

## **Appendix C: Biological Resources Reports**

**REVISED  
BIOLOGICAL RESOURCES ANALYSIS REPORT  
FOR THE  
WALTERS ROAD PROPERTY  
SOLANO COUNTY, CALIFORNIA**

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## ATTACHMENTS

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### ATTACHMENT NO. 1

### FIGURES

- Figure No. 1. Regional Map
- Figure No. 2. Vicinity Map
- Figure No. 3. USGS Quadrangle Map for Denverton
- Figure No. 4. Aerial Photograph
- Figure No. 4. Map of CNDDB Reports of Special-Status Species
- Figure No. 6. Critical Habitat for Contra Costa Goldfields
- Figure No. 7. Critical Habitat for the Conservancy Fairy Shrimp
- Figure No. 8. Critical Habitat for the Vernal Pool Fairy Shrimp
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### ATTACHMENT NO. 2

### TABLES

- Table No. 1. Plant and Wildlife Species Observed Within/Adjacent to the Survey Area
  
- Table No. 2. Special-Status Species Occurring within the Denverton, Fairfield South, Fairfield North, and Elmira 7.5 Minute Quadrangle Maps

### ATTACHMENT NO. 3

### SITE PHOTOGRAPHS

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This report should be cited as: Olberding Environmental, Inc. July 2007. *Revised Biological Resources Analysis for the Walters Road Property, Solano County, California..* Prepared for Walmart, c/o Robert A. Karn & Associates, Fairfield, California.

## **1.0 INTRODUCTION**

At the request of Robert A. Karn & Associates, on behalf of Walmart, Olberding Environmental conducted a biological resources analysis of the Walters Road Property (Property) located in Solano County, California. This biological resources analysis includes pertinent literature on relevant background information and habitat characteristics of the site including the California Natural Diversity Database (CNDDDB 2005) and the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California, and a review of information related to species of plants and animals that could potentially utilize the described habitats. An initial field reconnaissance investigation of the Property was conducted on March 3, 2006. Additional surveys were performed on April 26, May 8 and 24, June 7, and July 7, 2006, in association with focused special-status plant surveys and data collection required for the identification of wetland habitats on the Property. This report documents the methods, results and conclusions for the reconnaissance-level surveys for the Property.

## **2.0 LOCATION**

The approximately 21-acre parcel evaluated for this report is situated immediately north of Highway 12, south of Peterson Road, and west of Walters Road in Solano County, California. Attachment 1, Figure 1 depicts the regional location of the survey area within the San Francisco Bay region. Attachment 1, Figure 2 illustrates the vicinity of the survey area in relationship to Suisun City. Attachment 1, Figure 3 identifies the location of the survey area on the USGS 7.5 Quadrangle map for Denverton. An aerial photograph of the Property has been included as Attachment 1, Figure 4.

Access to the Property is attained by taking the Highway 12 exit east from Interstate 80. Follow Highway 12 for approximately 5.25 miles. The Property is situated immediately north of the intersection of Highway 12 and Walters Road.

## **3.0 PROPERTY DESCRIPTION**

The Property forms a triangle with Highway 12 forming the southern boundary, Peterson Road forming the northern boundary, and Walters Road forming the eastern boundary. A constructed drainage ditch bisects the Property in a north to south direction, approximately 500 feet west of Walters Road. The drainage ditch was identified in the center of the Property and functions to collect and drain stormwater runoff from Petersen Road and a residential neighborhood to the north through a large culvert under Highway 12. The constructed drainage ditch is eventually tributary to Hill Slough located approximately 0.5 miles south of the Property. The Property is situated at approximately 20 feet above sea level, with elevations decreasing slightly in a west to east direction.

Fill has been historically deposited over a large portion of the Property west of the drainage ditch. The fill is approximately 1.5 to 2 feet higher in elevation than the surrounding areas. This area of fill prevents water from draining from the western portion of the site, creating ponded areas within the shallow depressions that were observed throughout this area. These depressions were inundated at the time of the March 2006 reconnaissance survey and April special-status plant survey. The site is

comprised primarily of non-native annual grasslands that are disked on a bi-annual basis. Near the northwest corner of the Property is an area where the annual grassland habitat has been disturbed by vehicle traffic, indicating that this was recently used as a staging area for nearby construction.

Surrounding land use is a mixture of housing developments and undeveloped annual grasslands. Lands to the immediate north, west, and south of the Property have all been developed, and are comprised of single family homes. Immediately northeast of the Property are two undeveloped lots, but lands to the north and northeast of these have also been developed with single family homes and a sports complex. Lands to the southeast of the Property consist of a large expanse of undeveloped annual grasslands.

## **4.0 REGULATORY SETTING**

### **4.1 Federal Regulatory Setting**

#### ***4.1.1 Plants and Wildlife***

The federal Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq., as amended) prohibits federal agencies from authorizing, permitting, or funding any action that would result in biological jeopardy to a plant or animal species listed as Threatened or Endangered under the Act. Listed species are taxa for which proposed and final rules have been published in the Federal Register (U.S. Fish and Wildlife Service [USFWS], 2006a and 2006b). If a proposed project may jeopardize listed species, Section 7 of the ESA requires consideration of those species through formal consultations with the USFWS. Federal Proposed species (USFWS, 2006c) are species for which a proposed listing as Threatened or Endangered under ESA has been published in the Federal Register. If a proposed project may jeopardize proposed species, Section 7 of the ESA affords consideration of those species through informal conferences with USFWS. The USFWS defines federal Candidate species as “those taxa for which we have on file sufficient information on biological vulnerability and threats to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded by other higher priority listing actions.” (USFWS, 2006c). Federal Candidate species are not afforded formal protection, although USFWS encourages other federal agencies to give consideration to Candidate species in environmental planning.

#### ***4.1.2 Wetlands/Waters***

The federal government, acting through the U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA), has jurisdiction over all “waters of the United States” as authorized by Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899 (33 CFR Parts 320-330). Projects that cause the discharge of dredged or fill material into waters of the United States require permitting by the Corps. Actions affecting small areas of jurisdictional waters of the United States may qualify for a Nationwide Permit (NWP), provided conditions of the permit are met, such as avoiding impacts to threatened or endangered species or to important cultural sites. Projects that affect larger areas or which do not meet the conditions of an NWP require an Individual Permit. The process for obtaining an Individual Permit requires a

detailed alternatives analysis and development of a comprehensive mitigation/monitoring plan.

Waters of the United States are classified as wetlands, navigable waters, or other waters. Wetlands are transitional habitats between upland terrestrial areas and deeper aquatic habitats such as rivers and lakes. Under federal regulation, wetlands are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR Part 328.3[b]). Swamps, marshes, bogs, fens and estuaries are all defined as wetlands, as are seasonally saturated or inundated areas such as vernal pools, alkali wetlands, seeps, and springs. In addition, portions of the riparian habitat along a river or stream may be a wetland where the riparian vegetation is at or below the ordinary high water mark and thus also meets the wetland hydrology and hydric soil criteria.

Navigable waters include all waters subject to the ebb and flow of the tides, including the open ocean, tidal bays, and tidal sloughs. Navigable waters also include some large, non-tidal rivers and lakes, which are important for transportation in commerce. The jurisdictional limit over navigable waters extends laterally to the entire water surface and bed of the waterbody landward to the limits of the mean high tide line. For non-tidal rivers or lakes, which have been designated (by the Corps) to be navigable waters, the limit of jurisdiction along the shoreline is defined by the ordinary high water mark. Other waters refer to waters of the United States other than wetlands or navigable waters. Other waters include streams and ponds, which are generally open water bodies and are not vegetated. Other waters can be perennial or intermittent water bodies and waterways. The Corps regulates other waters to the outward limit of the ordinary high water mark. Streams should exhibit a defined channel, bed and banks to be delineated as other waters.

The Corps does not generally consider “non-tidal drainage and irrigation ditches excavated on dry land” to be jurisdictional waters of the United States (and such ditches would therefore not be regulated by the Corps (33 CFR Parts 320-330, November 13, 1986). Other areas generally not considered jurisdictional waters include: 1) artificially irrigated areas that would revert to upland habitat if the irrigation ceased; 2) artificial lakes and ponds created by excavating and/or diking of dry land to collect and retain water, used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing; 3) waste treatment ponds; 4) ponds formed by construction activities including borrow pits until abandoned; and 5) ponds created for aesthetic reasons such as reflecting or ornamental ponds (33 CFR Part 328.3). However, the preamble also states that “the Corps reserves the right on a case-by-case basis to determine that a particular waterbody within these categories” can be regulated as a jurisdictional water. The EPA also has authority to determine jurisdictional waters of the U.S. on a case-by-case basis. Riparian habitat that is above the ordinary high water mark and does not meet the three-parameter criteria for a wetland would not be regulated as jurisdictional waters of the United States.

### **4.1.3 Migratory Bird Treaty Act**

Raptors are migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3503, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (March 1 - August 15, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend is considered "taking" and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g., MBTA).

## **4.2 State Regulatory Setting**

### **4.2.1 Plants and Wildlife**

Project permitting and approval requires compliance with California Environmental Quality Act (CEQA), the 1984 California Endangered Species Act (CESA), and the 1977 Native Plant Protection Act (NPPA). The CESA and NPPA authorize the California Fish and Game Commission to designate Endangered, Threatened and Rare species and to regulate the taking of these species (§§2050-2098, Fish & Game Code). The California Code of Regulations (Title 14, §670.5) lists animal species considered Endangered or Threatened by the State.

The Natural Heritage Division of the California Department of Fish and Game (CDFG) administers the state rare species program. The CDFG maintains lists of designated Endangered, Threatened, and Rare plant and animal species (CDFG, 2005a and 2005b). Listed species either were designated under the NPPA or designated by the Fish and Game Commission. In addition to recognizing three levels of endangerment, the CDFG can afford interim protection to candidate species while they are being reviewed by the Fish and Game Commission.

The CDFG also maintains a list of animal species of special concern (CDFG, 2006), most of which are species whose breeding populations in California may face extirpation. Although these species have no legal status, the CDFG recommends considering them during analysis of proposed project impacts to protect declining populations and avoid the need to list them as endangered in the future.

Under provisions of §15380(d) of the CEQA Guidelines, the project lead agency and CDFG, in making a determination of significance, must treat non-listed plant and animal species as equivalent to listed species if such species satisfy the minimum biological criteria for listing. In general, the CDFG considers plant species on List 1A (Plants Presumed Extinct in California), List 1B (Plants Rare, Threatened, or Endangered in California and elsewhere), or List 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 1994)

as qualifying for legal protection under §15380(d). Species on CNPS List 3 or 4 may, but generally do not, qualify for protection under this provision.

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species and CDFG Species of Special Concern, areas of high biological diversity, areas providing important wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the California Natural Diversity Data Base's (CNDDDB) working list of "high priority" habitats (i.e., those habitats that are rare or endangered within the borders of California) (Holland, 1986).

#### **4.2.2 Wetlands/Waters**

The Regional Water Quality Control Board (RWQCB) regulates activities in wetlands and other waters through §401 of the Clean Water Act. Section 401 requires a state water quality certification for projects subject to 404 regulation. Requirements of the certification include mitigation for loss of wetland habitat. In the San Francisco Bay region, the RWQCB may take the lead over the Corps in determining wetland mitigation requirements. California Fish and Game Code §§1600-1607 require the CDFG be notified of any activity that could affect the bank or bed of any stream that has value to fish and wildlife. Upon notification, the CDFG has the discretion to execute a Streambed Alteration Agreement. The CDFG defines streams as follows:

*"... a body of water that flows at least periodically...through a bed or channel having banks and supporting fish and other aquatic life. This includes watercourses having a subsurface flow that supports or has supported riparian vegetation."*

(Stream Bed Alteration Program, California Department of Fish and Game).

In practice, CDFG authority is extended to any "blue line" stream shown on a USGS topographic map, as well as unmapped channels with a definable bank and bed. Wetlands, as defined by the Corps, need not be present for CDFG to exert authority.

## **5.0 METHODS OF ANALYSIS FOR GENERAL BIOLOGICAL RESOURCES**

A special-status plant and wildlife species database search and review was conducted using the CNDDDB and other sources. An additional search was conducted for special-status plants using California Native Plant Society Inventory on Line (CNPS). Special-status species reports were accessed by searching the CNDDDB database by the Denverton, Fairfield South, Fairfield North, and Elmira 7.5-minute quadrangles, which surround the Property, and by examining those species that have been identified in the vicinity of the Property. The database report identified special-status species known to occur in the region or those that have the potential to occur in the vicinity of the Property. The CNDDDB report was used to focus special-status species analysis of the site prior to the reconnaissance surveys.

Olberding Environmental biologists conducted reconnaissance-level surveys of the Property on March 3, 2006. Additional surveys were performed on April 26, May 8 and 24, June 7, and July 7,

2006, in association with focused special-status plant surveys and data collection required for the identification of wetland habitats on the Property. The surveys consisted of walking throughout the Property and evaluating the Property and adjacent lands for potential biological resources. Existing conditions, observed plants and wildlife, adjacent land use, soils and potential biological resource constraints were recorded during the visit. Plant and wildlife species observed within and adjacent to the Property during the reconnaissance survey are included in Attachment 2, Table 1.

The objectives of the field surveys were to determine the potential presence or absence of special-status species habitat listed in the CNDDDB database report and to identify any wetland areas that could be potentially regulated by the Corps (CNDDDB 2006). In addition, Olberding Environmental biologists looked for other potential sensitive species or habitats, which may not have been obvious from background database reports or research. Surveys conducted after the growing season or conducted outside of the specific flowering period for a special-status plant cannot conclusively determine the presence or absence of such plant species; therefore, site conditions and habitat type were used to determine potential for occurrence. When suitable habitat was observed to support a special-status plant or animal species it was noted in the discussion for that particular species. Regulatory agencies evaluate the possibility of occurrence based on habitats observed on site and the degree of connectivity with other special-status animal habitats in the vicinity of the Property. These factors are discussed in each special-status plant or animal section.

Sources consulted for agency status information include USFWS (2006a, 2006b) for federally listed species and CDFG (2006a) for State of California listed species. Based on information from the above sources, Olberding Environmental developed a target list of special-status plants and animals with the potential to occur within or in the vicinity of the Property (Attachment 2, Table 2).

## **5.1 Plant Survey Methods**

The purposes of the botanical surveys were (1) to characterize the habitat types (plant communities) of the study area; (2) to determine whether any suitable habitat for any special-status plant species, occurs within the study area; and (3) to determine whether any sensitive habitat types (wetlands) occur within the study area. Site conditions and plant habitat surveys are important tools in determining the potential occurrence of plants not recorded during surveys (e.g., special-status plants) because presence cannot conclusively be determined if field surveys are conducted after the growing season or conducted outside a specific flowering period.

### ***5.1.1 Review of Literature and Data Sources***

Botanists from Olberding Environmental conducted focused surveys of literature and special-status species databases in order to identify special-status plant species and sensitive habitat types with potential to occur in the study area. Sources reviewed include: CNDDDB occurrence records (CNDDDB 2006) and CNPS *Inventory* (Skinner and Pavlik 1994) for the Denverton, Fairfield South, Fairfield North, and Elmira USGS 7.5 quadrangles; and standard flora (Hickman 1993). In addition, the results of a focused special-status plant survey for the Property, conducted in the spring and summer of 2006 are included (Olberding 2006). From the above sources, a list of special-status plant species with potential to occur in the project vicinity was developed (Attachment 2, Table 2).

### **5.1.2 Field Surveys**

An Olberding Environmental botanist conducted a reconnaissance-level survey to determine habitat types and the potential for special-status plants based on the observed habitat types on March 3, 2006. Additional botanical surveys were performed on April 26, May 8 and 24, June 7, and July 7, 2006, in association with focused special-status plant surveys. Specifically, these additional surveys were performed during the recognized blooming period for Contra Costa goldfields (*Lasthenia conjugens*) a federally endangered plant. All vascular plant species that were identifiable at the time of the survey were recorded and identified using keys and descriptions in Hickman (1993).

The habitat types occurring on the Property were characterized according to pre-established categories. In classifying the habitat types on the site, the generalized plant community classification schemes of A Manual of California Vegetation (Sawyer and Keeler-Wolf 1995) were consulted. The final classification and characterization of the habitat types of the study area were based on field observations.

Botanical surveys were also performed in association with data collection activities required for the identification of potential wetland features on the subject Property. These surveys occurred in May of 2006 and April 11, May 3 and May 24, 2007.

## **5.2 Wildlife Survey Methods**

The purposes of the wildlife surveys were to identify special-status wildlife species and/or potential special-status wildlife habitats within the study area.

### **5.2.1 Review of Literature and Data Sources**

A focused review of literature and data sources was conducted in order to determine which special-status wildlife species had potential to occur in the vicinity of the Property. Current agency status information was obtained from USFWS (2006b, c) for species listed as Threatened or Endangered, as well as Proposed and Candidate species for listing, under the federal ESA; and from CDFG (2006a, 2006b) for species listed as Threatened, or Endangered by the state of California under the CESA, or listed as “species of special concern” by CDFG. In addition, focused reports documenting the potential for special status branchiopod species (Helm 2007) and the Delta green ground beetle (Entomological Consulting Services, Ltd. 2007) on this Property were utilized. From the above sources, a list of special-status wildlife species with potential to occur in the project vicinity was developed (Attachment 2, Table 2).

## 5.2.2 *Field Surveys*

### *General Wildlife Survey*

Olberding Environmental biologists conducted surveys of species habitat within the entire study area, including visible portions of the adjacent properties on March 3, 2006. The purpose of the habitat surveys was to evaluate wildlife habitats and the potential for any protected species to occur on or adjacent to the Property.

### *Reconnaissance-Level Raptor Survey*

Reconnaissance-level raptor surveys were conducted on the Property on March 3, 2006. Observation points were established on the periphery of the Property to view raptor activity over a fifteen to thirty-minute time period. This survey was conducted with the use of binoculars and notes were taken for each species occurrence. Additionally, utility poles and perch sites in the vicinity of the Property were observed. All raptor activity within and adjacent to the Property was recorded during the reconnaissance-level observation period.

### *Reconnaissance-Level Burrowing Owl (*Athene cunicularia*) Survey*

Reconnaissance-level burrowing owl (*Athene cunicularia*) surveys were also conducted on the Property on March 3, 2006 to identify potential burrow sites or burrowing owl use of on-site habitat. The general presence and density of suitable burrow sites (e.g., rodent burrows) was evaluated for the Property. Rodent burrows encountered during the site visit were investigated for presence of potential burrowing owl residence. Each potential burrow observed was evaluated for the presence of castings, whitewash, bones, feathers or other signs of burrowing owl habitation. Observations were recorded. The fence line around the Property and any potential perching sites were investigated for signs of castings at the base of the posts.

## **6.0 RESULTS FOR GENERAL BIOLOGICAL RESOURCES**

The search and review of the CNDDDB database reports revealed the occurrence of special-status plant and wildlife species that occur in non-native annual grassland, developed, and seasonal wetland habitats (CNDDDB 2005). The CNDDDB database and background data were reviewed for the Denverton, Fairfield South, Fairfield North, and Elmira 7.5 minute quadrangles (Attachment 2, Table 2). A map showing the locations of special-status plants and animals reported in the vicinity of the Property is included as Attachment 1, Figure 5. Those animals listed in Attachment 2, Table 2 were reviewed for their potential to occur on the Property based on general habitat types. Many of the plant and animal species identified by the CNDDDB in the quadrangles require a specific habitat microclimate that was found not to occur within the Property.

## **6.1 Plant Survey Results**

### ***6.1.1 Floristic Inventory and Habitat Characterization***

In classifying the habitat types on the Property, generalized plant community classification schemes were used (Sawyer and Keeler-Wolf 1995). The final classification and characterization of the habitat types of the study area were based on field observations. The Property supports three habitat types: non-native annual grassland, ditch, and seasonal wetland (Attachment 3: Site photographs). The majority of the site is comprised of non-native annual grasses. The annual grasslands are disked annually, reducing the potential that disturbance-intolerant native perennials will be present. The drainage ditch has been colonized by disturbance tolerant forbs and emergent vegetation. Both the drainage ditch and surrounding grasslands lack any tree or shrub cover. A row of mature Monterey pine trees (*Pinus radiata*) can be found along the northern site boundary, north of Peterson Road.

#### **Non-native Annual Grassland**

The annual grasslands are disked on an annual basis. The dominant grass species are wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*) and foxtail barley (*Hordeum murinum ssp. leporinum*). Commonly occurring forbs include bristly oxtongue (*Picris echioides*), cutleaf geranium (*Geranium dissectum*), redstem filaree (*Erodium cicutarium*), black mustard (*Brassica nigra*) and common vetch (*Vicia sativa*).

#### **Drainage Ditch**

A drainage ditch bisects the Property in a north to south direction, and conveys surface water from neighboring properties to Hill Slough, south of the site. The banks of the ditch are vegetated with disturbance tolerant non-native forbs and grasses including Harding grass (*Phalaris aquatica*), sweet fennel (*Foeniculum vulgare*), black mustard, and pepper grass (*Lepidium latifolium*). In-channel vegetation consists of cattail (*Typha* sp.), rabbit's foot grass (*Polypogon monspelinensis*), and curly dock (*Rumex crispus*).

#### **Seasonal Wetland**

The western portion of the Property has poor drainage due to soils with high clay content, as well as the presence of an area of fill situated west of the drainage. This portion of the Property has multiple shallow depressions that form potential seasonal wetlands. A survey of these wetland features during blooming period identified a plant community associated with seasonal wetlands rather than vernal pools, which are located east of the Property. Ponding of water or continual saturation over an extended period of time will favor the germination of wetland plant species. The seasonal wetlands support seasonal and perennial wetland vegetation composed of chufa (*Cyperus eragrostis*), rabbit's foot grass, Italian rye grass (*Lolium multiflorum*), prickly ox-tongue (*Picris echioides*), curly dock, and Mediterranean barely (*Hordeum marinum* var. *gussoneanum*).

### 6.1.2 *Special-Status Plant Species*

Special-status plant species include species listed as Rare, Threatened, or Endangered by the USFWS (2005a) or by the State of California (CDFG, 2005a). Federal Proposed and Candidate species (USFWS, 2004b) are also special-status species. Special-status species also include species listed on List 1A, List 1B, or List 2 of the CNPS Inventory (Skinner and Pavlik, 1994; CNPS 2005). All species in the above categories fall under state regulatory authority under the provisions of CEQA, and may also fall under federal regulatory authority. Considered special-status species are species included on List 3 (Plants About Which We Need More Information—A Review List) or List 4 (Plants of Limited Distribution—A Watch List) of the CNPS *Inventory*. These species are considered to be of lower sensitivity, and generally do not fall under specific state or federal regulatory authority. Specific mitigation considerations are not generally required for List 3 and List 4 species.

Attachment 2, Table 2 includes a list of special-status plants with the potential to occur within or in the immediate vicinity of the Property based on a review of the USGS 7.5 minute quadrangles for Denverton, Fairfield South, Fairfield North, and Elmira. The special-status plant species identified by the CNDDDB as potentially occurring in the Property are known to grow only from specific habitat types. The specific habitats or “micro-climate” necessary for most of the plant species to occur are not found within the boundaries of the subject Property. The habitats necessary for the CNDDDB reported plant species consist of valley and foothill grassland, cismontane woodland, chaparral, coastal scrub, alkaline flats, vernal pools, and marshes or swamps. Due to the program of regular disking of the site, some of the perennial plant species would be expected to be less to occur on the Property. Regular disking is not expected to preclude the presence of many of the annuals that can occur in annual grasslands, as well as the vernal pool species that could potentially occur in the seasonal wetland habitat. The following special status plant species were reviewed for their potential to occur on the Property.

#### **Alkali Milk-Vetch (*Astagalus tener* var. *tener*). CNPS List 1B.**

Alkali milk-vetch is an annual herb in the family *Fabaceae*. Alkali milk-vetch is endemic to California with habitat for this species including playas, valley and foothill grasslands with adobe clay soils, and vernal pools with alkaline soils. It blooms between March and June. This species is now considered extirpated in Contra Costa, Monterey, San Benito, Santa Clara, San Francisco, San Joaquin, Sonoma and Stanislaus counties. It is considered rare and restricted to isolated patches in Alameda, Merced, Napa, Solano, and Yolo counties.

The annual grassland and seasonal wetland habitats on the Property are considered potentially suitable for alkali milk-vetch. There are current and historical occurrences of this species in the vicinity of the Property:

- In 1922, this species was observed three miles northeast of Suisun, and approximately 0.5 to 2.5 miles northwest of the Property.
- In 1893, this plant was mapped at Vanden Station, 2.5 to 4.5 miles northeast of the Property.
- In 2003, 1000 to 2000 plants were observed in three vernal pools 1.5 miles west southwest of Dozier, and approximately 1.8 miles northeast of the Property.

- In 2004, between 500 and 750 plants were observed scattered over a vernal flat southwest of the intersection of Scalley and Killdeer roads, approximately 1.5 miles southeast of the Property.
- In 2002, 10 plants were found east of Ledgewood Creek near Suisun, approximately 3.4 miles west of the Property.
- In 2002, over 300 plants were found west of Ledgewood Creek, approximately 3.75 miles west southwest of the Property.

Due to the occurrence of this species in the areas surrounding the Property and the presence of suitable habitat on the site, alkali milk-vetch was considered somewhat likely to be present on the Property based on the initial March 2006 reconnaissance survey. A focused survey performed during the blooming period for alkali milk-vetch resulted in a negative finding of this species on the Property.

**Heartscale (*Atriplex cordulata*). CNPS List 1B.**

Heartscale is an annual shrub of the family *Chenopodiaceae*, the Goosefoot family. Leaves and stems of this bush are gray and scaly. It has a pistillate inflorescence with bracts in fruit of 3.5 to 5 mm, fused to the middle. Heartscale can be found in Alameda, and Contra Costa, and Merced counties among others, but is considered extirpated in San Joaquin, Stanislaus, and Yolo counties. It is found in chenopod scrub, meadow, seep, and saline or alkaline valley and foothill grassland habitats, and blooms from April through October.

The annual grassland habitat was considered potentially suitable for heartscale based on the initial March 2006 reconnaissance survey. A focused survey performed during the blooming period for heartscale resulted in a negative finding of this species on the Property. Additionally, there are no occurrences of this within the five-mile radius of the Property. This species is presumed to be absent from the Property.

**Brittlescale (*Atriplex depressa*). CNPS List 1B.**

Brittlescale is an annual herb in the Goosefoot family. The leaves of this plant are ovate to cordate and covered in a dense white scale. It has a pistillate inflorescence with bracts in fruit 2 to 3.5 mm, fused near the top. Fruit is ovate or diamond-shaped and covered in a white scale. This species is generally found in chenopod scrub, meadow, seep, playa, valley and foothill grassland, and vernal pool habitats in alkaline, clay soils. It occurs in Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Solana, Tulare, and Yolo counties. The blooming period is from May to October. Threats to brittlescale include grazing and development.

The annual grassland and seasonal wetland habitats are considered potentially suitable for brittlescale. There are several occurrences of this species within the vicinity of the Property.

- In 1996, 213 plants were observed on the east side of the access road to the Protrero Hills landfill, approximately 1.4 miles south southwest of the Property.
- In 1986, an unknown number of plants were found in the bed of a large vernal pool along

Creed Road, approximately 2 miles east of Highway 12 and approximately 2.5 to 4.5 miles east of the Property.

- In 2002, approximately 24 plants were observed 1.2 air miles south southeast of Cement Hill, and approximately 2.9 miles north of the Property.

Due to the occurrence of this species in the areas surrounding the Property and the presence of suitable habitat on the site, brittlescale was considered somewhat likely to be present on the Property based on the initial March 2006 reconnaissance survey. A focused survey performed during the blooming period for brittlescale resulted in a negative finding of this species on the Property.

**San Joaquin Spearscale (*Atriplex joaquiniana*). CNPS List 1B.**

San Joaquin spearscale is an annual herb in the family *Chenopodiaceae*. Leaves of the San Joaquin spearscale are ovate to triangular, with fine gray scales above. Flowers are dense and spike or panicle-like with dark brown seeds. It is found in Alameda, Contra Costa, Merced, Monterey, Napa, Sacramento, San Benito, Solano, and Yolo counties. It is considered extirpated in Santa Clara, San Joaquin, and Tulare counties. Habitat for the San Joaquin spearscale includes chenopod scrub, meadows, seeps, playas, and valley and foothill grasslands with alkaline soils. Blooming occurs between April and October.

The annual grassland habitat is considered potentially suitable for San Joaquin spearscale. There are historical and current occurrences of this species in the vicinity of the Property.

- In 1892, this species was mapped in the current location of Center School, approximately 2.5 to 4.5 miles northeast of the Property.
- In 2004, approximately 900 plants were observed about 1 mile southwest of the Travis Air Force Base runway, approximately 1.5 miles southeast of the Property.
- In 1996, 33 plants were observed on the east side of the access road to the Potrero Hills landfill, approximately 1.4 miles south southwest of the Property.
- In 2004, about 400 plants were observed in two colonies the area of Potero Hills, approximately 2.6 and 2.8 miles south southeast of the Property.

There are multiple recent occurrences in the vicinity of the Property, and habitat for San Joaquin spearscale was determined to be present based on the initial March 2006 reconnaissance survey. A focused survey performed during the blooming period for San Joaquin spearscale resulted in a negative finding of this species on the Property.

**Pappose Tarplant (*Centromadia parryi* ssp. *parryi*). CNPS List 1B.**

Pappose tarplant is an annual herb in the family *Asteraceae*. It occurs in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, and Sonoma counties. It grows in coastal prairie, meadow, coastal salt marsh, and vernal mesic valley and foothill grassland habitats, often in alkaline soils. The blooming period is from May through November. Pappose tarplant is threatened by development and habitat disturbance.

The seasonal wetland and annual grassland habitats are considered potentially suitable for pappose tarplant. There are multiple occurrences of this species in the vicinity of the Property.

- In 1907, an unknown number of plants were observed in Suisun. This observation has been mapped at a location approximately 1.9 to 3.2 miles west southwest of the Property.
- In 1999, an unknown number of plants was observed along the west side of Branscomb Road, 0.4 miles south of Highway 12, approximately 2.5 miles southeast of the Property. In 1933, pappose tarplant was observed in a location mapped 2 to 4.25 miles northwest of the Property.
- In 1998, an unknown number of plants were observed along Cement Hill Road, approximately 2.7 miles north northwest of the Property.
- In 1998, an unknown number of plants were observed 0.9 miles south southeast of the summit of Cement Hill, approximately 3 miles north of the Property.
- In 1933, pappose tarplant was observed 1.6 miles west of Suisun, approximately 4 to 5 miles west southwest of the Property.

