# **APPENDIX E**

**BIOLOGICAL CONSTRAINTS REPORT** 

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City of Vacaville Planning Division

# Biological Resources Assessment for the Vanden Meadows Project Site in Vacaville

### Prepared for:

Phillippi Engineering, Inc. P.O. Box 6556 Vacaville, CA 95696 Contact: Tom Phillippi 707-451-6556

### Prepared by:

Davis Environmental LLC P.O. Box 72013 Davis, CA 95617 Contact: Ellyn Miller Davis 530-756-6414 @pacbell.net



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#### INTRODUCTION

The Vanden Meadows property consists of rural agricultural land located on the southwestern edge of the city of Vacaville in Solano County, California (Figure 1). The approximate 277.5-acre property is located in central Solano County, approximately 5 miles southeast of downtown Vacaville. The site is located on the USGS Elmira 7.5-minute topographic quadrangle. The center of the site is at approximate Latitude 38.31269 degrees north and Longitude 121.94903 degrees west.

### Study Objectives

The primary objectives of this study were to locate and map special-status species habitat and potentially jurisdictional wetlands on the Vanden Meadows property. Additionally, the study focused on identifying other significant biological resources regulated by state and federal environmental policies. In general, the objectives of the study were to:

- Document biological resources reported from or identified on the site;
- Determine the presence of potential habitat for special-status plants and wildlife;
- Identify biological resource regulations governing project development; and
- Delineate the extent of wetlands and other waters of the United States subject to state and federal regulatory jurisdiction.

#### **Definitions**

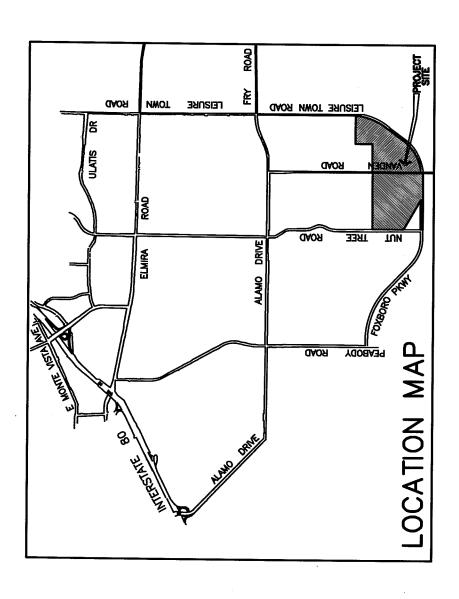
#### **Special-Status Species**

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

#### Jurisdictional Wetlands and Other Waters of the United States

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers regulates the disposal of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include, but are not limited to: coastal and inland waters and lakes, rivers and streams, and wetlands. Wetlands are defined by the federal regulations as those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328). In streams, the extent of waters of the U.S. is determined by the ordinary high water mark.

In California, the Department of Fish and Game (DFG) also has jurisdictional authority over wetland resources associated with rivers, streams, and lakes under California Fish and Game Code. DFG has the authority to regulate all work that will substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.



#### REGULATORY CONSIDERATIONS

#### Clean Water Act Section 404

Activities that result in discharge of fill material into waters of the United States are regulated by the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act (CWA). The CWA is primarily intended to authorize the EPA to regulate water quality through restriction of pollution discharges. Discharges of fill material, including placement of structures, into waters of the U.S., including wetlands, generally require a permit from the Corps. The Corps may issue either general permits, or nationwide permits, on a programmatic basis or individual permits on a case-by-case basis. Compensatory mitigation will normally be required to offset the losses of waters of the United States, including wetlands.

#### Clean Water Act Section 401

Section 401 of the Clean Water Act requires that the discharge of material into waters of the U.S. does not violate effluent limitations or water quality standards established by the state. The Corps may not authorize a project under a general permit, or issue and individual permit under Section 404 until the permit applicant has obtained certification or waiver of water quality standards from the regional water quality control board. The state uses its Section 401 certification authority to ensure Section 404 permits protect state water quality standards.

The State Board and the Regional Water Quality Control Boards regulate discharges to surface waters including wetlands under Section 401 of the federal Clean Water Act (CWA) as well as the California Porter-Cologne Water Quality Control Act (Water Code Sections 13020-13983).

#### California Fish and Game Code

The California Department of Fish and Game (DFG) has jurisdictional authority over wetland resources associated with rivers, streams, and lakes under California Fish and Game Code 1600-1607(Streambed Alteration Agreement). DFG has the authority to regulate all work that will substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake: or use material from a streambed.

In practice DFG defines its jurisdictional limit to the top of the stream or lake bank, at the outer edge of the riparian vegetation or to the 100-year floodplain. Compensation is often required to offset adverse impacts on waters of the state and associated riparian habitat.

#### California Endangered Species Act

DFG is responsible for protection and conservation of fish and wildlife resources in California. Under the California Endangered Species Act of 1984 (CESA), DFG is responsible

for ensuring that projects do not adversely affect a species listed as endangered or threatened under CESA (Section 2090 of the Fish and Game Code). CESA prohibits the take of species designated by the California Fish and Game Commission as endangered or threatened. The code defines "take" as "to hunt, pursue, catch, capture, or kill, or attempt to engage in any such conduct."

The California Fish and Game Code also provides protection from take for a variety of species, referred to as fully protected species. Section 5050 lists protected amphibians and reptiles. Section 3515 prohibits take of fully protected fish species. Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Section 3503.5 and 3513, birds of prey under Section 3503.5, and fully protected birds under Section 3511. Migratory nongame birds are protected under Section 3800. Mammals are protected under Section 4700. Except for take related to scientific research, all take of fully protected species is prohibited.

### Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over species listed as threatened or endangered under Section 9 of the ESA. The ESA protects listed species from harm, or take. For any project involving a federal agency in which a listed species could be affected, the federal agency must consult with the USFWS in accordance with Section 7 of ESA. The USFWS issues a Biological Opinion (BO) and, if the project does not jeopardize the continued existence of the listed species, issues an incidental take permit. When no federal context is present, proponents of a project affecting a listed species must consult with the USFWS and apply for an incidental take permit under Section 10 of the ESA.

#### California Environmental Quality Act (CEQA)

CEQA is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts. A project normally will have a significant environmental effect if it substantially affects a rare or endangered species or the habitat of that species; substantially interferes with the movement of resident or migratory fish or wildlife; or substantially diminishes habitat for fish, wildlife, or plants.

#### **METHODS**

### **Pre-field Investigation**

Prior to conducting the field assessment, Davis Environmental biologists identified wildlife and plant species that have been reported in the vicinity of the project site. The pre-field investigation involved conducting a search of the California Natural Diversity Database (NDDB) for the U.S. Geological Survey 7.5 minute quadrangle and reviewing the draft multi-species habitat conservation plan for Solano County (Solano County Water Agency, February 2007), as well as habitat requirements for rare plants and animals known to occur in Solano County.

Literature pertinent to identifying potential wetlands and other waters on the site was reviewed, including the USGS 7.5 minute topographic quadrangle map for the area, recent color aerial photographs, the soil survey report, and the County-level hydric soils list.

## Field Surveys

Biologists conducted field surveys of the Vanden Meadows property on July 29 and 30, 2009 to assess the biological communities on the proposed project site based on the results of the NDDB search and knowledge of the area. The biologists walked meandering transects across the project site, focusing on potential habitat for special-status species, potential jurisdictional wetlands, and other sensitive habitats.

#### Wetland Delineation

Potential jurisdictional wetlands were identified during the field survey. Wetland boundaries were identified according to the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (U.S. Army Corps of Engineers 2006) applying the routine onsite determination method and according to U.S. Army Corps of Engineers guidelines. The resulting wetland delineation should be considered preliminary until the U.S. Army Corps of Engineers, Sacramento District, issues a jurisdictional determination of the extent of jurisdictional waters on the site.

Estimates of vegetative composition and cover were made at seven sampling points. The indicator status of each species was determined using the Revision of the National List of Plant Species that Occur in Wetlands (Reed 1988) to distinguish between upland and wetland vegetation. The indicator status of each species was recorded on the data sheets included in Appendix A of this report.

Seven delineation sample plots were established throughout the site to document the presence of areas meeting the three wetland parameters and to establish the wetland-nonwetland boundary. A wetland and a nonwetl and data point "pair" were established to document the wetland boundary. In addition to the formal data points, numerous other observations of the three parameters were made to correlate the signature of an aerial photograph of the site to observed wetland conditions.

Soil pits were excavated to a depth ranging from 4 to 20 inches, depending on soil density and the depth required to document the presence or absence of hydric soil morphology. A global positioning system receiver (GPS) was used to accurately map the location of wetlands. The wetland polygons were then scanned to convert them into a vector format geographic information system (GIS) data layer. The acreages of the mapped features were then calculated using ArcView GIS software.

The ordinary high water mark of non-wetland waters of the United States ("other waters") (i.e. Brazeltine Drain) potentially subject to federal jurisdiction were evaluated and mapped according to CFR 328.3 and various regulatory guidance letters issued by the Corps.

#### **DESCRIPTION OF SITE CHARACTERISTICS**

The Vanden Meadows property is generally undeveloped agricultural land. Rural residential homes and outbuildings exist in the northern portion of the property, off Vanden Road. It appears that the site has been used for livestock grazing and dryland hay production (Figure 2).

Leisure Town Road and Vanden Road cross the property. A storm water detention basin is located in the southeastern corner, south of Leisure Town Road. Southern Pacific Railroad tracks form the eastern site boundary. To the west is a residential subdivision. To the north are lots prepared for residential development. To the south is rangeland.

#### Topography and Hydrology

Elevations of the property range between approximately 85 and 125 feet above sea level.

The property occurs within an area of low hill, terrace, and basin landforms. A low, northwest-southeast trending ridge of sedimentary rocks exists in the southwestern corner. The southwestern part of the site generally slopes downward to the northeast. The remainder of the site slopes downward to the east. Most of the site is characterized by planar to gently sloping topography. The large agricultural field in the central part of the property, west of Vanden Road, appears to have been leveled, as evidenced by a uniform slope break of approximately 2 to 3 feet between two fields. The field to the east of Vanden road has been used to stockpile excess soil material.

A small segment of a wetland drainage swale crosses the southwestern corner of the property. A concrete-lined irrigation canal also traverses the southwestern portion of the property. It appears that this canal receives water from the Putah South Canal to the west.

A segment of the Brazeltine drain flows easterly through the northeastern part of the site (Figure 2). This segment of the Brazeltine drain has been cut off from historic upstream flows from previous development projects; the watershed now is limited to roadside runoff and local surface drainage. The nearest traditional navigable water to which the site flows is the Sacramento River.

#### Soils

The USDA soil survey of Solano County (Bates 1977 and USDA Natural Resources Conservation Service 2009) (see Appendix B for soil map and hydric soil list) indicates that the site is underlain by five soil map units, as shown in Table 1. As indicated in the table, none of the primary components of the map units, nor their inclusions, formed under hydric conditions.

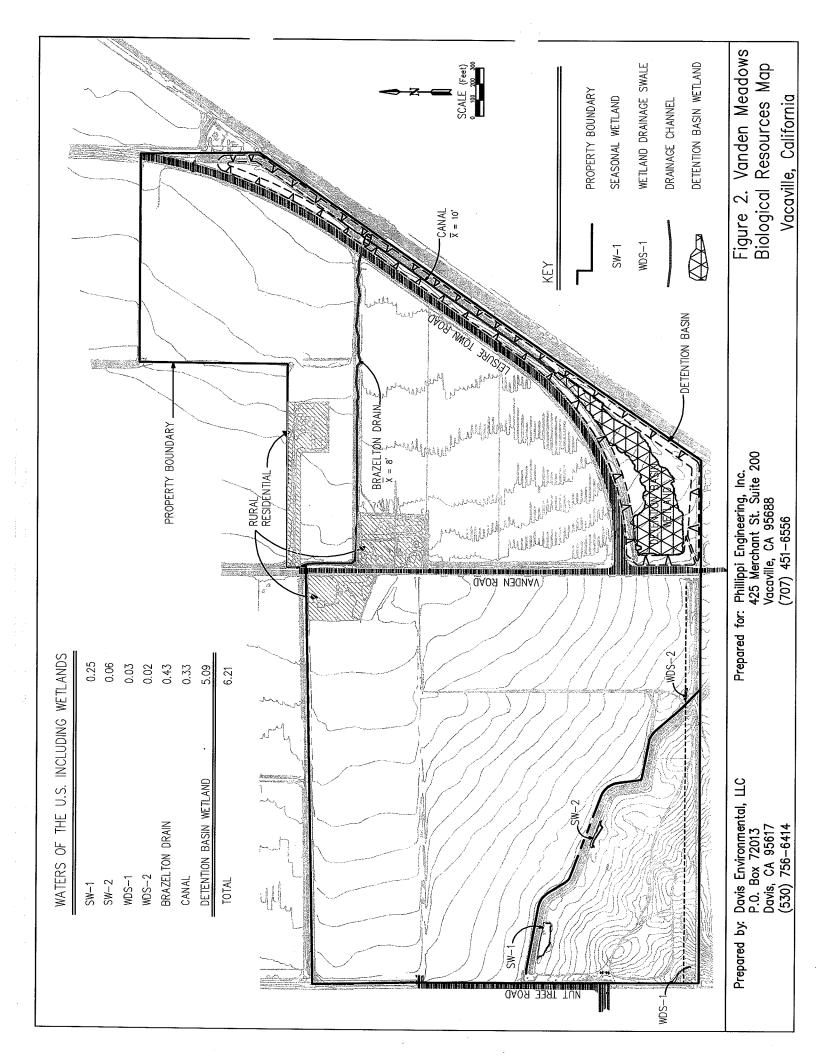


Table 1. Summary of Soil Map Units that Occur at the Site

Soil Map Unit Symbol	Soil Map Unit Name	Landfor m.	Profile of Primary Component of Map Unit (upper 60 inches)	Natural Drainage Class	Permeabili ty	Hydric Status of Map Unit*
Ca	Capay silty clay loam	rims on basin floors	silty clay loam	moderate ly well	slow	component: non-hydric inclusions: non-hydric
DbC	Dibble-Los Osos loams, 2 to 9 percent slopes	mountai ns	loam over clay loam and clay over sandstone	well	slow	component: non-hydric inclusions: non-hydric
MkA	Millsap sandy loam, o to 2 percent slopes	hills	sandy loam over clay over sandstone	moderate ly well	very slow	component: non-hydric inclusions: non-hydric
SeA	San Ysidro loam, 0 to 2 percent slopes	terraces	loam over clay loam	moderate ly well	very slow	component: non-hydric inclusions: non-hydric
SfA	San Ysidro sandy loam, thick surface, 0 to 2 percent slopes	terraces	sandy loam over clay loam	moderate ly well	very slow	component: non-hydric inclusions: non-hydric

Sources: Bates (1977), USDA Natural Resources Conservation Service (2009)

#### Climate

The average annual precipitation in Vacaville, located approximately 5 miles northwest of the site, is 25.2 inches. Most falls between October and April. The growing season is approximately 270 days (Bates 1977).

