Biological Assessment

Granite Esparto Property

October 2007

Prepared for:
Granite Construction Company
8950 Cal Center Dr., Suite 201
Sacramento, CA 95826

Prepared by:

21 Technology Drive
Irvine, CA 92618

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ATTACHMENTS

1.0 INTRODUCTION

Granite Construction Company (Granite) is proposing to use approximately 313± acres of a total 390± acres of property located in Yolo County, California, to extract and process sand and gravel over 30 years in a surface mining operation. Various mining methods and depths are proposed, as well as a variety of end uses. The property is adjacent to an existing Granite gravel mining operation.

Granite contracted TRC to conduct a Biological Assessment (BA) of the property pursuant to Yolo County Ordinance 10-4.502(b)(1) that requires:

> b) Site-specific technical reports, performed by qualified professionals in the appropriate area of expertise, shall provide specific proposals for inclusion in the surface mining permit to address the following potential environmental impacts:
>
> (1) A biological inventory and analysis to evaluate the on-site habitat value of the proposed mined area, as well as the potential impacts to species of concern, both on-site and within the immediate area. The analysis shall propose appropriate measures to reduce any potential adverse impacts to species of concern or significant habitat. The analysis shall also include a wetland delineation study for any potential on-site wetlands. If landscaping is proposed to screen the surface mining operations from adjoining public rights-of-way or public and private lands, then the biological analysis shall include an evaluation of the feasibility of the species, weed control, and irrigation methods to be used.

This BA addresses the biological inventory and analysis requirement of the above ordinance. The landscaping feasibility portion of the ordinance is addressed in the project's *Habitat Restoration and Landscape Visual Screening Plan* prepared under separate cover. To prepare this BA, a literature review of relevant documents was conducted to compile a list of special-status species that may occur in the area, followed by a field survey to map habitat types, jurisdictional waters and wetlands; to assess the potential for special-status species to occur on the property; and to record species that were observed. The purpose of this BA is to document the results of the literature review and field surveys, to determine if species addressed in this BA are likely to be adversely affected by the project, and to describe impact avoidance and minimization measures that would reduce or avoid potential adverse project effects to these species and their habitats. This BA presents technical information upon which later determinations regarding project effects may be developed for compliance with the California Environmental Quality Act (CEQA).

2.0 PROPERTY LOCATION AND PROJECT DESCRIPTION

2.1 PROPERTY LOCATION AND REGIONAL CONTEXT

The property is located in the Central Valley of California, west of the Sacramento River, in an area rich in agricultural production, consisting of orchards, row crops, and grain crops. The property is situated in western Yolo County, approximately 1.5 miles north of the town of Esparto, along the west side of County Road (CR) 87. The property has an existing street address of 26410 Fulton & Frank Lane, Esparto, California. The mining and processing activities will occur on two parcels with Assessors Parcel Numbers 048-220-221 and 048-220-151. The property lies within Sections 7

and 18, Township 10 North, Range 1 West, Mount Diablo Base and Meridian. Elevation on the property ranges from approximately 180 to 186 feet. The climate in the area can be characterized as mild, with average temperatures ranging from 33 to 55 degrees Fahrenheit in the winter and 57 to 96 degrees Fahrenheit in the summer. Average annual precipitation in the area is about 19 inches. A vicinity map is provided as Figure 1 in Attachment A. The property is bound to the north and west by the West Adams Canal, and agricultural land that extends beyond it. County Road 87 bounds the property to the east, beyond which is agricultural land and the Yolo County landfill convenience center. Granite's Capay Facility (an existing off-channel sand and gravel operation) is located immediately southwest of the property. The stream channel for Cache Creek traverses the southern portion of the property, and agricultural land extends beyond its boundaries toward the town of Esparto. The proposed sand and gravel operations will occur exclusively on the north side of a paved private road that separates the property from the Cache Creek flood plain. The applicant is also proposing a "Net Gain" to the County that includes implementation of a segment of the County's Test 3 Line for stream management and bridge protection on Cache Creek. Approximately 56 acres of the property that is occupied by the Cache Creek stream channel and banks south of the Test 3 line implementation area will not be disturbed.

The regional topography consists of low rolling hills and broad alluvial plains formed at the base of the eastern flank of the California Coast Range. The predominant land-use for the region is agriculture and the extraction of sand and gravel to meet the regional demand for construction materials. The property is located in the southern portion of a relatively flat and wide alluvial valley known as Hungry Hollow. The alluvial valley is oriented northwest to southeast. Hungry Hollow is bounded on the east by Dunnigan Hills and to the west by the Capay Hills. Cache Creek transects the valley, flowing west to east.

The property is currently zoned for agriculture with a Sand and Gravel Reserve in the Yolo County General Plan. The area proposed for mining is currently utilized for agricultural orchards, row crops, and pasture. One residence and three ancillary structures (i.e., garage, storage shed, and workshop) are located on the property and will ultimately be removed as part of mining operations, as necessary. The land uses in the surrounding area are predominantly mining and agriculture. Sand and gravel operations are located within an area identified by the State Geologist as containing significant, marketable aggregate deposits suitable for production of Portland Cement Concrete. Historically, the majority of aggregate extracted from the Cache Creek area had been excavated from the active channel of the creek. With the adoption of the Off-Channel Mining Plan (OCMP) in 1996, mining activities have gradually moved out of the active channel and onto off-channel areas. The property is located within the OCMP boundary and has a Sand and Gravel Reserve zoning designation.

2.2 PROJECT COMPONENTS

The project will occur on 313± acres of the total 390± acres comprising the property, and will include the entire property north of the Capay haul road. A visual screening berm will be constructed on top of the Test 3 Line implementation area south of the haul road. The major project components are:

- Application for 870,000 tons sold of aggregate as allowed and contemplated under the OCMP.
- Application for Off-Channel Mining Use Permit for excavation and processing of sand and gravel from approximately 313± acres on portions of Assessors Parcel Numbers 048-220-221 and 048-220-151 (parcels total 390± acres).
- Application for a Reclamation Plan for the mining and processing areas.
- Request for a Zoning Ordinance Amendment and zone change from AP(SGR) to AP(SG) and from A1(SGR) to A1(SG).
- Relinquishment of an existing 420,000 ton per year mining entitlement at Granite's Woodland site.

Granite's submittal includes a net benefit proposal with implementation of a segment of the Test 3 Line for Cache Creek, which has already been analyzed under separate environmental documents and will require the approval of a Flood Hazard Development Permit for Yolo County. The Test 3 Line implementation is not a part of the proposed project and is therefore not considered in this BA.

3.0 STUDY METHODS AND SPECIES CONSIDERED

3.1 LITERATURE REVIEW

Prior to performing the habitat assessment, documentation relevant to the area was reviewed and a special-status species list was prepared for the property, which included species found in records for Yolo County and the four United States Geological Survey (USGS) 7.5-minute quadrangles (quads) surrounding the property (Esparto, Madison, Bird Valley, and Zamora). Sources of information that were used to compile the species list included the United States Fish and Wildlife Service (USFWS) endangered species lists (USFWS, 2007a), the California Department of Fish and Game (CDFG) California Natural Diversity Data Base (CNDDB) (CDFG, 2007), the CDFG Special Animals List (CDFG, 2006), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) list of protected anadromous species (NMFS, 2006), and the California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik, 2001). USFWS, CNDDB, and CNPS special-status species lists for the four quads and Yolo County are included in Attachment B.

Special-status species that were considered include all federally and state-listed endangered and threatened species, candidates for listing, species proposed for listing, fully-protected species, state species of concern, and species listed as rare or endangered by the CNPS. A special-status species was considered a potential inhabitant of the property if its known geographical distribution encompassed any of the four 7.5-minute quads or Yolo County, and its general habitat requirements (e.g., roosting, nesting, or foraging habitat, specific soil type, permanent water source, etc.) were potentially present. A list of special-status species with the potential to occur was compiled, and the habitat requirements of each species were considered during the field survey. The location of CNDDB records in and around the property is shown in Attachment A, Figure 2.

Thirty-five special-status species were found during the literature review: 31 wildlife species and 4 plant species (see Table 1, below, and Attachment B).

3.2 FIELD SURVEYS

Habitat Assessment

On May 22, 2007, Benjamin Hart of TRC surveyed the property to determine the presence or absence of suitable habitat for special-status species, and to map habitat types. The assessment area encompassed all land within the two affected parcels (390+/- acres total), including rural/agricultural development, agricultural fields, orchards, farm roads, grasslands, and the banks and bed of Cache Creek. Vegetative characteristics, including habitat types and plant communities, were documented and mapped using a hand-held Trimble GeoXT sub-meter global positioning system (GPS) data collector (a vegetation map is provided as Figure 3 in Attachment A). The area was also assessed for special-status fish, wildlife, and plant species and habitats identified during the literature review. Photographs taken during the property assessment are provided in Attachment C.

During the assessment, Mr. Hart focused on determining if suitable habitat was present for any special-status species identified by the literature survey. The four special-status plant species identified by the literature search, including the palmate-bracted bird's beak (*Cordylanthus palmatus*), Heckard's pepper grass (*Lepidium latipes* var. *heckardii*), Colusa grass (*Neostapfia colusana*), and Crampton's tuctoria or Solano grass (*Tuctoria mucronata*) were ruled out from potentially occurring in the property area because it is out of the species' known ranges and/or suitable habitat was not found at the property. The following 13 wildlife species were also ruled out from potentially occurring in the property area because it is out of the species' known range and/or suitable habitat was not found at the property:

- Green sturgeon (*Acipenser medirostris*)
- California tiger salamander (*Ambystoma californiense*)
- Conservancy fairy shrimp (*Branchinecta conservatio*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- Western snowy plover (*Charadrius alexandrinus nivosus*)
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
- Delta smelt (*Hypomesus transpacificus*)
- Vernal pool tadpole shrimp (*Lepidurus pakcardi*)
- California red-legged frog (*Rana aurora draytonii*)
- Northern spotted owl (*Strix occidentalis caurina*)
- California freshwater shrimp (*Syncaris pacifica*)
- Giant garter snake (*Thamnophis gigas*)

Table 1 (below) lists the special-status species identified in the literature review, their listing status, habitat association, field survey results, and potential to occur at the property.

Table 1: Special-status Species and Potential to Occur on the Property

Species	Listing Status[1]	Habitat Association	Potential in Area
Plants			
Palmate-bracted bird's beak (*Cordylanthus palmatus*)	FE; SE; 1B	Chenopod scrub, valley and foothill grasslands with alkaline soils. Elevation 15 to 500 feet. Blooms May through October.	Not observed during property assessment. Not expected to occur due to lack of suitable habitat.
Heckard's pepper grass (*Lepidium latipes var. heckardii*)	1B	Valley and foothill grassland with alkaline flats. Elevation 30 to 650 feet. Blooms March through May.	Not observed during property assessment. Not expected to occur due to lack of suitable habitat.
Colusa grass (*Neostapfia colusana*)	FT; CH; SE; 1B	Larger adobe vernal pools. Elevation 15 to 650 feet. Blooms May through August.	Not observed during property assessment. Not expected to occur due to lack of suitable habitat. Critical habitat does not occur on the property.
Crampton's tuctoria or Solano grass (*Tuctoria mucronata*)	FE; CH; SE; 1B	Vernal pools in valley and foothill grasslands. Elevation 15 to 30 feet. Blooms April through August.	Not observed during property assessment. Not expected to occur due to lack of suitable habitat. Critical habitat does not occur on the property.
Invertebrates			
Conservancy fairy shrimp (*Branchinecta conservation*)	FE; CH	Inhabits rather large, cool-water vernal pools with moderately turbid water that typically remain ponded until June.	Suitable habitat does not exist on the property. Not expected to occur. Critical habitat does not occur on the property.

Species	Listing Status[1]	Habitat Association	Potential in Area
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT; CH	Occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Tends to occur in smaller pools in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands.	Suitable habitat does not exist on the property. Not expected to occur. Critical habitat does not occur on the property.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT; CH	Occurs only in the Central Valley of California in association with blue elderberry (*Sambucus mexicana*).	Suitable habitat does not exist on the property. No elderberry was observed. Not expected to occur. Critical habitat does not occur on the property.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	Inhabits vernal pools containing clear to highly turbid water, ranging in size from 54 square feet in the former Mather Air Force Base area of Sacramento County, to the 89-acre Olcott Lake at Jepson Prairie.	Suitable habitat does not exist on the property. Not expected to occur.
California freshwater shrimp (*Syncaris pacifica*)	FE; SE	Inhabits a broad range of stream and water conditions characteristic of small, perennial, coastal streams. Have been found only in low-elevation and low-gradient streams with a depth between 12 and 36 inches in Marin, Sonoma, and Napa counties north of San Francisco Bay. Stream must contain exposed live roots of trees such as alder and willow, undercut banks greater than six inches, and overhanging woody debris or stream vegetation such as stinging nettle, grasses, or vine maple.	While Cache Creek is low-elevation and low-gradient near the property, it is out of the known range of this species. Also, the lack of undercut banks, overhanging woody debris, and live roots within the creek make the occurrence of this species unlikely. Not expected to occur.

Species	Listing Status[1]	Habitat Association	Potential in Area
Fish			
Green sturgeon (Southern DPS) (*Acipenser medirostris*)	FT; CSC	Migrations by adults into freshwater occur between late February and late July, with a spawning period generally ranging from March to July. Spawning takes place in deep, fast-moving water with temperatures between 46 and 57 degrees Fahrenheit. Preferred spawning substrate is likely large cobble, but can range from clean sand to bedrock. Larval and juvenile green sturgeon remain near estuaries in early life stages, but they migrate considerable distances as they grow. Juveniles typically migrate out to sea before the end of their second year, primarily during summer and fall.	Suitable habitat does not exist on the property. Access to Cache Creek near the property is extremely prohibitive and requires utilization of a large network of irrigation canals and ditches. Not expected to occur.
Delta smelt (*Hypomesus transpacificus*)	FT; ST; CH	The delta smelt is a euryhaline species that typically occupies estuarine waters with temperatures ranging from 43 to 82 degrees Fahrenheit, and salinities between two and seven parts per thousand (ppt), but can tolerate salinities between 0 and 19 ppt. Delta smelt spawn in freshwater at temperatures from about 45 to 59 degrees Fahrenheit, between February and June. Spawning takes place in dead end sloughs and shallow edge waters of channels in the western Delta. Eggs are adhesive and stick to hard substrates, such as rocks, gravel, tree roots, and submerged branches. Critical habitat has been designated in the Sacramento-San Joaquin Delta for Delta smelt, but does not exist in Cache Creek.	Suitable habitat does not exist on the property. Access to Cache Creek near the property is extremely prohibitive and requires utilization of a large network of irrigation canals and ditches. Not expected to occur.

Species	Listing Status[1]	Habitat Association	Potential in Area
California Central Valley steelhead (*Oncorhynchus mykiss*)	FT; CH	Steelhead trout in the Central Valley enter freshwater from the ocean when winter rains provide large amounts of cold water for migration and spawning. Steelheads typically spawn in clean gravel within tributaries to mainstem rivers, often traveling great distances to spawning grounds. They return to the ocean after spawning, if possible. Juvenile steelhead are found in cool, clear, fast moving permanent streams and rivers where there is ample cover of riparian vegetation or undercut banks, and where invertebrate life is abundant. Juvenile steelheads spend between one and three years in freshwater before smolting and migrating to sea. Adults spend between one and four years at sea before returning to spawn. Steelheads prefer temperatures in the range of 59 to 64 degrees Fahrenheit, but can withstand temperatures between 34 and 81 degrees Fahrenheit for short periods if they have been previously acclimated. Temperatures beyond this range are lethal to trout species.	Suitable habitat does not exist on the property. California Central Valley steelhead historically occurred in Cache Creek. However, access to Cache Creek near the property is now extremely prohibitive and requires utilization of a large network of irrigation canals and ditches. Suitable juvenile rearing on the property does not exist due to low flows and warm temperatures. Critical habitat does not occur on the property.

Species	Listing Status[1]	Habitat Association	Potential in Area
Central Valley fall-/late-fall-run Chinook (*Oncorhynchus tshawytscha*)	FC; CCH; CSC	Chinook require cool, clear, year-round flowing water with temperatures between 41 and 66 degrees Fahrenheit. At around 72 to 73.5 degrees Fahrenheit, major mortality is experienced in wild populations. Adult fall-run Chinook migrate into freshwater in late summer and early fall. They are sexually mature upon entering the river, and spawning typically takes place on gravel bars within a few days or weeks of entering freshwater. Late-fall-run Chinook enter the river beginning in October and hold in freshwater for one to three months before spawning. Adults require clean gravel bars and cool, well-oxygenated water for spawning. Juveniles require in-stream structures, such as undercut banks, log structures, boulders, etc. for optimal rearing habitat, and plentiful invertebrate life for feeding. Juveniles move downstream to estuaries and to the ocean after 1 to 13 months in freshwater.	Suitable habitat does not exist on the property. Central Valley fall-/late-fall-run Chinook historically occurred in Cache Creek. However, access to Cache Creek near the property is now extremely prohibitive and requires utilization of a large network of irrigation canals and ditches. Suitable juvenile rearing on the project does not exist, due to low flows and warm temperatures.

Species	Listing Status[1]	Habitat Association	Potential in Area
Central Valley spring-run Chinook (*Oncorhynchus tshawytscha*)	FT; ST; CH	Chinook require cool, clear, year-round flowing water with temperatures between 41 and 66 degrees Fahrenheit. At around 72 to 73.5 degrees Fahrenheit, major mortality is experienced in wild populations. Spring-run Chinook salmon enter the Sacramento River as immature fish in spring and early summer. They move upstream and enter tributary streams, holding in headwater pools until they spawn. Adults die after spawning. Juveniles typically rear in freshwater for 3 to 15 months. Juveniles emigrate from the tributaries to estuarine waters and the ocean between mid-November and June.	Suitable habitat does not exist on the property for Central Valley spring-run Chinook. Access to Cache Creek near the property is extremely prohibitive and requires utilization of a large network of irrigation canals and ditches. In addition, run of salmon requires significant flows and cool water during the summer, when flows in Cache Creek are low and warm. Critical habitat does not occur on the property.
Sacramento River winter-run Chinook (*Oncorhynchus tshawytscha*)	FE; SE; CH	Winter-run Chinook in California are unique to the Sacramento River. They typically migrate upstream as immature fish during winter and spring, then spawn several months later in summer. Most winter-run Chinook return to freshwater as three-year-olds, and spawn in clear, cool water released from Shasta Reservoir. Adults die after spawning. Juveniles remain in freshwater for 5 to 10 months, followed by an intermediate time in estuarine waters before entering the ocean. Optimal temperatures for growth and survival of Chinook range between 41 and 66 degrees Fahrenheit. At around 72 to 73.5 degrees Fahrenheit, major mortality is experienced in wild populations.	Suitable habitat does not exist on the property for Sacramento River winter-run Chinook. Access to Cache Creek near the property is extremely prohibitive and requires utilization of a large network of irrigation canals and ditches. This species typically stays in the mainstem of the Sacramento River and flows in Cache Creek in the summer are not suitable to support spawning. Critical habitat does not occur on the property.

Species	Listing Status[1]	Habitat Association	Potential in Area
Amphibians			
California tiger salamander (*Ambystoma californiense*)	FT; CH; CSC	Utilizes underground refuges, especially ground squirrel burrows. Needs vernal pools or other seasonal water sources for breeding.	Suitable habitat was not observed during the habitat assessment. No known localities within the property vicinity (nearest occurrences in Yolo County near Dunnigan). Critical habitat does not occur on the property. Not expected to occur.
California red-legged frog (*Rana aurora draytonii*)	FT; CH; CSC	Believed to either never have occurred or to have been extirpated from Valley floor. Inhabits lowlands and foothills in or near permanent deep water with dense growth of emergent and woody riparian vegetation, bordering permanent and semi-permanent ponds, ponded streams, marshes, and springs. Upland habitat surrounding breeding areas is important for shelter during dispersal and aestivation.	Marginal habitat for the California red-legged frog (CRLF) exists on the property. However, no CNDDB records were found for CRLF within 10 miles of the property. Because the species is believed to either have never occurred or to have been extirpated from the Valley floor, it is not expected to occur.
Western spadefoot toad (*Spea hammondii*)	CSC	Inhabits lowlands in open areas with sandy or gravelly soils, in a variety of habitats, including mixed woodlands, grasslands, chaparral, sandy washes, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Breeds from January to May in temporary pools and quiet streams.	Marginal suitable habitat for the species exists within the property. No CNDDB records of the species exist near the property. Low potential to occur.