Due to the presence of suitable habitat on the site, and its occurrence in the general vicinity, pappose tarplant was considered somewhat likely to be present on the Property. A focused survey performed in July of 2006, during the blooming period for pappose tarplant, resulted in a positive finding of this species on the Property. This species was associated with the majority of seasonal wetland depressions on the Property. Population numbers are estimated at 1,500 to 2,000 plants.

**Hispid Bird's-beak (*Cordylanthus mollis* ssp. *hispidus*). CNPS List 1B.**

Hispid bird's-beak is a hemiparasitic annual herb of the family *Scrophulariaceae*, the Figwort family. This plant is bristly with many branches spreading from near the base. Hispid bird's-beak is found in meadows and seeps, playas, and valley and foothill grasslands with alkaline soils. It occurs in Alameda, Kern, Merced, Placer, and Solano counties. The blooming period is between June and September.

The annual grassland habitat was considered potentially suitable for hispid bird's-beak. However, there are no occurrences of this species within the five-mile radius of the Property. This species was considered somewhat unlikely to be present on the Property due to the lack of occurrences in the vicinity. A focused survey performed during the blooming period for hispid bird's-beak confirmed a negative finding of this species on the Property.

**Recurved Larkspur (*Delphinium recurvatum*). CNPS List 1B.**

Recurved larkspur is a perennial herb of the *Ranunculaceae* family, the buttercups. It is native to California and is typically found in alkaline soils in chenopod scrub, cismontane woodlands, and valley and foothill grasslands. It is found in Alameda, Contra Costa, Fresno, Kings, Kern, Madera, Merced, Monterey, San Luis Obispo, Solano, and Tulare counties, but is considered potentially extirpated in Butte and Colusa counties. It blooms between March and May.

Recurved larkspur occurs in annual grassland habitat similar to that found on the Property. There

are no occurrences of this species within the five-mile radius of the Property, so it was considered somewhat unlikely to be present on the Property. A focused survey performed during the blooming period for recurved larkspur resulted in a negative finding of this species on the Property.

**Dwarf Downingia (*Downingia pusilla*). CNPS List 2.**

Dwarf downingia is an annual herb of the family *Campanulaceae* (Bellflowers and Lobelias). It occurs in Fresno, Merced, Mariposa, Napa, Placer, Sacramento, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties. Habitats of occurrence include mesic valley and foothill grasslands, and vernal pools. It also occurs occasionally in roadside ditches. It blooms between March and May. Threats to dwarf downingia include urbanization, agriculture, grazing, vehicle traffic, and industrial forestry.

The annual grassland and seasonal wetland habitats on the Property were considered potentially suitable for dwarf downingia. There are no recent occurrences of this species within 5 miles of the Property, however there are two historical occurrences. In 1893, this species was mapped in the area of the Vanden train station, approximately 2.5 to 4.5 miles northeast of the Property. In 1961, dwarf downingia was found at the bottom of a gravel pit in a pasture along Highway 12, approximately 4.5 to 6.5 miles southeast of the Property. Due to the lack of recent occurrences, this species is considered somewhat unlikely to occur on the Property. A focused survey performed during the blooming period for dwarf downingia confirmed a negative finding of this species on the Property.

**Carquinez Goldenbush (*Isocoma arguta*). CNPS List 1B.**

Carquinez goldenbush is a shrub of the family *Asteraceae*. It is found exclusively in Contra Costa and Solano counties in valley and foothill grasslands in alkaline soils. It blooms between March and September.

The annual grassland is considered potentially suitable for Carquinez goldenbush. There are two CNDDDB occurrences of this species in the general vicinity of the Property. In 1994, 85 plants were seen on the north side of Highway 12, two air miles west northwest of Denverton, approximately 3.1 miles east southeast of the Property. In 1929, Carquinez goldenbush was observed in the area of Vanden, approximately 3.5 miles northeast of the Property. Due to the rarity of this species and the history of soil disturbance on the Property, this species is considered unlikely to be present on the Property. A focused survey performed during the blooming period for Carquinez goldenbush confirmed a negative finding of this species on the Property.

**Contra Costa Goldfields (*Lasthenia conjugens*). Federally endangered, CNPS List 1B.**

Contra Costa goldfields are annual herbaceous members of the sunflower family and are found in seasonal wetlands and vernal pools. The small yellow-gold flowers are born upon thin herbaceous stems and bloom after water has drained from the wetland feature where it grows between April and June.

The seasonal wetlands on the Property are considered potentially suitable for Contra Costa

goldfields. There are multiple occurrences of this species in the immediate vicinity of the Property. In 1993, about 10 plants were seen northeast of Fairfield, approximately 2.2 miles north of the Property.

- In 2003, at least 100,000 plants were observed west of Travis Air Force Base, approximately 2.5 miles north of the Property.
- In 1995, at least 250,000 plants were observed northwest of Travis Air Force Base, approximately 2.9 miles northeast of the Property.
- In 1999, approximately 22,000 plants were observed along and south of the Travis Air Force Base landing strip, approximately 1.9 miles northeast of the Property.
- In 1999, Contra Costa goldfields was recorded south of Travis Air Force Base along the north side of Highway 12, approximately 3.26 miles east southeast of the Property.
- In 1999, an unspecified number were reported south of Travis Air Force Base, approximately 2.75 miles southeast of the Property.
- In 2004, up to 18 million plants were mapped along both sides of Scully Road and south of Highway 12, approximately 1.2 miles southeast of the Property.
- In 1985, an unspecified number of plants were found just west of Suisun City. This population is possibly extirpated due to disking. This observation occurs 3 miles west of the Property.
- In 2002, about 75 plants were mapped in a non-specific polygon west of Suisun City, and approximately 3.7 miles west southwest of the Property.

Due to a program of regular disking, the Property is considered marginally suitable for Contra Costa goldfields. A small portion of the Property's eastern edge falls inside the western boundary of Unit 10F of designated critical habitat for Contra Costa goldfields (Attachment 1, Figure 9) (USFWS 2006e), although it is not certain that the Property contains the necessary "primary constituent elements" to constitute true critical habitat. Further studies would be necessary to determine with certainty whether this area of the Property qualified as critical habitat, or if time and budget are of concern, the project proponent may choose to assume the presence of these elements. As the subject Property has been managed for weed control over an extended period of time, it is unlikely to contain the plant's necessary habitat elements such as clay pans, reliable seed sources, and saturation for prolonged durations. These factors have reduced the potential for a population of Contra Costa goldfields to be sustained on the Property. Furthermore, focused surveys performed during the blooming period for Contra Costa goldfields resulted in a negative finding of this species on the Property.

**Legenere (*Legenere limosa*). CNPS List 1B.**

Legenere is an annual herb in the family *Campanulaceae*. It occurs in vernal pools, and blooms between April and June. Many historical occurrences of this species are extirpated. Threats to legenere include grazing and development.

The seasonal wetlands were considered potentially suitable for legenere. There is a single historical occurrence of this species within five miles of the Property. It occurred along the rail road tracks

approximately one mile northeast of the Suisun station, and approximately two miles northwest of the Property. This population is considered extirpated. Due to the history of soil disturbance, and the lack of occurrences in the vicinity, legenera is considered unlikely to be present on the site. A focused survey performed during the blooming period for legenera confirmed a negative finding of this species on the Property.

**Baker's Navarettia (*Navarretia leucocephala* ssp. *bakeri*). CNPS List 1B.**

Baker's navarettia is an annual herb in the family *Polemoniaceae*. It is found in Colusa, Lake, Mendocino, Marin, Napa, Solano, Sonoma, Tehama, and Yolo counties. It occurs in mesic conditions in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and vernal pool habitats. It blooms between April and July. Threats to this species include development and agriculture.

The annual grassland and seasonal wetland habitats was considered potentially suitable for Baker's navarettia. There are no listed occurrences of this species within a five-mile radius of the Property, so it was considered somewhat unlikely to occur on the site. A focused survey performed during the blooming period for Baker's navarettia resulted in a negative finding of this species on the Property.

**San Joaquin Valley Orcutt Grass (*Orcuttia inequalis*). Federal Threatened, California Endangered, CNPS List 1B.**

San Joaquin Valley orcutt grass is an annual herb in the family *Poaceae*. It is found in Fresno, Madera, Merced, Solano, and Tulare counties. It is considered extirpated in Stanislaus County. It occurs in vernal pools and blooms between April and September. Threats to San Joaquin Valley orcutt grass include agriculture, development, overgrazing, channelization, and invasive non-native plants.

The seasonal wetland habitat is considered potentially suitable for San Joaquin Valley orcutt grass. There are no listed occurrences of this species within a five-mile radius of the Property, so it is considered somewhat unlikely to occur on the site. A focused survey performed during the blooming period for San Joaquin Valley orcutt grass resulted in a negative finding of this species on the Property.

**Bearded Popcorn Flower (*Plagiobothrys hystriculus*). CNPS List 1A.**

Bearded popcorn flower is an annual herb in the borage family. Solano County, where it is considered potentially extirpated. It occurs in mesic conditions in valley and foothill grasslands and vernal pools. It blooms between April and May.

The annual grassland and seasonal wetland habitats are considered potentially suitable for bearded popcorn flower. There are no listed occurrences of this species within a five-mile radius of the Property, and due to its rarity it is considered unlikely to occur on the site. A focused survey performed during the blooming period for bearded popcorn flower confirmed absence this species on the Property.

**Showy Indian Clover (*Trifolium amonenum*). Federal Endangered. CNPS List 1B.**

Showy Indian clover is a member of the legume family. Historically, it was found in Alameda, Marin, Napa, Santa Clara, Solano, and Sonoma counties, but is now considered potentially extirpated in all but Marin County. It occurs in coastal bluff scrub and valley and foothill grassland habitats in serpentine soils. Showy Indian clover blooms between April and June. Threats to this species include habitat loss through urbanization and agriculture.

Showy Indian clover could potentially occur in the annual grassland habitat on the Property. There is a single historical occurrence of this species in the vicinity of the Property. In 1902, this species was observed south of Vacaville in the vicinity of the current location of the Vanden train station, approximately 3.5 miles northeast of the Property. Due to the history of soil disturbance on the Property and the lack of recent occurrences, this species is considered unlikely to be present on the site. A focused survey performed during the blooming period for showy Indian clover resulted in a negative finding of this species on the Property.

**Saline Clover (*Trifolium depauperatum* var. *hydrophilum*). CNPS List 1B.**

Saline clover is member of the pea family, *Fabaceae*. It blooms between April and June. This species is found in marshes and swamps, mesic valley and foothill grasslands with alkaline soils, and vernal pools, between zero and 300 meters in elevation. It is thought to occur in Alameda, Colusa, Monterey, Napa, San Benito, Santa Clara, San Luis Obispo, San Mateo, Solano, and Sonoma counties. It is threatened by development and current fieldwork is needed to determine if populations still exist in many counties.

The annual grassland and seasonal wetland habitats are considered potentially suitable for saline clover. This species is known to occur in the vicinity of the Property. In 1995, more than 500 plants were found ¾ miles west southwest of Vanden railroad station, approximately 2.5 mile north of the Property. Due to the presence of suitable habitat and the presence of saline clover in the vicinity of the Property, this species is considered somewhat likely to be present on the Property. A focused survey performed during the blooming period for saline clover resulted in a negative finding of this species on the Property.

**6.2 Wildlife Survey Results**

**6.2.1 General Wildlife Species and Habitats**

Wildlife species commonly occurring within habitat types present on the Property are discussed below:

**Non-native Annual Grassland with Serpentine Outcrops**

The majority of the site is made up of annual grassland habitat. Wildlife species typifying this habitat include Botta's pocket gopher (*Thomomys bottae*), house mouse (*Mus musculus*), California vole (*Microtus californicus*) and deer mouse (*Peromyscus* sp.). Due to the development of the

majority of the lands surrounding the Property, larger mammals are unlikely to occupy the site. Reptiles such as gopher snake (*Pituophis melanoleucus*), western fence lizard (*Sceloporus occidentalis*), and common garter snake (*Thamnophis sirtalis*) may be present. A variety of bird species including lesser goldfinch (*Carduelis psaltria*), house finch (*Carpodacus mexicanus*) house sparrow (*Passer domesticus*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*) and Brewer's blackbird (*Spizella breweri*) are likely to occur in grassland habitats. Aerial foragers, including tree swallow (*Tachycineta bicolor*), violet-green swallow (*Tachycineta thalassina*), cliff swallow (*Petrochelidon pyrrhonota*), barn swallow (*Hirundo rustica*), and white-throated swift (*Aeronautes saxatilis*) may also frequent annual grasslands. Raptor species potentially feeding on small mammals within this habitat include red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*).

### **Drainage Ditch**

The drainage ditch provides dense vegetative cover for wildlife within the drainage, but not along the top of bank. Waterfowl, including mallard (*Anas platyrhynchos*) and American coot (*Fulica americana*), could be expected to forage in the channel and nest in the dense in-channel vegetation. Waders such as the great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and snowy egret (*Egretta thula*) could be expected to forage within the channel.

### **Seasonal Wetland**

During rainy periods, the seasonal wetlands support wildlife species such as Pacific tree frogs (*Hyla regilla*) and small invertebrates. Wading birds such as snowy egret (*Egretta thula*) and great egret (*Ardea alba*), and common snipe (*Gallinago gallinago*) may forage in these areas during wet conditions as well. During the dry season, wildlife species that use the annual grasslands will be found in the vegetated swales, seeps, and seasonal wetlands.

#### ***6.2.2 Special-Status Wildlife Species***

Attachment 2, Table 2 includes a list of special-status wildlife species with potential to occur in the project area. Special-status wildlife species include species listed as Rare, Threatened, or Endangered by the USFWS (2005b & 2005c) or by the State of California (CDFG, 2005b).

The search and review of the CNDDDB database reports revealed the occurrence of special-status species that could potentially occur in the annual grassland, developed, and seasonal wetland habitats supported by the Property. In addition, several state-protected raptors could forage and nest on the Property. Attachment 2, Table 2 provides a summary of the species, their status, and habitat requirements. For the analysis of the site, the following specific discussions on the special-status wildlife included the following species:

## INVERTEBRATES

### **Conservancy Fairy Shrimp (*Branchinecta conservatio*). Federal Endangered.**

The conservancy fairy shrimp is found in highly turbid vernal pools. Locomotion is accomplished by the beating movements of the 11 pairs of swimming legs they carry on their underside. They swim or glide upside down. Fairy shrimp feed on algae, bacteria, micro invertebrates, and detritus. Eggs are either carried in a brood sac on the abdomen of the female, or dropped to the bottom of the pool. Eggs become encysted during dry summer months, and as vernal pools begin to fill with water during the following rainy season, cysts begin to hatch. The conservancy fairy shrimp is found in six disjunct populations that are distributed through California. In Solano County they are found in Jepson Prairie. Threats to this species include development and agriculture.

The Property occurs immediately west, but outside of, Unit 3 of the designated critical habitat for the conservancy fairy shrimp (Attachment 1, Figure 7) (USFWS 2006e). The seasonal wetlands on the Property are considered potentially suitable for the conservancy fairy shrimp. Ground disturbing activities on the Property may have reduced the potential for the occurrence of conservancy fairy shrimp on the Property. They are known to occur in the vicinity of the site. In 2002, an unspecified number of individuals were noted approximately five miles southwest of Dozier, and approximately four miles east of the Property. In 1996, conservancy fairy shrimp were observed along the south side of Potrero Hills landfill, 0.3 miles south of Highway 12, and approximately one mile south southeast of the Property. A wet and dry season branchiopod survey was conducted on the site in 2006 and 2007 (Helm 2007). No evidence of this or any other large branchiopods were revealed. As this species was not observed during any of the reconnaissance surveys performed in the spring of 2006, nor in focus branchiopod surveys conducted in 2006 and 2007, the species is presumed absent.

### **Vernal Pool Fairy Shrimp (*Branchinecta lynchi*). Federal Threatened.**

The vernal pool fairy shrimp is approximately 3/4 inches in length. This species inhabits seasonal wetlands such as alkaline pools, intermittent drainages, drainage ditches, oxbows, stockponds, and vernal pools and swales. Eggs become encysted during dry periods and hatch when seasonal wetlands refill. Threats to the vernal pool fairy shrimp include loss of habitat, agriculture, foot traffic, and off-road vehicles.

According to maps published in the Federal Register (USFWS 2006e), the eastern sliver of the Property appears to fall within Unit 16A of the designated critical habitat for the vernal pool fairy shrimp (Attachment 1, Figure 8). The seasonal wetland habitat on the Property is potentially suitable for the vernal pool fairy shrimp. This species is known to occur in the vicinity of the Property.

- In 2002, an unknown number of individuals was observed in Tolenas, approximately 1.5 miles northwest of the Property.
- In 1999, an unspecified number of shrimp were observed along the north edge of Travis Air Force Base, approximately 3.7 miles northeast of the Property.

- In 2001, an unknown number was observed 1.6 miles west northwest of Denverton, 1.35 miles east of the intersection of Branscombe Road and Highway 12, approximately 3.4 miles southeast of the Property.
- In 1996, they were observed in the Potrero Hill landfill, 0.25 miles south of Highway 12, and 1 mile southeast of the Property.

The seasonal wetland habitat on the Property is potentially suitable for the vernal pool fairy shrimp, however, ground disturbing activities reduce the potential for the occurrence of vernal pool fairy shrimp on the Property. A wet and dry season branchiopod survey was conducted on the site in 2006 and 2007 (Helm 2007). No evidence of this or other large branchiopods was revealed. As this species was not observed during any of the reconnaissance surveys performed in the spring of 2006, nor in focus branchiopod surveys conducted in 2006 and 2007, the species is presumed absent.

**Delta Green Ground Beetle (*Elaphrus viridis*). Federal Threatened.**

The Delta green ground beetle is approximately ¼ inch long. This beetle is distinguished from other carabid species by its bright metallic green coloration. Generally bronze spots are found on the elytra. This species is thought to prefer open grassland habitats with seasonal pools. The beetle is typically found at the edges of pools, trails, roads, and ditches, with adults also occurring in surrounding grasslands. Prey consists of springtails, and other small invertebrates. Adults are active from February through mid-May, after which they enter diapause. This species is endemic to central Solano County. Critical habitat for the Delta green ground beetle has been designated within the Jepson Prairie Preserve.

The annual grassland and seasonal wetland habitats are potentially suitable for the Delta green ground beetle. They are known to occur in the vicinity of the Property. In 2002, the ground beetle was observed five miles southwest of Dozier, approximately 4.40 miles east northeast of the Property. As the Delta green ground beetle is considered somewhat likely to be present on the Property due to the presence of marginally suitable habitat, and its occurrence in the general vicinity, a focused habitat assessment by an entomological specialist was performed in February 2007. The focused study revealed the habitat within the Property is not suitable for the ground beetle because of the lack of playa pools, Pescadero clays and suitable grassland species and densities. Because this species was not observed during any of the surveys performed in the spring of 2006 and because the focused habitat assessment revealed a lack of suitable habitat, the Delta green ground beetle is considered absent from this site.

**Ricksecker's Water Scavenger Beetle.**

Ricksecker's water scavenger beetle (RWSB) is not a federal or state listed species, but is included within the CNDDDB because of its local rarity. While no action has formally been taken, the US Fish and Wildlife Service is considering further action on this species.

It is found in seasonal ponds in Marin, Sonoma, Alameda, and Contra Costa counties. Seasonal wetlands on the Property could potentially support this species. The only listed CNDDDB occurrence of RWSB in the general vicinity of the Property is situated approximately five miles northeast of the

Property. In March of 2005, 10 adult and numerous larval RWSB were observed along the Sacramento Northern Railroad right-of-way, between Meridian Road and Route 113. Due to its rarity and the lack of recent occurrences in the immediate vicinity of the Property, RWSB is considered somewhat unlikely to be present. This species was not observed during any of the surveys performed in the spring of 2006. Directed surveys for RWSB, if required, should be conducted while ponds are inundated to determine if it occurs on the Property.

**Vernal Pool Tadpole Shrimp (*Lepidurus packardi*). Federal Endangered.**

This small crustacean (two inches at adulthood) belongs to the family Triopsidae. It has a large carapace resembling a shield that covers nearly the entire body. Two long appendages project from the last abdominal segment. They are found in clear to turbid vernal pools and grass bottomed swales in unplowed grasslands, climbing over objects or moving along the bottom. The diet is made up of organic matter, fairy shrimp, and other invertebrates. During the summer and fall the vernal pool tadpole shrimp becomes encysted in the dry sediments of vernal pools, becoming active after winter rains.

According to maps published in the Federal Register (USFWS 2006e) the eastern edge of the Property falls within Unit 11D of the designated critical habitat for the vernal pool tadpole shrimp (Attachment 1, Figure 9). The seasonal wetlands are considered unlikely to support the vernal pool tadpole shrimp due to the long history of soil disturbance on the site. There are numerous occurrences of this species in the vicinity of the Property.

- In 2002, an unspecified number was observed at Parker Ranch, approximately 1.9 miles north of the Property.
- In 2002, an unspecified number was observed about five miles southwest of Dozier, and approximately 4.4 miles east northeast of the Property.
- In 2002, an unknown number was observed approximately 4.2 miles east of the Property.
- In 1999, they were observed southeast of the intersection of Highway 12 and Scalley Road, approximately 1.5 miles southeast of the Property.
- In 2000, hundreds of adults were found in a vernal pool along Potrero Hills Lane, 0.5 miles southwest of the intersection of Scalley Road and Highway 12, approximately 1.2 mile south southeast of the Property.

Because marginally suitable habitat is present, and this species is common in the surrounding lands, a directed survey was conducted to determine if this species occurs on the Property. A wet and dry season branchiopod survey was conducted on the site in 2006 and 2007 (Helm 2007). No evidence of this or any other large branchiopods was revealed. As this species was not observed during any of the reconnaissance surveys performed in the spring of 2006, nor in focus branchiopod surveys conducted in 2006 and 2007, the species is presumed absent.

**California Linderiella (*Linderiella occidentalis*). California Species of Concern.**

Found in the same vernal pool habitats as the fairy shrimp, California linderiella occur in clear vernal pools and lakes. They are tolerant of a wide range of conditions withstanding turbid conditions

and pH between 6.1 and 8.5. They are able to tolerate temperature conditions from 41 to 85 degrees Fahrenheit. Like the fairy shrimp, eggs become encysted during dry conditions and hatch when the vernal pools refill. Threats to this species include habitat loss, alteration of vernal pool hydrology, water contamination, off-road vehicle use and invasive non-native species.

The seasonal wetland habitat is potentially suitable for California linderiella. There are several CNDDDB occurrences of this species in the vicinity of the Property.

- In 2003, they were observed just north of Suisun City, 0.2 miles north of Highway 12, and approximately 2.25 miles west of the Property.
- In 2003, they were observed northeast of Fairfield, from Laurel Creek to 0.4 miles southwest along the Union Pacific Railroad grade, approximately 1.6 miles northwest of the Property.
- In 2002, they were observed in a field at the southeast corner of Airbase Parkway and Walters Road, approximately 1.8 miles north of the Property.
- In 2002, they were observed 0.9 miles northwest of Denverton on the south side of Highway 12, approximately four miles southeast of the Property.

Due to the presence of suitable habitat on the Property and multiple occurrences of this species in the vicinity, California linderiella is considered somewhat likely to be present on the Property. A wet and dry season branchiopod survey was conducted on the site in 2006 and 2007 (Helm 2007). No evidence of this or any other large branchiopods was revealed. As this species was not observed during any of the reconnaissance surveys performed in the spring of 2006, nor in focus branchiopod surveys conducted in 2006 and 2007, the species is presumed absent.

## **REPTILES**

### **Western Pond Turtle (*Clemmys marmorata*). California Special Concern Species.**

The western pond turtle is a thoroughly aquatic turtle that may be found in marshes, ponds, streams and irrigation ditches where aquatic vegetation is present. The turtles require basking sites and suitable upland habitat for egg laying. Suitable breeding upland habitats may consist of sandy banks or grassy open fields. The western pond turtle has a dark brown to olive colored carapace that lacks prominent markings.

The ditch on the Property is considered potentially suitable habitat for the western pond turtle. There are no occurrences of this species within a five-mile radius of the Property, and diking would likely discourage egg deposition, so the western pond turtle is considered unlikely to be present. This species was not observed during any of the surveys performed in the spring of 2006.

### **Northwestern Pond Turtle (*Clemmys marmorata marmorata*). California Species of Special Concern.**

The northwestern pond turtle is a subspecies of the western pond turtle (*Clemmys marmorata*). A with the western pond turtle, it is aquatic, and can be found in marshes, ponds, streams and irrigation ditches where aquatic vegetation is present. It has a dark brown to olive colored

carapace that lacks prominent markings. It is distinguished from other subspecies of *C. marmorata* by the webbing of the hind foot which extends to the base of the claws. Like its close relatives, the northwestern pond turtle requires basking sites and suitable upland habitat for egg laying. Suitable breeding upland habitats may consist of sandy banks or grassy open fields.

The ditch on the Property is considered potentially suitable habitat for the northwestern pond turtle. There are no occurrences of this species within a five-mile radius of the Property, and disking would likely discourage egg deposition, so the northwestern pond turtle is considered unlikely to be present. This species was not observed during any of the surveys performed in the spring of 2006.

## **BIRDS**

### **Burrowing Owl (*Athene cunicularia*). California Species of Concern.**

The U.S. Fish and Wildlife Service has identified the burrowing owl as a "candidate" species. Candidate species are animals and plants that may warrant official listing as threatened or endangered, but there is no conclusive data to give them this protection at the present time. As a candidate species, burrowing owls receive no legal protection under the Endangered Species Act (ESA). However, this species does receive some legal protection from the U.S. through the Migratory Bird Treaty Act, which forbids the destruction of the birds and active nests. In California, the burrowing owl is considered a "species of special concern."

Burrowing owls are ground dwelling members of the owl family and are small brown to tan colored birds with bold spots and barring. Burrowing owls generally require open annual grassland habitats in which to nest, but can be found on abandoned lots, roads, airports and other urban areas. The burrowing owl generally uses abandoned California ground squirrel (*Spermophilus beecheyi*) holes for their nesting burrow, but are also known to use pipes or other debris for nesting purposes. Burrowing owls prefer annual grassland habitats with low vegetative cover. The breeding season for burrowing owls occurs from March through August. Burrowing owls often nest in loose colonies about 100 yards apart. They lay 3 to 12 eggs from mid-May to early June. The female incubates the clutch for about 28 days while the male provides her with food. The young owls begin appearing at the burrow's entrance two weeks after hatching and leave the nest to hunt for insects on their own after about 45 days. The chicks can fly well at six weeks old.

The annual grassland habitat is considered potentially suitable foraging habitat for the burrowing owl. No ground squirrel burrows were encountered during the reconnaissance survey. Use of the site by ground squirrels may have been discouraged as a result of regular disking. In the absence of ground squirrel burrows, the Property lacks any suitable nesting habitat for burrowing owls. There are multiple CNDDDB occurrences of the burrowing owl in the vicinity of the Property.

- In 1989, there were six separate occurrences of the burrowing owl scattered throughout the lands east of Interstate 80 and west of Travis Air Force Base, 2.5 to 4.5 miles north of the Property.
- In 2001, a pair of owls was observed in the area of Potrero Hills, approximately 2.2 miles south southeast of the Property.

- In 1987, a breeding colony was observed near the intersection of Cordelia and Orehr Roads, approximately 3.8 miles southwest of the Property.

Due to the lack of recent occurrences of the burrowing owl in the vicinity of the Property as well as a lack of suitable breeding habitat, this species is not expected to breed on the Property. Suitable foraging habitat can be found on the site, so there is a low potential for the burrowing owl to forage on the site. This species was not observed during any of the surveys performed in the spring of 2006.

**Red-Tailed Hawk (*Buteo jamaicensis*). State Protected.**

The red-tailed hawk is a large buteo with a distinctive orange-red tail. The wings are usually dark brown, and the breast feathers whitish with streaks of darker brown. Not all red-tailed hawks exhibit the distinct coloration on their tail and gradations may occur especially in young birds. Red-tailed hawks hunt rodents by soaring over grassland habitat. Nest trees for red-tailed hawks are usually tall trees with a well-developed canopy that include a strong branching structure on which to build a nest. The annual grassland habitat is considered suitable foraging habitat for the red-tailed hawk. There are no suitable nest trees on the Property, and tall trees situated on the north side of Petersen Road are likely too close to human habitation to attract nesting hawks. The red-tailed hawk was not observed during the 2006 reconnaissance survey.

**Swainson's Hawk (*Buteo swainsoni*). State Threatened.**

The Swainson's hawk is raptor that is slightly smaller than the red-tail hawk with wings that taper slightly toward the outer wing tip. This hawk has a brown bib that covers its head and extends down the chest. The leading portion of the wing is light in color. In flight this bird has an inverse color pattern in comparison to a red-tail hawk. Swainson's hawks are summer migrants to the central valley and delta region where they nest within larger sized trees. Commonly the Swainson's hawk builds nests in tall blue gum, valley oak, live oak, pine, or other tall stands. These raptors require nearby foraging habitat such as annual grassland, alfalfa fields, grain fields and even row crops. The annual grassland habitat is considered suitable foraging habitat for the Swainson's hawk. There are no suitable nest trees on the Property, and tall trees situated on the north side of Petersen Road are likely too close to human habitation to attract nesting hawks. The Swainson's hawk was not observed during the 2006 reconnaissance survey.

**Northern Harrier (*Circus cyaneus*). California Species of Concern.**

Northern harriers require open annual grassland habitats and prefer dense ground vegetation or grasses in which to build nests. They are distinguished from other similar species by their prominent white rump patch. Males are pale gray in color while females are brown with dark streaking on the breast. These birds are ground nesters and utilize habitats ranging from annual grassland to seasonal wetland for this purpose. Due to the limited foraging area offered by the Property as well as the developed nature of the surrounding habitats, the site is considered unsuitable foraging and nesting habitat for northern harriers. The annual grassland habitat is considered suitable foraging habitat for the northern harrier, but regular disking of the grasslands makes them unsuitable as nesting habitat

for this species. The northern harrier was not observed during the 2006 reconnaissance survey.

**White-Tailed Kite (*Elanus leucurus*). CDFG: Fully Protected.**

The white-tailed kite is falcon-shaped with a long white tail. This raptor has black patches on the shoulders that are highly visible while the bird is flying or perching. White-tailed kites forage in annual grasslands, farmlands, orchards, chaparral, and at the edges of marshes and meadows. They are found nesting in trees and shrubs such as willows (*Salix* sp.), California sycamore (*Platanus racemosa*), and live oak often near marshes, lakes, rivers, or ponds. This raptor often hovers while inspecting the ground below for prey. The annual grassland habitat is considered suitable foraging habitat for the white-tailed kite. There are no suitable nest trees on the Property or in the immediate vicinity for nesting white-tailed kites. The white-tailed kite was not observed during the 2006 reconnaissance survey.

