CH2M HILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833-2937
Tel 916.920.0300
Fax 916.920.8463

CH2MHILL

September 29, 2009

Mr. Mark Fugler
Regulatory Division
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, CA 95814

Subject: Mariposa Energy Project (File # SPK-2009-01261), Request for Waters of the U.S. Jurisdictional Determination

Dear Mr. Fugler:

Please find enclosed one (1) copy of the formal Wetland Delineation Report for the Mariposa Energy Project (MEP). On behalf of my client, Mariposa Energy, I request a waters of the U.S. Jurisdictional Determination at your earliest convenience. Either I and/or our wetlands specialist will attend your site visit to help familiarize you to the project area and answer any questions. In the event that the U.S. Army Corps of Engineers takes jurisdiction over any of the onsite wetlands and waters, I anticipate a federal nexus for MEP for formal consultation under Section 7 of the Endangered Species Act.

The MEP is a proposed natural gas fired, peaking facility with a generating capacity of 200-megawatts. The proposed project site is in northeastern Alameda County, in an unincorporated area located approximately 7 miles northwest of Tracy, 7 miles east of Livermore, 6 miles south of Byron, and approximately 2.5 miles west of the community of Mountain House in San Joaquin County. The facility would be located southeast of the intersection of Bruns Road and Kelso Road on a 10-acre portion of a 158-acre parcel immediately south of the Pacific Gas and Electric Company (PG&E) Bethany Compressor Station and 230-kilovolt (kV) Kelso Substation. A complete description of MEP is provided in the California Energy Commission Application for Certification available online at: http://www.energy.ca.gov/sitingcases/mariposa/documents/index.html

Please feel free to contact either Doug Urry (CH2M HILL Project Manager) at (916) 286-0348 or me at (408) 839-2402 or todd.ellwood@ch2m.com with any questions. We look forward to meeting you at the project site.
Sincerely,

CH2M HILL

Todd Ellwood
Project Biologist

Enclosure
cc: Doug Urry, CH2MHILL
Russell Huddleston, CH2M HILL
Bo Buchynsky, Mariposa Energy, LLC

Draft Report

USACE Delineation of Wetlands and Other Waters for the Mariposa Energy Project

Prepared for

Mariposa Energy, LLC

July 2009

CH2MHILL
155 Grand Avenue
Suite 1000
Oakland, CA 94612

Contents

Table

Figures

Appendixes

Acronyms and Abbreviations

BBID	Byron Bethany Irrigation District
BIOS	Biogeographic Information and Observation System
CFR	Code of Federal Regulations
cmp	corrugated metal pipe
CWA	Clean Water Act
FAC	facultative plant species
FACW	facultative wetland plant species
GPS	Global Positioning System
HUC	Hydrologic Unit Code
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OBL	obligate wetland plant species
PEMF	Palustrine Emergent Semi-Permanently Flooded
PEMH	Palustrine Emergent Permanently Flooded
PG&E	Pacific Gas and Electric Company
USACE	United States Army Corps of Engineers
WRCC	Western Region Climate Center

SECTION 1.0

Introduction

Mariposa Energy, LLC proposes to construct, own, and operate an electrical generating plant in unincorporated Alameda County, California. The Mariposa Energy Project (Project) will be a natural gas-fired, simple-cycle electrical generating facility rated at a nominal generating capacity of 200 megawatts.

Wetlands and other waters are ecological habitats that are protected under the Federal Clean Water Act (CWA). Activities that have the potential to discharge fill materials into "waters of the United States," including wetlands, must be authorized by the U. S. Army Corps of Engineers (USACE). This report presents the results of a wetland delineation conducted for the proposed Mariposa Energy Project. The results presented in this report are preliminary, pending verification by USACE. Information on the Project location as well as a general description of the environmental setting follows. Study methods and results are provided in the following sections.

1.1 Project Location

The Project study area is in northeastern Alameda County, approximately 10 miles northwest of the City of Tracy, 12 miles northeast of Livermore, and 12 miles southeast of Brentwood (Figure 1-1). The Project study area is located in the northwest 1/4 of Section 1, Township 2S, Range 3E (Mount Diablo Base and Meridian). The facility will be located southeast of the intersection of Bruns Road and Kelso Road on a 10-acre portion of a 158-acre parcel (known as the Lee Property) immediately south of the Pacific Gas and Electric Company (PG&E) Bethany Compressor Station and 230-kV Kelso Substation (Figure 1-2). The Assessor's parcel number is 099B-7050-001-10. The Project study area is located at 37° 47′ 23.86″ north latitude and 121° 36′ 06.35″ west longitude.

Linear features associated with the Project include a transmission line, natural gas pipeline, and service water line (Figure 1-2). The Project will interconnect to the Kelso Substation via a new 0.7-mile, 230-kV transmission line that will run north on the Lee Property, then across Kelso Road and into the existing substation. The natural gas pipeline will consist of approximately 580 feet of new 4-inch-diameter pipe that will run directly northeast from the Project study area to interconnect with PG&E's high-pressure natural gas pipeline (Line 2), which is located on the Lee Property. A new gas metering station will be constructed on the Project study area. Service water will be provided from a new connection to the Byron Bethany Irrigation District (BBID) via a new pump station and a 6-inch-diameter, 1.8-mile-long pipeline placed in or along the east side of Bruns Road, from Canal 45 south to the Project study area.

1.2 Environmental Setting

The Project is located at the northeastern edge of the Eastern Hills subsection of the Central Valley Coast Range Ecological subregion (Miles and Goudey, 1998), immediately bordering the alluvial plain of the San Joaquin Valley to the east. Regionally, the landscape is characterized by low foothills along the northeastern edge of the Diablo Range. In the vicinity of the Project study area, this area is characterized by a series of gently rolling hills to the south and west with low terraces to the north and east. Elevation in the Project area ranges from approximately 75 to 175 feet above mean sea level with slopes ranging from approximately 2 to 12.5 percent. Drainage is generally to the east and north. The following sections provide a description of the terrestrial habitats, climate, regional hydrology, and soils.

1.2.1 Terrestrial Habitats and Land Use

California annual grassland is the predominant natural community found throughout the Project area. Characteristic species include non-native grasses such as foxtail barley (*Hordeum murinum* ssp. *leporinum*), soft chess (*Bromus hordeaceus*), and wild oat (*Avena barbata*). Common forbs include bur clover (*Medicago polymorpha*), filaree (*Erodium moschatum*), black mustard (*Brassica nigra*), and gumweed (*Grindelia camporum*). The grassland habitat on the 158-acre Lee property is currently used for cattle grazing. Portions of the Project study area (including the proposed laydown area) were previously developed for wind energy. The windmill towers have been removed, but some remnants of the cement tower bases and miscellaneous debris remain scattered throughout the area.

Developed and agricultural areas in the vicinity of the Project area include the Byron Power Cogen Plant, located in the center of the Lee Property, PG&E's Bethany Compressor Station and Kelso Substation located north of Kelso Road, and the BBID headquarters facilities located along Bruns Road. Agricultural lands are limited to field crops (wheat and alfalfa) immediately north and south of the BBID facilities on the east side of Bruns Road.

1.2.2 Climate and Hydrology

The regional climate is characterized by cool, wet winters and hot, dry summers. Average temperatures range from a low of 36°F in January to a high of 90°F in July (Western Regional Climate Center [WRCC], 2009). According to the Natural Resources Conservation Service (NRCS) Climate Analysis for Wetlands (NRCS, 2002) the growing season (based on data from Livermore, California, and defined as temperatures above 28°F with a probability of 50 percent) extends from January 9 through December 29 for a total of 355 days (Appendix A). The average annual rainfall recorded at the Livermore weather station (044997) is 14.5 inches, with the majority (82 percent) of the annual precipitation occurring between November and March (WRCC, 2009).

The wetland delineation was conducted during a slightly below-average rainfall year. Based on daily climate data recorded at the Livermore weather station, located approximately 12 miles southeast of the Project study area, rainfall between November 1, 2008, and March 31, 2009 was 7.1 inches, or approximately 80 percent of the average rainfall for this period (University of California Integrated Pest Management, 2009). The lower-than-normal rainfall was due to below-average precipitation from November through January; precipitation was slightly above average in February and March (Figure 1-3).

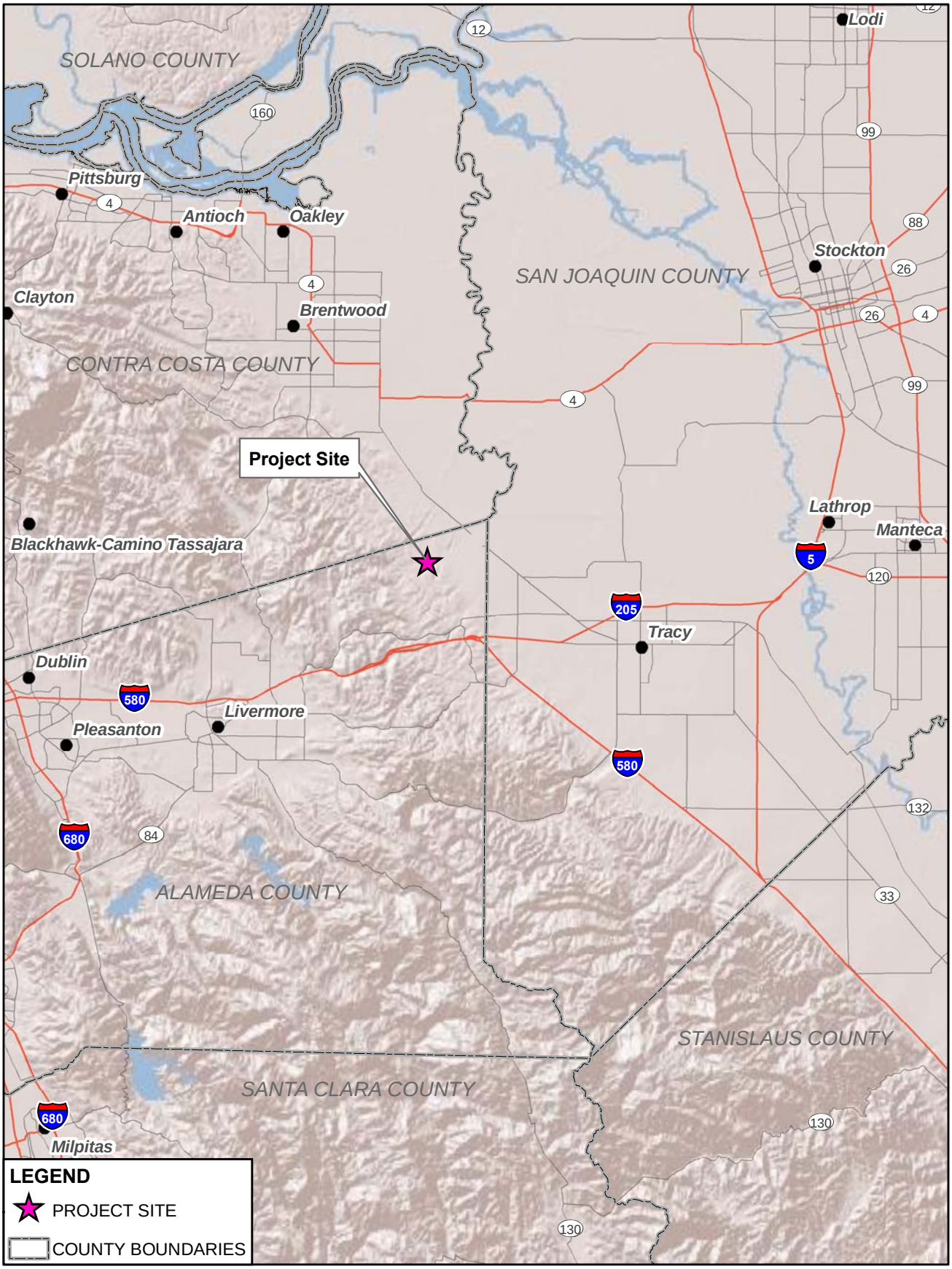

FIGURE 1-1
PROJECT VICINITY
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

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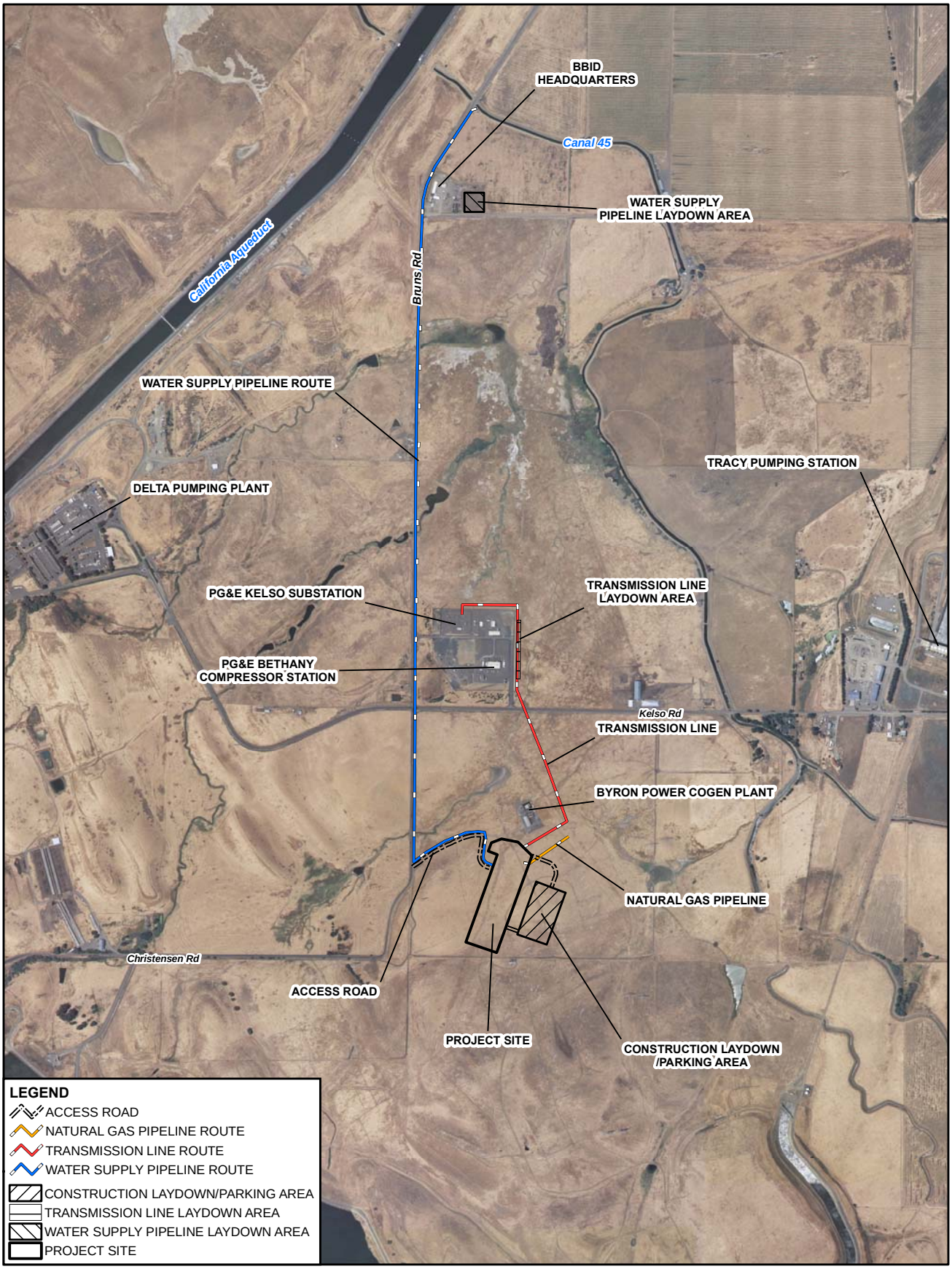

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

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FIGURE 1-2
SITE LOCATION

MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

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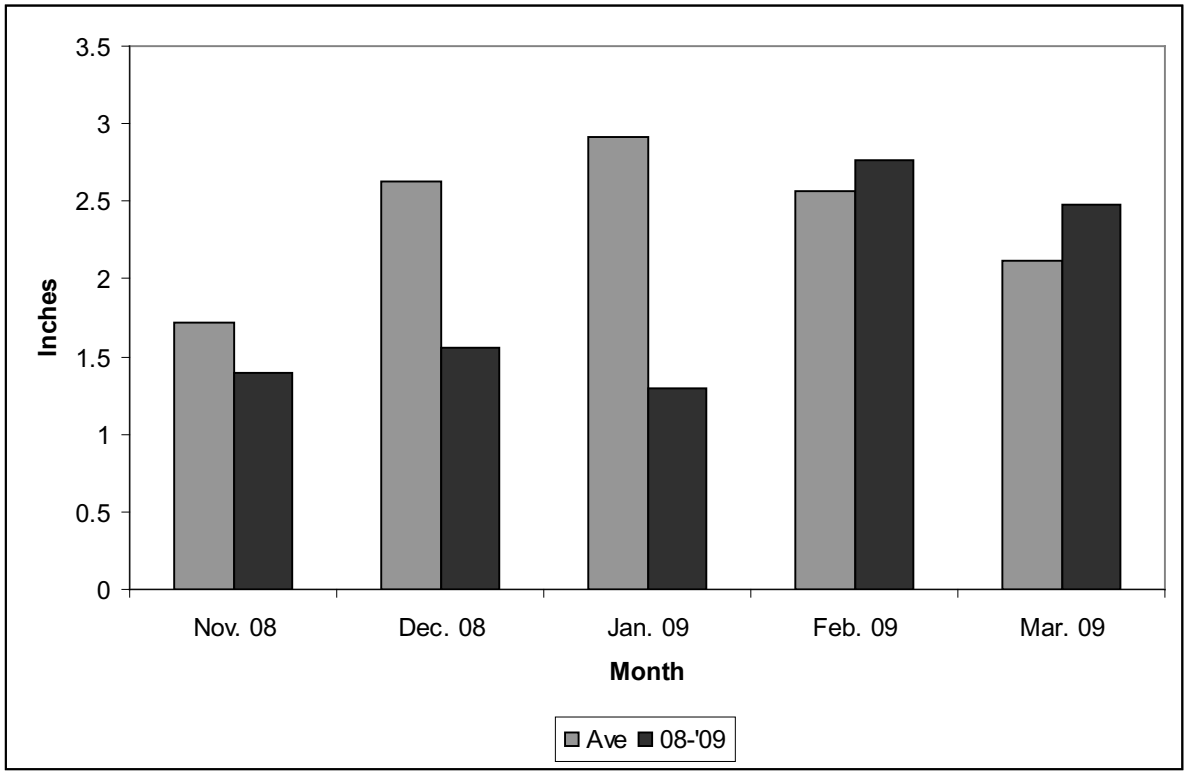


FIGURE 1-3
Precipitation Data November 2008 through March 2009

The Project is located in the San Joaquin Delta Hydrologic Unit (HUC 18040003), which has a drainage area of 433,302 acres (Biogeographic Information and Observation System [BIOS], 2009). The National Wetland Inventory (NWI) shows two palustrine emergent wetlands and two palustrine unconsolidated shore wetlands along the service water pipeline alignment along Bruns Road (Appendix B). USGS topographic information for the Clifton Court Forebay quadrangle indicates four blue line drainages along Bruns Road. Drainage in the vicinity of the Project area is generally to the north, where it is diverted around Clifton Court Forebay and into Italian Slough (Appendix C).

The natural hydrology in the vicinity of the Project area has been historically altered by the construction of reservoirs, aqueducts, canals, and agricultural drainages. Regionally, the most significant modifications are associated with the State Water Project, which was initiated in 1959 and fully operational by 1965. Water is diverted from the Delta into Clifton Court Forebay and is then pumped from the Harvey O. Banks Delta Pumping Plant into the Bethany Reservoir, where the South Bay Pumping Plant lifts water into the South Bay Aqueduct and the California Aqueduct.

