

CH2M HILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833
Tel 916-920-0300
Fax 916-920-8463



July 31, 2009

382914

Alan H. Solomon
Project Manager
California Energy Commission
1516 Ninth Street, MS 15
Sacramento, CA 95814-5512

Subject: Mariposa Energy Project (09-AFC-03)
Supplement A - Data Adequacy Responses

Dear Mr. Solomon:

Please find attached the Mariposa Energy Project's Supplement A - Data Adequacy Responses. This supplement was prepared in response to the Staff's Data Adequacy Recommendation dated July 9, 2009. It is being submitted to respond to the Staff's requests for additional information.

Attached are 60 hard copies and 65 electronic copies on CD-ROM. Due to the size of Attachment DA 5.2-2, Wetland Delineation Report, five hard copies have been provided. Additional electronic copies are available upon request.

If you have any questions about this matter, please contact me at (916) 286-0348.

Sincerely,

CH2M HILL

A handwritten signature in black ink, appearing to read "D. Urry", written over the typed name.

Doug Urry
AFC Project Manager

Attachment

cc: J. Salamy, CH2M HILL
B. Buchynsky, Mariposa Energy, LLC.

DOCKET
09-AFC-3

DATE July 31 2009

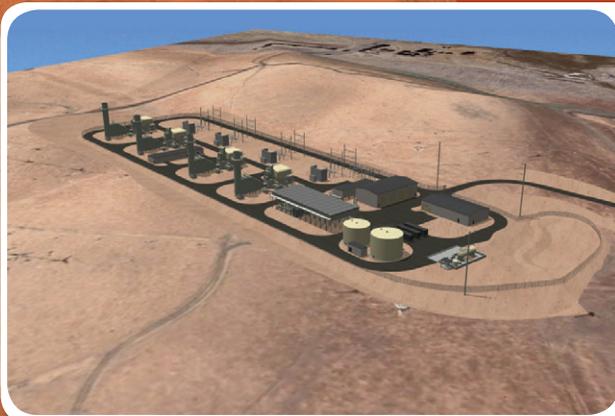
RECD. July 31 2009

APPLICATION FOR CERTIFICATION
SUPPLEMENT A
RESPONSE TO DATA ADEQUACY REVIEW



SUBMITTED TO THE
California Energy Commission

FOR THE
Mariposa Energy Project



SUBMITTED BY



Mariposa Energy, LLC

TECHNICAL ASSISTANCE BY



CH2MHILL

JULY 2009

Supplement A

Response to Data Adequacy Review

In support of the

Application for Certification

for the

Mariposa Energy Project

Alameda County, California
(09-AFC-03)

Submitted to the:

California Energy Commission

Submitted by:

Mariposa Energy, LLC

With Technical Assistance by:



July 2009

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1.0 Introduction

This supplement to Mariposa Energy, LLC's Application for Certification (AFC) for the Mariposa Energy Project (MEP) (09-AFC-03), responds to comments that California Energy Commission (CEC) Staff have made as a result of their data adequacy review of the AFC. The intention of this supplement is to provide all additional information necessary for Staff to find that the AFC contains adequate data to begin a power plant site certification proceeding under Title 20, California Code of Regulations and the Warren-Alquist Energy Resources Conservation and Development Act.

The format for this supplement follows the order of the AFC and provides additional information and responses to CEC information requests for several disciplines. Only sections for which CEC Staff posed requests or questions related to data adequacy are addressed in this supplement. If the response calls for additional appended material, it is included at the end of each subsection. Appended material is identified by the prefix "DA" indicating an item submitted in response to a Staff Data Adequacy comment, a number referring to the applicable AFC chapter, and a sequential identifying number. For example, the attachment in response to a Transmission System Engineering comment would be Attachment DA 3.0-1, because the AFC section describing electrical transmission is Section 3.0. Tables are also numbered in this way. Appended material is paginated separately from the remainder of the document.

Each subsection contains data adequacy questions or information requests, with numbers and summary titles and, in parentheses, the citation from Appendix B, Title 22, California Code of Regulations (Regulations Pertaining to the Rules of Practice and Procedure and Power Plant Site Certification) indicating a particular information requirement for the AFC. Each item follows with the CEC Staff comment on data adequacy for this item, under the heading "Information required to make AFC conform with regulations" followed by Mariposa Energy's response to the information request and the information requested.

2.0 Project Description

1. Existing Site Photo and Rendering of Site after Construction (Appendix B (a) (1) (D))

A full-page color photographic reproduction depicting the visual appearance of the site prior to construction, and a full-page color simulation or artist's rendering of the site and all project components at the site, after construction.

Information required to make AFC conform with regulations:

Please provide the full page color photo reproduction depicting the visual appearance of the site prior to construction.

Response: Full-page color photo reproductions depicting the current (pre-construction) site conditions are provided in Figures DA2.0-1A through DA2.0-1D.

2. Facility Owner/Operator (Appendix B (a) (3) (B))

A list of all owners and operators of the proposed electric transmission facilities.

Information required to make AFC conform with regulations:

Please include the name of the owner/operator of the proposed 0.7 mile long single circuit, three-phase, 230 kV transmission line.

Response: Mariposa Energy will own, operate, and maintain the 230 kV transmission line between the MEP and Pacific Gas & Electric's (PG&E) Kelso Substation up to the point at which it enters PG&E's property. PG&E will own, operate, and maintain the transmission facilities within PG&E's property.

3. Map(s) of Site Vicinity (Appendix B (b) (1) (A))

Maps at a scale of 1:24,000 (1" = 2000'), (or appropriate map scale agreed to by staff) along with an identification of the dedicated leaseholds by section, township, range, county, and county assessor's parcel number, showing the proposed final locations and layout of the power plant and all related facilities;...

Information required to make AFC conform with regulations:

Please revise Figure 1.1-3 to include the identification of the dedicated leaseholds by section, township, range, county, and county assessor's parcel number.

Response: Figure DA 2.0-2 identifies the leaseholds by section, township, range, county and county assessor's parcel number.

4. Transmission Line Route Pre- and Post-construction (Appendix B (b) (2) (B))

A full-page color photographic reproduction depicting a representative above ground section of the transmission line route prior to construction and a full-page color photographic simulation of that section of the transmission line route after construction.

Information required to make AFC conform with regulations:

Please include a full-page color photographic reproduction depicting a representative above ground section of the transmission line route prior to construction and a full-page color photographic simulation of that section of the transmission line route after construction. Figures 1.1-3 and 5-13-2 through 5.13-5 do not adequately reflect the above information.

Response: Full-page color photographic reproductions depicting a representative aboveground section of the transmission line route, prior to and after construction, are provided in Figure DA2.0-3A. The vantage point presented is representative of the view from Kelso Road, which is accessible by the public. Photographic reproductions depicting current conditions of additional portions of the route are provided in Figures DA2.0-3B and DA2.0-4A and B, as requested by Staff.



View to the south from northern edge of Project Site. The proposed laydown site is visible in the left portion of the view, in front of existing transmission towers.

FIGURE DA2.0-1A
VIEW FROM NORTHERN PROJECT SITE
Mariposa Energy Project
Alameda County, California



View to the north from southern edge of Project Site. The Byron Cogen Plant is visible in the center of the view.

FIGURE DA2.0-1B
VIEW FROM SOUTHERN PROJECT SITE
Mariposa Energy Project
Alameda County, California