**American Kestrel (*Falco sparverius*). State Protected.**

The American kestrel is the smallest of raptor species and is distinct due to the black barring on its face. The female kestrel is slightly larger than the male bird and is differentiated by its brown and red coloration. The male kestrel is slightly smaller than the female and has gray wing patches near the top of the wing. Kestrels utilize cavities in trees for nesting and hunt small rodents and birds. The annual grassland habitat is considered suitable foraging habitat for the American kestrel. There are no suitable nest trees on the Property or in the immediate vicinity for nesting kestrels. The American kestrel was not observed during the 2006 reconnaissance survey.

**Tri-colored Blackbird (*Agelaius tricolor*). California Species of Special Concern.**

A close relative of the red-winged blackbird (*Agelaius phoeniceus*), the tri-colored blackbird is distinguished by a white patch underscoring the bright red epaulettes that are prominent in the males of both species. Often found in large flocks of red-winged blackbirds, this species is highly colonial. Nesting colonies usually occur in marshy habitats, often in large stands of blackberry.

The Property lacks any suitable nesting habitat for the tri-colored blackbird, however the annual grassland habitat could occasionally be used as foraging habitat by this species. No tri-colored blackbirds were observed during the 2006 reconnaissance survey.

**Loggerhead Shrike (*Lanius ludovicianus*). California Species of Concern.**

The loggerhead shrike is a black and white perching bird with a black face mask that extends over the bill. This species hunts large insects, small rodents and even small birds. Loggerhead shrikes are known for their habit of impaling its food on thorns or barb wire for future consumption. The range and habitat for the loggerhead shrike has steadily shrunk due to human development within grasslands; however, this species is often found on lands grazed by cattle that are fenced with barb wire. These birds use shrubs, dense trees, and thickets of vegetation for nesting sites.

The annual grassland habitat is considered suitable foraging habitat for the loggerhead shrike. There

are no shrubs or trees that could serve as nest sites for the shrike, so it is not expected to breed on the site. The loggerhead shrike was not observed during the 2006 reconnaissance survey.

## 7.0 CONCLUSIONS

### 7.1 Wetlands

Results of the March 2006 reconnaissance survey identified the presence of potentially regulated wetlands/waters within the survey boundaries of the study area. Additional surveys performed in April, May and June of 2006 and in February of 2007 identified a total of 2.996 acres of wetlands within the established property boundaries. A vegetated drainage ditch and twelve seasonal wetlands were identified across the Property. All thirteen features meet the Corps criteria for wetlands. These features were observed to be dominated by hydrophytic vegetation, had primary and secondary hydrology indicators and contained hydric soils. Although the delineation has not been formally verified by the Corps, the map was field verified by Dan Martel of the Corps in February of-2007 and determined to be accurate.

### 7.2 Special-Status Plants

As listed in Table 1, sixteen special-status plant species were originally identified as having the potential to occur on the Property based on the presence of suitable habitats observed during the March 2006 reconnaissance survey. These include alkali milk-vetch, heartscale, brittlescale, San Joaquin spearscale, pappose tarplant, hispid bird's-beak, recurved larkspur, dwarf downingia, Carquinez goldenbush, Contra Costa goldfields, legenere, Baker's navarettia, San Joaquin Valley orcutt grass, bearded popcorn flower, showy Indian clover, and saline clover. Suitable habitat and soil conditions were found for all of these species. Carquinez goldenbush and showy Indian clover were considered unlikely to be present in the disturbed soil conditions on the Property. In addition to Carquinez goldenbush, bearded popcorn flower was considered unlikely to be present due to rarity. Legenere was also considered unlikely to be present due to its potential extirpation in Solano County.

**Table 1. Habitat Types, Nearby Occurrences and Potential for Special-Status Plants**

<i>PLANT SPECIES</i>	<i>TYPE OF HABITAT PRESENT</i>	<i>NEARBY OCCURRENCES?</i>	<i>POTENTIAL FOR OCCURRENCE</i>
Alkali Milk-vetch	Annual Grassland and Seasonal Wetland	Yes	None
Heartscale	Annual Grassland	No	None
Brittlescale	Annual Grassland and Seasonal Wetland	Yes	None
San Joaquin Spearscale	Annual Grassland	Yes	None
Pappose Tarplant	Annual Grassland and Seasonal Wetland	Yes	Present
Hispid Bird's-beak	Annual Grassland	No	None
Recurved Larkspur	Annual Grassland	No	None
Dwarf Downingia	Annual Grassland and Seasonal Wetland	Yes None Recent	None

Carquinez Goldenbush	Annual Grassland	Yes	None
Contra Costa Goldfields	Seasonal Wetland	Yes	None
Legenere	Seasonal Wetland	Yes None Recent	None
Baker's Navarettia	Annual Grassland and Seasonal Wetland	No	None
San Joaquin Valley Orcutt Grass	Seasonal Wetland	No	None
Bearded Popcorn-flower	Annual Grassland and Seasonal Wetland	No	None
Showy Indian Clover	Annual Grassland	Yes None Recent	None
Saline Clover	Annual Grassland and Seasonal Wetland	Yes	None

Focused surveys for special-status plant species were performed on April 26, May 8 and 24, June 7, and July 7 2006 (Olberding 2006). Surveys were performed during the identified blooming period for all plants listed in Table 1. Results of the spring/summer surveys resulted in the identification of the papoose tarplant a CNPS 1B listed species. This species is not listed by either the federal or state as a special-status plant.

Maps published in the Federal Register (USFWS 2006e) indicate that a small portion of the eastern side of the Property is included within, Unit 4C of the designated critical habitat for Contra Costa Goldfields, a federal endangered species. While it does not appear that the property contains all the primary constituent elements necessary for goldfields, additional field work would be required to determine the hydrologic characteristics of the site. In lieu of this, presence of the primary constituent elements can be assumed. Directed surveys for Contra Costa goldfields in 2006 did not identify the goldfields on the Property.

### 7.3 Special-Status Wildlife

#### 7.3.1 Special-Status Invertebrates –

Regular disking of the Property may have reduced the potential for the occurrence of all of the special-status invertebrates. Maps published in the Federal Register (USFWS 2006e) indicate that the Property is within the western boundaries of the designated critical habitat for the conservancy vernal pool fairy shrimp and the vernal pool tadpole shrimp. Focused branchiopod survey did not reveal any evidence of these species within wetlands on the Property and therefore these species have been determined to be absent (Helm 2007). A focus habitat assessment determined that the Property does not supply suitable habitat for the Delta green ground beetle (Entomological Consulting Services 2007). If required, additional survey work would be required to determine the presence or absence of the Ricksecker's water scavenger beetle.

**Table 2. Habitat Types, Nearby Critical Habitat and Occurrences, and Potential for Special-Status Invertebrates**

<i>SPECIES</i>	<i>TYPE OF HABITAT PRESENT?</i>	<i>WITHIN CRITICAL HABITAT?</i>	<i>NEARBY OCCURRENCES?</i>	<i>POTENTIAL ON SITE?</i>
Conservancy Fairy Shrimp	Seasonal Wetland	No, immediately west of critical habitat	Yes	No
Vernal Pool Fairy Shrimp	Seasonal Wetland	Yes, in part	Yes	No
Delta Green Ground Beetle	Annual Grassland and Seasonal Wetland	No	Yes	No
Ricksecker's Water Scavenger Beetle *	Seasonal Wetland	No	No	Somewhat Unlikely
Vernal Pool Tadpole Shrimp	Seasonal Wetland	Yes, in part	Yes	No
California Linderiella	Seasonal Wetland	No	Yes	No

\* This species currently has no special status, but is included because of its local rarity.

**Foraging or Nesting Raptor Species** – Several protected raptor species have the potential to occur in the vicinity of the Property, including the burrowing owl, Swainson's hawk, northern harrier, white-tailed kite, red-tailed hawk, and American kestrel. The annual grassland habitat is considered suitable foraging habitat for all of these species. The site lacked suitable nesting habitat for any of these species.

**Special-Status Bird Species** – The tri-colored blackbird and loggerhead shrike could potentially forage on the Property, but the site lacks any suitable nesting habitat for this species.

## 8.0 RECOMMENDATIONS

- So that the delineation results will be valid for five years, it is recommended that the wetland delineation receive written, formal verification from the Corps in accordance with U.S. Army Corps of Engineers guidelines. Prior to project construction, permit applications must be filed with the Corps and Regional Water Quality Control Board to grade the site or fill any of the wetlands.
- One plant species (Pappose tarplant) has been identified as occurring on the Property. A focused survey performed in July 2006 identified the presence of this species within many of the seasonal wetland depression located on the Property. This species is only listed by the CNPS as a category 1B species. The Pappose tarplant is not federally or state listed. Therefore, there is no recommended mitigation.
- The Property appears to overlap, in part, with designated critical habitat for the vernal pool fairy shrimp and the vernal pool tadpole shrimp. Even though surveys have determined the absence of any fairy shrimp species, the presence of designated critical habitat will necessitate consultation with USFWS under Section 7 of the Endangered Species Act.

- Field work has documented the absence of habitat for the Delta green ground beetle. However, if required by any local, federal or state agency, additional survey work would be required to determine the presence or absence of the Ricksecker's water scavenger beetle.
- Grading and excavation activities could expose soil to increased rates of erosion during Property construction periods. During construction, runoff from the proposed Property could adversely affect aquatic life in the ditch. Surface water runoff could remove particles of fill or excavated soil from the sites, or could erode soil down-gradient, if the flow were not controlled. Deposition of eroded material in the ditch could increase turbidity, thereby endangering aquatic life, and reducing wildlife habitat. Implementation of appropriate mitigation measures would ensure that impacts to aquatic organisms would be avoided or minimized. Mitigation measures may include best management practices (BMP's) such as hay bales, silt fencing, placement of straw mulch and hydro seeding of exposed soils after construction as identified in the Storm water Pollution Prevention Plan (SWPPP).

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[http://sacramento.fws.gov/es/plant\\_spp\\_accts/legenere.htm](http://sacramento.fws.gov/es/plant_spp_accts/legenere.htm)

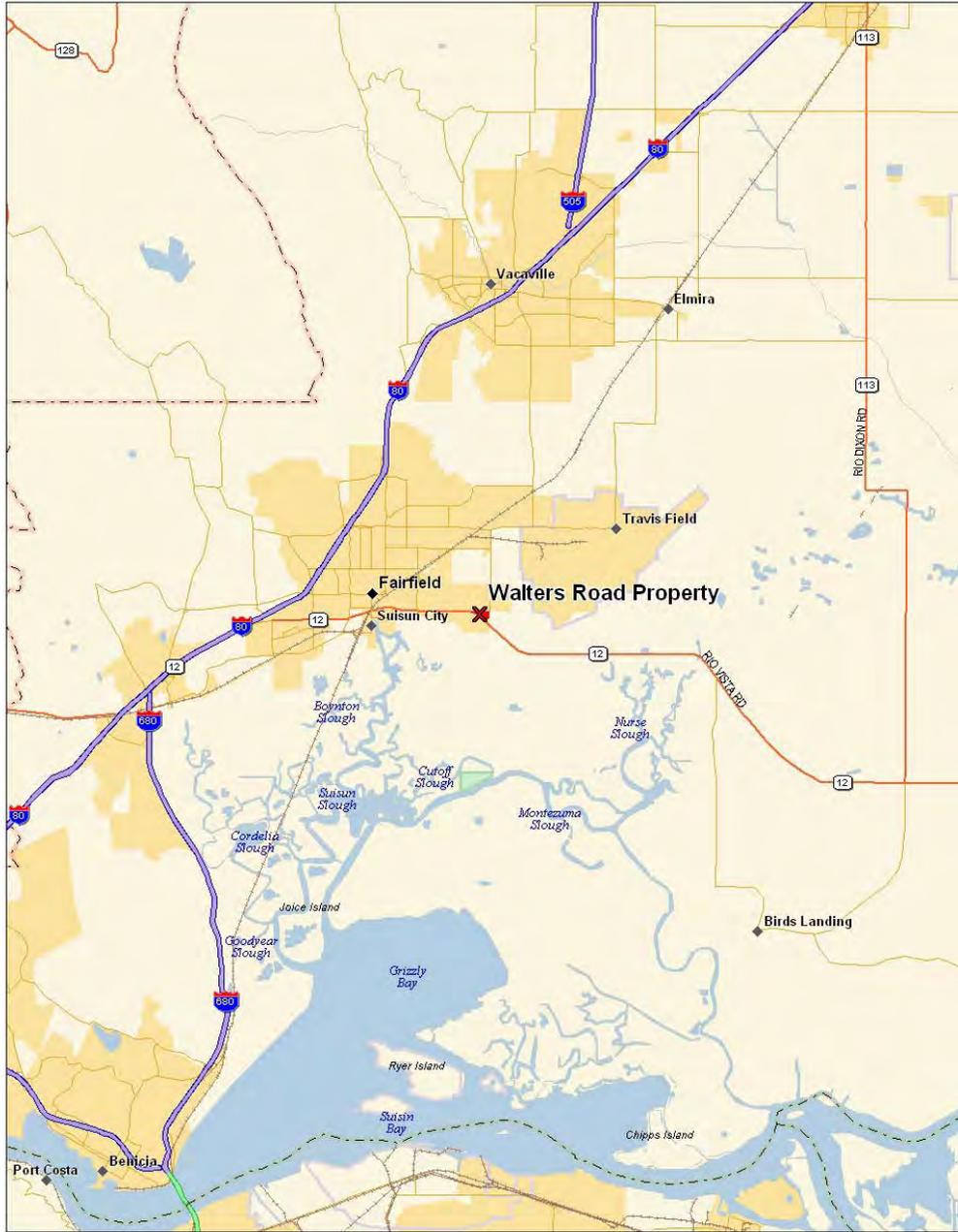
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# **ATTACHMENTS**

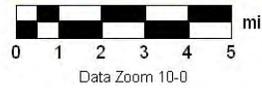
**ATTACHMENT NO. 1**  
**FIGURES**

- |                     |  |
|---------------------|--|
| <b>Figure No. 1</b> | <b>Regional Map</b>  |
| <b>Figure No. 2</b> | <b>Vicinity Map</b>  |
| <b>Figure No. 3</b> | <b>USGS Quadrangle Map</b>                                 |
| <b>Figure No. 4</b> | <b>Aerial Photograph</b>                                   |
| <b>Figure No. 5</b> | <b>Map of CNDDDB Reports of Special-Status Species</b>     |
| <b>Figure No. 6</b> | <b>Critical Habitat Map for Contra Costa Goldfields</b>    |
| <b>Figure No. 7</b> | <b>Critical Habitat Map for Conservancy Fairy Shrimp</b>   |
| <b>Figure No. 8</b> | <b>Critical Habitat Map for Vernal Pool Fairy Shrimp</b>   |
| <b>Figure No. 9</b> | <b>Critical Habitat Map for Vernal Pool Tadpole Shrimp</b> |

**Figure No. 1**  
**Regional Map**



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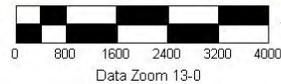
**Figure 1**  
**Regional Map of the Walters**  
**Road Property**  
Solano County, California

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**Figure No. 2**  
**Vicinity Map**



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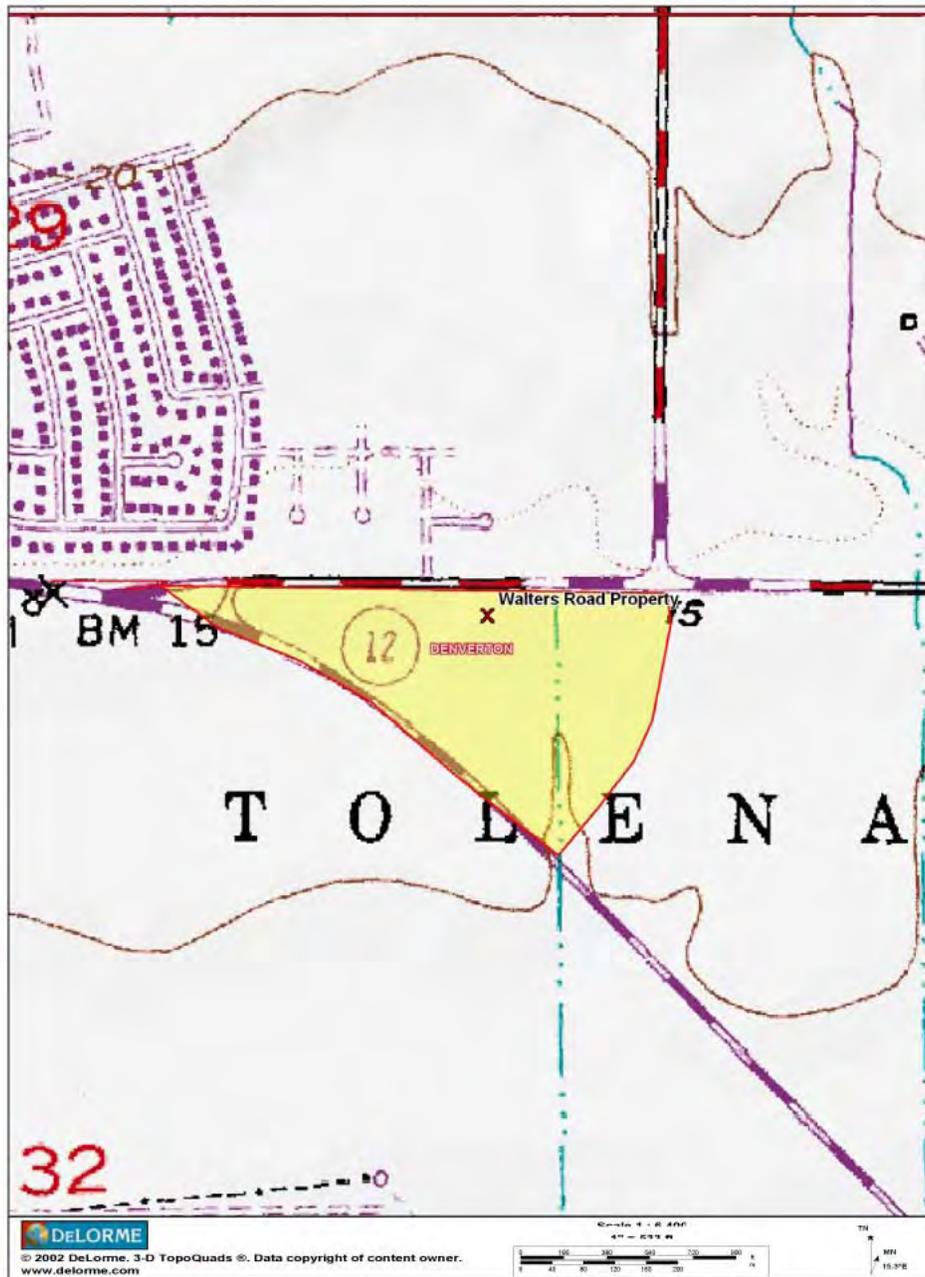


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**Figure 2**  
**Vicinity Map of the Walters**  
**Road Property**  
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**Figure No. 3**  
**USGS Quadrangle Map**

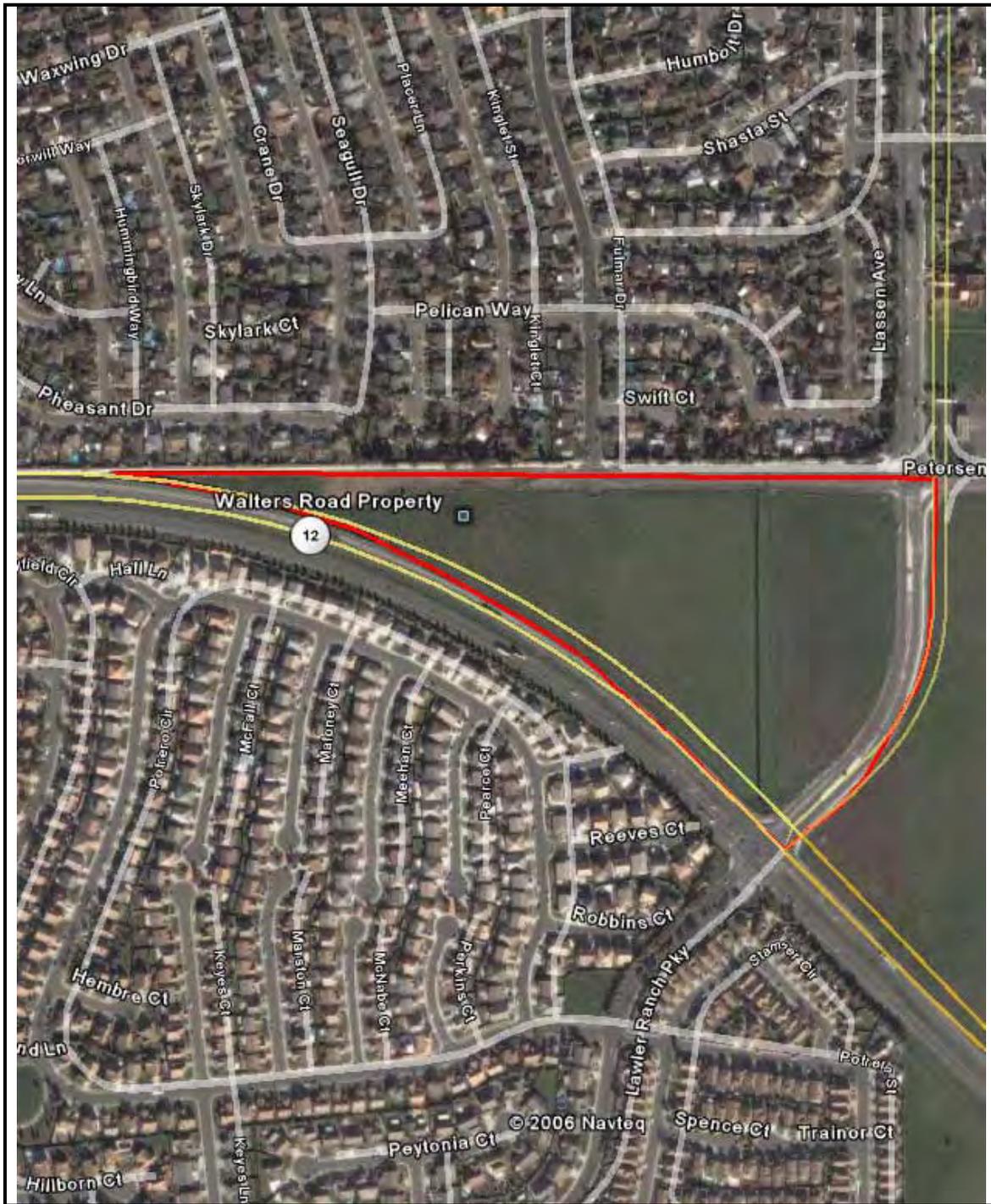


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**Figure 3**  
**USGS Quadrangle Map of**  
**Walters Road Property**  
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**Figure No. 4**  
**Aerial Photograph**



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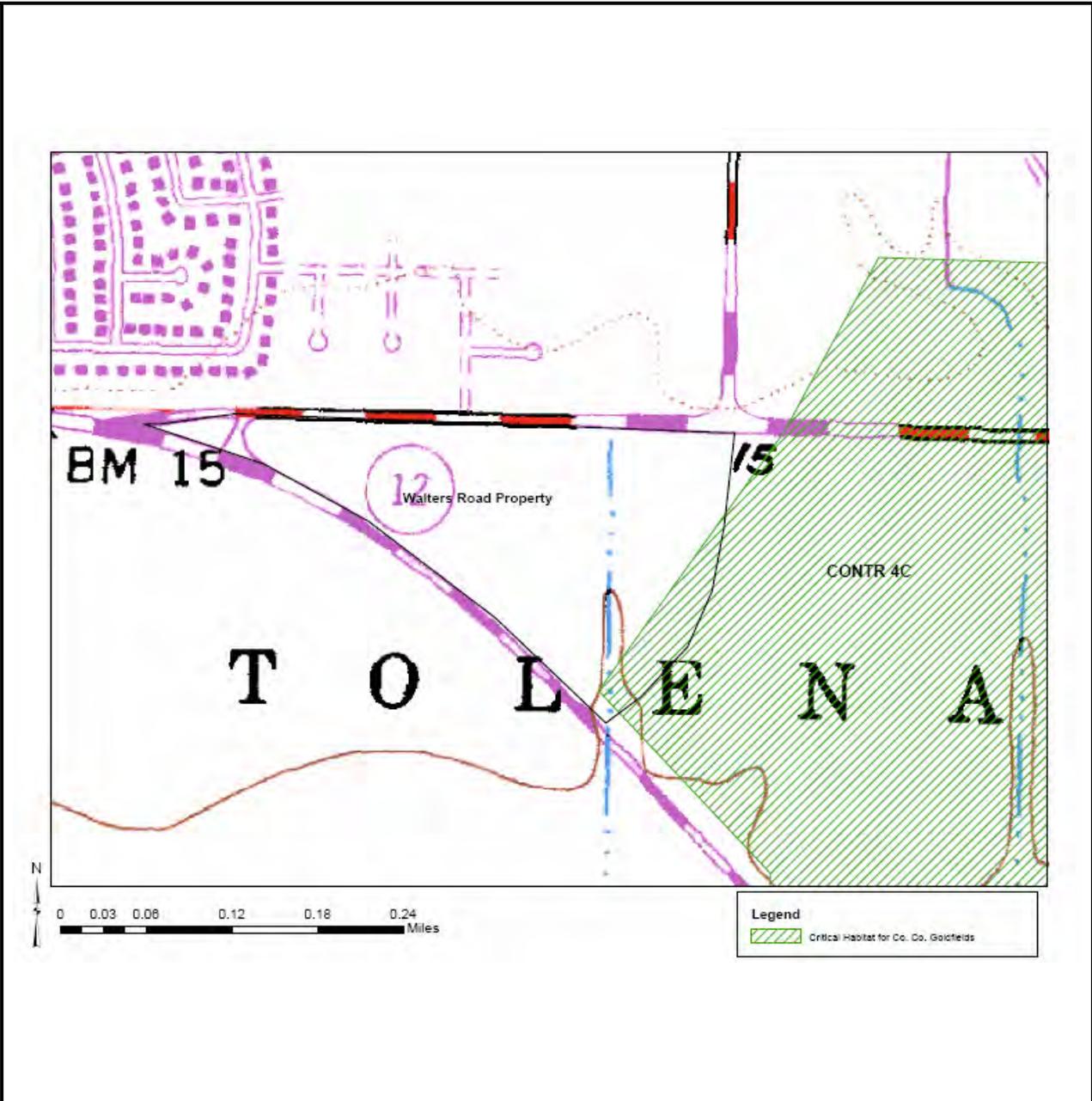
**Figure 4**  
**Aerial Photograph of Walters**  
**Road Property**  
Solano County, California

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**Figure No. 5**  
**Map of CNDDDB Reports of Special-Status Species**



**Figure No. 6**  
**Critical Habitat for Contra Costa Goldfields**

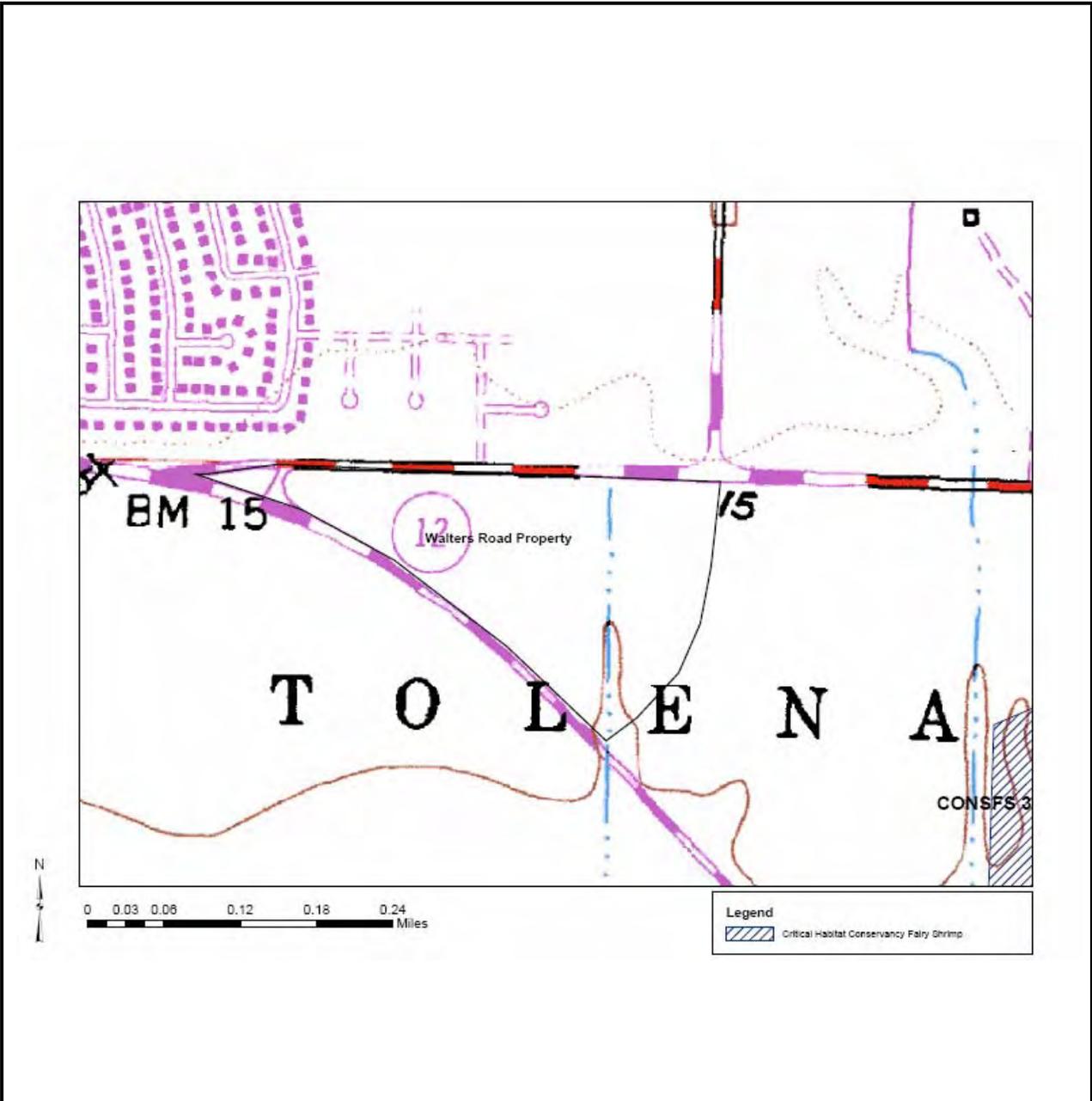


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**Figure 6**  
**Critical Habitat for Contra Costa**  
**Goldfields in the Vicinity of the**  
**Property**  
 Solano County, California