1.2.3 Soils

Five soil series and nine different soil map units occur within the limits of the Project study area (Appendix D). General information on the soils based on local soil surveys (NRCS, 1977; 1966) and official soil series descriptions (NRCS, 2009) are provided below. All soil colors are for moist soils, unless otherwise noted.

Altamont Clays (AaC)

The Altamont series consists of well-drained soils with slow permeability derived from weathered shale and fine-grained sandstone. These soils are found on rolling hills and steep slopes east of Livermore. In a representative profile, the surface layer to a depth of 28 inches is dark brown (10YR 3/3) clay. A very thin, grayish-brown (10 YR 5/2) [dry] surface crust may be present in some areas and very dark brown to black films are often present on the upper ped surfaces. Light-colored calcium carbonate films and segregations are often common below 7 inches and soils become slightly alkaline with depth. The clay content in this soil ranges from 35 to 60 percent and wide, deep cracks are common throughout, once the soil is dry.

Linne Clay Loam (LaD, LbD, LaC)

The Linne series consists of well-drained calcareous soils derived from weathered shale and sandstone. These soils are found on rolling hills and slopes. In a typical profile, the upper 14 inches is a moderately alkaline, black (10 YR 2/1) clay loam. Between 14 and 29 inches, the soil is a moderately alkaline, very dark gray (10 YR 3/1) clay loam. Light-colored lime filaments and deposits are present in the lower part of the horizon, increasing with depth. Permeability is moderately slow and these soils have medium to very rapid runoff.

Rincon Clay Loam (RdB)

Rincon soils are found on alluvial fans and nearly level valley floors east of Livermore and north of Mountain House, where they formed in alluvium derived from sedimentary materials. In a typical profile, the surface horizon is a slightly acidic, very dark gray (l0YR 3/1) silty clay loam to a depth of 16 inches. From 16 to 25 inches, the soil is very dark grayish-brown (l0YR 3/2) sandy clay, often with clay films along the ped surfaces. These soils are well drained with slow permeability and slow to rapid runoff.

San Ysidro Loam (Sa, Sc)

The San Ysidro series consists of moderately well-drained soils formed in alluvium derived from sedimentary rocks. These soils occur on old valley fill and low terraces east of Livermore. In a representative profile, the surface layer (0 to 14 inches) is a slightly acidic, dark brown (10YR 4/3 to 3/3) fine sandy loam with few fine, distinct, brownish-yellow (10YR 6/6) concentrations. Below 14 inches, the soil is a dark brown (7.5YR 4/4) clay with a thin light gray (10 YR 6/2) bleach layer. Many moderately thick clay films are present along the ped surfaces and pore linings and common, fine iron and manganese concentrations are present. These soils have slow to medium runoff and very slow permeability.

Solano Fine Sandy Loam (Sf, Sfaa)

Solano soils are formed in alluvium derived from mixed sedimentary materials and are found on nearly level low terraces and in valley plains with slightly irregular or hummocky surface micro-topography. In a typical profile, the surface horizon is a strongly acidic, dark grayish-brown (10 YR 4/2) loam with few, fine, distinct dark reddish-brown (5 YR 3/4) concentrations. Below 9 inches, the soil is neutral to slightly alkaline, brown (10 YR 4/3) clay loam with dark, thin clay films on ped surfaces and pore linings. These soils are somewhat poorly drained with very slow to slow runoff and very slow permeability.

SECTION 2.0

Methods

An initial site survey was conducted on December 29, 2008, by CH2M HILL biologists Russell Huddleston and Todd Elwood, to identify potential wetlands and other waters and to collect data on seasonal hydrologic conditions in the Project study area. Additional surveys were conducted by Mr. Huddleston and/or Mr. Elwood on February 19, April 8, April 15, and June 4, 2009.

The approximately 69-acre Project study area included 41-acre area in which the power plant facility, laydown area, and natural gas pipeline would be located, as well as 100-foot-wide survey corridors along the transmission line and service water pipeline alignments (Figure 2-1). The following sections provide information on the methodology used for the delineation.

2.1 Wetland Delineation

The USACE defines wetlands as areas that are "inundated by surface water or groundwater with 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." (Title 40 Code of Federal Regulations [CFR] Section 230.3 and Title 33 CFR Section 238). The wetland field surveys were conducted following the survey methodology described in 1987 *Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: *Arid West Region* (USACE, 2008).

The USACE uses the three-criterion approach (vegetation, soils, and hydrology) to determine the presence of wetlands. As a general rule, under this method, evidence of a minimum of one positive indicator for each criterion must be found in order to make a positive wetland determination. In general, wetlands will normally meet the following criteria:

- **Hydrophytic Vegetation:** More than 50 percent of the dominant vegetation is composed of plant species that are adapted to survive and grow in hydrophytic (wet) conditions. These species have been assigned a wetland indicator value of facultative (FAC), facultative wetland (FACW), or obligate (OBL) on the *National List of Plant Species That Occur in Wetlands* (Reed, 1988).
- **Hydric Soils**: The NRCS defines hydric soil as "soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part…" (Federal Register, July 13, 1994). The criteria for establishing the presence of hydric soils vary among soil types, drainage classes, and land resource regions. The NRCS (2006) has developed field indicators for identification of hydric soils. These indicators are currently used by the USACE in the *Arid West Regional Supplement to the 1987 Wetland Delineation Manual* (USACE, 2008). They rely on soil characteristics such as texture, color, and the amount of redoximorphic features to determine if soils are hydric.

- **Wetland Hydrology**: Areas with wetland hydrology are defined as "…inundated either permanently or periodically at mean water depths less than 2 meters (6.6 feet), or the soil is saturated to the surface at some time during the growing season" (Environmental Laboratory, 1987). Areas where saturation or inundation is present for at least 5 percent of the growing season may be considered wetlands. In the Project study area, wetlands would therefore need to be inundated or saturated for a minimum of 18 consecutive days to meet the wetland hydrology criterion.

A total of 15 sample points were established in potential wetlands and adjacent non-wetland areas (Figure 2-1). At each sample location vegetation, soil, and hydrology indicators were recorded on wetland determination data sheets, which are included in Appendix E. Representative Project study area photographs are provided in Appendix F.

Dominant plant species at each sample location were identified, and the percent cover was visually estimated within an approximately 5-foot radius area. All taxonomic designations follow *The Jepson Manual of Higher Plants of California* (Hickman, 1993) or the current revised taxonomy per the *Jepson Interchange for California Floristics* (University of California, 2009). The wetland indicator status was determined using the *National List of Plant Species that Occur in Wetlands: Region 0* (Reed, 1988). Dominant species within each vegetation strata included the most abundant species whose cumulative cover accounted for at least 50 percent of the total cover, as well as any single species that accounted for at least 20 percent of the vegetative cover. Strata that contained less than 5 percent total cover were not considered in the dominance test. A list of Plant species identified at each sample location is included in Appendix G.

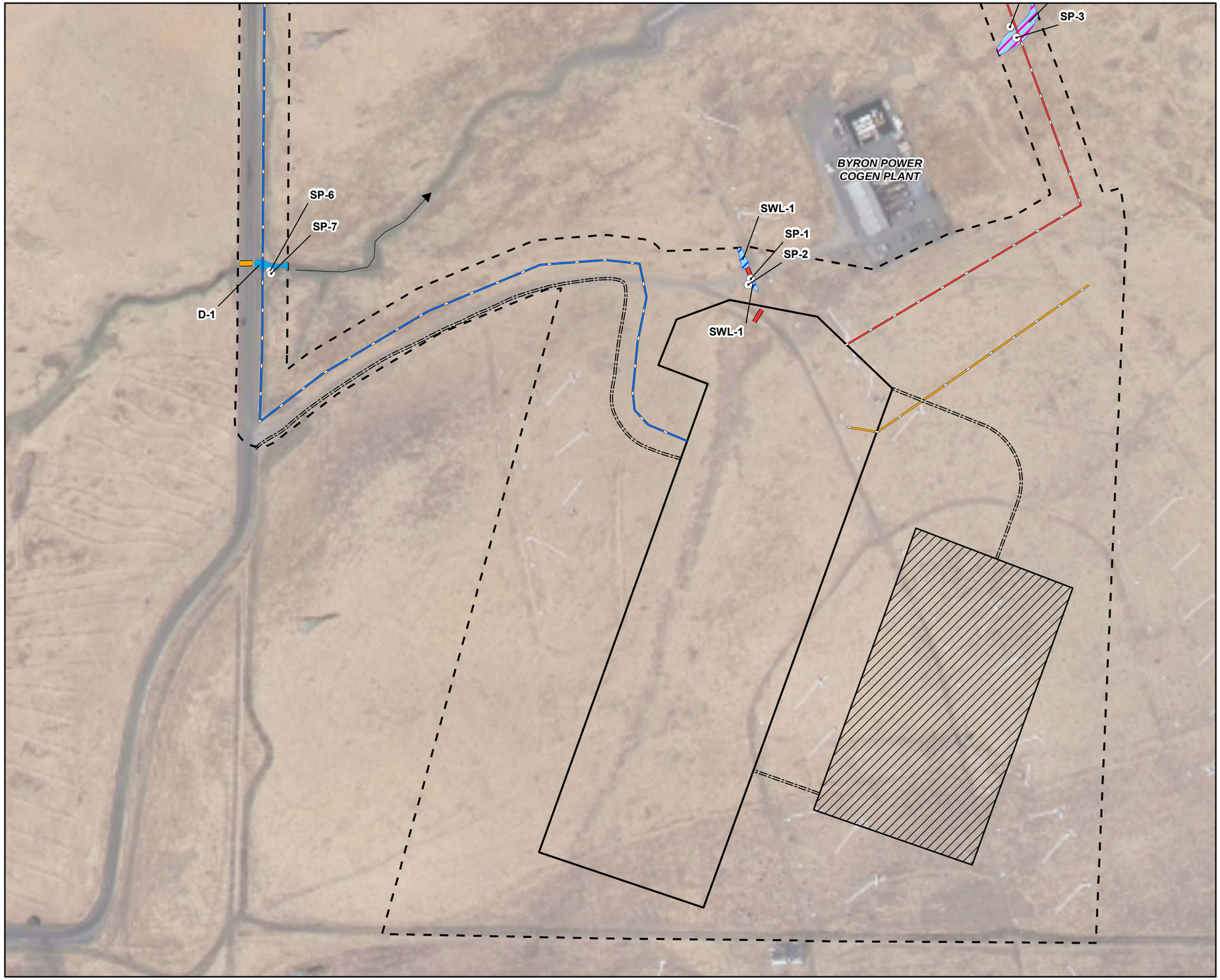
Descriptions of soils were made at each sample location by examining soil pits dug with a tile spade to depths of at least 12 inches where possible. Soil morphological features such as texture, color, and redoximorphic features were noted. Soils texture was estimated in the field using the "ribbon test" to approximate the clay, silt, and sand content. Moist soil colors were determined using Munsell® color charts.

Wetland hydrology was determined based on observations of saturation or inundation during the field surveys and other primary and secondary indicators of wetland hydrology such as presence of aquatic invertebrates, algal matting, water marks, and sediment deposits. Additional factors considered in the wetland hydrology determinations at each sample point included site drainage, landscape position, and micro-topography.

Wetland boundaries were determined in the field based on the vegetation, soils, and hydrology observed at selected sample points as well as distinct changes in vegetation and micro-topography and best professional judgment. A Trimble® Geo-XT global positioning system (GPS) unit was used to map all sample point locations, wetland boundaries, and other relevant features such as culverts and swales. The GPS data were then differentially corrected to generally sub-meter accuracy and plotted on aerial photograph base maps (Figure 2-1).

2.2 Other Features

Other features, including unvegetated ephemeral drainages and erosional channels, were identified and mapped with a GPS during the wetland delineation field surveys. The limits of these features were determined based on evidence of an ordinary high-water mark (e.g., scouring, drift lines, and/or sediment deposits) and/or defined bed and bank characteristics.



LEGEND

- DATA POINTS
- ACCESS ROAD
- NATURAL GAS PIPELINE ROUTE
- TRANSMISSION LINE ROUTE
- WATER SUPPLY PIPELINE ROUTE
- FLOW DIRECTION
- BOX CULVERT
- CULVERT

POTENTIAL JURISDICTIONAL WATERS/WETLANDS

- DITCH
- ALKALI SINK WETLAND
- DRAINAGE WETLAND
- WATERS OF THE U.S.

POTENTIAL NON-JURISDICTIONAL WATERS/WETLANDS

- EROSIONAL CHANNEL
- CANAL
- SEASONAL WETLAND
- SWALE

SITES

- CONSTRUCTION LAYDOWN/PARKING AREA
- TRANSMISSION LINE LAYDOWN AREA
- WATER SUPPLY PIPELINE LAYDOWN AREA
- PROJECT SITE
- PROJECT STUDY AREA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

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1 OF 5

FIGURE 2-1
WETLAND DELINEATION

MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

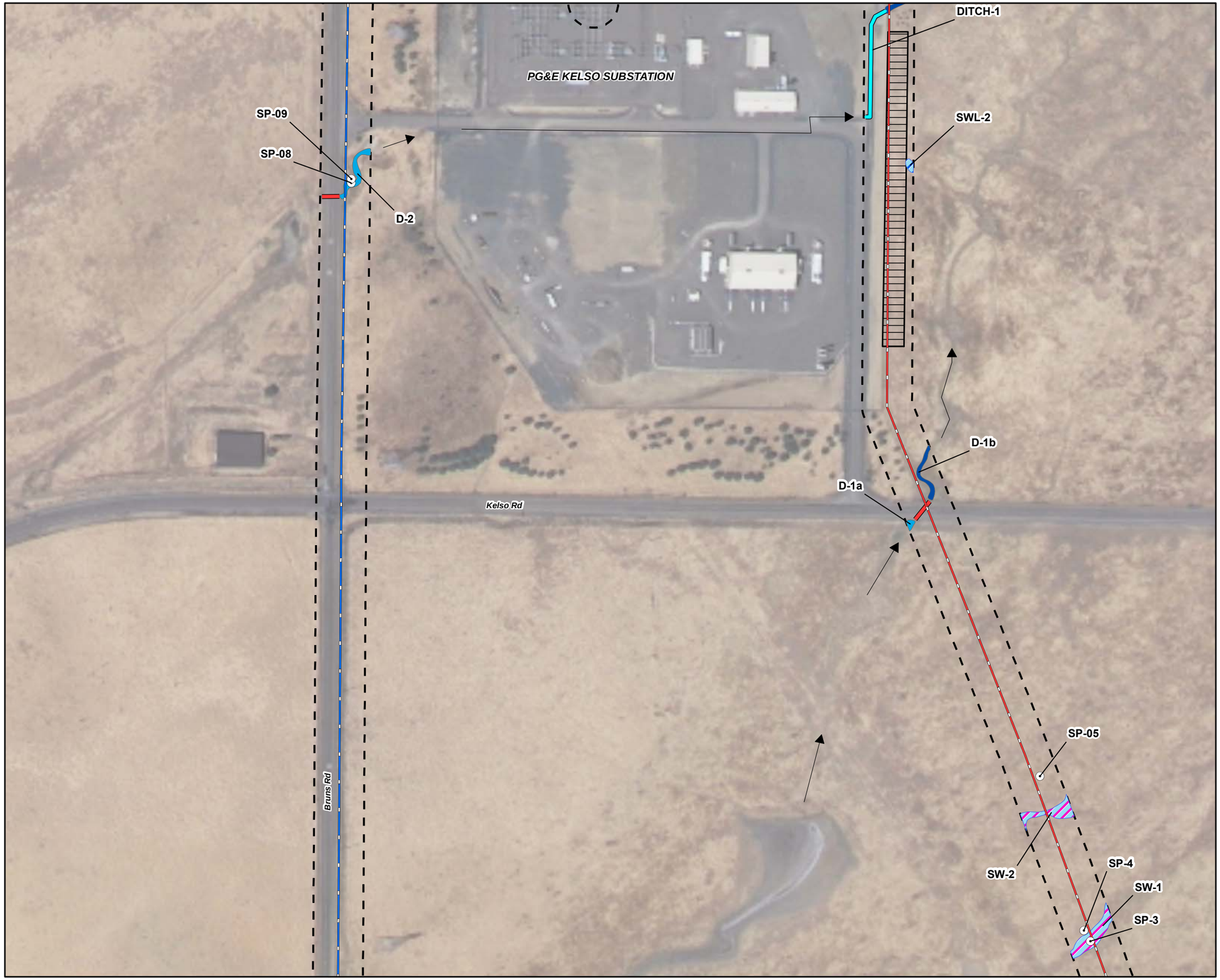

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FIGURE 2-1
WETLAND DELINEATION
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

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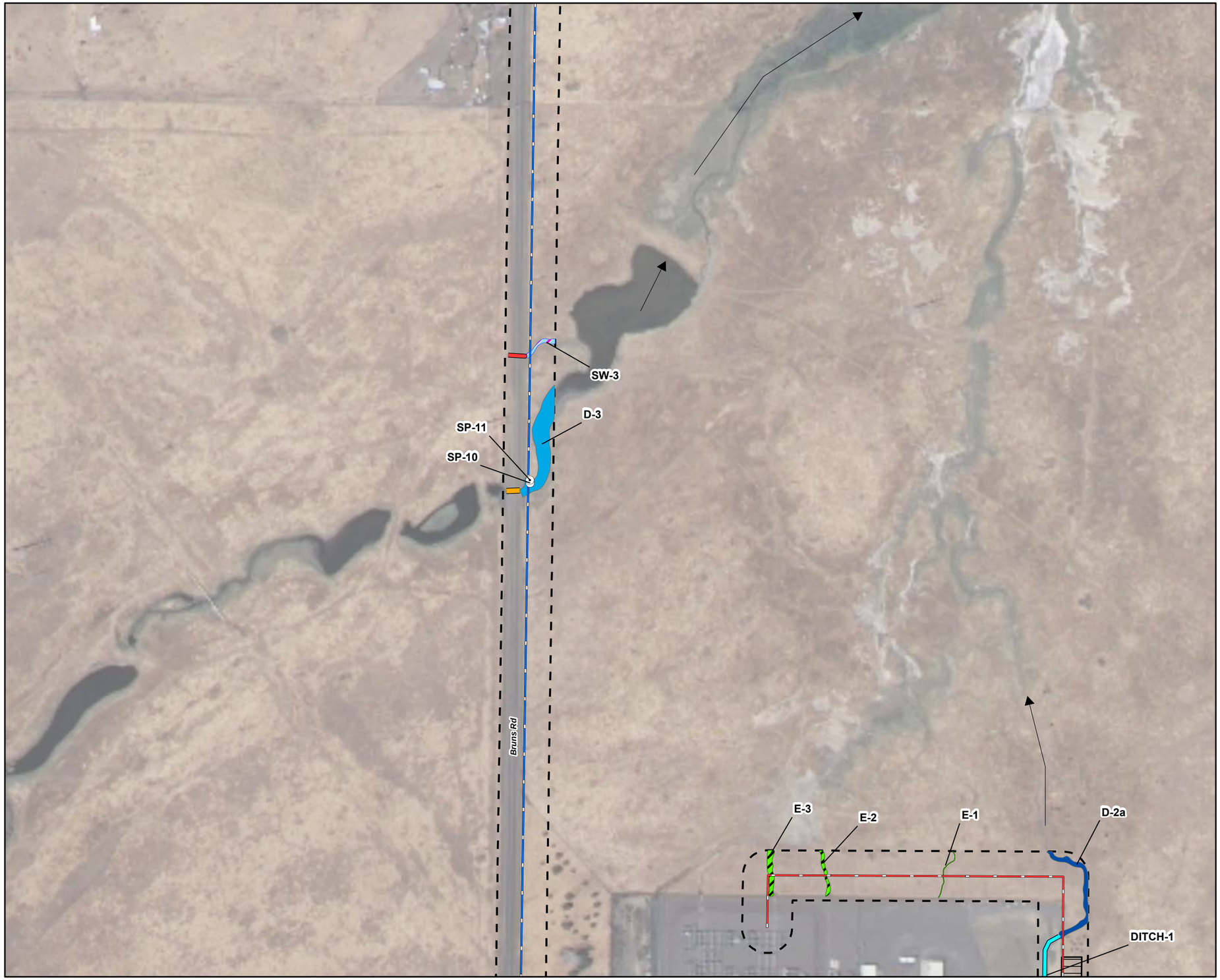