Species	Listing Status[1]	Habitat Association	Potential in Area
Reptiles			
Western Pond Turtle (*Clemmys marmorata*)	CSC	Can be found throughout the state inhabiting woodland, grassland, and open forest habitats that contain ponds, permanent pools along intermittent drainages, lakes, marshes, rivers, streams, or irrigation ditches with rocky or muddy bottoms and emergent or aquatic vegetation.	Cache Creek provides a permanent water source for this species, and upland areas surrounding this waterway could provide suitable nesting habitat. Though no CNDDB records were found for the turtle near the property, there is a moderate potential for the species to occur.
Giant garter snake (*Thamnophis gigas*)	FT; ST	Prefers freshwater marsh and low gradient stream habitats with sufficient prey base of frogs, tadpoles, and small fish, including extensive rice fields in the Central Valley. Has adapted to drainage canals and irrigation ditches surrounding farmlands. Habitat requirements consist of 1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; 2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; 3) grassy banks and openings in waterside vegetation for basking; and 4) higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter. Giant garter snakes are typically absent from wetlands with sand, gravel, or rock substrates.	Suitable aquatic habitat for the giant garter does not exist in or around the project area. Though Cache Creek and one large canal exist in the area, the substrate of Cache Creek consists of gravel and rocks, and the large canal along the northern portion of the property lacks emergent herbaceous vegetation and a substantial prey base, and has limited upland basking sites due to the highly disturbed nature of the adjacent farm roads. Due to lack of suitable habitat, this species is not expected to occur.

Species	Listing Status[1]	Habitat Association	Potential in Area
Birds			
Tricolored blackbird (*Agelaius tricolor*)	CSC	Colonial species, most numerous in Central Valley and vicinity. Largely endemic to California; requires open water, protected nesting substrate, and suitable foraging areas within a few kilometers of the colony.	Freshwater and wetland habitat within Cache Creek provides marginal nesting habitat. Due to the generally narrow width and sparse nature of the vegetation; open grassland and agricultural habitats provide suitable foraging habitat. The species is considered to have moderate potential for occurrence.
Burrowing owl (*Athene cunicularia*)	CSC	Nests in subterranean burrows often created by mammals within open, dry, annual or perennial grasslands; deserts; and scrublands characterized by low-growing vegetation.	Suitable mammal burrows that would provide nesting habitat for the species were not observed within the grassland areas on the property. A few small burrows were observed adjacent to Cache Creek, in low-growing vegetation areas. Low potential to occur.
Ferruginous hawk (*Buteo regalis*)	CSC	Breeds in interior western and Great Plains states. Habitats include agricultural flatlands, open prairies, deserts, and semi-arid grasslands featuring scattered trees, rocky mounds, or outcrops. May roost or nest on utility structures, trees, shrubs, cliffs, or ground outcroppings. May roost communally and forage in groups on the ground during winter migration (August to September and February to April). Winter resident in the Central Valley, Modoc Plateau, and coastal ranges of California.	Agricultural flatlands in and around the property may provide suitable habitat. Moderate potential to occur as a winter resident.

Species	Listing Status[1]	Habitat Association	Potential in Area
Swainson's hawk (*Buteo swainsoni*)	ST	Nesting habitat consists of open areas with stands of few, dense-topped trees in juniper-sage flats, riparian areas, and oak savannas. Foraging habitat consist of open grasslands, grain, and alfalfa fields (supporting rodent populations) adjacent to nesting opportunities. In California, the current breeding range includes the Central Valley and the northeastern corner of the state. Winters in South America.	Marginal nesting habitat on the property is limited to a few stands of cottonwood near Cache Creek, though adjacent land provides numerous nesting opportunities for the Swainson's hawk. Marginal foraging habitat exists on the property in grassland areas and over agricultural fields. One Swainson's hawk was observed within the property, perched in a dead tree along the south bank of Cache Creek. Swainson's hawk is considered to have moderate potential to nest and forage in the property area, but high potential for incidental occurrence as a migrant to and from adjacent nesting and foraging sites.
Western snowy plover (*Charadrius alexandrinus nivosus*)	FT; CSC	Nesting federal listing applies only to the Pacific coastal population. Sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting.	Suitable habitat does not exist on the property. Not expected to occur.

Species	Listing Status[1]	Habitat Association	Potential in Area
Mountain plover (*Charadrius montanus*)	CSC	Interior valleys and low altitude plains. Ground-forages for large insects. Flocks may form in winter on short grass prairies, freshly plowed fields, and in grazed areas. This species is often associated with bare ground, flat topography, and burrowing rodents. Breeds out of state and most of the North American population winters in California in the San Joaquin and Sacramento Valleys. Arrives in September, October, and November.	Agricultural practices on the property provide suitable wintering and foraging habitat. One CNDDB record was found approximately 2 miles north of the property. Moderate potential to occur.
Northern harrier (*Circus cyaneus*)	CSC	Forages for small birds and mammals over meadows, farmlands, grasslands, and rangelands. Perches on ground or low fence posts; usually seen flying low over ground when foraging. Nests on the ground in fields or along the edges of marshes.	Suitable nesting and foraging habitat exists on the property. Observed during field survey. High potential to occur.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FC	Nests in riparian forests along broad, lower floodplains of larger river systems. Requires broad, well-developed, low-elevation riparian woodlands of primarily mature cottonwoods and willows. Extirpated from a large portion of the historical range in California with current breeding populations restricted to four major areas (the Sacramento Valley, Kern River, Lower Colorado River and the Prado Basin). Local breeding records occur along the Feather River in Sutter and Yuba counties. Winters in South America and migrates north during May or June. Flies south beginning in August.	Riparian habitat along Cache Creek near the property is marginal and does not contain a substantial amount of broad, well-developed woodland. Not expected to occur.

Species	Listing Status[1]	Habitat Association	Potential in Area
White-tailed kite (*Elanus leucurus*)	CFP	This species was decimated in the 1800s and 1900s by sport shooting. Adaptable. Found in open grasslands, savanna, open woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields with scattered trees for nesting and perching. Breeds from January through August and may incubate a second brood. Nests in large shrubs or trees often in riparian corridors where it competes with other raptors for suitable nest sites. May roost communally in winter.	Open grassland and agricultural fields provide suitable foraging habitat, and scattered isolated trees and small tree groves may provide suitable nesting and roosting substrate. Moderate potential to occur.
Bald eagle (*Haliaeetus leucocephalus*)	FD; SE; CFP	Nests in the upper canopy of towering mature trees with open branches, or in large stick nests on cliffs near large rivers, lakes, bays, and coastlines. Primarily feeds on fish. California contains resident pairs and winter migrants. Migrants arrive late in fall and winter among dense conifer stands. Wintering areas include large rivers, lakes, reservoirs, and additional habitats along migration routes.	Suitable nesting habitat absent and the property does not intersect species' current known breeding distribution. There are no CNDDB records for the species in the property area. Bald eagles are not expected to breed in the area, but may occur as migrants. Low potential to occur as a migrant.

Species	Listing Status[1]	Habitat Association	Potential in Area
Bank swallow (*Riparia riparia*)	ST	Historically found along large, lowland rivers, and along the coast in Southern California. Breeding ranges are restricted to the Sacramento Valley (Sacramento and Feather rivers), northeastern California, and small areas of the central and north coast. Inhabits riparian lowlands and nests in colonies. Requires vertical cliffs or soft banks with fine textured soils near streams, rivers, lakes, and ocean for nesting. Suitable nesting habitat declining from flood control measures (river channelization and artificial bank stabilization). Winters in South America.	Vertical cliffs or soft banks of Cache Creek may provide suitable nesting substrate. Suitable foraging habitat exists over the creek. CNDDB records exist within 10 miles of the property. High potential to occur.
Northern spotted owl (*Strix occidentalis caurina*)	FT	Uncommon to rare. Inhabits canyons with oaks and conifers. Roosts during the day in trees; hunts at night from perch for small mammals.	Suitable habitat does not exist on the property. Not expected to occur.
Mammals			
Pallid bat (*Antrozous pallidus*)	CSC	Inhabits desert and canyon habitats through mixed coniferous forests. Daytime roosts in caves, mines, hollow trees, and other shelters. Nighttime roosts in buildings, caves, mines, and cliff overhangs.	There are no CNDDB records for the species in the property area. However, anthropogenic structures on the property provide potential nighttime roosting habitat. Low potential to occur.

Species	Listing Status[1]	Habitat Association	Potential in Area
Pacific Western big-eared bat (*Corynorhinus townsendii townsendii*)	CSC	Subspecies of Townsend's big-eared bat. Found in western desert scrub, pine forest regions, native grasslands, riparian communities, and active agricultural areas. Uses caves, rock crevices, buildings, artificial structures, and tree hollows for roosting. Forages along riparian edge habitats in a variety of wooded habitats. Females form maternity colonies in mines, caves, or buildings. Males roost individually. Winter hibernation in caves and abandoned mines. Sensitivity to disturbance at roosting sites.	There are no CNDDB records for the species in the property area. However, anthropogenic structures on the property provide potential roosting habitat. Low potential to occur.
American badger (*Taxidea taxus*)	CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not observed; however, smaller mammal burrows in friable soils were observed near Cache Creek, which may represent suitable prey. Low potential to occur.

Source: CNDDB, 2007; CNPS, 2007; Moyle, 2002; Sibley, 2003; Stebbins, 2003; USFWS, 2007a; USFWS, 2007b.

[1]Definitions

Federal

FE	Federally endangered
FT	Federally threatened
CH	Critical habitat
FC	Federal candidate for listing
FD	Federally delisted
CCH	Candidate for critical habitat

California

SE	State endangered
ST	State threatened
CSC	California species of concern
CFP	California fully protected

California Native Plant Society

1B	Rare, threatened, or endangered in California and elsewhere

Delineation of Jurisdictional Waters and Wetlands

Fieldwork for the delineation was conducted May 22, 2007 by TRC biologists Ceri Williams-Dodd and Ryan Villanueva. The delineation involved walking the extent of all drainages/features on the property and physically identifying hydrologic, vegetative, and geomorphic characteristics within the property in order to delineate jurisdictional waters, including wetlands. Wetlands were identified by the "three-factor" approach, in which criteria for wetland hydrology, hydrophytic vegetation, and hydric soils must all be met to conclude that an area is wetland, as described in the 1987 Corps Wetland Delineation Manual. A separate delineation report was prepared, included as Attachment D.

4.0 CACHE CREEK AREA PLAN

Yolo County has adopted the Cache Creek Area Plan which includes the Cache Creek Resource Management Plan (CCRMP) and the OCMP. The CCRMP governs activities within the banks and the 100-year flood plain of Cache Creek, and the OCMP governs mining operation and reclamation activities outside of the channel. Adoption of the CCRMP discontinued commercial mining within the active creek channel, and the goals, objectives, actions, and Performance Standards of the CCRMP aim to:

- Improve the stability of the channel;
- Minimize flood damage;
- Restore wildlife;
- Prescribe standards and regulations for initial channel smoothing and shaping;
- Recommend ongoing maintenance activities and creek restoration efforts;
- Provide year-round flows in many portions of the creek;
- Identify restoration project areas (including restoration and enhancement of previously mined areas adjoining the active channel creek;
- Provide buffers for existing and future agriculture from restoration and recreation areas.

The Yolo County Cache Creek Improvement Plan includes implementation of Test 3 Line as part of the CCRMP, which includes construction of engineered channel embankments at key locations to improve channel hydraulics. Yolo County holds a general permit that covers minor bank and channel stabilization, habitat management, and floodway management projects within the 100-year floodplain that are consistent with the CCRMP. A Flood Hazard Development Permit may be applied for directly from the County to conduct these types of activities within the CCRMP area (County of Yolo, 2007). Conditions of approval under this permit include compliance with all applicable requirements of CDFG Streambed Alteration Agreement R2-2002-251 (issued August 30, 2002), Corps General Permit #58 (issued May 1, 2004), RWQCB 401 Certification dated August 28, 2002, and the USFWS September 19, 1996 Programmatic Formal Consultation pursuant to the draft and final Supplemental Environmental Impact Report (EIR) dated April 2002 and July 2002 respectively. The Flood Hazard Development Permit also requires compliance with existing approved spill prevention and emergency plan (or equivalent procedures), and a requirement to return the disturbed low flow creek channel to the original alignment and conditions upon completion of the project.

Granite's submittal includes a net benefit proposal with implementation of a segment of the Test 3 Line for Cache Creek, which has already been analyzed under separate environmental documents and will require the approval of a Flood Hazard Development Permit for Yolo County. The Test 3 Line implementation is not a part of Granite's proposed project and is therefore not considered in this BA.

5.0 DESCRIPTION OF THE PROPERTY

The Granite Esparto property consists mainly of agricultural production, including row crops, English walnut (*Juglans regia*) orchards, and almond (*Prunus dulcis*) orchards. A portion of the property includes nonnative grassland that appears to have been previously disturbed (graded), and the southern quarter of the property includes an access road to Granite Construction's existing gravel mining operation and the banks and bed of Cache Creek. A small rural/agricultural development exists at the center of the property, and consists of a house, a barn, and associated smaller structures. A network of irrigation ditches crosses the property north of the gravel mining access road, and West Adams Canal runs along the northern edge and northwestern corner of the property.

A majority of the property is regularly disturbed by farming practices and is not likely to support many terrestrial special-status species that have potential to occur at the property. Orchards and ornamental trees may provide roosting habitat for some of the special-status avian species that were identified in the literature review, though suitable nesting trees are limited to a few larger ornamental trees near the house and a few small stands of cottonwood near the creek. The grasslands and riparian areas adjacent to Cache Creek are less disturbed and are more likely to host some of the sensitive species described above.

Ornamental native and nonnative plant species, including toyon (*Heteromeles arbutifolia*), oleander (*Nerium oleander*), valley oak (*Quercus lobata*), eucalyptus (*Eucalyptus globulus*), sycamore (*Platanus racemosa*), juniper (*Juniperus californica*), and pine (*Pinus* spp.) have been planted along Fulton and Frank Lane and near the developed areas around the house and barn. Nonnative grasses make up a majority of the rest of the plant species that were observed above the gravel mining access road. Species typical of Central Valley riparian habitats were observed near Cache Creek, including Fremont cottonwood (*Populus fremontii*), willow (*Salix* spp.), and mule's fat (*Baccharis salicifolia*).

A list of species observed during the habitat assessment is included as Attachment E.

5.1 PLANT COMMUNITIES AND HABITAT TYPES

The property and surrounding areas support the following plant communities:

- Great Valley Willow Scrub
- Irrigated Row Crop
- Nonnative Grassland

- Orchard
- Riverine
- Ruderal/Ornamental
- Fence Row

Great Valley Willow Scrub

Great Valley Willow Scrub typically consists of an open to dense, broadleafed, winter-deciduous, shrubby, streamside thicket dominated by any of several willow species. Dense stands usually have little understory or herbaceous component. More open stands have grassy understories, usually dominated by introduced species. A majority of the Great Valley Willow Scrub along Cache Creek on the property has sparse stands of cottonwood with an open understory dominated by willow and other low shrubs and grasses including ripgut brome (*Bromus diandrus*), Mexican tea (*Chenopodium amnrosioides*), and hedge mustard (*Sisymbrium officinale*).

Great Valley Willow Scrub is located along the margins of Cache Creek. A small segment of this habitat type that includes approximately five larger cottonwood trees occurs along the south side of Cache Creek and will not be disturbed by the project. These trees may provide suitable nesting or roosting sites for raptors. To this extent, the cottonwood component of Great Valley Willow Scrub habitat has a high value to avian species, but constitutes a relatively small proportion of this habitat type within the project area. In general, Great Valley Willow Scrub has moderate habitat value for special-status species with the potential to occur in the project area.

Irrigated Row Crop

Irrigated row crops make up a majority of the agricultural production area on the property. During the assessment, onions were the only identified crop. Other fields had newly-sprouted vegetable crops, or were not yet planted.

Avian species may forage in these areas, as a northern harrier was observed foraging and a number of species, including mallard (*Anas platyrhynchos*), western kingbird (*Tyrannus verticalis*), and killdeer (*Charadrius vociferous*), were observed in or adjacent to these fields. However, the highly disturbed nature of row crops makes them unlikely to host special-status species beyond occasional foraging or incidental occurrence. Thus, this habitat type has a low value for special-status species with the potential to occur in the project area.

Nonnative Grassland

Nonnative grassland covers a portion of the property west of the walnut orchards and south of Fulton and Frank Lane. It also covers the slope between the gravel mining access road and the great valley willow scrub habitat north of Cache Creek. This habitat consists of a dense to sparse cover of annual grasses interspersed with flowering stalks approximately 1 to 3 feet high. It provides suitable habitat for a number of species, including burrowing mammals (such as ground squirrel (*Spermophilus beecheyi*) and American badger, and suitable foraging habitat for a number of species. Two large gopher snakes (*Pituophis catenifer*) were observed basking in

small mammal burrows along the slope of the gravel mining access road nearest Cache Creek in nonnative grassland habitat, and one was observed dead on the road adjacent to nonnative grassland.

Stands of cottonwood trees were observed interspersed along the margins of the nonnative grassland habitat where water sources from irrigation and Cache Creek were persistent. Several blacktail jackrabbits (*Lepus californicus*) were observed in the nonnative grassland habitat adjacent to the Granite Capay Facility access road. One Swainson's hawk was observed along the southern bank of Cache Creek, and a number of avian species were observed flying over the area, including cliff swallow (*Hirundo pyrrhonota*), turkey vulture (*Cathartes aura*), California quail (*Calipepla californica*), mourning dove (*Zenaida macroura*), belted kingfisher (*Ceryle alcyon*), red-winged blackbird (*Agelaius phoeniceus*), and northern harrier.

Nonnative grasslands may provide suitable foraging and nesting opportunities for a number of species and this habitat type has moderate habitat value for special-status species with the potential to occur in the project area. However, nonnative grassland constitutes a relatively small proportion of the project area, and project impacts will not represent a significant loss of this type of habitat due to its abundance in the surrounding area.

Orchard

English walnut orchards are located just south of Fulton and Frank Lane on the eastern edge of the property and on a thin strip of land along the western edge of the property. An almond orchard is located in the northwest corner of the property. The soil around these orchards is regularly irrigated and fertilized, and pesticides are applied near the trunks of the trees. Though vegetation under the trees is sparse, some shorter grasses do grow where the soil is undisturbed.

Orchards on the property provide marginally suitable foraging habitat for a number of avian species – the use of any insecticides in this area would likely deplete suitable food sources. No nests were observed in orchard habitat during the assessment. The orchards are not likely to provide suitable nesting habitat for special-status species based on regular irrigation and maintenance of this area. Therefore, this habitat type has low value to avian and other special-status species with the potential to occur in the project area.

Riverine

Riverine habitat is located along the banks and in the bed of Cache Creek. This habitat consists predominantly of gravel bars and open water, with patches of riparian vegetation consisting of mule's fat and willow species near persistent water sources. Where seasonal water flow becomes ponded, marsh-like habitat may develop. One pool of ponded water was supporting a small strip of marsh-like habitat with tules (*Schoenoplectus acutus* var. *occidentalis*), cattail (*Typha* spp.), and other emergent species. At the time of the assessment, the flow in Cache Creek was low, covering only a small portion of the creek bed nearest the north bank.

Carcasses of two carp (*Cyprinus* spp.) were observed within the creek bed. One small, unidentified fish was observed swimming in the creek near the County Road 87 bridge, and a number of swallows were seen foraging around the area. One northern harrier was observed foraging over the creek bed.