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**Figure No. 7**  
**Critical Habitat for the Conservancy Fairy Shrimp**

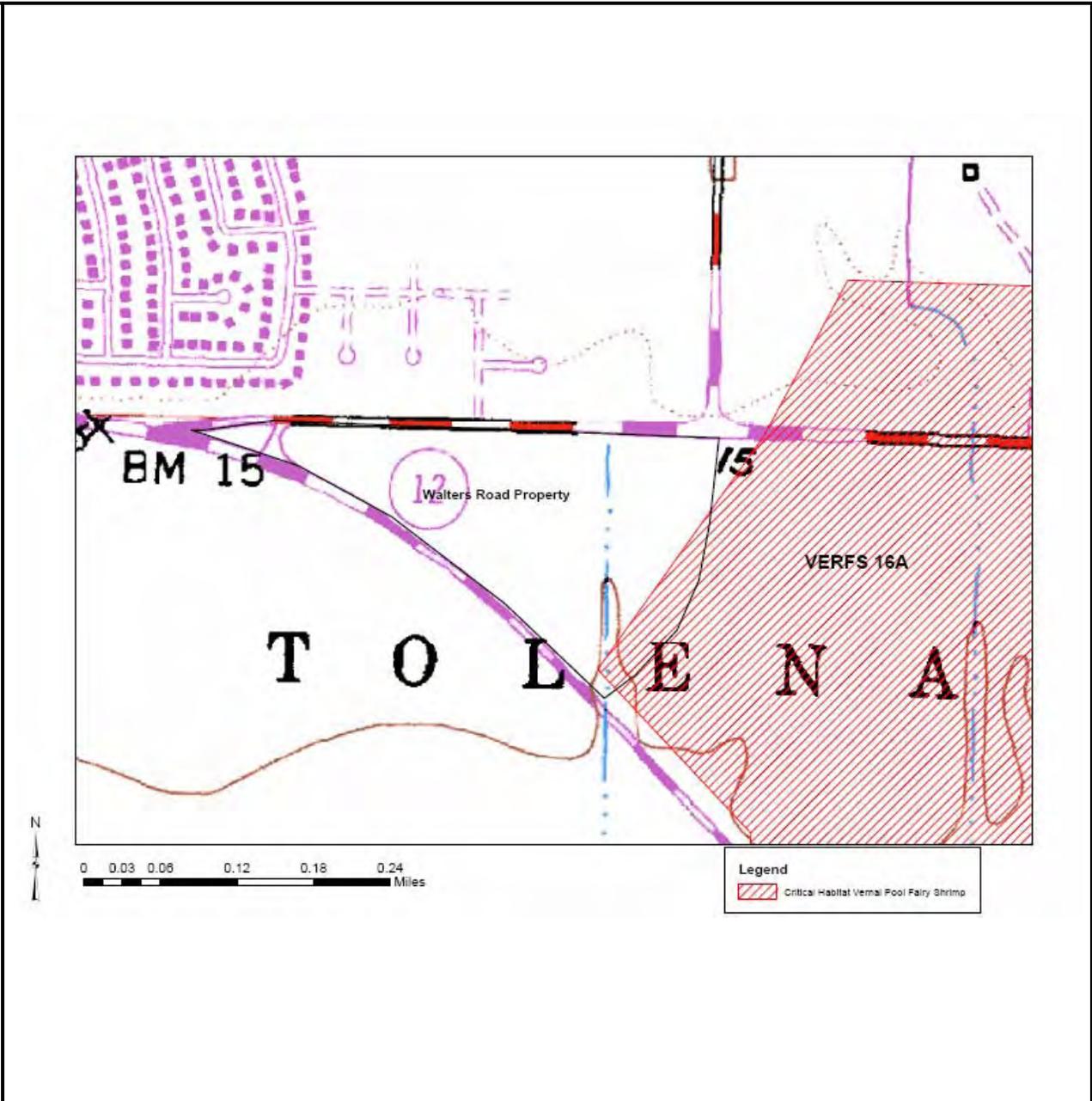


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**Figure 7**  
**Critical Habitat for the Vernal Pool**  
**Fairy Shrimp in the Vicinity of the**  
**Property**  
 Solano County, California

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**Figure No. 8**  
**Critical Habitat for the Vernal Pool Fairy Shrimp**

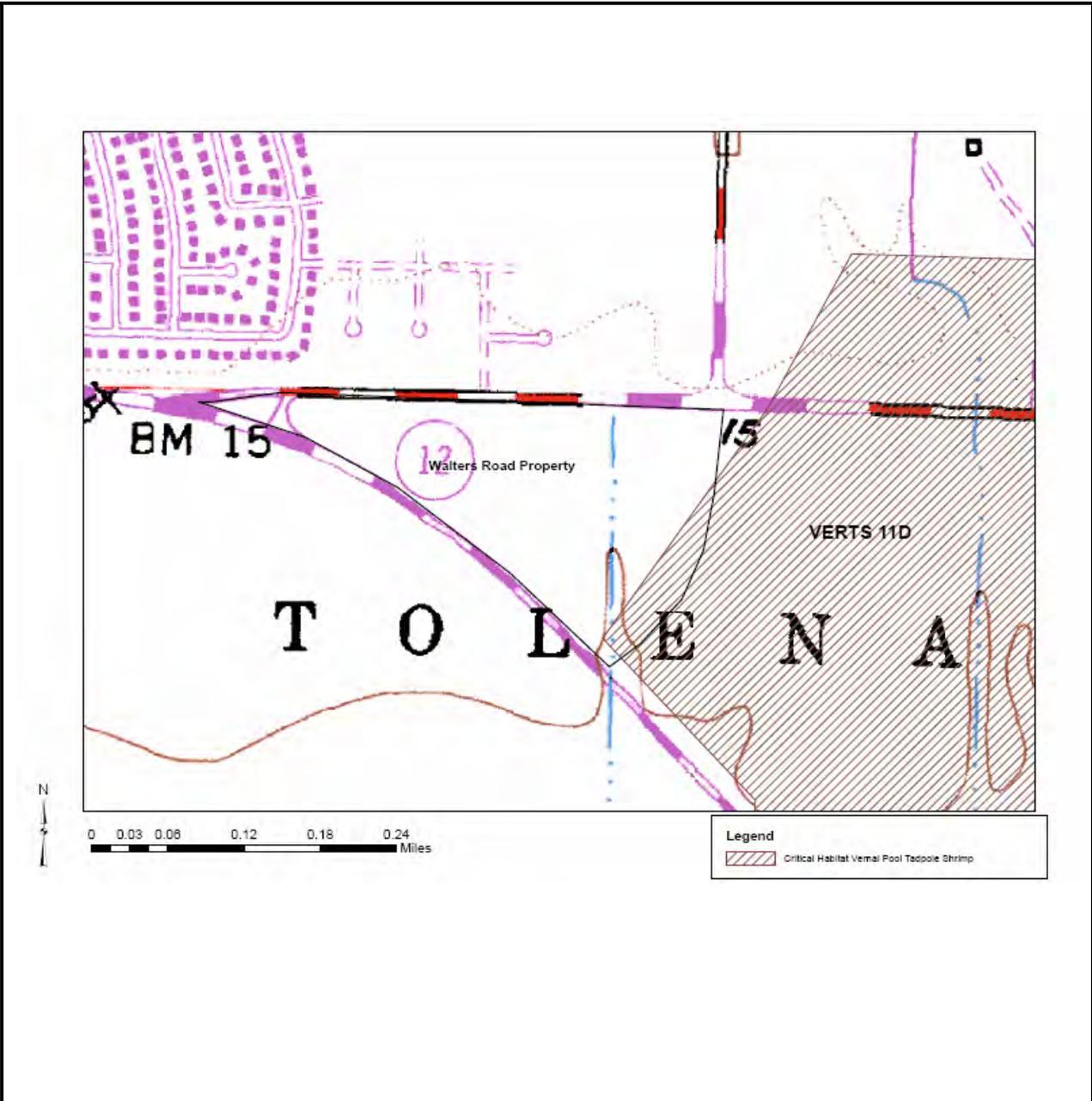


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**Figure 8**  
**Critical Habitat for the Vernal Pool**  
**Fairy Shrimp in the Vicinity of the**  
**Property**  
 Solano County, California

This document is not intended for detail design work.

**Figure No. 9**  
**Critical Habitat for the Vernal Pool Tadpole Shrimp**



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**Figure 9**  
**Critical Habitat for the Vernal Pool**  
**Tadpole Shrimp in the Vicinity of**  
**the Property**  
 Solano County, California

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**ATTACHMENT NO. 2**  
**TABLES**

**Table No. 1**  
**Plant and Animal Species Observed**  
**Within/Adjacent to the Survey Area**

**Table 1**  
**Plant and Animal Species Observed**

Scientific Name	Common Name
<i>Avena fatua</i>	Wild oat
<i>Brassica nigra</i>	Black mustard
<i>Bromus diandrus</i>	Rip-gut brome
<i>Centromadia parryi</i> spp. <i>Parryi</i>	Pappose tarplant
<i>Epilobium branchycarpum</i>	Willow herb
<i>Erodium cicutarium</i>	Redstem filaree
<i>Erodium moschatum</i>	Whitestem filaree
<i>Eschscholzia californica</i>	California poppy
<i>Gallium aparine</i>	Catchweed bedstraw
<i>Geranium dissectum</i>	Cut-leaf geranium
<i>Hordeum murinum</i> var. <i>leporinum</i>	Foxtail
<i>Lactuca serriola</i>	Prickly lettuce
<i>Lolium multiflorum</i>	Italian rye grass
<i>Lotus</i> sp.	Lotus
<i>Malva parviflora</i>	Cheeseweed
<i>Meticago polymorpha</i>	Burclover
<i>Picris echioides</i>	Prickly ox-tongue
<i>Plantago lanceolata</i>	English plantain
<i>Vicia sativa</i>	Common vetch
<b>Animal Species Observed</b>	
<b>Birds</b>	
<i>Aphelocoma californica</i>	Western scrub-jay
<i>Calypte anna</i>	Anna's hummingbird
<i>Carduelis psaltria</i>	Lesser goldfinch
<i>Corvus brachyrhynchos</i>	American Crow
<i>Euphagus cyanocephalus</i>	Brewer's blackbird
<i>Sturnus vulgaris</i>	European starling
<i>Zonotrichia leucophrys</i>	White-crowned sparrow
<b>Mammals</b>	
<i>Thomomys bottae</i>	Botta's pocket gopher

**Table No. 2**  
**Special-Status Species Occurring within the Denverton,**  
**Fairfield South, Fairfield North, and Elmira 7.5 Minute**  
**Quadrangle Maps**

**Table 2**  
**Special-Status Species for the Denverton, Fairfield South, Fairfield North, and Elmira 7.5 Minute Quadrangle Maps<sup>1</sup>**

<b>Common Name/ Scientific Name</b>	<b>Status (Fed/State/ CNPS)<sup>2</sup></b>	<b>Blooming or Survey Period</b>	<b>Habitats of Occurrence</b>	<b>Potential on Site</b>
<b>PLANTS</b>				
Suisun Marsh Aster <i>(Aster lentus)</i>	-/-/1B	May -- November	Brackish and freshwater marshes and swamps.	No
Alkali Milk-vetch <i>(Astragalus tener var. tener)</i>	-/-/1B	March – June	Playas, valley and foothill grasslands in adobe clay soils, and vernal pools in alkaline soils.	Yes
Heartscale <i>(Atriplex cordulata)</i>	-/-/1B	April - October	Chenopod scrub, valley and foothill grassland on alkaline flats and scalds, sandy soils.	Yes
Brittlescale <i>(Atriplex depressa)</i>	-/-/1B	May - October	Chenopod scrub, meadows and sinks, playas, valley and foothill grasslands, and alkaline vernal pools with clay substrate.	Yes
San Joaquin Spearscale <i>(Atriplex joaquinia)</i>	-/-/1B	April – October	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland in alkaline soils.	Yes
Pappose Tarplant <i>(Centromadia parryi ssp. parryi)</i>	-/-/1B	May – November	Coastal prairie, meadows and seeps, coastal salt marshes and swamps, and in valley and foothill grasslands in vernal mesic, often alkaline soils.	Present
Suisun Thistle <i>(Cirsium hydrophilum var. hydrophilum)</i>	E/-/1B	July – September	Marshes and swamps.	No
Hispid Bird's-beak <i>(Cordylanthus mollis ssp. hispidus)</i>	-/-/1B	June - September	Meadows and seeps, playas, valley and foothill grasslands in alkaline soils.	Low
Soft Bird's-beak <i>(Cordylanthus mollis ssp. mollis)</i>	E/R/1B	July – November	Coastal salt marshes and swamps.	No

**Table 2**  
**Special-Status Species for the Denverton, Fairfield South, Fairfield North, and Elmira 7.5 Minute Quadrangle Maps<sup>1</sup>**

<b>Common Name/ Scientific Name</b>	<b>Status (Fed/State/ CNPS)<sup>2</sup></b>	<b>Blooming or Survey Period</b>	<b>Habitats of Occurrence</b>	<b>Potential on Site</b>
Recurved Larkspur ( <i>Delphinium recurvatum</i> )	-/-/1B	March – May	Chenopod scrub, cismontane woodland, and valley and foothill grasslands in alkaline soils.	Yes
Dwarf Downingia ( <i>Downingia pusilla</i> )	-/-/2	March - May	Mesic valley and foothill grasslands and vernal pools.	Yes
Mount Diablo Buckwheat ( <i>Eriogonum truncatum</i> )	-/-/1B	April – November	Chaparral, coastal scrub, and valley and foothill grasslands in sandy soils.	No
Adobe Lily ( <i>Fritillaria pluriflora</i> )	-/-/1B	February – April	Chaparral, cismontane woodland, and valley and foothill grassland, often in adobe soil.	No
Wooley-headed Gilia ( <i>Gilia capitata</i> ssp. <i>tometosa</i> )	-/-/1B	May – July	Coastal bluff scrub in rocky outcrops.	No
Brewer’s Western Flax ( <i>Hesperolinon breweri</i> )	-/-/1B	May – July	Chaparral, cismontane woodland, and valley and foothill grassland, usually in serpentinite.	No
Carquinez Goldenbush ( <i>Isocoma arguta</i> )	-/-/1B	March - September	Alkali flats and lower grassland hillsides.	Yes
Contra Costa Goldfields ( <i>Lasthenia conjugens</i> )	E/-/1B	March - June	Valley and foothill grassland within vernal pools, swales, and low depressions.	Yes
Delta Tule Pea ( <i>Lathyrus jepsonii</i> var. <i>jepsonii</i> )	-/-/1B	May-September	Freshwater and brackish marshes and swamps.	No
Legenere ( <i>Legenere limosa</i> )	-/-/1B	April – June	Vernal pools.	Yes
Woolly-headed Lessingia ( <i>Lessingia hololeuca</i> )	-/-/3	June - October	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, and valley and foothill grassland in clay and serpentine soils.	No
Mason’s Lilaeopsis ( <i>Lilaeopsis masonii</i> )	-/R/1B	April-November	Brackish or freshwater marshes and swamps.	No

**Table 2**  
**Special-Status Species for the Denverton, Fairfield South, Fairfield North, and Elmira 7.5 Minute Quadrangle Maps<sup>1</sup>**

<b>Common Name/ Scientific Name</b>	<b>Status (Fed/State/ CNPS)<sup>2</sup></b>	<b>Blooming or Survey Period</b>	<b>Habitats of Occurrence</b>	<b>Potential on Site</b>
Robust Mondardella ( <i>Monardella villosa</i> ssp. <i>globosa</i> )	-/-/1B	June – July	Openings in broadleaved upland forest and chaparral, cismontane woodland, coastal scrub, and valley and foothill grasslands.	No
Baker’s Navarretia ( <i>Navarretia leucocephala</i> ssp. <i>bakeri</i> )	-/-/1B	April – July	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and vernal pools in mesic soils.	Yes
San Joaquin Valley Orcutt Grass ( <i>Orcuttia inaequalis</i> )	T/E/1B	T/E/1B	Vernal pools.	Yes
Bearded Popcorn-flower ( <i>Plagiobothrys hystriculus</i> )	-/-/1A	April – May	Valley and foothill grasslands in mesic soils, and vernal pools.	Yes
Showy Indian Clover ( <i>Trifolium amoenum</i> )	E/-/1B	April – June	Coastal bluff scrub, and valley and foothill grasslands, sometimes in serpentine soils.	Low
Saline Clover ( <i>Trifolium depauperatum</i> var. <i>hydrophilum</i> )	-/-/1B	April - June	Marshes and swamps, valley and foothill grasslands with mesic, alkaline soils, and vernal pools.	Yes
<b>INVERTEBRATES</b>				
Conservancy Fairy Shrimp ( <i>Branchinecta conservatio</i> )	E/-	Once every two weeks within two weeks of pool inundation, continuing until pool has been inundated for 120 continuous days.	Endemic to the grasslands of the northern two-thirds of the Central Valley in turbid pools.	Yes
Vernal Pool Fairy Shrimp ( <i>Branchinecta lynchi</i> )	T/-	Resident	Endemic to central valley vernal pools and swales.	Yes
Monarch Butterfly ( <i>Danaus plexippus</i> ) WINTER ROOSTS	-/-	October – March	Winter roosts along coast from northern Mendocino to Baja California. Roosts in wind-protected groves of eucalyptus, Monterey pine, with nectar and water sources nearby.	No

**Table 2**  
**Special-Status Species for the Denverton, Fairfield South, Fairfield North, and Elmira 7.5 Minute Quadrangle Maps<sup>1</sup>**

<b>Common Name/ Scientific Name</b>	<b>Status (Fed/State/ CNPS)<sup>2</sup></b>	<b>Blooming or Survey Period</b>	<b>Habitats of Occurrence</b>	<b>Potential on Site</b>
Valley Elderberry Longhorn Beetle <i>(Desmocerus californicus dimorphus)</i>	T/-	Resident	Found in association with blue elderberry ( <i>Sambucus mexicana</i> ) only in the central valley of California.	No
Delta Green Ground Beetle <i>(Elaphrus viridis)</i>	T/-	Resident	Margins of vernal pools in grasslands between Jepson Prairie and Travis Air Force Base.	Yes
Ricksecker's Water Scavenger Beetle <i>(Hydrochara rickseckeri)</i>	-/-	Resident	Vernal pools and seasonal wetlands.	Yes
Vernal Pool Tadpole Shrimp <i>(Lepidurus packardii)</i>	E/-	Once every two weeks within two weeks of pool inundation, continuing until pool has been inundated for 120 continuous days.	Turbid vernal pools and swales in Sacramento Valley. Grass bottomed swales of unplowed grasslands.	Yes
California Linderiella <i>(Linderiella occidentalis)</i>	-/CSC	Resident	Seasonal pools in unplowed grasslands	Yes
Wilbur Springs Shorebug <i>(Saldula usingeri)</i>	-/-	Resident	Springs and creeks with high concentrations of NA, CL, and LI. Only in wet substrates of spring outlets.	No
<b>FISH</b>				
Sacramento Splittail <i>(Pogonichthys macrolepidotus)</i>	-/CSC	Resident	Found in the Delta, Suisun Bay, and associated marshes. Microhabitat is slow-moving rivers, dead end sloughs. Spawning habitat and foraging habitat for young is flooded vegetation	No
<b>AMPHIBIANS</b>				

**Table 2**  
**Special-Status Species for the Denverton, Fairfield South, Fairfield North, and Elmira 7.5 Minute Quadrangle Maps<sup>1</sup>**

<b>Common Name/ Scientific Name</b>	<b>Status (Fed/State/ CNPS)<sup>2</sup></b>	<b>Blooming or Survey Period</b>	<b>Habitats of Occurrence</b>	<b>Potential on Site</b>
California Tiger Salamander ( <i>Ambystoma californiense</i> )	T/CSC	Aquatic Surveys - Once each in March, April, and May with at least 10 days between surveys.  Upland Surveys - 20 nights of surveying under proper conditions beginning October 15 and ending March 15.	Vernal pools, swales and depressions for breeding, needs underground refugia for hibernation.	No
California Red-Legged Frog ( <i>Rana aurora draytonii</i> )	T/-	May 1 - November 1	Lowlands and foothills in or near permanent deep water with dense, shrubby or emergent riparian habitat. Requires 11-20 wks of permanent water for breeding.	No
Foothill Yellow-legged Frog ( <i>Rana boylei</i> )	-/CSC	Year-round resident	Partially-shaded, shallow streams and riffles with a rocky substrate. Need cobble for egg-laying.	No
<b>REPTILES</b>				
Western Pond Turtle ( <i>Clemmys marmorata</i> )	-/CSC	Year-round resident.	Aquatic turtle needs permanent water in ponds, streams, irrigation ditches. Nests on sandy banks or grassy fields.	Low
Northwestern Pond Turtle ( <i>Clemmys marmorata marmorata</i> )	-/CSC	Year-round resident	In permanent or nearly permanent water in a variety of habitats. Requires basking sites.	Low
<b>BIRDS</b>				
Short-eared Owl ( <i>Asio flammeus</i> )	-/CSC	February - August	Fresh and saltwater swamp lands, lowland meadows, irrigated alfalfa fields. Tule patches or tall grasses required for nesting and roosting. Nests on ground in dense vegetation.	No

**Table 2**  
**Special-Status Species for the Denverton, Fairfield South, Fairfield North, and Elmira 7.5 Minute Quadrangle Maps<sup>1</sup>**

<b>Common Name/ Scientific Name</b>	<b>Status (Fed/State/ CNPS)<sup>2</sup></b>	<b>Blooming or Survey Period</b>	<b>Habitats of Occurrence</b>	<b>Potential on Site</b>
Burrowing Owl ( <i>Athene cunicularia</i> )	-/CSC	February - August	Dry open annual or perennial grassland, desert and scrubland. Uses abandoned mammal burrows for nesting.	Yes
Red-tailed Hawk ( <i>Buteo jamaicensis</i> )	-/CP	February - August	Various grassland habitats, urban land, oak woodlands with grassland for foraging	Foraging Only
Swainson's Hawk ( <i>Buteo swainsonii</i> )	-/T	February - August	Nests in riparian areas and in oak savannah near foraging areas. Forages in alfalfa and grain fields with rodent populations.	Foraging Only
Northern Harrier ( <i>Circus cyaneus</i> )	-/-	February - August	Nests in grasslands and marshlands, ground nesting bird.	Foraging Only
White-tailed Kite ( <i>Elanus leucurus</i> )	-/CSC	February - August	Various grassland habitats, urban land, oak woodlands with grassland for foraging.	Foraging Only
American Kestrel ( <i>Falco sparverius</i> )	-/CP	February - August	Various grassland habitats, urban land, oak woodlands with grassland for foraging.	Foraging Only
Tricolored Blackbird ( <i>Agelaius tricolor</i> )	-/CSC	February - August	Nesting within seasonal wetland marshes, black berry brambles or other protected substrates. Forages in annual grassland and wetland habitats.	Foraging Only
Saltmarsh Common Yellowthroat ( <i>Geothlypis trichas sinuosa</i> )	-/CSC	February through August	Fresh and saltwater marshes of the San Francisco Bay area. Forages in thick, continuous vegetation down to water surface. Nests in tall grasses and tule patches.	No
Loggerhead Shrike ( <i>Lanius ludovicianus</i> )	-/CSC	February – August	Open grassland habitats, grazed grasslands. Uses shrubs for nesting.	Foraging Only
California Black Rail ( <i>Laterallus jamaicensis coturniculus</i> )	-/T	February – August	In salt-and tidal marsh with heavy pickleweed growth. Also in fresh and brackish marsh.	No
Suisun Song Sparrow ( <i>Melospiza melodia maxillaris</i> )	-/SC	February – August	Brackish marshes of Suisun Bay. Breeds in cattails, tules, sedges, and salicornia.	No

**Table 2**  
**Special-Status Species for the Denverton, Fairfield South, Fairfield North, and Elmira 7.5 Minute Quadrangle Maps<sup>1</sup>**

<b>Common Name/ Scientific Name</b>	<b>Status (Fed/State/ CNPS)<sup>2</sup></b>	<b>Blooming or Survey Period</b>	<b>Habitats of Occurrence</b>	<b>Potential on Site</b>
California Clapper Rail ( <i>Rallus longirostris obsoletus</i> )	E/E	February - August	Salt to brackish-water marshes with tidal sloughs in San Francisco Bay area. Found in dense pickleweed.	No
<b>MAMMALS</b>				
Salt Marsh Harvest Mouse ( <i>Reithrodontomys raviventris</i> )	E/E	Resident	Middle marsh habitat dominated by pickleweed.	No
Suisun Shrew ( <i>Sorex ornatus sinuosus</i> )	SC/CSC	Resident	Pickleweed marsh habitat.	No
<p>1. Special-status plants and animals as reported by the California Natural Diversity Data Base, California Native Plant Society and other background research, February 2006.</p> <p>2. Order of Codes for Plants - Fed/State/CNPS  Order of Codes for Animals - Fed/State/CDFG  Codes:  SOC- Species of Concern  E - Federally/State Listed as an Endangered Species  T - Federally/State Listed as a Threatened Species  C - Species listed as a Candidate for Federal Threatened or Endangered Status  R - Rare  CP-California protected  DFG: CSC California Special Concern species  1B - California Native Plant Society considers the plant Rare, Threatened, or Endangered in California and Elsewhere.  1A - CNPS plants presumed extinct in California.  2 - CNPS Plants Rare, Threatened or Endangered in California but more common elsewhere.  4 - CNPS Plants of limited distribution-a watch list.</p>				

**ATTACHMENT NO. 3  
SITE PHOTOGRAPHS**



**Photo No. 1. Annual grassland habitat. View facing northwest from near the center of the Property.**



**Photo No. 2. View of the ditch, taken facing north from midway along the ditch.**

**Olberding Environmental, Inc.  
Koros Property – January 2006**



**Photo No. 3. Fill dirt placed on the Property has prevented water from draining from the western portion of the site. View facing south from near the northwest corner of the site.**



**Photo No. 4. Potential seasonal wetland habitat. View facing southwest from the center of the Property.**

**Olberding Environmental, Inc.  
Koros Property – January 2006**

# Walters Road Wetland Delineation Map



## Legend

 Jurisdictional Wetlands (2.996 acres)

 Data Point

 Survey Boundary

 1 inch equals 200 feet

Permit # 30352N

Olberding Environmental, Inc.  
January 25, 2007

**Figure No. 5**

**U.S. ARMY CORPS OF ENGINEERS  
JURISDICTIONAL DELINEATION**

**FOR THE**

**WALTERS ROAD PROPERTY**

**SOLANO COUNTY, CALIFORNIA**

Prepared for:

**McNELLIS PARTNERS, LLC**  
419 Waverly Street  
Palo Alto, CA 94301

Prepared by:

**OLBERDING ENVIRONMENTAL, INC.**  
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JUNE 2006

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## LIST OF ATTACHMENTS

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### ATTACHMENT NO. 1 FIGURES

- Figure No. 1. Regional Map
- Figure No. 2. Vicinity Map
- Figure No. 3. USGS 7.5 Quadrangle Map
- Figure No. 4. Aerial Photograph
- Figure No. 5. Jurisdictional Waters Map

### ATTACHMENT NO. 2 PLANT LIST

### ATTACHMENT NO. 3 DATA SHEETS

### ATTACHMENT NO. 4 SITE PHOTOGRAPHS

### ATTACHMENT NO. 5 NRCS SOILS DATA

This report should be cited as: Olberding Environmental, Inc. June 2006. *U.S; Army Corps of Engineers Jurisdictional Delineation for the Walters Road Property, Solano County, California.* Prepared for McNellis Partners, LLC., Palo Alto, California

## SUMMARY

Olberding Environmental, Inc. (Olberding Environmental) conducted an investigation of the geographic extent of areas potentially subject to U.S. Army Corps of Engineers (Corps) jurisdiction under Section 404 of the Clean Water Act (wetlands and other waters) within the designated boundaries of the Walters Road Property (Property), located in Suisun City, California.

On May 24, 2006, a field survey was conducted for the purpose of identifying the extent of Corps jurisdictional areas within the survey boundaries of the Property. The Property was investigated in order to make a technical evaluation as to the extent of Corps jurisdiction based on current and historic land use conditions. Visual observations as to the presence or absence of indicators of wetland soil, vegetation and hydrology conditions were made during the investigation and recorded on a topographical map of the Property. The boundary of potential jurisdictional areas was further defined in accordance with the Corps regulations and the required methodology described in the 1987 "Corps Wetlands Delineation Manual."

Results of the jurisdictional delineation identified the presence of potentially regulated wetlands and waters of the U.S. within the Property boundaries. A constructed drainage ditch was identified in the center of the Property which functions to collect and drain stormwater runoff from Petersen Road and a residential neighborhood to the north through a large culvert under Highway 12. The constructed drainage ditch is eventually tributary to Hill Slough located approximately 0.5 miles south of the Property. While the intended purpose of the constructed ditch is to convey stormwater runoff away from the Property, the ditch was observed to contain a bottom dominated by wetland vegetation. The presence of wetland vegetation results in the ditch being identified as a potential wetland rather than a potential water.

In addition to the vegetated drainage ditch, thirteen additional seasonal wetland features were identified on the Property. Of the thirteen seasonal wetland features, only three are hydrologically connected to the ditch. The other ten features are located in topographical depressions scattered throughout the Property and would qualify as isolated waters.

Based on information obtained during the May 2006 field survey, it was determined that a total of **2.173** acres of wetland/waters exist on the Property. Approximately 1.231 acres potentially qualify as Corps regulated wetlands/waters. The remaining 0.942 acres of isolated wetlands would be subject to Regional Water Quality Control Board jurisdiction and regulated as "Waters of the State" under the Porter-Cologne Act.

## **1.0 INTRODUCTION**

### **1.1 Scope**

At the request of the McNellis Partners, LLC, Olberding Environmental conducted an investigation as to the presence and geographic extent of possible wetland areas and/or other types of waters of the United States potentially subject to Corps regulation under the Clean Water Act within the boundary of the Property. The placement of fill material in areas identified as jurisdictional waters is subject to the permit requirements of the Corps, under Section 404 of the Clean Water Act (1972).

### **1.2 Location**

The approximately 20.8-acre parcel evaluated for this report is situated immediately north of Highway 12, south of Petersen Road, and west of Walters Road in Solano County, California. Attachment 1, Figure 1 depicts the regional location of the survey area within the San Francisco Bay region. Attachment 1, Figure 2 illustrates the vicinity of the survey area in relationship to Suisun City. Attachment 1, Figure 3 identifies the location of the survey area on the USGS 7.5 Quadrangle map for Denverton. An aerial photograph of the Property has been included as Attachment 1, Figure 4.