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3 OF 5

FIGURE 2-1
WETLAND DELINEATION
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

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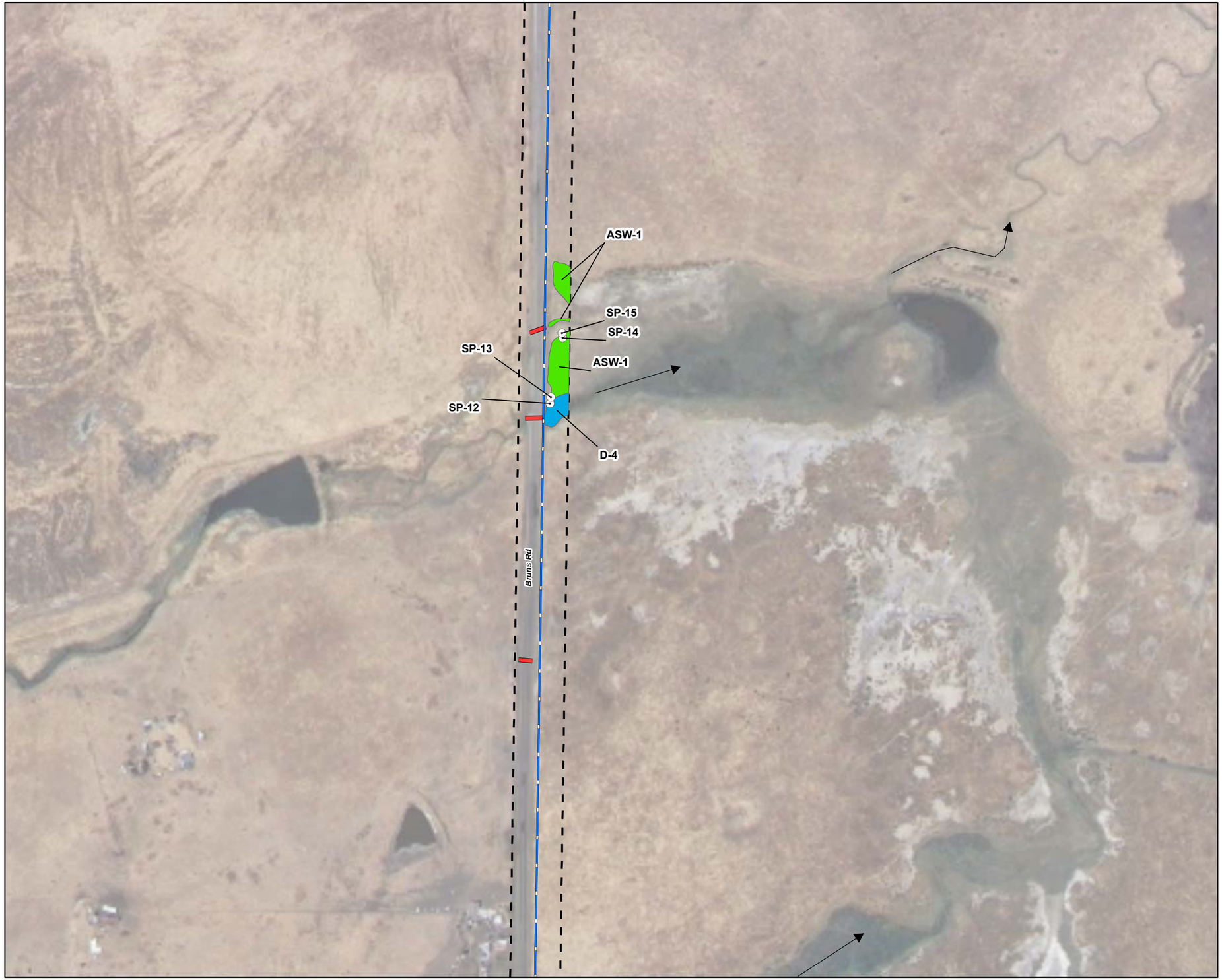

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4 OF 5

FIGURE 2-1
WETLAND DELINEATION

MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

LEGEND

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5 OF 5

FIGURE 2-1
WETLAND DELINEATION
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

SECTION 3.0

Results

Based on the observations made during the field surveys, a total of 0.251 acre of potential jurisdictional drainage wetlands, 0.166 acre of alkali sink wetland, and 0.075 acre of potential jurisdictional waters of the U.S. occur within the approximately 69-acre Project study area (Table 1). An additional 0.228 acre of potentially non-jurisdictional areas including isolated seasonal wetlands and swales, three erosional channels, and a small section of Canal 45 were also identified in the Project study area (Table 1). The following sections provide descriptions of the wetlands, waters, and other features that were identified and mapped in the Project study area.

TABLE 1
Potential Jurisdictional and Non-Jurisdictional Wetland and Waters Identified in the Project Study Area

Feature	Acreage	Description
Potential Jurisdictional Waters of the U.S.		
Drainage Wetland (D-1)	0.021	Defined drainage channel characterized by saltgrass within the channel; blue line creek on USGS topographic map with apparent hydrologic connection with Italian Slough
Drainage Wetland (D1a)	0.006	Weakly expressed drainage swale characterized by saltgrass, Mediterranean barley, soft chess, and foxtail barley, blue line creek on USGS topographic map with apparent hydrologic connection with Italian Slough
Drainage Wetland (D-2)	0.032	Small swale-like feature characterized by saltgrass, Italian ryegrass, and meadow barley with some scouring evident along the channel; blue line creek on USGS topographic map with apparent hydrologic connection with Italian Slough
Drainage Wetland (D-3)	0.138	Shallow, well-defined drainage channel characterized by cosmopolitan bulrush with scattered rabbitsfoot grass, curly dock, and cattail. Palustrine Emergent Permanently Flooded wetland on the National Wetland Inventory Map and is a blue line creek on USGS topographic map with apparent hydrologic connection with Italian Slough
Drainage Wetland (D-4)	0.053	Shallow, well-defined channel characterized by dense cattails growing in the center of the channel with dense saltgrass growing around the outer edges; Palustrine Emergent Semi-Permanently Flooded wetland on the National Wetland Inventory Map and is a blue line creek on USGS topographic map with apparent hydrologic connection with Italian Slough
Waters of the U.S (D-1b)	0.023	Defined channel with steep cut banks, largely devoid of vegetation, continuation of Drainage 1 on the north side of Kelso Road, blue line creek on USGS topographic map with apparent hydrologic connection with Italian Slough

TABLE 1
Potential Jurisdictional and Non-Jurisdictional Wetland and Waters Identified in the Project Study Area

Feature	Acreage	Description
Waters of the U.S. (D-2a and Ditch 1)	0.052	Small, well-defined channel with defined bed and bank, channel is a continuation of Drainage 2, portion of the original channel has been realigned through the PG&E facility to the west; blue line creek on USGS topographic map with apparent hydrologic connection with Italian Slough
Alkali Sink Wetland (ASW-1)	0.166	Wetland area is characterized by saltgrass and common rusty molly with scattered sand spurry, alkali heath, and common spikeweed; strongly alkaline soils; shown as a Palustrine Unconsolidated Shore Seasonally Flooded wetland on the National Wetland Inventory Map
Total	**0.491**	
Potential Non-Jurisdictional Waters of the U.S.		
Seasonal Wetland (SWL-1)	0.018	Two shallow, well-defined basins along access road to the Byron Power Cogen Plant connected by a corrugated metal pipe (cmp); slender popcorn flower and other vernal pool plants scattered within the basin; no hydrologic connection or significant nexus with any other drainage or water features
Seasonal Wetland (SWL-2)	0.007	Shallow, weakly expressed topographic low area with scattered coyote thistle and Italian ryegrass, adjacent to transmission line laydown area; no hydrologic connection or significant nexus with any other drainage or water features
Swale (SW-1)	0.063	Low topographic swale characterized by Mediterranean barley; appears to convey low-volume, short-duration flows in response to storm events but lacks evidence of prolonged inundation; water flows west and ponds in low areas around the Byron Power Cogen Plant; no hydrologic connection or significant nexus with any other drainage or water features
Swale (SW-2)	0.045	Low topographic swale characterized by Mediterranean barley; appears to convey low-volume, short-duration flows in response to storm events but lacks evidence of prolonged inundation; water flows west and ponds in low areas around the Byron Power Cogen Plant; no hydrologic connection or significant nexus with any other drainage or water features
Swale (SW-3)	0.012	Small, weakly expressed swale from 12-inch-diameter culvert under Kelso Road; characterized by soft chess, Italian ryegrass, and saltgrass; appears to convey low, very-low volume flow for very short durations only in response to heavy rainfall
Erosional Channel (E-1)	0.002	Small, weakly expressed erosional rill resulting from direct runoff from the Kelso Substation
Erosional Channel (E-2)	0.013	Erosional channel resulting from direct runoff from the Kelso Substation
Erosional Channel (E-3)	0.022	Large, deeply scoured erosional channel resulting from direct runoff from the Kelso Substation
Canal 45	0.046	Constructed and routinely maintained irrigation canal
Total	**0.228**	

3.1 Potential Jurisdictional Wetlands

Four drainage features all of which are shown as blue line drainages on the USGS Clifton Court Forebay 7.5-minute quadrangle were identified in the Project study area. These drainages all flow into a broad seasonal wetland area on the west side of Bruns Road at the Alameda-Contra Costa County Line. From this wetland, water flows approximately 0.5 mile to the north through a natural drainage channel and then continues north through a series of constructed drainage ditches for approximately 2.5 miles, where water is eventually discharged into Italian Slough (Appendix C). An alkali sink wetland is located adjacent to one of the drainages within the Project study area. All of these features are found along the proposed water supply pipeline route and the transmission line route (Figure 2-1).

3.1.1 Drainage Wetlands (D-1 and D1a)

The service water pipeline would cross a seasonal drainage (D-1) on the east side of Bruns Road, approximately 0.3 mile south of the intersection with Kelso Road (Figure 2-1; Map 1). A 6-foot by 6-foot box culvert is located under the road in this area. Within the Project study area, the drainage channel is well-defined with gently sloping banks. The area immediately around the culvert is characterized by dense perennial pepperweed (*Lepidium latifolium*). To the east, the channel is characterized by saltgrass (*Distichlis spicata*), with scattered rabbitsfoot grass (*Polypogon monspeliensis*), Italian ryegrass (*Lolium multiflorum*), sand spurry (*Spergularia marina*), and brass buttons (*Cotula coronopifolia*). The surface soil, to a depth of 5 inches, is a dark gray (10 YR 4/1) clay loam. Between 5 and 12 inches, the soil is a dark gray (2.5 Y 4/1) silty clay loam with approximately 10 percent dark yellowish-brown (10 YR 4/6) and dark brown (7.5 YR 4/3) concentrations, and a few grayish-green (Gley 1 6/10Y) depletions. Below 12 inches, the soil is a light olive brown (2.5 Y 5/3) mixed with some dark gray (2.5 Y 4/1) inclusions and dark yellowish-brown (10 YR 4/6) concentrations. No flow was observed during the April 8, 2009, field survey; but saturated soils were present at a depth of 12 inches and shallow standing water was present in the deeper parts of the channel. From the Project study area, this channel continues to the northeast for approximately 900 feet, where it enters an impoundment area.

Drainage 1a is a continuation of Drainage D-1 on the north side of the impoundment. Only a small portion of the drainage is present within the Project study area along the transmission line alignment at Kelso Road (Figure 2-1: Map 2). In this area, the drainage is a low, swale-like feature that lacks defined bed and bank characteristics. The vegetation is characterized by saltgrass, Mediterranean barley (*Hordeum marinum* ssp. *gussonianum*), soft chess, and foxtail barley. The channel was dry during all surveys and lacks evidence of an ordinary high water mark. A 30-inch-diameter corrugated metal pipe (cmp) is present under Kelso Road in this area. The natural hydrology of this channel has been significantly altered by the impoundment approximately 700 feet south of the Project study area.

3.1.2 Drainage Wetland (D-2)

Drainage 2 is a small swale-like feature located along Bruns Road immediately west of PG&E's Bethany Compressor Station, approximately 600 feet north of the intersection of Kelso Road (Figure 2-1; Map 2). A 12-inch-diameter cmp is located under the road in this area. Vegetation within the channel is characterized by dense saltgrass, Italian ryegrass, and meadow barley (*Hordeum brachyantherum*). Soil in the upper 5 inches is a moderately

alkaline, dark grayish-brown (10 YR 4/2) sandy clay loam with approximately 2 percent dark brown (7.5 YR 3/4) concentrations. From 5 to 16 inches the soil is a light yellowish-brown (2.5 Y 6/4) clay loam with approximately 5 percent black (10 YR 2/1) manganese concentrations. The channel was dry at the time of the survey, but some scouring was evident along the shallow banks of the channel. This drainage flows to the east where it enters a rock-lined, linear drainage channel that flows east through the PG&E facility and eventually discharges into Drainage 2a.

3.1.3 Drainage Wetland (D-3)

Drainage Wetland 3 is a shallow, well-defined channel on the east side of Bruns Road approximately 0.3 mile north of the intersection with Kelso Road (Figure 2-1; Map 3). A 6-foot by 6-foot cement box culvert is located under the road at this location. The drainage channel is characterized by dense growth of cosmopolitan bulrush (*Bolboschoenus maritimus*) with scattered rabbitsfoot grass, curly dock (*Rumex crispus*), and cattail (*Typha dominigensis*). Surface soils were inundated at the time of the survey and had a strong positive reaction to alpha alpha-dipyridyl. The upper 6 inches is a mixed greenish-black (Gley 1 2.5/5GY) and black (5 Y 2.5/2) clay loam with approximately 5 percent strong brown (7.5 YR 4/6) concentrations. The channel was inundated with 3 to 6 inches of gently flowing water at the time of the survey. The vegetated channel flows to the north into a larger open water area and then continues to flow to the north northeast into the larger seasonal wetland area. This feature is included as a Palustrine Emergent Permanently Flooded (PEMH) wetland on the National Wetland Inventory Map (Appendix B).

3.1.4 Drainage Wetland (D-4)

This drainage is located immediately north of the Alameda County line along the east side of Bruns Road (Figure 2-1; Map 4). The shallow, well-defined channel is characterized by dense cattails (*Typha latifolia* and *T. dominingensis*) growing in the center of the channel with dense saltgrass growing around the outer edges. Mexican rush (*Juncus mexicanus*) and curly dock are also present in scattered locations. The soil at the outer edge of the channel is a strongly alkaline, dark grayish-brown (10 YR 4/2) fine sandy clay loam to clay loam. No redoximorphic features were noted in this area, possibly due to the high soil pH; however, hydric conditions were presumed to be present based on the level of inundation and abundant, lush OBL and FACW vegetation in this area. Shallow water was observed flowing from a 36-inch-diameter cmp under the road into this area during the surveys. The channel continues to flow to the east into a larger wetland area. This feature is included as a Palustrine Emergent Semi-Permanently Flooded (PEMF) wetland on the National Wetland Inventory Map (Appendix B).

3.1.5 Alkali Sink Wetland (ASW-1)

A large alkali sink wetland is present immediately north and directly abutting Drainage D-4 (Figure 2-1; Map 4). Within the Project study area, this feature is characterized by saltgrass and common rusty molly (*Kochia californica*) with scattered sand spurry, alkali heath (*Frankenia salina*), and common spikeweed (*Centromadia pungens*). The surface soil is a strongly alkaline, dark grayish-brown (10YR 4/2) fine sandy clay loam to a depth of 8 inches. From 8 to 24 inches, the soil is a very dark grayish-brown (10 YR 3/2) clay loam that is also strongly alkaline. No redoximorphic features were observed in the upper part of

the soil, but this area was considered problematic due to the high soil pH. This area was dry at the time of the survey, but appears to be subject to at least seasonal inundation and most likely a prolonged seasonally shallow water table. This feature is identified as a Palustrine Unconsolidated Shore Seasonally Flooded wetland by the National Wetland Inventory Map (Appendix B).

3.2 Potential Waters of the U.S. (Non-Wetlands)

Portions of two drainage channels within the Project study area were considered to be non-wetland waters of the U.S. due to the lack of vegetation cover and presence of well-defined bed and bank characteristics.

3.2.1 Drainage 1b

Drainage 1b is a continuation of Drainage 1 north of Kelso Road, approximately 0.2 mile east of the intersection with Bruns Road (Figure 2-1; Map 2,). A 30-inch-diameter cmp is located under the road in this area. The area along the channel immediately north of the road is highly eroded and disturbed and the bed and bank are poorly defined. As the channel continues north, it quickly becomes well-defined with steep 3-foot-tall to 3.5-foot-tall banks and an open channel that ranges from approximately 5 to 8 feet wide. With the exception of sparse saltgrass, the channel is devoid of vegetation. From the Project study area, this channel continues to the north where it eventually discharges into the large wetland area near the county line.

3.2.2 Drainage 2a (Includes Ditch 1)

Drainage 2a is a continuation of Drainage 2 on the northeast side of the Kelso Substation. Within the PG&E facility this drainage has been realigned, flows through a series of small, rock-lined, linear drainage channels. Where it exits the facility, it becomes a well defined earthen channel with steep cut banks 2 to 2.5 feet tall with a 2-foot-wide to 5-foot-wide bed. With the exception of sparse Italian ryegrass, the channel is devoid of vegetation. This channel flows to the north into a seasonal wetland area that continues north and eventually connects into a larger wetland area near the county line.

3.3 Non-Jurisdictional Features

Potentially non-jurisdictional features identified in the Project study area include two isolated seasonal wetlands, three swales, three erosional channels, and a small section of BBID's Canal 45.

3.3.1 Seasonal Wetland (SWL-1)

This seasonal wetland occurs along the existing access road to the Byron Power Cogen Plant along the northern edge of the Project study area (Figure 2-1; Map 1). The two distinct basins are hydrologically connected by a partially collapsed 18-inch-diameter cmp. Vegetation within the basins is generally sparse and includes species such as popcorn flower (*Plagiobothrys stipitatus*), coyote thistle (*Eryngium vaseyi*), Italian ryegrass, gumweed dense-flower willowherb (*Epilobium densiflorum*), wooly marbles (*Psilocarphus oregonus*),

brass buttons, and water pygmyweed (*Crassula aquatica*). Surface soil in this area is a dark grayish-brown (10 YR 4/2) clay loam with few (less than 1 percent), fine, dark yellowish-brown (10YR 4/4) concentrations present in the upper 3 inches. A dark brown (10 YR 4/3) clay layer is present at a depth of 10 inches below the surface. Surface soil had a neutral pH but no strong redoximorphic indicators were evident in the upper part of the soil at this sample location. The basins were both dry during the April field survey, but inundation and aquatic invertebrates were noted in this area during earlier site visits. Based on the presence of characteristic seasonal wetland vegetation, the distinct wetland-upland boundary, and observations of inundation and aquatic invertebrates, this area was presumed to also support hydric soils, despite the lack of redoximorphic features.