Due to the barren nature of the riverine habitat and the highly disturbed nature of the flow regimes in Cache Creek within the assessment area, special-status species are not expected to occur in great numbers. Though special-status aquatic species such as steelhead or Chinook salmon occurred historically in Cache Creek and Chinook were observed just downstream of the property during a 2000 toxicity study (Moyle and Ayres, 2000), poor water quality and difficult access to the creek near the property significantly reduce the potential for aquatic special-status species to utilize Cache Creek for spawning and rearing. Avian and terrestrial special-status species may utilize riverine habitat on the property for foraging and as a water source. Thus, riverine habitat has a moderate value to special-status species that have potential to occur within the project area.

Ruderal/ Ornamental

Ruderal vegetation is generally dominated by nonnative weedy species in significantly disturbed areas. The roads on the property are bordered by ruderal vegetation where disturbance is constant and includes tilling and mowing. Ornamental species, including toyon, oleander, valley oak, eucalyptus, sycamore, juniper, and pine, have been planted along some of the roads and around the house and barn on the property, and are surrounded by nonnative grasses and small shrubs. Three smaller areas along the western edge of the property, where farm equipment and brush have been stored, also consist of ruderal vegetation. Ruderal and ornamental areas on the property may provide suitable foraging habitat for avian and terrestrial species, and larger ornamental shrubs or trees may provide marginal nesting substrate for avian species. However, due to the regularly disturbed nature of this type of habitat, ruderal/ornamental habitat has a low value to special-status species with the potential to occur within the project area.

Fence Row

Fence row habitat typically consists of scattered native trees, shrubs, and ground covers within field margins. Fence row habitat was assessed pursuant to County Ordinance 10-5.509. There is negligible fence row habitat located on the property. Approximately 5 walnut trees and 10 shrubs occur near the southeast corner of the southern orchard along the edge of the Granite haul road. Also, one pine tree exists across from the barn, and some ornamental vegetation along Fulton and Frank Lane. No other areas represent fence row habitat within the property. Due to the overall lack of vegetation, fence row habitat has a very low value to special-status species that have potential to occur in the project area.

5.2 JURISDICTIONAL WATERS AND WETLANDS

As outlined in the delineation report included as Attachment D, CDFG “waters of the State” on the property include 47 acres (43.3 acres of riverine habitat and 3.7 acres of Great Valley Willow Scrub) within Cache Creek and adjacent riparian habitat. The U.S. Army Corps of Engineers

(Corps) and Regional Water Quality Control Board (RWQCB) "waters of the U.S." include the 43.3 acres of riverine habitat within Cache Creek. Of this, a total of 0.1 acre consists of Corps jurisdictional wetlands. The remaining 43.2 acres would be considered Corps jurisdictional non-wetland waters. The wetlands appear to have developed in depressional areas within the creek bed, created as a result of scour and subsequent ponding of water. A summary of jurisdictional waters and wetlands on the property is provided in Table 2, below. The acreages of jurisdictional waters and wetlands are the total for the ±390 total land surveyed (i.e., two full parcels). The project will not impact state or federal jurisdictional waters or wetlands. The disturbance to the northern edge of the jurisdictional waters will occur exclusively as a result of Granite's proposal to implement a portion of the County's Test 3 line. A visual screening berm will be constructed on top of the Test 3 Line implementation area on the south side of the Capay haul road. Surface mining operations will be limited to the area north of the existing Capay haul road.

Table 2: Summary of Jurisdictional Waters and Wetlands on the Property

Waters of the State (Acres)	Waters of the U.S. Non-Wetland (Acres)	Wetlands (Acres)
47	43.2	0.1

6.0 SPECIES ACCOUNTS AND STATUS OF SPECIES ON THE PROPERTY

6.1 SENSITIVE WILDLIFE SPECIES WITH POTENTIAL TO OCCUR ON THE PROPERTY

The CNDDB documents several special-status wildlife species occurrences within the vicinity of the property, and suitable habitat was observed on the property for many of the species found on USFWS, NMFS, and CDFG lists. The following section describes the habitat requirements for special-status species that were determined to have potential to occur on the property based on the literature review and the property assessment.

Western Spadefoot Toad (*Spea hammondii*)

The western spadefoot toad is a California species of concern. It ranges from the northern end of California's Central Valley south into northwest Baja California. It also ranges east of the Sierras and the deserts, from near sea level up to 4,000 ft (1,200 m). The spadefoot prefers open areas with sandy or gravelly soils, in a variety of habitats, including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. The spadefoot breeds from January to May in temporary pools and quiet streams that do not contain bullfrogs, fish, or crayfish. The species burrows into drying pool bottoms or seeks refuge in mammal burrows to pass the dry season (Stebbins, 2003).

Western spadefoot toads may utilize the riverwash and upland areas adjacent to Cache Creek. Loose soils in the assessment area may provide potential aestivation habitat. Though no CNDDB

records were found for this species, there is a low potential for the western spadefoot toad to occur in the area near Cache Creek.

Western Pond Turtle (*Clemmys marmorata*)

The western pond turtle is a California species of concern. In California, western pond turtles were historically present in most Pacific-slope drainages between the Oregon and Mexican borders (Jennings and Hayes, 1994). The turtle is divided into two subspecies; the northwestern sub-species (*C. m. marmorata*) and the southwestern sub-species (*C. m. pallida*). This assessment focuses on the northwestern sub-species. The turtle is associated with still or slow-moving, permanent or nearly permanent aquatic habitats with access to suitable basking sites (logs, rocks, or open banks), and nearby upland nesting habitat. Western pond turtles are thoroughly aquatic and can be found throughout the state inhabiting woodland, grassland, and open forest habitats that contain ponds, permanent pools along intermittent drainages, lakes, marshes, rivers, streams, or irrigation ditches with rocky or muddy bottoms and emergent or aquatic vegetation (Stebbins, 2003).

The western pond turtle is not known to occur in the property area from CNDDB records, but suitable habitat exists along Cache Creek. Upland areas surrounding this waterway could provide suitable nesting habitat. Thus, the western pond turtle has moderate potential to occur in the property area.

Tricolored Blackbird (*Agelaius tricolor*)

The tricolored blackbird is a California species of concern. Tricolored blackbirds are nearly endemic to California and the vast majority of the breeding population occurs in the Central Valley (and encompasses all valley counties), with populations also occurring in northeastern California and along the central and southern California coast. Nesting colonies are vulnerable to agricultural practices, wetland alteration and destruction, introduced predators, pesticides, and poisons. The species is a colonial nester that requires a protected nesting substrate of tall, emergent, or shrubby vegetation over or near open water. Foraging habitat includes annual grasslands, seasonal wetlands, agricultural fields, riparian areas, and cattle dairies. This species may visit lowland areas within mixed species flocks from October through March (Hamilton, 2004).

The emergent vegetation along freshwater habitat in Cache Creek and along area canals may provide suitable nesting habitat for the tricolored blackbird. However, due to its narrow and sparse nature, it may not provide enough protection to nesting birds from predators. CNDDB records in Yolo County have documented tricolored blackbirds using linear habitats that are likely no wider than the emergent vegetation observed during the habitat assessment. Brush thickets scattered throughout the area also provide suitable nesting substrates. Therefore, the species is considered to have moderate potential for occurrence in the area.

Burrowing Owl (*Athene cunicularia*)

The burrowing owl is a California species of concern. Burrowing owls range throughout most of the interior western United States, southern Canada, the Central Valley of California, southern California, throughout Mexico into Central America, and along the western half of Florida. The species is declining, with many populations extirpated from habitat loss/fragmentation and burrowing rodent control (Johnsgard, 1990; Klute et. al., 2003). Burrowing owls inhabit open, dry, gently rolling to flat grasslands, scrublands, road and railway rights-of-way, open urban habitats (i.e. airfields, campuses, and golf courses), and agricultural lands. Essential habitat characteristics for the burrowing owl are low-growing, sparse vegetation, and the occurrence of larger burrowing rodents, such as ground squirrels and prairie dogs (Klute et.al., 2003). One occupied burrowing owl nesting burrow was observed within suitable habitat on the adjacent mining operations to the west during surveys conducted in 1995 (Zentner and Zentner, 1995).

Grasslands in the study area had limited burrowing owl nesting potential, as suitable burrows were scarce at the time of survey. Burrowing mammals such as ground squirrels were not observed during the assessment, nor were many suitable burrows. Due to the highly modified nature of agricultural lands, the minimal amount of mammal burrows found on the property, and the lack of CNDDB records for the species, there is only a low potential for burrowing owls to occur.

Ferruginous Hawk (*Buteo regalis*)

The ferruginous hawk is a California species of concern. The hawk's breeding range encompasses most of the interior western United States and central-southern Canada. The species winters throughout southwestern North America and into Mexico. The species is wholly a winter migrant in California. Reasons for declines include loss of suitable breeding and wintering habitat. The ferruginous hawk inhabits sagebrush flats, desert scrub, low foothills surrounding valleys, fringes of pinyon-juniper habitats, and semi-arid grassland habitats with scattered trees, rock outcroppings, and riparian corridors with tall trees. Suitable habitats must support the hawk's main diet components, which are large rodents and lagomorphs (black-tail jackrabbits) (Johnsgard, 1990).

The open grasslands in the southern portion of the property provide suitable wintering habitat for the ferruginous hawk. Though the riparian corridor along Cache Creek on the property does not consist of many tall trees, an abundance of lagomorphs was observed during the assessment, which would provide foraging opportunities for the hawk. Though no CNDDB records were found for the species, there is a moderate potential for the hawk to occur as a winter resident.

Swainson's Hawk (*Buteo swainsoni*)

The Swainson's hawk is listed as threatened in California. Its breeding range includes the interior western United States, northern-central Mexico, northeastern Alaska and northwestern and south-central Canada, and the Central Valley of California; it winters primarily in South America (Johnsgard, 1990). Breeding occurs from March to August (Dunne et al., 1988). Threats include loss of preferred mature riparian forest nesting habitat, loss or adverse modification of high-

quality foraging habitat (open grasslands and high-prey yielding crops, such as alfalfa) from development or conversion to incompatible (low-prey yielding) crop types, and pesticide use on migration route and wintering areas (Woodbridge, 1998).

Nesting habitat consists of open areas with stands of few, dense-topped trees in juniper-sage flats, riparian areas, and oak savannas. Foraging habitat consists of open grasslands, grain, and alfalfa fields (supporting rodent populations) adjacent to nesting opportunities. Swainson's hawks typically nest in stands with only a few trees in the above-mentioned habitats, as well as within agricultural areas. Hawks can become relatively habituated to human presence and activity. They readily occupy habitat within agricultural and rural residential areas, usually along roadsides where suitable nest trees are located, but sudden changes in activity regimes (construction in previously open areas, or human intrusion) frequently causes nest abandonment, particularly during certain times of the breeding season (Johnsgard, 1990; Woodbridge, 1998).

Suitable nesting habitat on the property is limited to a few stands of cottonwood near Cache Creek, though adjacent land provides numerous nesting opportunities for the Swainson's hawk. Marginal foraging habitat exists on the property in grassland areas and over agricultural fields. One Swainson's hawk was observed within the property, perched in a dead tree along the south bank of Cache Creek. Though nesting and foraging habitat is only marginal in the project area, surrounding areas provide habitat for the species. Thus, the Swainson's hawk is considered to have moderate potential to nest and forage in the property area, but high potential for incidental occurrence as a migrant to and from adjacent nesting and foraging sites.

Mountain Plover (*Charadrius montanus*)

The mountain plover is a California species of concern. The plover breeds in the interior states of Montana, Wyoming, Colorado, New Mexico, and from the Texas Panhandle east to Nebraska. It winters from central California and southern Arizona southward into Mexico. Threats to the species are primarily attributed to the conversion of native prairies to croplands, significantly reducing the availability of suitable nesting habitat, and nest destruction from agricultural practices. The mountain plover is one of the few shorebirds that live in dry regions away from water, preferring short-grass prairies and dry lowland areas. They are often found on grassy or bare dirt fields. Currently, mountain plovers are also found on human-made landscapes such as sod farms, cultivated fields that may mimic their natural habitat associations, and other sites with little vegetation such as alkali flats (National Geographic Society, 2002; USFWS, 2003).

The grasslands and agricultural fields in the property area offer suitable wintering habitat for potentially occurring mountain plovers. One CNDDB record of the plover was found approximately two miles north of the property. The species is considered to have moderate potential to winter in the area.

Northern Harrier (*Circus cyaneus*)

The northern harrier is a California species of concern. Formerly known as the marsh hawk, the northern harrier is a slim, long-winged, long-tailed, raptor of open country. In all of the various plumages, a white rump patch is exhibited. This hawk nests on the ground in shrubby vegetation,

usually at the edge of a marsh. The nest is built out of a large mound of sticks in wet areas, and a smaller cup of grasses on dry sites. Most of the nests are found in emergent wetlands or along rivers or lakes, but it may also nest in grasslands, grain fields, or on sage brush flats that are several miles from water. Harriers usually perch on the ground but will use fence posts or other low perches and occasionally trees (Johnsgard, 1990). In the winter, communal ground roosts of a few to hundreds of birds can be found.

The northern harrier can be found in annual grasslands on the Valley floor up to the lodgepole pine belt and alpine meadow habitats which can be as high as 10,000 feet. It breeds from sea level to 5,700 feet in the Central Valley and both slopes of the Sierra Nevada. In northeastern California, it is found to breed up to 3,600 feet. It frequents meadow areas, grasslands, open range lands, the desert sinks, and fresh and saltwater emergent wetlands. Northern harriers are seldom found in wooded areas. They appear to be permanent residents of the northeastern plateau and coastal areas, and a less common resident of the Central Valley. Wintering or migrant northern harriers were observed foraging on the adjacent mining operations to the west during surveys conducted in 1995 (Zentner and Zentner, 1995).

Northern harriers can be locally abundant where suitable habitat remains free of disturbance, especially from results of intensive agriculture. They rely on the use of tall grasses and forbs in wetlands, or at wetland/field borders, for suitable cover. These borders or edges are especially important for nesting, feeding and cover. Their home range usually includes a freshwater site. They are very defensive of their territory and will attack other birds of prey and humans during breeding season. Northern harriers feed mainly on voles and other small mammals, birds, frogs, small reptiles, some crustaceans, insects, and, on occasion, fish.

Two northern harriers were observed on the property and suitable foraging and nesting habitats exist in the property area. Thus, the species has a high potential to occur on the property.

White-tailed Kite (*Elanus leucurus*)

The white-tailed kite is fully protected in California. The kite is a permanent resident of river valleys, riparian woodlands, and adjacent open fields and marshes in California's Central Valley and along the west coast (Johnsgard, 1990; National Geographic Society, 2002). Possible declines may be due to conversion of agricultural lands to urban areas, clean farming techniques that reduce prey populations, increased interspecific nest-site competition, and human disturbance at nests (Dunk, 1995).

White-tailed kites are found in open grasslands, savanna, open woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields with scattered trees for nesting and perching. They are often found along tree-lined river valleys with adjacent open areas, but are not usually found in forests or in clear cuts within forests. The white-tailed kite nests in dense, usually deciduous tree groves adjacent to open foraging areas, but will use oak woodlands and savanna as well. The nesting season is extended and variable depending on food availability, usually peaking from April to August, but beginning as early as February and ending as late as September (Johnsgard, 1990).

The assessment area's open grasslands and agricultural areas provide suitable foraging habitat for the white-tailed kite, though nesting opportunities on the property are limited. Thus, the white-tailed kite is considered to have moderate potential for occurrence.

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle is listed as endangered and fully protected in California, and was federally delisted on June 28, 2007. Currently, its main California breeding range is restricted to the northern Sierra Nevada, southern Cascade ranges, and interior northern Coastal range (Johnsgard, 1990; National Geographic Society, 2002). The bald eagle winters throughout its breeding range, but more frequently along coastal areas. It nests in large, mature trees, on cliffs near large bodies of water, or free-flowing rivers that provide an adequate fish prey base. The bald eagle requires large bodies of water for hunting and fishing, as well as adjacent snags or structures for perching. The species is highly susceptible to human disturbance during nesting activities. Threats include eggshell thinning from pesticide use, habitat loss, and human disturbance.

Very limited suitable nesting habitat is located in the assessment area, and the property is located outside current nesting distribution for the bald eagle. However, Cache Creek may provide foraging opportunities for the bald eagle, and the area may see an occasional migrant during the winter. No CNDDB records of the bald eagle were found in proximity to the property. The species is considered to have a low potential for occurrence as a migrant.

Bank Swallow (*Riparia riparia*)

The bank swallow is listed as threatened in California. It is a locally common to uncommon breeding season resident in northern and central California (Garrison, 1998). Because nesting only occurs in suitable habitat, breeding areas are widely dispersed throughout northern and central California in major lowland valleys, and coastal areas where alluvial soils exist. The major breeding population is confined to the Sacramento and Feather rivers, and major tributaries north of their confluence (Laymon et al., 1988). The Sacramento River population represented approximately 50 percent of the state's population in 1987, and the population occurs between Redding, Shasta County, and the Yolo Bypass, Yolo County. The Feather River supported 25 percent of the state's population in 1987; this population occurs between Oroville, Butte County, and the confluence of the Sacramento and Feather rivers, Sutter County.

Other relatively large breeding populations of several colonies have recently been found in the following locations: 1) Scott River, Siskiyou County; 2) Cache Creek, Yolo County; 3) Pit River, Shasta and Lassen counties; 4) American River, Sacramento County; 5) Cosumnes River, Sacramento County; 6) Salinas River, Monterey County; 7) Fall River, Shasta County; 8) Hat Creek and Lake Briton area, Shasta County; 9) Susan River and Baxter Creek, Lassen County; 10) Tule and Lower Klamath Lake area, Siskiyou and Modoc counties; 11) Clear Lake Reservoir, Modoc County; 12) Indian Creek, Plumas County; 13) Long Valley Creek, Lassen County; and 14) Bishop area, Inyo County.

Single colonies are widely scattered at other locations, including: 1) Smith River, Del Norte County; 2) Fort Funston/Lake Merced, San Francisco County; 3) Ano Nuevo, San Mateo County; 4) Pajaro River, Monterey and Santa Cruz counties; 5) Lake Crowley, Mono County; 6) Bridgeport, Mono County (T. and J. Heindel pers. comm.); 7) Topaz Lake, Mono County (T. and J. Heindel pers. comm.); 8) Lake Shastina, Siskiyou County; and 9) Santa Clara River, Ventura County. Threats to the species are primarily attributed to habitat loss and alteration from bank protection projects (CDFG, 1992).

Nesting colonies only occur in vertical banks or bluffs of friable soils suitable for burrowing by these small birds. Banks or bluffs must be at least one meter tall to have some predator deterrence values, and some source of continual erosion is almost always present. Breeding habitat vegetation is extremely varied because breeding sites are mostly selected for the suitability of the nesting bank. Throughout California, colonies are mostly located amidst lowland vegetation types, including riparian forests dominated by willows (*Salix* spp.), and Fremont cottonwood (*Populus fremontii*). Many colonies along the Sacramento and Feather Rivers occur near cultivated crops, including deciduous orchards, irrigated row crops, and dryland grain crops. Colonies at coastal locations are located near coastal grassland and coastal scrub communities, while colonies in montane environments in Shasta, Lassen, and Plumas counties occur in coniferous forests where pines and firs (*Abies* spp.) dominate. Colonies in northeastern California occur under irrigated pasture, riparian forests, and desert shrub habitats (Garrison, 1998).

River bank habitat along Cache Creek provides potential nesting substrate for the bank swallow. Agricultural fields and waterways provide suitable foraging opportunities. Numerous CNDDB records of the species exist along Cache Creek. The species is considered to have high potential for occurrence.