Rainfall for the July 1, 2008 – June 31, 2009 rainy season was roughly 80% of the average in the region. This condition was considered in interpreting the presence/absence of

indicators of wetland hydrology and in plant species composition while the field survey was being conducted.

#### RESULTS

Based on the field assessment, the Vanden Meadows property supports six general habitat associations: agricultural land, drainage swale, emergent wetland habitat, open water habitat in a concrete-lined irrigation canal, seasonal wetland habitat, and Eucalyptus trees with other ornamental vegetation. A brief description of these habitat associations is provided below.

#### **Agricultural Land**

The majority of the site is characterized as agricultural land and rural residential development, with active farming of hay observed on the northeastern parcel. The remaining parcels were fallow at the time of the field surveys. Fallow fields support a mixture of non-native and naturalized annual grasses and forbs.

#### **Drainage Swale**

A segment of the Brazeltine drain flows from west to east from Vanden Road to Leisure Town Road, bisecting the eastern half of the property. Drainage channel habitat in the segment of the Brazeltine drain channel on the property is limited to pockets of herbaceous seasonal wetland vegetation. Small segments of two additional wetland drainage swales are located in the southeastern corner of the property (Figure 2).

#### **Emergent Marsh**

The Brazeltine drain flows under Leisure Town Road, draining into a detention basin and canal that was constructed as part of the Southtown development project. At the time of the survey, emergent marsh vegetation and standing water was present throughout the constructed detention basin and canal.

#### **Open Water**

A concrete-lined irrigation canal diagonally crosses the southwestern corner of the Vanden Meadows project site. At the time of the field survey, the canal sustained open water habitat, presumably transporting water for irrigation uses at off-site locations.

#### Seasonal Wetland

Seasonal wetland habitat is present adjacent to the irrigation canal in the fallow agricultural field in the southwestern portion of the property. Two, well-defined seasonal wetlands support native and non-native wetland vegetation. The seasonal wetlands appear to have developed as a result of surface water accumulating on the north side of the concrete-lined irrigation canal (Figure 2).

### **Eucalyptus Trees and Ornamental Vegetation**

Three rural residences and associated outbuildings are present on the west and east side of Vanden Road; these developed areas support associated ornamental vegetation, including stands of mature Eucalyptus trees.

#### **SPECIAL-STATUS SPECIES**

#### **Botanical Resources**

The California Natural Diversity Data Base (NDDB) documents the locations of seventeen (17) special-status plant species and two special plant communities in the project vicinity (Table 2).

Table 2. Special-Status Plant and Animal Species Reported from the Vanden Meadows Project Vicinity (CNDDB 2009)

Plant Species:	Status (federal/state)	Habitat	Suitable Habitat within the Project Site
Alkali milk vetch (Astragalus tener var. tener)	None/None	Alkali flats any playas, vernal pools and playas	No
San Joaquin spearscale (Atriplex joaquiniana)	None/None	Alkali wetlands or alkali sink habitat	No
Pappose Tarplant (Centromadia parryi ssp. Parryi)	None/None	Seasonal alkaline wetlands, coastal salt marsh	No
Adobe Lily (Fritillaria pluriflora)	None/None	Woodland and Foothill Grassland, usually on clay soils or serpentine	No
Contra Costa Goldfields ( <i>Lasthenia</i> <i>conjugens</i> )	Endangered/None	Grasslands with vernal pools and swales	Potential habitat is present in seasonal wetlands
Legenere (Legenere limosa)	None/None	Vernal Pools	No
Baker's Navarretia (Navarretia leucocephala ssp. Bakeri)	None/None	Vernal pools and swales on adobe or alkaline soils	No

Two-Fork Clover (Trifolium amoenum)	Endangered/None	Valley and foothill grassland on serpentine soil or swales	No
Saline Clover (Trifolium depauperatum var. hydrophilum)	None/None	Marshes and vernal pools on alkaline soils	No
San Joaquin Valley Orcutt Grass (Orcuttia inaequalis)	Threatened/Endangered	Vernal Pools and Swales and Alkali Playa Pools	No
Bearded Popcorn Flower ( <i>Plagiobothrys hystriculus</i> )	None/None	Vernal Pools in valley foothill grasslands	No
Heartscale (Atriplex cordulata)	None/None	Alkali flats and scalds	No
Brittlescale (Atriplex depressa)	None/None	Alkali scalds or alkali clay in annual grassland	No
Hispid birds beak (Cordylanthus mollis ssp. hispidus)	None/None	Alkali meadows	No
Recurved larkspur (Delphinium recurvatum)	None/None	Alkaline Soils and Saltbush or Chenopod Scrub	No
Dwarf Downingia (Downingia pusila)	None/None	Vernal Pools and mesic grasslands	No
Golden bush (Isocoma arguta)	None/None	Alkali grasslands and swales	No
Animal Species:			
California linderiella (Linderiella occidentalis)	None/None	Seasonal pools in unplowed grasslands with low alkalinity	Potential habitat in seasonal wetlands
California tiger salamander (Ambystoma californense)	Threatened/None	Shallow open water ponds and vernal pools	Potential habitat in seasonal wetland and seasonal swale habitat
Delta green ground beetle ( <i>Elaphrus</i> viridis)	Threatened/None	Vernal pools	No
Conservancy fairy shrimp (Brachinecta conservatio)	Endangered/None	Large, Turbid Vernal pools	No

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Mid-Valley fairy shrimp (Brachinecta mesovallensis)	None/None	Shallow vernal pools	No
Vernal pool tadpole shrimp ( <i>Lepidurus</i> packardi)	Endangered/None	Vernal Pools and Swales	No
Vernal Pool Fairy Shrimp (Brachinecta lynchi)	Threatened/None	Vernal Pools and Swales	Potential habitat is present in seasonal wetlands
Ricksecker's water scavenger beetle (Hydrochara rickseckeri)	None/None	Aquatic Habitat	No
Swainson's hawk (Buteo swainsonii)	None/Threatened	Grasslands with scattered trees, agricultural land, riparian areas	Yes, potential nesting and foraging habitat on project site. Reported nest tree on Vanden Road in project area (CNDDB 2005).
Burrowing Owl (Athene cunicularia)	None/None	Open dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation	Yes, Potential habitat is present; small mammal burrows
Northwestern Pond Turtle (Actinemys marmorata marmorata)	None/None	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation, basking sites, and sandy banks	Marginal habitat is present in the drainage basin area

The two special communities reported by the CNDDB in the project vicinity are northern claypan vernal pool and valley needlegrass grassland. Neither is present on the Vanden Meadows property.

The only special-status plant species that could be supported in the seasonal wetlands on the property is Contra Costa goldfields. Although a number of other special-status plant species were identified in the CNDDB, most species only occur in saline or alkaline soils or in vernal pools, and are not likely to be found on the project site. No alkali or adobe soils, no saline soils and no vernal pool habitat or coastal brackish marsh habitat suitable to support other rare plants were identified on the property.

#### Wildlife Resources

The NDDB search revealed the locations of eleven (11) special-status wildlife species that have been identified in the project vicinity. Based on the site survey, there is potentially suitable habitat on the property for five of these special-status species (Table 2): Swainson's hawk, northwestern pond turtle, burrowing owl, California tiger salamander, vernal pool fairy shrimp, and California linderiella.

#### Swainson's Hawk

The Eucalyptus stand and ornamental vegetation on the Vanden Meadows property provides potential nesting and perching habitat for raptors, such as red-tailed hawk, white-shouldered kite, and the state-listed Swainson's hawk (*Buteo swainsonii*). The California Natural Diversity Data Base has records of a Swainson's hawk nest on the property in 2005. Active nest sites are protected by state law (Fish and Game Code Section 3503.5).

During field surveys a pair of Swainson's hawks were observed near the Eucalyptus trees east of Vanden Road on the project site. If an active nest is located within the construction zone, disturbance protection measures may include establishing setbacks, construction windows, nest avoidance until young birds have left the nest, and regular inspection and reporting.

#### Northwestern Pond Turtle

Northwestern pond turtle is a special-status species that could be present in the detention basin. Although not protected by federal or state Endangered Species Acts, it is considered a special-status species and impacts on northwestern pond turtle should be avoided during project construction. Because the detention basin and canal are not included in the proposed construction area, it is not likely that the project would impact any turtles.

#### California Tiger Salamander

California tiger salamander is a federally listed threatened species that is present in the project vicinity. The closest reported breeding area is approximately 1.4 miles to the west. California tiger salamander is known to migrate through upland habitats. The seasonal wetlands and wetland drainage swales in the southwestern portion of the project site provide potentially

suitable habitat for California tiger salamander and should be evaluated during the winter and spring months for the presence of this species.

### Vernal Pool Fairy Shrimp and California Linderiella

The two seasonal wetlands adjacent to the concrete-lined irrigation canal on the property are potentially suitable, but very unlikely habitat for the vernal pool fairy shrimp and California linderiella. The vernal pool fairy shrimp is federally-listed as threatened under the federal Endangered Species Act.

#### **Burrowing** owl

The burrowing owl is a state species of special concern. It is primarily a grassland species that uses ground burrows for nesting and prefers short vegetation with sparse shrubs for foraging habitat. Burrowing owl habitat was observed south of the irrigation canal in the southwestern portion of the Vanden Meadows project site.

#### WETLANDS AND OTHER WATERS OF THE UNITED STATES

#### Seasonal Wetlands

Two seasonal wetlands were mapped at the project site (Figure 2). Seasonal wetlands SW-1 and SW-2 are dominated by hydrophytic plants including perennial ryegrass (*Lolium perenne*), mediterranean barley (*Hordeum marianum*), spike rush (*Eleocharis macrostachya*), curly dock (*Rumex crispus*) and rabbitsfootgrass (*Polypogon monspeliensis*).

#### Wetland Drainage Swales

Two small segments of seasonally-inundated drainage swales are present on the Vanden Meadows project site. These drainage swales support a mixture of common wetland species adapted to seasonal inundation. Dominant species include swamp grass (*Crypsis schoenoides*), cocklebur (*Xanthium strumarium*), and umbrella sedge (*Cyperus eragrostis*).

#### **Emergent Marsh**

The detention basin and canal on the project site support emergent marsh habitat dominated by cattail (*Typha latifolia*). The basin and canal were sustaining standing water and saturated soils at the time of the survey, indicating that these areas have perennial water.

#### Other Waters of the United States

A remnant segment of the Brazelton Drain flows across the eastern half of the Vanden Meadows property, eventually draining into the detention basin in the southern portion of the site (Figure 2). The landward extent of the drain channel was mapped by the ordinary high water mark, which was identified based on the cross-section of the bed and bank and scoured bed.

Riparian habitat along the channel is very sparse, and includes a few willow trees (Salix spp.) adjacent to Vanden Road.

#### **Preliminary Jurisdictional Acreages**

Table 3 provides a breakdown of the acreage of each of the jurisdictional habitat types. These acreages should be considered preliminary, subject to verification by the Corps.

Table 3. Summary of Waters of the United States, Including Wetlands, at the Vanden Meadows Property

Habitat Type	Acreage
Wetlands	
Seasonal Wetlands	
SW-1	0.25 acre
SW-2	0.06 acre
Wetland Drainage Swales	
WDS - 1	0.03 acre
WDS - 2	0.02 acre
Waters of the United States	
Brazeltine Drainage Channel	0.43 acre
Detention Basin and Canal	5.42 acres
Total Area	6.21 acres

#### **DISCUSSION AND RECOMMENDATIONS**

Based on the results of the biological resources surveys on the Vanden Meadows property, the following measures are recommended:

#### Focused Special-Status Species Surveys

Because there is potentially suitable habitat on the site for one rare plant and five special-status animals, focused special-status surveys are recommended. The seasonal wetland habitats

on the site are potentially suitable habitat for Contra Costa goldfields; consequently a focused botanical survey should be conducted during the spring flowering period (March-May).