This wetland area is located nearly 500 feet south of Drainage D-1 and there is no apparent hydrological connection between this basin and the drainage. Because this feature lacks any evidence of a direct connection, was not considered to be an adjacent wetland, and does not appear to have a significant nexus to a traditional navigable water body, it was considered an isolated wetland.

3.3.2 Seasonal Wetland SWL-2

Seasonal wetland 2 is a very shallow, poorly defined depression along the east side of the transmission line laydown area (Figure 2-1; Map 2). Scattered Italian ryegrass is present along the outer edges of the basin and the central part is largely open soil with sparse, scattered coyote thistle. Surrounding grassland vegetation in this area is also sparse. Deep cattle hoof marks occur throughout the basin, which suggest this area is subject to at least some seasonal saturation and possible inundation. This small basin is located more than 100 feet from Drainage 1b with no apparent hydrologic connection or significant nexus to this channel.

3.3.3 Swales

Three weakly expressed, low topographic swales were observed in the Project area. Two swales were observed along the transmission line route south of Kelso Road (Figure 2-1; Map 2) and one swale was observed along the service water pipeline route north of Drainage Wetland D-3 (Figure 2-1; Map 3).

Swales SW-1 and SW-2 are very similar and are both located in the California grassland northeast of the Byron Power Cogen Plant. The vegetation in these areas is generally similar to the adjacent grassland, except Mediterranean barley becomes the dominant annual grass species within the swale areas, where soft chess and foxtail barley are dominant in the adjacent grassland. Other associated species include sparse saltgrass, alkali heath, and Italian ryegrass, all of which also occur in the adjacent grassland habitat. The upper 2 inches of the soil are a dark grayish-brown (10 TR 4/2) fine sandy clay loam with dark yellowish-brown (10 YR 4/4/ and 4/6) concentrations. Below 2 inches, the soil is a brown (10 YR 4/3) fine sandy loam with no evident redoximorphic features. Similar soils were noted in the adjacent grassland, but with fewer and faint (10 YR 4/4) redox features only in the upper 2 inches. These swales appear to convey short-duration flows in response to storm events and appear to be subject to short-duration inundation, but only shallow, intermittent inundation was noted in these areas during other wet season surveys of the site. It is uncertain, even in a more normal rainfall year, if these areas would support inundation or

surface saturation for 18 consecutive days. Both swales drain to the southwest where water ponds in low depressions near the Byron Power Cogen Plant. There is no apparent surface hydrologic connection to any drainage or apparent significant nexus to any traditional navigable water body.

The third swale (SW-3), is found along the water supply line, just north of Drainage D-3 on the east side of Bruns Road. A 12-inch-diameter cmp is located under the road just west of the swale feature. Within the Project study area, the swale is generally weakly expressed and exhibits no ordinary high-water mark or evidence of recent flow. Vegetation in this area is similar to the adjacent California annual grassland and includes species such as soft chess, Italian ryegrass, and saltgrass with scattered gumweed, alkali heath, and coyote thistle. To the east of the Project study area, closer to the open water, the swale is characterized by a dense cover of lush saltgrass. Because this swale appears to convey very infrequent and low-volume flows and short-duration flow, it was not considered to be subject to jurisdiction under the Federal CWA.

3.3.4 Erosional Channels

Three erosional channels are present within the Project study area along the transmission line alignment, on the north side of the Kelso Substation (Figure 2-1; Map 3). These channels have formed as a result of directed stormwater runoff from the substation and range in size from a relatively small erosional rill to a large, deeply eroded channel with defined bed and bank characteristics. These erosional channels are largely devoid of vegetation within the active flow channel, but upland grassland species common along the sides and upper edges. These features appear to convey infrequent, short-duration flows in response to heavy rainfall events that drain only uplands and were therefore not considered to be jurisdictional waters of the U.S.

3.3.5 Canal 45

Service water for the Project will be supplied from the BBID Canal 45 (Figure 2-1; Map 5). In the Project study area, this portion of the canal is a constructed and routinely maintained earthen channel devoid of vegetation. Cement rip rap is present along the lower banks of the canal.

SECTION 4

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Appendix A
Natural Resource Conservation Service
WETS Tables for Alameda County, California

WETS Station : LIVERMORE, CA4997 Creation Date: 08/29/2002
Latitude: 3740 Longitude: 12146 Elevation: 00480
State FIPS/County(FIPS): 06001 County Name: Alameda
Start yr. - 1971 End yr. - 2000

	Temperature (Degrees F.)			Precipitation (Inches)				
					30% chance will have		avg # of days w/.1 or more	avg total snow fall
Month	avg daily max	avg daily min	avg	avg	less than	more than		
January	57.0	37.4	47.2	2.99	1.39	3.66	6	0.0
February	61.9	40.3	51.1	2.73	1.28	3.34	6	0.0
March	65.6	42.3	53.9	2.44	1.00	2.97	6	0.0
April	71.3	44.2	57.8	0.95	0.50	1.17	3	0.0
May	77.1	48.5	62.8	0.43	0.05	0.51	1	0.0
June	84.1	52.5	68.3	0.09	0.00	0.12	0	0.0
July	89.1	54.9	72.0	0.03	0.00	0.00	0	0.0
August	88.8	54.9	71.9	0.08	0.00	0.00	0	0.0
September	86.0	53.2	69.6	0.24	0.00	0.24	0	0.0
October	78.2	48.3	63.3	0.82	0.25	1.00	1	0.0
November	65.1	41.8	53.5	1.75	0.54	2.08	4	0.0
December	57.1	36.9	47.0	2.04	1.02	2.49	4	0.0
Annual	-----	-----	-----	------	10.76	16.37	--	----
Average	73.5	46.3	59.9	------	------	------	--	----
Total	-----	-----	-----	14.61	------	------	31	0.0

GROWING SEASON DATES

	Temperature		
Probability	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	> 365 days > 365 days	1/ 9 to 12/29 355 days	2/26 to 11/27 276 days
70 percent *	> 365 days > 365 days	> 365 days > 365 days	2/14 to 12/ 9 299 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1930-2002 prcp

Station : CA4997, LIVERMORE

------- Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
30				0.63									0.63
31	3.45	1.67	M0.57	0.36	0.93	0.11	0.00	0.00	M0.00	0.27	1.89	5.63	14.88
32	1.29	3.15	0.19	0.41	0.37	0.00	0.00	0.00	0.00	0.00	0.51	2.03	7.95
33	4.51	0.44	2.09	0.13	0.70	0.03	0.00	0.00	0.01	0.75	0.00	3.69	12.35
34	1.29	2.86	0.00	0.13	0.60	0.53	0.00	0.00	0.27	0.62	2.71	2.32	11.33
35	3.53	0.52	3.16	3.28	0.00	0.00	0.00	0.04	0.00	0.79	0.21	1.53	13.06
36	3.28	6.76	0.71		0.46	0.10	0.00	0.00	0.00	0.40	0.02	3.26	14.99
37	3.38	4.13	5.07	0.68	0.17	0.20	0.00	0.00	0.00	0.55	2.46	4.57	21.21
38	2.40	6.14	4.09	0.90	0.02	0.00	0.00	0.00	0.00	1.00	1.08	0.52	16.15
39	2.40	1.57	2.18	0.53	0.18	0.00	M0.00	0.00	0.16	1.23	0.15	0.78	9.18
40	8.13	M4.54	2.60	0.35	0.14	0.00	0.00	0.00	0.25	0.50	0.43	4.63	21.57
41	3.24	4.19	2.07	2.76	0.23	0.00	0.00	0.03	0.00	0.72	0.89	5.34	19.47
42	3.89	1.68	1.42	3.10	1.00	0.00	0.00	0.00	0.09	1.08	3.05	1.73	17.04
43	4.48	1.68	2.39	1.14	0.00	0.06	0.00	0.00	0.00	0.30	0.53	1.23	11.81
44	2.36	4.89	1.01	M0.94	0.73	0.00	0.00	0.00	0.00	0.77	3.41	2.03	16.14
45	0.87	3.68	3.19	0.20	0.17	0.00	0.00	0.02	0.00	1.07	2.07	M2.98	14.25
46	0.76	1.23	1.69	0.02	0.61	0.00	0.24	0.00	0.02	0.02	2.93	2.07	9.59
47	0.69	1.45	2.34	0.53	0.17	0.36	0.00	0.00	0.00	1.84	0.85	0.51	8.74
48	0.20	1.11	2.79	2.50	1.03	M0.16	0.03	M0.00	M0.00	M0.46	0.34	M2.71	11.33
49	M1.39	2.47	3.38	0.02	M0.34	M0.00	0.03	0.16	0.05	0.08	1.20	M1.21	10.33
50	4.65	1.54	1.44	M0.85	M0.59	0.01	M0.00	0.00	0.08	M1.84	M5.95	4.95	21.90
51	2.23	M1.81	M1.82	0.55	M0.35	M0.06	M0.00	M0.00	0.00	1.04	M3.01	6.07	16.94
52	7.60	1.40	M2.36	2.20	M0.16	0.04	M0.00	0.00	M0.10	0.01	2.11	6.33	22.31
53	2.07	0.05	M1.12	M1.42	0.61	0.59	M0.00	M0.15	0.00	M0.21	M1.33	M0.64	8.19
54	2.19	2.27	M3.00	0.73	0.16	M0.27	0.00	0.00	M0.04	M0.00	1.68	M3.33	13.67
55	M2.45	1.69	M0.38	M1.28	0.65	0.00	0.00	M0.01	0.01	M0.01	M1.31	10.15	17.94
56	5.49	M1.15	0.14	1.92	M0.63	0.00	0.00	0.00	M0.63	0.79	0.03	0.48	11.26
57	2.65	M2.23	1.30	1.14	M2.65	M0.04	0.00	0.00	M0.05	1.06	0.37	M1.62	13.11
58	3.16	5.37	4.44	3.74	0.66	0.41	0.00	0.00	0.02	0.09	0.14	0.86	18.89
59	2.45	3.59	0.29	0.35	0.00	0.00	0.00	0.07	1.89	0.00	0.00	0.75	9.39
60	2.98	4.12	0.60	0.48	0.42	0.00	0.02	0.00	0.01	0.05	2.92	1.25	12.85
61	2.08	1.04	1.92	1.03	0.69	0.19	0.00	0.13	0.16	0.15	2.24	0.82	10.45
62	0.73	5.61	1.82	0.22	0.00	0.00	0.00	0.00	0.00	3.64	0.28	1.55	13.85
63	1.40	4.50	2.60	3.47	M0.70	0.00	0.00	0.00	0.33	0.93	3.18	0.19	17.30
64	2.37	0.08	1.57	0.21	0.48	0.32	0.00	0.12	0.04	0.85	2.44	4.91	13.39
65	2.11	0.59	1.73	1.53	0.00	0.00	0.00	0.21	0.00	0.03	4.22	3.23	13.65
66	1.05	1.17	0.17	0.33	0.10	0.12	0.17	0.00	0.11	0.00	3.43	2.35	9.00
67	6.14	0.29	4.15	4.65	0.19	0.48	0.00	0.00	0.02	0.24	0.88	1.62	18.66
68	3.93	0.90	2.40	0.43	0.15	0.00	0.00	0.00	0.00	0.43	2.48	3.04	13.76
69	6.28	4.76	0.55	1.24	0.08	0.00	0.00	0.00	0.00	1.10	0.49	2.34	16.84
70	5.38	1.18	1.42	0.40	0.07	0.32	0.00	0.00	0.00	0.41	5.24	5.27	19.69
71	1.19	0.33	1.75	1.37	0.54	0.00	0.00	0.00	0.13	0.04	0.46	3.27	9.08
72	0.90	0.79	0.14	0.64	0.00	0.04		0.00	0.58	2.98		2.22	8.29
73	5.50			0.29	0.03	0.00	0.00	0.00	0.08	2.08	3.71	3.80	15.49
74	1.50	0.71	2.69	1.62	0.00	0.00	0.00	0.00	0.00	0.50	0.66		7.68
75	0.84	3.65	5.24	1.42	0.00	0.06	0.10	0.35	0.00	1.27	0.08	0.21	13.22
76	0.30	1.46	0.48	0.39	0.00	0.18	0.00	0.91	0.95	0.50	0.50	0.73	6.40
77	1.15	0.83	0.82	0.16	1.01	0.00	0.10	0.00	0.22	0.13		3.07	7.49
78	5.44	2.95		2.49	0.01	0.00	0.00	0.00	0.04	0.00	2.16	0.58	13.67
79	4.52	3.19	1.86	0.88	0.34	0.00	0.06	0.00	0.00	1.51	1.13	2.66	16.15
80	4.16	4.24	1.36	1.32	0.48	0.00	0.70	0.00	0.00	0.04	0.28	1.18	13.76
81	3.97	1.11	2.94	0.61	0.11	0.00	0.00	0.00	0.06	2.07	3.44	2.57	16.88
82	5.29	2.16	5.58	1.50	0.00	0.28	0.00	0.01	1.48	2.24	3.72	2.80	25.06
83	6.28	5.56	6.14	3.51	0.21	0.00	0.00	0.50	1.02	0.27	5.44	3.44	32.37
84	0.33	1.87	1.00	0.53	0.01	0.03	0.00	0.00	0.04	1.25	4.71	1.51	11.28
85	0.48	1.25	2.62	0.32	0.07	0.22	0.00	0.03	0.13	0.89	2.69	1.97	10.67

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86 2.04  7.11  4.09  0.40  0.14  0.00  0.01  0.00  0.45  0.04  0.08  0.92 15.28
87 1.83  3.47  2.30  0.16  0.09        0.00  0.00  0.00  0.87  1.40  2.30 12.42
88 1.78  0.38  0.26  1.15  0.45  0.10  0.00  0.00  0.00  0.11  1.92  2.03  8.18
89 0.81  0.95  2.94  0.88  0.08  0.10  0.00  0.00  1.33  1.13  1.02  0.10  9.34
90 1.54  2.46  0.87  0.37  1.78  0.00  0.02  0.00  0.06  0.08  0.39  1.45  9.02
91 0.31  2.20  5.87  0.34  0.35  0.08  0.00  0.21  0.04  1.65  0.31  1.19 12.55
92 1.39  4.61  1.97  0.43  0.00  0.09  0.00  0.00  0.00  0.90  0.15  4.79 14.33
93 6.41  4.53  2.91  0.63  0.51  0.30  0.00  0.00  0.00  0.57  2.00  1.81 19.67
94 0.94  3.33  0.15  1.20  1.78  0.04  0.00  0.00  0.00  0.58        1.36  9.38
95 6.64  0.33  6.66  1.02  0.92  0.70  0.00  0.00  0.00  0.00  0.01  5.37 21.65
96 5.17  4.10  2.34  1.91  1.05  0.00  0.00  0.00  0.00  1.08  2.55  4.43 22.63
97 5.81  0.15  0.06  0.15  0.29  0.17  0.00  0.42  0.00  0.28  4.23  1.95 13.51
98 5.47  7.30  2.37  1.37  2.00  0.13  0.00  0.00  0.18  0.54  2.48  0.73 22.57
99 3.23  3.33  1.67  0.99  0.08  0.01  0.00  0.03  0.04  0.15  1.26  0.25 11.04
 0 4.61  4.87  1.25  0.59  0.69  0.18  0.00  0.01  0.24        0.49  0.45 13.38
 1 1.92  2.89  1.22  1.80  0.00  0.12  0.00  0.00  0.09  0.37  1.92  5.09 15.42
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WETS Station : NEWARK, CA6144
Latitude: 3731 Longitude: 12202 Elevation: 00010
State FIPS/County(FIPS): 06001 County Name: Alameda
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	Temperature (Degrees F.) avg daily min	Temperature (Degrees F.) avg	Precipitation (Inches) avg	Precipitation (Inches) 30% chance will have less than	Precipitation (Inches) 30% chance will have more than	Precipitation (Inches) avg # of days w/.1 or more	Precipitation (Inches) avg total snow fall
January	57.6	42.0	49.8	2.96	1.35	3.62	6	0.0
February	61.1	45.2	53.1	2.81	1.27	3.43	6	0.0
March	63.7	47.3	55.5	2.39	1.03	2.92	6	0.0
April	67.2	49.8	58.5	2.62	0.40	2.83	2	0.0
May	70.4	52.9	61.7	0.42	0.03	0.47	1	0.0
June	74.5	56.0	65.3	0.12	0.00	0.12	0	0.0
July	76.7	57.7	67.2	0.03	0.00	0.00	0	0.0
August	77.1	58.4	67.7	0.07	0.00	0.01	0	0.0
September	76.8	57.5	67.2	0.20	0.00	0.24	0	0.0
October	72.8	53.8	63.3	0.90	0.29	1.10	2	0.0
November	64.1	47.1	55.6	1.84	0.61	2.20	4	0.0
December	57.7	41.7	49.7	2.08	1.16	2.57	5	0.0
Annual	-----	-----	-----	------	11.48	19.40	--	----
Average	68.3	50.8	59.6	------	------	------	--	----
Total	-----	-----	-----	16.44	------	------	32	0.0

GROWING SEASON DATES

	Temperature

Probability	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	----------	12/30 to 12/30	> 365 days
	> 365 days	> 365 days	> 365 days
70 percent *	----------	12/30 to 12/30	> 365 days
	> 365 days	> 365 days	> 365 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1948-2002 prcp