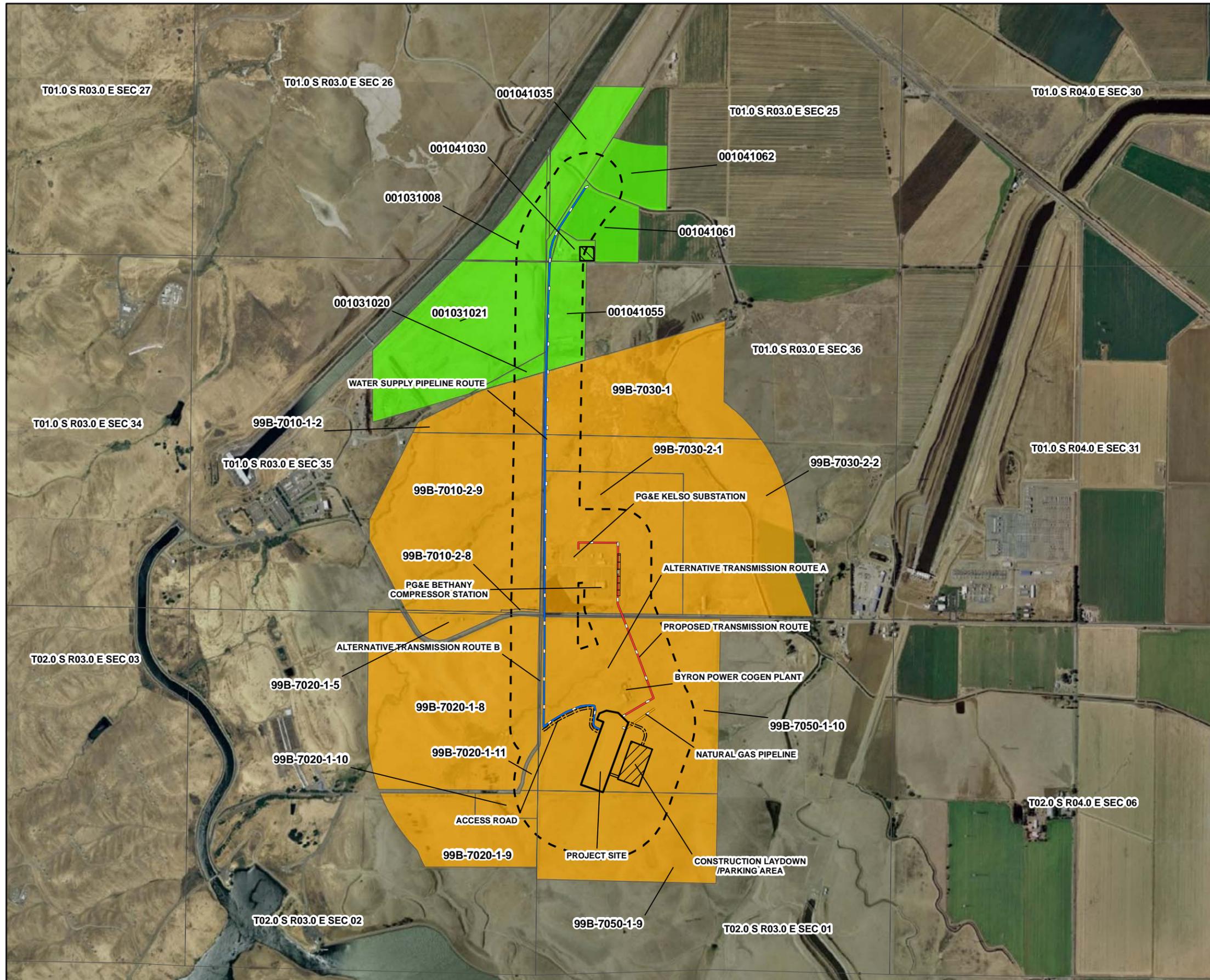
View to the northwest of Project site from proposed laydown area. Debris associated with the formerly present wind turbines is visible in the foreground.

FIGURE DA2.0-1C
VIEW FROM SOUTHEASTERN PROJECT SITE
Mariposa Energy Project
Alameda County, California



View to the northeast from southwestern corner of Project Site. The Byron Cogen Plant is visible in the left portion of the view.

FIGURE DA2.0-1D
VIEW FROM SOUTHWESTERN PROJECT SITE
Mariposa Energy Project
Alameda County, California



- 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
 - PUBLIC LAND SURVEY GRID
 - ALAMEDA COUNTY APN
 - CONTRA COSTA COUNTY APN

Note: Buffer - 1000 feet from site, 500 feet from linears.

Source: Alameda County Base Map Layer, Development and Planning, 2006. Contra Costa County Assessor Map Book Boundary, 2008.

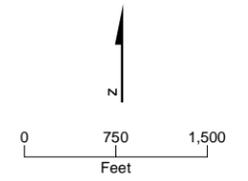


FIGURE DA 2.0-2
TOWNSHIP, RANGE, APN LOCATIONS
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA



View of proposed transmission alignment between Project Site and Kelso Road. Kelso Road is in the foreground; the Byron Cogen Plant is in the right side of the view.



View with transmission line simulated.

FIGURE DA2.0-3A
VIEW TO SOUTH FROM DRIVEWAY AT
PG&E BETHANY COMPRESSOR STATION
Mariposa Energy Project
Alameda County, California



View of proposed transmission alignment from driveway along Kelso Road. The transmission poles would appear to the right of the vegetation in the foreground and extend along the driveway toward the center of the view.

FIGURE DA2.0-3B
VIEW TO NORTH FROM DRIVEWAY AT PG&E BETHANY COMPRESSOR STATION
Mariposa Energy Project
Alameda County, California



View of proposed transmission alignment between Project site and Kelso Road. PG&E's Bethany Compressor Station is visible beyond Kelso Road.

FIGURE DA2.0-4A
VIEW TO NORTH FROM TRANSMISSION ALIGNMENT AXIS
Mariposa Energy Project
Alameda County, California



View of proposed transmission alignment where it would extend from Project site toward the alignment axis. The Byron Cogen Plant is visible in the right side of the view.

FIGURE DA2.0-4B
VIEW TO WEST FROM TRANSMISSION ALIGNMENT AXIS
Mariposa Energy Project
Alameda County, California

3.0 Transmission System Design

5. Transmission System Facilities (Appendix B (b) (2) (C))

A detailed description of the design, construction, and operation of any electric transmission facilities, such as power lines, substations, switchyards, or other transmission equipment, which will be constructed or modified to transmit electrical power from the proposed power plant to the load centers to be served by the facility. Such description shall include the width of rights of way and the physical and electrical characteristics of electrical transmission facilities such as towers, conductors, and insulators.

Information required to make AFC conform with regulations:

1. *Please submit Pole design diagram (or resubmit Figure 3.2-2) including dead-end structures for the 230 kV generator overhead tie line showing configuration of insulators and conductors (with sizes, type and ampere rating) with their respective position measurements on the pole.*
2. *Please submit a complete electrical one-line diagram (or resubmit Figure 2.3-4 with missing elements or sizes/ratings) of the proposed MEP 230 kV switchyard showing all equipment for all new generators' interconnection with the switchyard along with their respective sizes and/or ratings as follows: i) Any bus duct connectors or overhead conductors or cables, 13.8 kV switchgear, buses, breakers & disconnect switches on the low side of each Generator step-up transformer (GSU); and ii) The GSU and short overhead conductors and/or cables from the GSU to the switchyard with the configuration for the switchyard buses, breakers, disconnect switches on the 230 kV side, along with the proposed tie line transmission outlet from the switchyard.*
3. *Please provide a one-line electrical diagram showing the pre-project PG&E Kelso 230 kV substation with the existing transmission outlets along with the configuration for buses, breakers, disconnect switches, and their respective sizes and/or ratings. Also provide a one-line electrical diagram showing the post-project Kelso 230 kV substation with the proposed 230 kV generator tie line interconnection facilities for buses, breakers and disconnect switches and their respective sizes and/or ratings.*
4. *Please provide a physical layout drawing of the pre- and post-project Kelso substation showing all major equipment and transmission outlets.*

Response:

1. A figure identifying detailed drawings of the pole design is provided as Figure 3.2-2R, and dead structure is provided as Figure DA3.0-1.
2. A revised single-line diagram showing the sizes and ratings of switchyard equipment and the plant is provided as Figure 2.3-4R.
3. Mariposa Energy has submitted requests to PG&E for pre-project and post-project electrical one-line drawings for the Kelso 230 kV Substation. Based on the e-mail response (Attachment DA3.0-1) from Barbara Madrid, Senior Project Manager for Generation Interconnection Services, PG&E will only provide simplified pre-project and post-project one-line diagrams at this time, stating that additional detail will be available

following the completion of the CAISO System Impacts Study. The abbreviated single-line sketches provided by PG&E are also provided in Attachment DA3.0-1. To supplement the data provided by PG&E, Mariposa Energy engaged RW Beck, Inc. to prepare detailed electrical one-line diagrams including the information requested for data adequacy. These pre- and post-project diagrams were prepared based on the information provided by PG&E, observations of the existing substation layout, and preliminary interconnection information provided by PG&E. These drawings are provided in Attachment DA3.0-2. These drawings should be used for informational purposes only, and will be superseded by the CAISO Phase I and Phase II Interconnection Studies.

4. As indicated in the attached e-mail from Ms. Barbara Madrid of PG&E to Mr. Bo Buchynsky of Diamond Generating Corporation on July 22, 2009 (Attachment DA3.0-1), PG&E considers pre-and post-project physical layout design drawings for the Kelso Substation to be proprietary information, and is not able to supply those data. Substation physical equipment configuration will be included within the CAISO Phase II Interconnection Study.

6. Transmission Route Alternatives (Appendix B (b) (2) (D))

A description of how the route and additional transmission facilities were selected, and the consideration given to engineering constraints, environmental impacts, resource conveyance constraints, and electric transmission constraints.

Information required to make AFC conform with regulations:

Please show alternate routes in Figure 3.2-1 and describe how the route of the proposed 230 kV generator tie line was selected by comparing with alternate routes and their environmental effects.

Response: Based on the proximity of MEP to the PG&E Kelso Substation, route alternatives for the 230-kV transmission line are limited. Mariposa Energy did consider two alternate routes as outlined below and depicted on Figure DA3.0-2.

