plover**

The risk of taking a mountain plover during project construction is very low since this species can relocate if disturbed by construction activities. The project will remove potential wintering habitat for

this species. This species does not nest in California; consequently, impacts to nesting habitat will not occur. Loss of foraging habitat for mountain plover is covered under the SJMSCP. No additional mitigation is required.

#### **6.1.2.8 Northern Harrier**

The project will remove potential nesting and foraging habitat for the northern harrier. The northern harrier is a covered species under the SJMSCP. Mitigation is required to offset potential impacts to nesting birds (see Section 6.2 below).

#### **6.1.2.9 White Tailed Kite**

The proposed project will remove white-tailed kite foraging habitat. The risk of taking a white-tailed kite during project construction is very low since this species can relocate if disturbed by construction activities. Loss of foraging habitat for white-tailed kite is covered under the SJMSCP. No additional mitigation is required.

#### **6.1.2.10 Merlin**

The project will remove suitable wintering habitat for this species. The risk of taking a merlin during project construction is very low since this species can relocate if disturbed by construction activities. Loss of wintering habitat for the merlin is covered under the SJMSCP. No additional mitigation is required.

#### **6.1.2.11 Prairie Falcon**

The project will remove suitable foraging habitat for the prairie falcon. The risk of taking a prairie falcon during project construction is very low since this species can relocate if disturbed by construction activities. Loss of foraging habitat for the prairie falcon is covered under the SJMSCP. No additional mitigation is required.

#### **6.1.2.12 Loggerhead Shrike**

The project will remove potential loggerhead shrike nesting habitat along the toe drains and drainage ditches. The project will also remove potential foraging habitat for loggerhead shrike. The loggerhead shrike is a covered species under the SJMSCP. Mitigation is required to offset potential impacts to nesting birds (see Section 6.2 below).

#### **6.1.2.13 Western Pond Turtle**

Impacts to pond turtles and marginal pond turtle habitat may occur through alteration of the portion of the toe drain in the southwest portion of the project site. No suitable breeding habitat will be impacted as none occurs on the project site. Impacts to this species are covered under the SJMSCP. No additional mitigation is required.

### **6.1.2.14 Giant Garter Snake**

The project will impact potential giant garter snake upland habitat. The giant garter snake is covered under the SJMSCP except for projects in known occupied habitat. Per the SJMSCP (2000), known occupied habitat for giant garter snake includes the area west of I-5 on Terminous Tract, Shin Kee Tract, White Slough Wildlife Area, and Rio Blanco Tract. The project site is not within known occupied habitat for giant garter snake, but is within potential giant garter snake habitat as described in the SJMSCP (2000). Mitigation measures are required to minimize impacts to giant garter snake (see Section 6.2 below).

### **6.1.3 Waters of the U.S., CDFG Waters, and Wetlands**

The project will not impact Corps or CDFG jurisdictional waters as none occur on the project site. The project will impact 0.86 acre of areas meeting the Corps criteria for wetlands. Although these areas are not likely to fall under the jurisdiction of the Corps, loss of wetlands is considered significant under CEQA, and mitigation is required.

The RWQCB may regulate impacts to 0.86 acre of wetlands in the drainage ditches and toe drain on the project site. A Report of Waste Discharge pursuant to the Porter-Cologne Water Quality Control Act (P-C) will be submitted to the RWQCB .

## **6.2 MITIGATION MEASURES**

The following mitigation measures are consistent with the mitigation and Incidental Take Minimization Measures outlined in the SJMSCP, as applicable. The Incidental Take Minimization Measures from the SJMSCP represent the best management practices known at the time of adoption of the SJMSCP. Incidental Take Minimization Measures shall be completed prior to site disturbance as indicated in the conditions of project approval.

### **6.2.1 Compensation Mitigation**

Impacts to habitat for special status plant and animal species covered under the SJMSCP require payment of mitigation fees. The project shall implement the SJMSCP conservation strategy, which includes one or a combination of two or more of the following options to provide compensation pursuant to the SJMSCP.

1. Pay the appropriate fee as indicated in the SJMSCP; or
2. Dedicate, as conservation easements or fee title, or in-lieu dedications; or
3. Purchase approved mitigation bank credits; or
4. Propose an alternative mitigation plan, consistent with the goals of the SJMSCP and equivalent in biological value to options A, B, and C, above, subject to approval by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC.

Once the applicant selects from these options, additional interaction with SJCOG will be required. This includes a biologist on-call with SJCOG conducting a survey of the project site to confirm

findings from prior biological surveys. The biologist will collect information relating to the project site such as habitat type and potential presence of covered species. This information will be used to formulate Incidental Take Minimization Measures for the project applicant consistent with the SJMSCP. Focused wildlife and plant surveys, including preconstruction surveys, are not conducted by the SJCOG biologist, but are the responsibility of the project applicant (Steve Mayo, SJCOG, Inc., pers. comm). Mitigation measures consistent with the SJMSCP are included in the mitigation requirements for individual species, as described in Section 6.2.2, below.

## **6.2.2 Special Status Species**

### **6.2.2.1 Northern Harrier**

Direct take of nesting northern harriers would be in violation of the Fish and Game Code and MBTA, and this species is covered under the SJMSCP. The following mitigation measures are consistent with the SJMSCP Incidental Take Minimization Measures for northern harrier, and the provisions of the MBTA.

1. Prior to issuance of a grading permit, the project proponent shall implement the SJMSCP conservation strategy, as described in Section 6.2.1, to provide compensation pursuant to the SJMSCP.
2. If project construction is to begin during the nesting season (March 1 - September 15), all suitable nesting habitat on the project site and within 500 feet of the limits of work shall be surveyed by a qualified biologist prior to initiating construction-related activities. Surveys shall be conducted no more than 14 days prior to the start of work.
3. A setback of 500 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave the nest. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.

### **6.2.2.2 Burrowing Owl**

Direct take of nesting burrowing owls would be in violation of the Fish and Game Code and MBTA, and burrowing owl is a covered species under the SJMSCP. The following mitigation measures are consistent with the SJMSCP Incidental Take Minimization Measures for burrowing owl and the provisions of the MBTA.