Pallid Bat (*Antrozous pallidus*)

The pallid bat is a California species of concern. Pallid bats occur throughout California, except in the high Sierra Nevada, from Shasta to Kern counties and the northwestern corner of the state from Del Norte and western Siskiyou counties (Hall, 1981 in CDFG, 1995). These bats inhabit a variety of habitats, including grasslands, shrublands, woodlands, and forests from sea level through mixed coniferous forests. They are common in grasslands and desert regions in the southwestern United States, and most abundant in the sonoran life zones; less abundant in evergreen and mixed forests than in vegetation assemblages characteristic of lower elevations (Hermanson, 1983 in CDFG, 1995). Pallid bats reside yearly in the majority of their range and they have been collected at sites up to 8,000 feet in elevation. In California pallid bats are associated with oak woodlands at lower elevations (BioSystems, 1994 in CDFG, 1995) and may roost in a variety of places, including tree cavities, rock crevices, and manmade structures.

Pallid bats travel 0.31 to 1.55 miles from the day roost for foraging. They will make longer movements to hibernation sites and for post-breeding dispersal, yet they are year long residents in most areas. Copulation occurs from late October to February and pregnancy averages nine

weeks with one to three young born from April to July. Lactation may occur from the beginning of May through the middle of August; the young are weaned at seven weeks, and begin to fly at four to five weeks of age (Hermanson, 1983 in CDFG, 1995). Pallid bats feed on large insects usually taken from the ground and activity is infrequent below 35 degrees Fahrenheit.

Manmade structures within the property may provide suitable roosting habitat for the pallid bat and foraging opportunities exist all around the property. However, as most of the property is continually disturbed, there is only a low potential for this species to occur.

Pacific Western Big-eared Bat (*Corynorhinus townsendii townsendii*)

The Pacific western big-eared bat is a subspecies of Townsend's big-eared bat and is a California species of concern. This bat is found throughout western North America, from British Columbia south to Oaxaca, Mexico, with two endangered subspecies in isolated areas in the Ozark and Central Appalachian regions of the United States. Threats include habitat loss and human disturbance (BCI, 2007). The Pacific western big-eared bat's most typical habitat is arid western desert scrub and pine forest regions. In the spring and summer, females form maternity colonies in mines, caves, or buildings, while males roost individually. In winter, these bats hibernate in caves and abandoned mines. They are extremely sensitive to disturbance at their roosting sites and have suffered severe population declines throughout much of the United States (BCI, 2007). These bats use caves, rock crevices, buildings, artificial structures, and tree hollows for roosting and forage along riparian edges in a variety of wooded habitats.

Manmade structures in the property area may provide potential roost and maternity sites. Other typical hibernation and young-rearing sites (mines and caves) were not observed. No CNDDB records exist for the species in the property area. However, as suitable foraging habitat does exist along the riparian areas adjacent to Cache Creek, the species is considered to have low potential for occurrence.

American Badger (*Taxidea taxus*)

The American badger, a California species of concern, was once fairly widespread throughout the open grassland habitats of California. Badgers are now an uncommon, permanent resident found throughout most of the state, with the exception of the northern North coast area. They are most abundant in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Badgers are generally associated with treeless regions: prairies, park lands, and cold desert areas. Cultivated lands have been reported to provide little usable habitat for this species (CDFG Bay Delta Region, 2007).

Badgers are basically solitary, nocturnal creatures, foraging at night and then remaining underground during the daylight hours. Badgers dig burrows for cover with 8- to 12-inch elliptical entrances in friable soils. These burrows generally have a single entrance. This animal frequently reuses old burrows, although some have been known to dig a new den each night, especially in summer. Soil excavated during formation of the den is piled at the entrance. Often when a den is occupied in cold weather, the tunnel is partially plugged (CDFG Bay Delta Region, 2007).

The badger feeds mainly on small mammals, especially ground squirrels, pocket gophers, rats, mice, and chipmunks. Badgers capture their prey by digging out the animal's burrows. The badger captures some of its prey above ground, foraging on birds, eggs, reptiles, invertebrates, and carrion. Its diet will shift throughout the year depending upon prey availability. The American badger is known to bury surplus food.

The American badger is somewhat tolerant of human activities. Predator control with the usage of indiscriminate trapping and poisons, along with habitat loss have caused extensive losses. Additionally, vehicular accidents, farming operations, and indiscriminate shootings are also causes of mortality. Being a burrowing animal, deaths caused by other factors may easily go undetected. Larger predators such as coyotes occasionally kill badgers (CDFG Bay Delta Region, 2007).

Extensive cultivation of surrounding lands and lack of numerous burrowing prey species make the property unlikely to support the American badger. However, as friable soils and some mammal burrows were observed near Cache Creek, there is a low potential for this species to occur.

6.2 SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR ON THE PROPERTY

The CNDDB documents four special-status plant species occurrences within the vicinity of the property. None of these species were determined to have potential to occur on the property based on the lack of suitable habitat.

7.0 POTENTIAL PROJECT IMPACTS

7.1 INTERRELATED AND INTERDEPENDENT IMPACTS

The project is not interrelated with any other action, and there are no known interdependent effects.

7.2 CUMULATIVE IMPACTS

Cumulative impacts include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BA. Future federal actions that are unrelated to the proposed action are not considered in this section because they will be subject to separate consultation by the Corps and USFWS pursuant to Section 404 of the CWA and Section 7 of the Endangered Species Act, as appropriate.

There are no other known mining operations, developments, or road expansions proposed in the surrounding area that would contribute to cumulative impacts. Existing land uses include the Capay mine to the immediate west, and agricultural operations that dominate the surrounding area.

7.3 IMPACTS TO EXISTING VEGETATIVE COVER AND WILDLIFE HABITAT

The portion of the property proposed for impacts by the project is limited to north of the Capay haul road. This area supports four habitat types:

- Irrigated Row Crop
- Nonnative Grassland
- Orchard
- Ruderal/Ornamental

Irrigated Row Crop

Irrigated row crops make up a majority of the agricultural production on the property. This habitat has a low value for special-status species due to the nature of the row crops with extensive plowing, planting and crop maintenance disturbances occurring on a frequent basis. The impact to irrigated row crop area will be **less than significant** considering the low value for wildlife and the expanses of similar habitat in the surrounding agricultural region, and because the habitat is not designated as critical habitat for any sensitive species.

Nonnative Grassland

Nonnative grassland covers a portion of the property west of the walnut orchards and south of Fulton and Frank Lane, and also the slope between the gravel mining access road and the Great Valley Willow Scrub habitat north of Cache Creek. This habitat has a moderate habitat value for special-status species, but constitutes a relatively small proportion of the project area and is in abundance in the surrounding area. The nonnative grassland that occurs within the 313-acre surface mining area will be impacted by the project. The impact will be **less than significant** considering there is a limited area impacted compared to the available similar habitat in the region, and that this habitat does not have high value for special status species and is not designated as critical habitat for any sensitive species.

Orchard

English walnut orchards are located just south of Fulton and Frank Lane on the eastern edge of the property and on a thin strip of land along the western edge of the property. An almond orchard is located in the northwest corner of the property. This habitat has a low value to avian and other special-status species with the potential to occur on the property. All orchard areas on the property will be impacted by the project. The impact will be **less than significant** due to the low value for special-status species and the expanses of similar habitat in the region, and because the habitat is not designated as critical habitat for any sensitive species.

Ruderal/ Ornamental

Ruderal/ornamental vegetation on the property is present bordering roads, and around the house, barn and farm equipment storage areas. Due to the regularly disturbed nature of this type of

habitat, it has a low value to special-status species with the potential to occur within the project area. All ruderal/ornamental habitat on the property will be impacted by the project. The impact will be **less than significant** considering the limited area involved and the low value to special status species, and because the habitat is not designated as critical habitat for any sensitive species.

7.4 IMPACTS ON SENSITIVE NATURAL COMMUNITIES

Cache Creek could be considered a sensitive natural community. The project will not impact this community. Impacts to the northern bank of Cache Creek for implementation of the County's Test 3 Line will be conducted in compliance with the Flood Development Hazard Permit and conditions associated with the regulatory permits (CDFG, Corps, RWQCB and USFWS) pursuant to the CCRMP.

7.5 DISTURBANCE TO WILDLIFE MOVEMENT CORRIDORS

Cache Creek is the only significant wildlife movement corridor on the property. The project will not impact this corridor. Impacts to the northern bank for implementation of the County's Test 3 Line will be conducted in compliance with existing regulatory permits pursuant to the CCRMP that has a goal of creating a continuous corridor within the Creek.

7.6 IMPACTS ON SPECIAL-STATUS SPECIES

Only two special-status species (Swainson's hawk and Northern harrier) were observed during field surveys. Of the total 14 special-status species with a potential to occur on the property, the project area has the potential to support a total of 10 special-status species rated as low (total of four species), moderate (total of five species) or high (total of one species). Potential impacts to these species are outlined below.

General potential construction-related impacts to special-status species can include direct impacts to individuals, eggs, burrows, or nests through excavation, crushing, burial, displacement, or disturbance; and indirect impacts through loss of nesting or foraging habitat, noise, or water contamination from sediment or spilled materials such as diesel fuel. No indirect impacts are expected as a result of surface water or groundwater contamination or sediment loading because the project will implement and maintain water quality measures pursuant to federal, state and local regulatory standards, including Best Management Practices pursuant to the RWQCB Water Quality Certification for the CCRMP. Therefore this impact will not be assessed further.

Impacts to Species with a High Potential to Occur in the Project Area

Northern Harrier

Two northern harriers were observed on the property and potentially suitable foraging and perching nesting habitats exist in the project area within nonnative grassland habitat and small trees/shrubs. The potential for impacts to northern harrier individuals or nests in these areas can be effectively mitigated through measures recommended in Section 8.0, including avoiding disturbance to nesting habitat during the nesting season when possible, or conducting preconstruction surveys during the nesting season and avoiding any active nests. Establishing an avoidance buffer around any active nests will mitigate for potential indirect noise impacts. Once ground in a given area is disturbed and suitable nesting/roosting/perching habitat within the project area has been disrupted or removed, it is unlikely that this species will return to nest, roost or perch, so no further direct impacts would be expected. Indirect impacts through the removal of nesting, roosting and perching habitat for this species (small shrubs and trees, as well as nonnative grassland) will be **less than significant** since suitable ground nesting sites are limited in the project area and there is similar habitat in the surrounding area. Impacts to foraging habitat will be **less than significant** due to the relatively small portion of non-grassland within the project area, and due to the presence of habitat in the surrounding area. In addition, impacts to habitat will be mitigated through implementation of the Habitat Restoration and Landscape Visual Screening Plan for the project.

Avoidance measures for potential impacts recommended in Section 8.0 are expected to limit impacts to this species to a level that is **less than significant**.

This species is a state species of special concern. Therefore if this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

Impacts to Species with a Moderate Potential to Occur in the Project Area

Tricolored Blackbird

Potentially suitable habitat within the project area is limited to nonnative grassland and agriculture areas for foraging. Indirect impacts to tricolored blackbirds through the removal of potential foraging sites will be **less than significant** because abundant agriculture and riparian habitat exists around the project area for foraging. In addition, impacts to foraging habitat will be mitigated through implementation of the Habitat Restoration and Landscape Visual Screening Plan for the project. No further mitigation measures are considered necessary.

This species is a state species of special concern. Therefore if this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

Ferruginous Hawk

Potentially suitable nesting and roosting habitat for the ferruginous hawk within the project area is limited and consists of large trees (often a single large tree in an isolated/open area [CDFG, 2005]). Suitable foraging habitat consists of nonnative grassland. The potential for ferruginous hawk individuals or nests to be impacted can be effectively mitigated through measures recommended in Section 8.0, including avoiding disturbance or removal of trees during the breeding season when possible, or conducting preconstruction surveys during the breeding season and avoiding any active nests. Establishing an avoidance buffer around any active nests will mitigate for potential indirect noise impacts. Once suitable nesting habitat within the project area has been disrupted or removed, it is unlikely that this species will return to nest, so no further direct impacts would be expected. Loss of foraging habitat for this species will be **less than significant** considering there is a limited area impacted compared to the available similar habitat in the region, and and the property is not designated as critical habitat for the species. Impacts to habitat will be mitigated through implementation of the Habitat Restoration and Landscape Visual Screening Plan for the project.

Mitigation for potential impacts recommended in Section 8.0 is expected to limit impacts to this species to a level that is **less than significant**.

This species is a state species of special concern. Therefore if this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

Swainson's Hawk

Potentially suitable Swainson's hawk habitat is limited to row crop and grassland habitat for foraging. Indirect impacts on Swainson's hawk foraging habitat will be **less than significant** considering there is a limited area impacted compared to the available similar habitat in the region, and the property is not designated as critical habitat for this species.

Mitigation for potential impacts recommended in Section 8.0 is expected to limit impacts to this species to a level that is **less than significant**.

This species is a state threatened species. Therefore, if this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

Mountain Plover

Potentially suitable winter roosting and foraging habitat for mountain plovers within the project area consists of grassland habitat. This species breeds out of state, therefore no suitable nesting habitat is present on the property. The potential for mountain plover individuals to be impacted is expected to be **less than significant**, as initiation of construction activities would deter birds from roosting. Once suitable roosting habitat within the project area has been disrupted or removed, it is unlikely that this species will return to roost, so no further direct impacts would be expected. Indirect impacts to mountain plover through removal of suitable roosting/foraging

grasslands for wintering individuals is expected to be **less than significant** as grasslands constitute a small portion of the project area, and due to the fact that additional habitat exists in the surrounding area. In addition, impacts to habitat will be mitigated through implementation of the Habitat Restoration and Landscape Visual Screening Plan for the project. No further mitigation measures are considered necessary.

This species is a state species of special concern. Therefore if this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

White-tailed Kite

Potentially suitable nesting/roosting and foraging for white-tailed kite within the project area consists of trees and open agriculture/grassland habitat, respectively. The potential for white-tailed kite individuals or nests to be impacted can be effectively mitigated through measures recommended in Section 8.0, including avoiding disturbance or removal of trees during the breeding season when possible, or conducting preconstruction surveys during the breeding season and avoiding any active nests. Establishing an avoidance buffer around any active nests will mitigate for potential indirect noise impacts. Once suitable nesting habitat within the project area has been disrupted or removed, it is unlikely that this species will return to nest within the project area, so no further direct impacts would be expected. Indirect impacts through the removal of potentially suitable nesting and foraging areas (trees and open grassland/agricultural habitat) is expected to be **less than significant** due to the presence of abundant habitat in the surrounding area, and because impacts will be mitigated through implementation of the Habitat Restoration and Landscape Visual Screening Plan for the project.

Mitigation for potential impacts recommended in Section 8.0 is expected to limit impacts to this species to a level that is **less than significant**.

This species is a state fully protected species. Therefore, if this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

Species with a Low Potential to Occur in the Project Area

Western Spadefoot Toad

Nonnative grassland in the vicinity of Cache Creek provides potential habitat for western spadefoot toad in the project area. If the toads are present they would aestivate in the nonnative grassland areas within burrows and crevices between June and December. The potential for the toad to be impacted can be effectively mitigated by either avoiding work in these areas during the times specified, or if work is required at these times by conducting surveys and avoiding any individuals present. Impacts to habitat are expected to be **less than significant** because any impacts to habitat will be mitigated through implementation of the Habitat Restoration and Landscape Visual Screening Plan for the project.

Mitigation for potential impacts recommended in Section 8.0 is expected to limit impacts to this species to a level that is **less than significant**.

This species is a state species of special concern. Therefore if this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

Burrowing Owl

Grassland and ruderal/ornamental habitats and edge areas of row crop fields (e.g. disturbed, but inactive berms, ruderal areas) within the project provide potential habitat for the burrowing owl. The potential for burrowing owl individuals or nests to be impacted can be effectively mitigated through measures recommended in Section 8.0, including avoiding disturbance or removal of agricultural and grassland habitats during the breeding season when possible, or conducting preconstruction surveys and either avoiding any active nests during the breeding season, or relocating owls outside of the breeding season. Establishing an avoidance buffer around any active nests will mitigate for potential indirect noise impacts. Impacts to habitat are expected to be **less than significant** due to the presence of habitat in the surrounding area and due to the proposed implementation of the Habitat Restoration and Landscape Visual Screening Plan.

Mitigation for potential impacts recommended in Section 8.0 is expected to limit impacts to this species to a level that is **less than significant**.

This species is a state species of special concern. Therefore if this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

Pallid Bat

Potential pallid bat habitat within the project area is limited to large trees within and adjacent to some of the farm structures in the central part of the property. The potential for pallid bat individuals or roosts to be impacted can be effectively mitigated through measures recommended in Section 8.0, including avoiding the removal of trees or construction activities in these areas during the breeding season (early May through mid-August). Impacts due to loss of roosting or foraging habitat is expected to be **less than significant** as habitat associated with Cache Creek will be avoided. Noise impacts to pallid bats are not expected, since the hearing and communication range of bats is known to be around 100 to 150dBA (pers comm.) which is above the typical range for construction activities.

Mitigation for potential impacts recommended in Section 8.0 is expected to limit impacts to this species to a level that is **less than significant**.

This species is a state species of special concern. Therefore if this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

Pacific Western Big-eared Bat

Pacific Western big-eared bat potential habitat within the project area is limited to large trees within and adjacent to some of the farm structures in the central part of the property. The potential for big-eared bat individuals or roosts to be impacted can be effectively mitigated through measures recommended in Section 8.0, including avoiding the removal of trees or construction activities in these areas during the breeding season (October through April [CDFG, 2005]). Impacts due to loss of roosting or foraging habitat is expected to be **less than significant** as habitat associated with Cache Creek will be avoided. Noise impacts to pallid bats are not expected, since the hearing and communication range of bats is known to be around 100 to 150dBA (pers comm.) which is above the typical range for construction activities.

Mitigation for potential impacts recommended in Section 8.0 is expected to limit impacts to this species to a level that is **less than significant**.

This species is a state species of special concern. Therefore if this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

Raptors and Migratory Birds

Potential nesting sites for migratory birds and raptors within the project area, including and in addition to the special-status species described above, consist of habitats such as trees and grasslands. Migratory birds and raptors are protected under the Migratory Bird Treaty Act and the California State Fish and Game Code, which prohibit take of birds and their active nests. Typical nesting season for most migratory birds is March through September. Raptors typically nest from February through August. Direct impacts to nests through removal or indirect impacts due to noise can be mitigated by avoiding disturbance to potential nesting sites during the nesting season, or by conducting preconstruction nesting bird surveys and avoiding active nests if any are found.

Mitigation for potential impacts recommended in Section 8.0 is expected to limit impacts to this species to a level that is **less than significant**.

7.7 MODIFICATIONS TO JURISDICTIONAL WETLANDS OR OTHER WATERS

The project area is outside of the jurisdictional waters and wetlands identified during the delineation of the property, provided as Attachment D, therefore no impacts will occur.

As described in Section 1.3, Yolo County has been issued permits by the regulatory agencies to implement the Test 3 Line under the CCRMP. The applicant proposes to implement a segment of

the Test 3 line as a net benefit to Yolo County. This has already been analyzed under separate environmental documents and will require the independent approval of a Flood Hazard Development Permit for Yolo County. The Test 3 Line implementation is not a part of the proposed project and therefore is not included in this BA.

8.0 IMPACT AVOIDANCE AND MINIMIZATION RECOMMENDATIONS

The Mitigation Measures (MM) outlined in this section are recommended in order to limit potential impacts to a level that will be **less than significant**.

MM-8.1 Have a qualified biologist provide environmental awareness training to all construction personnel before construction begins. The training should include species descriptions and a mitigation measure discussion, including training to instruct construction workers to recognize special-status species with a potential to occur within the project area and their habitat.

MM-8.2 To the extent practical, schedule any construction activities within non-native grassland to avoid the Western spadefoot toad aestivation period (June to December). Where construction is required in these areas during the aestivation period, a qualified biologist should conduct a preconstruction presence/absence survey. Any individuals found should be avoided. If this species is found to be present within the project area and impacts cannot be avoided, then consultation with CDFG would be required.