- Proposed Route - The proposed 0.7-mile-long transmission line route for MEP interconnection to the Kelso Substation will exit the northeastern corner of the project site, heading northeast from the project site, east of the Byron Power Cogen Plant, then north crossing Kelso Road, and staying east of the PG&E Bethany Compressor Station. It will turn west just north of the Kelso Substation, then turn south to the final interconnect point at the Kelso Substation.
- Alternate Route A - The 230-kV route would exit the project site at the northwest corner, and follow a direct path north, passing to the west of the Byron Power Cogen Plant and crossing over the Cogen's interconnection transmission line. The route would head directly to the southeastern corner of the PG&E Bethany Compressor Station, where it would follow the proposed route along the eastern and northern boundaries of the Kelso Substation. This route would be the most direct, with a total distance of approximately 0.6 miles.
- Alternate Route B - The 230-kV route exits the MEP site on the western side and generally follows the access road. Prior to reaching Bruns Road, the route would cross existing 230-kV and 60-kV transmission lines immediately east of Bruns Road. Due to

the presence of these existing lines, the route would cross Bruns Road before turning north along the western side of Bruns Road, crossing Kelso Road, to a point just north of the Kelso Substation, heading east back across Bruns Road, and turning south into the substation at the same location as the proposed route. The total route would be approximately 0.8 miles.

Institutional Factors

The proposed route and Alternate Route A remain within the boundaries of the 158-acre Lee Parcel and PG&E parcel to the north, with the exception of crossing Kelso Road. Alternate Route B would generally follow Bruns Road right-of-way, but would require encroachment into the properties located west of Bruns Road due to road offset requirements, requiring coordination and easements from these third-party land owners. Additionally, Alternate Route A and Alternate Route B would each cross existing transmission lines, requiring coordination with and approval by the transmission line owners (assumed to be PG&E). Future maintenance of any of these lines (existing or proposed alternates) may require outages for the lines that are crossed. Reliability of the transmission system will be compromised to some extent at the crossing point. Based on this information, the proposed route is preferable over Alternate Routes A and B considering institutional factors.

Engineering/Construction Feasibility

The proposed route and Alternate Route A would both be constructed across grazing land within the 158-acre parcel housing the project and within the PG&E parcel along the boundary of the compressor station and substation facilities. Each of these routes would span Kelso Road. Additionally, Alternate Route A would cross over the existing Byron Power Cogen Plant transmission line. Alternate Route B would include construction along Bruns Road, requiring traffic control during construction due to the limited roadway shoulder access resulting from local topography. Additionally, this route would require crossings of existing 230-kV and 60-kV transmission lines, which could pose a challenge because of the transmission line clearance requirements. Based on this information, the proposed route is preferable over Alternate Routes A and B from the perspective of engineering and construction feasibility.

Environmental Factors

Both the proposed route and Alternate Route A are similar in that they are sited through non-irrigated grazing land south of Kelso Road, and along the disturbed perimeter of the PG&E facilities north of Kelso Road. However, Alternate Route A follows the general route of the ephemeral drainage that runs through the 158-acre parcel and crosses directly over an associated stock pond, which is suitable habitat for special-status species (refer to Figure 5.2-2 in the AFC), and therefore could require construction through these seasonal wetland areas containing special-status biological species habitat. Alternate Route B would be constructed adjacent to drainages present along the western side of Bruns Road, just north of the MEP access road entrance and also just north of Kelso Road. All three routes would require limited temporary impacts to upland habitat areas during construction, proportional to the route lengths. Additionally, very small permanent impacts will result from the loss of upland habitat for the transmission pole footprint areas. While Alternate Route A would be the shortest in length, it could potentially impact the ephemeral drainage

area on the parcel providing habitat for special-status species. Alternate Route B is slightly longer than the proposed route, and would also create minor roadway traffic impacts during construction, requiring traffic control. Based on these factors, the proposed route is preferable from an environmental factors perspective.

The proposed route was selected because of the short distance, direct route, the preference to avoid existing transmission lines located to the east and west, and the lack of potentially significant impacts associated with this interconnection route. Neither of the alternate routes would avoid nor minimize potentially significant effects compared to the chosen route.

7. Large Generator Interconnection Study Agreement (Appendix B (b) (2) (E))

A completed System Impact Study or signed System Impact Study Agreement with the California Independent System Operator (CA ISO) and proof of payment. When not connecting to the California Independent System Operator controlled grid, provide the executed System Impact Study agreement and proof of payment to the interconnecting utility.

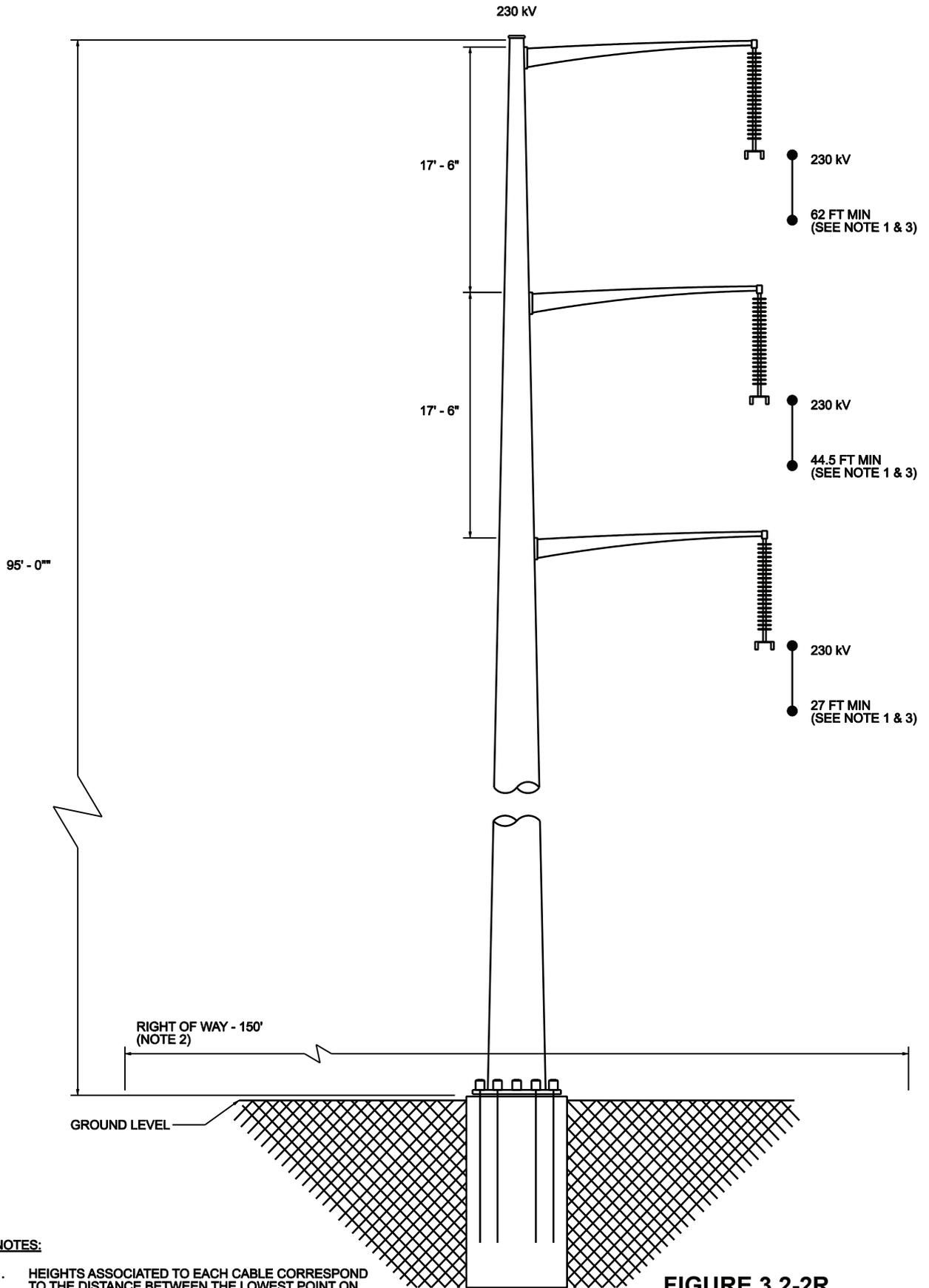
If the interconnection and operation of the proposed project will likely impact an transmission system that is not controlled by the interconnecting utility (or California Independent System Operator), provide evidence of a System Impact Study or agreement and proof of payment (when applicable) with/to the impacted transmission owner or provide evidence that there are no system impacts requiring mitigation.

Information required to make AFC conform with regulations:

Please submit a signed Large Generator Interconnection Study Agreement (LGISA) with the California ISO and proof of payment.

Note: The submitted Screening Level Transmission Analysis has a limited scope and is not, therefore, acceptable for the Energy Commission's AFC process in lieu of a System Impact Study or Phase 1 Interconnection Study from the California ISO.

Response: The LGISA and proof of payment are provided in Attachment DA3.0-3.



NOTES:

1. HEIGHTS ASSOCIATED TO EACH CABLE CORRESPOND TO THE DISTANCE BETWEEN THE LOWEST POINT ON THE CABLE TO THE EARTH.
2. RIGHT OF WAY WILL TYPICALLY BE 150 FEET WIDE. RIGHT OF WAY REQUIREMENTS MAY VARY FROM THE 150 FOOT WIDTH DEPENDING ON EXISTING FACILITIES OR OTHER CO-LOCATION OPPORTUNITIES.
3. CONDUCTOR SHALL BE: ACSR, DRAKE, 795 KCMILS WITH A CAPACITY OF 922A.