Although only marginally suitable habitat, the seasonal wetlands and seasonal swales in the southwestern portion of the site should be surveyed by a qualified biologist during winter months to determine the status of the California tiger salamander, vernal pool fairy shrimp, and California linderiella on the site.

### Pre-Construction Raptor Survey

Because active raptor nests are protected by the California Fish and Game Code, and Swainson's hawks are protected under the state Endangered Species Act, the project proponent should have a qualified biologist conduct a pre-construction survey prior to initiating construction. If active Swainson's hawk or burrowing owl nests are found on or near the proposed construction zone, a no-disturbance buffer area will be established in coordination with the California Department of Fish and Game. Active construction must be avoided in the no-disturbance zone until it has been determined that the birds will not be disturbed or that the young have left the nest, at which time, construction can commence.

California Department of Fish and Game generally recommends mitigation for the loss of Swainson's hawk nesting and foraging habitat and any loss of burrowing owl nests. Mitigation for the loss of agricultural land may also be required by the City of Vacaville and in compliance with the proposed Solano County Multi-Species Habitat Conservation Plan.

#### Section 404 Permit

Discharges of fill material, including placement of structures, into waters of the U.S., including wetlands on the site will require a Section 404 permit from the Corps of Engineers. The proposed Vanden Meadows development project may meet the conditions for authorization under nationwide permit number 29 (NWP-29). NWP-29 authorizes the construction of residential developments provided that no more than 0.5 acre non-tidal waters of the United States are filled, including the loss of no more than 300 linear feet of streambed (for intermittent and ephemeral streams, this 300 linear foot limit can be waived by the Corps).

For the construction of the proposed Vanden Meadows project, the project proponent must submit a pre-construction notification to the Corps for authorization under NWP-29.

#### Streambed Alteration Agreement

Because the proposed project will impact the Brazelton Drain, the project will be required to obtain a Streambed Alteration Agreement with the California Department of Fish and Game. The agreement will require compliance with the California Environmental Quality Act (CEQA) prior to approval.

#### Cultural Resources

Compliance with the National Historic Preservation Act is required for all federal actions, including a Corps of Engineers' Section 404 permit. A cultural resources survey should be completed to determine if there are any features on the site that are eligible for listing under the National Historic Preservation Act.

#### REFERENCES

Bates, L.E. 1977. Soil survey of Solano County, California. USDA Soil Conservation Service in cooperation with the University of California Agricultural Experiment Station. U.S. Government Printing Office, Washington, DC.

California Native Plant Society. 2001. Inventory of rare and endangered plants of California (Sixth Edition). D.P. Tibor (ed.) California Native Plant Society, Sacramento, CA.

California Natural Diversity Data Base. Records search of the Fairfield North and Elmira 7.5 minute quadrangles. California Department of Fish and Game. Sacramento, CA

Environmental Laboratory. 1987. U.S. Army Corps of Engineers Wetlands Delineation Manual. (Technical Report Y-87-1.) Vicksburg, MS: U.S. Army Waterways Experiment Station.

Hickman, J.C. (ed.) 1993. The Jepson Manual; Higher Plants of California. University of California Press, Berkeley and Los Angeles.

Reed, Porter B., Jr. 1988. National list of plant species that occur in wetlands: California (Region 0). Biological Report 88 (26.10). U. S. Department of the Interior Fish and Wildlife Service, Washington, D. D. 135+ pages.

Solano County Water Agency. February 2007. Solano Multispecies Habitat Conservation Plan. Working Draft 2.2. Prepared by LSA Associates.

Soil Survey Staff. 1975. Keys to Soil Taxonomy: a Basic System of Soil Classification for Making and Interpreting Soil Surveys. Agricultural Handbook 436. USDA Soil Conservation Service, Washington, DC.

- U.S. Army Corps of Engineers, Sacramento District. 2009. Navigable waterways in the Sacramento District. Available: <a href="http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/waterways.html">http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/waterways.html</a>. Accessed July 31, 2009.
- U.S. Army Corps of Engineers. 2005. Ordinary high water mark identification. Regulatory Guidance Letter No. 05-05. December 7.
- U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ed. J.S. Wakeley, R.W. Lichvar, and C.V.

Noble. ERDC/ELTR-08-28. Vicksburg, MS. U. S. Army Engineers Research and Development Center.

U.S. Army Corps of Engineers, Sacramento District. 2001. Minimum standards for acceptance of preliminary wetlands delineations. Regulatory Program. Sacramento, CA.

USDA Natural Resources Conservation Service. 2007. National Cooperative Soil Survey Web Soil Survey. <a href="http://websoilsurvey.nrcs.usda.gov/app/">http://websoilsurvey.nrcs.usda.gov/app/</a>

## APPENDIX A:

## **Wetland Delineation Data Sheets**

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site:	Va	ael L	a Maa	do	7				City	/Count	v. 1	Call	eno		T <sub>0</sub>		T ==		
Applicant/Owner:			- t - t - t - t - t - t - t - t - t - t	<u>.</u>	7 3				1 0.1.7			SOLL tate:	معره الألب	CA	Sampling		SV	3-1	a.
Investigator(s):	Butterwe	orth /	DONIS					7	Section, To	washio			7J	CA	Sampling		1/2	13/2	
Landform (hillslope, te	rrace, etc								and Surfac	e Shar	e (con	cave.				Pho	to No:	1	<u>E</u>
Subregion (LRR):	T		Lat:						convex, plai	nar):		,	CON	care	5	Sio	oe (%):		-
Soil Map Unit Name:	┼			·					Long:			<u> </u>		l	Datum:				
Are climatic / hydrolog	ic condition	ons on	the site typical	for this	time	of ve	200		Yes	D.	T	т=-			sification:	<u> </u>			
Are Vegetation .	Soil	ΙΠ.	Or Hydrology				ntly di	e to ork	<del>1</del>		No				n Remarks.				
Are Vegetation .	Soil	10.	Or Hydrology		-		probl						tances"			Yes	De	No	
	1	<u></u>	1,	1	1.00	urany	piooi	Cilia	uc?	ir need	ea, exp	lain ar	ny answe	ers in Re	marks.)				
SUMMARY OF FIN	DINGS -	- Atta	ch site man	show	/ina	sam	nlina	noi	int locatio			4							
Hydrophytic Vegetation	n Present	7		1	es		No			ms, tr	ansec	ts, ım	portan	it featu	res, etc.	<del></del>	·	,	
Hydric Soil Present?	<del></del>		··········		/es		No	旨		amalir									
Wetland Hydrology Pro	esent?	<del></del>	······································		es.	<u>U</u>	No	냠		anihiti	ig Area	WITUI	n a Weti	land?		Yes		No	
Remarks:						1	1	1=				·····					<u> </u>		
				··															
VEGETATION													*********						
Tree Stratum (Plot size	e r = 30 ft.	)			solute Cove	, ,	Domin Specie		Indicate Status	Dr E	Oomina	nce Te	est Worl	ksheet:					
1.			<del></del>							N	lumber	of Don	ninant S	inecies T	hat Are	T			Τ
2.						_ _				c	BL, FA	CW, o	r FAC:	,	1121716		مناهمة		(A)
3.						_	··			т	otal Nu	mber o	of Domin	ant Spe	cies Across		····		_
4.	***									Α	II Strata	a: 		•			2	,	(B)
Sapling/Shrub Stratum	(Plot size	er = 5 !	ft.)			=	Total	Co	ver	- F	ercent BL, FA	of Don CW, o	ninant S	pecles T	hat Are		100	٦	(A/B)
1.			************	7		T			T	р	revale	ace in	dex Wo	rkehaat			100	<i>y</i> 	<u>L</u>
2.			· · · · · · · · · · · · · · · · · · ·			$\top$			<del></del>	<del>-   ·</del>			otal % C			1			
3.											BL spe		1			x1 =	tiply by		
4.			,				·············				ACW s				<u> </u>	<del></del>		<u> 30</u>	
5.	,					$\top$			1		AC spe					X2 =		12	
						] =	Total	Cov	ver		ACU sp				<u>.</u>	x3 =		27/	
Herb Stratum (Plot size	r= 5 ft.)								· · · · · · · · · · · · · · · · · · ·		PL spe				<u> </u>	x4 =			
1. Lolium	OLA 2		<u></u>	91	<u></u>	7	У		FAC						<u>+</u>	x5 =		<u> 30</u>	
2 Eleoche				2			<u>~</u>		19/hL	<del>-   -</del>	olumn	i otais:		12	0 (A)		32	2	(B)
3. Planton	LAAAS	laAl. a	A ST. LOT ON A	5	<u> </u>	+			PACE	T H	lydront	witio V	/egetation		Index = B/A	= 3	2.6	8	
4. Taknotta	BANO	· Po	, s 1 . 4	12		+			1001		ارامان	7							
5. Convolva			<u> </u>	4		+			UPL			1	minance						
6. RADIMOU			W 5/34-	3	<u> </u>	+-				_	أسسا		valence						
7.	N I SV	<u></u>	<del></del>	1-1		- -			FALL	<u>U</u>		Mor	rphologia marks or	cal Adap on a se	itations <sup>1</sup> (Pr parate shee	ovide s	upportir	ıg datı	a in
8.					***************************************							+			hytic Veget	<u> </u>	Evolain		
				1.3	20		Total	Cov	/er				~~~		., , ago	auon (	- Apiaiti		·
Woody Vine Stratum (P	lot size r	= 30 ft.	.)	<del>-,</del>						۱٬	ndicato	rs of h	ydric soi	il and we	etland hydro	logy mi	ist be n	resen	
1.										u	nless di	sturbe	d or pro	blematic				, 03011	٠,
2.				-					<u> </u>				,					T	
04 B O		<del></del>		<u></u>			Total	Cov	/er	ਮੁ	ydropi	ytic V	egetation	on					
% Bare Ground in Herb				Cove	-						resent				Yes		- N	lo	
Remarks: PEM	mete ——	ı ö{- 	lows	S p or	r <i>j</i>	SL,	230 	w	ul U	MH.	lani	ek						<del></del>	

Pro	ject Site:	Vena	M	WA	a A	M	· >>				·							<del></del>	
so	IL			,								<del></del>							
Pro	file Descri	ption: (Descri	be to t	he dept	h nee	ded to	docum	ent the indica	tor or conf	firm the ab	sence o	findic	ators 1	Sam	pling Po	oint: S	VU	- 1a	
	Depth		atrix					Redox Fe											
(i	nches)	Color (moist	)	%	С	olor (M	oist)	%	Type <sup>1</sup>	Loc	2	Text	ure	Horizo	n		Remar		
	- 8	104123/		95	7.	541	23/4	15	Å.	PL		SL		Al	A	i khin	200		
-3	- 17	104801	2	100			7.5		1.			.86		A			er o	<u> </u>	
						····								17.0	<u>-                                </u>	CON-			
			<u> </u>		<del> </del>										$\neg$				
		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·															
					<del> </del>														
					-														
<sup>1</sup> Tvr	e: C= Con	controlion D-I	- I	- B1/-						<u> </u>							·		
Hvd	ric Soil In	centration, D=I	Jepieu	on, RM=	Reduc	ed Mat	rix, CS	=Covered or C	Coated Sand	d Grains. 2	Location	: PL=F	ore Lini	ing, LRC	≈Living	Root Ch	annel,	M=Matri	х.
	Histosol		ncable	to an L	RRS,	7		<del></del>		·	······································	Inc	licators	for Pro	biemat	ic Hydri	c Soils	3:	
		ipedon (A2)		······		<del>                                     </del>	<del> </del>	y Redox (S5)						m Muck					
	Black His						_	ped Matrix (Se	<u> </u>			<u> </u>	2 c	m Muck	(A10) (I	RR B)			
		n Sulfide (A4)				<u> </u>				· ·	<del></del>	12		duced V	<del></del>	<u> </u>			
		Layers (A5) (L	RR CI		Depleted Matrix (F3)  Redox Dark Surface (F6)  Other (Explain in Remarks)														
				Redox Dark Surface (F6)  Depleted Dark Surface (F7)															
	Depleted	rm Muck (A9) (LRR D)  Redox Dark Surface (F6)  peleted Below Dark Surface (A11)  Depleted Dark Surface (F7)  lick Dark Surface (A12)  Redox Depressions (F8)																	
			2)																
	Sandy M	ucky Mineral (S	51)		☐ Vernal Pools (F9)  3thdicators of hydrophytic vegetation and wetter														
	Şandy G	y Mucky Mineral (S1)  Vernal Pools (F9)  Gleyed Matrix (S4)  Vernal Pools (F9)  Jandicators of hydrophytic vegetation and wetland hydrology must be present.																	
Rest	trictive La	Sandy Mucky Mineral (S1)  Vernal Pools (F9)  Sandy Mucky Mineral (S1)  Vernal Pools (F9)  Sandy Mucky Mineral (S1)  Jandicators of hydrophytic vegetation and wetland																	
Турє	):																		
Dept	h (Inches)						***************************************			Hydric S	oils Pres	sent?			Yes	[jim	No.	,   _	,
Rem	arks:															1			<u>'</u>
HYE	ROLOG	Υ																———	
Wetl	and Hydro	ology Indicato	rs:					***					·						
Prim	ary Indicat	ors (any one in	dicator	is suffic	ient)							Sec	ndary I	ndicator	s (2 or r	nore rea	uirod)		
	Surface	Water (A1)					Salt	Crust (B11)		<del></del>				Marks (I			uneu)		
	High Wa	ter Table (A2)						Crust (B12)		<del></del>	<del></del>			ent Dep			wl \		
	Saturation	n (A3)	···				Aqua	tic invertebrat	es (B13)					eposits			rine)		
	Water M	arks (B1) (Non	riverin	e)				ogen Sulfide C				一		age Patte					
	Sedimen	t Deposits (B2)	(Non	riverine)		<b>19</b>		ized Rhizosph		Livino Root	s (C3)	븝		eason W					
	Drift Dep	osits (B3) (No	riveri	ne)				ence of Reduc			- (00)			sh Burro					
	Surface	Soil Cracks (B6	5)					ent Iron Reduc		<del>`</del>									
	Inundation	on Visible on A	erial Im	agery (E	37)			Muck Surface				+		ation Visi			agery (	J9)	
		ained Leaves (						r (Explain in R	<del></del>					w Aquita					
			,					· (=>\picin 111 11	critatio)				rac-n	Veutral T	est (D5	)		<del></del>	
Field	Observat	ions:				<u>-</u>			<del></del>	<del></del>									
Surfa	ce Water I	Present?	Yes	To	No	To		Depth (inches)	. T										<del>,</del>
	r Table Pr		Yes	1=	No	十一	<del>[</del>	Depth (inches)							į				
	ration Pres	<u></u>				+								_					
(inclu	ides capilla	ry fringe)	Yes		No			Depth (inches)				na Hyd	irology	Presen	t?	Yes	i i	No	
Desc	ribe Recor	ded Data (strea	am gau	ige, mon	itoring	well, a	erial pi	notos, previous	s inspection	ıs), if availa	ble:				اـــــا		<u> </u>	<u></u>	
Rema	arks:																	<del></del>	
																			- 1