MM-8.3 Schedule the removal of suitable nesting habitat (including trees, shrubs, and grassland habitat) outside of the migratory bird and raptor breeding season (February 15 through September 15) if feasible. This includes the nesting seasons for special-status birds with a potential to occur within the project area, including bald eagle (approximately February through July), white-tailed kite (approximately April through August), tricolored blackbird (approximately April through July), ferruginous hawk (approximately April through July), Swainson's hawk (approximately March through August), mountain plover, northern harrier (approximately April through September), and bank swallows. For any vegetation removal and site preparation that occurs during these breeding seasons (February through September), a qualified biologist should conduct preconstruction presence/absence nesting bird surveys as described in MM-8.5.

MM-8.4 Have a qualified biologist conduct preconstruction nesting bird surveys if initial disturbance occurs between February 15 and September 15 of any given year within or adjacent to suitable nesting habitat (trees, shrubs and grassland habitat) within the project area. Surveys should be conducted within 7 days prior to the beginning of disturbance activities and consist of a 1-day survey conducted during appropriate weather and time of day. If nesting birds or raptors are observed, MM-8.5 should be implemented.

MM-8.5 If nesting special-status or migratory birds are detected during preconstruction surveys, a minimum 250 feet avoidance buffer should be maintained and 500-foot buffer around active raptor nests. Depending on conditions specific to each nest, and the relative location and rate of disturbance activities, it may be feasible for disturbance to occur as planned within the buffer

without impacting the breeding effort. In this case, the nest(s) shall be monitored by a qualified biologist during disturbance activities within the buffer. If, in the professional opinion of the monitor, the project would impact the nest, the biologist shall immediately inform the construction manager and CDFG. The construction manager shall stop activities within the buffer until either the nest is no longer active or the project receives approval to continue from CDFG.

MM-8.6 Conduct burrowing owl surveys within 30-days prior to any initial disturbance in grassland habitat in both the breeding and non-breeding burrowing owl season, pursuant to the CDFG burrowing owl guidelines (CDFG, 1995) and the California Burrowing Owl Consortium protocol (1997). If burrowing owls are detected during preconstruction surveys, the following mitigation measures are recommended consistent with the CDFG protocol:

I. Avoid occupied burrows during the burrowing owl breeding season, February 1 through August 31.
II. Prior to the breeding season, September 1 through January 31, occupied burrows should be avoided. If avoidance is not possible, owls may be passively relocated per CDFG standards. Compensation for loss of burrows may be required.

MM-8.7 To compensate for loss of Swainson's hawk foraging habitat, the applicant will submit a habitat restoration plan and will follow Yolo County requirements for Swainson's hawk mitigation.

MM-8.8 To the extent practical, schedule the demolition/removal of suitable bat roosting sites and work adjacent to these potential sites, including large trees and farm structures in the central part of the property, outside of the rearing season (typically before March and after August). If this period cannot be avoided, a preconstruction presence/absence survey should be conducted by a qualified biologist. This survey shall include, at a minimum, a visual inspection of the potential roosting sites, or if visual inspection is impractical or inconclusive (e.g., high in tall trees), an evening or night survey using electronic bat detectors. If occupied bat roosts are detected they should be avoided during the breeding season. A qualified biologist will determine the need to establish an avoidance buffer or for monitoring.

9.0 DETERMINATION

Northern Harrier

The CSC northern harrier was observed at the site. The project has the potential to adversely impact this species by direct take during construction. With implementation of the mitigation measures recommended for the northern harrier (MM-8.3, MM-8.4, MM-8.5), this impact is expected to be **less than significant**.

Tricolored Blackbird

The CSC tricolored blackbird has a moderate potential to forage in the project area. The project is not considered to have the potential to adversely impact foraging habitat for this species. Therefore no mitigation is proposed.

Ferruginous Hawk

The CSC ferruginous hawk has a moderate potential to occur within the project area. If present, the project has the potential to adversely impact this species by direct take during construction. With implementation of the mitigation measures recommended for the ferruginous hawk (MM-8.3, MM-8.4, MM-8.5), this impact is expected to be **less than significant**.

Swainson's Hawk

The state threatened Swainson's hawk has a moderate potential to forage in the area. With implementation of the mitigation measure recommended for the Swainson's hawk (MM-8.7), impact to habitat is expected to be **less than significant**.

Mountain Plover

The proposed project has a moderate potential to support the CSC mountain plover as a roosting/foraging winter resident; no nesting habitat is present. If present, the project is not considered to have the potential to adversely impact this species. Therefore no mitigation is proposed.

White-tailed Kite

The California fully protected white-tailed kite has a moderate potential to occur within the project area. If present, the project has the potential to adversely impact this species by direct take during construction. With implementation of the mitigation measure recommended for the white-tailed kite (MM-8.3, MM-8.4, MM-8.5), this impact is expected to be **less than significant**.

Western Spadefoot Toad

The federally threatened and California CSC western spadefoot toad has a low potential to occur within the project area. If present, the project has the potential to adversely impact this species by direct take during construction. With implementation of the mitigation measure recommended for the western spadefoot toad (MM-8.2), this impact is expected to be **less than significant**.

Burrowing Owl

The CSC burrowing owl has a low potential to occur within the project area. If present, the project has the potential to adversely impact this species by direct take during construction. With implementation of the mitigation measure recommended for the burrowing owl (MM-8.6), this impact is expected to be **less than significant**.

Pallid Bat

The CSC pallid bat has a low potential to occur within the project area. If present, the project has the potential to adversely impact this species by direct take during construction. With implementation of the mitigation measure recommended for the pallid bat (MM-8.8), this impact is expected to be **less than significant**.

Pacific Western Big-eared Bat

The CSC Pacific western big-eared bat has a low potential to occur within the project area. If present, the project has the potential to adversely impact this species by direct take during construction. With implementation of the mitigation measure recommended for the Pacific western big-eared bat (MM-8.8), this impact is expected to be **less than significant**.

10.0 REFERENCES

Bat Conservation International (BCI) Website. 2007. Bat Species: U.S. Species: *Species Profiles*. Online: http://www.batcon.org/SPprofiles/index.asp. Site visited May 30, 2007.

Burrowing Owl Survey Protocol and Mitigation Guidelines prepared by the California Burrowing Owl Consortium (1997)

CalPhotos 2007. Species reports and photos. Online: http://calphotos.berkeley.edu/. Site visited May 24-30, 2007.

California Department of Fish and Game. 1994. *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California.* Dated November 8, 1994.

_____. 1990. *California's Wildlife. Volume II: Birds*. California Statewide Wildlife Habitat Relationships System.

_____. 1992. *Recovery Plan: Bank Swallow (Riparia riparia)*. Prepared by Nongame Bird and Mammal Section, Wildlife Management Division. Report 93.02.

_____. Bay Delta and Special Water Projects Division. 1995. Stanislaus River Basin and Calaveras River Water Use Program. *Threatened and Endangered Species Report.*

_____.1995. Staff Report on Burrowing Owl Mitigation. October 17, 1995.

_____. 2001. Fish Bulletin 179. *Contributions to the Biology of Central Valley Salmonids Vol. 1.* Online: http://www.dfg.ca.gov/nafwb/pubs/2001/fb179/FB%20179_Volume%201.pdf. Site visited May 29, 2007.

_____.2005. California Wildlife Habitat Relationships System (CWHRS). California Interagency Wildlife Task Group. CDFG, 2005 version 8.1 personal computer program. Sacramento, California.

_____. 2006. *Special Animals.* Online: http://www.dfg.ca.gov/whdab/pdfs/spanimals.pdf. Site visited May 18, 2007.

_____. 2007. *California Natural Diversity Database*. Wildlife & Habitat Data Analysis Branch. Site visited May 15, 2007.

_____. Bay Delta Region. 2007. Wildlife Gallery. *Mammal Resources/American Badger*. Online: http://www.delta.dfg.ca.gov/gallery/badger.asp. Site visited May 24, 2007.

County of Yolo. 2007. *Cache Creek Resources Management Plan (CCRMP) Area Flood Hazard Development Permit Information.* February 12, 2007.

Department of Commerce. 2005. Federal Register 50 CFR Part 226. Endangered and Threatened Species Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. September 2, 2005.

Dunk, J. R. 1995. White-tailed kite (*Elanus leucurus*). In *The Birds of North America, No. 178* (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

Dunne, P., D. Sibley, and C. Sutton. 1988. *Hawks in Flight*, Houghton Mifflin Company, Boston, MA.

Garrison, B. A. 1998. Bank Swallow (*Riparia riparia*). In *The Riparian Bird Conservation Plan: A Strategy for Reversing the Decline of Riparian-Associated Birds in California*. California Partners in Flight. Point Reyes Bird Observatory. Point Reyes, CA. Online: http://www.prbo.org/calpif/htmldocs/riparian_v-2.html. Site visited May 29, 2007.

Google Earth Pro. 2007. Image © 2007 TerraMetrics and ©2007 Europa Technologies.

Hamilton, W. J. 2004. Tricolored Blackbird (*Agelaius tricolor*). In *The Riparian Bird Conservation Plan: A Strategy for Reversing the Decline of Riparian-Associated Birds in California*. California Partners in Flight. Point Reyes Bird Observatory. Point Reyes, CA. Online: http://www.prbo.org/calpif/htmldocs/riparian.html. Site visited May 29, 2007.

Hickman, J.C., ed. 1993. *The Jepson manual: higher plants of California*. University of California Press, Berkeley, California.

Holland, R.F., 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California Department of Fish and Game, Nongame-Heritage Program, Sacramento, California.

Jennings, M.R., and M. P. Hayes. 1994. *Amphibian and reptile species of special concern in California*. California Department of Fish and Game, Rancho Cordova, Calif.

Johnsgard, P.A. 1990. *Hawks, Eagles, and Falcons of North America-Biology and Natural History*. Smithsonian Institution Press, Washington, D.C. 403 pp.

Klute, D.S., L.W. Ayers, M.T. Green, W.H. Howe, S.L. Jones, J.A. Shaffer, S.R. Sheffield, and T.S. Zimmerman. 2003. *Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Biological Technical Publication FWS/BTP-R6001-2003, Washington, D.C.

Laymon, S. A., B. A. Garrison, and J. M. Humphrey. 1988. *Historic and current status of the Bank Swallow in California, 1987*. State of Calif., Resources Agency, Dept. of Fish and Game, Wildl. Mgmt. Div. Admin. Rept. 88-2.

McEwan, D. R. 2001. *Central Valley Steelhead.* Online at: http://www.dfg.ca.gov/nafwb/pubs/2001/fb179/FB%20179V1_McEwan_pg_1-44.pdf. Site visited May 18, 2007.

Moyle, P. B. 2002. *Inland Fishes of California*. University of California Press, Berkeley, CA. 502pp.

Moyle, P.B., and S. Ayers. 2000. *Salmon in Cache Creek*. Online: http://bioregion.ucdavis.edu/book/13_Lower_Cache_Creek/13_05_moyle_ayres_salmon.html. Site visited May 29, 2007.

National Geographic Society. 2002. *Field Guide to the Birds of North America*. Fourth Edition. Washington D.C. 480pp.

National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS). 2006. *List of Species Under NMFS' Jurisdiction.* Online at: http://www.nmfs.noaa.gov/pr/species/esa.htm#fish. Site visited May 15, 2007.

Sibley, D.A. 2003. *A Field Guide to Birds of Western North America*, 1st ed. Alfred A. Knopf, Inc., New York.

Skinner, M. and B. Pavlik. 2001. *Online Inventory of Rare and Endangered Vascular Plants of California, 6th edition*. Online: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi. Site visited May 15, 2007.

Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians*, 3rd ed. Houghton Mifflin Company, Boston, Mass.

U.S. Fish and Wildlife Service. 2003. Endangered and Threatened Wildlife and Plants; Withdrawal of the Proposed Rule to List the Mountain Plover as Threatened. Proposed Rule; Withdrawal. *Federal Register* 68:53083-53101.

U.S. Fish and Wildlife Service, Sacramento Office. 2007a. Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Madison, Esparto, Zamora, and Bird Valley 7 ½ Minute Quadrangles and in Yolo County. Online: http://www.fws.gov/sacramento/es/spp_lists/auto_list_form.cfm. Site visited May 15, 2007.

_____. 2007b. Species Accounts. Online: http://www.fws.gov/sacramento/es/spp_info.htm. Site visited May 29, 2007

WeatherReports website. 2007. *Weather Averages for Esparto, CA.* Online: http://www.weatherreports.com/United_States/CA/Esparto/averages.html. Site visited May 18, 2007.

Weather Underground, Inc. 2007. Online: http://www.wunderground.com/US/CA/Esparto.html. Site visited May 18, 2007.

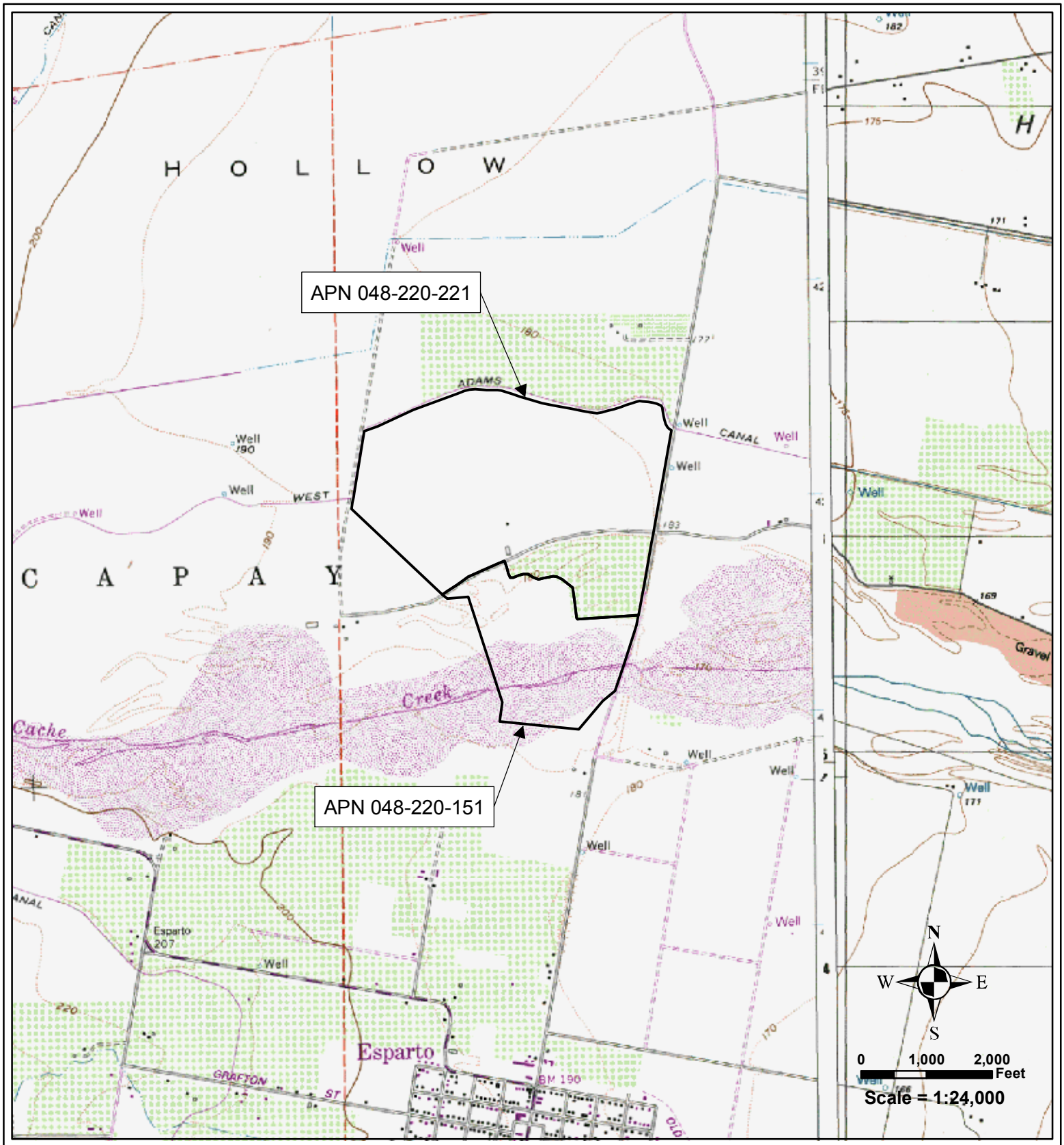
Woodbridge, B. 1998. Swainson's Hawk (*Buteo swainsoni*). In The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. California Partners in Flight. Point Reyes Bird Observatory. Point Reyes, CA. Online: http://www.prbo.org/calpif/htmldocs/riparian.html. Site visited May 29, 2007.

Yolo County. 2002. Draft Supplemental Program Environmental Impact Report for Cache Creek Resources Management Plan and Project-level Environmental Impact Report for Cache Creek Improvement Program for Lower Cache Creek (SCH# 96013004). Prepared by Aspen Environmental Group. April 2002.

Yolo County. 2002. Final Supplemental Program Environmental Impact Report for Cache Creek Resources Management Plan and Project-level Environmental Impact Report for Cache Creek Improvement Program for Lower Cache Creek (SCH# 96013004). Prepared by Aspen Environmental Group. July 2002.

Zentner and Zentner. 1995. Cache Creek Aggregates Long-Term Off-Channel Mining Application Yolo County, California; Biological Assessment. November 29, 1995.