**FIGURE 3.2-2R
TYPICAL MONOPOLE
TRANSMISSION TOWER**

Mariposa Energy Project
Alameda County, California

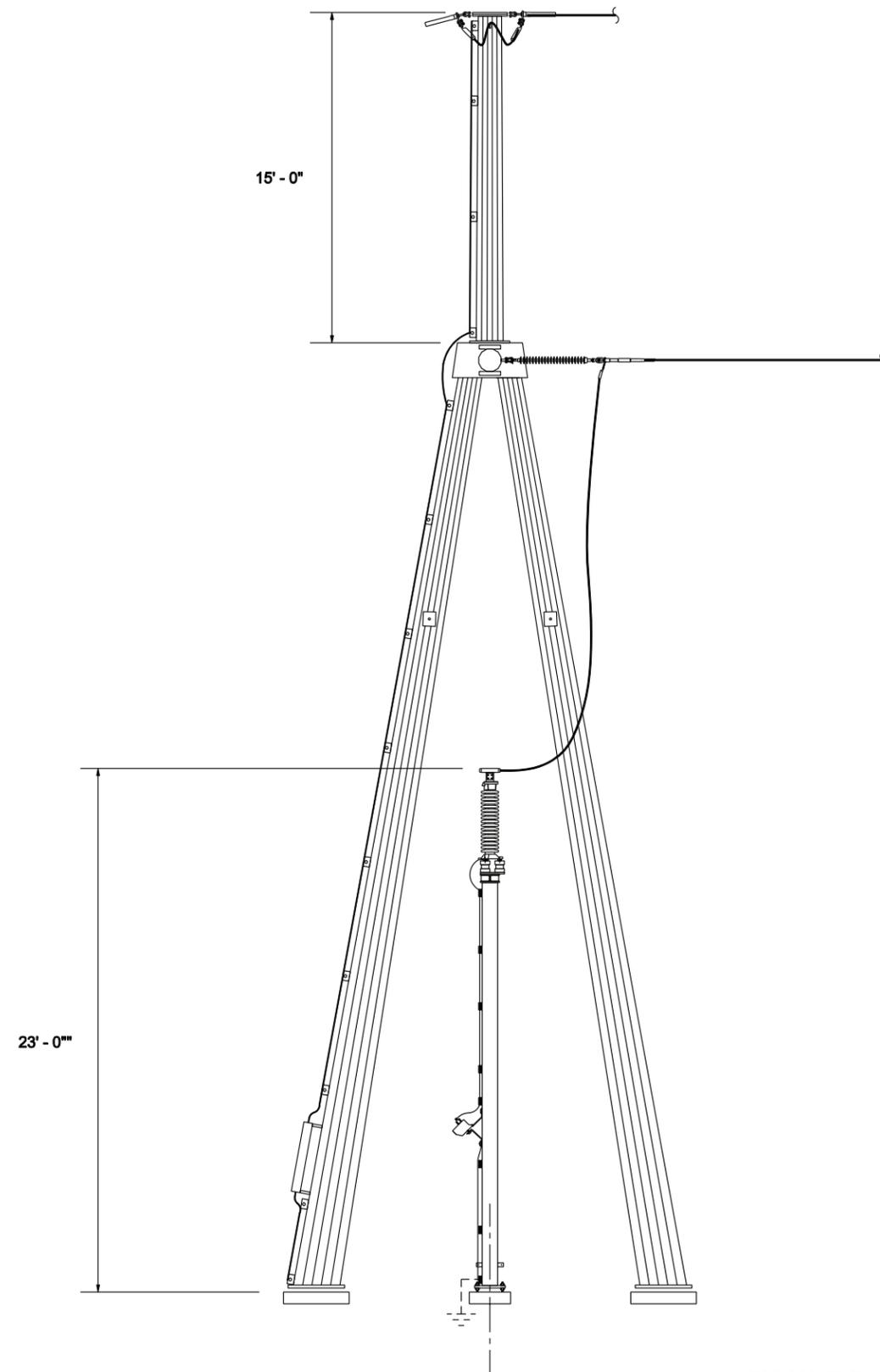
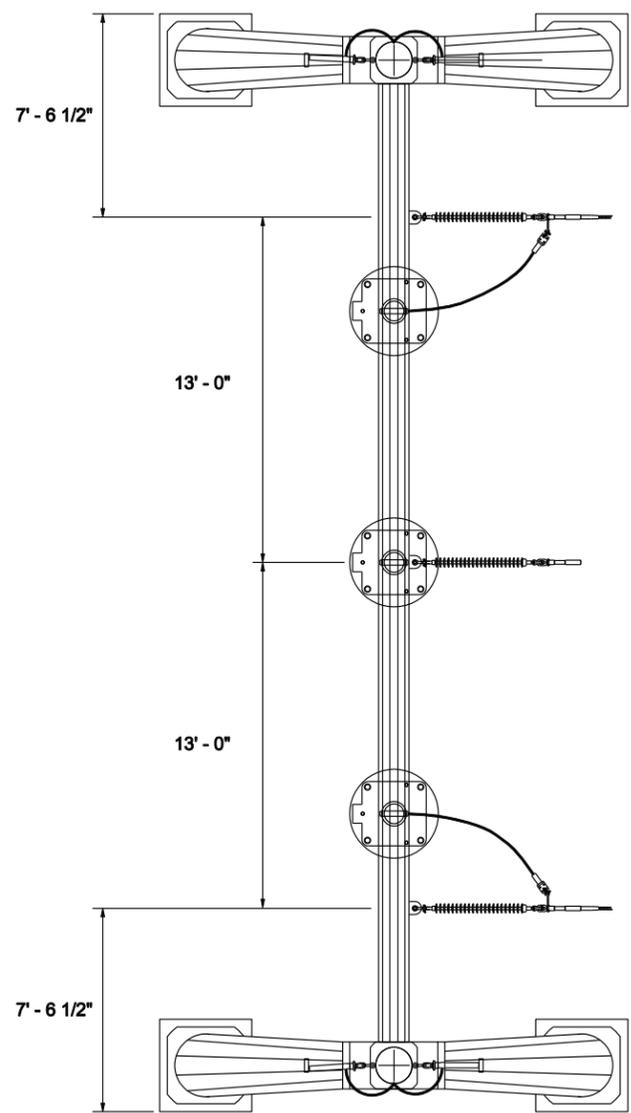


FIGURE DA3.0-1
DEAD END STRUCTURE
 Mariposa Energy Project
 Alameda County, California

NOTES:

- 1. OPERATING KW = 0.