Access to the Property is attained by taking the Highway 12 exit east from Interstate 80. Follow Highway 12 for approximately 5.25 miles. The Property is situated immediately north of the intersection of Highway 12 and Walters Road.

### **1.3 Site Description**

The Property forms a triangle with Highway 12 forming the southern boundary, Petersen Road forming the northern boundary, and Walters Road forming the eastern boundary. A drainage ditch bisects the Property in a north to south direction, approximately 500 feet west of Walters Road. The drainage ditch conveys surface runoff from portions of the Property, Petersen Road and the residential development to the north, to Hill Slough located approximately 0.5 miles south of the Property.

The Property is situated at approximately 20 feet above sea level, with elevations decreasing slightly in a west to east direction. Fill has been historically deposited over a large portion of the Property west of the drainage ditch. The mound of fill is approximately 1.5 to 2 feet higher in elevation than the surrounding areas. This area of fill prevents water from draining from the western portion of the site, creating ponded areas within the shallow depressions that were found throughout this area. These depressions were inundated at the time of the reconnaissance survey. The site supports non-native annual grasslands that are disked on a bi-annual basis. Near the northwest corner of the Property is an area where the annual grassland habitat has been disturbed by vehicle traffic, indicating that this area was recently used as a staging area for nearby construction.

The Property supports three habitat types: non-native annual grassland, ditch, and seasonal wetland (Attachment 4: Site photographs). The drainage ditch has been colonized by disturbance tolerant forbs and emergent vegetation. With the exception of a solitary cottonwood tree (*Populus fremontii*), both the drainage ditch and surrounding grasslands lack any tree or shrub cover. Within the drainage ditch there are also several sapling willow and cottonwood trees that are approximately three feet tall.

Surrounding land use is a mixture of housing developments and undeveloped annual grasslands. Lands to the immediate north, west, and south of the Property have all been developed with single family homes. Immediately northeast of the Property are two undeveloped lots, but lands to the north and northeast of these small lots have also been developed with single family homes and a sports complex. Lands to the east and southeast of the Property consist of a large expanse of undeveloped annual grasslands associated with the Travis Air Force Base management area (east of Walters Road).

## **2.0 METHODOLOGY**

### **2.1 Overview**

Potential wetlands were delineated using Corps' methodology during the site investigation conducted on May 24, 2006. The existing land forms as well as associated vegetation, hydrology, and soil conditions were recorded at the potential wetland/waters within the survey area. Potential jurisdictional areas were identified by walking the boarder of the features using global positioning system (GPS Trimble brand) and comparing data to available aerial photography and topographical maps which included:

- < U. S. *Geological Survey 7.5 Minute Quadrangle Map for Denverton, California*;
- < Soils information in the *Soil Survey of Solano County, California (1972, SCS)* ;
- < Topographical map (scale 1"=100'), provided by Robert Karn & Associates, Inc.

The extent or boundary of wetland habitats was further defined using the 1987 "Corps Wetlands Delineation Manual" (1987 Manual)<sup>1</sup> routine on-site wetland determination protocol currently in use by the Corps, published Corps of Engineers regulatory guidance letters, and San Francisco District regulatory policy.

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<sup>1</sup>Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual." U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. plus appendices.

## 2.2 Corps Definition of Wetlands/Waters

Pursuant to the 1987 Manual, key criteria for determining the presence of wetlands are:

- a) the presence of inundated or saturated soil conditions resulting from permanent or periodic inundation by ground water or surface water; and
- b) a prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytic vegetation).

Explicit in the definition is the consideration of three environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands. The assessment of all three parameters enhances the technical accuracy, consistency, and credibility of wetland determination and is required per the 1987 Corps Manual.

Aquatic habitats other than wetlands that are considered to be waters of the United States were also investigated as part of this study. Their landward extent was defined following the definitions provided in the Corps of Engineers regulations [33 CFR §328.4(a)(b) and (c)]:

- (a) *Territorial Seas*. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles.
- (b) *Tidal Waters of the United States*. The landward limits of jurisdiction in tidal waters:
  - (1) Extends to the high tide line, or
  - (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in (c) below.
- (c) *Non-Tidal Waters of the United States*. The limits of jurisdiction in non-tidal waters:
  - (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark (OHW), or
  - (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
  - (3) When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetlands.

Tributary waters and their impoundments are under the regulatory jurisdiction of the Corps and extend to the ordinary high water (OHW) mark on opposing channel banks. Tributary waters include rivers, streams and seasonal drainage channels. The OHW mark is typically indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in

character of soil, destruction of vegetation, exposed roots on the bank, deposition of leaf litter and other debris materials or lower limit of moss growth on channel banks.

Areas meeting the regulatory definition of "Waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the Corps. The Corps under provisions of Section 404 of the Clean Water Act (1972), has jurisdiction over "Waters of the U.S." These waters may include all waters used or potentially used for interstate commerce. This includes all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U. S.," tributaries of waters otherwise defined as "Waters of the U. S.," the territorial seas, and wetlands adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions (33 CFR, Part 328).

The survey area was also reviewed to assess the potential for qualifying for Section 10 jurisdiction as a navigable water of the United States. Navigable waters of the U.S. are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR 329, Section 329.4). Section 10 jurisdiction extends to the lateral extent of the ordinary high water marks on opposing channel banks. Ultimately, the determination of navigability is made by the division engineer (33 CFR, Part 329, Section 329.14).

### **2.3 Data Collection for Potential Jurisdictional Wetlands/Waters**

Data was collected for the determination of wetlands/waters on May 24, 2006 as outlined in the methods section. Specific data point information on vegetation, soils and hydrology was gathered by wetland scientist, Julia King and Jeff Olberding. The purpose of this investigation was to identify and delineate potential jurisdictional waters, including wetlands. Surveys were conducted within and adjacent to the specified survey boundaries. The study area was examined for topographic features, drainages, alterations to site hydrology and areas of recent disturbance in the refined survey area.

Data was collected on vegetation, soils, and hydrology using wetland determination protocol as described in the 1987 Manual. Both upland and wetland data were collected to distinguish wetland boundaries from the adjacent upland. On each transect, a sample point was sited in an area exhibiting wetland characteristics, while a second sample point was sited up slope of the first point in an upland position that defined the transitional break between wetland and upland.

A total of eight sample points were established on four transect lines within the boundaries of the survey area. This included four upland and four wetland sample points. The upland positions

are distinguished by "A" and the wetland position "B." The data points at the upland and wetland positions are called 1-A and 1-B respectively for transects one through four.

The location and extent of jurisdictional wetlands/waters as well as other relevant data, were transferred onto 1"= 100' scale topographical map of the survey area by GPS. Information obtained at the sample point locations was recorded on modified Corps data sheets included in this report (Attachment 3). Photographs were also taken for selected sample points that represented the Property. (See Attachment 4).

### **3.0 TECHNICAL FINDINGS**

The following discussion reports the vegetation, hydrology, and soil conditions observed at the Properties during the course of the investigation. A general observation of the survey area found positive evidence of wetlands and waters of the U.S.

#### **3.1 Vegetation Conditions**

The 1987 Manual states that the diagnostic environmental characteristics indicating wetland vegetation conditions are met when the prevalent vegetation (more than 50%) consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions described above. In addition, hydrophytic species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. Indicators of vegetation associated with wetlands include:

1. more than 50% of the dominant species are rated as Obligate ("OBL"), Facultative Wet ("FACW") or Facultative ("FAC") on lists of plant species that occur in wetlands;<sup>2</sup>
2. visual observations of plant species growing in areas of prolonged inundation or soil saturation; and
3. reports in the technical literature indicating the prevalent vegetation is commonly found in saturated soils" (1987 Manual).

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<sup>2</sup> Reed, P.B. 1988. National List of Plant Species That Occur in Wetlands: California (Region 0). Biological Report 88(26.10) May 1988. National Ecology Research Center, National Wetlands Inventory, U.S. Fish and Wildlife Service, St. Petersburg, FL.

Indicator Category	Symbol	Frequency of Occurrence
OBLIGATE	OBL	greater than 99%
FACULTATIVE WETLAND	FACW	67 - 99%
FACULTATIVE	FAC	34 - 66%
FACULTATIVE UPLAND	FACU	1 - 33%
UPLAND	UPL	Less than 1%

\* Based upon information contained in Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987).

It is important to note that, although there is a high probability that one would expect to find obligate, facultative wet and facultative plants growing in wetlands, there is also a significant possibility that the obligate, facultative wet, and facultative species will occur in areas that do not exhibit wetland soil and/or wetland hydrology conditions. Attachment 2 provides information concerning the plant wetland indicator status for those species found at the data point locations. Plants observed at each of the data point locations were identified to species level using standard floras appropriate for California, wherever necessary.

### **3.1.1 Non-native Annual Grassland**

The annual grasslands are disked on an annual basis. The dominant grass species are Italian rye grass (*Lolium multiflorum*), wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*) and foxtail barley (*Hordeum murinum ssp. leporinum*). Commonly occurring forbs include rose clover (*Trifolium hirtum*), hop clover (*Trifolium dubium*) winter vetch (*Vicia villosa*), common vetch (*Vicia sativa*), bristly oxtongue (*Picris echioides*), black mustard (*Brassica nigra*), and cutleaf geranium (*Geranium dissectum*). A heavy cover of annual grasses occurs over the upland areas of the Property leaving no bare ground.

### **3.1.2 Drainage Ditch**

A drainage ditch flows from north to south across the Property and is observed as a direct tributary to Hill Slough, located approximately 0.5 miles south of the site. The drainage ditch flows approximately 1,100 linear feet and discharges into a concrete culvert beneath Highway 12. The drainage ditch serve to convey surface water south into Hill Slough.

The drainage ditch is characterized by an excavated channel with steep earthen banks. This drainage was dug across the property in the past and is vegetated with a moderate to thick growth of cattails (*Typha latifolia*-OBL). Other species observed to grow in the channel and on the lower bank include water plantain (*Alisma plantago-aquatica*-OBL), curly dock (*Rumex crispus*-FACW-), and Mexican rush (*Juncus mexicanus*-OBL). A few newly germinated sapling cottonwood (*Populus fremontii*-FACW) and arroyo willow (*Salix lasiolepis*-FACW) were also

observed to be approximately three feet tall. The banks are vegetated with disturbance tolerant non-native forbs and grasses including Harding grass (*Phalaris aquatica*-FAC+), sweet fennel (*Foeniculum vulgare*-FACU), black mustard, and pepper grass (*Lepidium latifolium*-FACW).

The constructed drainage ditch was dominated by hydrophytic vegetation and meets the Corps criteria to be determined a potentially jurisdictional wetland.

### **3.1.3 Seasonal Wetland**

The site in general has poor drainage due to soils with high clay content, as well as the presence of an area of fill situated west of the drainage ditch. The Property contains several shallow depressions that seasonally pond during the rainy season. Even with bi-annual disking, the seasonal wetlands continue to support some native vernal pool flora including popcorn flower (*Plagiobothrys stipitatus*-OBL), valley downingia (*Downingia pulchella*-OBL), dwarf sack clover (*Trifolium depauperatum* var. *depauperatum*-FAC), brass buttons (*Cotula coronopifolia*-OBL), cow clover (*Trifolium fucatum*-FAC), white tipped clover (*Trifolium varigatum*-FACW-), toad rush (*Juncus bufonius*-FACW+), water-starwort (*Callitriche* sp.-OBL) and flowering quillwort (*Lilaea scilloides*). Other less common vernal pool associates consist of coyote thistle (*Eryngium vasyii*-FACW) and alkali mallow (*Malvella leprosa*-FAC\*). Other non-native dominant species found in the depressions consist of loosestrife (*Lythrum hyssopifolia*-FACW), spiny-fruited buttercup (*Ranunculus muricatus*-FACW+), rabbit's foot grass (*Polypogon monspeliensis*-FACW+), and Mediterranean barely (*Hordeum marinum* var. *gussoneanum*-FAC).

The wetlands exhibit rutting from past disking and have uneven surfaces throughout. Depending upon the length of inundation the plant species within the pools varies. Where topographic depressions occur on the Property wetland areas occur and exhibit a dominance of hydrophytic vegetation. These seasonal wetlands meet the Corps vegetation criteria to be determined potentially jurisdictional.

## **3.2 Hydrology Conditions**

The 1987 Manual states that the diagnostic environmental characteristics indicative of wetland hydrology conditions are: "the area is inundated either permanently or periodically at mean water depths less than or equal to 6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation" (1987 Manual, p. 14). According to the Manual, indicators of hydrologic conditions that occur in wetlands may include:

<b>Table 2</b>	
<b>Hydrology Indicators</b>	
<b>Primary Indicators</b>	<b>Secondary Indicators</b>
Inundation, Saturation	Oxidized Rhizospheres Associated with Living Roots
Watermarks	Water-Stained Leaves
Drift Lines	FAC-Neutral Test
Water-Borne Sediment Deposits	Local Soil Survey Data
Drainage Patterns Within Wetlands (With Caution)	

Department of the Army, U.S. Army Corps of Engineers, Washington, D.C., *Memorandum - Subject: Clarification and Interpretation of the 1987 Manual*, dated March 8, 1992 provides further clarification that:

"Areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days for more than 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas wet between 5 percent and 12.5 percent of the growing season in most years (see Table 5, page 36 of the 1987 Manual) may or may not be wetlands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands. Wetland hydrology exists if field indicators are present as described herein and in the enclosed data sheet."

Each of the eight sample points was examined for positive field indicators of wetland hydrology. During the May 24, 2006 survey, primary indicators were used to determine the wetland/upland boundary on the Property.

Strong evidence of wetland hydrology was documented at the Property and several primary hydrology indicators were observed. All of the wetland areas exhibited algal matting on the soil surface which indicates the long duration over which water was present in the topographic depressions. Sediment encrusted detritus was observed in most wetland features. Additionally, the wetland areas exhibited soil saturation within the top 12 inches of the surface in most locations. Finally, the wetland areas were observed inundated over a long period of time through the winter of 2006. Oxidized rhizospheres were common to prominent in the wetland areas as well. Each of the wetland features was observed within topographic depressions which could be distinguished from the surrounding landscape. The identified seasonal wetland features were observed with primary and secondary indicators; and therefore, meet the Corps criteria for potentially jurisdictional wetlands.

### 3.3 Soils Conditions

The Corps' 1987 Manual states that the diagnostic environmental characteristics indicative of wetland soil conditions are met where "soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions" (1987 Manual, p. 14). According to the Manual, indicators of soils developed under reducing conditions may include:

1. Organic soils (Histosols);
2. Histic epipedons;
3. Sulfidic material;
4. Aquic or peraquic moisture regime;
5. Reducing soil conditions;
6. Soil colors (chroma of 2 or less);
7. Soil appearing on hydric soils list; and
8. Iron and manganese concretions.

According to the most recent version of the National Technical Committee for Hydric Soils, the criteria to be used by the Corps for what constitutes current hydric soil/wetland soil conditions for the soils found at the site are:

1. Minimum Saturation at 12" to the surface: 14 consecutive days during the growing season.
2. Minimum Inundation (Flooded or Ponged): Soils that are frequently "ponged" for long duration ( $\exists$  15 to 30 consecutive days) or very long duration ( $>$  30 consecutive days) during the growing season, or soils that are frequently "flooded" for long duration or very long duration during the growing season.

Where possible, the top 20 inches of the soil profile was examined for hydric characteristics. Such characteristics include the presence of organic soils (Histisols), histic epipedons, aquic or peraquic moisture regime, presence of soil on hydric soil list, mottling indicated by the presence of gleyed or bright spots of color within the soil horizons observed. Mottling of soils usually indicates poor aeration and lack of good drainage. A Munsell soil color charts (Kollmorgen Instr. Corp. 1990) were reviewed to obtain the soil color matrix for each soil sample. The last digit of the Munsell Soil Notation refers to the chroma of the sample. This notation consists of numbers beginning with 0 for neutral grays and increasing at equal intervals to a maximum of about 20. Chroma values of the soil matrix which are one (1) or less, or of two (2) or less when mottling is present, are typical of soils which have developed under anaerobic conditions.

In sandy soils, such as alluvial deposits in the bottom of drainage channels, hydric soil indicators include high organic matter content in the surface horizon and streaking of subsurface horizons by organic matter. All soil colors indicated in this report were taken under clear, sunny skies using moistened soil samples.

Soil mapping of Solano County by the Natural Resources Conservation Service (NRCS) identifies a single soil type within the survey area. The NRCS provided general soils information for the Property (see Attachment 5).

### **Soil Analysis at Property**

A total of eight soil pits were dug by shovel to a maximum depth of twenty (20) inches at locations representative of various surface hydrology conditions within the study area (Attachment No. 1, Figure 5). Soils found along the three transect lines were classified as having or not having indicators of wetland soil conditions using the methodology in the Corps'1987 Manual.

At the wetland locations the soils were observed to exhibit 2.5 YR 3/1 or 2.5 YR 2/1 color. Wetlands were consistently found to exhibit common and distinct mottles of a 7.5YR 4/6 coloration. The uplands exhibited 2.5 YR 3/2 and 10 YR 3/2 soil colors which were lighter in color than the wetland positions. Mottles were lacking in the upland positions. The distinction in the soil colors between the wetland and upland position was sufficient to make the determination that wetland soils exist on the Properties. The low chroma and mottling exhibited at the wetland position satisfies the Corps criteria for wetlands.

Soils exhibited clay loam and silty clay loam textures while the upland positions typically exhibited a loam substrate. The differences in the soils texture could also be used to make the distinction between the uplands and wetland boundary on the Property.

## **4.0 AREAS POTENTIALLY REGULATED BY THE CORPS OF ENGINEERS**

### **4.1 Areas Potentially Subject to Regulation (Wetlands/Waters of the U.S.)**

The EPA and Corps regulations define wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (40 C.F.R. §230.3(t); 33 C.F.R. §328.3(b)).

The term "waters of the United States" are defined in 40 C.F.R. §328.3(a) as:

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters including interstate wetlands;
- (3) All other waters such as intrastate 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 including any such waters:

- (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
  - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - (iii) Which are used or could be used for industrial purpose by industries in interstate commerce.
- (4) All impoundments of waters otherwise defined as waters of the United States under the definition;
  - (5) Tributaries of waters identified in paragraphs [1-4] of this section;
  - (6) The territorial sea; and
  - (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs [1-6] of this section (40 CFR §230.3(s); 33 CFR §328.3(a)).

Information obtained during the May 24, 2006 field survey was recorded on modified Corps data sheets (Attachment No. 3).

#### **4.1.1 *Potential Wetlands***

A total of **2.173** acres of wetlands were identified within the established Property boundaries. A vegetated drainage ditch and thirteen seasonal wetlands were identified across the Property. All fourteen features meet the Corps criteria for wetlands and therefore, could potentially trigger Corps jurisdiction. These features were observed to be dominated by hydrophytic vegetation, had primary and secondary hydrology indicators and contained hydric soils.

Ten of the seasonal wetland features (0.942 acres) potentially qualify as “isolated waters” as they consist of topographic depressions that lack outlets to any other water body and are therefore, not hydrologically connected to a tributary water. Based on information observed in the field on May 24, 2006, approximately 1.231 acres of potentially regulated wetlands occur on the subject Property. Table 3 identifies the location of each features as represented on the attached map (Attachment 1, Figure 5), the type of wetland and the approximate size as measured in the field with the assistance of a GPS unit.

<b>Table 3: Potentially Jurisdictional Wetlands</b>		
<b>Location</b>	<b>Type of Feature</b>	<b>Acreage</b>
Wetland 1	Isolated Wetland	0.065*
Wetland 2	Isolated Wetland	0.018*
Wetland 3	Isolated Wetland	0.219*
Wetland 4	Isolated Wetland	0.379*
Wetland 5	Isolated Wetland	0.007*
Wetland 6	Isolated Wetland	0.041*
Wetland 7	Isolated Wetland	0.012*
Wetland 8	Isolated Wetland	0.038*
Wetland 9	Isolated Wetland	0.091*
Wetland 10	Adjacent Wetland	0.677
Wetland 11	Adjacent Wetland	0.191
Wetland 12	Isolated Wetland	0.073*
Wetland 13	Wetland Drainage Swale	0.31
Wetland 14	Wetland Swale	0.053
<b>Total</b>		<b>2.173</b>

\*Potentially Exempt from Corps Regulation

#### **4.1.2 Potential Other Waters**

The constructed drainage ditch contained a defined bed and bank, sign of scouring, drift lines and flowing water at the time of the survey. The ditch is also identified on the USGS quadrangle map as a dashed blue line feature which is tributary to Hill Slough Creek to the south. Hill Slough enters the northern portion of Suisun Slough and the Delta. However, wetland vegetation

was also observed to dominate the channel bottom. Due to the presence of wetland vegetation, hydric soils and the presence of primary indicators of hydrology, the constructed ditch is classified as a perennial wetland. There are no areas within the Property boundaries which qualify as jurisdictional waters.

#### **4.1.3 *Section 10 Navigable Waters***

No portion of the Properties contains navigable waters.

### **4.2 Areas Potentially Excluded From Regulation Under Section 404**

#### **4.2.1 *Discretionary Exemptions***

A number of exemptions from Section 404 Clean Water Act regulations exist for waters of the United States. These exemptions fall into two basic categories: (1) discretionary and (2) non-discretionary.

According to the preamble discussion of the Corps regulations in the November 13, 1986 *Federal Register*, certain areas which may meet the technical definition of a wetland are generally not regulated. Such areas include:

- (a) Non-tidal drainage and irrigation ditches excavated on dryland.
- (b) Artificially irrigated areas which would revert to upland if the irrigation ceased.
- (c) Artificial lakes or ponds created by excavating and/or diking dryland to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.
- (d) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dryland to retain water for primarily aesthetic reasons.
- (e) Water filled depressions created in dryland incidental to construction activity and pits excavated in dryland for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).

#### **4.2.2 *Application of Discretionary Exemptions***

Based on the description above, it appears that none of the wetland features qualify for a discretionary exemption.

### **4.2.3 *Isolated Wetlands***

The U.S. Supreme Court has recently ruled that isolated, non-navigable wetlands and other waters are not subject to federal regulation even if they provide habitat for migratory birds and endangered species. Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (hereinafter SWANCC) (No. 99-1178). The Corps has attempted to define isolated as “not having hydrological connectivity to other jurisdictional features.” Based on this determination, the Court has eliminated the need to secure fill permits from the Corps under Section 404 of the Clean Water Act when isolated wetlands are encountered. Nevertheless, the decision is by no means a blanket repeal of Section 404. Every landowner’s on-the-ground situation is unique, and must be analyzed individually. In the aftermath of this decision, each landowner must still carefully assess its situation to determine whether its survey area contains features which qualify as “waters of the U.S.” It is therefore recommended that a jurisdictional delineation be verified by the Corps rather than making an assumption regarding the potential regulation of a specific wetland/water feature.

The RWQCB has indicated that they intend to continue regulation of isolated wetlands under the Porter-Cologne Act (Water Code Section 13260). Their interpretation of the Court ruling indicates that the SWANCC decision has no bearing on the RWQCB’s regulation of “waters of the state” and as such they will continue to issue waste discharge requirements (WDRs) in lieu of a Section 401 Certification which is required when the Corps issues a Section 404 permit.

Wetlands 1-9 and Wetland 12 appear to qualify for the isolated waters determination based on their lack of hydrological connection to a tributary water. Approximately 0.942 acres of wetlands appear to qualify as isolated wetlands and would not be subject to Corps jurisdiction.

## 5.0 LITERATURE CITED

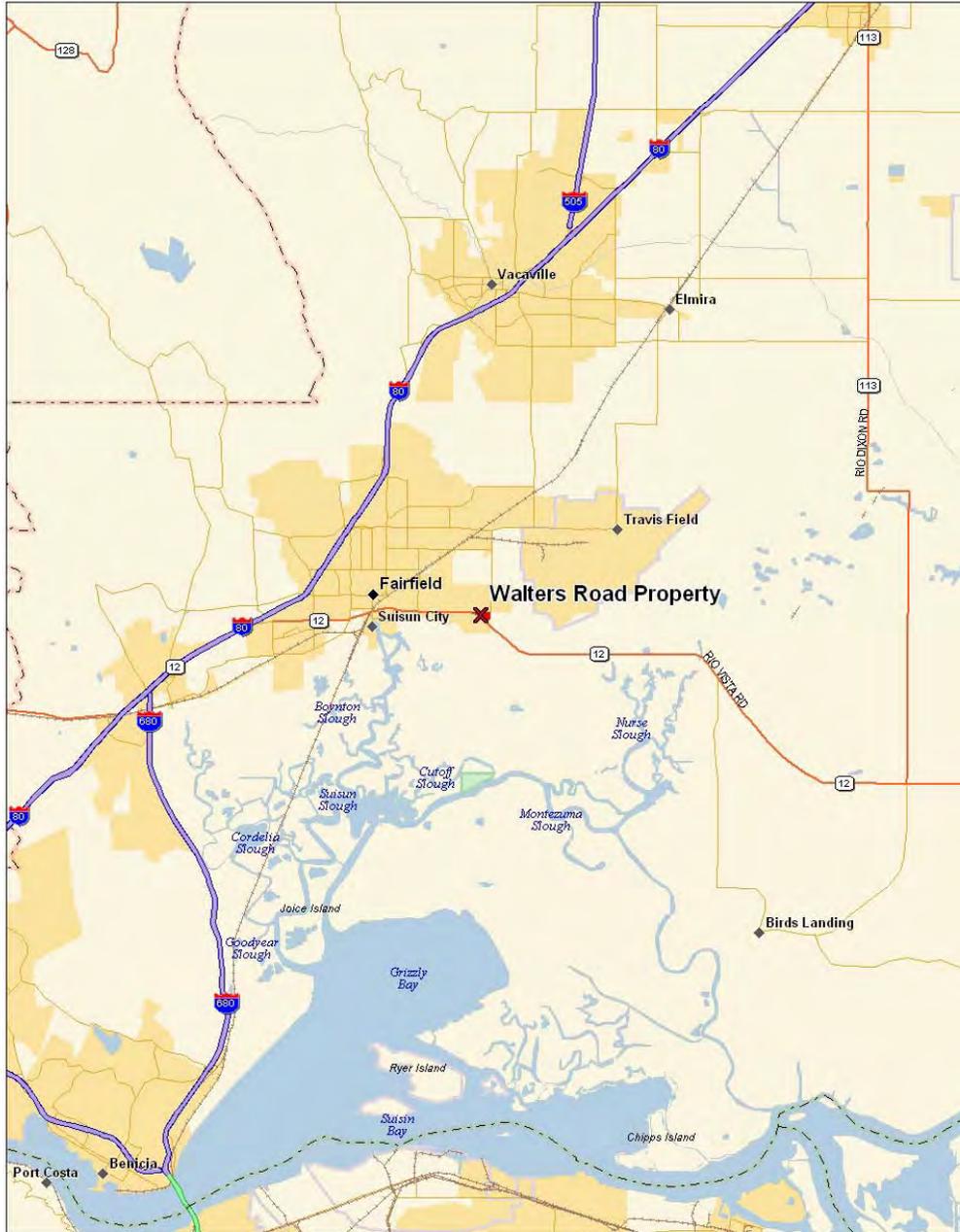
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# **ATTACHMENTS**

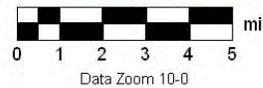
**ATTACHMENT NO. 1  
FIGURES**

- Figure No. 1    Regional Map**
- Figure No. 2    Vicinity Map**
- Figure No. 3    USGS Quadrangle Map**
- Figure No. 4    Aerial Photograph**
- Figure No. 5    Jurisdictional Waters Map**

**Figure No. 1**  
**Regional Map**



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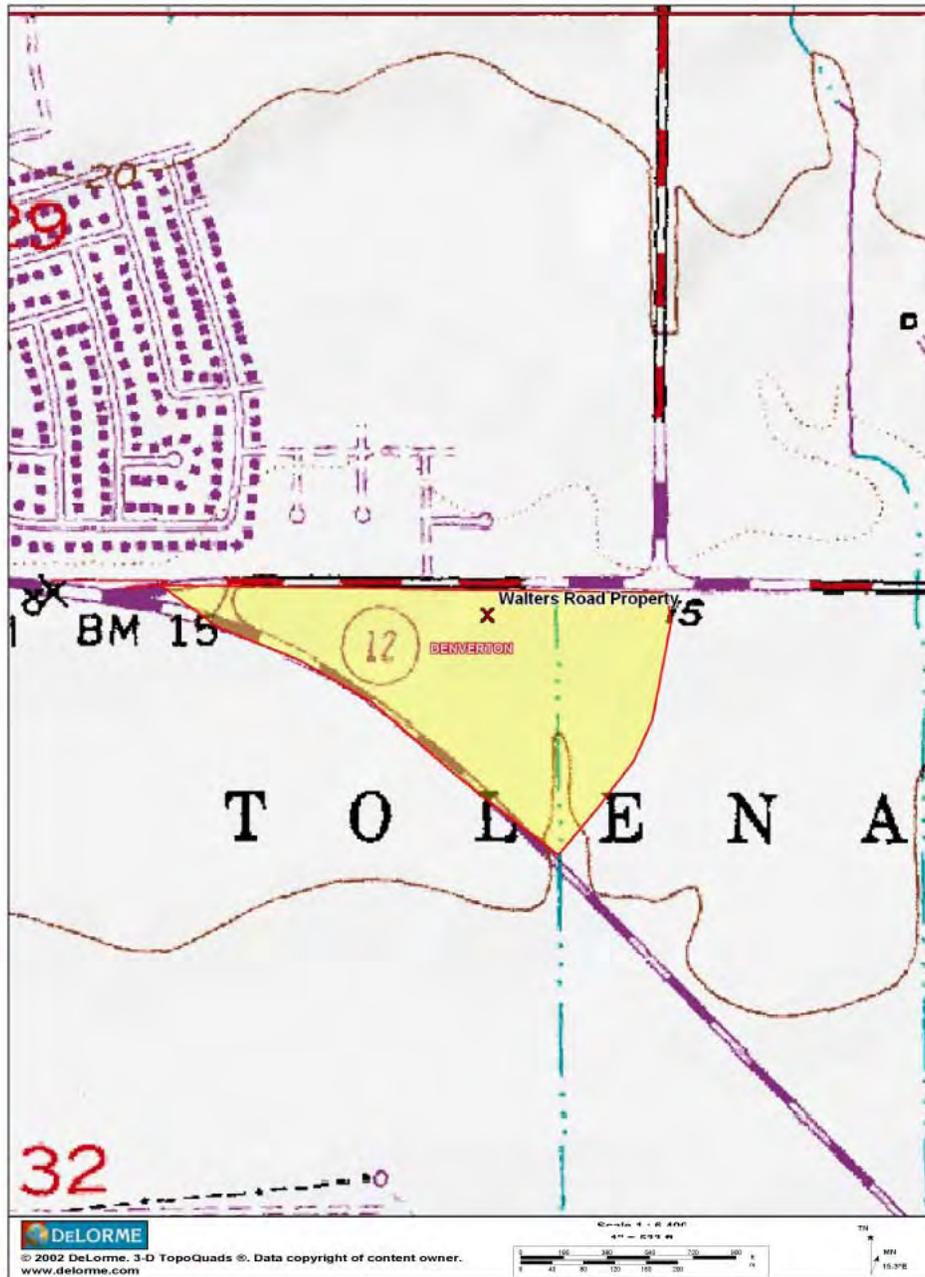
**Figure 1**  
**Regional Map of the Walters Road Property**  
Solano County, California