Attachment A: Vicinity, CNDDB, and Vegetation Maps



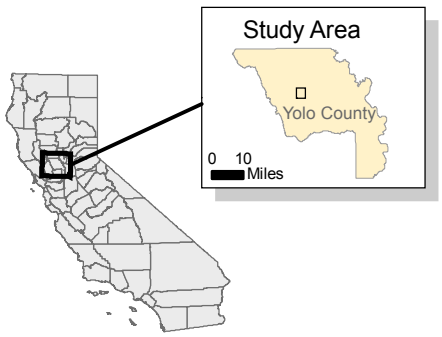
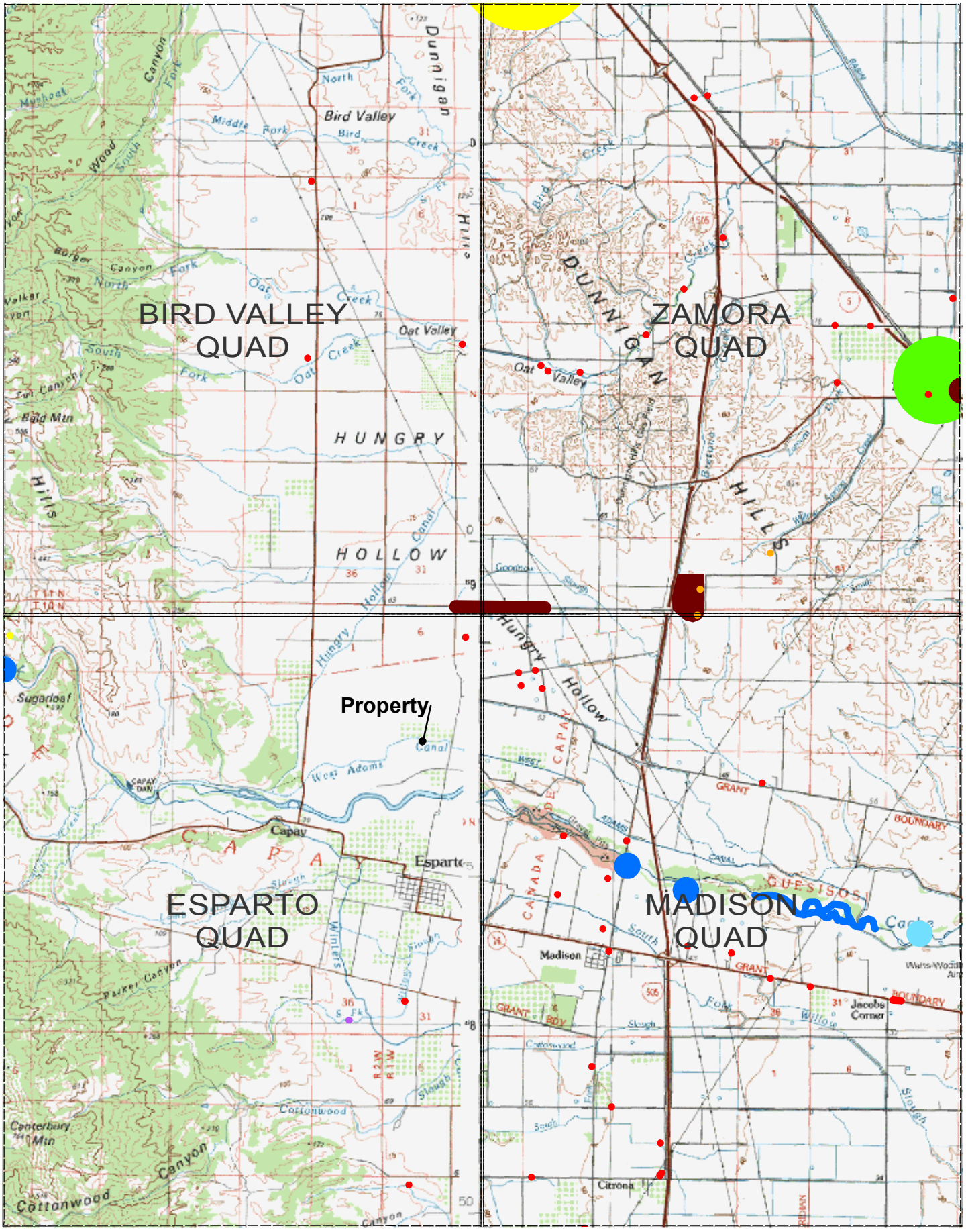


Figure 1
Property Location Map

August 21, 2007

TRC



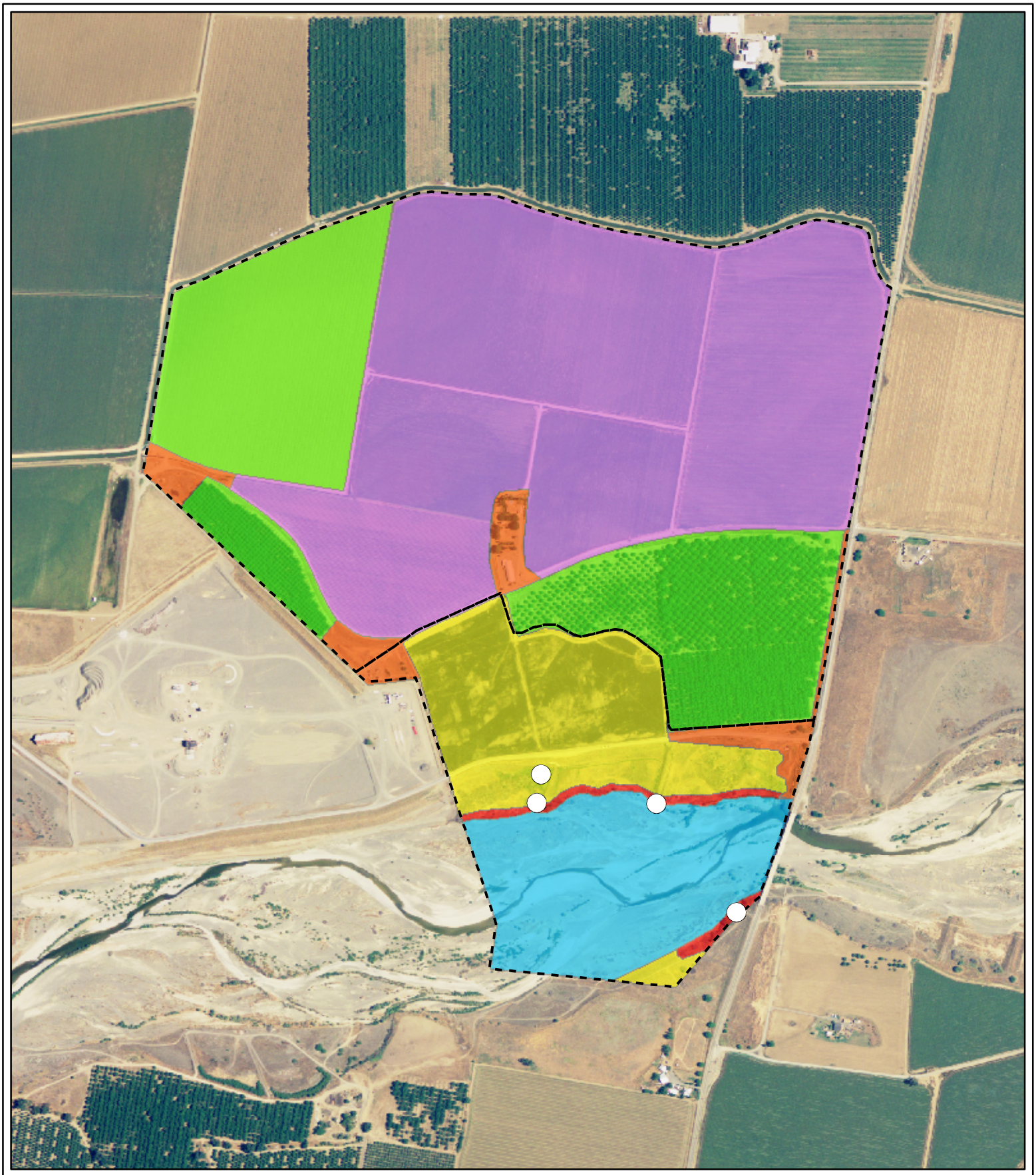
Swainson's hawk
Bank swallow
Burrowing owl
Mountain plover
Tricolored blackbird
California tiger salamander
Valley elderberry longhorn beetle
Heckard's pepper-grass

DATA: May 2007 CDFG California Natural Diversity Database

Granite Esparto Property
Figure 2. CNDDB

June 1, 2007

TRC



Granite Esparto Property
Figure 3. Vegetation Map

June 11, 2007

TRC

Attachment B: USFWS, CNDDB, and CNPS Special-Status Species Lists

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 070515031102

Database Last Updated: March 5, 2007

Quad Lists

MADISON (514B)

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)
Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

ESPARTO (515A)

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Syncaris pacifica
California freshwater shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Strix occidentalis caurina
northern spotted owl (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)
Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

ZAMORA (530C)

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)
Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

BIRD VALLEY (531D)

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Syncaris pacifica
California freshwater shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Strix occidentalis caurina
northern spotted owl (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)
Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

County Lists

Yolo County

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Strix occidentalis caurina
northern spotted owl (T)

Plants

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

Neostapfia colusana
Colusa grass (T)
Critical habitat, Colusa grass (X)

Tuctoria mucronata
Critical habitat, Solano grass (=Crampton's tuctoria) (X)
Solano grass (=Crampton's tuctoria) (E)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)
Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

California Department of Fish and Game
Natural Diversity Database- Yolo County
Selected Elements by Scientific Name - Portrait

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Ambystoma californiense California tiger salamander	AAAAA01180	Threatened		G2G3	S2S3	SC
2	Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered		G1	S1	
3	Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened		G3	S2S3	
4	Buteo swainsoni Swainson's hawk	ABNKC19070		Threatened	G5	S2	
5	Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened		G4T3	S2	SC
6	Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Candidate	Endangered	G5T2Q	S1	
7	Cordylanthus palmatus palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1.1	1B.1
8	Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened		G3T2	S2	
9	Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered		G3	S2S3	
10	Neostapfia colusana Colusa grass	PMPOA4C010	Threatened	Endangered	G3	S3.1	1B.1
11	Riparia riparia bank swallow	ABPAU08010		Threatened	G5	S2S3	
12	Thamnophis gigas giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	
13	Tuctoria mucronata Crampton's tuctoria or Solano grass	PMPOA6N020	Endangered	Endangered	G1	S1.1	1B.1

California Department of Fish and Game
Natural Diversity Database-Esparto, Zamora, Bird Valley, and Madison Quads
CNDDB Wide Tabular Report

Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks						Population Status		Presence		
					A	B	C	D	X	U	Historic >20 yr	Recent <=20 yr	Pres. Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G2G3 S2	CDFG: SC	Fed: None Cal: None	421 S:1	0	0	0	0	0	1	0	1	1	0	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	CDFG: SC	Fed: Threatened Cal: None	930 S:2	0	1	0	0	1	0	1	1	1	0	1
Andrena blennospermatis A vernal pool andrenid bee	G2 S2	CDFG:	Fed: None Cal: None	15 S:1	0	0	0	0	0	1	1	0	1	0	0
Athene cunicularia burrowing owl	G4 S2	CDFG: SC	Fed: None Cal: None	861 S:3	0	3	0	0	0	0	0	3	3	0	0
Buteo swainsoni Swainson's hawk	G5 S2	CDFG:	Fed: None Cal: Threatened	1639 S:41	4	24	10	1	0	2	0	41	41	0	0
Charadrius montanus mountain plover	G2 S2?	CDFG: SC	Fed: None Cal: None	38 S:3	1	1	0	0	0	1	0	3	3	0	0
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	CDFG:	Fed: Threatened Cal: None	194 S:1	0	1	0	0	0	0	0	1	1	0	0
Lepidium latipes var. heckardii Heckard's pepper-grass	G4T1 S1.2	CNPS: 1B.2	Fed: None Cal: None	11 S:1	0	0	0	0	0	1	1	0	1	0	0
Nycticorax nycticorax black-crowned night heron	G5 S3	CDFG:	Fed: None Cal: None	23 S:1	0	0	1	0	0	0	0	1	1	0	0
Riparia riparia bank swallow	G5 S2S3	CDFG:	Fed: None Cal: Threatened	189 S:4	0	1	0	0	0	3	4	0	4	0	0

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 1 items - Tue, May. 15, 2007 14:24 c

Reformat list as: Standard List - with Plant Press controls

ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
Lepidium latipes var. heckardii	Brassicaceae	annual herb	Mar-May	•Valley and foothill grassland (VFGrs)(alkaline flats)	10 - 200 meters	List 1B.2

Attachment C: Photo Exhibit

Photo 1: Walnut orchard and row crop along Fulton & Frank Lane; view east.

Photo 2: Disked field and disturbed lot adjacent to barn and house; view north.

Photo 3: Non-native grasslands south of Fulton & Frank Lane; view south toward Cache Creek.

Photo 4: Walnut orchard and pine tree south of barn; view south.

Photo 5: Great valley willow scrub habitat near Cache Creek.

Photo 6: Cache Creek creek bed and willow scrub; view west.

Photo 7: Cliff swallows foraging near irrigation canal; view west.

Attachment D: Jurisdictional Waters and Wetlands Delineation Report

Jurisdictional Waters and Wetland Delineation

Granite Esparto Property

October 2007

Prepared for:
Granite Construction Company
8950 Cal Center Dr., Suite 201
Sacramento, CA 95826

Prepared by:

21 Technology Drive
Irvine, CA 92618
(949) 727-9336

TABLE OF CONTENTS

LIST OF ATTACHMENTS

1.0 INTRODUCTION

Granite Construction Company (Granite) contracted TRC to conduct a jurisdictional waters and wetland delineation of the Esparto property along Cache Creek near the town of Esparto in Yolo County, California. This document was created to identify the presence and boundaries of jurisdictional waters and wetlands regulated by the U.S. Army Corps of Engineers and Regional Water Quality Control Board pursuant to Section 404 and 401 of the Clean Water Act, and California Department of Fish and Game pursuant to Section 1600 of the California Fish and Game Code.

1.1 SETTING

The Granite Esparto property (property) is located in the Central Valley of California, west of the Sacramento River, in an area rich in agricultural production consisting of orchards, row crops, and grain crops. The property is situated in western Yolo County, approximately 1.5 miles north of the town of Esparto along the west side of County Road (CR) 87 near Cache Creek. Elevation on the property ranges from approximately 180 to 186 feet. The climate in the area can be characterized as mild, with average temperatures ranging from 33 to 55 degrees Fahrenheit in the winter and 57 to 96 degrees Fahrenheit in the summer. Average annual precipitation in the area is about 19 inches. A vicinity map is provided as Figure 1 in Attachment A.

1.2 JURISDICTION OVERVIEW

The purpose of this overview is to outline the different agencies with jurisdiction over waters and wetlands, and to define the extent of their jurisdiction. This basis is applied to the methodology for delineation work described in Section 2.

U.S. Army Corps of Engineers (Corps) "Waters of the United States"

The Corps administers and enforces Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (CWA). Under Section 10, a Corps permit is required for work or structures in, over, or under navigable "waters of the United States". Under Section 404 of the CWA, a Corps permit is required for the discharge of dredged and/or fill material into "waters of the United States".

The term "waters of the United States" is defined at 33 CFR part 328 to include: (i) all navigable waters (including all waters subject to the ebb and flow of the tide), (ii) all interstate waters and wetlands, (iii) all other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce, (iv) all impoundments of waters mentioned above, (v) all tributaries to waters mentioned above, (vi) the territorial seas, and (vii) all wetlands adjacent to waters mentioned above. Section 404 permits are required for discharges of dredged and/or fill material placed in these waters. Navigable waters of the United States are defined as waters that have been used in the past, are now used, or are susceptible to use as a means to transport interstate or foreign

commerce up to the head of navigation. Section 10 and/or Section 404 permits are required for construction activities in these waters.

The definition of "waters of the U.S." was altered by the January 2001 U.S. Supreme Court Decision, *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers et al (SWANCC)*. In the SWANCC decision, the Supreme Court held that the Corps exceeded its authority by asserting CWA jurisdiction over an abandoned sand and gravel pit, solely because it provided habitat for migratory birds. The SWANCC rule is limited to waters that are non-navigable, isolated and intrastate and clarified that the Corps staff should no longer rely on the use of waters by migratory birds as the sole basis for asserting jurisdiction.

In June 2007, the Supreme Court's decision in the consolidated cases Rapanos v. United States and Carabell v. United States, 126 S. Ct. 2208 (2006) (herein referred to as "Rapanos") was implemented, which addresses the jurisdiction over waters of the United States under the Clean Water Act. On June 5, 2007 the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers issued a memorandum summarizing Rapanos as follows:

The agencies will assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with traditional navigable water:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to, but that do not directly abut, a relatively permanent non-navigable tributary

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)
- Ditches (including roadside ditches) excavated wholly in uplands and draining only uplands, and that do not carry a relatively permanent flow of water

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream traditional navigable waters

- Significant nexus includes consideration of hydrologic and ecologic factors

In the absence of wetlands, the limits of Corps jurisdiction in non-tidal waters, such as intermittent and ephemeral streams, extends to the ordinary high water mark (OHWM), which is defined at 33 CFR 328.3(e) as:

> …that line on the shore established by the fluctuation of water indicated by physical characteristics such as a clear, natural line impressed on the bank shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Non-wetland waters are classified as either ephemeral, intermittent, or perennial waters as defined in the January 15, 2002 Federal Register notice:

Ephemeral Stream – An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Intermittent Stream – An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Perennial Stream – A perennial stream has flowing water year-round during a typical year. The water table is located above the streambed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Wetlands are defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support…a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands generally include swamps, marshes, bogs, and similar areas; and where they occur adjacent to tributary waters, the Corps extends jurisdiction to the outer edges of those wetlands. The methodology set forth in the 1987 Wetland Manual generally requires that in order to be considered a wetland, the vegetation, soils, and hydrology of an area must exhibit at least minimal hydric characteristics. While the manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

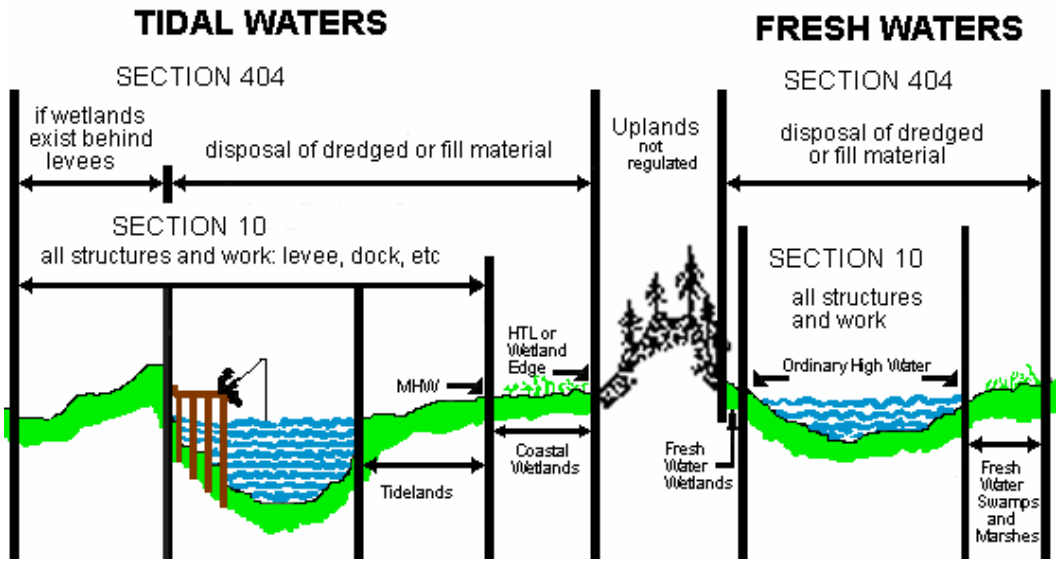
1. ***Hydrophytic Vegetation:*** More than fifty percent of the dominant plant species at the site must be typical of wetlands (i.e. rated as facultative or wetter in Region 10-California in the U.S. Fish and Wildlife Service 1988 *National List of Plant Species that Occur in Wetlands*);

2. ***Hydric Soils***: Soils must exhibit physical and or chemical characteristics indicative of permanent or periodic saturation (for example, a gleyed color, or mottles with a matrix of

low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and

3. ***Hydrology***: Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5 percent of the growing season during a normal rainfall year. For the Sacramento Valley, 5 percent of the growing season is equivalent to 18 days.

The following depicts the boundaries of the Corps jurisdiction:



Typical activities requiring Section 10 permits are:

- Construction of piers, wharves, bulkheads, dolphins, marinas, ramps, floats intake structures, and cable or pipeline crossings over or under navigable or tidal waters.
- Dredging and excavation within navigable or tidal waters.

Typical activities requiring Section 404 permits are:

- Addition of fill material in "waters of the U.S." or adjacent wetlands for residential, commercial, or recreational developments.
- Construction of bridges, culverts, revetments, groins, breakwaters, levees, dams, dikes, and weirs in "waters of the U.S." or adjacent wetlands.

Corps Permit Mechanisms

Two distinct permit categories exist under the Section 404 process, the Nationwide Permit (NWP) and the Individual Permit (IP). NWPs are general permits for specific categories of

activities that require minimal impacts on aquatic resources and meet certain conditions. In order to qualify for a NWP, the project applicant must demonstrate compliance with the general and/or regional conditions set forth by the Corps NWP program. A list of NWPs can be found starting on Page 2078 at: http://www.usace.army.mil/civilworks/cecwo/reg/2002nwps.pdf. An IP is required for all projects that do no qualify for a Nationwide Permit, generally including impacts to greater than 0.50 acre of jurisdictional "waters of the U.S." by a proposed project, or if over 300 linear feet of intermittent, perennial, wetland, and in some cases even ephemeral (since March 2007), waters will be impacted.

IP applications are much more complex than NWPs; therefore the processing time is generally longer. In accordance with Section 404(b)(1) of the CWA, projects subject to an IP must overcome the presumption that a less environmentally damaging, practicable alternative is available through a detailed on-site and off-site alternatives analysis. Pursuant to the Corps Section 404 permitting process, an applicant must first avoid and minimize impacts to jurisdictional "waters of the U.S." to the largest extent practicable. Once those actions have been accomplished, mitigation may be proposed to offset impacts to jurisdictional areas and ensure no net-loss of "waters of the U.S."

When processing a Section 404 or Section 10 Permit, the Corps must ensure that a project complies with the following requirements:

- Section 106 of the National Historic Preservation Act (NHPA);
- Section 7 of the federal Endangered Species Act (ESA); and
- Section 401 of the Clean Water Act.