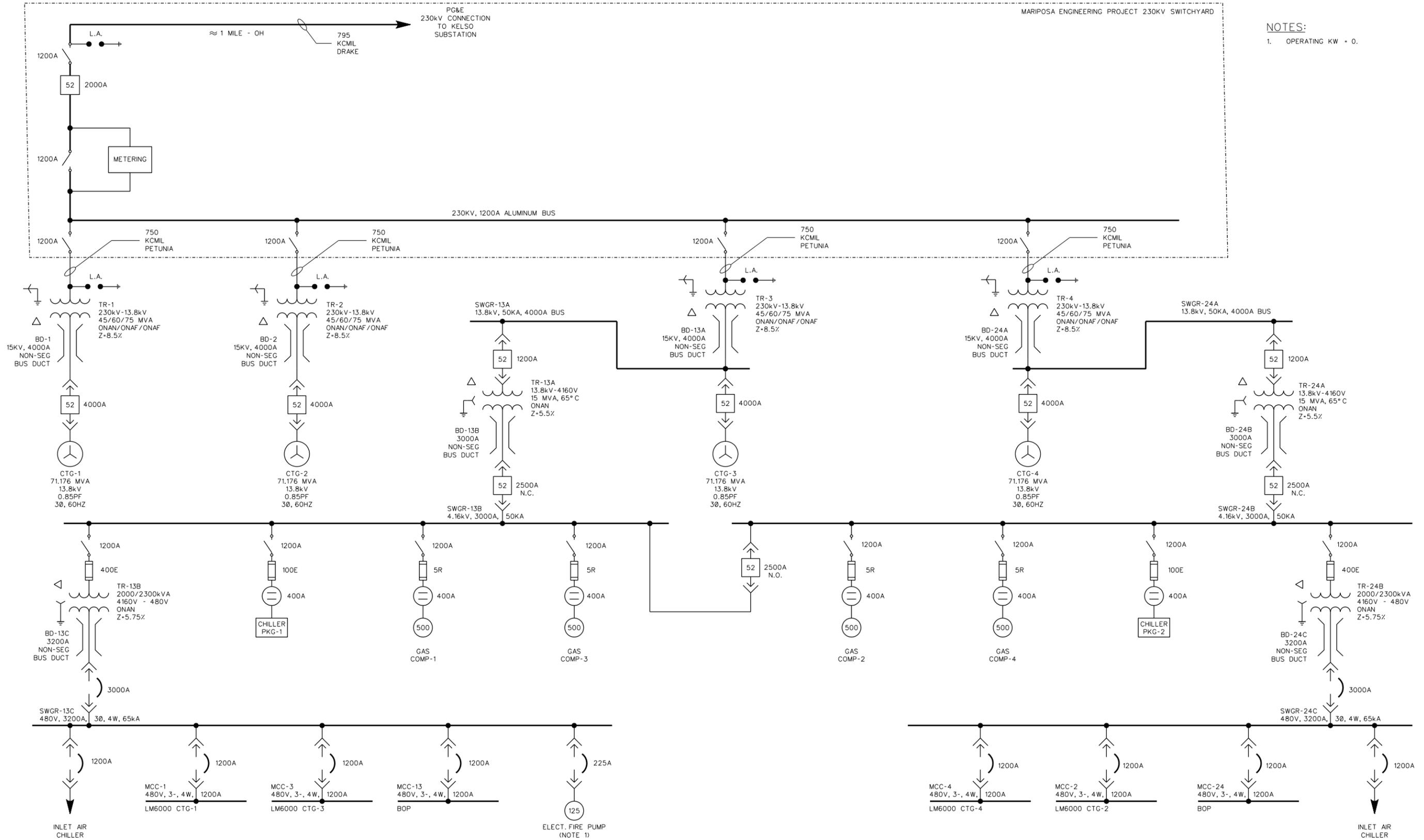
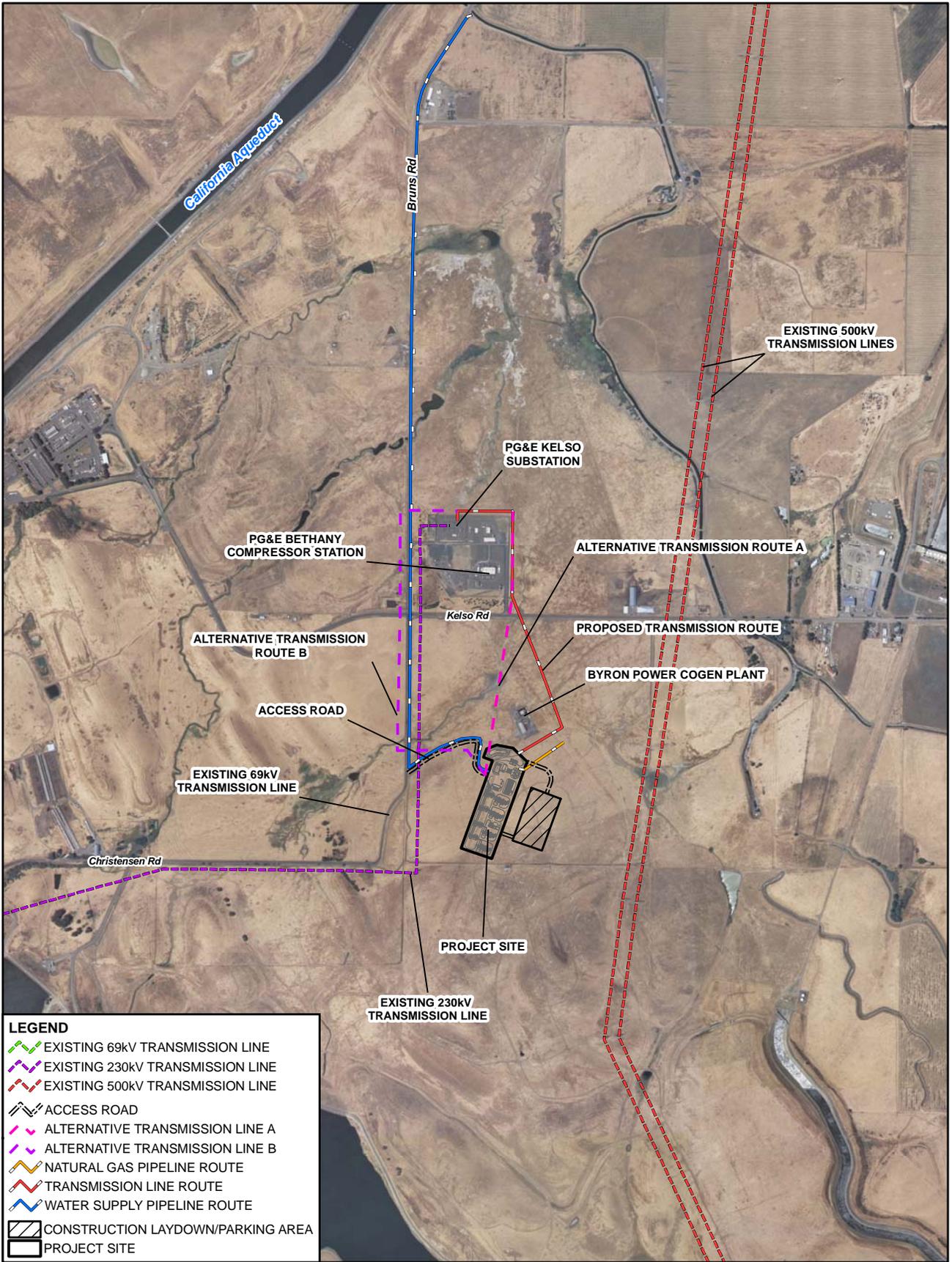


FIGURE 2.3-4R
FACILITY SINGLE LINE DIAGRAM
 Mariposa Energy Project
 Alameda County, California



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

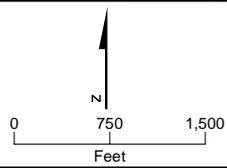


FIGURE DA 3.0-2
ALTERNATIVE TRANSMISSION
LINE ROUTES
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA

**Attachment DA3.0-1
Communication with PG&E and
Abbreviated Single-line Sketches**

Urry, Doug/SAC

From: Bo Buchynsky [b.buchynsky@dgc-us.com]
Sent: Wednesday, July 22, 2009 11:01 AM
To: Urry, Doug/SAC; Salamy, Jerry/SAC; 'Greggory L. Wheatland'
Cc: Gary Normoyle; Paula Zagrecki; Y Asakura
Subject: FW: CEC Transmission Data Requests
Attachments: DGCKelso.ppt

Doug & Gregg,

Attached is the response we have gotten from PG&E to the request for pre and post electrical one-line diagrams and physical arrangement drawings of the PG&E Kelso Substation. As indicated by PG&E the physical layout drawings are considered proprietary by PG&E and they are not willing to provide more detailed electrical one-line diagrams than what we have attached to this email.

Please utilize copies of the various emails we have sent to the CAISO and PG&E requesting this information, along with this response and the attached drawings from PG&E as a basis for formatting the response to the CEC Staff on this data adequacy request.

Bo

Bo Buchynsky - Executive Director
 Diamond Generating Corporation
 Suite 1570
 333 South Grand Avenue
 Los Angeles, California 90071

Office (213) 473-0092
 Mobile (213) 598-1981
 Facsimile (213) 620-1170

From: Madrid, Barbara (ET) [mailto:BJM5@PGE.COM]
Sent: Wednesday, July 22, 2009 10:45 AM
To: Bo Buchynsky; Palomares, Arsenio
Cc: Fishback, Edward; NShah@caiso.com
Subject: RE: CEC Transmission Data Requests

Dear Mr. Buchynsky:

In response to your request for data on the Kelso substation (for your CEC submittal), we are providing 2 simplified diagrams (before and after) --we provide this to hopefully satisfy items 1 and 2 of your listing of required items (4 items). We regret that we cannot provide items 3 and 4, a pre- and post-project site layout (physical arrangement) of the Kelso sub. This type of information is considered proprietary and we are unable to supply them.

While not as detailed as was requested, these drawings come from the soon-to-be-released study--again, we hope that this will satisfy the requirement.

Thank you

Barbara Madrid
 Sr. Project Manager
 Generation Interconnection Services
 Pacific Gas and Electric Co.
 415-973-8033

7/28/2009

From: Bo Buchynsky [mailto:b.buchynsky@dgc-us.com]
Sent: Tuesday, July 21, 2009 9:57 AM
To: Palomares, Arsenio
Cc: 'Fishback, Edward'; 'NShah@caiso.com'; Madrid, Barbara (ET)
Subject: FW: CEC Transmission Data Requests

Mr. Palomares,

Attached is a copy of the request we received from the California Energy Commission ("CEC") Staff on July 10, 2009, dated July 09, 2009, for information pertaining to the PG&E Kelso Substation. Specifically the CEC Staff requests us to submit to them the current electrical one-line and physical arrangement of the Kelso Substation and the proposed electrical one-line and physical arrangement of the Kelso Substation once we are interconnected with the PG&E Kelso Substation. This request was forwarded to Mr. Ed Fishback at CAISO the Project Manager for our interconnection process on Monday, July 13, 2009. He in turn forwarded the request to Ms. Barbara Madrid the Sr. Project Manager at PG&E for this interconnection process. In a discussion with Ms. Madrid last week, she indicated that the request had been forwarded to you, as the PG&E Engineer assigned to the interconnection process for DGC Kelso CT / Mariposa Energy. I would like to verify that you are the person that will obtain these drawings for us and to let you know the timeframe within which we would need them.