1. Prior to issuance of a grading permit, the project proponent shall implement the SJMSCP conservation strategy, as described in Section 6.2.1, to provide compensation pursuant to the SJMSCP.
2. No more than 30 days prior to any ground disturbing activities, a qualified biologist shall conduct surveys for burrowing owls. If ground disturbing activities are delayed or suspended for more than 30 days after the initial preconstruction surveys, the site shall be resurveyed. All surveys shall be conducted in accordance with CDFG's Staff Report on Burrowing Owls (CDFG 1995).

3. If the preconstruction surveys identify burrowing owls on the site during the non-breeding season (September 1 through January 31), burrowing owls occupying the project site shall be evicted from the project site by passive relocation as described in the CDFG's Staff Report on Burrowing Owls (CDFG 1995).
4. If the preconstruction surveys identify burrowing owls on the site during the breeding season (February 1 through August 31), occupied burrows shall not be disturbed and shall be provided with a 250-foot protective buffer. The buffer shall be maintained until the SJMSCP Technical Advisory Committee (TAC), with the concurrence of CDFG representatives on the TAC, or a qualified biologist approved by CDFG, verifies through non-invasive means that either: 1) the birds have not begun egg laying, or 2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Once the fledglings are capable of independent survival, the burrow(s) can be destroyed.

### **6.2.2.3 Loggerhead Shrike**

Direct take of nesting loggerhead shrikes would be in violation of the Fish and Game Code and MBTA. Loggerhead shrike is a covered species under the SJMSCP. The following mitigation measures are consistent with the SJMSCP Incidental Take Minimization Measures for loggerhead shrike and the provisions of the MBTA.

1. Prior to issuance of a grading permit, the project proponent shall implement the SJMSCP conservation strategy, as described in Section 6.2.1, to provide compensation pursuant to the SJMSCP.
2. If project construction is to begin during the nesting season (March 1 - September 15), all suitable nesting habitat on the project site and within 100 feet of the limits of work shall be surveyed by a qualified biologist prior to initiating construction-related activities. Surveys shall be conducted no more than 14 days prior to the start of work.
3. A 100-foot setback from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building, and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.

### **6.2.2.4 Giant Garter Snake**

The following mitigation measures consistent with those listed in the SJMSCP for giant garter snake shall be adhered to where applicable.

1. The project shall implement the SJMSCP conservation strategy, which includes payment of appropriate fees to SJCOG for conversion of undeveloped lands and implementation of the Incidental Take Minimization Measures for giant garter snake, as described below. Documentation of fee payment shall be provided to the USFWS prior to the start of construction.

2. Construction shall occur during the active period for the snake, between May 1 and October. Between October 2 and April 30 contact the Service's Sacramento Fish and Wildlife Office to determine if additional measures are necessary to minimize and avoid take.
3. Limit vegetation clearing within 200 feet of the banks of potential giant garter snake aquatic habitat to the minimal area necessary.
4. Confine the movement of heavy equipment within 200 feet of the banks of potential giant garter snake aquatic habitat to existing roadways to minimize habitat disturbance.
5. Prior to ground disturbance, all on-site construction personnel shall be given instruction regarding the presence of SJMSCP Covered Species and the importance of avoiding impacts to these species and their habitats.
6. In areas where wetlands, irrigation ditches, marsh areas or other potential giant garter snake habitats are being retained on the site:
  - a. Install temporary fencing at the edge of the construction area and the adjacent wetland, marsh, or ditch;
  - b. Restrict working areas, spoils and equipment storage and other project activities to areas outside of marshes, wetlands and ditches; and
  - c. Maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted equivalents.
7. If on-site wetlands, irrigation ditches, marshes, etc. are being relocated in the vicinity: the newly created aquatic habitat shall be created and filled with water prior to dewatering and destroying the pre-existing aquatic habitat. In addition, non-predatory fish species that exist in the aquatic habitat and which are to be relocated shall be seined and transported to the new aquatic habitat as the old site is dewatered.
8. If wetlands, irrigation ditches, marshes, etc. shall not be relocated in the vicinity, then the aquatic habitat shall be dewatered at least two weeks prior to commencing construction.
9. Pre-construction surveys for the giant garter snake (conducted after completion of environmental reviews and prior to ground disturbance) shall occur within 24 hours of ground disturbance.
10. Other provisions of the USFWS Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake Habitat shall be implemented (excluding programmatic mitigation ratios which are superseded by the SJMSCP's mitigation ratios).
11. Survey of the project area shall be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until appropriate corrective measures have been completed or it has been determined that the snake shall not be harmed. Report any sightings and any incidental take to the Service immediately by telephone at (916) 414-6600.

12. Following project completion, all areas temporarily disturbed during construction shall be restored following the "Guidelines for Restoration and/or Replacement of Giant Garter Snake Habitat" outlined below.
  - a. The disturbed area shall be regraded to its preexisting contour and ripped, if necessary, to decompact the soil.
  - b. The area shall be hydroseeded. Hydroseed mix shall contain at least 20-40 percent native grass seeds. Some acceptable native grasses include annual fescue (*Vulpia* spp.), California brome (*Bromus carinatus*), blue wildrye (*Elymus glaucus*), and needle grass (*Nassella* spp.). The seed mix shall also contain 2-10 percent native forb seeds, five percent rose clover (*Trifolium hirtum*), and five percent alfalfa (*Medicago sativa*). Approximately 40-68 percent of the mixture may be non-aggressive European annual grasses, such as wild oats (*Avena sativa*), wheat (*Triticum* sp.), and barley (*Hordeum vulgare*). Aggressive non-native grasses shall not be included in the seed mix. These grasses include perennial ryegrass (*Lolium perenne*), cheatgrass (*Bromus tectorum*), fescue (*Festuca* sp.), giant reed (*Arundo donax*), medusa-head (*Taeniatherum caput-medusae*), or Pampas grass (*Cortaderia selloana*). Endophyte-infected grasses shall not be included in the seed mix.

In addition to the above measures, the following avoidance and minimization measures shall also be implemented

13. All construction shall be conducted during daylight hours.
14. Measures consistent with the current Caltrans' Construction Site Best Management Practices (BMPs) Manual (including the Storm Water Pollution Prevention Plan [SWPPP] and Water Pollution Control Program [WPCP] Manuals [[http://www.dot.ca.gov/hq/construc/Construction\\_Site\\_BMPs.pdf](http://www.dot.ca.gov/hq/construc/Construction_Site_BMPs.pdf)]<sup>1</sup>) shall be implemented to minimize effects to giant garter snake (e.g., siltation, etc.) during construction.