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**Figure No. 2**  
**Vicinity Map**



**Figure No. 3**  
**USGS Quadrangle Map**

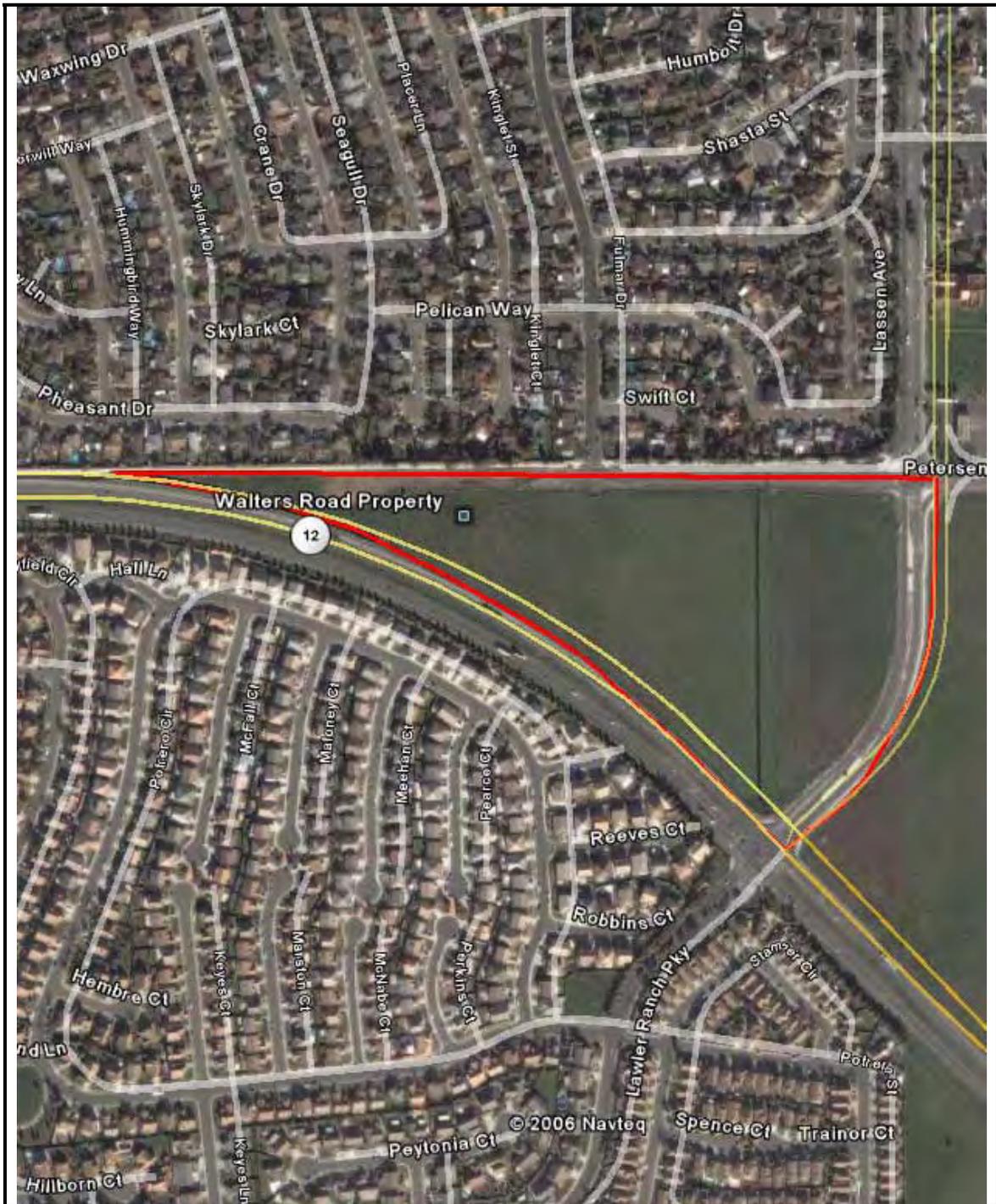


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**Figure 3**  
**USGS Quadrangle Map of Walters**  
**Road Property**  
**Denverton USGS Quadrangle Map**  
 Solano County, California

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**Figure No. 4**  
**Aerial Photograph**



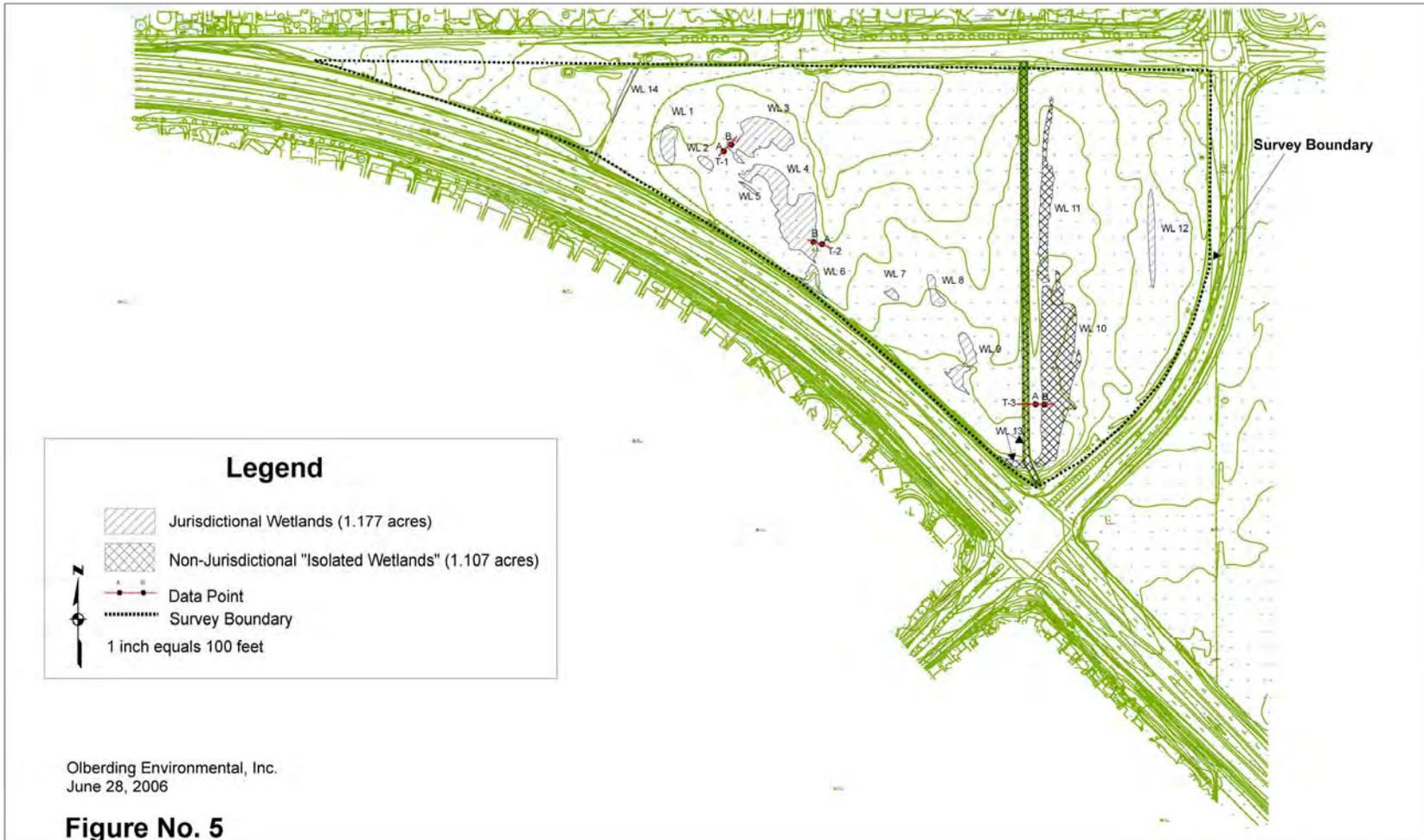
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**Figure 4**  
**Aerial Photograph of Walters Road**  
**Property**  
Solano County, California

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**Figure No. 5**  
**Jurisdictional Waters Map**

# Walters Road Wetland Delineation Map



**ATTACHMENT NO. 2**  
**TABLES**

**Table 1  
Plant Species Observed**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Wetland Indicator Status</b>
<i>Achyrahenea mollis</i>	Blow wives	UPL
<i>Alisma plantago-aquatica</i>	Water Plantain	OBL
<i>Anagalis arvensis</i>	Scarlet pimpernel	FAC
<i>Avena fatua</i>	Wild Oat	UPL
<i>Bellardia trixago</i>	Bellardia	UPL
<i>Brassica nigra</i>	Black mustard	UPL
<i>Briza minor</i>	Little rattlesnake grass	FACW-
<i>Bromus diandrus</i>	Ripgut Brome	UPL
<i>Bromus hordeaceus</i>	Soft Chess	FACU
<i>Callitriche sp.</i>	Waterstar wort	OBL
<i>Calandrinia ciliate</i>	Redmaids	FACU*
<i>Capsella bursa-pastoris</i>	Shepards purse	UPL
<i>Carduus pycnocephalus</i>	Italian Thistle	UPL
<i>Castilleja attenuate</i>	Valley tassles	UPL
<i>Centaurea solstitialis</i>	Yellow Star Thistle	UPL
<i>Cerastium viscosum</i>	Mouse ear	FACU
<i>Convolvulus arvensis</i>	Field bind weed	UPL
<i>Cotula coronopifolia</i>	Brass buttons	OBL
<i>Cynodon dactylon</i>	Bermuda grass	FAC
<i>Cyperus eragrostis</i>	Umbrella sedge	FACW
<i>Distichlis spicata</i>	Salt grass	FACW
<i>Downingia puchella</i>	Valley downingia	OBL
<i>Epilobium brachycarpum</i>	Willow herb	UPL
<i>Erodium cicutarium</i>	Red-stemmed filaree	UPL

**Table 1  
Plant Species Observed**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Wetland Indicator Status</b>
<i>Erodium botrys</i>	Filaree	UPL
<i>Erodium moschatum</i>	White-stemmed Filaree	UPL
<i>Eryngium vasyi</i>	Coyote thistle	FACW
<i>Foeniculaceum vulgare</i>	Sweet Fennel	FACU
<i>Grindelia camporum</i>	Gumweed	FACU
<i>Hemizonia sp.</i> (Not in bloom)	Tarplant	
<i>Hordeum marinum var. gussoneanum</i>	Mediterranean barley	FAC
<i>Hordeum murinum var. leporinum</i>	Foxtail	UPL
<i>Juncus bufonius</i>	Toad rush	FACW+
<i>Juncus mexicanus</i>	Mexican rush	FACW
<i>Lactuca serriola</i>	Prickly lettuce	FAC
<i>Lepidium latifolia</i>	Broad-leaved pepperweed	FACW
<i>Lilaea scilloides</i>	Flowering quillwort	OBL
<i>Lolium multiflorum</i>	Italian Ryegrass	FAC*
<i>Lupinus bicolor</i>	Miniature lupine	UPL
<i>Lythrumia hyssopifolia</i>	Loosestrife	FACW
<i>Malvella leprosa</i>	Alkali mallow	FAC*
<i>Medicago polymorpha</i>	Burclover	UPL
<i>Melilotus indica</i>	Sweetclover	FACU
<i>Parentucellia viscosa</i>	Yellow Parentucellia	NI*
<i>Paspalum dilatatum</i>	Dallisgrass	FAC
<i>Phalaris aquatica</i>	Harding grass	FAC+
<i>Picris echioides</i>	Bristly Ox-tongue	FAC

**Table 1  
Plant Species Observed**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Wetland Indicator Status</b>
<i>Plagiobothrys stipatatus</i>	Popcorn flower	OBL
<i>Poa annua</i>	Annual Blue Grass	FACW-
<i>Polygonum sp.</i>	Water smartweed	FACW or OBL
<i>Polygonum aviculare</i>	Bind weed	FAC
<i>Polypogon monspeliensis</i>	Rabbits foot grass	FACW
<i>Populus fremontii</i>	Fremont's cottonwood	FACW
<i>Raphanus sativus</i>	Wild Radish	UPL
<i>Ranunculus muricatus</i>	Spiny-fruited buttercup	FACW+
<i>Ranunculus seleratus</i>	Celery-leaved Buttercup	OBL
<i>Rumex crispus</i>	Curly dock	FACW-
<i>Salix lasiolepis</i>	Arroyo willow	FACW
<i>Senecio vulgare</i>	Common groundsel	UPL
<i>Stellaria media</i>	Chickweed	UPL
<i>Tribulus terrestris</i>	Puncture vine	UPL
<i>Trifolium depauperatum var. depauperatum</i>	Dwarf sac clover	FAC-
<i>Trifolium dubium</i>	Hop clover	FACU*
<i>Trifolium fucatum</i>	Sour clover	FAC
<i>Trifolium hirtum</i>	Rose Clover	UPL
<i>Trifolium varigatum</i>	White-tipped Clover	FACW-
<i>Typha latifolia</i>	Broadleafed Cattail	OBL
<i>Vicia sativa</i>	Common Vetch	UPL
<i>Vicia villosa</i>	Winter Vetch	UPL
<i>Veronica peregrina var. xalapense</i>	Purselane speedwell	OBL
<i>Vulpia bromoides</i>	Six weeks fescue	FACW

**Table 1**  
**Plant Species Observed**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Wetland Indicator Status</b>
<i>Xanthium strumarium</i>	Cocklebur	FAC+
Olberding Environmental, Inc. 2006		

**ATTACHMENT NO. 3**  
**DATA SHEETS**

**DATA FORM - ROUTINE WETLAND DETERMINATION**  
(1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Walters Road Property</u> Applicant/Owner: <u>McNellis Partners, LLC.</u> Investigator(s) : <u>Olberding Environmental</u>	Date: <u>5/24/06</u> County: <u>Solano</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If needed, explain answer on reverse or attach separate sheet.)	Community ID: <u>herbaceous/shrub/tree</u> Transect ID: <u>1</u> Plot ID: <u>A</u>

**VEGETATION**

Dominant Plant Species	Indicator	Associate Plant Species	Indicator
1. <i>Lolium multiflorum</i>	FAC*	<i>Convolvulus arvensis</i>	UPL
2. <i>Trifolium hirtum</i>	UPL		
3. <i>Hordeum marinum var. gussoneanum</i>	FAC		
4.			
5.			

**Observations & Remarks:**

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 66 %  
 2. Assume presence of wetland vegetation?  Yes  No; or,  
 3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils:  Yes  No  
 4. Taxonomic Reference(s): Jepson

**HYDROLOGY**

<input checked="" type="checkbox"/> Recorded Data (Attached): Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: _____ _____ _____ <input type="checkbox"/> Other _____ _____ <input type="checkbox"/> No Recorded Data Found	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input type="checkbox"/> Saturated in: <input type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input checked="" type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other (Explain in Remarks) <input type="checkbox"/> Landscape Position "Drains" <input type="checkbox"/> Landscape Position "Ponds"
Current Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.) Tidal Influence <input checked="" type="checkbox"/> Non-Tidal Influence <b>No current hydrology observed.</b>	<input type="checkbox"/> <b>One secondary hydrology indicator observed</b>
<b>Observations:</b> 1. Filamentous or sheet forming algae present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 2. Surface Sediment with Bedding Planes <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 3. Slope: <input type="checkbox"/> 0-2%; or <input type="checkbox"/> > 2% 4. Oxidized rhizospheres: <input checked="" type="checkbox"/> new roots only; <input type="checkbox"/> old roots only; <input type="checkbox"/> new and old roots, or <input type="checkbox"/> none 5. Flooding: <input checked="" type="checkbox"/> none, flooding not probable; <input type="checkbox"/> rare, unlikely but possible under unusual weather conditions; <input type="checkbox"/> occasional, occurs on an average of once or less in 2 years, or <input type="checkbox"/> frequent, occurs on an average of more than once in 2 years. 6. Continuous flooding duration: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, if < 5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS; or <input type="checkbox"/> very long, if > 12.5% GS 7. Ponding? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 8. Continuous ponding duration: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, < 5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS or; <input type="checkbox"/> very long, if > 12.5% GS 9. Saturation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 10. Continuous duration of Saturation: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, < 5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS; or <input type="checkbox"/> very long, if > 12.5% GS	
<b>Remarks: Upland position for comparison to wetlands. Only one secondary hydrology indicators was observed. Hydrology criteria were not met at this location. Data point located several feet up slope from wetland feature.</b>	

**SOILS**

Data Point 1A

Map Unit Name (Series and Phase): <u>Antioch-San Ysidro complex, 0 to 2 percent slopes</u> Taxonomy (Subgroup): <u>Typic Natrixeralfs and Typic Paleixeralfs</u> Profile Description (Surface to 12"):				Drainage Class: <u>moderately well to somewhat poorly drained</u> Permeability: <u>very slow</u> Run off: <u>slow to medium</u> Field Observations Confirm NRCS Mapping? Yes <input checked="" type="checkbox"/> No	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance <sup>1</sup> / Contrast <sup>2</sup>	Texture <sup>3</sup> , Concretions, Structures <sup>4</sup> , etc.
0 to 12		2.5 YR 3/2	None	None	Loam
to					
to					
<b>Hydric Soil Indicators: Soil colors not consistent with soils series description but matches Pescadero series which is adjacent.</b> Historic: <input type="checkbox"/> Histosol <input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Gleyed or Low-Chroma Colors (chroma #2 ) <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Dead Root Halos (Redoximorphis Feature) <input type="checkbox"/> Mottles (Redoximorphic features) _____ ----- Current: <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen for period of time) <input type="checkbox"/> Reducing Conditions (Environment <input type="checkbox"/> Other (Explain in Remarks): _____ conducive to the removal of oxygen & chemical reduction of ions) _____					
<b>Observations and Remarks:</b> 1. Smell: <input type="checkbox"/> Neutral; <input type="checkbox"/> Slightly Fresh; <input type="checkbox"/> Freshly Plowed Field Smell; or <input type="checkbox"/> Sulfidic Odor 2. Site has been: <input type="checkbox"/> Irrigated; <input type="checkbox"/> Land Leveled; <input type="checkbox"/> Ditch Drained <input type="checkbox"/> Tile Drained <input type="checkbox"/> Pumped; <input type="checkbox"/> Graded to drain via slope 3. Soils Currently are: <input type="checkbox"/> Flooded; <input type="checkbox"/> Poned; <input type="checkbox"/> Saturated <sup>5</sup> 4. Soils: <input type="checkbox"/> do <input checked="" type="checkbox"/> do not, become continuously flooded or ponded for long (≥ 7 to 30 days) to very long durations; (> 30 days) during the growing season; <input type="checkbox"/> Unknown 5. Soils: <input type="checkbox"/> do <input checked="" type="checkbox"/> do not, become continuously saturated for 14 days or greater					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Conditions Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Conditions Currently Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Signature: _____
Remarks: <b>Data point fails to meet all three Corps wetland criteria. Upland position for comparison to wetland point. Vegetation consists of weak FAC community.</b>  1. Possible water of the U.S.? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)). (f) <input type="checkbox"/> Isolated wetland	

**NOTES:**

- <sup>1</sup> Mottle abundance: Few (F), Common (C), or Many (M).  
<sup>2</sup> Mottle contrast: Faint (F), Distinct (D), or Prominent (P).  
<sup>3</sup> Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.  
<sup>4</sup> Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.  
<sup>5</sup> Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.

Approved by HQUSACE 3/92\*

**DATA FORM - ROUTINE WETLAND DETERMINATION**  
(1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Walters Road Property</u>	Date: <u>5/24/06</u>	
Applicant/Owner: <u>McNellis Partners, LLC.</u>	County: <u>Solano</u>	
Investigator(s) : <u>Olberding Environmental</u>	State: <u>CA</u>	
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: <u>herbaceous/shrub/tree</u>	
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
(If needed, explain answer on reverse or attach separate sheet.)		Transect ID: <u>1</u> Plot ID: <u>B</u>

**VEGETATION**

Dominant Plant Species	Indicator	Associate Plant Species	Indicator
1. <i>Polypogon monspeliensis</i>	FACW	<i>Cotula coronopifolia</i>	FACW+
2. <i>Lythrum hyssopifolia</i>	FACW	<i>Lolium multiflorum</i>	FAC*
3. <i>Juncus bufonius</i>	FACW		
4.			
5.			

**Observations & Remarks:**

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100 %

2. Assume presence of wetland vegetation?  Yes  No; or,

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils:  Yes  No

4. Taxonomic Reference(s): Jepson

**HYDROLOGY**

<input checked="" type="checkbox"/> Recorded Data (Attached): Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: _____ _____ Other _____ _____ <input type="checkbox"/> No Recorded Data Found	Wetland Hydrology Indicators: Primary Indicators: Inundated: _____ Flooded _____ Ponded _____ <input checked="" type="checkbox"/> Saturated in: <input checked="" type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: _____ Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other (Explain in Remarks) <input type="checkbox"/> Landscape Position "Drains" <input checked="" type="checkbox"/> Landscape Position "Ponds"
Current Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>10</u> (in.) Tidal Influence <input checked="" type="checkbox"/> Non-Tidal Influence	
<p><b>Observations:</b></p> <p>1. Filamentous or sheet forming algae present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Surface Sediment with Bedding Planes <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>3. Slope: <input checked="" type="checkbox"/> 0-2%; or <input type="checkbox"/> &gt; 2%</p> <p>4. Oxidized rhizospheres: <input type="checkbox"/> new roots only; <input type="checkbox"/> old roots only; <input type="checkbox"/> new and old roots, or <input checked="" type="checkbox"/> none</p> <p>5. Flooding: <input checked="" type="checkbox"/> none, flooding not probable; <input type="checkbox"/> rare, unlikely but possible under unusual weather conditions; <input type="checkbox"/> occasional, occurs on an average of once or less in 2 years, or <input type="checkbox"/> frequent, occurs on an average of more than once in 2 years.</p> <p>6. Continuous flooding duration: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if &lt; 2 days; <input type="checkbox"/> brief, if &lt; 5% growing season (GS); <input type="checkbox"/> long, if <math>\geq</math> 5% to 12.5% GS; or <input type="checkbox"/> very long, if &gt; 12.5% GS</p> <p>7. Ponding? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>8. Continuous ponding duration: <input type="checkbox"/> None; <input type="checkbox"/> very brief, if &lt; 2 days; <input type="checkbox"/> brief, &lt; 5% growing season (GS); <input checked="" type="checkbox"/> long, if <math>\geq</math> 5% to 12.5% GS or; <input type="checkbox"/> very long, if &gt; 12.5% GS</p> <p>9. Saturation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>10. Continuous duration of Saturation: <input type="checkbox"/> None; <input type="checkbox"/> very brief, if &lt; 2 days; <input type="checkbox"/> brief, &lt; 5% growing season (GS); <input type="checkbox"/> long, if <math>\geq</math> 5% to 12.5% GS; or <input checked="" type="checkbox"/> very long, if &gt; 12.5% GS</p> <p>Remarks: Primary indicators consist of saturated soils within the top 12 inches of the soil profile. Also seed shrimp were found in the lowest position within the wetland. Corps hydrology criteria are met at this location.</p>	

**SOILS**

Data Point 1B

Map Unit Name (Series and Phase): <u>Antioch-San Ysidro complex, 0 to 2 percent slopes</u> Taxonomy (Subgroup): <u>Typic Natrixeralfs and Typic Paleixeralfs</u> Profile Description (Surface to 12"):				Drainage Class: <u>moderately well to somewhat poorly drained</u> Permeability: <u>very slow</u> Run off: <u>slow to medium</u> Field Observations Confirm NRCS Mapping? Yes <input checked="" type="checkbox"/> No	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance <sup>1</sup> / Contrast <sup>2</sup>	Texture <sup>3</sup> , Concretions, Structures <sup>4</sup> , etc.
0 to 12		2.5 YR 3/1	7.5 YR 4/6	FD	Silty clay loam
to					
to					
<b>Hydric Soil Indicators: Soil colors not consistent with soils series description but matches Pescadero series which is adjacent.</b> Historic: <input type="checkbox"/> Histosol <input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors (chroma #2 ) <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Dead Root Halos (Redoximorphis Feature) <input checked="" type="checkbox"/> Mottles (Redoximorphic features) _____ ----- Current: <input type="checkbox"/> Sulfidic Odor <input checked="" type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen for period of time) <input type="checkbox"/> Reducing Conditions (Environment <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> conducive to the removal of oxygen & chemical reduction of ions) _____					
<b>Observations and Remarks:</b> 1. Smell: <input type="checkbox"/> Neutral; <input type="checkbox"/> Slightly Fresh; <input type="checkbox"/> Freshly Plowed Field Smell; or <input type="checkbox"/> Sulfidic Odor 2. Site has been: <input type="checkbox"/> Irrigated; <input type="checkbox"/> Land Leveled; <input type="checkbox"/> Ditch Drained; <input type="checkbox"/> Tile Drained; <input type="checkbox"/> Pumped; <input type="checkbox"/> Graded to drain via slope 3. Soils Currently are: <input type="checkbox"/> Flooded; <input type="checkbox"/> Ponded; <input checked="" type="checkbox"/> Saturated <sup>5</sup> 4. Soils: <input checked="" type="checkbox"/> do <input type="checkbox"/> do not, become continuously flooded or ponded for long (≥7 to 30 days) to very long durations; (> 30 days) during the growing season; <input type="checkbox"/> Unknown 5. Soils: <input checked="" type="checkbox"/> do <input type="checkbox"/> do not, become continuously saturated for 14 days or greater					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Conditions Currently Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Signature: _____
Remarks: <i>The data point is positioned in a wetland location. The three Corps criteria for wetlands are met. Hydrophytic vegetation, wetland hydrology and dark chroma soils are present.</i>	
1. Possible water of the U.S.? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)). (f) <input checked="" type="checkbox"/> Isolated wetland	

**NOTES:**

<sup>1</sup> Mottle abundance: Few (F), Common (C), or Many (M).  
<sup>2</sup> Mottle contrast: Faint (F), Distinct (D), or Prominent (P).  
<sup>3</sup> Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.  
<sup>4</sup> Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.  
<sup>5</sup> Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.



**SOILS**

Data Point 2A

Map Unit Name (Series and Phase): <u>Pescadero clay loam 2 to 5 percent slopes</u> Taxonomy (Subgroup): <u>Mollic Haplo xeralfs</u> Profile Description (Surface to 12"):				Drainage Class: <u>poorly drained or ponded</u> Permeability: <u>very slow</u> Run off: <u>very slow</u> Field Observations Confirm NRCS Mapping? X Yes No	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance <sup>1</sup> / Contrast <sup>2</sup>	Texture <sup>3</sup> , Concretions, Structures <sup>4</sup> , etc.
0 to 12		2.5 YR 3/2	None	None	Loam
to					
to					
<b>Hydric Soil Indicators:</b> <i>Historic:</i> <input type="checkbox"/> Histosol <input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Gleyed or Low-Chroma Colors (chroma #2 ) <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Listed on Local Hydric Soils List <input checked="" type="checkbox"/> Dead Root Halos (Redoximorphis Feature) <input type="checkbox"/> Mottles (Redoximorphic features) _____ ----- <i>Current:</i> <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen for period of time) <input type="checkbox"/> Reducing Conditions (Environment <input type="checkbox"/> Other (Explain in Remarks): _____ conducive to the removal of _____ oxygen & chemical reduction of ions) _____					
<b>Observations and Remarks:</b> 1. Smell: <input type="checkbox"/> Neutral; <input type="checkbox"/> Slightly Fresh; <input type="checkbox"/> Freshly Plowed Field Smell; or <input type="checkbox"/> Sulfidic Odor 2. Site has been: <input type="checkbox"/> Irrigated; <input type="checkbox"/> Land Leveled; <input type="checkbox"/> Ditch Drained <input type="checkbox"/> Tile Drained <input type="checkbox"/> Pumped; <input type="checkbox"/> Graded to drain via slope 3. Soils Currently are: <input type="checkbox"/> Flooded; <input type="checkbox"/> Ponded; <input type="checkbox"/> Saturated <sup>5</sup> 4. Soils: <input type="checkbox"/> do <input checked="" type="checkbox"/> do not, become continuously flooded or ponded for long (≥7 to 30 days) to very long durations; (> 30 days) during the growing season; <input type="checkbox"/> Unknown 5. Soils: <input type="checkbox"/> do <input checked="" type="checkbox"/> do not, become continuously saturated for 14 days or greater					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Conditions Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Conditions Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Conditions Currently Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Signature: _____
Remarks: <b>Data point fails to meet all three Corps wetland criteria. Upland position for comparison to wetland point.</b>	
1. Possible water of the U.S.? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)). (f) <input type="checkbox"/> Isolated wetland	

**NOTES:**

Approved by HQUSACE 3/92\*

<sup>1</sup> Mottle abundance: Few (F), Common (C), or Many (M).

<sup>2</sup> Mottle contrast: Faint (F), Distinct (D), or Prominent (P).

<sup>3</sup> Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.

<sup>4</sup> Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.<sup>5</sup> Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.