You probably have access to the current drawings for the Kelso Substation, so we would appreciate obtaining the electrical one-line and physical drawings as soon as possible. We would request that we receive them by Monday, July 27, 2009, so that we can submit them to the CEC on Wednesday, July 29, 2009. Since the Phase 1 Study or System Impact Study for the Transition Cluster Group is supposed to be completed by the end of July 2009, with Results Meetings in August and September of 2009, you probably have the proposed electrical one-line and physical arrangement drawings for the Kelso Substation after the DGC Kelso / Mariposa Energy Project is interconnected, since they should be part of the Phase 1 report. Therefore, we would also request that we receive these by Monday, July 27, 2009, so that we can submit them to the CEC Staff on July 29, 2009.

We have executed a CAISO Non Disclosure Agreement and have also signed the Nonmember Confidentiality Agreement for WECC Data with the WECC; these should cover any concerns of non disclosure or confidentiality. If you see any impediments in providing the requested information please contact me via email so we can address any PG&E concerns.

Thank you for your assistance and we look forward to working with you in interconnecting the DGC Kelso / Mariposa Energy Project to the PG&E system.

Bo Buchynsky

Project Manager
Mariposa Energy Project

Bo Buchynsky - Executive Director
Diamond Generating Corporation
Suite 1570
333 South Grand Avenue
Los Angeles, California 90071

Office (213) 473-0092
Mobile (213) 598-1981
Facsimile (213) 620-1170

From: Bo Buchynsky
Sent: Monday, July 13, 2009 6:21 PM
To: 'Fishback, Edward'
Cc: Gary Normoyle
Subject: CEC Transmission Data Requests

Ed,

On July 9, 2009, the California Energy Commission Staff issued their data adequacy recommendation and indicated sections of the Application for Certification that were inadequate. Among these sections is the Transmission System Design Section based upon electrical one-line diagrams and physical drawings that we have not been able to provide to the California Energy Commission. These four items are listed in the attached table and are summarized below:

7/28/2009

- Item 1) Provide an electrical one-line diagram showing the **pre-project** PG&E Kelso 230 kV substation with the existing transmission outlets along with configuration for busses, breakers, disconnect switches and their respective sizes and/or ratings. The California Energy Commission staff is requesting that we provide a detailed one-line electrical drawing of the PG&E Kelso Substation with all electrical equipment, structures and connectors identified and rated or sized.
- Item 2) Provide an electrical one-line diagram showing the **post-project** PG&E Kelso 230 kV substation with the existing transmission outlets along with configuration for busses, breakers, disconnect switches and their respective sizes and/or ratings. The California Energy Commission staff is requesting that we provide a detailed one-line electrical drawing of the PG&E Kelso Substation with all electrical equipment, structures and connectors identified and rated or sized.
- Item 3) Provide a physical layout drawing of the **pre-project** PG&E Kelso 230 kV substation showing all equipment and transmission outlets along with dimensions, sizes and ratings.
- Item 4) Provide a physical layout drawing of the **post-project** PG&E Kelso 230 kV substation showing all equipment and transmission outlets along with dimensions, sizes and ratings.

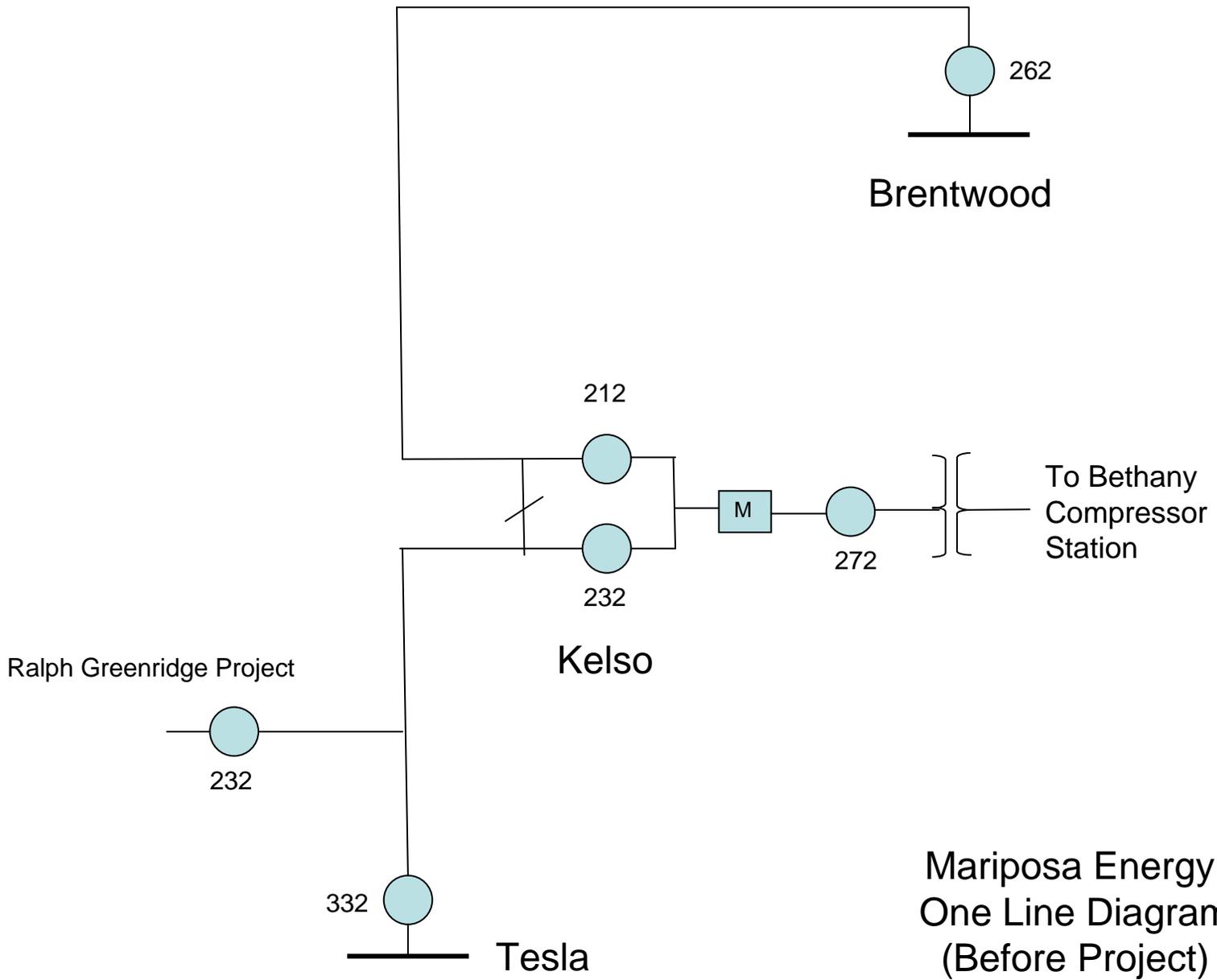
We are trying to delay the filing of the post-project documentation until the Phase 1 Report, the System Impact Study, is completed by PG&E and CAISO this month, but will need your assistance in obtaining the pre-project information. Diamond Generating has signed a CAISO Non Disclosure Agreement and the appropriate WECC confidentiality documents to obtain access to sensitive infrastructure information and you can verify this with Ms. Alice Reynolds at the CAISO, (916) 608-7024 and email areynolds@caiso.com. We would be filing all four of these items under a confidential filing with the California Energy Commission routed through our counsel, not a direct public filing with the California Energy Commission. I am assuming that the California Energy Commission has also been cleared to handle and view infrastructure sensitive information.

Please call me tomorrow to see how we can move forward to satisfy Items 1 and 3 now and hopefully Items 2 and 4 shortly, when the Phase 1 Report – System Impact Study is issued. Also, I have not contacted the PG&E Project Manager, Ms. Barbara Madrid, but we may need to get her involved in supplying this information to the California Energy Commission.