### 6.2.3 Wetlands

The project shall implement the SJMSCP conservation strategy, which includes payment of appropriate fees to SJCOG for conversion of undeveloped lands. Lands acquired and preserved under the conservation strategy will provide equivalent habitat to mitigate the loss of wetlands associated with the drainage ditches. If the wetland areas are regulated by the ACOE and/or RWQCB, additional wetlands mitigation may be required by those agencies for the loss of 0.86 acre of wetlands. This mitigation may be accomplished through purchase of appropriate wetlands mitigation credits from an approved mitigation bank that services the project area. In lieu of purchasing mitigation credits, the project may implement a wetlands mitigation plan that provides equivalent wetlands replacement in accordance with agency requirements.

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<sup>1</sup> The Caltrans Construction BMPs Manual is considered the industry standard for protection of water quality during construction activities and, as such, is also applicable to non-roadway projects.

## CHAPTER 7.0 REFERENCES AND LITERATURE CITED

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**APPENDIX A**  
**CNDDDB, CNPS AND USFWS LISTS**

**APPENDIX B**

**SPECIAL STATUS SPECIES POTENTIALLY OCCURRING ON THE  
PROJECT SITE**

## Special Status Species Potentially Occurring on the Crystal Bay Project Site

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<b>Mammals</b>						
<i>Bassaricus astutus</i>	Ringtail	SFPS	Occurs in forest and shrub habitats in close association with rocky areas or riparian habitats.	N	N	No suitable habitat present on the project site.
<i>Corynorhinus townsendii pallescens</i>	Pale western big-eared bat	CSC	Occurs in a variety of habitats including valley oak savannah, riparian forest, and prairie. Roosts in caves, tunnels, buildings, mines, or other human-made structures, such as bridges. Requires roosting, maternity, and hibernacula sites free from human disturbance.	Y	U	Potential foraging habitat present on the project site. See discussion in Section 5.3.1.
<i>Corynorhinus townsendii townsendii</i>	Pacific western big-eared bat	CSC	Lives in a variety of habitats, preferring coastal conifer, broad-leaf woodlands, and open grasslands. Roosts in caves, tunnels, buildings, mines, or other human-made structures, such as bridges. Requires roosting, maternity, and hibernacula sites free from human disturbance.	Y	U	Potential foraging habitat present on the project site. See discussion in Section 5.3.1.
<i>Dipodomys heermanni berkeleyensis</i>	Berkeley kangaroo rat	None	Open, grassy hilltops in chaparral and blue oak/foothill pine woodlands.	N	N	No suitable habitat present on the project site.
<i>Eumops perotis californicus</i>	Greater western mastiff bat	CSC	Found in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	Y	U	Potential foraging habitat present on the project site. See discussion in Section 5.3.1.
<i>Lasiurus blossevilli</i>	Red bat	CSC	Roosts primarily in trees, 2 – 40 ft. above the ground. Feeds over a wide variety of habitats including grasslands, shrubland, open woodland, and croplands.	Y	U	Potential roosting sites and foraging habitat present on the project site. See discussion in Section 5.3.1.
<i>Myotis ciliolabrum</i>	Small-footed myotis		Generally inhabits desert, badland, and semiarid habitats; more mesic habitats in southern part of range. Hibernates in caves and mines. Maternity colonies often are in abandoned houses, barns, or similar structures.	Y	U	Potential foraging habitat present on the project site. See discussion in Section 5.3.1.
<i>Myotis evotis</i>	Long-eared myotis		Found in all brush, woodland, and forest habitats from sea level to about 9,000 feet. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Y	U	Potential foraging habitat present on the project site. See discussion in Section 5.3.1.
<i>Myotis thysanodes</i>	Fringed myotis		Optimal habitats are pinyon-juniper, valley foothill hardwood, and hardwood-conifer forests. Roosts in caves, mines, buildings or crevices.	Y	U	Potential foraging habitat present on the project site. See discussion in Section 5.3.1.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<i>Myotis volans</i>	Long-legged myotis		Most common in woodland and forest habitats above 4000 feet (1219 meters). Trees are important day roosts, and caves and mines are night roosts. Nursery colonies usually found under bark or in hollow trees but occasionally in crevices or buildings.	Y	U	Potential foraging habitat present on the project site. See discussion in Section 5.3.1.
<i>Myotis yumanensis</i>	Yuma myotis		Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings, or crevices.	Y	U	Potential foraging habitat present on the project site. See discussion in Section 5.3.1.
<i>Neotoma fuscipes riparia</i>	Riparian (San Joaquin Valley) woodrat	FE, CSC	Riparian areas along the Stanislaus, San Joaquin, and Tuolumne Rivers. Requires areas with a mix of brush and trees, with suitable nesting sites in trees, snags or logs.	N	N	No suitable habitat present on the project site.
<i>Perognathus inornatus inornatus</i>	San Joaquin pocket mouse		Typically found in dry open grasslands and scrub areas on fine textured, friable soils in the Central and Salinas Valleys.	N	N	No suitable habitat present on the project site.
<i>Sylvilagus bachmani riparius</i>	Riparian brush rabbit	FE, SE	Riparian areas with dense thickets.	N	N	No suitable habitat present on the project site.
<i>Taxidea taxus</i>	American badger	CSC	Occurs throughout California and the United States. Primary habitat requirements seem to be sufficient food and friable soils in relatively open uncultivated ground in grasslands, woodlands, and desert.	N	N	No suitable habitat present on the project site.
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	FE; ST	Annual grasslands or grassy open stages with scattered vegetation; need loose-textured soils for burrowing, and a suitable prey base.	N	N	No suitable habitat on the project site. The project site is out of range of this species.
<b>Birds</b>						
<i>Accipiter cooperi</i>	Cooper's hawk	CSC	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms or river flood-plains; also live oaks.	N	N	No suitable habitat present on the project site.
<i>Accipiter striatus</i>	Sharp-shinned hawk	CSC	Nests in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffery pine forest. North-facing slopes with plucking perches are critical requirements. Utilizes all habitats except alpine, open prairie, and bare desert in the winter.	N	N	No suitable habitat present on the project site.
<i>Aechmophorus occidentalis</i>	Western grebe		Nests on large, marshy lakes in the Modoc Plateau south to Inyo County. Also nests locally elsewhere, including Sacramento National Wildlife Refuge, Lake Havasu, and Salton Sea. Common to abundant along coast from October to May.	N	N	No suitable habitat present on the project site.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<i>Agelaius tricolor</i>	Tricolored blackbird	CSC	Nests in freshwater marshes with tules or cattails, or in other dense vegetation such as thistle, blackberry thickets, etc. in close proximity to open water. Forages in a variety of habitats including pastures, agricultural fields, rice fields, and feedlots.	Y	U	Suitable foraging habitat present on the project site. See discussion in Section 5.3.2.
<i>Amphispiza belli belli</i>	Bell's sage sparrow	CSC	Found in chaparral dominated by dense stands of chamise. Found in coastal sage scrub in the southern part of its range. Nests on the ground beneath a shrub, or in a shrub 6 – 18 inches above ground.	N	N	No suitable habitat present on the project site.