**SOILS**

Data Point 2B

Map Unit Name (Series and Phase): <u>Pescadero clay loam 2 to 5 percent slopes</u> Taxonomy (Subgroup): <u>Mollic Haplo xeralfs</u> Profile Description (Surface to 12"):				Drainage Class: <u>poorly drained or ponded</u> Permeability: <u>very slow</u> Run off: <u>very slow</u> Field Observations Confirm NRCS Mapping? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance <sup>1</sup> / Contrast <sup>2</sup>	Texture <sup>3</sup> , Concretions, Structures <sup>4</sup> , etc.
0 to 12		2.5 YR 3/1	7.5 YR 4/6	FD	Clay loam
to					
to					
<b>Hydric Soil Indicators:</b> <i>Historic:</i> <input type="checkbox"/> Histosol <input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors (chroma #2 ) <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Listed on Local Hydric Soils List <input checked="" type="checkbox"/> Dead Root Halos (Redoximorphis Feature) <input checked="" type="checkbox"/> Mottles (Redoximorphic features) _____ ----- <i>Current:</i> <input type="checkbox"/> Sulfidic Odor <input checked="" type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen for period of time) <input type="checkbox"/> Reducing Conditions (Environment <input type="checkbox"/> Other (Explain in Remarks): _____ conducive to the removal of oxygen & chemical reduction of ions) _____					
<b>Observations and Remarks:</b> 1. Smell: <input type="checkbox"/> Neutral; <input type="checkbox"/> Slightly Fresh; <input type="checkbox"/> Freshly Plowed Field Smell; or <input type="checkbox"/> Sulfidic Odor 2. Site has been: <input type="checkbox"/> Irrigated; <input type="checkbox"/> Land Leveled; <input type="checkbox"/> Ditch Drained; <input type="checkbox"/> Tile Drained; <input type="checkbox"/> Pumped; <input type="checkbox"/> Graded to drain via slope 3. Soils Currently are: <input type="checkbox"/> Flooded; <input type="checkbox"/> Ponded; <input checked="" type="checkbox"/> Saturated <sup>5</sup> 4. Soils: <input checked="" type="checkbox"/> do <input type="checkbox"/> do not, become continuously flooded or ponded for long (≥7 to 30 days) to very long durations; (> 30 days) during the growing season; <input type="checkbox"/> Unknown 5. Soils: <input checked="" type="checkbox"/> do <input type="checkbox"/> do not, become continuously saturated for 14 days or greater					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Conditions Currently Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Signature: _____
Remarks: <i>The data point is positioned in a wetland location. The three Corps criteria for wetlands are met. Hydrophytic vegetation, wetland hydrology and dark chroma soils are present.</i>	
1. Possible water of the U.S.? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)). (f) <input checked="" type="checkbox"/> Isolated wetland	

**NOTES:**

<sup>1</sup> Mottle abundance: Few (F), Common (C), or Many (M).  
<sup>2</sup> Mottle contrast: Faint (F), Distinct (D), or Prominent (P).  
<sup>3</sup> Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.  
<sup>4</sup> Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular. <sup>5</sup> Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

**DATA FORM - ROUTINE WETLAND DETERMINATION**  
(1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Walters Road Property</u>	Date: <u>5/24/06</u>	
Applicant/Owner: <u>McNellis Partners, LLC.</u>	County: <u>Solano</u>	
Investigator(s) : <u>Olberding Environmental</u>	State: <u>CA</u>	
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: <u>herbaceous/shrub/tree</u>	
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
(If needed, explain answer on reverse or attach separate sheet.)		Transect ID: <u>3</u> Plot ID: <u>A</u>

**VEGETATION**

Dominant Plant Species	Indicator	Associate Plant Species	Indicator
1. <i>Phalaris aquatica</i>	FAC+		
2. <i>Brassica nigra</i>	UPL		
3. <i>Lolium multiflorum</i>	FAC*		
4.			
5.			

**Observations & Remarks:**

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 66 %

2. Assume presence of wetland vegetation?  Yes  No; or,

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils:  Yes  No

4. Taxonomic Reference(s): Jepson

**HYDROLOGY**

<input checked="" type="checkbox"/> Recorded Data (Attached): Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: _____ _____ Other _____ _____ <input type="checkbox"/> No Recorded Data Found	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input type="checkbox"/> Saturated in: <input type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Landscape Position "Drains" <input type="checkbox"/> Landscape Position "Ponds"
<b>Current Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.) Tidal Influence <input checked="" type="checkbox"/> Non-Tidal Influence <b>No current hydrology observed.</b>	<b>No hydrology indicators observed</b>
<b>Observations:</b> 1. Filamentous or sheet forming algae present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 2. Surface Sediment with Bedding Planes <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 3. Slope: <input type="checkbox"/> 0-2%; or <input type="checkbox"/> > 2% 4. Oxidized rhizospheres: <input type="checkbox"/> new roots only; <input type="checkbox"/> old roots only; <input type="checkbox"/> new and old roots, or <input checked="" type="checkbox"/> none 5. Flooding: <input checked="" type="checkbox"/> none, flooding not probable; <input type="checkbox"/> rare, unlikely but possible under unusual weather conditions; <input type="checkbox"/> occasional, occurs on an average of once or less in 2 years, or <input type="checkbox"/> frequent, occurs on an average of more than once in 2 years. 6. Continuous flooding duration: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, if <5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS; or <input type="checkbox"/> very long, if > 12.5% GS 7. Ponding? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 8. Continuous ponding duration: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, <5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS or; <input type="checkbox"/> very long, if > 12.5% GS 9. Saturation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 10. Continuous duration of Saturation: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, <5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS; or <input type="checkbox"/> very long, if > 12.5% GS	
<b>Remarks: Upland position for comparison to wetlands. No hydrology indicators were observed. Data point located several feet up slope from wetland feature.</b>	

**SOILS**

Data Point 3A

Map Unit Name (Series and Phase): <u>Antioch-San Ysidro complex, 0 to 2 percent slopes</u> Taxonomy (Subgroup): <u>Typic Natrixeralfs and Typic Palixeralfs</u> Profile Description (Surface to 12"):				Drainage Class: <u>moderately well to somewhat poorly drained</u> Permeability: <u>very slow</u> Run off: <u>slow to medium</u> Field Observations Confirm NRCS Mapping? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance <sup>1</sup> / Contrast <sup>2</sup>	Texture <sup>3</sup> , Concretions, Structures <sup>4</sup> , etc.
0 to 12		2.5 YR 3/2	None	None	Loam
to					
to					
<b>Hydric Soil Indicators: Soil colors not consistent with soils series description but matches Pescadero series which is adjacent.</b> Historic: <input type="checkbox"/> Histosol <input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Gleyed or Low-Chroma Colors (chroma #2 ) <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Dead Root Halos (Redoximorphis Feature) <input type="checkbox"/> Mottles (Redoximorphic features) _____ ----- Current: <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen for period of time) <input type="checkbox"/> Reducing Conditions (Environment <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> conducive to the removal of oxygen & chemical reduction of ions) _____					
<b>Observations and Remarks:</b> 1. Smell: <input type="checkbox"/> Neutral; <input type="checkbox"/> Slightly Fresh; <input type="checkbox"/> Freshly Plowed Field Smell; or <input type="checkbox"/> Sulfidic Odor 2. Site has been: <input type="checkbox"/> Irrigated; <input type="checkbox"/> Land Leveled; <input type="checkbox"/> Ditch Drained <input type="checkbox"/> Tile Drained <input type="checkbox"/> Pumped; <input type="checkbox"/> Graded to drain via slope 3. Soils Currently are: <input type="checkbox"/> Flooded; <input type="checkbox"/> Poned; <input type="checkbox"/> Saturated <sup>5</sup> 4. Soils: <input type="checkbox"/> do <input checked="" type="checkbox"/> do not, become continuously flooded or ponded for long (≥ 7 to 30 days) to very long durations; (> 30 days) during the growing season; <input type="checkbox"/> Unknown 5. Soils: <input type="checkbox"/> do <input checked="" type="checkbox"/> do not, become continuously saturated for 14 days or greater					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Conditions Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Conditions Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Conditions Currently Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Signature: _____
Remarks: <b>Data point fails to meet all three Corps wetland criteria. Upland position for comparison to wetland point.</b>	
1. Possible water of the U.S.? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)). (f) <input type="checkbox"/> Isolated wetland	

**NOTES:**

<sup>1</sup> Mottle abundance: Few (F), Common (C), or Many (M).  
<sup>2</sup> Mottle contrast: Faint (F), Distinct (D), or Prominent (P).  
<sup>3</sup> Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.  
<sup>4</sup> Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular. <sup>5</sup> Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.

Approved by HQUSACE 3/92\*

**DATA FORM - ROUTINE WETLAND DETERMINATION**  
(1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Walters Road Property</u>	Date: <u>5/24/06</u>
Applicant/Owner: <u>McNellis Partners, LLC.</u>	County: <u>Solano</u>
Investigator(s) : <u>Olberding Environmental</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: <u>herbaceous/shrub/tree</u>
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: <u>3</u> Plot ID: <u>B</u>
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.)	

**VEGETATION**

Dominant Plant Species	Indicator	Associate Plant Species	Indicator
1. <i>Lythrum hyssopifolia</i>	FACW	<i>Juncus bufonius</i>	FACW
2. <i>Polypogon monspeliensis</i>	FACW		
3. <i>Trifolium varigatum</i>	FACW		
4.			
5.			

**Observations & Remarks:**

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100 %

2. Assume presence of wetland vegetation?  Yes  No; or,

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils:  Yes  No

4. Taxonomic Reference(s): Jepson

**HYDROLOGY**

<input checked="" type="checkbox"/> Recorded Data (Attached): Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: _____ _____ Other _____ _____ <input type="checkbox"/> No Recorded Data Found	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> Inundated: _____ Flooded _____ Ponded _____ <input checked="" type="checkbox"/> Saturated in: <input checked="" type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input checked="" type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other (Explain in Remarks) _____ Landscape Position "Drains" _____ Landscape Position "Ponds"
<b>Current Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>7</u> (in.) Tidal Influence <input checked="" type="checkbox"/> Non-Tidal Influence	
<b>Observations:</b> 1. Filamentous or sheet forming algae present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2. Surface Sediment with Bedding Planes <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 3. Slope: <input checked="" type="checkbox"/> 0-2%; or <input type="checkbox"/> > 2% 4. Oxidized rhizospheres: <input type="checkbox"/> new roots only; <input type="checkbox"/> old roots only; <input checked="" type="checkbox"/> new and old roots, or <input type="checkbox"/> none 5. Flooding: <input checked="" type="checkbox"/> none, flooding not probable; <input type="checkbox"/> rare, unlikely but possible under unusual weather conditions; <input type="checkbox"/> occasional, occurs on an average of once or less in 2 years, or <input type="checkbox"/> frequent, occurs on an average of more than once in 2 years. 6. Continuous flooding duration: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, if < 5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS; or <input type="checkbox"/> very long, if > 12.5% GS 7. Ponding? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 8. Continuous ponding duration: <input type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input checked="" type="checkbox"/> brief, < 5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS or; <input type="checkbox"/> very long, if > 12.5% GS 9. Saturation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 10. Continuous duration of Saturation: <input type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, < 5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS; or <input checked="" type="checkbox"/> very long, if > 12.5% GS Remarks: Linear wetland depression feeds to Drainage 2. The topographic depression that forms this wetland is several feet lower than the surrounding lands. Sediment encrusted detritus and algae were recorded. Primary indicators were observed at this location and the Corps hydrology criteria are met.	

**SOILS**

Data Point 3B

Map Unit Name (Series and Phase): <u>Antioch-San Ysidro complex, 0 to 2 percent slopes</u> Taxonomy (Subgroup): <u>Typic Natrixeralfs and Typic Paleixeralfs</u> Profile Description (Surface to 12"):				Drainage Class: <u>moderately well to somewhat poorly drained</u> Permeability: <u>very slow</u> Run off: <u>slow to medium</u> Field Observations Confirm NRCS Mapping? Yes <input checked="" type="checkbox"/> No	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance <sup>1</sup> / Contrast <sup>2</sup>	Texture <sup>3</sup> , Concretions, Structures <sup>4</sup> , etc.
0 to 5		2.5 YR 2/1	7.5 YR 4/6	MD	Clay loam
to					
to					
<b>Hydric Soil Indicators: Soil colors not consistent with soils series description but matches Pescadero series which is adjacent.</b> Historic: <input type="checkbox"/> Histosol <input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors (chroma #2 ) <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Listed on Local Hydric Soils List <input checked="" type="checkbox"/> Dead Root Halos (Redoximorphis Feature) <input checked="" type="checkbox"/> Mottles (Redoximorphic features) _____ ----- Current: <input type="checkbox"/> Sulfidic Odor <input checked="" type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen for period of time) <input type="checkbox"/> Reducing Conditions (Environment <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> conducive to the removal of oxygen & chemical reduction of ions) _____					
<b>Observations and Remarks:</b> 1. Smell: <input type="checkbox"/> Neutral; <input type="checkbox"/> Slightly Fresh; <input type="checkbox"/> Freshly Plowed Field Smell; or <input type="checkbox"/> Sulfidic Odor 2. Site has been: <input type="checkbox"/> Irrigated; <input type="checkbox"/> Land Leveled; <input type="checkbox"/> Ditch Drained; <input type="checkbox"/> Tile Drained; <input type="checkbox"/> Pumped; <input type="checkbox"/> Graded to drain via slope 3. Soils Currently are: <input type="checkbox"/> Flooded; <input type="checkbox"/> Ponded; <input checked="" type="checkbox"/> Saturated <sup>5</sup> 4. Soils: <input checked="" type="checkbox"/> do <input type="checkbox"/> do not, become continuously flooded or ponded for long (≥7 to 30 days) to very long durations; (> 30 days) during the growing season; <input type="checkbox"/> Unknown 5. Soils: <input checked="" type="checkbox"/> do <input type="checkbox"/> do not, become continuously saturated for 14 days or greater					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Conditions Currently Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Signature: _____
Remarks: <i>The data point is positioned in a wetland location. The three Corps criteria for wetlands are met. Hydrophytic vegetation, wetland hydrology and dark chroma soils are present.</i>	
1. Possible water of the U.S.? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)). (f) <input type="checkbox"/> Isolated wetland	

**NOTES:**

<sup>1</sup> Mottle abundance: Few (F), Common (C), or Many (M).  
<sup>2</sup> Mottle contrast: Faint (F), Distinct (D), or Prominent (P).  
<sup>3</sup> Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.  
<sup>4</sup> Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.  
<sup>5</sup> Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

**DATA FORM - ROUTINE WETLAND DETERMINATION**  
(1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Walters Road Property</u>	Date: <u>5/24/06</u>	
Applicant/Owner: <u>McNellis Partners, LLC.</u>	County: <u>Solano</u>	
Investigator(s) : <u>Olberding Environmental</u>	State: <u>CA</u>	
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: <u>herbaceous/shrub/tree</u>	
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
(If needed, explain answer on reverse or attach separate sheet.)		Transect ID: <u>4</u> Plot ID: <u>A</u>

**VEGETATION**

Dominant Plant Species	Indicator	Associate Plant Species	Indicator
1. <i>Phalaris aquatica</i>	FAC+		
2. <i>Brassica nigra</i>	UPL		
3. <i>Bromus diandrus</i>	UPL		
4.			
5.			

**Observations & Remarks:**

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 33 %

2. Assume presence of wetland vegetation?  Yes  No; or,

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils:  Yes  No

4. Taxonomic Reference(s): Jepson

**HYDROLOGY**

<input checked="" type="checkbox"/> Recorded Data (Attached): Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: _____ _____ Other _____ _____ <input type="checkbox"/> No Recorded Data Found	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input type="checkbox"/> Ponded <input type="checkbox"/> Saturated in: <input type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Landscape Position "Drains" <input type="checkbox"/> Landscape Position "Ponds"
<b>Current Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.) Tidal Influence <input checked="" type="checkbox"/> Non-Tidal Influence <b>No current hydrology observed.</b>	<b>No hydrology indicators observed</b>
<b>Observations:</b> 1. Filamentous or sheet forming algae present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 2. Surface Sediment with Bedding Planes <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 3. Slope: <input type="checkbox"/> 0-2%; or <input type="checkbox"/> > 2% 4. Oxidized rhizospheres: <input type="checkbox"/> new roots only; <input type="checkbox"/> old roots only; <input type="checkbox"/> new and old roots, or <input checked="" type="checkbox"/> none 5. Flooding: <input checked="" type="checkbox"/> none, flooding not probable; <input type="checkbox"/> rare, unlikely but possible under unusual weather conditions; <input type="checkbox"/> occasional, occurs on an average of once or less in 2 years, or <input type="checkbox"/> frequent, occurs on an average of more than once in 2 years. 6. Continuous flooding duration: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, if <5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS; or <input type="checkbox"/> very long, if > 12.5% GS 7. Ponding? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 8. Continuous ponding duration: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, <5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS or; <input type="checkbox"/> very long, if > 12.5% GS 9. Saturation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 10. Continuous duration of Saturation: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, <5% growing season (GS); <input type="checkbox"/> long, if $\geq$ 5% to 12.5% GS; or <input type="checkbox"/> very long, if > 12.5% GS	
<b>Remarks: Upland position for comparison to wetlands. No hydrology indicators were observed. Data point located several feet up slope from wetland feature.</b>	

**SOILS**

Data Point 4A

Map Unit Name (Series and Phase): <u>Antioch-San Ysidro complex, 0 to 2 percent slopes</u> Taxonomy (Subgroup): <u>Typic Natrixeralfs and Typic Paleixeralfs</u> Profile Description (Surface to 12"):				Drainage Class: <u>moderately well to somewhat poorly drained</u> Permeability: <u>very slow</u> Run off: <u>slow to medium</u> Field Observations Confirm NRCS Mapping? X Yes No	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance <sup>1</sup> / Contrast <sup>2</sup>	Texture <sup>3</sup> , Concretions, Structures <sup>4</sup> , etc.
0 to 12		2.5 YR 3/2	None	None	Loam
to					
to					
<b>Hydric Soil Indicators:</b> <i>Historic:</i> <input type="checkbox"/> Histosol <input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Gleyed or Low-Chroma Colors (chroma #2 ) <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Dead Root Halos (Redoximorphis Feature) <input type="checkbox"/> Mottles (Redoximorphic features) _____ ----- <i>Current:</i> <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen for period of time) <input type="checkbox"/> Reducing Conditions (Environment <input type="checkbox"/> Other (Explain in Remarks): _____ conducive to the removal of oxygen & chemical reduction of ions) _____					
<b>Observations and Remarks:</b> 1. Smell: <input type="checkbox"/> Neutral; <input type="checkbox"/> Slightly Fresh; <input type="checkbox"/> Freshly Plowed Field Smell; or <input type="checkbox"/> Sulfidic Odor 2. Site has been: <input type="checkbox"/> Irrigated; <input type="checkbox"/> Land Leveled; <input type="checkbox"/> Ditch Drained <input type="checkbox"/> Tile Drained <input type="checkbox"/> Pumped; <input type="checkbox"/> Graded to drain via slope 3. Soils Currently are: <input type="checkbox"/> Flooded; <input type="checkbox"/> Poned; <input type="checkbox"/> Saturated <sup>5</sup> 4. Soils: <input type="checkbox"/> do <input checked="" type="checkbox"/> do not, become continuously flooded or ponded for long (≥7 to 30 days) to very long durations; (> 30 days) during the growing season; <input type="checkbox"/> Unknown 5. Soils: <input type="checkbox"/> do <input checked="" type="checkbox"/> do not, become continuously saturated for 14 days or greater					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Conditions Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Conditions Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Conditions Currently Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Signature: _____
Remarks: <b>Data point fails to meet all three Corps wetland criteria. Upland position for comparison to wetland point.</b>	
1. Possible water of the U.S.? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)). (f) <input type="checkbox"/> Isolated wetland	

**NOTES:**

<sup>1</sup> Mottle abundance: Few (F), Common (C), or Many (M).  
<sup>2</sup> Mottle contrast: Faint (F), Distinct (D), or Prominent (P).  
<sup>3</sup> Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.  
<sup>4</sup> Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.  
<sup>5</sup> Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.

Approved by HQUSACE 3/92\*

**DATA FORM - ROUTINE WETLAND DETERMINATION**  
(1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: <u>Walters Road Property</u>	Date: <u>5/24/06</u>
Applicant/Owner: <u>McNellis Partners, LLC.</u>	County: <u>Solano</u>
Investigator(s) : <u>Olberding Environmental</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: <u>herbaceous/shrub/tree</u>
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Is the area a potential Problem Area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
(If needed, explain answer on reverse or attach separate sheet.)	
Transect ID: <u>4</u> Plot ID: <u>B</u>	

**VEGETATION**

Dominant Plant Species	Indicator	Associate Plant Species	Indicator
1. <i>Typha latifolia</i>	OBL	<i>Alisma plantago-aquatica</i>	OBL
2.		<i>Rumex crispus</i>	FACW-
3.			
4.			
5.			

**Observations & Remarks:**

1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100 %

2. Assume presence of wetland vegetation?  Yes  No; or,

3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils:  No  Yes

4. Taxonomic Reference(s): Jepson

**HYDROLOGY**

<input checked="" type="checkbox"/> Recorded Data (Attached): Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs: Dates: _____ _____ Other _____ _____ <input type="checkbox"/> No Recorded Data Found	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated: <input type="checkbox"/> Flooded <input checked="" type="checkbox"/> Ponded <input checked="" type="checkbox"/> Saturated in: <input checked="" type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: <input checked="" type="checkbox"/> Upper 12" of Soil Profile <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test Other (Explain in Remarks) <input checked="" type="checkbox"/> Landscape Position "Drains" <input checked="" type="checkbox"/> Landscape Position "Ponds"
<b>Current Field Observations:</b> Depth of Surface Water: <u>2-3 feet</u> Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.) Tidal Influence <input checked="" type="checkbox"/> Non-Tidal Influence	
<b>Observations:</b> 1. Filamentous or sheet forming algae present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2. Surface Sediment with Bedding Planes <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 3. Slope: <input checked="" type="checkbox"/> 0-2%; or <input type="checkbox"/> > 2% 4. Oxidized rhizospheres: <input type="checkbox"/> new roots only; <input type="checkbox"/> old roots only; <input checked="" type="checkbox"/> new and old roots, or <input type="checkbox"/> none 5. Flooding: <input checked="" type="checkbox"/> none, flooding not probable; <input type="checkbox"/> rare, unlikely but possible under unusual weather conditions; <input type="checkbox"/> occasional, occurs on an average of once or less in 2 years, or <input type="checkbox"/> frequent, occurs on an average of more than once in 2 years. 6. Continuous flooding duration: <input checked="" type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, if < 5% growing season (GS); <input type="checkbox"/> long, if ≥ 5% to 12.5% GS; or <input type="checkbox"/> very long, if > 12.5% GS 7. Ponding? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 8. Continuous ponding duration: <input type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input checked="" type="checkbox"/> brief, < 5% growing season (GS); <input type="checkbox"/> long, if ≥ 5% to 12.5% GS or; <input type="checkbox"/> very long, if > 12.5% GS 9. Saturation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 10. Continuous duration of Saturation: <input type="checkbox"/> None; <input type="checkbox"/> very brief, if < 2 days; <input type="checkbox"/> brief, < 5% growing season (GS); <input type="checkbox"/> long, if ≥ 5% to 12.5% GS; or <input checked="" type="checkbox"/> very long, if > 12.5% GS	
Remarks: Drainage 2 exhibits three primary indicators. Corps hydrology criteria are met at this location.	

**SOILS**

Data Point 4B

Map Unit Name (Series and Phase): <u>Antioch-San Ysidro complex, 0 to 2 percent slopes</u> Taxonomy (Subgroup): <u>Typic Natrixeralfs and Typic Paleixeralfs</u> Profile Description (Surface to 12"):				Drainage Class: <u>moderately well to somewhat poorly drained</u> Permeability: <u>very slow</u> Run off: <u>slow to medium</u> Field Observations Confirm NRCS Mapping? X Yes No	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance <sup>1</sup> / Contrast <sup>2</sup>	Texture <sup>3</sup> , Concretions, Structures <sup>4</sup> , etc.
0 to 12		2.5 YR 2/1			Silty Clay
to					
to					
<b>Hydric Soil Indicators:</b> Historic: <input type="checkbox"/> Histosol <input type="checkbox"/> Concretions (Redoximorphic Feature) <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors (chroma #2 ) <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Dead Root Halos (Redoximorphis Feature) <input type="checkbox"/> Mottles (Redoximorphic features) _____ <hr style="border-top: 1px dashed black;"/> Current: <input type="checkbox"/> Sulfidic Odor <input checked="" type="checkbox"/> Aquic Moisture Regime (nearly free of dissolved oxygen for period of time) <input type="checkbox"/> Reducing Conditions (Environment <input type="checkbox"/> Other (Explain in Remarks): _____ <input type="checkbox"/> conducive to the removal of oxygen & chemical reduction of ions) _____					
<b>Observations and Remarks:</b> 1. Smell: <input type="checkbox"/> Neutral; <input type="checkbox"/> Slightly Fresh; <input type="checkbox"/> Freshly Plowed Field Smell; or <input type="checkbox"/> Sulfidic Odor 2. Site has been: <input type="checkbox"/> Irrigated; <input type="checkbox"/> Land Leveled; <input type="checkbox"/> Ditch Drained; <input type="checkbox"/> Tile Drained; <input type="checkbox"/> Pumped; <input type="checkbox"/> Graded to drain via slope 3. Soils Currently are: <input type="checkbox"/> Flooded; <input checked="" type="checkbox"/> Ponded; <input checked="" type="checkbox"/> Saturated <sup>5</sup> 4. Soils: <input checked="" type="checkbox"/> do <input type="checkbox"/> do not, become continuously flooded or ponded for long (≥7 to 30 days) to very long durations; (> 30 days) during the growing season; <input type="checkbox"/> Unknown 5. Soils: <input checked="" type="checkbox"/> do <input type="checkbox"/> do not, become continuously saturated for 14 days or greater					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Conditions Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Conditions Currently Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Signature: _____
Remarks: <i>The data point is positioned in a wetland location. The three Corps criteria for wetlands are met. Hydrophytic vegetation, wetland hydrology and dark chroma soils are present.</i>	
1. Possible water of the U.S.? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (can be a water and not a wetland when vegetation is absent if bed and bank present). 2. Possibly exempt from Corps/EPA regulation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, check item(s) below). (a) <input type="checkbox"/> Non-tidal drainage and irrigation ditches excavated on dry land (b) <input type="checkbox"/> Artificially irrigated areas which would revert to upland if the irrigation ceased. (c) <input type="checkbox"/> Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. (d) <input type="checkbox"/> Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons. (e) <input type="checkbox"/> Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)). (f) <input type="checkbox"/> Isolated wetland	

**NOTES:**

<sup>1</sup> Mottle abundance: Few (F), Common (C), or Many (M).  
<sup>2</sup> Mottle contrast: Faint (F), Distinct (D), or Prominent (P).  
<sup>3</sup> Texture: Sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.  
<sup>4</sup> Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.  
<sup>5</sup> Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles or hydric soil classification.

**ATTACHMENT NO. 4  
SITE PHOTOGRAPHS**



**Photo No. 1. Photo exhibits annual grassland habitat thick with vetch. View facing north from near the center of the Property.**



**Photo No. 2. View of drainage ditch 2, taken facing north from midway along the ditch in January.**

**Olberding Environmental, Inc.  
Walters Road Property– January and May 2006**



**Photo No. 3. Potential seasonal wetland inundated in January 2006 View facing southwest from the center of the Property**



**Photo No. 4. Same pool in May exhibiting vernal pool type flora. View facing north from south edge of pool.**

**Olberding Environmental, Inc.**

**Walters Road Property– January and May 2006**



**Photo No. 5. Photo exhibits Wetland No 1 beyond second fence line where the light green signature occurs.**



**Photo No. 6. Overview of wetlands on western side of drainage ditch 2. Wetlands are distinguished by the lighter green signature.**

**Olberding Environmental, Inc.  
Walters Road Property– January and May 2006**

**ATTACHMENT NO. 5**  
**NRCS SOILS DATA**



**Solano County, California**

Map Unit Symbol	Map Unit Name
AoA	Antioch-San Ysidro complex, 0 to 2 percent slopes
Pc	Pescadero clay loam

**Olberding Environmental, Inc.**  
 1390 Willow Pass Road, Suite 370  
 Concord, CA 94520  
 (925)825-2111 office  
 (925)825-2112 fax

**Natural Resources Conservation Service**  
**Soil Series Map for the Walters Road**  
**Property**

Suisun City, California

This document is not intended for detail design work.

## **ANTIOCH SERIES**

The Antioch series have light brownish gray and brown, medium acid, loam Ap and Al horizons, light gray A2 horizons, light yellowish brown yellowish brown, medium acid and moderately alkaline clay and clay loam B2t horizons.

**TAXONOMIC CLASS:** Fine, smectitic, thermic Typic Natrixeralfs

**TYPICAL PEDON:** Antioch loam - plowed field (Colors are for dry soil unless otherwise noted.)

**Ap**--0 to 5 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; common fine yellowish brown (10YR 5/6) mottles, strong brown (7.5YR 5/6) moist; massive; hard, friable, slightly sticky, slightly plastic; many very fine roots; many very fine roots; many very fine and medium tubular pores; medium acid (pH 5.6); clear smooth boundary. (5 to 10 inches thick)

**A1**--5 to 14 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; few fine yellowish brown (10YR 5/6) mottles, strong brown (7.5YR 5/6) moist massive; hard, friable, slightly sticky, slightly plastic; few very fine roots; many fine and medium acid (pH 6.0); clear wavy boundary. (8 to 15 inches thick)

**A2**--14 to 19 inches; light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; common fine yellowish sticky, slightly sticky; slightly plastic; few very fine roots; many fine pores; Mn stains; slightly acid (pH 6.5); abrupt smooth boundary. (1/4 to 5 inches thick)

**Bt1**--19 to 34 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 3/3) moist; moderate very coarse prismatic structure; extremely hard, very firm, sticky, very plastic; few very fine roots; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; few dark stains; medium acid (pH 6.0); clear wavy boundary. (9 to 16 inches thick)

**Bt2**--34 to 37 inches; yellowish brown (10YR 5/4) heavy clay loam, dark brown (10YR 4/3) moist; weak medium angular blocky structure; extremely hard, very firm, sticky, plastic; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; many dark stains; moderately alkaline (pH 8.0); clear wavy boundary. (8 to 14 inches thick)

**Bt3**--37 to 46 inches; pale brown (10YR 6/3) clay loam, dark yellowish brown (10YR 4/4) moist, dark brown (7.5YR 3/2) and dark grayish brown (2.5Y 4/2) ped faces moist; weak medium angular blocky structure; hard, firm, sticky, plastic; common very fine tubular pores; continuous moderately thick clay films on faces of peds and lining pores; common dark stains; moderately alkaline (pH 8.0); diffuse boundary. (0 to 10 inches thick)

**Bt4**--46 to 60 inches; pale brown (10YR 6/3) silty clay loam, olive brown (2.5Y 4/2) and dusky red (2.5YR 3/2) faces of peds moist; weak medium angular blocky structure; hard, firm, sticky, plastic; common very fine tubular pores; continuous moderately thick clay films on faces of peds and lining pores; common dark stains; moderately alkaline (pH 8.0); clear wavy boundary. (0 to 14 inches thick)

**C1**--60 to 76 inches; pale brown (10YR 6/3) loam, dark yellowish brown (10YR 4/4) moist; weak medium angular blocky structure; slightly hard, friable, slightly sticky, plastic; many very fine tubular pores; common thin clay films on faces of peds and lining pores; common dark stains; moderately alkaline (pH 8.0); clear wavy boundary. (10 to 20 inches thick)

**C2**--76 to 81; Dark yellowish brown (10YR 4/4) moist fine sandy loam; weak medium angular blocky structure; slightly hard, friable, many very fine tubular pores; few thin clay films on faces of peds and lining pores; moderately alkaline (pH 8.0); common Fe and Mn stains.