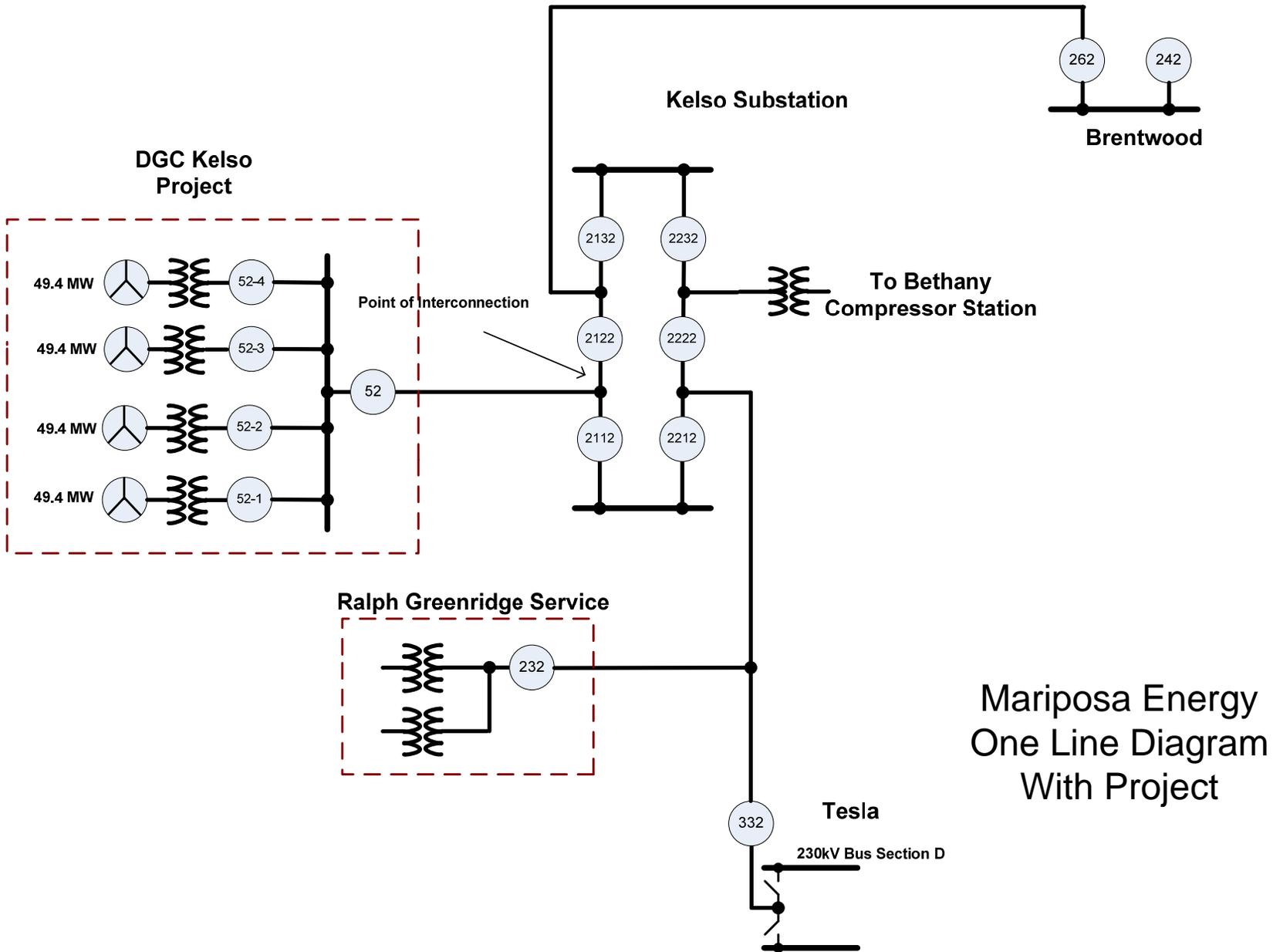
Bo

Bo Buchynsky - Executive Director
Diamond Generating Corporation
Suite 1570
333 South Grand Avenue
Los Angeles, California 90071

Office (213) 473-0092
Mobile (213) 598 - 1981
Facsimile (213) 620 - 1170



Mariposa Energy
One Line Diagram
(Before Project)



Attachment DA3.0-2
Electrical One-line Diagrams by RW Beck, Inc.

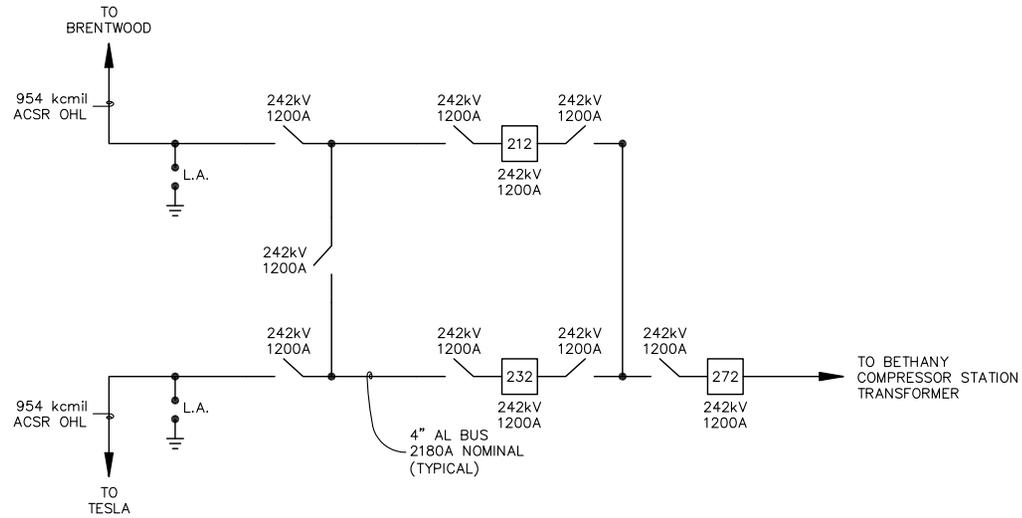
LEGEND

POWER CIRCUIT BREAKER

DISCONNECT SWITCH

LIGHTNING ARRESTOR

OHL OVERHEAD LINE



e:\dwham_ld_23_2009_6455am-G01112510400174-01000174-01000-SK5.dwg

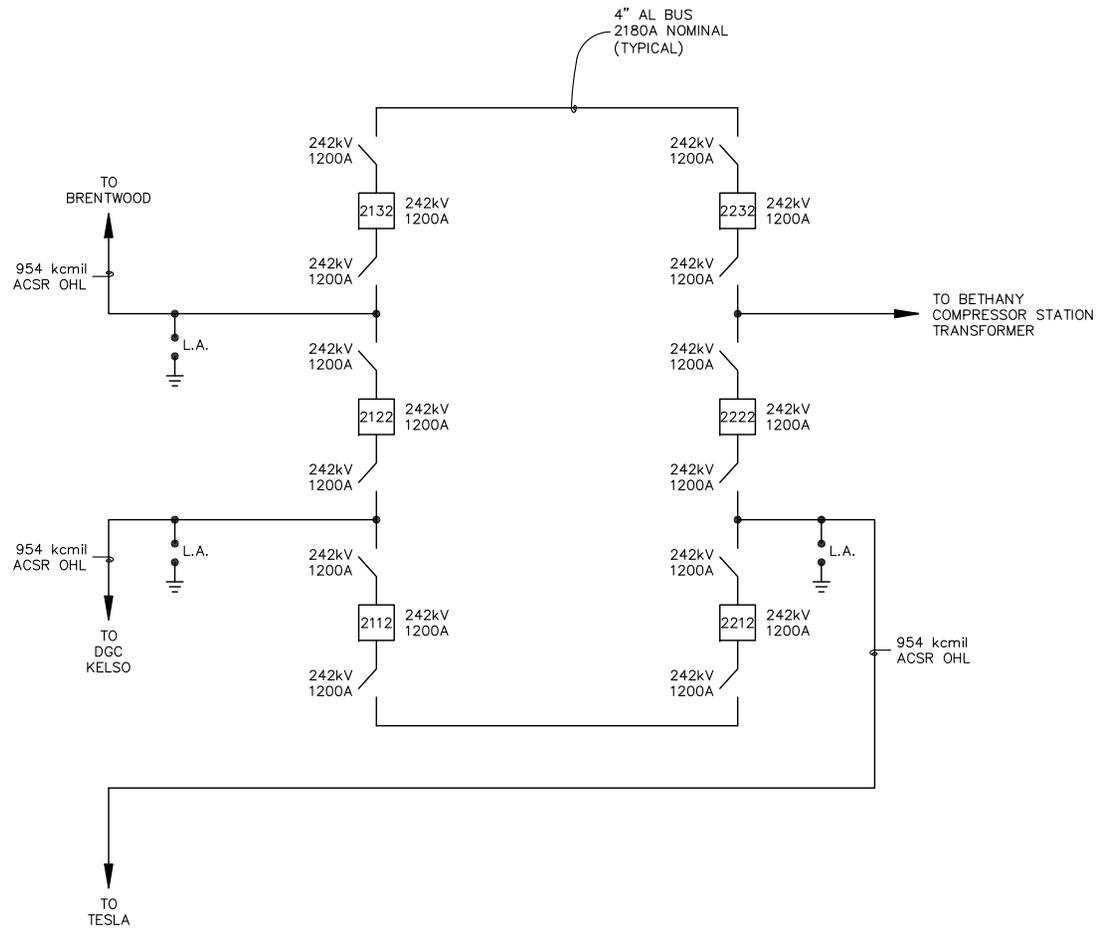
| | | | | |
|----------|----------|--------------------------------------|-------|----------------------|
| DESIGNED | GM | | | |
| DRAWN | EED | | | |
| REVISION | | | | |
| A | 07-27-09 | CONCEPTUAL OVERALL ONE LINE DIAGRAM. | | |
| REV | DATE | CHKD | APP'D | REVISION DESCRIPTION |