<i>Aquila chrysaetos</i>	Golden eagle	CSC	Occurs in rolling foothills, mountain areas, sage-juniper flats, and deserts. Nests in cliffs and in large trees in open areas. Rugged, open habitats with canyons and escarpments are most commonly used for nesting.	N	N	No suitable habitat present on the project site.
<i>Ardea albus</i>	Great egret		Colonial nester in large trees near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	N (Rookery sites)	N (Rookery sites)	Special status only applies to rookery sites. No suitable rookery sites present on the project site.
<i>Ardea herodias</i>	Great blue heron		Colonial nester in large trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	N (Rookery sites)	N (Rookery sites)	Special status only applies to rookery sites. No suitable rookery sites present on the project site.
<i>Asio flammens</i>	Short-eared owl	CSC	Fresh and salt water swamp lands, low land meadows, irrigated alfalfa fields.	N	N	No suitable habitat present on the project site.
<i>Athene cunicularia hypugaea</i>	Western burrowing owl	CSC	Burrow sites in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, California ground squirrel.	Y	U	No suitable burrows located on project site, but suitable foraging habitat is present. See discussion in Section 5.3.3.
<i>Branta canadensis leucopareia</i>	Aleutian Canada goose	FD	During migration and on wintering grounds, the geese are commonly found in marshes, harvested agriculture fields, and flood-irrigated and non-irrigated land. Forages on natural pasture or cultivated to grain; loafs on lakes, reservoirs and ponds.	Y	U	Suitable winter foraging habitat present on the project site; however no suitable breeding habitat occurs on the project site. See discussion in Section 5.3.4.
<i>Buteo regalis</i>	Ferruginous hawk	CSC	Winters in open grasslands, sagebrush flats, desert scrub, low foothills, and fringes of pinyon-juniper habitats. Mostly eats lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	Y	U	Suitable winter foraging habitat present on the project site. See discussion in Section 5.3.5.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<i>Buteo swainsoni</i>	Swainson's hawk	ST	Breeds in stands with few trees in juniper-sage flats, riparian areas and oak savannahs. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Y	U	Suitable foraging habitat present on the project site. See discussion in Section 5.3.6.
<i>Charadrius montanus</i>	Mountain plover	CSC	Winters in short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Prefers short vegetation, bare ground and flat topography. Prefers grazed areas and areas with burrowing rodents.	Y	U	Suitable wintering habitat present on the project site. See discussion in Section 5.3.7.
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	SE	Nests in riparian systems along the broad lower flood-bottoms of larger river systems; requires dense riparian vegetation.	N	N	No suitable habitat present on the project site.
<i>Circus cyaneus</i>	Northern harrier	CSC	Nests mostly in emergent wetlands or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water.	Y	U	Suitable habitat present on the project site. See discussion in Section 5.3.8.
<i>Dendroica petechia brewsteri</i>	Yellow warbler	CSC	Nesting in riparian habitats and prefers willows, cottonwoods, aspens, sycamores, and alders for both nesting and foraging. Also nests in montane shrubbery in open conifer forests.	N	N	No suitable habitat present on the project site.
<i>Egretta thula</i>	Snowy egret		Locally common in the Central Valley all year. Feeds in shallow water or along shores of wetlands or aquatic habitats. Nests in protected beds of dense tules.	N (Rookery Sites)	N (Rookery Sites)	No suitable habitat present on the project site.
<i>Elanus leucurus</i>	White-tailed kite		Nests on rolling foothills/valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodlands. Found in open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Y	U	Suitable foraging habitat present on the project site. See discussion in Section 5.3.9.
<i>Empidonax traillii brewsteri</i>	Little willow flycatcher	SE	Extensive thickets of low, dense willows on the edge of wet meadows, at elevations from 2,000 – 8,000 ft (610 – 2438 m).	N	N	No suitable habitat present on the project site.
<i>Eremophila alpestris actia</i>	California horned lark	CSC	Coastal regions and in the main part of the San Joaquin Valley and east to the foothills. Found in short-grass prairie, bald hills, mountain meadows, open coastal plains, fallow grain fields, and alkali flats.	N	N	No suitable habitat present on the project site.
<i>Falco columbarius</i>	Merlin	CSC	Uncommon winter migrant from September to May. Frequents coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, edges, and early successional stages. Ranges from annual grasslands to ponderosa pine and montane hardwood-conifer habitats. Nests in Alaska and Canada.	Y	U	Suitable foraging habitat present on the project site. See discussion in Section 5.3.10.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<i>Falco mexicanus</i>	Prairie falcon	CSC	Nests on cliffs in dry, open terrain. Forages in open areas including grasslands, rangeland, savannahs, desert scrub, and some agricultural fields.	Y	U	Suitable foraging habitat present on the project site. See discussion in Section 5.3.11.
<i>Falco peregrinus anatum</i>	American peregrine falcon	FD	Nesting near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds, also human-made structures. Nest consists of a scrape on a depression or ledge in an open site.	N	N	No suitable habitat present on the project site.
<i>Grus canadensis tabida</i>	Greater sandhill crane	ST	Nests in wetland habitats in northeastern California, and winters in the Central valley. Prefers grain fields or irrigated pastures within 4 miles of shallow water used as a roost site.	N	N	No suitable habitat present on the project site.
<i>Haliaeetus leucocephalus</i>	Bald eagle	FT, SE	Nests in large, old growth, or dominant live tree with open branches near ocean shore, lake margins, and rivers. Usually nests within 1 mile of water.	N	N	No suitable habitat present on the project site.
<i>Icteria virens</i>	Yellow-breasted chat		California summer nesting resident. Inhabits riparian thickets of willow and other brushy tangles near watercourses. Nest in low dense riparian consisting of willows, blackberry, and wild grape, and forages within 10 feet of the ground.	N	N	No suitable habitat present on the project site.
<i>Lanius ludovicianus</i>	Loggerhead shrike	CSC	Nests in broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning and fairly dense shrubs and brush for nesting.	Y	U	Suitable habitat present on the project site. See discussion in Section 5.3.12.
<i>Laterallus jamaicensis coturniculus</i>	California black rail	ST	Occurs in mostly in tidal salt marsh dominated by pickleweed, or in brackish marshes supporting bulrushes in association with pickleweed. Also occurs in fresh-water marshes supporting cattails, bulrushes, and saltgrass. Usually found in the immediate vicinity of tidal sloughs.	N	N	No suitable habitat present on the project site.
<i>Numenius americanus</i>	Long-billed curlew	CSC	Nests in dry prairies and moist meadows near water. Nests on ground usually in flat area with short grass, sometimes on more irregular terrain, often near rock or other conspicuous object.	N	N	No suitable habitat present on the project site.
<i>Nycticorax nycticorax</i>	Black-crowned night heron		Feeds along the margins of lacustrine, large riverine, and fresh and saline emergent habitats and, rarely, on kelp beds in marine subtidal habitats. Nests and roosts in dense-foliaged trees and dense emergent wetlands.	N (Rookery sites)	N (Rookery sites)	No suitable habitat present on the project site.