Station : CA6144, NEWARK
------- Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
48							0.00	0.00	0.00	0.59	0.17	3.10	3.86
49	0.97	2.45	4.33	0.00	0.19	0.01	0.03	0.08	0.00	0.26	1.22	1.67	11.21
50	5.18	M1.49	1.76	0.96	0.15	0.00	0.03	0.00	0.05	M0.80	M3.15	M3.94	17.51
51	2.42	1.88	1.83	0.75	0.41	0.04	0.00	0.01	0.00	M0.86	3.14	M6.44	17.78
52	6.63	1.15	M4.00	1.38	0.04	M0.17	0.00	0.00	0.00	0.05	2.29	M6.05	21.76
53	2.02	0.00	0.93	1.23	M0.63	0.16	0.00	0.12	0.02	M0.25	1.77	1.04	8.17
54	M2.42	M1.37	2.84	0.74	M0.16	M0.29	0.00	0.00	0.00	0.06	M1.20	M2.97	12.05
55	M4.44	M1.75	0.17	M0.87	M0.80	0.00	0.00	0.00	0.01	0.00	1.29	M7.93	17.26
56	M6.27	0.97	M0.04	1.35	0.83	0.00	0.00	0.00	0.25	0.69	0.02	0.32	10.74
57	M2.31	M1.96	1.63	1.26	M2.38	0.00	0.00	0.00	M0.25	M1.61	M0.51	3.34	15.25
58	4.27	M5.45	M4.36	M3.23	0.63	M0.02	0.02	0.00	0.05	M0.04	M0.16	M0.85	19.08
59	M2.78	M2.50	0.30	0.06	0.00	0.00	0.00	0.00	M0.75	0.05	0.00	M0.45	6.89
60	5.33	M3.41	M0.98	M0.35	0.45	0.00	0.00	0.00	0.02	0.17	M3.82	M1.06	15.59
61	M3.27	M1.04	M1.19	0.82	M0.56	0.18	0.00	0.09	0.30	0.05	M2.95	M0.91	11.36
62	M1.20	M6.62				0.00	0.00	0.00	0.00	M4.53	0.34	2.20	14.89
63	1.51	M2.88	M3.09	4.19	0.57	0.08	0.00	0.01	0.09	1.21	M2.93	0.24	16.80
64	3.54	0.00	1.31	0.07	0.45	0.41	0.00	0.09	0.00	0.67	M1.99	M4.23	12.76
65	M1.45	0.50	1.55	1.77	0.00	0.00	0.00	0.18	0.00	0.11	M4.21	2.84	12.61
66	1.54	1.27	0.32	0.36	0.05	0.11	0.24	0.00	0.13	0.00	2.71	2.28	9.01
67	M5.63	0.25	M2.84	M3.57	0.11	0.51	0.00	0.00	0.00	0.22	1.02	2.18	16.33
68	3.77	M0.56	M2.17	0.76	0.18	0.00	0.00	0.72	0.00	0.27	M2.48	M2.26	13.17
69	6.24	M3.96	1.38	M1.15	0.02	0.00	0.00	0.00	0.05	0.47	0.36	1.23	14.86
70	5.36	0.93	1.51	0.20	0.01	0.20	0.00	0.00	0.00	0.56	5.90	4.87	19.54
71	0.73	M0.79	1.43	1.25	0.12	0.00	0.00	0.09	0.12	0.01	0.81	2.90	8.25
72	0.77	0.65	0.04	0.38	0.00	0.20	0.00	0.00	0.58	M2.87	M5.90	1.70	13.09
73	3.79	M5.33	2.05	0.39	0.03	0.00	0.00	0.00	0.04	M1.63	M2.99	M3.84	20.09
74	M2.41	0.88	M2.23	M1.66	0.00	0.63	0.15	0.00	0.00	M0.89	0.61	1.38	10.84
75	0.84	M2.21	M3.28	M1.67	0.02	0.00	0.13	0.43	0.01	1.12	0.27	0.18	10.16
76	0.27	0.90	1.41	0.57	0.01	0.08	0.09	0.65	0.68	0.52	M0.82	0.89	6.89
77	0.81	0.63	1.64	0.18	1.09	0.00	0.14	0.00	0.44	0.22	M0.92	3.04	9.11
78	M6.26	3.07	M3.60	2.96	0.00	0.00	0.00	0.00	0.05	0.00	2.12	0.48	18.54
79	4.09	3.26	1.79	0.54	0.19	0.00	0.07	0.01	0.00	1.71	1.14	2.66	15.46
80	2.89	5.87	1.54	0.84	0.06	0.00	0.38	0.00	0.00	0.02	0.17	1.20	12.97
81	3.41	1.39	2.66	0.37	0.08	0.01	0.00	0.00	0.02	2.01	3.04	1.89	14.88
82	4.26	2.90	4.39	2.12	0.00	0.10	0.00	0.09	0.86	1.95	2.85	2.42	21.94
83	5.97	3.67	7.17	3.50	0.42	0.00	0.00	0.04	0.60	0.51	6.04	3.60	31.52
84	0.14	2.04	1.15	51.00	0.00	0.10	0.00	0.04	0.24	1.74	4.33	1.68	62.46

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85 0.86  1.04  2.43  0.05  0.25  0.03  0.03  0.00  0.40  1.02  2.41  1.95 10.47
86 1.82  5.30  3.48  0.59  0.27  0.00  0.00  0.00  0.62  0.07  0.06  0.98 13.19
87 2.13  2.72  1.54  0.15  0.02  0.00  0.00  0.00  0.00  0.87  0.97  2.16 10.56
88 2.46  0.31  0.06  1.00  0.47  0.05  0.00  0.00  0.01  0.16  1.81  2.92  9.25
89 0.93  1.07  2.66  0.56  0.09  0.00  0.00  0.00  0.63  2.05  0.87  0.00  8.86
90 1.78  1.90  0.93  0.26  1.88  0.00  0.00  0.00  0.09  0.12  0.51  1.75  9.22
91 0.28  2.31  5.37  0.35  0.19  0.12  0.00  0.11  0.07  1.62  0.33  1.88 12.63
92 1.41  5.33  3.56  0.48  0.00  0.16  0.00  0.00  0.00  0.79  0.13  4.79 16.65
93 6.90  4.72  2.50  0.79  0.50  0.38  0.00  0.00  0.00  0.54  2.92  2.15 21.40
94 1.85  3.24  0.18  1.05  1.69  0.05  0.00  0.00  0.14  0.31  2.98  1.46 12.95
95 8.36  0.16  6.25  1.09  0.99  1.10  0.00  0.00  0.00  0.00  0.01  4.60 22.56
96 4.32  3.95  1.89  1.00  1.11  0.00  0.00  0.00  0.00  0.60  1.40  5.67 19.94
97 5.37  0.28  0.14  0.17  0.29  0.37  0.00  0.48  0.00  0.59  5.29  1.98 14.96
98 5.90 10.79  2.57  1.74  2.06  0.01  0.00  0.00  0.09  0.62  1.95  1.27 27.00
99 3.22  3.82  1.85  1.21  0.03  0.03  0.00  0.00  0.27  0.35  1.01  0.33 12.12
 0 4.72  6.26  2.03  0.65  0.69  0.29  0.00  0.03  0.17  1.94  0.44  0.54 17.76
 1 2.08  3.32  1.25  1.32  0.00  0.15  0.00  0.01  0.04  0.27  1.97  4.68 15.09
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WETS Station : OAKLAND MUSEUM, CA6336 Creation Date: 08/29/2002
Latitude: 3748 Longitude: 12216 Elevation: 00030
State FIPS/County(FIPS): 06001 County Name: Alameda
Start yr. - 1971 End yr. - 2000

	Temperature (Degrees F.)			Precipitation (Inches)				
					30% chance will have		avg # of days w/.1 or more	avg total snow fall
Month	avg daily max	avg daily min	avg	avg	less than	more than		
January	57.3	44.6	51.0	4.85	2.24	5.93	7	0.0
February	61.6	47.9	54.7	4.40	1.83	5.35	7	0.0
March	63.3	49.1	56.2	3.56	1.54	4.34	6	0.0
April	66.5	50.6	58.5	1.35	0.53	1.66	3	0.0
May	69.0	53.4	61.2	0.59	0.05	0.65	1	0.0
June	71.7	55.7	63.7	0.12	0.00	0.12	0	0.0
July	72.5	56.9	64.7	0.07	0.00	0.00	0	0.0
August	73.5	58.3	65.9	0.10	0.00	0.01	0	0.0
September	74.7	58.3	66.5	0.31	0.00	0.36	0	0.0
October	72.1	55.4	63.8	1.38	0.53	1.69	2	0.0
November	63.9	49.5	56.7	3.24	1.30	3.93	5	0.0
December	57.7	44.6	51.1	3.13	1.71	3.88	5	0.0
Annual	-----	-----	-----	------	16.81	25.64	--	----
Average	67.0	52.0	59.5	------	------	------	--	----
Total	-----	-----	-----	23.10	------	------	36	0.0

GROWING SEASON DATES

	Temperature		
Probability	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	---------- > 365 days	---------- > 365 days	> 365 days > 365 days
70 percent *	---------- > 365 days	---------- > 365 days	> 365 days > 365 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1971-2002 prcp

Station : CA6336, OAKLAND MUSEUM
Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
71	1.73	0.43	2.80	0.93	0.13	0.00	0.00	0.00	0.26	0.10	2.04	4.19	12.61
72	1.32	1.58	0.18	1.02		0.34	0.00	0.01	0.90	4.25	6.39	3.20	19.19
73	10.43	6.31	2.95	0.02	0.04	0.00	0.00	0.00	0.64	1.77	9.67	5.39	37.22
74	3.39	1.76	5.15	3.33	0.00	0.15	1.19	0.00	0.00	M1.16	0.78	2.52	19.43
75	2.29	3.88	5.68	2.25	0.01	0.08	0.21	0.05	0.03	3.85	0.56	0.52	19.41
76	0.31	2.01	1.08	0.89	0.00	0.04	0.00	1.09	0.61	0.57	1.09	2.30	9.99
77	1.55	0.77	2.10	0.00	0.54	0.00	0.01	0.00	0.68	0.21	2.83		8.69
78	7.87	4.80	6.89	3.76	0.00	0.00	0.00	0.00	0.59	0.00	1.64	0.70	26.25
79	7.18	5.52	2.82	1.04	0.10	0.00	0.43	0.00	0.00	2.37	3.96	5.77	29.19
80	4.81	7.63	M1.82	1.66	0.44	0.00		0.00	0.00	0.13	0.20	2.42	19.11
81	6.15	1.33	4.41	0.30	0.10	0.00	0.00	0.00	0.08	2.80	5.93	4.65	25.75
82	10.75	3.80	8.55	4.13	0.00	0.19	0.03	0.00	M0.00	2.89	5.31	3.11	38.76
83	7.22	8.08	9.83	3.87	0.42		0.00	0.05	0.61	0.23	7.12	6.84	44.27
84	0.33	2.28	1.60	0.98	0.09	M0.00	0.00	0.17	0.31	2.99	M6.89		15.64
85	0.77	2.08	3.65	0.15	0.04			0.00	0.53	1.18	M3.26	1.67	13.33
86	5.24	8.92	5.89	0.70	0.13	0.00	0.03	0.00	1.54	0.14	0.32	1.47	24.38
87	3.60	4.93	2.32	0.20	0.04	0.00	0.00	0.00	0.00	1.57	2.34	4.29	19.29
88	3.83	0.49	0.03	2.77	0.98	0.44	0.00	0.01	0.00	0.37	2.49	3.81	15.22
89	1.27		5.16	0.63	0.04	0.04	0.00	0.00	1.45	1.73	1.25	0.00	11.57
90	4.41		1.21	0.24	2.92	0.01	0.00	0.00	0.06	0.35	0.49	1.58	11.27
91	0.42	3.49	7.04	0.72	0.20	0.24	0.00	0.19	0.00	M1.20	0.36	2.22	16.08
92	1.71	7.53	4.54	0.26	0.00	0.30	0.00	0.03	0.00	2.49	0.30	6.82	23.98
93	8.90	3.94	2.61	0.60	0.94	0.11	0.00	0.00	0.00	0.62	2.08	3.01	22.81
94	2.56	4.52	0.28	1.69	1.54	0.00	0.00	0.00	0.04	0.40	9.37	3.23	23.63
95	M9.77	0.21	7.60	1.86	1.07	0.92	0.00	0.00	0.00				21.43
96	6.40	M5.87	2.01		2.67	0.00					3.44	8.90	29.29
97	7.80	0.22	0.56	0.57	0.27	0.28	0.00	1.25	0.01	1.18	M6.79	3.36	22.29
98	12.45	15.14	2.76	1.83	2.98	0.01	0.00	0.00	0.04	0.81	3.82	1.23	41.07
99	4.04	7.17	2.89	1.80	0.09	0.03	0.00	0.06	0.13	0.50	2.55	0.48	19.74
0	7.13	9.94	2.45	1.01	1.21		0.00	0.00	0.26	2.75	M0.70	0.77	26.22
1	3.27	7.39	1.27	1.69	0.00	0.07	0.00	0.00	0.26	0.54	4.41	9.40	28.30
2													

WETS Station : TRACY PUMPING PLANT, CA9001 Creation Date: 08/29/2002
Latitude: 3748 Longitude: 12135 Elevation: 00060

State FIPS/County(FIPS): 06001 County Name: Alameda
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	Temperature (Degrees F.) avg daily min	Temperature (Degrees F.) avg	Precipitation (Inches) avg	Precipitation (Inches) 30% chance will have less than	Precipitation (Inches) 30% chance will have more than	avg # of days w/.1 or more	avg total snow fall
January	54.8	38.5	46.7	2.68	1.16	3.26	6	0.0
February	61.6	41.9	51.8	2.29	1.01	2.79	5	0.0
March	66.4	45.0	55.7	1.98	0.80	2.40	5	0.0
April	72.8	48.0	60.4	0.73	0.39	0.90	2	0.0
May	80.0	53.4	66.7	0.45	0.00	0.46	1	0.0
June	87.4	57.5	72.4	0.09	0.00	0.07	0	0.0
July	92.1	60.4	76.3	0.04	0.00	0.00	0	0.0
August	91.6	60.3	76.0	0.06	0.00	0.00	0	0.0
September	87.4	58.5	72.9	0.25	0.00	0.19	0	0.0
October	78.5	52.2	65.4	0.72	0.22	0.91	1	0.0
November	64.6	44.1	54.3	1.63	0.58	2.03	4	0.0
December	55.3	38.0	46.7	1.55	0.75	1.89	4	0.0
Annual	-----	-----	-----	------	8.76	13.96	--	----
Average	74.4	49.8	62.1	------	------	------	--	----
Total	-----	-----	-----	12.48	------	------	28	0.0

GROWING SEASON DATES

Probability	Temperature 24 F or higher	Temperature 28 F or higher	Temperature 32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	---------- > 365 days	12/30 to 12/30 > 365 days	1/17 to 12/20 338 days
70 percent *	---------- > 365 days	12/30 to 12/30 > 365 days	> 365 days > 365 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1955-2002 prcp

Station : CA9001, TRACY PUMPING PLANT
------- Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
55		0.87	0.59	1.24	0.36	0.00	0.00	0.00	0.00	0.12	1.07	6.33	10.58
56	4.13	0.48	0.00	1.35	0.46	0.00	0.00	0.00	0.68	0.32	0.04	0.21	7.67
57	1.78	2.38	0.93	M0.92	M1.32	0.02	0.00	0.00	0.17	M0.70	0.21	1.81	10.24
58	3.19	4.68	3.78	3.03	0.67	0.15	0.00	0.09	0.06	0.00	0.00	0.59	16.24
59	2.53	3.05	0.11	0.10	0.05	0.00	0.00	0.00	2.60	0.00	0.00	0.79	9.23
60	2.27	2.39	0.27	0.24	0.25	0.00	0.01	0.00	0.01	0.07	2.91	0.40	8.82
61	2.21	0.58	1.13	0.69	0.89	0.00	0.00	0.06	0.19	0.03	2.50	0.55	8.83
62	0.60	5.93	1.02	0.01	0.00	0.00	0.00	0.00	0.05	2.87	0.18	1.35	12.01
63	1.90	2.45	1.84	2.27	0.30	0.00	0.00	0.00	0.17	0.68	3.21	0.11	12.93
64	1.48	0.01	0.80	0.17	0.15	1.80	0.02	0.30	0.00	1.03	1.95	3.74	11.45
65	1.90	0.50	1.19	1.16	0.00	0.00	0.05	0.36	0.00	0.02	3.14	2.23	10.55
66	0.82	1.19	0.11	0.42	0.15	0.00	0.25	0.00	0.06	0.00	3.21	2.93	9.14
67	5.27	0.24	3.11	2.53	0.02	0.55	0.00	0.00	0.00	0.09	0.66	0.92	13.39
68	3.32	1.33	1.64	0.44	0.00	0.00	0.00	0.60	0.00	0.19	2.22	2.44	12.18
69	5.02	3.88	0.29	0.65	0.00	0.00	0.00	0.00	0.04	0.95	0.36	1.97	13.16
70	5.40	1.70	1.17	0.21	0.00	0.19	0.00	0.00	0.00	0.64	4.42	3.62	17.35
71	0.81	0.28	1.11	1.00	1.32	0.00	0.00	0.00	0.03	0.00	0.36	2.06	6.97
72	0.51	0.62	0.05	0.30	0.03	0.02	0.00	0.00	0.69	1.77	4.15	1.17	9.31
73	4.38	3.97	2.35	0.41	0.00	0.00	0.00	0.00	0.00	1.35	3.36	2.80	18.62
74	2.03	0.26	1.82	1.23	0.00	0.05	0.10	0.00	0.00	0.63	0.31	1.96	8.39
75	0.33	3.04	3.40	0.92	0.00	0.00	0.18	0.32	0.00	0.98	0.28	0.30	9.75
76	0.25	1.17	0.25	0.55	0.00	0.03	0.00	0.73	0.89	0.43	0.45	0.69	5.44
77	0.52	0.66	0.74	0.63	0.83	0.00	0.01	0.00	0.24	0.13	1.71	2.45	7.92
78	5.61	2.87	3.11	1.14	0.00	0.00	0.00	0.00	0.07	0.00	1.93	0.25	14.98
79	3.68	2.53	2.05	0.62	0.00	0.00	0.20	0.00	0.00	1.30	0.92	2.24	13.54
80	3.46	3.28	1.02	0.98	0.13	0.00	0.62	0.00	0.00	0.03	0.17	0.85	10.54
81	3.16	0.75	2.11	0.27	0.02	0.00	0.00	0.00	0.08	1.29	3.12	2.09	12.89
82	5.46	1.47	4.10	1.45	0.00	0.29	0.00	0.00	2.20	1.64	3.87	1.99	22.47
83	5.12	3.89	5.89	2.91	0.16	0.00	0.00	0.51	0.76	0.43	4.93	2.88	27.48
84	0.45	1.48	0.45	0.30	0.01	0.01	0.00	0.00	0.00	1.41	3.80	1.25	9.16
85	0.42	0.81	1.20	0.21	0.00	0.40	0.00	0.00	0.00	0.48		2.89	6.41
86	1.66	5.10	4.74	0.31	0.07	0.00	0.03	0.00	0.71	0.00	0.00	0.87	13.49
87	1.48	4.15	1.65	0.13	0.00	0.00	0.00	0.00	0.00	M0.58	M1.02	M2.11	11.12
88	M2.27	M0.45	0.83	M1.35	M0.32	0.76	0.00	0.00	0.00	0.24	M1.02	M1.63	8.87
89	M0.83	M0.92	M1.67	M0.30	0.10	M0.02	0.00	M0.01	M1.56	M0.64	M0.85	M0.05	6.95
90	M1.04	M2.11	M0.57	M0.47	M2.00	0.00	0.00	0.00	M0.07	0.15	0.20	1.08	7.69
91	M0.22	M1.98	M3.60	M0.37	0.26	M0.00	0.10	0.15	0.00	1.01	M0.25	M0.70	8.64
92	M1.43	M3.73	M1.46	0.60	0.00	0.14	0.00	0.00	0.00	M0.71	M0.29	M4.42	12.78
93	M5.86	M2.89	M2.83	M0.53	M0.93	M0.14	0.00	0.00	0.00	0.30	2.11	1.39	16.98
94	1.02	2.71	0.07	1.01	1.39	0.00	0.00	0.00	0.05	0.33	2.55	0.67	9.80
95	5.13	0.16	M5.19	0.71	0.48	0.71	0.00	0.00	0.00	0.00	0.00	4.67	17.05
96	M4.02	3.79	2.45	1.09	1.19	0.00	0.00	0.00	0.00	1.11	1.99	3.58	19.22
97	5.22	M0.17	0.11	0.03	0.55	0.15	0.00	0.05	0.00	0.22	3.22	1.59	11.31
98	4.57	7.27	1.43	1.08	3.15	0.10	0.00	0.00	0.13	0.52	1.81	0.44	20.50
99	3.08	2.38	1.99	0.71	0.06	0.00	0.00	0.00	0.07	0.06	0.96	0.27	9.58
0	4.32	4.42	0.79	0.42	0.51	0.02	0.00	0.00	0.02	3.87	0.52	0.47	15.36
1	1.84	2.38	1.16	1.08	0.00	0.05	0.00	0.00	0.25	0.17	1.79	4.55	13.27
2													

WETS Station : UPPER SAN LEANDRO FLTR, CA9185 Creation Date: 08/29/2002
Latitude: 3746 Longitude: 12210 Elevation: 00390
State FIPS/County(FIPS): 06001 County Name: Alameda
Start yr. - 1971 End yr. - 2000

	Temperature (Degrees F.)	Precipitation (Inches)