**TYPE LOCATION:** Solano County, California; 1 1/2 miles east of Suisun City; SW1/4 SE1/4 SW1/4 sec. 29, T. 5 N., R. 1 W., MDB&M 38 degrees North latitude 14 minutes, 40 seconds, 122 degrees West longitude 00 minutes, 5 seconds.

**RANGE IN CHARACTERISTICS:** The mean annual soil temperature 59 to 64 F. The soils become moist in some or all parts between depths of 4 to 12 inches about late November and usually remain moist all the time until late May or early June. The soils remain dry all rest of the time. Few pebbles are present throughout the some pedons. Coarse and very coarse sand is less than 5 percent.

The A1 horizon is dark grayish brown, dark brown, brown, grayish brown, or light brownish gray. It contains more than 1 percent organic matter in the upper 10 inches, but is hard and massive when dry. This horizon is neutral to strongly acid, though neutral saturation in some pedons.

The A2 horizon is gray, light brownish, light brownish gray or light gray and is slightly to strongly acid. The A2-Bt horizon boundary is abrupt or very abrupt. The Bt horizon is dark brown, yellowish brown, light yellowish brown and pale brown 10YR hue and light olive brown and light yellowish brown in 2.5Y hue. It is medium acid to moderately alkaline, becoming more alkaline with increasing depth. All of the Bt horizon has more than 15 percent exchangeable sodium. It is clay or heavy clay loam and has approximately 35 to 45 percent clay. It has weak or moderate columnar moderate to strong prismatic structure in the upper part. Usually there are transitional horizons to the C horizon. The lower Bt horizons or B3 or C horizons are calcareous in some or all parts.

The C horizon is pale brown, light yellowish brown, yellowish brown or dark yellowish brown, it is somewhat stratified and is usually clay loam or loam in texture. This horizon is mildly or moderately alkaline.

**COMPETING SERIES:** These are the [Bonsall](#), [Las Flores](#), [Lethent](#), Milipitas, [Placentia](#), [Riz](#), [San Miguel](#), [Solano](#), [Stockpen](#), [Tierra](#), and [Waukena](#) series. Bonsall and Stockpen soils lack an albic horizon. Las Flores, Milipitas, and Tierra soils lack natric horizons. Lethent soils have an aridic moisture regime. Placentia soils have about 15 to 20 percent coarse and very coarse sand in the B2t horizon. Riz soils lack an abrupt A-B horizon boundary with more than 15 percent absolute clay difference. San Miguel soils have a lithic contact at depth of 20 to 34 inches. Solano and Waukena soils have less than 35 percent clay in the natric horizon.

**GEOGRAPHIC SETTING:** Antioch soils are on nearly level to strongly sloping alluvial fans and terraces at elevations of less than 1,100 feet. Slopes are usually less than 3 percent. The climate is subhumid mesothermal with warm to hot dry summers and cool moist winter. Mean annual precipitation is 12 to 20 inches. Average January temperature is about 46 F, average July temperature about 68 F, mean annual temperature about 58 F, and the freeze-free season is about 260 days.

**GEOGRAPHICALLY ASSOCIATED SOILS:** These are the [Altamont](#), [Los Osos](#), [Pleasanton](#), [Rincon](#), and [San Ysidro](#) soils and the competing [Solano](#) soils. Altamont soils are of fine texture throughout and have cracks. Los Osos soils have mollic epipedons. Pleasanton, Rincon, and San Ysidro soils lack natric horizons.

**DRAINAGE AND PERMEABILITY:** Moderately well to somewhat poorly drained; slow to medium runoff; very slow permeability.

**USE OF VEGETATION:** Used for production of annual pasture, dryfarmed grain and some irrigated row crops. Vegetation in untilled areas is annual grasses, forbs and weeds with scattered oaks.

**DISTRIBUTION AND EXTENT:** Along the central and southern Coast Range valleys in California. They are of moderate extent in MLRA 14 and 17.

**MLRA OFFICE RESPONSIBLE:** Davis, California

**SERIES ESTABLISHED:** Reconnaissance of Sacramento Valley, California, 1913.

**REMARKS:** The soils were formerly classified in the solodized-Solonetz group. Soils of the Huerhuero series are now included with the Antioch series.

Last revised by the state on 5/72.

**ADDITIONAL DATA:** NSSL pedon S64CA-095-008 (type location) and S78CA-000-000 (range in characteristics).

## **SAN YSIDRO SERIES**

The San Ysidro series consists of deep, moderately well drained soils that formed in alluvium from sedimentary rocks. San Ysidro soils are on old, low terraces and have slopes of 0 to 9 percent. The mean annual precipitation is about 20 inches and the mean annual air temperature is about 59 degrees F.

**TAXONOMIC CLASS:** Fine, smectitic, thermic Typic Palexeralfs

**TYPICAL PEDON:** San Ysidro fine sandy loam, cultivated field. (Colors are for dry soil unless otherwise noted.)

**Ap**--0 to 7 inches; light brownish gray (10YR 6/2) fine sandy loam, dark brown (10YR 4/3) moist; few fine distinct mottles of brownish yellow (10YR 6/6); massive; hard, friable, nonsticky and slightly plastic; many very fine, common fine and medium roots; common very fine tubular and interstitial pores; slightly acid (pH 6.5); clear smooth boundary. (5 to 10 inches thick)

**A**--7 to 14 inches; light brownish gray (10YR 6/2) fine sandy loam, dark brown (10YR 3/3) moist; few fine distinct mottles of brownish yellow (10YR 6/6); massive; hard, friable, nonsticky and slightly plastic; many very fine, common fine and medium roots; common very fine tubular pores; medium acid (pH 6.0); abrupt smooth boundary. (7 to 20 inches thick)

**Bt1**--14 to 28 inches; dark yellowish brown (10YR 4/4) clay, dark brown (7.5YR 4/4) moist; a thin 1/4 inch bleached layer, light gray (10YR 7/2), light brownish gray (10YR 6/2) moist, rests immediately on top of the prisms; strong coarse prismatic structure; extremely hard, very firm, sticky and plastic; few very fine and fine roots along ped faces; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; common fine iron and manganese concretions; slightly acid (pH 6.5); gradual smooth boundary. (10 to 15 inches thick)

**Bt2**--28 to 40 inches; yellowish brown (10YR 5/6) sandy clay loam, dark yellowish brown (10YR 4/4) moist, dark brown (7.5YR 4/4) coatings moist; strong medium prismatic structure; extremely hard, very firm, sticky and plastic; few very fine and fine exped roots; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; common fine iron and manganese concretions; neutral (pH 7.0); gradual smooth boundary. (10 to 14 inches thick)

**C1**--40 to 54 inches; yellowish brown (10YR 5/4) light sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; extremely hard, very firm, sticky and plastic; few very fine exped roots; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; common iron and manganese concretions; neutral (pH 7.0); gradual wavy boundary. (10 to 15 inches thick)

C2--54 to 68 inches; yellowish brown (10YR 6/4) light clay loam, dark yellowish brown (10YR 4/4) moist, brown (7.5YR 4/4) coatings moist; strong medium prismatic structure; hard, firm, sticky and plastic; few very fine exped roots; common very fine tubular pores; continuous moderately thick clay films on faces of pedes and lining pores; moderately alkaline (pH 8.0).

**TYPE LOCATION:** Solano County, California; approximately 3.5 miles west and 1 mile south of the town of Dixon; approximately 300 yards south and 100 yards west of northeast corner of NW 1/4 sec. 29, T.7N., R.1E. 38 degrees North latitude, 25 minutes, 45 seconds, 121 degrees West longitude, 53 minutes, 16 seconds.

**RANGE IN CHARACTERISTICS:** The mean annual soil temperature is about 60 degrees to 65 degrees F. The soil is usually moist in some or all parts between depths of 5 and 15 inches from late November or early December until May. The soil usually is dry all the rest of the time.

The Ap horizon is light brownish gray or pale brown in 10YR hue. It is sandy loam, fine sandy loam, or loam. This horizon is medium acid to neutral.

The A horizon is up to 6 inches thick and is present in some pedons or there is a thin layer of bleached grains just above the Bt horizon. Fine yellowish or brownish mottles are present in some pedons in part of the Ap horizon and A horizon where present.

The Bt horizon is brown, light brown, very pale brown, yellowish brown, dark yellowish brown, light yellowish brown or brownish yellow in hue 10YR or 7.5YR. It is heavy clay loam or clay and has about 35 to 45 percent clay in at least the upper part and moderate to strong angular blocky structure in the lower part. Some pedons have columnar structure. The Bt horizon is slightly acid to moderately alkaline and increases in alkalinity with increasing depth. Exchangeable sodium is less than 15 percent.

The C horizon is pale brown, light yellowish or yellowish brown. It is somewhat stratified and ranges from sandy loam to silty clay loam. This horizon is mildly or moderately alkaline and has small amounts of segregated lime in some pedons.

**COMPETING SERIES:** These are the [Hillgate](#) series in this family and the [Antioch](#), [Cometa](#), [Corning](#), [Millsap](#), [Newville](#), [Positas](#), and [Tierra](#) series in other families. Hillgate soils lack a subsurface A horizon and lack mottles in the Ap horizon. Antioch soils have more than 15 percent exchangeable sodium in all parts of the B2t horizon. Cometa soils have hue of 7.5YR or 5YR in the B2t horizon. Corning soils have hue of 5YR through 2.5YR in the Bt horizon and are strongly acid throughout. Millsap soils have a lithic contact. Newville soils lack A2 horizons, are gravelly throughout with very gravelly C horizons. Positas and Tierra soils have dark A1 horizons with moist value of 2 or 3.

**GEOGRAPHIC SETTING:** San Ysidro soils are on old low terraces at elevations of less than 1,500 feet. Gradient is 0 to 9 percent. They formed in alluvium from

sedimentary rocks. The climate is dry subhumid mesothermic with hot dry summers and cool moist winters. Mean annual precipitation is 12 to 25 inches, average January temperature is about 46 degrees F., and average July temperature is about 76 degrees F., and mean annual temperature is 58 degrees to 60 degrees F. Average frost-free season is 200 to 300 days.

**GEOGRAPHICALLY ASSOCIATED SOILS:** These are the [Antioch](#), [Capay](#), [Hillgate](#), [Pescadero](#), [Pleasanton](#), and solano soils. Capay soils lack argillic horizons and have slickensides. Pescadero soils are on slightly lower terraces and have more than 15 percent ESP. Pleasanton soils have less than 35 percent clay and lack an abrupt A-B horizon boundary. [Solano](#) soils have more than 15 percent ESP and have natric horizons.

**DRAINAGE AND PERMEABILITY:** Moderately well drained; slow to medium runoff; very slow permeability.

**USE AND VEGETATION:** Used for growing dryland grains, dryland pasture, and shallow rooted row crops, and pasture under irrigation. Uncultivated areas have a cover of annual grasses and forbs.

**DISTRIBUTION AND EXTENT:** Foothills and valleys of the Coast Range of central California. The soils are moderately extensive.

**MLRA OFFICE RESPONSIBLE:** Davis, California

**SERIES ESTABLISHED:** Gilroy Area, California, 1923.

OSD scanned by SSQA. Last revised by state on 3/77.

**REMARKS:** San Ysidro needs to be recompeted with Hillgate during MLRA update. Hillgate is the same as San Ysidro but is mapped on slopes 0-50%. The 0-9% Hillgate map units should be correlated to San Ysidro and Hillgate set up for the 9-50% slope map units.

**ADDITIONAL DATA:** NSSL pedon S64CA-095-001 (type location but data shows the pedon to be Mollic Haploxeralf, fine-loamy, mixed, active, thermic)

## **PESCADERO SERIES**

The Pescadero series consists of very deep, poorly drained soils that formed in alluvium from sedimentary rocks. Pescadero soils are in basins. Slopes are 0 to 2 percent. The mean annual precipitation is about 16 inches and the mean annual temperature is about 60 degrees F.

**TAXONOMIC CLASS:** Fine, smectitic, thermic Aquic Natrixeralfs

**TYPICAL PEDON:** Pescadero silty clay loam - on an east facing slope of less than 1 percent in pasture at 33 feet elevation. (Colors are for dry soil unless otherwise noted.)

**A--**0 to 3 inches; light gray (2.5Y 7/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium platy structure; very hard, friable, sticky and plastic; common very fine roots; common very fine tubular pores; mildly alkaline (pH 7.7) in the upper 1 inch, moderately alkaline (pH 8.0) about an inch to 3 inches below the surface; abrupt wavy boundary. (1 to 5 inches thick)

**Bt--**3 to 13 inches; gray (5Y 5/1) silty clay, very dark gray (5Y 3/1) moist; strong very coarse prismatic structure; very hard, friable, sticky and plastic; common fine and many medium roots; many very fine tubular pores; strongly alkaline (pH 8.9); gradual wavy boundary. (6 to 12 inches thick)

**Btkn1--**13 to 26 inches; light olive gray (5Y 6/2) silty clay, olive (5Y 4/3) moist; common fine prominent strong brown (7.5Y 5/6) and gray (N 5/) mottles, dark brown (7.5Y 4/4) and very dark gray (N 3/) moist; moderate medium prismatic structure that parts to moderate medium and coarse angular blocky structure; very hard, firm, sticky and plastic; common fine and many medium roots; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; slightly effervescent with segregated lime as soft masses; strongly alkaline (pH 8.6); clear wavy boundary. (5 to 15 inches thick)

**Btkn2--**26 to 40 inches; light olive gray (5Y 6/2) silty clay, olive gray (5Y 4/2) moist; many fine prominent strong brown (7.5YR 5/6) mottles, yellowish red (5YR 4/6) and very dark grayish brown (2.5Y 3/2) moist; moderate medium prismatic structure that parts to moderate medium and coarse angular blocky; very hard, firm, sticky and plastic; few fine and common medium roots; many very fine tubular pores; many moderately thick clay films in pores and continuous moderately thick clay films on faces of peds; slightly effervescent with segregated lime as seams and soft masses; moderately alkaline (pH 8.1); gradual wavy boundary. (7 to 15 inches thick)

**Bk1--**40 to 52 inches; light olive gray (5Y 6/2) silty clay loam, olive gray (5Y 4/2) moist; many fine distinct strong brown (7.5YR 5/6) mottles, yellowish red (5YR 4/6) moist; moderate medium prismatic structure that parts to moderate medium and coarse angular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; many very fine tubular pores; continuous thin clay films on faces of peds, and many moderately thick clay films in pores; strongly effervescent with disseminated and segregated lime as seams; moderately alkaline (pH 7.9); gradual wavy boundary. (9 to 15 inches thick)

**Bk2--**52 to 67 inches; pale brown (10YR 6/3) silty clay loam, dark brown (7.5YR 4/4) moist; many fine distinct strong brown (7.5YR 5/8) mottles, dark brown (7.5YR 4/4) moist; strong medium prismatic structure that parts to strong medium and coarse

angular blocky structure; hard, friable, sticky and plastic; few fine roots; many very fine tubular pores; continuous thin clay films on faces of peds, common thin clay films in pores; violently effervescent with lime segregated as seams; moderately alkaline (pH 8.0); gradual wavy boundary. (8 to 15 inches thick)

**TYPE LOCATION:** Yolo County, California; 2 miles southeast of Woodland; 0.3 miles south of Road 24 and 0.25 miles east of the NW corner of sec. 2, T. 9 N., R. 2 E. Greys Bend Quadrangle.

**RANGE IN CHARACTERISTICS:** Pescadero soils have mottles less than 20 inches below the surface. Mean annual soil temperature ranges from about 59 degrees to 62 degrees F. The solum ranges from about 36 to 76 inches in thickness.

The A horizon has dry colors of 10YR 7/2, 6/2, 5/2; 2.5Y 7/2, 6/2 or 5/2. Moist colors are 10YR 5/2, 4/2; 2.5Y 4/2 or 3/2. It is loam, clay loam, silty clay loam or clay. It is medium acid to strongly alkaline inclusive. The Ca/Mg ratio is 0.3/1.0 to 1.0/1.0. Where the soil has an Ap horizon, it lacks natural soil structure but clods or fragments of the horizon have light gray coatings.

The upper part of the B horizon has dry colors of 10YR 5/2, 5/1, 4/2, 4/1; 2.5Y 5/2, 4/2; N5/, N4/; 5Y 5/1 or 4/1. Moist colors are 10YR 4/2, 3/2; 2.5Y 4/2, 3/2; or 5Y 3/1. It is clay or silty clay and has moderate or strong prismatic structure. The exchangeable sodium content is 15 to 70 percent.

The lower part of the B horizon has dry colors of 10YR 6/3, 6/2; 2.5Y 7/2, 6/2; N6/, N5/; 5Y 6/3, 6/2, 6/1, 5/2 or 5/1. Moist colors are 7.5YR 4/4; 5Y 4/3, 4/2, 4/1 or 3/2. It contains distinct or prominent mottles and the upper part of the horizon is also mottled in some pedons. It is clay or silty clay. The lower part of the B horizon commonly has angular blocky structure but in some pedons it has prismatic structure. The B horizon ranges from moderately alkaline through strongly alkaline and alkalinity tends to increase as depth increases. The B horizon contains segregated lime mostly in the lower part. The exchangeable sodium is 15 to 55 percent in the upper part and 5 to 15 in the lower part.

When present, the C horizon has dry colors of 10YR 7/4, 7/3, 7/2, 6/4, 6/3, 6/2; 2.5Y 7/4, 7/2, 6/4, 6/2, 5/2; 5Y 6/2 or 6/1. Moist colors are 10YR 5/6, 4/3; 2.5Y 4/2; or 5Y 4/2. Distinct or prominent mottles are in the upper part of some C horizons. The C horizon ranges from silt loam through silty clay and is moderately to strongly alkaline.

**COMPETING SERIES:** There are no other soils in this family.

**GEOGRAPHIC SETTING:** Pescadero soils are in level basins at elevations of 5 to 100 feet. They formed in alluvium from sedimentary rocks. They are in areas that have a dry subhumid mesothermal climate. Summer is hot and dry and winter is cool and moist. Mean annual precipitation is 10 to 19 inches. Mean annual temperature about 60

to 61 degrees F., average January temperature about 45 degrees F., and average July temperature about 77 degrees F. Frost-free period is from 250 to 320 days.

**GEOGRAPHICALLY ASSOCIATED SOILS:** These are the [Capay](#), [Marvin](#), and [Sacramento](#) soils. Capay and Marvin soils lack natric horizons. Sacramento soils have thick mollic epipedons.

**DRAINAGE AND PERMEABILITY:** Poorly drained or ponded in concave slopes; very slow runoff; very slow permeability.

**USE AND VEGETATION:** These soils are used mainly for livestock grazing. Some reclaimed areas are used for irrigated field, row crops and irrigated pasture. Commonly cultivated crops are sugarbeets, barley, alfalfa, corn and tomatoes. The vegetation is mainly saltgrass, pickleweed, annual grasses and forbs.

**DISTRIBUTION AND EXTENT:** Along the west side of the Sacramento and San Joaquin Valleys. The soil is moderately extensive.

**MLRA OFFICE RESPONSIBLE:** Davis, California

**SERIES ESTABLISHED:** Tracy Area, California, 1938.

**REMARKS:** Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon - the zone from 0 to 13 inches (A, Bt)

Natric horizon - the zone from 13 to 40 inches (Btkn1, Btkn2)

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National Cooperative Soil Survey  
U.S.A.

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14 April 2007

Jeff Olberding  
Olberding Environmental, Inc.  
1390 Willow Pass Road, Suite #370  
Concord, CA 94520

Re: Walters Road Property in Suisun City, CA  
Habitat Assessment for the Delta Green Ground Beetle

Dear Jeff:

This letter reports on the findings of my habitat assessment survey for the federally threatened insect known as the Delta Green Ground Beetle (also commonly referred to by the acronym "DGGB") at a 30.6 acre property located at the intersection of Highway 12 and Walters Road in Suisun City (Solano County), CA. I can summarize my findings by stating that the Walters Road property does not support suitable habitat for the DGGB and for this reason I do not expect the beetle to occur at this property. The remainder of this letter provides pertinent background information on the DGGB and describes my habitat assessment methods and findings in more detail.

## BACKGROUND INFORMATION

The Delta Green Ground Beetle is known scientifically as *Elaphrus viridis* (Coleoptera: Carabidae) and was recognized as a threatened species by the US Fish & Wildlife Service (USFWS) in 1980. It is a terrestrial beetle, commonly referred to by the acronym "DGGB", and is known only from a several square mile area that includes the Jepson Prairie and vicinity in Solano County. A portion of the Jepson Prairie region, centered around Olcott Lake, has been recognized as critical habitat for the DGGB by the USFWS. A second, smaller area of critical habitat is at the Elsie Gridley Preserve. Vernal pools and playas are widely scattered throughout the Valley Grassland habitat that characterizes this region. Part of the area has been set aside as the Jepson Prairie Preserve, while other surrounding portions remain in private ownership.

The ground beetle genus *Elaphrus* consists of about 35 species worldwide, distributed exclusively throughout temperate regions of the Northern Hemisphere. Several taxa are associated with mud and wetland habitats and particular soil types (Goulet 1983). For this reason the genus is commonly called the Marsh Ground Beetles. Of those species whose ecologies have been studied, the preferred microhabitats are muddy bare ground or sparsely vegetated areas with little accumulation of duff. Related species are known to occur in mud flats, along shores, in bogs, and in marsh habitats. Some species prefer habitats that are shaded while others occur in more exposed, sunlit habitats. All 14 known species in the subgenus *Elaphrus*, of which *E. viridis* is a member, live in open sunlit habitats usually at the margins of

water bodies. Goulet (1983) also discusses taxonomy and evolutionary relationships of the species in the genus *Elaphrus*.

The Jepson Prairie is characterized by vernal pool and valley grassland habitats. Two types of vernal pools occur there, including larger playa pools, sometimes also known as vernal lakes that typically occur on Pescadero clay soils, and smaller vernal pools. The playas are usually deeper and retain water longer than the smaller, shallower vernal pools. Also, they often have well-defined shorelines that are bare or sparsely vegetated as the high water recedes during the winter and spring activity period of DGGB adults and larvae.

Primary habitat for the DGGB is the immediate shoreline of playa pools that support the appropriate mix of bare or sparsely vegetated ground, low-growing vegetation, and the preferred prey items (primarily springtails, i.e., Collembola). Prominent plants among the low-growing vegetation include primarily prostrate pincushionplant (*Navarretia prostrata*), and secondarily alkali heath (*Frankenia grandifolia* (*Frankenia salina* in *Calflora*), bristled downingia (*Downingia bicornuta*), toad rush (*Juncus bufonius*), and several bunchgrasses). In the primary habitat, activities by DGGB adults such as hunting, basking (thermoregulating behavior), and mating have been observed, as well as DGGB larvae. The adult beetle can also be observed less frequently at bare spots between the smaller vernal pools and playas. At these bare spots basking behavior of the adults visiting these locations was usually noted.

Both the larvae and adult life stages of the DGGB are predaceous, primarily on springtails, which live in the moist shoreline zone of the playa pools, usually within about one meter of the water. A secondary prey item is adult midges. Other types of small, probably soft-bodied insects may also be occasional prey items. Larval and adult life stages of the DGGB have good visual acuity, thus the sparsely vegetated immediate shoreline is ideal habitat for their hunting habits.

The winter activity period for DGGB adults and larvae is unusual for members of the genus *Elaphrus*. Both life stages live underground in the cracks and crevices of the clay soils that form as the playas dry out. This is probably a strategy to avoid the hot, dry months of the year. There appears to be but one generation per year. Adults may live as long as one year and possibly even longer.

## SURVEY METHODS

Prior to visiting the Walters Road property, you provided me with a map that illustrated the property boundaries. In addition, I reviewed the soils identified by Bates (1977) at the property, and examined recent color aerial photographs (provided by Solano County) to view existing habitat conditions. In addition, I reviewed occurrence records for the DGGB from the California Natural Diversity Data Base (2007), my firm's BUGGY Data Base (2007), and the entomological literature.

My DGGB habitat assessment survey was conducted on February 3<sup>rd</sup>, by hiking throughout the entire 30.6 acre property as illustrated on the attached map. Only 5.0 acres lie east of Walters Road, while 25.6 acres lies west of Walters Road at its intersection with California

Highway 12. All types of wetlands evident at the SUCMB were examined, including a ditch, roadside puddles (which may actually be in the road right-of-way) and potential seasonal wetlands. In addition, I noted the presence of barren or sparsely-vegetated soils, especially any areas characterized by Pescadero clays.

## RESULTS AND DISCUSSION

As illustrated in the attached aerial photograph, only a small portion of the Walters Road property has Pescadero clays, but this portion of the property lacked vernal pools or playa pools, habitat features that are especially important to the DGGB. The closest off-site location with Pescadero clays and playa pools lies southeast of the property near Scally Road. A few depressions were observed on-site and may be seasonal wetlands, but they generally lacked shorelines with barren or sparsely-vegetated clay soils, and were dry or only muddy at the time of my site visit. Other areas of bare ground were very limited in their occurrence.

Vegetation growing at the site consisted of a mixture of annual and perennial grasses and forbs. The observed plants were generally various grasses and forbs as typical for grazed and dry farmed lands, rather than vernal pools and Valley Grassland habitats.

In a year of normal rainfall any seasonal wetlands at the property would probably still have ponded water in early April; however, at the time of my site visit, these areas were dry or only muddy. Although I searched for the favored springtail prey of the DGGB, they were not observed, perhaps due to the limited ponding. To the best of my knowledge, there are no historical records of the DGGB from the Walters Road property.

## CONCLUSIONS AND RECOMMENDATIONS

The findings of my habitat assessment survey indicate that no suitable habitat occurs at the 30.6-acre Walters Road property to support the threatened beetle. The density and species composition of the grassland plant community, along with the limited occurrence of Pescadero clays and absence of playa pools, means that the DGGB cannot breed there.

Although I do not know the type of new land use that is proposed for the Walters Road property, it should not cause any impacts to the DGGB or its habitat. For this reason, no mitigation for the DGGB should be required.

## REFERENCES CITED

- Bates, L.A. 1977. Soil survey of Solano County, California. US Dept. of Agriculture, Soil Conservation Service. Washington, D.C.
- Goulet, H. 1983. The genera of Holarctic Elaphrini and species of *Elaphrus* Fabricius (Coleoptera: Carabidae): classification, phylogeny, and zoogeography. *Quaestiones Entomologicae* 19:219:481.

US Fish & Wildlife Service. 1980. Endangered and threatened wildlife and plants; listing the Delta Green Ground Beetle as a threatened species with critical habitat. Final Rule. Federal Register 45: 52807-52810.

If you have any questions regarding my habitat assessment report, just contact me.

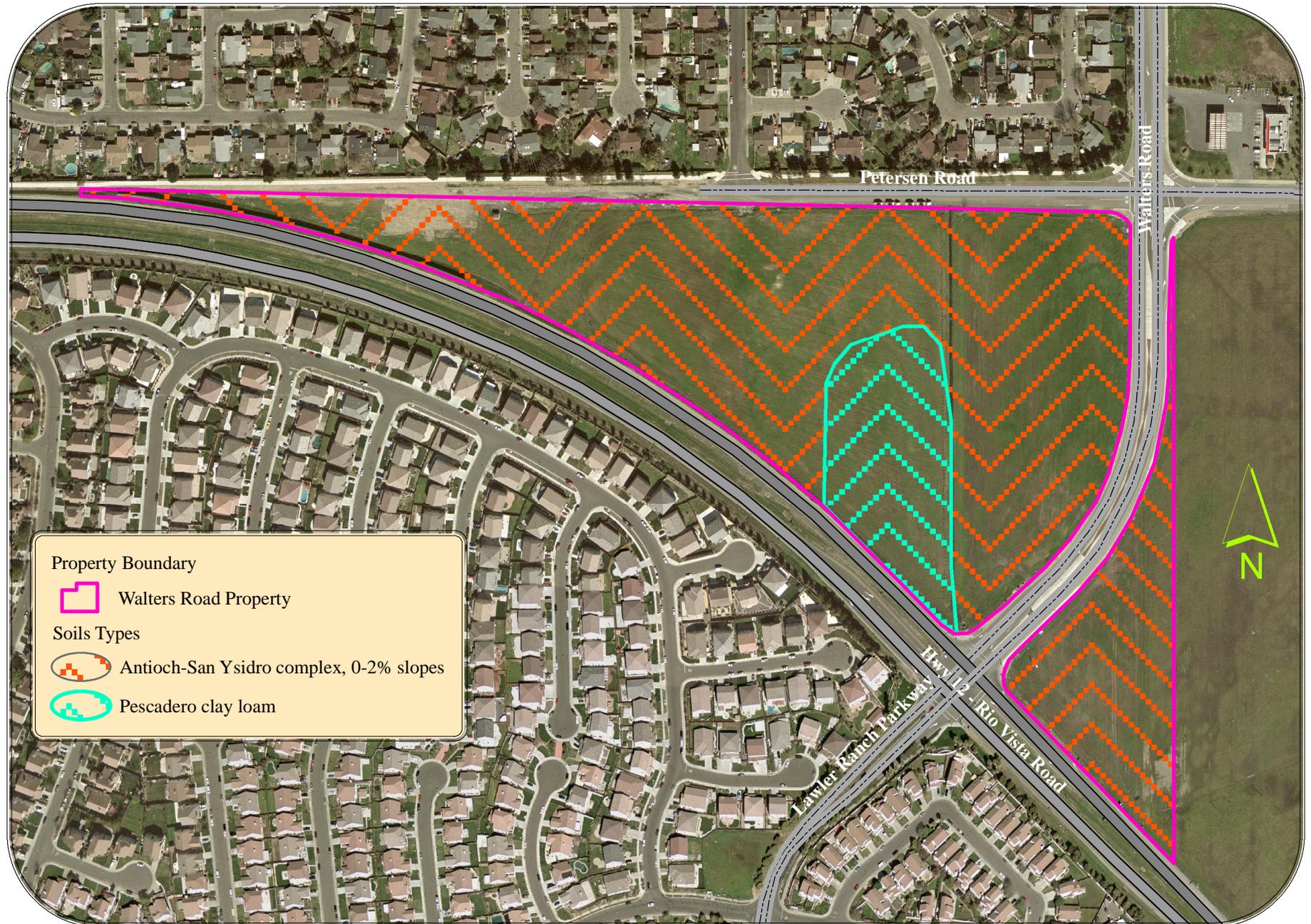
Sincerely,

A handwritten signature in cursive script that reads "Richard A. Arnold".

Richard A. Arnold, Ph.D.  
President

Attachment: figure

# DGGB Habitat Assessment: Soil Types on Walters Road Property



Property Boundary

- Walters Road Property

Soils Types

- Antioch-San Ysidro complex, 0-2% slopes
- Pescadero clay loam