<b>Scientific Name</b>	<b>Common Name</b>	<b>Status</b>	<b>Habitat Requirements</b>	<b>Habitat Present (Y/N)</b>	<b>Species Present (Y/N/U)</b>	<b>Rationale</b>
<i>Pandion haliaetus</i>	Osprey	CSC	Nesting in ocean shores, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	N	N	No suitable habitat present on the project site.
<i>Pelecanus erythrorhynchos</i>	American white pelican	CSC	Colonial nester on large, inland lakes. Winters on salt ponds of San Francisco Bay, large inland lakes and estuaries, and on the coast from Sonoma County south.	N	N	No suitable habitat present on the project site.
<i>Phalacrocorax auritus</i>	Double-crested cormorant	CSC	Colonial nester in trees, on ground, or on cliffs near ponds, lakes, rivers, lagoons, estuaries, and along open coastlines.	N	N	No suitable habitat present on the project site.
<i>Plegadis chihi</i>	White-faced ibis		Marshes, swamps, ponds and rivers, mostly in freshwater habitats. Nests in marshes and dense tule thickets; in low tree, on the ground in bulrushes or reeds, or on a floating mat.	N	N	No suitable habitat present on the project site.
<i>Riparia riparia</i>	Bank swallow	ST	Open and partly open situations, frequently near flowing water. Colonial nester in steep sand, dirt, or gravel banks, in burrows dug near the top of the bank, along the edge of inland water or along the coast, or in gravel pits, road embankments, etc.	N	N	No suitable habitat present on the project site.
<i>Selasphorus rufus</i>	Rufous hummingbird		Coniferous forest, second growth, thickets and brushy hillsides, foraging in adjacent scrubby areas and meadows. During migration in winter they prefer open situations where rich in nectar-producing flowers are present.	N	N	No suitable habitat present on the project site.
<i>Toxostoma redivivum</i>	California thrasher		Chaparral, foothills, valley thickets, parks, gardens.	N	N	No suitable habitat present on the project site.
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird		Nests in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes and ponds.	N	N	No suitable habitat present on the project site.
<b>Reptiles</b>						
<i>Anniella pulchra pulchra</i>	Silvery legless lizard	CSC	Found predominantly in the Coast Ranges, Transverse Mountains, and Peninsular Ranges and in northwest Baja California. Also found in scattered occurrences on the floor of the San Joaquin Valley. Forages at the base of shrubs, usually on moist substrate with plenty of leaf litter.	N	N	No suitable habitat present on the project site.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<i>Emys (=Clemmys) marmorata</i>	Western pond turtle	CSC	Occurs in permanent or nearly permanent water sources, ponds, marshes, rivers, streams and irrigation ditches with emergent vegetation and basking sites. Lays eggs in upland habitat consisting of sandy banks or grassy, open fields.	Y	U	Marginal habitat present on the project site. See discussion in Section 5.3.13.
<i>Masticophis flagellum ruddocki</i>	San Joaquin whipsnake	CSC	Open, dry habitats with little or no tree cover; valley grassland and saltbush scrub.	N	N	No suitable habitat present on the project site.
<i>Phrynosoma coronatum frontale</i>	California horned lizard	CSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Found in open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	N	N	No suitable habitat present on the project site.
<i>Thamnophis gigas</i>	Giant garter snake	FT; ST	Streams and sloughs, usually with mud bottom. One of the most aquatic of garter snakes; usually in areas of freshwater marsh and low-gradient streams with emergent vegetation, also drainage canals, irrigation ditches, ponds, and small lakes.	Y	U	Suitable habitat present on the project site. See discussion in Section 5.3.14.
<b>Amphibians</b>						
<i>Ambystoma californiense</i>	California tiger salamander	FT; CSC	Most commonly found in grasslands or open woodland habitats. Lives in vacant or mammal-occupied burrows (e.g., California ground squirrel, valley pocket gopher), and occasionally other underground retreats, throughout most of the year. Lays eggs on submerged stems and leaves, usually in shallow ephemeral or semi-permanent pools and ponds that fill during heavy winter rains, sometimes in permanent ponds.	N	N	No suitable habitat present on the project site.
<i>Rana aurora draytonii</i>	California red-legged frog	FT	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	N	N	No suitable habitat present on the project site.
<i>Rana boylei</i>	Foothill yellow-legged frog	FC; CSC	Partially-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying, with at least 15 weeks of running water to attain metamorphosis.	N	N	No suitable habitat present on the project site.
<i>Spea hammondi</i>	Western spadefoot toad	CSC	Occurs primarily in grassland habitats but also found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	N	N	No suitable habitat present on the project site.
<b>Fish</b>						
<i>Acipenser medirostris</i>	Green sturgeon	FSC; CSC	Most often in marine waters; estuaries, lower reaches of large rivers, salt or brackish water off river mouths.	N	N	Project site is out of range of this species. No suitable habitat present.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<i>Hypomesus transpacificus</i>	Delta smelt	FT; ST	Sacramento-San Joaquin delta. Seasonally in Suisun bay, Carquinez strait, and San Pablo bay. Seldom found at salinities greater than 10 ppt. Most often in salinities less than 2 ppt.	N	N	No suitable habitat present
<i>Lampetra ayresi</i>	River lamprey	CSC	Lower Sacramento River, San Joaquin River, and Russian River. May occur in coastal streams north of San Francisco Bay. Adults inhabit clean, gravelly riffles; ammocoetes require sandy backwaters or stream edges. Both stages require good water quality and temperatures less than 25° C (77° F).	N	N	No suitable habitat present.
<i>Lampetra hubbsi</i>	Kern brook lamprey	CSC	San Joaquin River system and Kern River. Adults require gravel-bottomed areas for spawning and ammocoetes need muddy-bottomed areas for burrowing and feeding.	N	N	No suitable habitat present on the project site.
<i>Oncorhynchus mykiss irideus</i>	Central Valley steelhead	FT	Populations occur and spawn in the Sacramento and San Joaquin rivers and their tributaries.	N	N	No suitable habitat present on the project site.