WETLAND DETERMINATION DATA FORM - Arid West Region

Data Point 2

Project Site:	VA	nd l	M. MINO	Mur	5			Cit	y/Cou	nty:	l			Sampling P	oint:	50	. A. A.	F
Applicant/Owner:				- 14							State:		CA	Sampling D		1-25	<u>U - [</u>	<u>ප</u>
Investigator(s):	Butterw	orth 📝	DANIS				Se	ction, To	wnsh	ip, Ran	ge:	T		Gamping C		to No:	т	
Landform (hillslope, t	errace, et						Lar	nd Surfa	ce Sh						╅			
Subregion (LRR):		Ł	Lat				COL	vex, pla			<u> </u>			D-1	210	)e (%):		
Soil Map Unit Name:				1				120119	·········				NIM/I alaa	Datum: sification:	Т			
Are climatic / hydrolog	gic conditi	ons on	the site typical fo	r this tim	e of ye	ear?	Ιγ	es/		No		(If no		n Remarks.)	<u> </u>			
Are Vegetation		□.	Or Hydrology			ntly distu	ırbe	d?					* present?		Yes	15	T	т
Are Vegetation	l. Soil	□.	Or Hydrology	□. na	iturally	problem	natic						vers in Re		res	<u> </u>	No	
														<u>i</u>				
SUMMARY OF FI	NDINGS	– Atta	ch site map s	howing	sam	pling p	oin	t locati	ions,	trans	ects, i	mporta	nt featu	res. etc.				
Hydrophytic Vegetation			,	Yes			9	1								T	1	T
Hydric Soil Present?				Yes		No [	9	Is the	Samp	ling Ar	ea witi	hin a We	tland?		Yes		No	1
Wetland Hydrology P	resent?			Yes		No [	9											
Remarks:												***			L	٠	J	
VEGETATION																		
Tree Stratum (Plot size c = 30 ft )  Absolute Dominant Indicator Deminant Indicator																		
	ze r = 30 f	t.)								Domi	nanca	Toet Me						
1.				% Cov	ar 1	Species'	2	Status	<u> </u>		Hance	I COL VAL	n vancet.					
2.	····									Numb OBL	er of D	ominant	Species	That Are	1	Ø		(A)
3.		·····	·												┼	1000		
4.	-		<del></del>						-	All St	Numbe rata:	er or Don	unant Spe	cies Across		0		(B)
				,		= Total C	ove	er		Parac	nt of D	omine ut	Species 7	F1	+-			
Sapling/Shrub Stratus	m (Plot siz	e r = 5	ft.)					~	$\neg$	OBL,	FACW	or FAC	Species :	nat Are		D		(A/B)
1.										Preva	alence	Index W	orksheet	:	:			<u> </u>
2.												Total %	Cover of:	<del></del>	Mu	ltiply b	····	
3.										OBL :	species	}			x1			
4.										FACV	V speci	es			x2	=		
5.										FAC	species	· · · · · · · · · · · · · · · · · · ·		·	хЗ	=		
					1	= Total C	Cove	er .		FACL	J specie	es			X4	=		
Herb Stratum (Plot si	ze r = 5 ft.	)								UPL :	species	·	10	5	х5	=  -	52	~
1. TALMASH	awm	C12 1	nn-viu dis	6 40		X		UP		Colur	nn Tota	als:		(A)			J	(B)
1. TALNAY 2. Canvolv	ules	and	رمخراه والمها	2				UP				P	revalence	Index = 8/A	= '	-		
3. Avena f				套/	0	_X		130	<u></u>	Hydr	ophytic	Vegeta	tion Indi	cators:			<del></del>	
4. Raidrain	US 5	HUL	is	41				UPI	_		ľ	Dominan	ce Test is	>50%				
5. VICIA AV				21				up	refit to		F	revalen	ce Index i	s ≤3.0¹				<del></del>
6.														ptations¹ (Pr	ovide s	LIDDOG	ina dat	
7.											F	Remarks	or on a s	eparate shee	et)	սենու	ing dat	<b>3</b> 1(1)
8.											F	roblema	itic Hydro	phytic Veget	ation1	(Explai	n)	
				105		= Total C	Cove	er .			***************************************			***************************************		`		
Woody Vine Stratum	(Plot size	r = 30 f	t.)							<sup>1</sup> Indic	ators o	f hydric :	soil and w	retland hydro	logy m	ust be	oresen	t.
1.						,				unles	s distui	rbed or p	roblemati	C.				
2.			······································					İ										
			<del>,</del>			= Total (	Cove	er		Hydr	ophytic	c Vegeta	ation					
% Bare Ground in He	rb Stratur	<u>n</u>	%	Cover of	Biotic	Crust		<u> </u>		Pres	ent?		····	Yes			No	
Remarks:		ę -																

Proje	ct Site:	Van	de	UN	100	da	; \$K							·					
SOIL		2 2 2 2 3	- nerve de	- U.E	36.6A	<u> </u>	<u>LP V3</u>								-				
		ption: (Descr	be to	the dep	th nee	ded to	docum	ent the indicato	r or com	firm the -'		e 1. ···		San	pling Po	oint: S	W.	16	
De	epth	M	atrix	<del></del>				Redox Featu		irin the ap	sence o	findic	ators.)						
(inc	ches)	Color (mois	1)	%	-	olor (M	oist)	%	Type <sup>1</sup>	Loc	2			T					
0-	įų	IDLIK,3/	2 1	00	$\neg$		<u></u>		.,,,,,			Tex		Horizo	on		Rema	rks	
		,								<del></del>				A					
										<del> </del>									
										<b>-</b>									
				<del></del>						T					_				
					_														
		······································			<del> </del>							*******			_				
1 <sub>Type</sub>	· C= Con	Contration D-I	Danieli	- DA															
Hydri	c Soil Inc	licators: (App	licable	on, Rivi	Redu	ed Mai	rix, CS	=Covered or Coa	ited Sand	Grains, 2	Location	: PL≃F	ore Lin	ing, LRC	≃Living	Root C	hannel	M=Mat	rix.
	Histosol		iicabii	e to an	LKKS,	7	T	<del></del>				ine	licators	for Pro	blemat	ic Hydr	ic Soil	s³:	
		pedon (A2)			<del></del>	-	<del></del>	dy Redox (S5)				10		m Muck					
		k Histic (A3)  Loamy Mucky Mineral (F1)  Depleted Matrix (F2)  Depleted Matrix (F3)  C m Muck (A10) (LRR B)  Reduced Vertic (F18)  Red Parent Material (TF2)  Other (Explain in Remarks)																	
		Loamy Mucky Mineral (F1)  Depleted Matrix (F2)  Depleted Matrix (F3)  Loamy Mucky Mineral (F1)  Reduced Vertic (F18)  Red Parent Material (TF2)  Other (Explain in Remarks)																	
			Unitide (A4)  Loamy Gleyed Matrix (F2)  U Red Parent Material (TF2)  yers (A5) (LRR C)  Depleted Matrix (F3)  (A9) (LRR D)  Redox Dark Surface (F6)																
		flied Layers (A5) (LRR C)																	
	Depleted	tuck (A9) (LRR D)																	
	Thick Dai	rk Surface (A12)  Redox Depressions (F8)  ucky Mineral (S1)  Vernal Pools (F9)																	
<u> </u>	Sandy Mi	k Surface (A12)																	
~~		Ark Surface (A12)  Redox Depressions (F8)  Bucky Mineral (S1)  Vernal Pools (F9)  Sleyed Matrix (S4)  Redox Depressions (F8)  Indicators of hydrophytic vegetation and wetland hydrology must be present														1			
Restri	ctive Lay	by Mucky Mineral (S1) Vernal Pools (F9)  Vernal Pools (F9)  Vernal Pools (F9)  Judicators of hydrophytic vegetation and wetland																	
Type:																			1
	(Inches):			····						Hydric S	oils Pres	ent?			Yes		N		<u>za:</u>
Remar	rks:																	1 194	
	- 1																		1
		······································																	
HYDR	ROLOGY																		
		logy Indicator																<del></del>	<del></del>
		ors (any one in	dicator	is suffic	cient)							Seco	ndary i	ndicator	s (2 or m	ore rec	uired)		
		Vater (A1)					Salt (	Crust (B11)						Marks (I					
		er Table (A2)	<i>,</i>				Biotic	Crust (B12)						ent Dep			rine)		
	Saturation	<del></del>					Aqua	tic Invertebrates	(B13)					eposits (					
		irks (B1) (Noni		<u></u>			Hydro	ogen Sulfide Odo	r (C1)					ge Patte					
		Deposits (B2)			)		Oxidi	zed Rhizosphere:	s along l	iving Roots	s (C3)		Dry-Se	ason W	ater Tab	ie (C2)			<u>-</u>
		osits (B3) (Non		ne)			Prese	ence of Reduced	Iron (C4)	)				h Burro					
		oil Cracks (B6					Rece	nt Iron Reduction	in Tilled	Soils (C6)				tion Visi		erial Im	agery (	(C9)	
	Inundatio	n Visible on Ae	rial Im	agery (l	37)		Thin I	Muck Surface (C7	7)					w Aquita			-3,		
	Water-Sta	ined Leaves (	B9)				Other	(Explain in Rem	arks)					eutral T					
Field C	bservati	ons:	·····	·									-	*					
Surface	e Water P	resent?	Yes		No		E	Depth (inches):							T			T	1
	Table Dre		Yes		No		Ε	epth (inches):											
Water 1				-	No			Pepth (inches):			Wetian	d Hyd	roloav	Present	,	Yes		A!-	-
Saturat	ion Prese		Yes		,					1		,	37		- [			No	X
Saturat (include	ion Prese es capilla	y fringe)				well	ariai at	otoo Francisco			<del>.</del>							<u> </u>	⊥`
Saturat (include	ion Prese es capilla	y fringe)				well, a	erial ph	otos, previous ins	spections	s), if availat	oie:		·· · · · · · · · · · · · · · · · · · ·		l			<u> </u>	Т
Saturat (include Describ	ion Prese es capillar pe Record	y fringe) led Data (strea	m gau	ge, mor	litoring								***************************************		l.			1	<u> </u>
Saturat (include	ion Prese es capillar pe Record	y fringe) led Data (strea	m gau	ge, mor	litoring							Sti	enl	We	Hai	isk.	de	@/109:	<u> </u>
Saturat (include Describ	ion Prese es capillar pe Record	y fringe) led Data (strea	m gau	ge, mor	litoring			New L				Shi	eal	We	Hay	id	de	0/e8	<u> </u>