Month	avg daily max	avg daily min	avg	avg	30% chance will have: less than	30% chance will have: more than	avg # of days w/.1 or more	avg total snow fall
January	57.6	40.7	49.1	5.20	2.32	6.34	8	0.0
February	61.3	42.6	51.9	4.64	2.07	5.66	7	0.0
March	62.7	43.9	53.3	4.49	2.34	5.48	8	0.0
April	66.6	44.9	55.7	1.70	0.71	2.07	3	0.0
May	69.5	48.0	58.8	0.75	0.06	0.83	1	0.0
June	73.0	51.6	62.3	0.15	0.00	0.18	0	0.0
July	75.4	53.3	64.3	0.06	0.00	0.00	0	0.0
August	75.3	54.2	64.8	0.11	0.00	0.02	0	0.0
September	76.1	53.9	65.0	0.36	0.00	0.38	1	0.0
October	72.8	51.0	61.9	1.52	0.55	1.88	2	0.0
November	64.4	45.2	54.8	3.88	1.54	4.70	6	0.0
December	58.6	41.4	50.0	3.84	1.81	4.69	6	0.0
Annual	-----	-----	-----	------	20.36	29.92	--	----
Average	67.8	47.6	57.7	------	------	------	--	----
Total	-----	-----	-----	26.69	------	------	42	0.0

GROWING SEASON DATES

Probability	Temperature: 24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates / Growing Season Length		
50 percent *	---------- / > 365 days	---------- / > 365 days	> 365 days / > 365 days
70 percent *	---------- / > 365 days	---------- / > 365 days	> 365 days / > 365 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

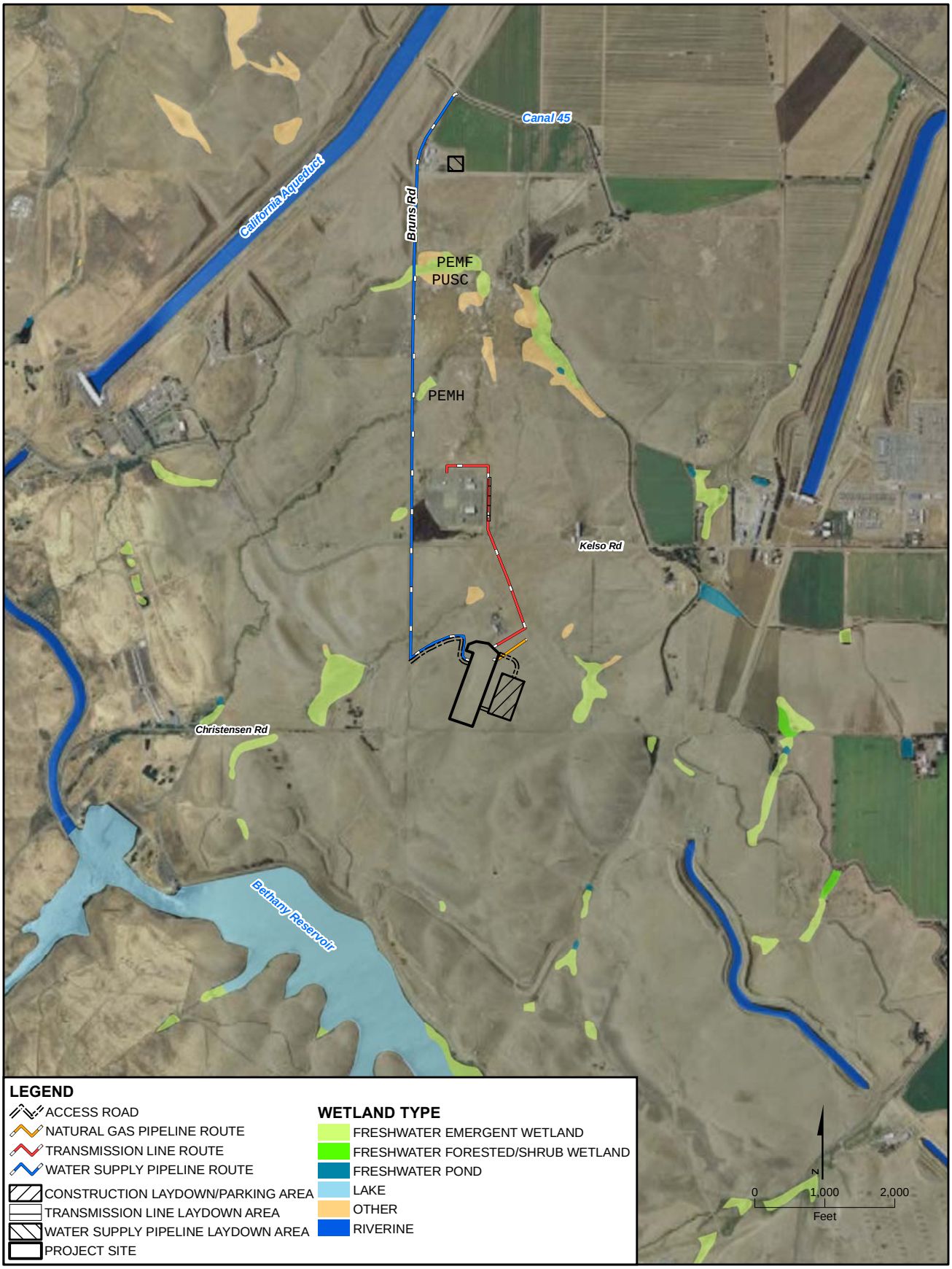
total 1948-2002 prcp

Station : CA9185, UPPER SAN LEANDRO FLTR
------- Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
48							0.00	0.02	0.00	0.64	0.86	4.10	5.62
49	1.58	3.12	4.59	0.02	0.78	0.00	0.05	M0.12	0.00	0.32	M1.73	M2.24	14.55
50	9.80	2.31	3.32	1.57	0.91	0.02	0.00	0.00	0.00	2.36	6.08	6.19	32.56
51	6.25	M2.47	M2.24	1.09	0.70	0.01	0.00	0.34	0.03				13.13

58								0.00	0.06	0.22	0.12	1.93	2.33
59	4.73	4.70	0.83	0.02	M0.02	0.00	0.00	0.03	3.31	0.03	0.00	1.61	15.28
60	M3.01	5.63	3.05	0.97	0.96	M0.00	M0.00	0.00	0.00	0.32	M5.81	0.91	20.66
61	2.99	M1.44	3.76	M1.29	0.79	0.00	0.00	0.13	0.34	M0.34	4.07	2.90	18.05
62	1.74	8.93	2.61	0.53	0.00	0.00	0.00	0.14	0.43	13.13	0.95	2.97	31.43
63	2.62	4.47	4.09	5.64	0.69	0.00	0.00	0.00	0.23	1.83	4.10	0.57	24.24
64	4.91	0.19	2.13	0.32	0.66	0.69	0.03	0.05	0.00	1.35	4.21	7.52	22.06
65	4.86	0.98	2.04	3.99	0.00	0.00	0.02	0.10	0.00	0.28	5.48	4.22	21.97
66	2.98	2.97	0.84	0.73	0.34	0.00	0.15	0.14	0.15	0.00	5.03	4.18	17.51
67	10.20	0.37	5.23	5.80	0.09	1.15	0.00	0.00	0.02	0.66	1.20	3.79	28.51
68	6.61	2.81	3.61	0.44	0.57	0.00	0.00	0.25	0.03	0.28	3.26	4.74	22.60
69	9.00	9.14	1.63	2.27	0.00	0.12	0.00	0.00	0.00	2.31	0.73	5.70	30.90
70	9.71	1.59	1.99	0.06	0.01	0.81	0.00	0.00	0.00	0.77	8.03	8.77	31.74
71	1.61	0.76	3.81	1.02	0.23	0.00	0.00	0.00	0.18	0.12	2.13	4.43	14.29
72	1.73	1.97	0.19	1.89	0.01	0.30	0.00	0.00	1.56	3.70	7.02	3.85	22.22
73	11.00	6.89	3.77	0.09		0.00	0.00	0.00	0.79	1.52	9.20	6.94	40.20
74	4.01	2.21	6.80	4.68	0.00	0.10	1.16	0.00	0.00	0.90		2.37	22.23
75	2.21	6.17	6.05	2.85	0.00	0.11	0.14	0.11	0.02	6.41	1.05	0.38	25.50
76	0.33	1.10	2.51	0.98	0.00	0.06	0.00	1.30	0.88	0.72	1.34	1.98	11.20
77	1.29	1.22	2.52	0.20	1.22	0.00	0.00	0.03	0.96	0.48	3.95	5.73	17.60
78	9.51	4.82	7.30	6.17	0.03	0.00	0.00	0.00	0.48	0.00	2.43	0.91	31.65
79	8.83	5.82	4.06	0.96	0.19	0.00	0.02	0.00	0.00	3.11	3.45	5.79	32.23
80	5.79	7.40	2.55	2.19	0.36	0.05	0.19	0.00	0.00	0.15	0.35	2.33	21.36
81	6.05	1.45	5.60	0.61	0.25	0.00	0.00	0.00	0.08	3.66	6.77	6.93	31.40
82	9.38	5.03	7.68	5.05	0.00	0.12	0.05	0.01	1.12	2.80	7.94	4.33	43.51
83	8.11	8.20	13.10	3.57	0.41	0.00	0.00	0.17	0.45	0.93	9.18	7.77	51.89
84	0.22	2.83	2.21	0.99	0.17	0.92	0.00	0.09	0.04	3.82	8.90	2.08	22.27
85	0.56	2.35	4.24	0.08	0.56	0.26	0.08	0.07	0.54	0.90	3.85	1.90	15.39
86	5.23	10.80	6.52	0.81	0.26	0.00	0.04	0.00	1.90	0.17	0.58	1.90	28.21
87	4.25	5.77	3.26	0.53	0.10	0.00	0.00	0.00	0.00	1.24	2.30	5.13	22.58
88	4.40	0.50			0.70	0.41	0.00	0.00	0.00	0.62	5.01	4.17	15.81
89	1.41	1.80	6.85	0.59	0.03	0.08	0.01	0.00	0.91	3.31	2.10	0.03	17.12
90	4.66	2.44	1.31	0.48	3.83	0.01	0.00	0.00	0.12	0.57	0.73	2.21	16.36
91	0.53	3.06	8.35	0.49		0.13	0.00	0.10	0.00	2.76	0.57	2.57	18.56
92	1.84	7.74	4.68	0.34	0.00	0.02		0.01	0.00	2.12	0.27	8.14	25.16
93	9.17	4.55	2.73	1.37	1.19	0.22	0.00	0.00	0.00	0.66	1.75	2.89	24.53
94	2.29	5.51	0.33	1.83	1.69	0.02	0.00	0.00	0.02	0.29	9.46	3.03	24.47
95	11.17	0.12	8.41	2.49	2.13	1.00	0.00	0.00	0.00	0.00	0.10	8.38	33.80
96	6.68	6.29	3.35	2.45	3.18	0.00	0.00	0.00	0.10	1.08	4.38	10.98	38.49
97	M8.77	0.40	0.55	1.22	0.16	0.44	0.00	1.23	0.01	0.93	7.68	3.61	25.00
98	12.19	15.43	3.13	2.47	3.62	0.12		0.00	0.11	0.70	3.93	2.45	44.15
99	4.54	8.07	3.82	2.02	0.06	0.03	0.00	0.11	0.02	0.34	2.08	0.64	21.73
0	8.13	8.48		0.94		0.21		0.00	0.47			1.28	19.51
1	3.46		1.73	1.95	0.00	0.22	0.00	0.00	0.20	0.50	4.33	10.42	22.81
2													

Appendix B
National Wetland Inventory Map



Source: U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation, National Wetlands Inventory, California, 2008.

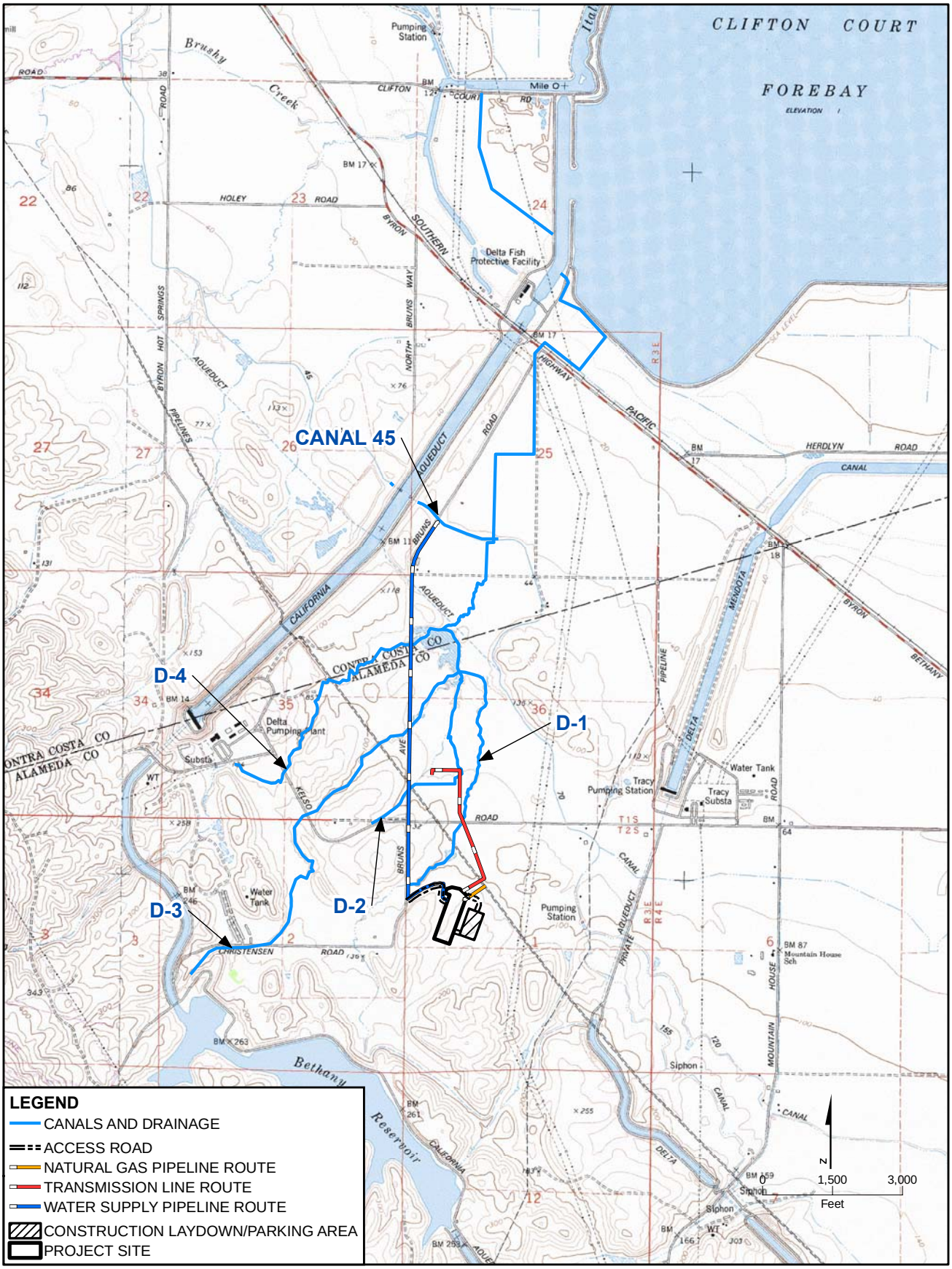
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

FIGURE B-1
NWI MAP
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL

SAC\\ZION\SACGIS\PROJ\DIAMOND_376670\MAPFILES\AFC_MAPS\WETLAND_NWI.MXD MHASKELL 7/13/2009 09:57:52

Appendix C
Drainage and Topography Map



Notes:
1. Source: USGS, the National Atlas of the United States, Environmental Systems Research Institue (ESRI). Water Bodies - 2004, River and Streams - 2006.

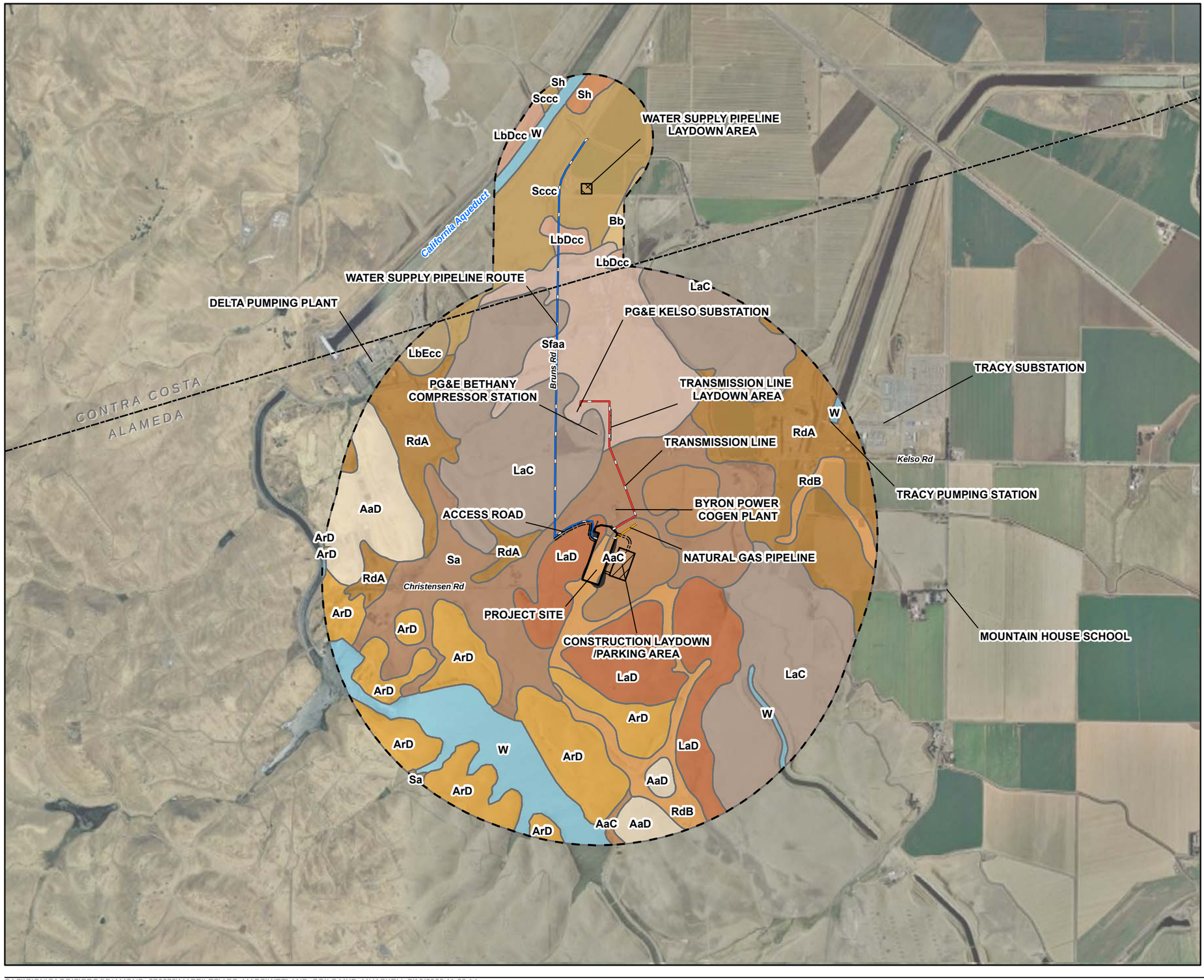
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

FIGURE C-1
DRAINAGE AND TOPOGRAPHY
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL

SAC\\ZION\SACGIS\PROJ\DIAMOND_376670\MAPFILES\AFC_MAPS\WETLAND_SURFACEWATER.MXD MHASKELL 7/13/2009 10:31:30

Appendix D
Mapped Soil Units in the Project Vicinity



LEGEND

- ACCESS ROAD
- NATURAL GAS PIPELINE ROUTE
- TRANSMISSION LINE ROUTE
- WATER SUPPLY PIPELINE ROUTE
- CONSTRUCTION LAYDOWN/PARKING AREA
- TRANSMISSION LINE LAYDOWN AREA
- WATER SUPPLY PIPELINE LAYDOWN AREA
- PROJECT SITE
- DISTURBED AREA
- BUFFER

SOIL TYPE

- AaC, ALTAMONT CLAY, 3 TO 15 PERCENT SLOPES
- AaD, ALTAMONT CLAY, 15 TO 30 PERCENT SLOPES
- ArD, ALTAMONT ROCKY CLAY, 7 TO 30 PERCENT SLOPES
- Bb, BRENTWOOD CLAY LOAM
- LaC, LINNE CLAY LOAM, 3 TO 15 PERCENT SLOPES
- LaD, LINNE CLAY LOAM, 15 TO 30 PERCENT SLOPES
- LbDcc, LINNE CLAY LOAM, 5 TO 15 PERCENT SLOPES
- LbEcc, LINNE CLAY LOAM, 15 TO 30 PERCENT SLOPES
- RdA, RINCON CLAY LOAM, 0 TO 3 PERCENT SLOPES
- RdB, RINCON CLAY LOAM, 3 TO 7 PERCENT SLOPES
- Sa, SAN YSIDRO LOAM
- Sccc, SAN YSIDRO LOAM
- Sf, SOLANO FINE SANDY LOAM
- Sfaa, SOLANO FINE SANDY LOAM
- Sh, SOLANO LOAM
- W, WATER

Notes:
1. 1 Mile Buffer around Project Site, 1/4 Mile Buffer around all Linears.
2. Source: U.S. Department of Agriculture, Natural resources Conservation Service, Soil Survey Geographic (SSURGO) Database for Contra Costa and Alamenda County, California, 2005.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 1,000 2,000
Feet

FIGURE D-1
SOIL TYPES
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL

Appendix E
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 4/8/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-01

Investigator(s): Russell Huddleston, Todd Ellwood Section, Township, Range: NW ¼ Sec 1; T 2 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 47' 28.127" Long: -121° 36' 05.172" Datum: WGS1984

Soil Map Unit Name: Linne Clay Loam; 15 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil Yes, or Hydrology Yes naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks: Small concave depressional areas along gravel access road to the Byron CoGen Plant connected by a partially crushed 18-inch diameter culvert. Problematic area: seasonal wetland hydrology; no hydric soil indicators were noted but were presumed to meet the definition of a hydric soil as noted in the remarks.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m²			
1. *Plagiobothrys stipitatus*	20%	X	OBL
2. *Lolium multiflorum*	3%		(FAC)
3. *Grindelia camporum*	3%		FACU
4. *Epilobium densiflorum*	2%		OBL
5. *Psilocarphus oregonus*	1%		OBL
6. *Crassula aquatica*	1%		OBL
7. *Veronica peregrina*	T		OBL
8. *Juncus bufonius*	T		FACW
Total Cover:	30%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 70 % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover Of:	Multiply By:	
OBL species	×1 =	
FACW species	×2 =	
FAC species	×3 =	
FACU species	×4 =	
UPL species	×5 =	
Column Totals: (A)		(B)
Prevalence Index = B/A =		

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ___ Prevalence Index is ≤3.0*
- ___ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Basin is characterized by *Plagiobothrys* with other scattered vernal pool plants; species around the margins of the basin included *Bromus hordeaceus, Hordeum murinum, Erodium botrys, Grindelia,* and *Medicago polymorpha.* The small basin on the north side of the road is largely open soils (80% bare ground) with approximately 15% cover of *Cotula coronopifolia*; with 5% cover composed of *Plagiobothrys stipitatus, Eryngium vaseyi*, *Lolium multiflorum* and *Epilobium densiflorum.* **Note:** *Lolium multiflorum* is not included on the Reed (1988) plant list but is generally considered to be a facultative species and was therefore assigned a FAC indicator status.

SOIL

Sampling Point SP-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-3	10 YR 4/2	100	10 YR 4/4	<1	C	M	CL	pH 7.0 - 7.2
3-10	10 YR 4/2	100					CL	
10-16	10 YR 4/3	100					C	

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: 10"

Depth (inches): Clay Layer

Hydric Soil Present? Yes X **No** ___

Remarks: At the time of the survey, soils were very dry and hard, difficult to excavate to depth. Soils in this area are mapped as part of the Linne Series, but appear to be somewhat transitional between the Lynne and San Ysidro Series. The soil pH was neutral (7.0 to 7.2) throughout the upper 16 inches. Despite the presence of OBL and FACW plants throughout the basin as well as observations of seasonal inundation and presence of aquatic invertebrates, no hydric soil indicators were evident; however, the assumption is that soils in this area are ponded long enough to become anaerobic in the upper part during the growing season and are therefore considered to meet the definition of a hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- * Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- * Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches):	
Water Table Present?	Yes	___	No	X	Depth (inches):	>16
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	>16

Wetland Hydrology Present? Yes X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Basin was dry at the time of the survey, but seasonal inundation and aquatic invertebrates were observed in this location during field surveys in February 2009. In addition, the defined topographic basin with an abrupt boundary with the adjacent grassland, abundance of OBL and FACW vegetation, and deep cattle prints all suggest prolonged seasonal saturation and/or inundation occurs at this sample location.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 4/8/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-02

Investigator(s): Russell Huddleston, Todd Ellwood Section, Township, Range: NW ¼ Sec 1; T 2 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 47' 28.013" Long: -121° 36' 05.233" Datum: WGS1984

Soil Map Unit Name: Linne Clay Loam 15 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?**	**Yes** **No** X
Hydric Soil Present?	Yes	No *		
Wetland Hydrology Present?	Yes	No X		

Remarks: Sample point located adjacent to well-defined basin with distinct change in vegetation along gravel access road to the Byron Power Cogen Plant. Soils very gravelly and hard at this location and were not excavated at the time of the survey; this area is characterized by upland plants and has no evidence of seasonal saturation or inundation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m²			
1. *Bromus hordeaceus*	45%	X	FACU-
2. *Erodium moschatum / E. botrys*	15%	X	NL
3. *Grindelia camporum*	10%		FACU
4. *Medicago polymorpha*	2%		NL
5. *Trifolium hirtum*	1%		NL
6. *Hordeum murinum* subsp. *leporinum*	1%		NL
7. *Lolium multiflorum*	1%		(FAC)
8.			
Total Cover:	75%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 25% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index Worksheet:

Total % Cover Of:	Multiply By:
OBL species	×1 =
FACW species	×2 =
FAC species	×3 =
FACU species	×4 =
UPL species	×5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0*

___ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** **No** X

Remarks: Annual grassland habitat located adjacent to well-defined topographic basin; distinct upland/wetland boundary at this location. **Note:** *Lolium multiflorum* is not included on the Reed (1988) plant list but is generally considered to be a facultative species and was therefore assigned a FAC indicator status.

SOIL

Sampling Point SP-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-2	10 YR 4/2	100					CL	pH 7.0-7.2

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix.

[b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ **No** *

Remarks: Soil very hard with high gravel content at the time of the survey. Soil pit was not excavated in this location; no indication that this area is subject to seasonal saturation or inundation, therefore, soils are likely non-hydric. Note: No hydric soil indicators were noted in the adjacent depression basin characterized by OBL and FACW vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sample point taken in upland area adjacent to well-defined topographic depression. No evidence of seasonal saturation or inundation evident at this location.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 6/4/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-03

Investigator(s): Russell Huddleston Section, Township, Range: NW ¼ Sec 1; T 2 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 47' 32.965" Long: -121° 35' 58.615" Datum: WGS1984

Soil Map Unit Name: San Ysidro Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

Remarks: Swale feature within annual grassland that flows to the southwest where water collects in low areas around the Byron Power Cogen Plant. Wetland hydrology uncertain at this location, appears to support short-duration inundation and low-volume flow in response to rain events, but does not appear to support prolonged, continuous saturation or inundation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m²			
1. *Hordeum marinum*	85	X	FAC
2. *Distichlis spicata*	5		FACW
3. *Frankenia salina*	5		FACW+
4. *Lolium multiflorum*	T		(FAC)
5.			
6.			
7.			
8.			
Total Cover:	95		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover Of:	Multiply By:
OBL species	×1 =
FACW species	×2 =
FAC species	×3 =
FACU species	×4 =
UPL species	×5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0*

___ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Vegetation notably different within the swale than the adjacent annual grassland – swales are characterized by Mediterranean barley where the adjacent areas are characterized by foxtail barley and soft chess. Saltgrass, alkali heath and Italian ryegrass are widely scattered throughout and not restricted to the swale areas. Note: *Lolium multiflorum* is not included on Reed (1988), but is generally considered to be a facultative species.

SOIL

Sampling Point SP-03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[a]	Loc[b]	Texture	Remarks
0-2	10 YR 4/2	95	7.5 YR 4/4	2	C	M	FSCL	
2-12			7.5 YR 4/6	3	C	M	FSCL	

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >12

Hydric Soil Present? Yes X **No** ___

Remarks: Soils just meet the criteria for a depleted matrix at this location. Adjacent soils were similar, but lack the 7.5 YR 4/6 concentrations in the upper 2 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >12

Wetland Hydrology Present? Yes ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Area was dry at the time of the survey and characterized by FAC vegetation; appears to convey low-volume flows in response to storm events and may be subject to temporary inundation, but does not appear to support prolonged inundation or saturation for a minimum of 18 consecutive days and was therefore unlikely to meet the wetland hydrology criterion. Only sporadic, very shallow pockets of water were noted in this area during site visits during the wet season.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 6/4/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-04

Investigator(s): Russell Huddleston Section, Township, Range: NW ¼ Sec 1; T 2 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 47' 33.174" Long: -121° 35' 58.781" Datum: WGS1984

Soil Map Unit Name: San Ysidro Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?**	**Yes**	**No** X
Hydric Soil Present?	Yes X	No			
Wetland Hydrology Present?	Yes	No X			

Remarks: California annual grassland adjacent to low topographic swale, dark brown concentrations in the upper part of the soil are characteristic for this soil type.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m²			
1. *Bromus hordeaceus*	80%	X	FACU-
2. *Grindelia camporum*	10%		FACU
3. *Erodium botrys*	5%		NL
4. *Eryngium vaseyi*	3%		FACW
5.			
6.			
7.			
8.			
Total Cover:	98%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 2% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index Worksheet:

Total % Cover Of:	Multiply By:	
OBL species	×1 =	
FACW species		
FAC species		
FACU species		
UPL species		
Column Totals:		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0*

___ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** **No** X

Remarks: Annual grassland habitat adjacent to seasonal wetland swale.

SOIL

Sampling Point SP-04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[a]	Loc[b]	Texture	Remarks
0-2	10 YR 4/2	98	7.5 YR 4/4	2	C	M	FSL	
2-14	10 YR 4/3	100					FSCL	

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): ___

Hydric Soil Present? Yes X **No** ___

Remarks: Soils have 2 percent distinct concentrations in the upper 2 inches – just meets the criteria for a depleted matrix; the San Ysidro Series soils typically have few fine, distinct concentration in the upper part of the soils – unlikely that these concentrations are the result of current hydrologic conditions in this area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No evidence of seasonal saturation or inundation at this location.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 6/4/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-05

Investigator(s): Russell Huddleston Section, Township, Range: NW ¼ Sec 1; T 2 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): None Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 47' 36.220" Long: -121° 35' 59.921" Datum: WGS1984

Soil Map Unit Name: San Ysidro Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks: Soil point taken in very weakly expressed low area within slightly hummocky annual grassland habitat along transmission line alignment; no evidence of wetland hydrology was observed in this area during any of the surveys.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m^2			
1. *Bromus hordeaceus*	70	X	FACU-
2. *Erodium moschatum*	10		NL
3. *Eryngium vaseyi*	5		FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	85%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index Worksheet:

	Total % Cover Of:	Multiply By:
OBL species		×1 =
FACW species		×2 =
FAC species		×3 =
FACU species		×4 =
UPL species		×5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0*

____ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: Vegetation in this area similar to surrounding grassland habitat.

SOIL

Sampling Point SP-05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-2	10 YR 4/3	98	7.5 YR 4/4	2	C	M	FSL	
2-12	10 YR 4/3	100					FSL-FSCL	

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >12

Hydric Soil Present? Yes ___ **No** X

Remarks: Brown concentrations in the upper part are typical for this soil unit, but chroma of 3 does not meet the depleted matrix hydric soil indicator.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >12

Wetland Hydrology Present? Yes ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No evidence of seasonal inundation or saturation at this location.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 4/8/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-06

Investigator(s): Russell Huddleston, Todd Ellwood Section, Township, Range: NW ¼ Sec 1; T 2 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 47' 28.170" Long: -121° 36' 17.167" Datum: WGS1984

Soil Map Unit Name: San Ysidro Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks: Well-defined drainage channel with gently sloping banks shown as a blue line creek on USGS topographic map; sample point located within the ordinary high water line of seasonal drainage channel along Bruns Road within the work area for the proposed service water pipeline; 6-foot by 6-foot box culvert under the road at this location.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m²			
1. *Distichlis spicata*	40%	X	FACW
2. *Polypogon monspeliensis*	5%		FACW
3. *Lolium multiflorum*	5%		(FAC)
4. *Cotula coronopifolia*	<1%		FACW+
5. *Spergularia marina*	<1%		FACW*
6. *Hordeum marinum* subsp. *leporinum*	<1%		NL
7.			
8.			
Total Cover:	55%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 45% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

	Total % Cover Of:	Multiply By:	
OBL species		×1 =	
FACW species		×2 =	
FAC species		×3 =	
FACU species		×4 =	
UPL species		×5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0*

Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Dense *Lepidium latifolium* between the fence and the culvert west of the sample point. Lower part of channel characterized by saltgrass and rabbitsfoot grass. Note: *Lolium multiflorum* is not listed on Reed (1988) but is generally considered to be a facultative species.

SOIL

Sampling Point SP-06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-5	10 YR 4/1	100					CL	
5-12	2.5 Y 4/1	90%	10 YR 4/6	5	C	M	FS-SiCL	
			Gley 1 6/10Y	<1	D	RC		
			7.5 YR 3/4	5	C	RC		
12+	2.5 Y 5/3	80	10 YR 4/6	10	C	M	SiCL	
	2.5 Y 4/1	10						

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >12

Hydric Soil Present? **Yes** X **No** ___

Remarks: Evidence of reducing conditions observed throughout the soil profile below a depth of 5 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- X Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- X Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 12

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sample point is within the ordinary high water line of a seasonal drainage, some standing water present in the deeper part of the channel at the time of the survey. Saturated soils were observed at a depth of 12 inches and soil redox indicates prolonged saturated conditions within the upper part.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 4/8/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-07

Investigator(s): Russell Huddleston, Todd Ellwood Section, Township, Range: NW ¼ Sec 1; T 2 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 47' 28.119" Long: -121° 36' 17.137" Datum: WGS1984

Soil Map Unit Name: San Ysidro Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks: Sample point located in grassland adjacent to seasonal drainage D-1 on the east side of Bruns Road south of Kelso Road – along service water pipeline route.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m^2			
1. *Hordeum marinum* subsp. *leporinum*	60%	X	NL
2. *Bromus hordeaceus*	30%	X	FACU-
3. *Medicago polymorpha*	2%		NL
4. *Erodium moschatum*	1%		NL
5. *Lolium multiflorum*	<1%		(FAC)
6.			
7.			
8.			
Total Cover:	95%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index Worksheet:

Total % Cover Of:	Multiply By:
OBL species	×1 =
FACW species	×2 =
FAC species	×3 =
FACU species	×4 =
UPL species	×5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0*

___ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** **No** X

Remarks: *Lolium multiflorum* is not listed on Reed (1988) but is generally considered to be a facultative species. Vegetation in this area is typical for the grasslands throughout the Project study area.

SOIL

Sampling Point SP-07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-12	10 YR 4/1	100					CL	No Redoximorphic Features

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >12

Hydric Soil Present? **Yes** ___ **No** X

Remarks: Soils very hard and dense – difficult to excavate at this location.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):			
Water Table Present?	Yes ___	No X	Depth (inches):	>12		
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>12	**Wetland Hydrology Present?** **Yes** ___	**No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sample point located on terrace adjacent to seasonal drainage channel – no evidence of prolonged saturation or inundation at this location.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 4/8/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-08

Investigator(s): Russell Huddleston, Todd Ellwood Section, Township, Range: SW ¼ Sec 36; T 1 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 47' 47.811" Long: -121° 36' 17.289" Datum: WGS1984

Soil Map Unit Name: Linne Clay Loam 3 to 15 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology Yes naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X*	No	

Remarks: Small drainage channel on east side of Bruns Road just west of PG&E Bethany Compressor Station, north of Kelso Road – flows to the east into rock-lined drainage ditch within the PG&E facility; 12-inch-diameter culvert (cmp) under the road in this area; shown as a blue line creek on the USGS topographic map – area may be more of a vegetated waters than a wetland, but duration of inundation/saturation is indeterminate.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m^2			
1. *Lolium multiflorum*	40	X	(FAC)
2. *Distichlis spicata*	35	X	FACW
3. *Hordeum brachyantherum*	25	X	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	95%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

	Total % Cover Of:	Multiply By:
OBL species		×1 =
FACW species		×2 =
FAC species		×3 =
FACU species		×4 =
UPL species		×5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0*

___ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: *Lolium multiflorum* is not listed on Reed (1988) but is generally considered to be a facultative species. Vegetation in this area is similar to the adjacent grassland area on low terrace above the drainage feature.

SOIL

Sampling Point SP-08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[a]	Loc[b]	Texture	Remarks
0-5	10 YR 4/2	98	7.5 YR 3/4	2	C	M	SCL	pH 8.2
5-16	2.5 Y 6/4	95	10 YR 2/1	5	C	M	CL	Mn Nodules

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Redox (S5)	___ 1 cm Muck (A9) (LRR C)
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)	___ 2 cm Muck (A10) (LRR B)
___ Black Histic (A3)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Red Parent Material (TF2)
___ Stratified Layers (A5) (LRR C)	X Depleted Matrix (F3)	___ Other (Explain in Remarks)
___ 1 cm Muck (A9) (LRR D)	___ Redox Dark Surface (F6)	
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	
___ Sandy Mucky Mineral (S1)	___ Vernal Pools (F9)	
___ Sandy Gleyed Matrix (S4)		

Indicators for Problematic Hydric Soils[c]:

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >16

Hydric Soil Present? Yes X **No** ___

Remarks: Surface soil is moderately alkaline in this area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)	___ Salt Crust (B11)	___ Water Marks (B1) (**Riverine**)
___ High Water Table (A2)	___ Biotic Crust (B12)	___ Sediment Deposits (B2) (**Riverine**)
___ Saturation (A3)	___ Aquatic Invertebrates (B13)	___ Drift Deposits (B3) (**Riverine**)
___ Water Marks (B1) (**Nonriverine**)	___ Hydrogen Sulfide Odor (C1)	X Drainage Patterns (B10)
___ Sediment Deposits (B2) (**Nonriverine**)	___ Oxidized Rhizospheres along Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3) (**Nonriverine**)	___ Presence of Reduced Iron (C4)	___ Thin Muck Surface (C7)
___ Surface Soil Cracks (B6)	___ Recent Iron Reduction in Plowed Soils (C6)	___ Crayfish Burrows (C8)
___ Inundation Visible on Aerial Imagery (B7)	X Other (Explain in Remarks)	___ Saturation Visible on Aerial Imagery (C9)
___ Water-Stained Leaves (B9)		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)

Secondary Indicators (two or more required)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): >16

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >16

Wetland Hydrology Present? Yes X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Shallow, defined drainage channel, some evidence of scouring along the banks – area appears to convey seasonal flows for some duration – this area may function more as vegetated waters rather than a wetland, wetland hydrology (18 consecutive days of saturation or inundation) was indeterminate in this area at the time of the survey, but area appears to convey flows and therefore wetland hydrology was tentatively assumed to be present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 4/8/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-09

Investigator(s): Russell Huddleston, Todd Ellwood Section, Township, Range: SW ¼ Sec 36; T 1 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 47' 47.881" Long: -121° 36' 17.276" Datum: WGS1984

Soil Map Unit Name: Linne Clay Loam 3 to 15 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks: Elevated area adjacent to small drainage channel on the east side of Bruns Road, near PG&E Bethany Compressor Station – Vegetation similar to that found in adjacent drainage, but this area lacks evidence of wetland hydrology. May be occasionally flooded in response to heavy rains, but unlikely that water persists in this area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m²			
1. *Hordeum brachyantherum*	90	X	FACW
2. *Distichlis spicata*	<1		FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	90%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 10% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

	Total % Cover Of:	Multiply By:
OBL species		×1 =
FACW species		×2 =
FAC species		×3 =
FACU species		×4 =
UPL species		×5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0*

Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Sample point characterized by dense meadow barley; no distinct vegetation change with the adjacent drainage channel.