Compliance with Section 106 of the National Historic Preservation Act: A project must comply with Section 106 of the NHPA when obtaining a federal permit. An updated historic and archaeological records and literature search of the area is usually required to assess potential impacts to cultural resources. If existing documentation is available and acceptable to the Corps, a new records and literature search may not be necessary. If no archaeological sites within the proposed project area are identified in the records and literature search, the Corps can determine that Section 106 requirements have been met. If there is potential for impacts to cultural resources, additional surveys may be required to develop mitigation options in order to comply with Section 106 requirements.

Compliance with Section 7 of the Endangered Species Act (ESA): Under Section 7 of the ESA, the U.S. Fish and Wildlife Service (USFWS) reviews activities that may affect federally protected species and critical habitat for actions requiring federal permits. An initial biological resources review is usually required to assess potential for impacts to sensitive species and/or habitats. If the initial biological resource review finds potential for impact to federally protected species or critical habitat, additional review may be required including a report to be submitted

for review by USFWS in order to comply with Section 7 of the ESA. If federally protected species or habitat is present in a project area, the USFWS will normally place conditions on a project to avoid or mitigate for potential impacts during formal or informal Section 7 consultation. For anadromous fish species and marine mammals, NOAA Fisheries is the lead agency for Section 7 review. Formal Section 7 consultation, if required, can take six months or more to complete.

Compliance with Section 401 of the Clean Water Act: Section 401 of the Clean Water Act (CWA) addresses the impact of a project on water quality. A project must comply with Section 401 of the CWA before the Corps can issue a Section 404 Permit. The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) coordinate issuance of Section 401 Water Quality Certifications or Waivers of Certification, depending upon the extent of impacts to "waters of the U.S.".

Regional Water Quality Control Board (RWQCB)

Pursuant to Section 401 of the CWA, the RWQCB regulates "waters of the U.S." with similar jurisdiction as the Corps. The RWQCB focuses on the effects of a project on downstream water quality conditions and beneficial uses. In contrast to the Corps, the RWQCB may assess jurisdiction over isolated features pursuant to the Porter-Cologne Water Quality Act. To obtain a Section 401 Water Quality Certification, the project must be in compliance with the California Environmental Quality Act (CEQA).

California Department of Fish and Game (CDFG)

The State of California regulates water resources under Sections 1600-1616 of the California Fish and Game Code. Section 1602 applies to state or local government /public utility projects and private projects. Pursuant to Division 2, Chapter 6, Section 1602 of the California Fish and Game Code, CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake ("waters of the State"), which supports fish or wildlife. Section 1602 states the following:

> …an entity may not substantially divert or obstruct the natural flow, or substantially change, or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit, or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into a river, stream, or lake, unless…the department receives written notification regarding the activity in the manner prescribed by the department.

CDFG considers most drainages to be "streambeds" unless it can be demonstrated otherwise. A stream (which includes creeks and rivers) is defined as "a body of water that flows at least periodically or intermittently through a bed or channel having banks, and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation." Additionally, CDFG defines "lake" to include "natural lakes or man-made reservoirs." CDFG jurisdiction includes ephemeral, intermittent, and perennial

watercourses and extends bank to bank or, if present, to the limit of riparian habitat located contiguous to the water resource that functions as part of the watercourse system. The California Fish and Game Code defines "riparian habitat" as "… lands which contain habitat which grows close to, and which depends on, soil moisture from a nearby freshwater source." CDFG may also assert jurisdiction over isolated drainages pursuant to the Fish and Game Code of California.

If impacts are proposed to "waters of the State', the CDFG must issue a Section 1602 Streambed Alteration Agreement (SAA) which may contain conditions related to mitigation of impacts to habitat within their jurisdiction. For an SAA to be issued, the project must comply with CEQA as documented by the submittal of a certified CEQA document, a Notice of Determination (NOD), and proof of NOD filing fees. In addition, if the project impacts any state-protected species or habitat, the CDFG will also require a Section 2081 Memorandum of Agreement for the project. If a federal incidental take statement pursuant to a federal Section 7 consultation or a federal Section 10(a) incidental take permit have been obtained, a Consistency Determination may be requested pursuant to Section 2080.1.

1.3 CACHE CREEK AREA PLAN

Yolo County has adopted the Cache Creek Area Plan which includes the Cache Creek Resource Management Plan (CCRMP) and the Off-channel Mining Plan (OCMP). The CCRMP governs activities within the banks and the 100-year flood plain of Cache Creek, and the OCMP governs mining operation and reclamation activities outside of the channel. Adoption of the CCRMP discontinued commercial mining within the active creek channel. The Yolo County Cache Creek Improvement Plan includes implementation of Test 3 Line as part of the CCRMP. This includes construction of engineered channel embankments at key locations, including the portion of creek within the property boundaries, to improve channel stability and minimize flood damage. Yolo County holds a general permit that covers minor bank and channel stabilization, habitat management, and floodway management projects within the 100-year floodplain that are consistent with the CCRMP. A Flood Hazard Development Permit may be applied for directly from the County to conduct these types of activities within the CCRMP area (County of Yolo, 2007). Conditions of approval under this permit include compliance with all applicable requirements of CDFG Streambed Alteration Agreement R2-2002-251 (issued August 30, 2002), Corps General Permit #58 (issued May 1, 2004), RWQCB 401 Certification dated August 28, 2002, and the USFWS September 19, 1996 Programmatic Formal Consultation pursuant to the draft and final Supplemental Environmental Impact Report (EIR) dated April 2002 and July 2002 respectively. The Flood Hazard Development Permit also requires compliance with existing approved spill prevention and emergency plan (or equivalent procedures), and a requirement to return the disturbed low flow creek channel to the original alignment and conditions upon completion of the Project.

Granite's submittal includes a net benefit proposal with implementation of a segment of the Test 3 Line for Cache Creek, which has already been analyzed under separate environmental documents and will require the approval of a Flood Hazard Development Permit for Yolo County. The Test 3 Line implementation is not a part of Granite's proposed project and is therefore not considered in this report.

2.0 METHODS

2.1 JURISDICTIONAL DELINEATION

Prior to beginning the field delineation, TRC examined an aerial photograph of the property to determine the potential locations of Corps, RWQCB, and CDFG jurisdiction, and the U.S. Geological Survey map (Figure 1 of Attachment A) to determine the presence of any historical blueline drainages. The USFWS National Wetlands Inventory (NWI) and available soil mapping data for the property were also reviewed.

Fieldwork for the delineation was conducted May 22, 2007 by TRC biologists Ceri Williams-Dodd and Ryan Villanueva. The delineation involved walking the extent of all drainages/features on the property and physically identifying hydrologic, vegetative, and geomorphic characteristics within the property, in order to delineate jurisdictional waters and wetlands pursuant to the guidelines outlined in Section 1.2. Wetlands were identified by the "three-factor" approach, in which criteria for wetland hydrology, hydrophytic vegetation, and hydric soils must all be met to conclude that an area is wetland, as described in the 1987 Corps Wetland Delineation Manual and summarized below.

Vegetation: Plant species were identified in the field and the indicator status of dominant plants was determined using The National List of Plant Species that Occur in Wetlands: Region 10– California (U.S. Fish and Wildlife Service 1988 and Draft Version from 1996). Plant species were classified as obligate wetland (OBL) with greater than 99% probability of occurring in wetlands; facultative wetland (FACW) with 67% to 99% probability of occurring in wetlands; facultative (FAC) with 33% to 67% probability of occurring in wetlands; facultative upland (FACU) with 1% to 33% probability of occurring in wetlands; or upland (UPL) with less than 1% probability of occurring in wetlands. Positive (+) and negative (-) modifiers subdivide the three facultative categories. The positive sign indicates that the species is more frequently found in wetlands, and a negative sign indicates that the species is less frequently found in wetlands.

Hydrology: The presence of primary wetland hydrology indicators was determined by observing inundation, saturation, water marks, sediment deposits, drainage patterns, and/or drift lines. Soil pits were dug to a depth of 14 inches, or until refusal, using a sharpshooter shovel, and allowed to stand undisturbed for at least 10 minutes. Observations were then recorded as to depth of free water in the pit, and depth of saturated soil.

Soil: Soil profiles were examined for color and texture. Soil color was determined using a Munsell Soil Color Chart and hydric soil characteristics were identified (i.e., sulfidic odor, low chroma colors, mottling, etc.).

The results were recorded on Wetland Delineation Forms (Attachment B), and the boundaries of Corps/RWQCB and CDFG jurisdiction were delineated using a Trimble Geo XT Global Positioning System (GPS). The GPS receiver and data collector were operated following manufacturer's recommendations for obtaining sub-meter accuracy. Post-processing of the data

was carried out using Pathfinder Office software and electronic Geographic Information Systems (GIS) shape files were created. GIS data was geo-referenced to aerial photography to produce figures with visible boundary lines of jurisdictional waters. Location of sampling sites and delineated boundaries of jurisdictional waters and wetlands are presented in Figure 2 (Attachment A).

2.2 SENSITIVE SPECIES

A habitat assessment was conducted by TRC in May of 2007 to assess the potential for presence on the property of state or federally listed endangered, threatened, or otherwise sensitive species known to occur on, or in the vicinity of, the property according to available sources, including USFWS, CDFG's California Natural Diversity Database (CNDDB), and California Native Plant Society (CNPS) species-status species lists. A list of species known to occur near the property was developed as part of that assessment, and the results are presented in a separate TRC report titled *Biological Assessment, Granite Esparto Property* (October 2007).

3.0 RESULTS

3.1 SOILS

The general soil data is labeled as Yolo-Brentwood-Sycamore (CA490). According to the United States Department of Agriculture Natural Resources Conservation Service web soil survey (available at http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx) three soils are mapped on the delineation property, Soboba gravelly sandy loam (Sn), Riverwash (Rh), and Loamy alluvial land (Lm). Soboba gravelly sand loam is characterized as being excessively drained and partially hydric. Riverwash is characterized as being excessively drained and partially hydric. Loamy alluvial land is characterized as being well drained and partially hydric (UC Davis 2007).

3.2 JURISDICTIONAL WATERS

Cache Creek

Cache Creek is identified on the USGS as a blueline drainage and is also mapped by the NWI. According to the *Biological Assessment, Granite Esparto Property* (TRC, October 2007), habitat within Cache Creek is classified as riverine, with great valley willow scrub and a few cottonwood (*Populus* sp.) stands along the margins of the creek (Figure 2 in Attachment A). The riverine habitat on the property consists predominantly of gravel bars and open water, with patches of riparian vegetation consisting of mule's fat (*Baccharis salicifolia*) and willow (*Salix* sp.) species near persistent water sources. A majority of the great valley willow scrub on the property along Cache Creek has sparse stands of cottonwood with an open understory dominated by willows, including arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), and red willow (*Salix laevigata*), and other low shrubs and grasses including ripgut brome (*Bromus diandrus*), Mexican tea (*Chenopodium amnrosioides*), and hedge mustard (*Sisymbrium officinale*).

Cache Creek has a defined bed and bank, and displays jurisdictional indicators, including flowing water and debris racks, and would therefore be considered Corps/RWQCB jurisdictional "waters of the U.S." and CDFG jurisdictional "waters of the State". Based on field observations of jurisdictional indicators, the Corps/RWQCB limit of jurisdiction within Cache Creek extends across the creek bed from toe of slope to toe of slope. This encompasses the entire riverine area totaling 43.3 acres, as shown on Figure 2 in Attachment A. The CDFG limit of jurisdiction within Cache Creek extends across the creek bed from top of bank to top of bank to the limit of riparian vegetation (great valley willow scrub), where present. This encompasses the entire riverine area (43.3 acres), and the great valley willow scrub along the creek edge, including three cottonwood stands (3.7 acres), totaling 47 acres (Figure 2 in Attachment A).

Other Jurisdictional Waters

The area north of Cache Creek up to the Granite gravel facility access road is mapped as predominantly non-native grassland with a small area of ruderal/ornamental to the east, according to the *Biological Assessment, Granite Esparto Property* (TRC, October 2007). This area is divided by several man-made berms extending in an approximately northeast to southwest direction from the road to the creek. Within the area a small depressional swale, a few stands of mule fat, and a cottonwood stand were observed. These areas were assessed for jurisdictional waters and wetlands indicators, and Data Points were assessed in these areas (Data Points 1, 2 and 3). A map of the data points is provided as Figure 2 in Attachment A, and the delineation forms are provided in Attachment B. Representative photos are provided as Attachment C. A summary of the results is provided below.

Data Point 1 was taken in a representative area within a small swale feature adjacent to the eastern property boundary. The swale appeared to have been created by irrigation run-off draining from orchards to the north via a pipe underneath the gravel facility access road. The swale displayed minimal signs of hydrology identified by some disturbance of upland vegetation (less than 0.5 feet in width) in a few areas closest to the access road from periodic irrigation run-off. The swale lacked a defined bed and bank and OHWM, and the disturbance of vegetation was only evident closer to the access road, and not towards the creek. No other signs of hydrology were observed. The swale did not have wetland (hydric) soils, or support hydrophytic vegetation, being dominated by Wild oat (*Avena fatua*) (UPL), *Lolium sp* (FAC*) and *Rumex crispus* (FACW$^-$), and was therefore not considered a wetland. In addition, the feature was not considered Corps/RWQCB or CDFG jurisdictional due to the absence of a defined bed and bank and OHWM, connection to the creek, and the artificial, temporary nature of the water source.

Data Point 2 was taken within a representative stand of mule fat (FACW) with an understory consisting of an unknown grass. The area showed diffuse signs of water flow originating from periodic irrigation run-off draining from orchards to the north via a pipe underneath the gravel facility access road. The area lacked wetland (hydric) soils and a defined bed and bank or OHWM, and was therefore not considered Corps/RWQCB and CDFG jurisdictional waters or wetlands.

Data Point 3 was taken within a man-made ditch created in an upland area along the base of the gravel facility access road and connecting to the creek along a created berm. The ditch was determined not to have wetland (hydric) soils and hydrological signs were not defined. Only a few areas of cracked soils were observed and some shelving that could represent an OHWM. The ditch also appeared to have been originally lined with gravel. The source of water to this ditch originates from a plastic sheet piping system that appears to be used to drain water from the agricultural operations to the north on an as-needed basis. The ditch was vegetated with mule fat (FACW), arroyo willow (Salix lasiolepis) (FACW) and black willow (*Salix gooddingii*) (OBL); the canopy was approximately 15 feet wide across the approximate 3 feet wide ditch. The ditch was not considered a wetland. Based on the new Rapanos guidelines, the Corps should not exert jurisdiction over this ditch.

Data Point 4 was taken within an isolated cottonwood stand along the west side of a created berm, and appeared to be supported by run-off from the agricultural operations. The area was dominated by Fremont's cottonwood (*Populus fremontii*) (FACW) and a few mule fat (FACW) and red willow (*Salix laevigata*) (FACW+), but was determined not to have wetland (hydric) soils or wetland hydrology. The area lacked a defined bed and bank and an OHWM, and was therefore not considered jurisdictional waters or wetlands.

Other water features observed on the property included active agricultural irrigation ditches consisting of small unvegetated channels created in the soil. None of these features were considered jurisdictional waters or wetlands based on the absence of field indicators.

3.3 WETLANDS

Potential wetland areas were visible adjacent to the flowing portion of Cache Creek where seasonal water flow becomes ponded. None of these wetlands are within the project area proposed for impacts. At the time of the assessment, the flow in Cache Creek was low, covering only a small portion of the creek bed nearest the north bank. Data Points were assessed in these areas in order to determine wetland characteristics (Figure 2, Attachment A). Delineation forms are available in Attachment B, and representative photos in Attachment C.

Data Point 5 is located in between two dry channel beds. The area was determined to have hydrophytic vegetation, including mule fat (FACW), red willow, *Cyperus* sp. (FACW), black willow (OBL), *Epilobium* sp. (unknown), *Typha* sp. (OBL) and *Scirpus* sp. (OBL), and displayed signs of hydrology, but no wetland (hydric) soils. The vegetation was all young growth, indicating the area had been recently created and may therefore not have been inundated long enough to develop hydric soils. This area, therefore, does not meet all three wetland parameters.

Data Point 6 is located adjacent to a bridge footing and was determined to be a Corps wetland by passing all three tests (Vegetation, Hydrology, Soils). Dominant vegetation included mule fat (FACW), *Cyperus* sp. (FACW), *Lolium* sp. (FAC*), rabbitsfoot grass (*Polypogon monspeliensis)* (FACW+), *Epilobium* sp. (unknown), *Typha* sp. (OBL), and *Rumex crispus* (FACW^{-}). The 0.03 acre wetland appears to have been created by water ponding in a depressional area created as a result of scour around the bridge's concrete footing.

Data Point 7 is located immediately west of Data Point 6, and was determined to be a Corps wetland by passing all three tests (Vegetation, Hydrology, Soils). Dominant vegetation included mule fat (a FACW species), *Cyperus* sp. (FACW), rabbitsfoot grass (*Polypogon monspeliensis)* (FACW+) and *Typha* sp. (OBL). The 0.01 acre wetland appears to have been created by water ponding in a depressional area created as a result of scour associated with the bridge.

Data Point 8 was determined to be a Corps wetland by passing all three tests (Vegetation, Hydrology, Soils). Dominant vegetation included mule fat (FACW), *Cyperus* sp. (FACW) and *Typha* sp. (OBL). The 0.05 acre wetland appears to have been created by water ponding in a depressional area as a result of creek scour.

Data Point 9 is located adjacent to a bridge footing and was determined to be a Corps wetland by passing all three tests (Vegetation, Hydrology, Soils). Dominant vegetation included mule fat (FACW) and *Typha* sp. (OBL). The 0.01 acre wetland appears to have been created by water ponding in a depressional area created as a result of scour around the bridge's concrete footing.

Corps/RWQCB "waters of the U.S." total 43.3 acres within Cache Creek, as outlined in Section 3.2. Of this, a total of 0.1 acres consists of the Corps jurisdictional wetlands outlined above. The remaining 43.2 acres would be considered Corps jurisdictional non-wetland waters. The wetlands appear to have developed in depressional areas within the creek bed created as a result of scour and subsequent ponding of water. Since the flow path of the creek is dynamic, the locations and frequency of these wetlands are likely seasonal. A summary of jurisdictional waters and wetlands on the property is provided in Table 1.

Table 1: Summary of Jurisdictional Waters and Wetlands on the Granite Esparto Property

Location	Habitat or Data Point	Waters of the State (Acres)	Waters of the U.S. – Non-Wetland (Acres)	Wetlands (Acres)
Cache Creek	Riverine	43.3	43.2	0.0
	Willow Scrub	3.7	0.0	0.0
	Data Point 5	0.0	0.0	0.0
	Data Point 6	0.0	0.0	0.03
	Data Point 7	0.0	0.0	0.01
	Data Point 8	0.0	0.0	0.05
	Data Point 9	0.0	0.0	0.01
Total		***47.0***	***43.2***	***0.1***

4.0 REFERENCES

CalPhotos. 2007. Species reports and photos. Online: http://calphotos.berkeley.edu/. Site visited May 24-30, 2007.

County of Yolo. 2007. *Cache Creek Resources Management Plan (CCRMP) Area Flood Hazard Development Permit Information.* February 12, 2007.

Google Earth Pro. 2007. Image © 2007 TerraMetrics and ©2007 Europa Technologies.

TRC. 2007. Biological Assessment for the Granite Esparto Property. Dated October 2007.

U.S. Fish and Wildlife Service (USFWS), Sacramento Office. 2007a. Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Madison, Esparto, Zamora, and Bird Valley 7 ½ Minute Quadrangles and in Yolo County. Online: http://www.fws.gov/sacramento/es/spp_lists/auto_list_form.cfm. Site visited May 15, 2007.