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site:			Van	v stt 8	W MAA	ALOA	Ar_				CibyCo	t. a				T		1 200		-799
Applicant/O			A TUTA	y.L.	IN SAINT	ian vy					City/Co		State		100	Sampling F			ict"	30-
Investigator(			Butterwo	orth	*****					Ser	ction, Towns			:	CA	Sampling I	<del></del>	11/	29/2	19_
Landform (h				<del></del>						Lar	nd Surface S	hape (coi		e,	<del></del>			to No	100	-0-
Subregion (I		-,		<del></del>	Lat:					соп	vex, planar): Long:		Т-				510	pe (%)	):	
Soil Map Un		ne:			Lui						Long.			<del></del>	N000 -1-	Datum:	<del></del>			
			conditio	ns on	the site typical f	or this tim	e of v	/ear	r?	Tv	′es □	No	Tc	7 //f no		sification:	1			
Are Vegetati		α,	Soil	Ιロ,	Or Hydrology	1			ly distu					mstances		n Remarks.)		10	-T	T=-
Are Vegetati		Π,	Soil		Or Hydrology	<del>  -</del>			roblem				•	any ansv			res		No	
			<b>L_</b>	1							1(0.40)		· ·	any and	WC13 111 1 (c	illaiks.)				
SUMMARY	Y OF	FIND	NGS -	- Atta	ch site map s	showing	san	npl	ling po	oini	t locations	, transe	cts.	importa	int featu	res. etc				
Hydrophytic						Yes	包										T	T		<del></del>
Hydric Soil F	reser	nt?				Yes	Ø		No [		is the Sam	pling Are	ea wi	thin a We	etland?		Yes		No	
Wetland Hyd	drolog	y Pres	ent?			Yes		7	No [		1						}			
Remarks:												***				***	L			
\				·			****												<del></del>	
VEGETATI		+ nizo	- 20 #	`		Absolu	te	Do	ominan	nt	Indicator	Ι								
Tree Stratun	נו (רוט	t SIZE	- 30 11.	· <i>)</i>	********	% Cov	er	Sı	pecies?	?	Status	Domin	nance	e Test Wo	orksheet:					
1.												Numbe	er of	Dominant V, or FAC	Species	That Are		-	3	(A)
2. 3.												<del> </del>							- Bush	L " "
						<del> </del>	-				ļ	Total N	Numb	er of Don	ninant Sp	ecies Across		×	,	(B)
4.							$\dashv$	_	Total C	20110	<u> </u>	<del> </del>					-	مي	· 	<u> </u>
Sapling/Shru	ub Str	atum (	Plot size	e r = 5	ft.)		1	_	Total	-UVE		Percer OBL, F	nt of I FACV	Dominant V, or FAC	Species :	That Are		10	9	(A/B)
1.						1						Preva	lence	index W	forkshee	t:				<u> </u>
2.														Total %	Cover of:		Mu	ıltiply	bv:	
3.				•								OBL s	pecie	es	T		x1			
4.												FACW	/ spe	cies	1	20	x2	=	240	7
5.												FAC s	pecie	es	1	4	х3	=	3	
								=	Total C	Cove	er	FACU	spec	ies			x4	=		
Herb Stratur	m (Plo	t size	r = 5 ft.)								·	UPL s	pecie	es	i	0	x5	=	ଟ୍ର	<del></del>
1. Dali	u an	DAIL	(AAS)	Who	elleums	50			X		FACIN	Colum	n To	tals:	13			7	93	(B)
2. (2,0)		1	isas	3	Francisco : 112	20			X		FACIN	<b>T</b>				Index = B/A				···/
3. 1100	E-A-fe-4-				Mill	410					UPL	Hydro	phyt	ic Vegeta	ation Indi	cators:		<u> </u>		<del></del>
4.	ā	M	<u> </u>	istr		150			X		FARN	3		Dominan	ce Test is	s >50%				
5. (A.A.	Sell	a. V	)11 Ma	ิก/ข	stone	41					FAL	اسمعا		Prevalen	ce Index	is <3.01				
6.		· · · · · · · · · · · · · · · · · · ·	140 - 1 - 2 - 2 - 2 - 2 - 2 - 2	1	<del></del>						1	<del> </del>			****	ptations¹ (Pr	rovide	SUDDO	utina da	to in
7.												1		Remarks	or on a s	eparate she	et)	auppo	nang ua	la iri
8.														Problema	atic Hydro	phytic Vege	tation1	(Exnl:	ein)	
						13		=	Total C	Cove	er				<del></del>	1		(2,4),	<u> </u>	
Woody Vine	Strat	um (P	ot size i	= 30 f	t.)				<del></del>			1Indica	ators	of hydric	soil and v	vetland hydro	ology n	nust h	e nresei	nt
. 1.					- 11 - 11 - 11							unless	dist	urbed or p	oroblemat	ic.			o prede	14,
2.																	T			_ <del></del> ,
								=	Total C	Cove	<b>∋</b> r			tic Veget:	ation					
% Bare Grou	und in	Herb	Stratum	1	%	Cover o	Bioti	ic C	rust			Prese	nt?			Yes	45	9000	No	
Remarks:																				

Project Si	ite: Vala	LA	MA.	1 Ad	AL	<u> </u>												
SOIL		<u> </u>			<u> </u>			777								1 6		
Profile De	escription: (Descr	ibe to ti	he depti	h need	led to	docun	nent the indicat	or or conf	irm the abs	sence of	indica	ifors )	Sam	pling Po	int: S	Ws	ra	
Depth		atrix		T			Redox Fea			1								
(inches	) Color (mois	t)	%	Co	olor (Mo	oist)	%	Type <sup>1</sup>	Loc	·	Text	ıre	Horizo	n		Remark		
0-2	104K3/	2 1	36,								1		A			venian		
2-7	100023/	2	80	7.5	9£3	14	20	6	M		<u> </u>		42					
7 - 1	3 10423	2	00								e i		A.3					
	"										<u></u>	=/						
				<del> </del>														
17,	Constitution B	<u> </u>																
	Concentration, D=							pated Sand	d Grains. 2	Location:			ing, LRC					ix.
	oil Indicators: (Apposol (A1)	nicable	(O all L	.RRS, L									s for Pro			Soils:	3;	
<del></del>	ic Epipedon (A2)					+	ndy Redox (S5)				1-		m Muck					
	K Histic (A3)																	
		en Sulfide (A4)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Depleted Matrix (F3)  Cither (Explain in Remarks)  Loamy Gleyed Matrix (F3)  Depleted Matrix (F3)  Depleted Matrix (F3)  Cither (Explain in Remarks)																
<del></del>	<del> </del>	ers (A5) (LRR C)																
		Redox Dark Surface (F6)  Depleted Dark Surface (F7)																
	· · · · · · · · · · · · · · · · · · ·	uck (A9) (LRR D)  Redox Dark Surface (F6)  d Below Dark Surface (A11)  Depleted Dark Surface (F7)  ark Surface (A12)  Redox Depressions (F8)																
☐ Thic	k Dark Surface (A1	k Surface (A12)																
☐ San	dy Mucky Mineral (	oral (S1)																
☐ San	dy Gleyed Matrix (S	cky Mineral (S1)																
Restrictiv	y Mucky Mineral (S1)																	
Туре:																		
Depth (Inc	hes):								Hydric S	oils Pres	ent?			Yes	M	No	,   [	.
Remarks:															1 * *			
•																		
			<del></del>					······································										
HYDROL	.OGY															***************************************		
Wetland F	lydrology Indicate	rs:																<del></del>
Primary In	dicators (any one in	ndicator	is suffic	ient)				<del></del>			Seco	ndary	Indicator	s (2 or n	nore rea	uired)		
Sun	face Water (A1)					Salt	Crust (B11)						Marks (					
☐ High	n Water Table (A2)				<b>A</b> -	Biot	ic Crust (B12)						nent Dep			ine)		
☐ Sate	uration (A3)					Aqu	atic Invertebrate	es (B13)					eposits			,		
☐ Wat	ter Marks (B1) (Nor	riverin	e)				rogen Sulfide O						age Patte					
☐ Sed	iment Deposits (B2	) (Nonri	iverine)			Oxic	dized Rhizosphe	res along l	Living Roots	s (C3)			eason W	<u></u>	<del></del>			
☐ Driff	Deposits (B3) (No	nriverin	ıe)				sence of Reduce						sh Burro		02)			
☐ Surf	face Soil Cracks (B	6)				Rec	ent Iron Reducti	on in Tilled	Soils (C6)			<u>_</u>	ation Visi		erial Im	anen/	CD)	
☐ Inur	ndation Visible on A	erial Ima	agery (E	37)		Thin	Muck Surface	(C7)	<u> </u>				w Aquita			agery (		
☐ Wat	er-Stained Leaves	(B9)				Othe	er (Explain in Re	marks)					Veutral T					
						I												
Field Obs	ervations:								<del></del>									
Surface W	ater Present?	Yes		No		T	Depth (inches):	T									ι	Т —
Water Tab	le Present?	Yes		No		_	Depth (inches):		······································									
Saturation		Yes		No	$\Box$		Depth (inches):		···	Wetler	nd Hvd	rologe	Presen	+2	Vac	<u>~</u>		
<del></del>	apillary fringe)			L								· ology	-1454[]		Yes		No	
Describe R	Recorded Data (stre	am gau	ge, mon	utoring	well, a	erial p	photos, previous	inspection	s), if availa	ble:								
Remarks:	Bithel	wst	15.	tany	Lina	X-												

WETLAND DETERMINATION DATA FORM - Arid West Region

Data Perut 3

Project Site:	T 1 1 1 1 1 1	a All	un Wai	9	MA	經												-6016	١	** W.X
Applicant/Owner:	1 404	MXA	UN INT	UM.	V	"			City	//Cou	nty:				Sampli	ing Po	oint:	50	U-	26
Investigator(s):	Butterwo	arth.	·			—						State:	· · · · · · · · · · · · · · · · · · ·	CA	Sampli	ng Da	ite:		9/	
	<del></del>								ection, To								Photo		1	
Landform (hillslope, te	errace, etc	.):						co	nd Surfac nvex, pla	ce Sn nar):	ape (cor	cave	'				Slope	(%):		
Subregion (LRR):			Lat:		丄				Long:	:		T			Datum:			T	<u> </u>	
Soil Map Unit Name:														NWI cla	ssification	n:		·		
Are climatic / hydrolog				or this	time	of ye	ear?		Yes		No		(If no	, explain	in Remai	rks.)				
Are Vegetation .		<u> </u>	Or Hydrology	<u> </u>	sig	nificar	ntly	disturbe	d? /	Are "I	Normal (	Circun	stances	" present	1?		Yes	1	No	
Are Vegetation .	Soil	□.	Or Hydrology	<u> </u>	nat	urally	pro	blematic	:? (	(If ne	eded, ex	plain	any ans	wers in R	emarks.)		·1			1
SI IMMARY OF FIN	DINCE	A 44-	-h -16																	
SUMMARY OF FIN Hydrophytic Vegetation	n Present	- Alla	ich site map s						t locatio	ons,	transe	cts, i	mporta	ant feati	ures, etc	c				
Hydric Soil Present?	n r tesent	,			es		No		ļ	_										
Wetland Hydrology Pre	esent?				es es		No		Is the S	Samp	ling Are	a wit	hin a We	etland?			Yes		No	0
Remarks:					es		No		<u> </u>											
Remarks.																				
							<del></del>													
VEGETATION							-													
Tree Stratum (Plot size	e r = 30 ft.	)		;	olute			inant cies?	Indicat		Domin	ance	Test Wo	orksheet						
1.					JOVE	-   -	Sher	iles (	Status						· 				,	
2.			***			+				$\dashv$	Numbe OBL, F	r of D ACW	ominant or FAC	Species	That Are			2	1	(A)
3.						_					Total M							- CP		
4.						$\dashv$			<del> </del>	$\dashv$	All Stra	umbe ta:	f of Don	ninant Sp	ecies Acr	oss		3	1	(B)
		7	*****				= To	tal Cove	1 er		Posses	4-60					<u> </u>	وسه		
Sapling/Shrub Stratum	(Plot size	r = 5	ft.)			·				$\dashv$	OBL, F.	ACW	ominant or FAC	Species :	That Are			6C	1	(A/B)
1,						$\top$			Γ		Prevale	ence	index W	orkshee	<b>f</b> •		<u> </u>	W. C.		
2,						+				_				Cover of			Marini	mts b		
3.						1				_	OBL sp			T T			x1 =	ply by:		
4.											FACW				12		x2 =		*	
5.											FAC sp	<u> </u>			50		x3 =	+-	24	
						7:	= To	tal Cove	er -		FACU:	specie	 es	E	<b>2</b> 2		x4 =	+-	50	
Herb Stratum (Plot size	e r = 5 ft.)			<u> </u>						-	UPL sp				e de la companya de l			-		
1. Talmothem	lans C	a auto	-Va art 150	50		$\top$		×	UPL		Column					(A)	x5 =		-22	
2. Lourn a	موافقات	*****		<u>5</u> 5		_		<u> </u>	FA		Colum	1 1018						475		(B)
3. Heidling	least	<u> </u>		10	~	十	<u>.</u> X	<del></del>	FAL		Hydror	phytic		tion indi	Index =	B/A =	<u>\$.</u>	79		
4 Convalvui			٠	d.	-	1			Upi		1	_		ce Test is						
5. Rumey C				~ 7		+			FACI				~			4 8	<u>ි</u> ප			
6.	41260					+			CHE	4				ce Index						
7.						+			<u> </u>	$\dashv$		I N	iorpholo lemarks	gical Ada or on a s	aptations <sup>1</sup> separate s	(Prov	vide su	pportin	g data	in
8.						- -					······································									
				4 6	7	+	= Tot	tal Cove	<u> </u>	$\dashv$		1,	roblema	tic Hydro	phytic Ve	egetat	ion' (E	xplain)		
Woody Vine Stratum (F	Plot size r	= 30 ft		1.2			- 10	ai Cove	;ı	$\dashv$	1									
1.						$\top$			1		uniess	tors o distur	f hydric s bed or p	sail and v roblemat	vetland hy iC.	/drolo	gy mu	st be p	resent	
2.						╁							•		<del></del>					
						+	= Toi	tal Cove	ı	$\dashv$	1 least an									
% Bare Ground in Herb	Stratum		%	Cover	of B					$\dashv$	Hydror Presen	ırıytic it?	: Vegeta	uon	Yes					سسائا
Remarks: On V	Пррег	. 0.6	dge of						Leve	 ( e	dep	હક્	est na	rl á						