<i>Oncorhynchus tshawytscha</i>	Central Valley spring-run chinook salmon	FT; ST	Sacramento and San Joaquin Rivers and tributaries. Primarily found in Butte, Big Chico, Deer, and Mill creeks. Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel.	N	N	No suitable habitat present. Project area is located outside of the range of the species.
<i>Oncorhynchus tshawytscha</i>	Central Valley fall/late fall-run chinook salmon	FSC; CSC	Found mainly in the Sacramento River and its tributaries, and most spawning and rearing of juveniles takes place in the reach between Red Bluff and Redding (Keswick Dam). Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel.	N	N	No suitable habitat present on the project site.
<i>Oncorhynchus tshawytscha</i>	Central Valley winter-run chinook salmon	FE; SE	Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams.	N	N	No suitable habitat present. Project area is located outside of the range of the species.
<i>Pogonichthys macrolepidotus</i>	Sacramento splittail	CSC	Largely confined to the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and other parts of the Sacramento-San Joaquin estuary. Occurs in slow moving river sections and dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	N	N	No suitable habitat present on the project site.
<i>Spirinchus thaleichthys</i>	Longfin smelt	CSC	Coastal waters near shore, bays, estuaries, and rivers, and landlocked in some lakes. In estuaries usually found in middle or bottom of water column.	N	N	No suitable habitat present on the project site.
<b>Invertebrates</b>						
<i>Aegialia concinna</i>	Ciervo aegialian scarab beetle	FR	Known only from Fresno County in sandy substrates.	N	N	No suitable habitat present on the project site.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<i>Anthicus sacramento</i>	Sacramento anthicid beetle		Restricted to sand dune areas of the Sacramento-San Joaquin Delta.	N	N	No suitable habitat present on the project site.
<i>Branchinecta conservatio</i>	Conservancy fairy shrimp	FE	Large turbid pools in grasslands of the Central Valley.	N	N	No suitable habitat present on the project site.
<i>Branchinecta longiantenna</i>	Longhorn fairy shrimp	FE	Inhabits small, clear-water depressions in sandstone and clear to turbid clay/grass-bottomed pools in shallow swales in the eastern margin of the Central Coast Mountains in seasonally astatic grassland vernal pools.	N	N	No suitable habitat present on the project site.
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	FT	Endemic to the grasslands of the Central Valley, Central Coast Mountains and South Coast Mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swales, earthen slumps, or basalt-flow depression pools.	N	N	No suitable habitat present on the project site.
<i>Branchinecta mesovallensis</i>	Midvalley fairy shrimp		Occurs in seasonal vernal pools or other topographic depressions throughout the Central Valley.	N	N	No suitable habitat present on the project site.
<i>Desmocerus californicus dimorphus</i>	Valley elderberry longhorn beetle	FT	Occurs only in the Central Valley of California, in association with blue elderberry ( <i>Sambucus mexicana</i> ). Prefers branches greater than 1 inch in diameter.	N	N	No suitable habitat present on the project site.
<i>Hygrotis curvipes</i>	Curved-foot diving beetle		Aquatic; found in shallow, muddy pools in Oakley, Contra Costa County.	N	N	No suitable habitat present on the project site.
<i>Lepidurus packardi</i>	Vernal pool tadpole shrimp	FE	Found in a variety of natural, and artificial, seasonally ponded habitat types including: vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, ditches, backhoe pits, and ruts caused by vehicular activities. Within the Sacramento Valley.	N	N	No suitable habitat present on the project site.
<i>Lytta moesta</i>	Moestan blister beetle		Annual grassland, foothill woodland, and saltbush scrub in the Central Valley, Coast Range, and Sierra Nevada foothills.	N	N	No suitable habitat present on the project site.
<i>Lytta molesta</i>	Molestan blister beetle		Annual grassland, foothill woodland, and saltbush scrub in the Central Valley, Coast Range, and Sierra Nevada foothills.	N	N	No suitable habitat present on the project site.
<b>Plants</b>						
<i>Amsinckia grandiflora</i>	Large-flowered fiddleneck	FE, SE, CNPS 1B	Cismontane woodland and valley and foothill grasslands (900 – 1800 ft). Blooms April to May.	N	N	No suitable habitat present on the project site.
<i>Aster lentus</i>	Suisun marsh aster	CNPS 1B	Brackish and freshwater marshes and swamps in Sacramento/San Joaquin River delta (0 – 10 ft). Blooms May to November.	Y	N	Marginal habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<i>Astragalus tener</i> var. <i>tener</i>	Alkali milk-vetch	CNPS 1B	Valley foothill grasslands, vernal pools (3 – 200 ft). Blooms March to June.	N	N	No suitable habitat present on the project site.
<i>Atriplex cordulata</i>	Heartscale	CNPS 1B	Chenopod scrub, valley and foothill grasslands, meadows. Alkaline flats and scalds in the central valley with sandy soils (3 – 1230 ft). Blooms April to October.	N	N	No suitable habitat present on the project site.
<i>Atriplex joaquiniana</i>	San Joaquin spearscale	CNPS 1B	Alkaline grasslands, chenopod scrub (3 – 2740 ft). Blooms April to October.	N	N	No suitable habitat present on the project site.
<i>Blepharizonia plumose</i>	Big tarplant	CNPS 1B	Valley foothill grassland (100 – 1660 ft). Blooms July to October.	N	N	No suitable habitat present on the project site.
<i>Calycadenia hooveri</i>	Hoover's calycadenia	CNPS 1B	On exposed, rocky, barren soil in cismontane woodland and valley and foothill grassland (210 – 850 ft). Blooms July to September.	N	N	No suitable habitat present on the project site.
<i>Carex comosa</i>	Bristly sedge	CNPS 2	Marshes and swamps, lake margins, wet places (0 – 2050 ft). Blooms May to September.	Y	N	Marginal habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.
<i>Castilleja campestris</i> ssp. <i>succulenta</i>	Succulent owl's clover	FT, SE, CNPS 1B	Vernal pools in valley and foothill grasslands (80 – 2460 ft). Blooms April to May.	N	N	No suitable habitat present on the project site.
<i>Cirsium crassicaule</i>	Slough thistle	CNPS 1B	Chenopod scrub, sloughs, riverbanks, and marshy areas of San Joaquin Valley (10 – 30 ft). Blooms May to August.	Y	N	Marginal habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, which was conducted during the normal blooming period for this plant. This species is considered absent from the project site.