U.S. Fish and Wildlife Service (USFWS). 2007b. Species Accounts. Online: http://www.fws.gov/sacramento/es/spp_info.htm. Site visited May 29, 2007

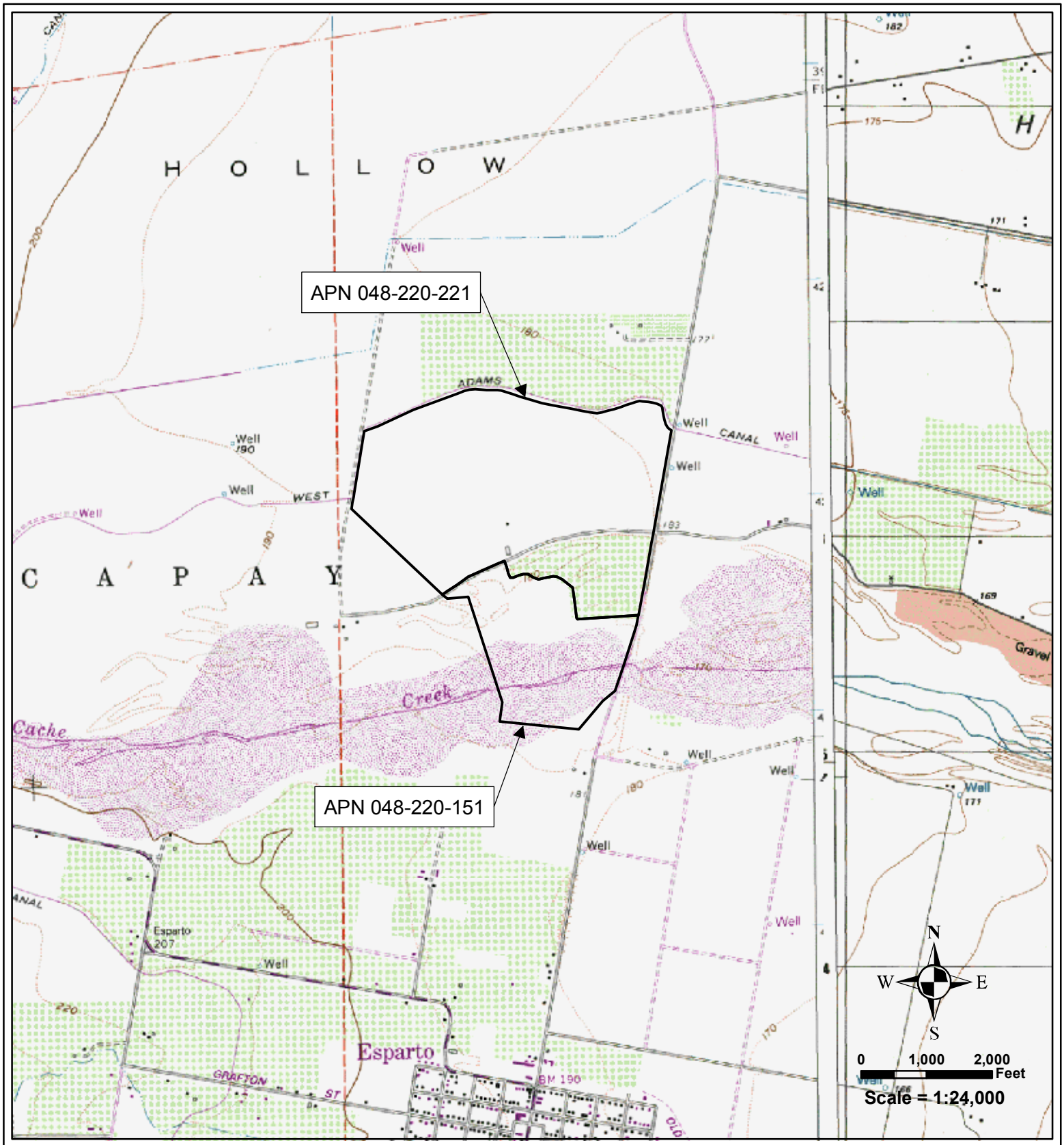
U.S. Fish and Wildlife Service (USFWS). 1988 and 1996. National List of Plant Species that Occur in Wetlands. Region 10 - California. Accessed from: http://www.nwi.fws.gov/bha/download/1996/national.pdf .

University of California, Davis. California Soil Resource Lab. Online: http://casoilresource.lawr.ucdavis.edu/drupal/. Site visited June 6, 2007.

WeatherReports website. 2007. *Weather Averages for Esparto, CA.* Online: http://www.weatherreports.com/United_States/CA/Esparto/averages.html. Site visited May 18, 2007.

Wetland Training Institute. 1987. U.S. Corps of Engineers Wetlands Delineation Manual. Department of the Army.

Attachment A: Vicinity and Wetland Delineation Maps



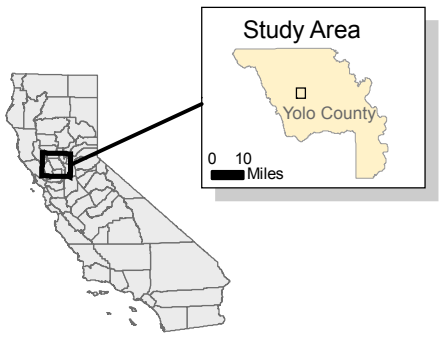
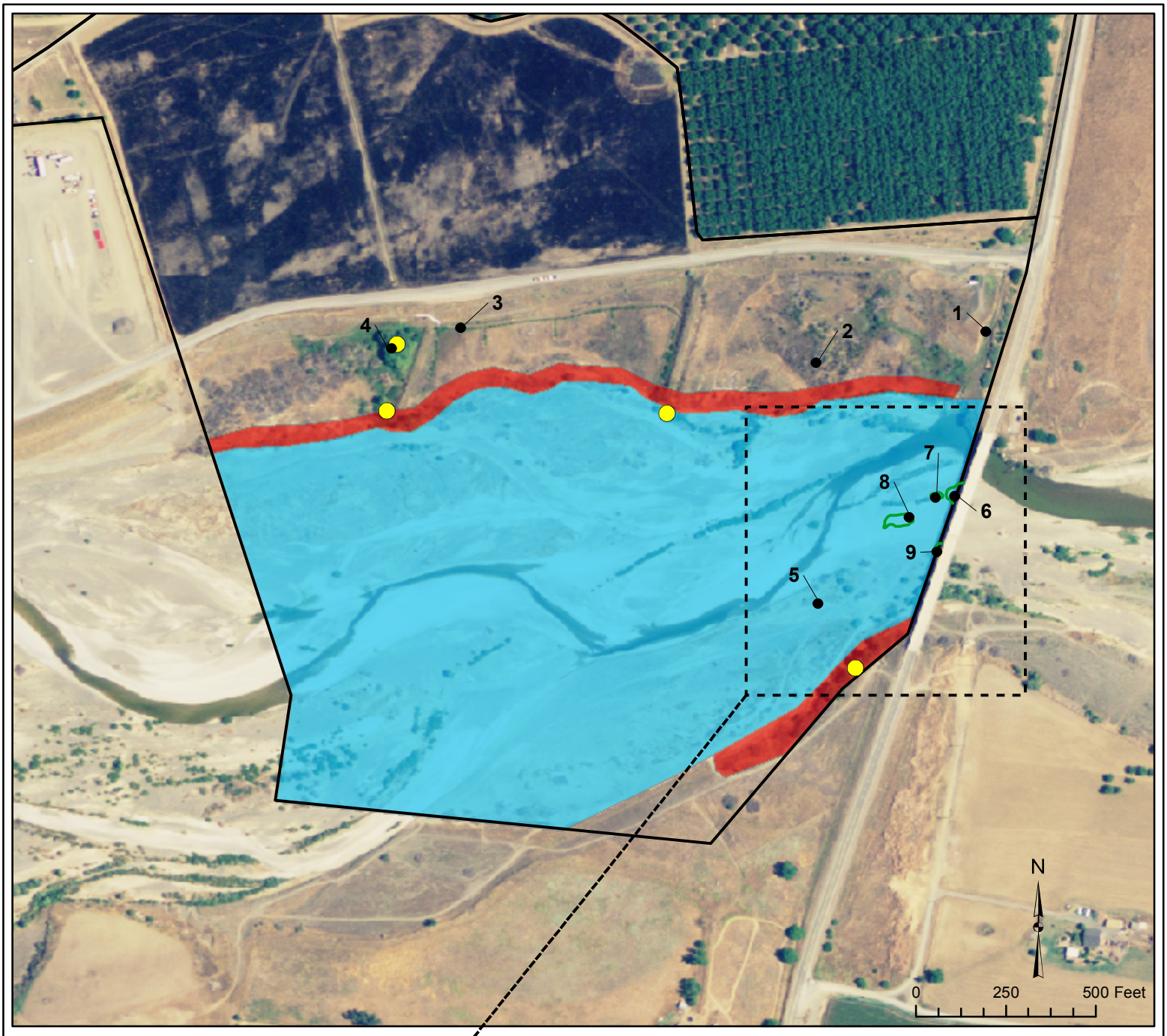
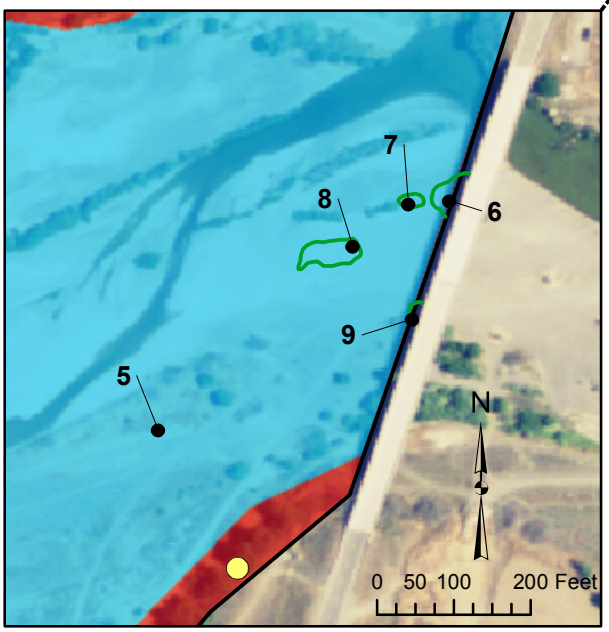


Figure 1
Property Location Map

August 21, 2007

TRC





- Soil pit
- Cottonwood stand
- Wetland boundary
- Study site

Vegetation Communities

- Great Valley Willow Scrub
- Riverine

Data Sources: 2007, TRC; 2005 USDA National Agriculture Inventory Project

Granite Esparto Property
Figure 2. Wetland Delineation

Map date June 15, 2007

TRC

Attachment B: Wetland Delineation Forms

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Granite Esparto
Applicant/Owner:
Investigator:

Date: 5/22/07
County: Yolo
State: CA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID:
Transect ID:
Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Avena	herb	UPL
2. Lolium	herb	FAC*
3. Rumex crispus	herb	FACW
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FACW (excluding FAC-).

Remarks: originates from culvert (Ag land)

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 7/12 (in.)
Depth to Free Water in Pit: none (in.)
Depth to Saturated Soil: 7/12 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
✓ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12	A	7.5YR 3/2	none	none	Sandy clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks: width = 0.5 - 1.0 feet

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Granite Esparto
Applicant/Owner:
Investigator:

Date: 5/22/07
County: Yolo
State: CA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID:
Transect ID:
Plot ID: 2

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. mule fat	shrub	FACW
2. grass	herb	
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks: unknown grass

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)
Depth to Free Water in Pit: None (in.)
Depth to Saturated Soil: none (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
✓ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: diffused flow from culvert to the north

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12	A	10YR 4/2	none	none	silty clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks: potential floodplain - 50 - 100 year

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Granite Esparto
Applicant/Owner:
Investigator:

Date: 5/22/07
County:
State:

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID:
Transect ID:
Plot ID: 3

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. black willow	tree	OBL
2. Arroyo willow	tree	FACW
3. mule fat	shrub	FACW
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: 15 feet COFG Cracked soils
3 feet Core

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12	A	7.5YR 4/4	none	none	silty clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	Yes	(No)	Is this Sampling Point Within a Wetland? Yes (No)

Remarks: man made drainage, top layer is gravel (0-2 inches). Culvert from the Ag fields

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Granite esparto
Applicant/Owner:
Investigator:

Date: 5/22/07
County: Yolo
State: CA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID:
Transect ID:
Plot ID: 4

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. red willow	tree	FACW+
2. mule fat	tree	FACW
3. cottonwood	tree	FACW
4. cow slip	herb	
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: none (in.)

Depth to Saturated Soil: none (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: cracked soils in a few small areas - not consistent or widespread

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12	A	7.5YR 3/2	none	none	clay sand

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks: collection of runoff

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Granite esparto Applicant/Owner: _____ Investigator: _____	Date: 5/22/07 County: Yolo State: CA
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: S

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Typha	Shrub	OBL
2. Scirpus	shrub	OBL
3. Umbrella Sedge - Cyperus	herb	FACW
4. black willow - Salix goodingii	tree	OBL
5. mule fat - baccharis salisofolia	shrub	FACW
6. Epilobium -		
7. Red willow	tree	FACW+
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)

Depth to Free Water in Pit: 20 (in.)

Depth to Saturated Soil: 20 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ✓ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-20	A				sandy

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: none of the sandy soil indicators were present

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks: young growth vegetation. In between main channels. May move with high storms

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Granite Esparto
Applicant/Owner:
Investigator:

Date: 5/22/07
County: Yolo
State: CA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID:
Transect ID:
Plot ID: 6

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Epilobium		
2. Typha	shrub	OBL
3. Rabbitfoot grass	herb	FACW+
4. Mulefat	shrub	FACW
5. Cyperus	herb	FACW
6. Rumex Crispus	herb	FACW-
7. Lalium	herb	FAC*
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)
Depth to Free Water in Pit: 6+ (in.)
Depth to Saturated Soil: 2 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
✓ Inundated
✓ Saturated in Upper 12 Inches
___ Water Marks
✓ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	O				Clay sand
2-	A				sandy

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: 0-2 inches = organic layer
hydric soil indicator for sandy soils

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks: An area were water collects by the bridge.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Granite Esparto
Applicant/Owner:
Investigator:

Date: 5/22/07
County: Yolo
State: CA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID:
Transect ID:
Plot ID: 7

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. mule fat	shrub	FACW
2. rabbits foot grass	herb	FACW+
3. Typha	herb	OBL
4. Cyperus	herb	OBL
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)
Depth to Free Water in Pit: 12 (in.)
Depth to Saturated Soil: none (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
X Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A O				sandy clay
2-	A				sand

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: passes for sandy soils

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks: low spot, pooling water

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Granite Esparto
Applicant/Owner:
Investigator:

Date: 5/22/07
County: Yolo
State: CA

Do Normal Circumstances exist on the site?	Yes	No	Community ID:
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No	Plot ID: 8

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. mulefat	Shrub	FACW
2. Typha	herb	OBL
3. Cyperus	herb	FACW
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 6 (in.)

Depth to Free Water in Pit: 12 (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ✓ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	O				Sandy clay
2-	A				sand

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: passed for sandy soils

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Granite Esparto
Applicant/Owner:
Investigator:

Date: 5/22/07
County: Yolo
State: CA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID:
Transect ID:
Plot ID: 9

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Typha	herb	OBL
2. Mulefat	shrub	FACW
3.		
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: none (in.)
Depth to Free Water in Pit: 6 (in.)
Depth to Saturated Soil: 2 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
✓ Inundated
✓ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	O				Clay sand
2-	A				Sandy

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: hydric soils passed for sandy soils

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks: An area were water collects by the bridge.

Approved by HQUSACE 3/92

Attachment C: Photo Exhibit

Photo 1: Cache Creek, facing southeast.

Photo 2: Cache Creek, facing southwest.

Photo 3: Area around soil pit 1, facing north.

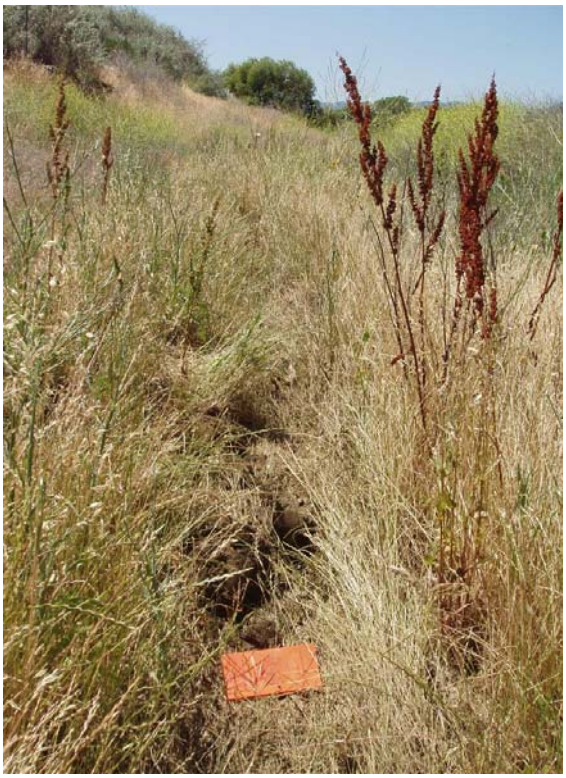


Photo 4: Soil pit 1, facing south.

Photo 5: Area around soil pit 2, facing east.

Photo 6: Soil pit 2, facing north.

Photo 7: Site overview, facing east, showing non-native grassland area and Cache Creek in the background.

Photo 8: Site overview, facing northeast, within non-native grassland area.

Photo 9: Northern bank of Cache Creek, facing southwest.

Photo 10: Site overview, facing northwest, of non-native grassland area with the ditch in the background.

Photo 11: Area around soil pit 3 (ditch), facing east.

Photo 12: Area around soil pit 3 (ditch), facing southwest.

Photo 13: Ditch bottom near Soil pit 3.

Photo 14: Area around soil pit 4, facing southeast, showing cottonwood stand.

Photo 15: Soil pit 4.

Photo 16: Cache Creek, facing south.

Photo 17: Northern bank of Cache Creek, facing east.

Photo 18: Area around soil pit 5, facing east.

Photo 19: Soil pit 5.

Photo 20: Area around soil pit 6 (wetland), facing northeast.

Photo 21: Soil pit 6 (wetland).

Photo 22: Area around soil pit 7 (wetland), facing west.

Attachment E: List of Species Observed

List of Plant Species Observed
May 22, 2007

Common Name	Scientific Name
Trees	
eucalyptus	*Eucalyptus globulus*
English walnut	*Juglans regia*
California black walnut	*Juglans californica*
juniper	*Juniperus californica*
pine	*Pinus* sp.
sycamore	*Platanus racemosa*
Fremont cottonwood	*Populus fremontii*
almond	*Prunus dulcis*
valley oak	*Quercus lobata*
sandbar willow	*Salix exigua*
Shrubs	
mulefat	*Baccharis salicifolia*
toyon	*Heteromeles arbutifolia*
oleander	*Nerium oleander*
Herbs	
dandelion	*Agoseris* sp.
ripgut brome	*Bromus diandrus*
Mexican tea	*Chenopodium amnrosioides*
rush	*Juncus* sp.
ryegrass	*Lolium* sp.
tule	*Schoenoplectus acutus* var. *occidentali*
hedge mustard	*Sisymbrium officinale*
cattail	*Typha* sp.

List of Wildlife Species Observed
May 22, 2007

Common Name	Scientific Name
Fish	
Carp	*Cyprinus* sp.
Reptiles	
gopher snake	*Pituophis catenifer*
western fence lizard	*Sceloporus occidentalis*
Birds	
red-winged blackbird	*Agelaius phoeniceus*
mallard	*Anas platyrhynchos*
turkey vulture	*Cathartes aura*
Swainson's hawk	*Buteo swainsoni*
California quail	*Callipepla californica*
goldfinch	*Carduelis* sp.
house finch	*Carpodacus mexicanus*
belted kingfisher	*Ceryle alcyon*
killdeer	*Charadrius vociferous*
lark sparrow	*Chondestes grammacus*
northern harrier	*Circus cyaneus*
Brewer's blackbird	*Euphagus cyanocephalus*
cliff swallow	*Hirundo pyrrhonota*
western kingbird	*Tyrannus verticalis*
mourning dove	*Zenaida macroura*
Mammals	
blacktail jackrabbit	*Lepus californicus*