Project Site:	Van	BIN	U	Me	ad	ATA	15		· · · · · · · · · · · · · · · · · · ·									
SOIL	0						<u> </u>											
Profile Descr	ription: (Descr	ibe to ti	he dept	h need	led to	docum	ent the indicat	or or con	firm the abe	onco of	india	-41	Samp	ling Po	int: S	<u> </u>	يا لي	3
Depth	M	latrix		T			Redox Fea		tite and	auce of	maic	ators.)						
(inches)	Cofor (mois	t)	%	C	olor (M	oist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		Text			<del></del>				
0.2	10 MR 3	11	47	7.	SYR	4/10	2	C	PŁ				Horizon			Rema	rks	
2-16	10423/	73 1	00	1	<u> </u>			- Charles	1 196-		<u> </u>		41					
											-		12					
									<del></del>					+-				
									<del>-</del>	_								
														-				
									<del></del>	_				-				
									<del> </del>	_				┤—				
<sup>1</sup> Type: C= Cor	ncentration, D=	Depletio	n, RM=	Reduc	ed Mat	rix, CS	=Covered or Co	pated San	d Grains. <sup>2</sup> L	ocation:	PL=P	ore Lining	LRC=	living	Post C			
Hydric Soil In	dicators: (App	olicable	to all L	.RRs, ı	unless	other	vise noted.)				Inc	licators fo	or Prob	lomati	C Hude	nannel,	M=Mai	trix.
☐ Histosol	(A1)					San	dy Redox (S5)				+		Muck (			C 5011	S*:	
☐ Histic E	pipedon (A2)						ped Matrix (S6)		······································		ᅡᡖ		Muck (					
☐ Black Hi	istic (A3)			-		Loas	my Mucky Miner	ral (F1)			1=		ced Ve					
☐ Hydroge	en Sulfide (A4)					Loar	my Gleyed Matri	ix (F2)					Parent I		<u> </u>	·····		
☐ Stratified	d Layers (A5) (I	LRR C)				Dep	leted Matrix (F3)	)	···		╁┼		(Expla					
1 cm Mu	ick (A9) (LRR (	2)				Red	ox Dark Surface	(F6)			-	_ Calci	(Expla	m m K	emarks	·		
☐ Depleted	Below Dark S	urface (	A11)			Dep	leted Dark Surfa	ce (F7)			7							
☐ Thick Da	ark Surface (A1	2)				Red	ox Depressions	(F8)			1							
☐ Sandy M	łucky Mineral (	S1)				Vern	al Pools (F9)			·	١,							
☐ Sandy G	leyed Matrix (S	54)				<u> </u>					- Inc	dicators of	f hydro; ust be p	ohytic v present	egetatio	on and	wetland	di
Restrictive La	yer (if present	t):																
Туре:																		
Depth (Inches)	:					**		· · · · · · · · · · · · · · · · · · ·	Hydric Soi	ils Pres	ent?		-	Yes		N		à l
Remarks:	Absus	~ 0 ——	+ b	roh	C U	US#	; Red	ex co	nst e	Al	/3	4009	lux	, to	be	FG	,	
	ology !ndicato																	
	tors (any one in		in outfin	inne		******				<del></del> -								
		dicator	is suite	ient)							Seco	ndary Ind	icators	(2 or n	ore req	uired)		
	Water (A1)					<del></del>	Crust (B11)					Water Ma	arks (B	1) (Riv	erine)			
	ater Table (A2)						c Crust (B12)					Sedimen	t Depos	sits (B2	(Rive	rine)	· · · · · · · · · · · · · · · · · · ·	
☐ Saturation						Aqua	atic Invertebrate	s (B13)				Drift Dep	osits (E	33) (Riv	rerine)			
	larks (B1) (Non		<del></del> -				ogen Sulfide Od					Drainage	Patter	ns (B1	0)			<del></del>
	nt Deposits (82					Oxid	ized Rhizospher	res along	Living Roots	(C3)		Dry-Seas	son Wa	ter Tab	le (C2)			
☐ Drift Dep	oosits (B3) (No	nriverin	e)	]		Pres	ence of Reduce	d Iron (C4	1)			Crayfish			<u>_</u>	<del></del>		
☐ Surface	Soil Cracks (B6	3)				Rece	ent Iron Reduction	on in Tilled	d Soils (C6)			Saturatio			erial Im	agery /	C9)	
☐ Inundation	on Visible on A	erial Ima	agery (B	37)		Thin	Muck Surface (	C7)				Shallow			1911	-5-7		
☐ Water-S	tained Leaves	(B9)				Othe	r (Explain in Re	marks)	-		一	FAC-Neu		<u> </u>				
				h				<u>-</u>	······································			/ 100		(20)				
Field Observa	tions:										,	<del></del>						
Surface Water	Present?	Yes		No			Depth (inches):						<del></del> -				<del></del>	<del></del>
	esent?	Yes		No			Depth (inches):	<del> </del>						1				
Water Table Pr	···	Yes		No		_	Depth (inches):			Wetlan	d Hyd	rology Pr	esent?	,	Yes		No	1
Water Table Pr				t					L			·		1				Arrest 1
Water Table Pr Saturation Pres (includes capilla	ary fringe)	am gaud	je, mon	itorina	well a	erial ni	notos, previous	inspection	el if available	٥.							L	
Water Table Pr	ary fringe)	am gaug	ge, mon	itoring	well, a	erial pl	notos, previous	inspection	is), if availabl	e:							L	
Water Table Pr Saturation Pres (includes capilla Describe Recor	ary fringe)   rded Data (stre					erial pl	notos, previous	inspection	ns), if availabl	e:							L	
Water Table Pr Saturation Pres (includes capilla	ary fringe)   rded Data (stre	am gaug				erial pl	hotos, previous	inspection	ns), if availabl	e:	·····						<u>.                                    </u>	

## WETLAND DETERMINATION DATA FORM – Arid West Region

Data Point 5

Project Site:	Val	Ad I	w WALRA	inus				C	ity/Cou	untv:	E	lavo		Sam	pling Po	l'mér	2 4	100	73 6
Applicant/Owner:	- V NVC		The state of the s		<del></del>				,.		State		CA	+ -	pling Da		7	700	> _
Investigator(s):	Butterw	orth	······································		······································		T.	Section,	Townsh	hip. Rand		-	Toy_	Jain	ping Da		7/2	9/0	9
Landform (hillslope, te	errace, etc	:.):					1	Land Sur	face Si	hape (co		e,				Phot		3	
Subregion (LRR):	T		Lat:					convex,	olanar): ng:							Slope	9 (%):	<u> </u>	
Soil Map Unit Name:	+				<del></del>			120	iig.		Щ.			Datur		·			
Are climatic / hydrolog	ic condition	ons on	the site typical fo	or this tim	e of ve	ar?		Yes		No	1,	7 (15	NWI clas						
Are Vegetation		Τロ.	Or Hydrology	r = r		ntly dis	stur	.1	<del></del>			(If no, mstances'	explain		arks.)	1		<del></del>	
Are Vegetation	Soil	│□.	Or Hydrology	<del></del>		proble						any ansv				Yes	<u> </u>	No	
				<u></u>					14	30000, 0	APIGII	ally allsv	veis III Ki	emarks	5.)				
SUMMARY OF FIN	IDINGS -	– Atta	ich site map s	howing	sam	pling	po	int loca	tions.	. transe	cts.	importa	nt feat	IFOC (	oto.				
Hydrophytic Vegetation			······································	Yes	12	No	ÌE			,		porta	- Catt	1165, 6	10.			Ι	
Hydric Soil Present?			7	Yes	W	No	Е	] is th	e Samp	oling Are	ea wi	ithin a We	tland?		1.	Yes	سما	No	_
Wetland Hydrology Pr	esent?			Yes	0	No	Г	_							-		Contract of the Contract of th	ING	
Remarks:																		i	
VEGETATION				Absolu	4- 1	D		1				······································							
Tree Stratum (Plot siz	e r = 30 ft	.)		% Cov		Domin Specie			cator us	Domir	nanc	e Test Wo	rksheet:	:					
1.			· · · · · · · · · · · · · · · · · · ·							Numbe	er of	Dominant	Species	That A	re				
2.										OBL, I	FACV	V, or FAC:					100		(A)
3.										Total N	Numt	er of Dom	inant Sp	ecies A	cross				(D)
4.										All Stra	ata:						į		(B)
Sapling/Shrub Stratun	ı (Plot siz	er=5	ft.)			= Total	I Co	over		Percer OBL, F	nt of FACV	Dominant V, or FAC:	Species	That A	re	70	00		(A/B)
1.										Preva	lence	Index W	orkshee	t:		.,.			
2.									. <u>.</u>			Total %	Cover of:			Mult	iply by	:	
3.		<del> </del>			_					OBLs	pecie	s	8	5		x1 =		8	5
4.	<del></del>		·		_					FACW	<u> </u>					x2 =			
5.										FAC s	pecie	es				x3 =			
			<del>"</del>		:	= Total	I Co	over		FACU	spec	ies				x4 =			
Herb Stratum (Plot siz										UPLs	pecie	s				x5 =			
			Marion			<u> X</u>		01	<u>3L</u>	Colum	ın To	tals:	ુ	5	(A)		85		(B)
2. Crypsis	Sch	sen.	oides	5				01	<u> </u>			Pr	evalence	Index	= B/A =	:	Ì		······································
3. 01										Hydro	phyt	ic Vegeta	tion Indi	cators	:				***************************************
4.					_					c		Dominano	e Test is	>50%					
5.	<del></del>									V	$\triangle$	Prevalenc	e Index	is <u>≤</u> 3.0	1			-	
7.								-				Morpholo Remarks	gical Ada or on a s	ptation	ns <sup>1</sup> (Prove	vide su	pporti	ng data	a in
8.	***************************************		***							<del> </del>	_	Drobleme	tio Under			. 1 -			
	<del>,</del>			85	.	= Total	l Co	over			L	Problema	iic Hydro	рпуцс	vegeta	ion. (F	xplain	)	
Woody Vine Stratum (	Plot size i	= 30 f	t.)		<del></del>					¹Indica	ators	of hydric s urbed or p	oil and w	vetland	hydroid	gy mu	st be p	reseni	t,
2.								_					ODICITIAL	ic.					
			<del></del>			= Total	LCa	2005		1	_							1	
% Bare Ground in Her			<del></del>	Cover of	Biotic	Crust				Prese	nt?	tic Vegeta		Ye	s		1	10	
Remarks: W.C.	Hau l ver	d C Hed	tramag	2 81 Hu	Λ/A Λ (	le srel	) مار	evos:	šls	Ü	LN	in Ot	- ราจิ	رجل		-			