<i>Cordylanthus palmatus</i>	Palmate-bracted bird's-beak	FE, SE, CNPS 1B	Alkaline valley and foothill grassland (15 - 510 ft). Blooms May to October.	N	N	No suitable habitat present on the project site.
<i>Coreopsis hamiltonii</i>	Mt. Hamilton coreopsis	CNPS 1B	On steep, shale talus in cismontane woodland (1740 – 4270 ft). Blooms March to May.	N	N	No suitable habitat present on the project site.
<i>Delphinium californicum</i> ssp. <i>interius</i>	Hospital Canyon larkspur	CNPS 1B	Wet, boggy meadows, openings in chaparral, and in canyons of cismontane woodland and chaparral (750 – 3600 ft). Blooms April to June.	N	N	No suitable habitat present on the project site.
<i>Delphinium recurvatum</i>	Recurved larkspur	CNPS 1B	Alkaline valley foothill grassland, chenopod scrub cismontane woodlands (10 – 2460 ft). Blooms March to May.	N	N	No suitable habitat present on the project site.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<i>Erodium macrophyllum</i>	Round-leaved filaree	CNPS 2	Valley foothill grassland, cismontane woodlands (50 – 4000 ft). Blooms March to May.	N	N	No suitable habitat present on the project site.
<i>Eryngium racemosum</i>	Delta button-celery	SE, CNPS 1B	Seasonally inundated floodplain on clay soil in riparian scrub habitat (10 – 246 ft). Blooms June to September.	N	N	No suitable habitat present on the project site.
<i>Eschscholzia rhombipetala</i>	Diamond-petaled poppy	CNPS 1B	Valley and foothill grassland on alkaline and clay slopes and flats (0 – 3200 ft). Blooms March to April.	N	N	No suitable habitat present on the project site.
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	SE, CNPS 1B	Freshwater marshes and swamps, vernal pools. Usually found in clay soils of vernal pools and lake margins (30 – 7800 ft).	N	N	No suitable habitat present on the project site.
<i>Hibiscus lasiocarpus</i>	Rose-mallow	CNPS 2	Freshwater marshes and swamps (0 – 400 ft). Blooms June to September.	Y	N	Potential habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.
<i>Juglans hindsii</i>	Northern California black walnut	CNPS 1B	Riparian forest and riparian woodland. Grows on deep alluvial soil associated with a creek or stream. Few native stands remain (0 – 1450 ft). Blooms April to May.	N	N	No suitable habitat present on the project site.
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	CNPS 1B	Chaparral, valley and foothill grasslands, cismontane woodland, and vernal pools. Found in vernal mesic sites on the edges of vernal pools (100 – 3350 ft). Blooms March to May.	N	N	No suitable habitat present on the project site.
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	Delta tule pea	CNPS 1B	Freshwater and brackish marshes. Most of the distribution is restricted to the Sacramento/San Joaquin river delta. Often found with <i>Typha</i> spp., <i>Aster lentus</i> , <i>Rosa californica</i> , <i>Juncus</i> spp., <i>Scirpus</i> , etc. Usually on marsh and slough edges (0 – 15 ft). Blooms May to September.	Y	N	Potential habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.
<i>Legenere limosa</i>	Legenere	CNPS 1B	In wet areas and beds of vernal pools (3 – 2900 ft). Blooms April to June.	N	N	No suitable habitat present on the project site.
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	CNPS 1B	Freshwater and brackish water marshes, and riparian scrub in regularly flooded tidal zones, on mud-banks and flats along creek banks (0 – 35 ft). Blooms April to November.	Y	N	Marginal habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
<i>Limosella subulata</i>	Delta mudwort	CNPS 2	Freshwater and brackish marshes. Most of the distribution is restricted to the Sacramento/San Joaquin river delta. Often found with <i>Aster lentus</i> , <i>Lilaeopsis masonii</i> , and <i>Lathyrus jepsonii</i> var. <i>jepsonii</i> . Usually on intertidal flats and muddy banks of watercourses in estuarine areas (0 – 10 ft). Blooms May to August.	Y	N	Marginal habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.
<i>Madia radiata</i>	Showy madia	CNPS 1B	Valley and foothill grassland, chenopod scrub, cismontane woodland. Occurs mostly on adobe clay in grassland or among shrubs (80 – 2950 ft). Blooms March to May.	N	N	No suitable habitat present on the project site.
<i>Potamogeton zosteriformis</i>	Eel-grass pondweed	CNPS 2	Marshes and swamps (0 – 6100 ft). Blooms June to July.	Y	N	Marginal habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	CNPS 1B	In standing or slow-moving freshwater ponds, marshes, swamps and ditches (0 – 2000 ft). Blooms May to October.	Y	N	Potential habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.
<i>Scutellaria galericulata</i>	Marsh skullcap	CNPS 2	Lower montane coniferous forest, marshes, swamps, meadows and seeps (0 – 6900 ft). Blooms June to September.	Y	N	Marginal habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.
<i>Scutellaria lateriflora</i>	Mad-dog skullcap	CNPS 2	Meadows, seeps, marshes, and swamps (0 – 1640 ft). Blooms July to September.	Y	N	Marginal habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.
<i>Trichocoronis wrightii</i> var. <i>wrightii</i>	Wright's trichocoronis	CNPS 2	Marshes and swamps, riparian forests and alkaline vernal pools (15 – 1430 ft). Blooms May to September.	Y	N	Marginal habitat for this species is present on the project site. This species was not observed during the focused survey in August, 2005, and is considered absent from the project site.
<i>Tropidocarpum capparideum</i>	Caper-fruited tropidocarpum	CNPS 1B	Alkaline valley and foothill grassland (3 - 1490 ft). Blooms March to April.	N	N	No suitable habitat present on the project site.
<i>Tuctoria greenei</i>	Greene's tuctoria	FE, SR, CNPS 1B	Dry bottoms of vernal pools in open grasslands (100 – 230 ft). Blooms May to September.	N	N	No suitable habitat present on the project site.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present (Y/N)	Species Present (Y/N/U)	Rationale
Y = Yes / N= No / U = Unknown						
<b>Status</b>						
<b>Federal</b>				<b>CNPS</b>		
FT = Threatened				CNPS 1A = Presumed extinct in California		
FPE = Proposed Endangered				CNPS 1B = Rare or Endangered in California and elsewhere		
FPT = Proposed Threatened				CNPS 2 = Rare or Endangered in California, more common elsewhere		
FC = Candidate						
FSC = Species of Concern						
FD =Delisted						
<b>State</b>						
SE = Endangered						
ST = Threatened						
SR = Rare						
CSC = Species of Special Concern						