SOIL

Sampling Point SP-09

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-6	10 YR 4/1	100					CL	pH 8.6 to 8.8
6-15	10 YR 3/2	100	2.5 Y 7/4	<2	C	M	C	Light concentrations are $CaCO_3$ nodules and filaments – not redox features

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix.

[b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >16

Hydric Soil Present? **Yes** ___ **No** X

Remarks: Surface soil is strongly alkaline with calcium carbonate deposits present below 6 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): >16

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >16

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Elevated areas adjacent to small drainage feature, no evidence of prolonged saturation or inundation in this area. Possibly subject to short-term flooding due to heavy storm events.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 6/4/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-10

Investigator(s): Russell Huddleston Section, Township, Range: SW ¼ Sec 36; T 1 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 48' 00.183" Long: -121° 36' 17.334" Datum: WGS1984

Soil Map Unit Name: Solano Fine Sandy Loam NWI classification: PEMH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks: Shallow well-defined drainage perennial drainage channel on east side of Bruns Road; 6-foot by 6-foot cement box culvert under road. This feature is shown as a blue line creek on the USGS topographic map and is a Palustrine Emergent Permanently Flooded (PEMH) on the National Wetland Inventory Map.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m²			
1. *Bolboschoenus maritimus*	70	X	OBL
2. *Distichlis spicata*	15		FACW
3. *Chenopodium album*	<1		FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	85%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover Of:	Multiply By:	
OBL species	×1 =	
FACW species	×2 =	
FAC species	×3 =	
FACU species	×4 =	
UPL species	×5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0*

Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Dense cosmopolitan bulrush throughout the channel, relatively distinct vegetation boundary with the adjacent grasses.

SOIL

Sampling Point SP-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[a]	Loc[b]	Texture	Remarks
0-6	Gley 1 2.5/5GY	60	7.5 YR 4/6	5	C	M	CL	Strong reaction to α α-dipyrdyl
	5Y 2.5/2	35						

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >6

Hydric Soil Present? Yes X **No** ___

Remarks: Soils were inundated at the time of the survey with extensive roots and rhizomes in the upper part, evidence of reducing condition noted in the upper part with alpha alpha-dipyrdyl dye test.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 3

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Shallow perennial drainage, flows to the north into open water area located outside of the Project study area.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 6/4/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-11

Investigator(s): Russell Huddleston Section, Township, Range: SW ¼ Sec 36; T 1 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 48' 00.241" Long: -121° 36' 17.340" Datum: WGS1984

Soil Map Unit Name: Solano Fine Sandy Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks: Sample point on north side of drainage channel above the ordinary high water line, area is characterized by dense saltgrass, but lacks evidence of hydric soil and wetland hydrology.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m²			
1. *Distichlis spicata*	100	X	FACW
2. *Cressa truxillensis*	<1		FACW
3. *Cirsium vulgare*	<1		FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover Of:	Multiply By:
OBL species	×1 =
FACW species	×2 =
FAC species	×3 =
FACU species	×4 =
UPL species	×5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0*

Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Dense saltgrass along the upper edges of the channel.

SOIL

Sampling Point SP-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-12	2.5 Y 4/2	80					SL	$CaCO_3$ Nodules Present
	2.5 Y 5.2	20						

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >12

Hydric Soil Present? **Yes** ___ **No** X

Remarks: No redoximorphic features observed in this location.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >12

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Upper edge of drainage channel, possibly subject to occasional flooding, but no evidence this area is subject to prolonged saturation or inundation. Sample point is above the ordinary high water line of the drainage channel.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Alameda Date: 4/15/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-12

Investigator(s): Russell Huddleston, Todd Ellwood Section, Township, Range: NW ¼ Sec 36; T 1 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 48' 19.996" Long: -121° 36' 17.153" Datum: WGS1984

Soil Map Unit Name: Solano Fine Sandy Loam NWI classification: PEMF

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil Yes, or Hydrology Yes naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks: Sample point taken at outer edge of drainage channel on the east side of Bruns Road, 30-inch-diameter cmp culvert under the road in this area. Sample point at the edge of the ordinary high water line – likely subject to shallow groundwater saturation during the wet season. This feature is shown as a blue line on the USGS topographic map and is a Palustrine Emergent Semi-permanently Flooded (PEMF) on the National Wetland Inventory Map.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m²			
1. *Distichlis spicata*	75	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 25% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

	Total % Cover Of:	Multiply By:
OBL species		×1 =
FACW species		×2 =
FAC species		×3 =
FACU species		×4 =
UPL species		×5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0*

___ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Dense, lush saltgrass along the outer edges of the channel, center part of the channel filled with dense cattails.

SOIL

Sampling Point SP-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-3.5	10 YR 4/2	100					FSCL	pH 9.6
3.6-16	10 YR 4/2	100					CL	pH 9.2

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >16

Hydric Soil Present? Yes X **No** ___

Remarks: No redoximorphic features observed in this location; however, the soil is strongly alkaline and was therefore considered problematic. Lush FACW vegetation along with topographic low position adjacent to drainage channel suggest soils in this area are likely seasonally saturated or inundated for a period of time and hydric conditions likely exist.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):			
Water Table Present?	Yes ___	No X	Depth (inches):	>16		
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>16	**Wetland Hydrology Present? Yes** X	**No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This point was dry at the time of the survey, but water was present in the deeper part of the channel at the time of the survey; low topographic position adjacent to channel and lush saltgrass suggest this area may be subject to seasonal saturation or inundation. Wetland hydrology was assumed to be present at this location.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Contra Costa Date: 4/15/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-13

Investigator(s): Russell Huddleston, Todd Ellwood Section, Township, Range: NW ¼ Sec 36; T 1 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 48' 20.115" Long: -121° 36' 17.127" Datum: WGS1984

Soil Map Unit Name: Solano Fine Sandy Loam NWI classification: PUSC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil Yes, or Hydrology Yes naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X*	No	
Wetland Hydrology Present?	Yes X*	No	

Remarks: Sample point is within alkali sink wetland adjacent to drainage channel on the east side of Bruns Road – just north of the Alameda County line. Area is characterized by notable change in vegetation and soils from the surrounding grassland areas. Considered a problem area due to the strongly alkaline soils and probable seasonal wetland hydrology. Area is Palustrine Unconsolidated Shore Seasonally Flooded (PUSC) wetland on the National Wetland Inventory Map.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m²			
1. *Distichlis spicata*	30	X	FACW
2. *Kochia californica*	30	X	FACW
3. *Hordeum brachyantherum*	25	X	FACW
4. *Lolium multiflorum*	<1		(FAC)
5.			
6.			
7.			
8.			
Total Cover:	85%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover Of:	Multiply By:	
OBL species	×1 =	
FACW species	×2 =	
FAC species	×3 =	
FACU species	×4 =	
UPL species	×5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0*

___ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Vegetation includes hydrophytic plant species that area also tolerant of saline/alkaline soil conditions – notable change in vegetation from the adjacent grassland areas. *Lolium multiflorum is* not included on Reed (1988) but is generally considered a facultative species.

SOIL

Sampling Point SP-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-6	10 YR 4/2	100					CL	pH 8.8-9.0
6-16	10 YR 31/1	80					CL	
	10 YR 4/2	20						

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >16

Hydric Soil Present? Yes X **No** ___

Remarks: No redoximorphic features observed in this location; however, the soil is strongly alkaline and was therefore considered problematic. Lush FACW vegetation along with topographic low position adjacent to drainage channel suggest soils in this area are likely seasonally saturated or inundated for a period of time and hydric conditions likely exist.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches):	
Water Table Present?	Yes	___	No	X	Depth (inches):	>16
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	>16

Wetland Hydrology Present? Yes X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This point was dry at the time of the survey, but this area potentially supports shallow seasonal inundation or shallow groundwater resulting in saturated soil condition in the upper 12 inches. Hydrology was indeterminate at this location, but topographic position and notable change in vegetation suggest wetland hydrology may be present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Contra Costa Date: 6/4/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-14

Investigator(s): Russell Huddleston Section, Township, Range: NW ¼ Sec 36; T 1 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 48' 21.291" Long: -121° 36' 16.854" Datum: WGS1984

Soil Map Unit Name: Solano Fine Sandy Loam NWI classification: PUSC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation No, Soil Yes, or Hydrology Yes naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks: Sample point take in the alkali sink wetland adjacent to drainage channel on the east side of Bruns Road – just north of the Alameda County line. Area is characterized by notable change in vegetation and soils from the surrounding grassland area. Shown as a Palustrine Unconsolidated Shore Seasonally Flooded wetland on the National Wetland Inventory Map.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m^2			
1. *Distichlis spicata*	50	X	FACW
2. *Kochia californica*	25	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	75%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 25% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

	Total % Cover Of:	Multiply By:
OBL species		×1 =
FACW species		×2 =
FAC species		×3 =
FACU species		×4 =
UPL species		×5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0*

___ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: Vegetation includes hydrophytic plant species that area also tolerant of saline/alkaline soil conditions – notable change in vegetation from the adjacent grassland areas.

SOIL

Sampling Point SP-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-8	10 YR 4/2	100					FiSCL	pH 9.2 - 9.4; moderate rxn to HCl
8-24	10 YR 3/2	100					CL	pH 8.8; weak rxn to HCl

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): ___

Hydric Soil Present? Yes X* **No** ___

Remarks: No redoximorphic features observed in this location; however, the soil is strongly alkaline and was therefore considered problematic. Shallow soil saturation possible in this area resulting in the development of hydric condition during the wet season.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): >24

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >24

Wetland Hydrology Present? Yes X* **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This point was dry at the time of the survey, but potentially supports shallow seasonal inundation or shallow groundwater, resulting in saturated soil condition in the upper 12 inches. Hydrology was indeterminate at this location, but topographic position and notable change in vegetation suggest wetland hydrology may be present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mariposa Energy Center City/County: Contra Costa Date: 6/4/2009

Applicant/Owner: Diamond Energy Corp. State: CA Sampling Point: SP-15

Investigator(s): Russell Huddleston Section, Township, Range: NW ¼ Sec 36; T 1 S; R 3 E (MDM)

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1 %

Subregion (LRR): C Lat: 37° 48' 21.387" Long: -121° 36' 16.878" Datum: WGS1984

Soil Map Unit Name: Solano Fine Sandy Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation Yes, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks: Sample point taken in annual grassland adjacent to alkali sink wetland area, vegetation in this area is characterized by facultative plant species, but notable change from the adjacent vegetation in the alkali sink – possible difference is due to soil chemistry rather than wetland hydrology, but this could not be definitively determined at the time of the survey.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:	N/A		
Sapling/Shrub Stratum			
1. None			
2.			
3.			
4.			
5.			
Total Cover:	N/A		
Herb Stratum Plot Area: ~1m^2			
1. *Hordeum marinum*	50	X	FAC
2. *Lolium multiflorum*	30	X	(FAC)
3. *Frankenia salina*	15		FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	95%		
Woody Vine Stratum			
1. None			
2.			
Total Cover:	N/A		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

	Total % Cover Of:	Multiply By:
OBL species		×1 =
FACW species		×2 =
FAC species		×3 =
FACU species		×4 =
UPL species		×5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0*

Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: *Lolium multiflorum* is not assigned an indicator status per Reed (1988) but is generally considered to be a facultative species. Sample point characterized by FAC plants, but these species are common and widespread throughout the annual grassland habitat in the surrounding area and may not be indicative of wetland conditions – notable change in vegetation from the adjacent alkali sink area.

SOIL

Sampling Point SP-15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[a]	Redox Features Loc[b]	Texture	Remarks
0-7	10 YR 4/2	100					CL	pH 8.4; weak rxn to HCl
7-14	10 YR 4/2	90					CL	pH 8.4; weak rxn to HCl
	2.5 Y 4/3	10						

[a] Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [b] Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[c]:

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[c] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: NE

Depth (inches): >14

Hydric Soil Present? **Yes** ___ **No** X

Remarks: Soil in this location is moderately alkaline as compared to strongly alkaline soil in the adjacent alkali sink area. No indication of hydric conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): >14

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >14

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This point was dry at the time of the survey; facultative vegetation present, but consists of species that are common in grasslands throughout this area; no strong indication of wetland hydrology observed at this location.

Appendix F
Selected Site Photographs

PROJECT SITE
Looking to the south-southeast from the existing access road

LAYDOWN AREA
Looking north from south end of property

DRAINAGE WETLAND (D-1)
Looking east from Bruns Road

DRAINAGE WETLAND (D-1)
Looking west; 6-foot by 6-foot box culvert under Bruns Road

DRAINAGE (1B)
North of Kelso Road, looking northeast at defined earthen channel

DRAINAGE WETLAND (D-2)
Looking east from Bruns Road

DRAINAGE (2A)
Looking east at earthen channel

DRAINAGE WETLAND (D-3)
Looking west; 6-foot by 6-foot box culvert under Bruns Road

DRAINAGE WETLAND (D-3)
Looking north along east side of Bruns Road

DRAINAGE WETLAND (D-4)
Looking east from Bruns Road (30-inch-diameter cmp under road)

DRAINAGE WETLAND (D-4)
Adjacent alkali sink wetland; looking south along Bruns Road

ALKALI SINK WETLAND (ASW-1)
Looking northeast from Bruns Road

SEASONAL WETLAND (SW-1)
Looking north, basins connected via 18-inch-diameter cmp

SEASONAL WETLAND (SW-1)
Inundated on February 19, 2009

PROJECT SITE
Low upland swale through center of site—no change in vegetation or evidence of any type of flow through this area

SEASONAL WETLAND (SW-2)
Weakly expressed shallow area with Italian ryegrass and sparse coyote thistle

SWALE (SW-1)
Looking west

SWALE (SW-3)
Looking east from Bruns Road

E-1
Small erosional rill; looking north; flows north into seasonal wetland area

E-2
Erosional feature; looking south toward the PG&E Kelso Substation

E-3
Large erosional channel with deeply scoured channel; looking north; flows north into large seasonal wetland area

BBID CANAL 45
Looking east from Bruns Road

Appendix G
List of Plant Species Observed at Sample Points

TABLE G-1
Plant Species Observed at Sample Point Locations

Scientific Name[1] (Name per Reed 1988)	Common Name (Name per Reed 1988)	Indicator Status[2]	Stratum
Bolboschoenus maritimus (*Scirpus maritimus*)	Cosmopolitan bulrush (Saltmarsh bulrush)	OBL	H
Bromus hordeaceus (*Bromus mollis*)	Soft chess (Soft brome)	FACU-	H
Chenopodium album	White goosefoot	FAC	H
Cirsium vulgare	Bull thistle	FACU	H
Cotula coronopifolia	Brass buttons	FACW+	H
Crassula aquatica	Water pigmy-weed	OBL	H
Cressa truxillensis	Spreading alkali weed	FACW	H
Distichlis spicata	Saltgrass (Inland)	FACW*	H
Epilobium densiflorum (*Boisduvalia densiflora*)	Dense flower willowherb (Dense flower spike-primrose)	OBL	H
Erodium botrys		NL	H
Erodium moschatum		NL	H
Eryngium vaseyi	Vasey's coyote thistle	FACW	H
Frankenia salina (*Frankenia grandiflora*)	Alkali heath	FACW+	H
Grindelia camporum	Great Valley gumweed	FACU	H
Hordeum brachyantherum	Meadow barley	FACW	H
Hordeum marinum ssp. *gussonianum* (*Hordeum hystrix*)	Mediterranean barley	FAC	H
Hordeum murinum ssp. *leporinum* (*Hordeum leporinum*)	Foxtail barley (Barley)	NI	H
Juncus bufonius	Toad rush	FACW+	H
Kochia californica	Rusty molly (California summer-cypress)	FACW	H
Lolium multiflorum	Italian Ryegrass	NL (FAC[3])	H
Medicago polymorpha	Bur clover	NL	H
Plagiobothrys stipitatus	Slender popcorn flower	OBL	H
Polypogon monspeliensis	Annual rabbit-foot grass	FACW+	H
Psilocarphus oregonus	Oregon woolly-heads	OBL	H
Spergularia marina	Saltmarsh sandspurry	OBL	H

TABLE G-1
Plant Species Observed at Sample Point Locations

Scientific Name[1] (Name per Reed 1988)	Common Name (Name per Reed 1988)	Indicator Status[2]	Stratum
Trifolium hirtum	Rose clover	NL	H
Veronica peregrina	Purslane speedwell	OBL	H

NOTES:
[1] Taxonomy follows current nomenclature per the University of California (2009) *Jepson On-Line Interchange for California Floristics*
[2] Indicator State follows the *National List of Plant Species that Occur in Wetlands: Region 0.* Reed (1988)
[3]*Lolium multiflorum* is not included on the Reed 1988 *National List of Plant Species that Occur in Wetlands: Region 0*, but is generally considered to be a facultative plant species

Indicator Status Codes

NL	Not included on the *National List of Plant Species that Occur in Wetlands: Region 0.* Reed (1988)
NI	Insufficient information available to assign an indicator status
FACU	Facultative Upland (67 to 99 percent probability of occurrence in non-wetlands)
FAC	Facultative (equally likely to occur in wetlands and non-wetlands)
FACW	Facultative Wetland (67 to 99 percent probability of occurrence in wetlands)
OBL	Obligate (99 percent probability of occurrence in wetlands)
+	Frequency tends toward the higher end of the category
-	Frequency tends toward the lower end of the category

Stratum

H	Herbaceous

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE *MARIPOSA ENERGY PROJECT* (MEP)

Docket No. 09-AFC-3

PROOF OF SERVICE
(Revised 9/15/09)

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DECLARATION OF SERVICE

I, Mary Finn, declare that on September 29, 2009, I served and filed copies of the attached USACE Delineation of Wetlands and Other Waters dated July 2009. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[http://www.energy.ca.gov/sitingcases/mariposa/index.html].**

The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

For service to all other parties:

__X__sent electronically to all email addresses on the Proof of Service list;

_____by personal delivery or by depositing in the United States mail at Sacramento, California, with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses NOT marked "email preferred."

AND

For filing with the Energy Commission:

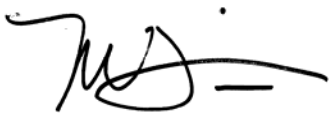
__X__**sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (preferred method);**

OR

_____depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-3
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.



Mary Finn