Proj	ect Site:				-													
so													Sam	pling Po	int: W	DS-	- [	
				e depti	need	ed to	iocun	ent the Indica		irm the abs	ence of	indica	tors.)		Edah	1_00}	cert:	5
	Depth		atrix		<u> </u>			Redox Fea								1		
	nches)	Color (moist		%		olor (Mo	<u> </u>	%	Type <sup>1</sup>	Loc2		Textu	ıre Horizo	n	F	lemarks		
	- 5	10000311		15	7.	5 4K	4/4	5	L	PL		ĉ	Ài					
5	- <u>a</u>	109R3	6 8	00	<u> </u>							L	A	,	<del></del>	··········		
															•			
					<u> </u>													
								=Covered or C	oated Sand	Grains. <sup>2</sup> L	ocation:	PL=P	ore Lining, LRC	=Living	Root Cha	nnel M=	Matrix	
Hyd	ric Soil In	dicators: (App	licable	to all L	RRs, ι	ınless	other	wise noted.)				Ind	icators for Pro	blemati	ic Hydric	Soils <sup>3</sup> :	Widan	
	Histosol	(A1)					San	dy Redox (S5)					1 cm Muck					
	Histic Ep	ipedon (A2)					Strip	ped Matrix (Se	5)				2 cm Muck	<u> </u>				
	Black Hi	stic (A3)					Loa	my Mucky Mine	eral (F1)				Reduced V					
	Hydroge	n Sulfide (A4)					Loa	my Gleyed Mat	rix (F2)				Red Paren		- /			
	Stratified	Layers (A5) (L	RR C)				Dep	leted Matrix (F:	3)			1=	Other (Exp					
	1 cm Mu	ck (A9) (LRR D	))			N.	Red	ox Dark Surfac	e (F6)			1	1		omanaj			
	Depleted	Below Dark S	urface (/	A11)			+	leted Dark Surf				7						
	Thick Da	rk Surface (A1	2)				Red	ox Depressions	s (F8)	<del></del>		1						
	Sandy M	ucky Mineral (S	51)				Ven	nal Pools (F9)				٦,						
	Sandy G	leyed Matrix (S	4)				·	·				hvo	dicators of hydr Irology must be	ophytic v	vegetatio	and we	tland	
Rest	rictive La	yer (if present	):	<del></del>								1		T	T	т	<b>-</b>	
Турє																		1
	h (Inches)	:								Hydric So	ils Pres	ent?		Yes	I Comment	No		
	arks:	· · · · · · · · · · · · · · · · · · ·												1	183	1.0		
	ļ																	
								···					<del></del>					
	ROLOG							<del></del>	·-···			···						
		ology Indicato								· · · · · · · · · · · · · · · · · · ·		,						
	<del></del>	ors (any one in	dicator	is suffici	ient)		····					Seco	ndary Indicato	rs (2 or n	nore requ	ired)		
	Surface	Water (A1)					Salt	Crust (B11)					Water Marks	(B1) (Riv	rerine)			
	High Wa	iter Table (A2)				Ø	Biot	ic Crust (B12)					Sediment Dep	osits (B	2) (Riveri	ne)		
	Saturation	on (A3)					Aqu	atic Invertebrat	es (B13)				Drift Deposits	(B3) (RI	verine)			
	Water M	arks (B1) (Non	riverine	∌)			Hyd	rogen Sulfide C	odor (C1)				Drainage Patt	ems (B1	0)	······································		
	Sedimer	nt Deposits (B2	(Nonri	verine)		<u>P</u>	Oxio	lized Rhizosph	eres along	Living Roots	(C3)		Dry-Season V	Vater Tal	ble (C2)	····		
	Drift Dep	osits (B3) (No	nriverin	e)			Pres	sence of Reduc	ed Iron (C4	)			Crayfish Burro					
	Surface	Soil Cracks (B6	3)	****			Rec	ent Iron Reduct	tion in Tilled	Soils (C6)		計	Saturation Vis			2004/00		
		on Visible on A	<del></del>	agery (B	7)			Muck Surface								gery (C9	)	
		tained Leaves		29017 (2	··/			er (Explain in R					Shallow Aquit	<u>_</u>				
	Water-3	tailed Leaves	(50)		1		Out	si (Expiairi ili K	emarks)				FAC-Neutral	est (D5)	)			
										<del></del>					<u>-</u>			
	Observa	<del></del>				T								<del></del>				
	ace Water		Yes		No	<del> </del>		Depth (inches)	:					]				
	er Table Pr		Yes		No			Depth (inches)	:					]		zer.		
	ration Pres		Yes		No			Depth (inches)	:		Wetlar	ıd Hyd	rology Preser	ıt?	Yes		No.	
	ides capilli		am dan	L	itorina	.1	erio! -	hotos, previous		(a) if av=11-1								
- ೧೮೪(	WINE VECO	ueu Dala (Sile	um yau	g=, mun	wing	well, a	enai p	motos, previous	s it ispection	is), ii avallat	ne:							
	<del></del>										···							
Rem	arks:	Draina	Piller	لماميري	al	20												
																		1
																		ļ

## WETLAND DETERMINATION DATA FORM – Arid West Region

Data Point 6

Project Site:	Via	MA	Lk-Mend	MAN	32			City	/County:	6	an	<b>(</b> *)	Sampling F	oint.	180		
Applicant/Owner:	ų.							·!		State:	J. W. W. W.	TCA	Sampling D		DS	- [	
Investigator(s):	Butterw	orth /	barns				Sec	ction, Tov	vnship, Rar	nge:	T	<u> </u>	1		to No:	1	
Landform (hillslope, te	rrace, etc	1					Lan	nd Surfac	e Shape (c	oncave,	<b>—</b>				e (%).	+	
Subregion (LRR):			Lat:				CON	nvex, plar Long:			<u> </u>	<del></del> -	Detres	310	(%):	<u> </u>	
Soil Map Unit Name:	1							Long.			<u> </u>	NNA!! alas	Datum:	т			
Are climatic / hydrologi	ic conditio	ons on	the site typical fo	or this tim	e of ye	ar?	Ιγ	es/	□ No	, 10	(If no		sification: n Remarks.)	<u> </u>			
Are Vegetation .	Soil	Π.	Or Hydrology	1		ntly distu			Are "Normal					Tv-	T.—	Т	T
Are Vegetation +,	Soil	150	Or Hydrology	□. n:	aturally	problem	natic'		if needed, a					Yes		No	
				<u> </u>							any another		marks.)				
SUMMARY OF FIN	DINGS -	- Atta	ch site map s	howing	sam	pling p	oint	t locatio	ns, trans	ects. ir	nporta	nt featu	res etc				
Hydrophytic Vegetation				Yes					<u>-</u>					-		т—	Τ
Hydric Soil Present?				Yes		No B		is the S	ampling A	rea with	in a We	tland?		Yes		No	riverse
Wetland Hydrology Pre	esent?			Yes		No [	71	1	. •						🗆	NO	
Remarks:						-h		·	·			<del></del> -			<u> </u>	L	
VEGETATION																	
Tree Stratum (Plot size	r = 30 ft.	.)		Absolu % Cov		Dominan Species?		Indicato Status	Domi	nance T	Test Wo	rksheet:					
1.			***************************************					Diana	Numb	ner of Dr	minant	Species 7	That Ava	T		1	
2.			***************************************				$\neg$		OBL,	FACW,	or FAC:	opecies i	nat Are		9	-	(A)
3.						· · · · · · · · · · · · · · · · · · ·	$\exists$		Total	Number	of Dom	inant Sno	cies Across	+		-	
4.							$\neg$		All St	rata:	OI DOM	mant ope	cies Across		a wig Examp		(B)
					-	Total C	over	er	Perce	ent of Do	minant (	Species T	hat Asa	-			
Sapling/Shrub Stratum	(Plot size	e r = 5 t	ft.)						OBL,	FACW,	or FAC:	oheries i	nai Ale		50		(A/B)
1.									Preva	elence I	ndex W	orksheet		ــــــــــــــــــــــــــــــــــــــ		1	
2.											Total % (	Cover of:		Mul	tiply by:	<del></del>	-
3.								-	OBL:	species			(47°-117)	x1 =		·	
4.									FACV	V specie	es		, married	x2 =			
5.									FAC	species			750	x3 =		2-25	-
						= Total C	over	r	FACL	J specie	s		- 184. - Z-	x4 =		8	<u> </u>
Herb Stratum (Plot size	r = 5 ft.)		7-4-4						<del></del>	species		3	خرته	x5 =		100	<del></del>
1. Lolium f	le rea	the market the contract	٤	70	$\top$	74		FAC		nn Total	e.	4	(A)	1 /0	_ــــــــــــــــــــــــــــــــــــــ		(F)
2 Veroverin				Na.	-			UPL		in iolai		°.	Index = B/A	- "1	33	اك	(B)
			1dio	Salar Salar Salar	$\neg +$		_	F-19-1		ophytic		tion Indic		- 3	43		
4.1 m follow			N. C.	2	1		-	BITCH		<del></del>		e Test is					·
	ativ			15		¥ċ		UPL									
6.			e set me	7	$\neg \vdash$	70	-	UPL				e Index is					
7.	1,000	TAN GALAN	O-4 1 1 1 4				-	178 000		M	iorpholog emarks (	gical Ada; or on a se	otations <sup>1</sup> (Pro	ovide si	npportir	ng data	in
8.					$\dashv$	· · · · · · · · · · · · · · · · · · ·	-		+			····					
						= Total C	· OVO	<u> </u>			roblema	tic Hydror	hytic Vegeta	ition¹ (I	Explain	)	
Woody Vine Stratum (F	lot size r	= 30 ft	3	· · · · · · · · · · · · · · · · · · ·		- TOTAL C	0.00	.1									
1,			<u></u>		-T		—т		unles	ators of s disturt	hydric s oed or or	oil and we oblemation	etiand hydrol	ogy mi	ıst be p	resent	,
2.				<del></del>			-						T				<u> </u>
		<del></del>				Total C	avo	L г	107	anhtl	V	·					
% Bare Ground in Herb	Stratum		%	Cover of					Prese		Vegetat	tion	Yes			lo	E James
Remarks: Si A	1. Es	Lge	e of				<u></u>	dre	una	je	bas	The					143

Project Site:	Vana	W	WU	RA	TW.	J	· · · · · · · · · · · · · · · · · · ·								·					
SOIL										-				pling Po	· · · · · · · · · · · · · · · ·	) A -	. j			
Profile Descr	iption: (Describ	e to th	ne depti	need	ed to d	docun	nent the indicate	or or conf	irm the abs	ence	of indic	ators.)	Saili	ping Po	IIII. Es	10				
Depth		trix					Redox Feat			$\neg \neg$										
(inches)	Color (moist)		%	Co	lor (Mo	oișt)	%	Type <sup>1</sup>	Loc <sup>2</sup>		Tex	ure	Horizo	n		Remar	ks			
0.9	104R41	<u> </u>	৩ 🗘								GR	CL	£ .	1						
			·													**				
				<u> </u>																
	<u> </u>	_		<del> </del>				<del></del>												
				<del> </del>			<del> </del>		ļ				<u> </u>							
		+		┼		-			<del> </del>				ļ							
		+-		<del> </del>																
¹Type: C= Cor	centration D=D	<u>l</u> enletio	n RM=	Reduci	ed Mat	riv CS	S=Covered or Co	ated Sand	Cmine 2	- I		) ( !								
	dicators: (Appl							aleu Gane	Giams. L	Locatio			ning, LRC rs for Pro					ix.		
☐ Histosol						$\overline{}$	ndy Redox (S5)						cm Muck			C Solls	:			
☐ Histic E	pipedon (A2)					1	pped Matrix (S6)				+=		cm Muck							
☐ Black H	istic (A3)					Loa	my Mucky Miner	al (F1)					educed V		<u> </u>					
☐ Hydroge	en Sulfide (A4)					Loa	my Gleyed Matri	x (F2)		•										
Stratified	d Layers (A5) (L	RR C)				Dep	oleted Matrix (F3)	)												
☐ 1 cm Mu	uck (A9) (LRR D	)				Red	lox Dark Surface	(F6)												
☐ Deplete	d Below Dark Su	rface (	A11)			Dep	leted Dark Surfa	ice (F7)												
	Dark Surface (A12)																			
	Sandy Mucky Mineral (S1)  Vernal Pools (F9)  Indicators of hydrophytic vegetation a												on and	wetland	ĺ					
<del></del>	Sleyed Matrix (Se	<del></del>					**************************************				hy	drology	must be	present	<u>.</u>					
Type:	ayer (if present)			<del></del>																
Depth (Inches	<del></del>	<del></del>							Hydric Sc	ilis Pra	sant?			Yes		No	.   _	.,		
Remarks:		250 255	£10	ماک	040	A 1	land Alice	. 68 %					e s	1	1 4	140	, [			
	Manurae		) for Or	¥ 9	1 85 31 E	CBA.	led du	r w	CKEA	NOU	ren	L and	- Was	441				İ		
HYDROLOG	Y							<del></del>	·····				<del></del>							
	ology Indicator	s:		-					·····					<del></del> ,						
Primary Indica	tors (any one inc	licator	is suffici	ient)			****		····		Sec	ondarv	Indicator	s (2 or n	nore rec	uired\				
☐ Surface	Water (A1)	· · · · · · · · · · · · · · · · · · ·				Salt	Crust (B11)		······································		10	<u> </u>	r Marks (			unedy				
☐ High W	ater Table (A2)					Biot	ic Crust (B12)		·····		1=	-	ment Dep			rine)				
☐ Saturati	on (A3)					Aqu	atic Invertebrate	s (B13)	<del></del>		一	-	Deposits							
☐ Water N	/larks (B1) (Noni	iverine	e)			Hyd	lrogen Sulfide O	dor (C1)			10		age Patt							
☐ Sedime	nt Deposits (B2)	(Nonri	iverine)			Oxid	dized Rhizosphe	res along	Living Roots	s (C3)			Season W							
☐ Drift De	posits (B3) (Non	riverin	1e)			Pre	sence of Reduce	d Iron (C4	})		10		fish Burro		<del></del>		···			
☐ Surface	Soil Cracks (B6	)				Rec	ent Iron Reducti	on in Tilled	Soils (C6)	·····			ration Vis			agery (	C9)			
☐ Inundat	ion Visible on Ae	rial Ima	agery (E	37)		Thir	n Muck Surface (	C7)	<del></del>		10		ow Aquita							
☐ Water-S	Stained Leaves (	B9)				Oth	er (Explain in Re	marks)	·····			FAC	Neutral T	est (D5)	)					
,			***************************************	·	····	·		***	<del></del>	·····		L								
Field Observa	ations:						· · · · · · · · · · · · · · · · · · ·													
Surface Water	Present?	Yes		No			Depth (inches):									I	T	7		
Water Table P	resent?	Yes		No			Depth (inches):	1												
Saturation Pre		Yes		No			Depth (inches):			Wetla	and Hv	droloa	y Presen	t?	Yes		No			
(includes capil			<u></u>	L					-> 1# "								140			
Describe Reco	nueu Data (Střea	nn gau	ye, mon	itoring	well, a	eriai p	ohotos, previous	inspection	ns), if availal	ble:										
Domerica:							······································								·					
Remarks:																				