**APPENDIX C**

**WILDLIFE AND PLANT SPECIES OBSERVED ON  
THE PROJECT SITE**

## WILDLIFE AND PLANT SPECIES OBSERVED ON THE CRYSTAL BAY PROJECT SITE

### Wildlife

Scientific Name	Common Name
<i>Agelaius phoeniceus</i>	Red-winged blackbird
<i>Anas platyrhynchos</i>	Mallard
<i>Ardea herodias</i>	Great blue heron
<i>Butorides virescens</i>	Green heron
<i>Circus cyaneus</i>	Northern harrier
<i>Egretta thula</i>	Snowy egret
<i>Eremophila alpestris</i>	Horned lark
<i>Falco sparverius</i>	American kestrel
<i>Hirundo rustica</i>	Barn swallow
<i>Melospiza melodia</i>	Song sparrow
<i>Mimus polyglottos</i>	Northern mockingbird
<i>Petrochelidon pyrrhonota</i>	Cliff swallow
<i>Phasianus colchicus</i>	Ring-necked pheasant
<i>Rana catesbeiana</i>	Bullfrog
<i>Sayornis nigricans</i>	Black phoebe
<i>Spermophilus beecheyi</i>	California ground squirrel
<i>Tyrannus verticalis</i>	Western kingbird
<i>Zenaida macroura</i>	Mourning dove

### Plants

Scientific Name	Common Name	Family
<i>Ailanthus altissima</i>	Tree of heaven	Simaroubaceae
<i>Amaranthus blitoides</i>	Mat amaranth	Amaranthaceae
<i>Arundo donax</i>	Giant reed	Poaceae
<i>Asclepias fascicularis</i>	Narrow-leaf milkweed	Asclepiadaceae
<i>Brassica nigra</i>	Black mustard	Brassicaceae
<i>Centaurea solstitialis</i>	Yellow star-thistle	Asteraceae
<i>Chenopodium album</i>	Lamb's quarters	Chenopodiaceae
<i>Cirsium vulgare</i>	Bull thistle	Asteraceae
<i>Conium maculatum</i>	Poison hemlock	Apiaceae
<i>Convolvulus arvensis</i>	Field bindweed	Convolvulaceae
<i>Coryza</i> sp.	Horsetail	Asteraceae
<i>Cynodon dactylon</i>	Bermuda grass	Poaceae
<i>Cyperus eragrostis</i>	Nutsedge	Cyperaceae
<i>Datura stramonium</i>	Jimsonweed	Solanaceae
<i>Epilobium ciliatum</i> var. <i>ciliatum</i>	Willow herb	Onagraceae
<i>Ficus carica</i>	Edible fig	Moraceae
<i>Filago</i> sp.	Herba impia	Asteraceae
<i>Grindelia</i> sp.	Gumplant	Asteraceae
<i>Heliotropium curassavicum</i>	Salt heliotrope	Boraginaceae
<i>Lactuca serriola</i>	Prickly lettuce	Asteraceae
<i>Lemna</i> sp.	Duckweed	Lemnaceae
<i>Lepidium</i> sp.	Peppergrass	Brassicaceae
<i>Ludwigia peploides</i>	Water primrose	Onagraceae
<i>Malva</i> sp.	Mallow	Malvaceae
<i>Polygonum arenastrum</i>	Common knotweed	Polygonaceae

<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Polygonum lapathifolium</i>	Willow weed	Polygonaceae
<i>Polygonum punctatum</i>	Dotted smartweed	Polygonaceae
<i>Polypogon monspeliensis</i>	Rabbitfoot grass	Poaceae
<i>Populus fremontii</i>	Fremont's cottonwood	Salicaceae
<i>Rhaphanus sativus</i>	Seed radish	Brassicaceae
<i>Rubus discolor</i>	Himalayan blackberry	Rosaceae
<i>Rumex crispus</i>	Curly dock	Polygonaceae
<i>Salix exigua</i>	Narrow-leaved willow	Salicaceae
<i>Salix gooddingii</i>	Goodding's willow	Salicaceae
<i>Salix laevigatus</i>	Red willow	Salicaceae
<i>Scirpus acutus</i> var. <i>occidentalis</i>	Tule	Cyperaceae
<i>Senecio vulgaris</i>	Common groundsel	Asteraceae
<i>Silybum marianum</i>	Milk thistle	Asteraceae
<i>Sorghum halepense</i>	Johnson grass	Poaceae
<i>Typha</i> sp.	Cattail	Typhaceae
<i>Urtica dioica</i> ssp. <i>holosericea</i>	Stinging nettle	Urticaceae
<i>Xanthium strumarium</i>	Cocklebur	Asteraceae

**APPENDIX D**

**WETLAND DELINEATION REPORT**