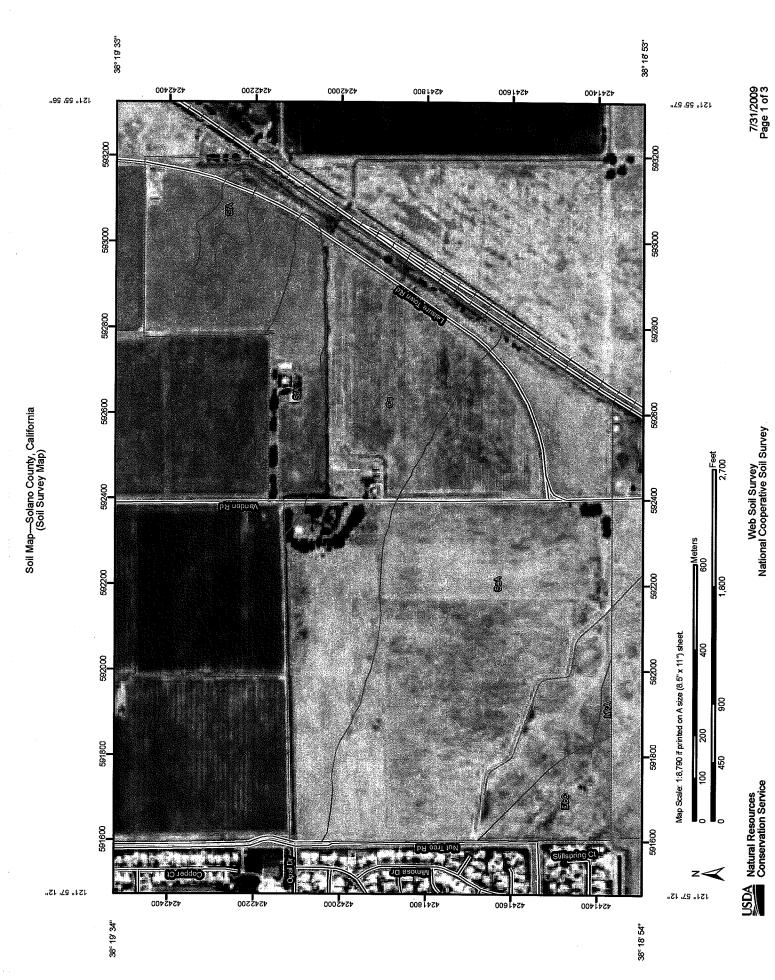
## WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site:		100 4	a Mi	AA MAROX	dor	1 /	₹			Cit	y/Coi	unty:	5	olan	~	Sampling	Point:	16	7) 39	
Applicant/Owner:				<del></del>		1-4								<i>L'estalb</i> is: ate:	CA	Sampling		11)	9-2	
Investigator(s):		Butterwo	orth/	Dailys					S	ection, To	ownsi	hip, Ran				Camping		oto No:	<del></del>	
Landform (hillslop	e, terr	ace, etc.	ļ				*******		Lá	and Surfa	ce S	hape (co		ive,					┼	
Subregion (LRR):				Lat:		Т			CC	onvex, pla			Т			D-43	310	pe (%):	Щ.	
Soil Map Unit Nam	ne:									2011	<del></del>				ADAM =1=	Datum:				
Are climatic / hydro	ologic	conditio	ns on	the site typical for	or this ti	me c	of ve	ar?	T	Yes		No		☐ (If no		sification: n Remarks.				
Are Vegetation	□,	Soil	□.	Or Hydrology	T -			tly distu						cumstance				To	1	
Are Vegetation	□,	Soil	₩,	Or Hydrology	<del>†                                    </del>			problem						ain any ans			res	111	No	
					<del></del>															
SUMMARY OF	FIND	INGS -	- Atta	ch site map s	howir	ıg sa	amp	ling p	oir	nt locati	ions	, transe	ects	s, import	ant featu	res. etc.				
Hydrophytic Veget					Ye		De la company		コ								T	T-		T
Hydric Soil Presen	t?				Yes	s 1		No [		is the	Sam	oling Ar	ea v	within a W	etland?		Yes	1	No	
Wetland Hydrology	/ Pres	ent?			Yes	s 4	A CEN	No [	J											
Remarks:	0	veli a	ð.ĄL	Buston													- <del></del>	<del></del>	<u> </u>	
VEGETATION																<del></del>				
Tree Stratum (Plot	size r	= 30 ft.	)		Absol % Co			ominan pecies?		Indica Status		Domi	nan	ce Test W	orksheet:					
1. 2.			<del></del>				+	· · · · · · · · · · · · · · · · · · ·		<del> </del>		Numb	er o	f Dominan	Species	That Are		٦		(A)
3.										<del> </del>						cies Across	-	Ø.		ļ , ,
4.							_					All Str	ata:			70,033		سلو	<b>v</b>	(B)
Sapling/Shrub Stra	itum (	Plot size	r= 5	ft.)	L			Total C	ov	ег		Percei OBL, I	nt o	f Dominant W, or FAC	Species ?	hat Are		100		(A/B)
1.												Preva	len	ce Index V	orksheet	:				1
2.				~~~~			╄			<u> </u>				Total %	Cover of:		Mu	ltiply by	<u> </u>	
3.				<del></del>			$\perp$					OBLs	pec	ies	٤	15	x1	=	45	<b>*</b> :
4. 5.							┼-			<u> </u>		FACV				10	x2	=	De	}
5.				**************************************			+-			<u> </u>		FAC s	pec	ies			х3	=		
					L		=	Total C	ove	er		FACU	spe	ecies			x4	=		
Herb Stratum (Plot	<del></del> -						<del></del>					UPL s	pec	ies			x5	=		
1. Tuphs			orli		35		1	X		091	er.	Colum	ın T	otals:	{O	(A)		12	is a	(B)
. / 11	00	orn P	MOV	<u>Speltensig</u>	60		-	K		FAG	A)					Index = B/A	= È.,	19		
3.							<u> </u>					Hydro	phy	tic Vegeta	ation Indic	ators:				
4.										ļ		4-	-	Dominan	ce Test is	>50%				
5.							1_					i.s.	8000	Prevalen	ce Index is	s <u>&lt;</u> 3.0¹				
6. 7.							╀			-				Morpholo Remarks	gical Ada	ptations <sup>1</sup> (Pr	ovide s	upporti	ng dat	a in
8.					<del></del>		$\dagger$			<del> </del>						·				
					ìα	***	-	Total C	.014					Problema	atic Hydro	ohytic Veget	ation' (	Explain	)	
Woody Vine Stratu	m (Plo	t size r	= 30 ft	.)	163	3		TOTAL	OVE	eı .		1								
1.	<u></u> (*			•/			Т		٠.	Τ.		'Indica unless	ators dis	s of hydric turbed or p	soil and w problematic	etland hydro	logy m	ust be	resen	t,
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% Bare Ground in I	lerb S	Stratum		%	Cover o	f Bio	ــــــــــــــــــــــــــــــــــــــ			1		Prese	nt?	tic Vegeta	สนดม	Yes		Derect of the last	io	
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SOIL	2	•													. 1	20		
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Depti		latrix		T			Redox Feat											
(inche	s) Color (mois	t)	%	C	olor (Mo	oist)	%	Type <sup>1</sup>	Loc	2	Tex	ture	Horizoi	<u>. T</u>		Pemai	110	
10-6	1046.4)	in 1	:00							-+			11011201	· -		Remai	KS	
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<sup>1</sup> Type: C	= Concentration, D=	Depleti	ion, RM=	Reduc	ed Mat	rix, CS	=Covered or Co	ated Sand	d Grains. 2	Location	: PL=F	ore Lin	ing, LRC	=Living	Root CI	nannel.	M=Mat	riv
	oil Indicators: (Ap	plicable	e to all L	RRs,	unless	other	vise noted.)						s for Pro					<u>'^.</u>
	tosol (A1)					San	dy Redox (S5)						cm Muck					
<del></del>	tic Epipedon (A2)			·		Strip	ped Matrix (S6)					20	m Muck	(A10) (L	RR B)	·		
	ck Histic (A3)					Loai	my Mucky Miner	al (F1)				Re	educed Ve	ertic (F1	8)			$\overline{}$
	drogen Sulfide (A4)					Loai	my Gleyed Matri	x (F2)				Re	ed Parent	Materia	i (TF2)			
	atified Layers (A5) (		)			-	leted Matrix (F3)				1	Ot	her (Expl	ain in R	emarks)	عابلة		
	m Muck (A9) (LRR	<del></del>				Red	ox Dark Surface	(F6)						-				
	oleted Below Dark S		(A11)			Dep	leted Dark Surfa	ce (F7)										
	ck Dark Surface (A	<del></del>				Red	ox Depressions	(F8)										
	ndy Mucky Mineral (					Verr	al Pools (F9)				3 <sub>lr</sub>	dicator	s of hydro	phytic v	/eaetati	on and	wetland	. !
	ndy Gleyed Matrix (	<u></u>						-			hy	drology	must be	present				
	ve Layer (if presen	t):											-			$\top$		
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	Mad	NOU	dars	· 4	16	MV	Market	2~	_		. ,							
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HYDRO																		
	Hydrology Indicate																	
<del></del>	ndicators (any one in	ndicator	r is suffici	ent)		,					Sec	ondary	Indicators	(2 or n	nore rec	uired)		
	face Water (A1)					Salt	Crust (B11)					Wate	r Marks (E	31) (Riv	erine)			
	h Water Table (A2)					Bioti	c Crust (B12)					Sedin	nent Depo	sits (B2	2) (Rive	rine)		
☐ Sar	turation (A3)					Aqua	atic Invertebrates	s (B13)				Drift D	Deposits (	B3) (Ri	verine)			
☐ Wa	ter Marks (B1) (No	ıriverin	1e)		9	Hydr	ogen Sulfide Oc	lor (C1)					age Patte					
☐ Se	diment Deposits (B2	) (Non	riverine)			Oxid	ized Rhizospher	es along l	Living Roots	s (C3)		Dry-S	eason W	ater Tat	ole (C2)			*******
☐ Dri	ft Deposits (B3) (No	nriveri	ne)			Pres	ence of Reduce	d Iron (C4	)			Crayfi	ish Burrov	vs (C8)				
Sui	face Soil Cracks (B	6)				Rece	ent Iron Reduction	on in Tillec	Soils (C6)	•		Satur	ation Visil	ole on A	erial Im	agery (	C9)	
☐ Inu	ndation Visible on A	erial In	nagery (B	7)		Thin	Muck Surface (0	G7)					w Aquita			-37	/	
☐ Wa	ter-Stained Leaves	(B9)				Othe	r (Explain in Rei	marks)					Neutral Te					
										***************************************				27				
Field Obs	ervations:															<del></del>		
Surface V	/ater Present?	Yes		No			Depth (inches):	1 n					· · · · · · · · · · · · · · · · · · ·			ļ ——	T	Т
Water Tal	ole Present?	Yes		No		-	Depth (inches):	- Agreement										
	Present?	Yes		No						Metla	ad U	drolos:	. Dec *	,	V-		٠	]_
	capillary fringe)						Depth (inches):		-		и пус	arology	Present	•	Yes	<b>1</b> 27	No	
Describe i	Recorded Data (stre	am gau	uge, mon	itoring	well, a	erial pl	hotos, previous i	inspection	s), if availal	ole:								
							···											
Remarks:																		
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APPENDIX B:

Soils Map



# MAP LEGEND

# Area of Interest (AOI)

# Area of Interest (AOI)

Very Stony Spot

The soil surveys that comprise your AOI were mapped at 1:24,000.

Map Scale: 1:8,790 if printed on A size (8.5" × 11") sheet.

MAP INFORMATION

Please rely on the bar scale on each map sheet for accurate map

measurements.

# Wet Spot Other

Soil Map Units

Special Point Features

Blowout

# Special Line Features

# Short Steep Slope Gully ृ

**Borrow Pit** 

Clay Spot

## Other Political Features

This product is generated from the USDA-NRCS certified data as of

the version date(s) listed below.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: UTM Zone 10N NAD83



Closed Depression

**Gravelly Spot** 

Landfill

Gravel Pit



# Streams and Canals



Marsh or swamp

Lava Flow

Mine or Quarry



Severely Eroded Spot

Slide or Slip

Sinkhole

Sodic Spot

Spoil Area Stony Spot

# **Transportation**



Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot Sandy Spot

# Local Roads

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident. The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

Date(s) aerial images were photographed: 6/30/2005

Soil Survey Area: Solano County, California Survey Area Data: Version 5, Dec 12, 2007

## **Map Unit Legend**

	Solano County, Califo	omia (CA095)	
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Са	Capay silty clay loam	107.6	38.8%
DbC	Dibble-Los Osos loams, 2 to 9 percent slopes	10.9	3.9%
MkA	Millsap sandy loam, 0 to 2 percent slopes	1.0	0.4%
SeA	San Ysidro sandy loam, 0 to 2 percent slopes	135.1	48.7%
SfA	San Ysidro sandy loam, thick surface , 0 to 2 percent slopes	22.9	8.2%
Totals for Area of Interest		277.5	100.0%