INFORMATION ONLY

R.W. BECK
 R.W. Beck, Inc.
 131 Saundersville Rd., Suite 300
 Hendersonville, TN 37075
 (615) 431-3200

DIAMOND POWER
 KELSO GENERATION PROJECT
 KELSO SUBSTATION
 EXISTING CONDITIONS

PROJECT NUMBER:
 10-00174-01000
 SHEET 1 OF 1
 DRAWING NUMBER:
 171-01000-SK5.A



LEGEND

- # POWER CIRCUIT BREAKER
- DISCONNECT SWITCH
- LIGHTNING ARRESTOR
- OHL OVERHEAD LINE

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| | | | | |
|----------|----------|------|------|--------------------------------------|
| DESIGNED | GM | | | |
| DRAWN | EED | | | |
| REV | DATE | CHKD | APPD | REVISION DESCRIPTION |
| A | 07-27-09 | | | CONCEPTUAL OVERALL ONE LINE DIAGRAM. |

INFORMATION ONLY

R.W. Beck, Inc.
131 Saundersville Rd., Suite 300
Hendersonville, TN 37075
(615) 431-3200

DIAMOND POWER
KELSO GENERATION PROJECT
KELSO SUBSTATION
DCG KELSO INTERCONNECTION

| | |
|-----------------|-----------------|
| PROJECT NUMBER: | 10-0017-01000 |
| SHEET | 1 OF 1 |
| DRAWING NUMBER: | 171-01000-SK6.A |

Attachment DA3.0-3
Large Generator Interconnection Study
Agreement and Proof of Payment

LARGE GENERATOR INTERCONNECTION STUDY PROCESS AGREEMENT

THIS AGREEMENT is made and entered into this 21st day of November, 2008 by and between Diamond Generating Corporation, a corporation organized and existing under the laws of the State of Delaware, ("Interconnection Customer,") and the California Independent System Operator Corporation, a California nonprofit public benefit corporation existing under the laws of the State of California, ("CAISO"). The Interconnection Customer and the CAISO each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, the Interconnection Customer is proposing to develop a Large Generating Facility or generating capacity addition to an existing Generating Facility consistent with the Interconnection Request submitted by the Interconnection Customer dated April 3, 2008; and

WHEREAS, the Interconnection Customer desires to interconnect the Large Generating Facility with the CAISO Controlled Grid; and

WHEREAS, the Interconnection Customer has requested the CAISO to conduct or cause to be performed Interconnection Studies to assess the system impact of interconnecting the Large Generating Facility to the CAISO Controlled Grid and to specify and estimate the cost of the equipment, engineering, procurement and construction work needed on the Participating TO's electric system in accordance with Good Utility Practice to physically and electrically connect the Large Generating Facility to the CAISO Controlled Grid;

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

- 1.0 When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated in the CAISO's FERC-approved Large Generation Interconnection Procedures in CAISO Tariff Appendix GG ("LGIP") or the Master Definitions Supplement, Appendix A to the CAISO Tariff, as applicable.
- 2.0 The Interconnection Customer elects and the CAISO shall conduct or cause to be performed Interconnection Studies, including any accelerated Interconnection Study, consistent with the LGIP in accordance with the CAISO Tariff.
- 3.0 The scope of the Interconnection Studies shall be subject to the assumptions set forth in Appendices A and B to this Agreement.
- 4.0 The Interconnection Studies will be based upon the technical information provided by the Interconnection Customer in the Interconnection Request, as may be modified as the result of the Scoping Meeting, subject to any modifications in accordance with Section 6.7.2 of the LGIP and modifications to the proposed Commercial Operation Date of the Large Generating Facility permitted by the LGIP. The CAISO reserves the right to request additional technical information from the Interconnection Customer as may reasonably become necessary consistent with Good Utility Practice during the course of the Interconnection Studies. If the Interconnection Customer modifies its designated Point of Interconnection, Interconnection Request, or the technical information

provided therein is modified, the Interconnection Studies may be modified as specified in the LGIP.

- 5.0 The Interconnection Study report for each Interconnection Study shall provide the information specified in the LGIP.
- 6.0 The Interconnection Customer shall provide an Interconnection Study Deposit, a Site Exclusivity Deposit, if applicable, and other Interconnection Financial Security for the performance of the Interconnection Studies in accordance with the provisions of Sections 3.5.1 and 9 of the LGIP.

Following the issuance of an Interconnection Study report, the CAISO shall charge and the Interconnection Customer shall pay its share of the actual costs of the Interconnection Study pursuant to Sections 3.5.1 and 7.8 of the LGIP.

Any difference between the deposits made toward the Interconnection Study process and associated administrative costs, including any accelerated studies, and the actual cost of the Interconnection Studies and associated administrative costs shall be paid by or refunded to the Interconnection Customer, in the appropriate allocation, in accordance with Section 3.5.1 of the LGIP.

- 7.0 Pursuant to Section 3.7 of the LGIP, the CAISO will coordinate the conduct of any studies required to determine the impact of the Interconnection Request on Affected Systems. The CAISO may provide a copy of the Phase I Interconnection Study results to an Affected System Operator and the Western Electricity Coordinating Council. Requests for review and input from Affected System Operators or the Western Electricity Coordinating Council may arrive at any time prior to interconnection.
- 8.0 Substantial portions of technical data and assumptions used to perform the Phase I Interconnection Study, such as system conditions, existing and planned generation, and unit modeling, may change after the CAISO provides the Interconnection Study results to the Interconnection Customer. Interconnection Study results will reflect available data at the time the CAISO provides the Phase I Interconnection Study report to the Interconnection Customer. The CAISO shall not be responsible for any additional costs, including, without limitation, costs of new or additional facilities, system upgrades, or schedule changes, that may be incurred by the Interconnection Customer as a result of changes in such data and assumptions.
- 9.0 **[NOT USED]**
- 10.0 The CAISO shall maintain records and accounts of all costs incurred in performing the Interconnection Study in sufficient detail to allow verification of all costs incurred, including associated overheads. The Interconnection Customer shall have the right, upon reasonable notice, within a reasonable time at the CAISO's offices and at its own expense, to audit the CAISO's records as necessary and as appropriate in order to verify costs incurred by the CAISO. Any audit requested by the Interconnection Customer shall be completed, and written notice of any audit dispute provided to the CAISO representative, within one hundred eighty (180) calendar days following receipt by the Interconnection

Customer of the CAISO's notification of the final costs of the Interconnection Study.

- 11.0 In accordance with Section 3.8 of the LGIP, the Interconnection Customer may withdraw its Interconnection Request at any time by written notice to the CAISO. Upon receipt of such notice, this Agreement shall terminate, subject to the requirements of Section 3.5.1 and 13.1 of the LGIP.
- 12.0 Pursuant to Section 4 of the LGIP, this Agreement shall become effective upon the date the fully executed Agreement is received by the CAISO. If the CAISO does not receive the fully executed Agreement and deposit or other Interconnection Financial Security pursuant to Section 3.5.1 of the LGIP, then the Interconnection Request will be deemed withdrawn upon the Interconnection Customer's receipt of written notice by the CAISO pursuant to Section 3.8 of the LGIP.
- 13.0 Miscellaneous.
- 13.1 **Dispute Resolution.** Any dispute, or assertion of a claim, arising out of or in connection with this Agreement, shall be resolved in accordance with Section 13.5 of the LGIP.
- 13.2 **Confidentiality.** Confidential Information shall be treated in accordance with Section 13.1 of the LGIP.
- 13.3 **Binding Effect.** This Agreement and the rights and obligations hereof, shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.
- 13.4 **Conflicts.** In the event of a conflict between the body of this Agreement and any attachment, appendices or exhibits hereto, the terms and provisions of the body of this Agreement shall prevail and be deemed the final intent of the Parties.
- 13.5 **Rules of Interpretation.** This Agreement, unless a clear contrary intention appears, shall be construed and interpreted as follows: (1) the singular number includes the plural number and vice versa; (2) reference to any person includes such person's successors and assigns but, in the case of a Party, only if such successors and assigns are permitted by this Agreement, and reference to a person in a particular capacity excludes such person in any other capacity or individually; (3) reference to any agreement (including this Agreement), document, instrument or tariff means such agreement, document, instrument, or tariff as amended or modified and in effect from time to time in accordance with the terms thereof and, if applicable, the terms hereof; (4) reference to any applicable laws and regulations means such applicable laws and regulations as amended, modified, codified, or reenacted, in whole or in part, and in effect from time to time, including, if applicable, rules and regulations promulgated thereunder; (5) unless expressly stated otherwise, reference to any Article, Section or Appendix means such Article or Section of this Agreement or such Appendix to this Agreement, or such Section of the LGIP or such Appendix to the LGIP, as the case may be; (6) "hereunder", "hereof", "herein", "hereto" and words of similar import shall be deemed references to this Agreement as a whole and

not to any particular Article, Section, or other provision hereof or thereof; (7) "including" (and with correlative meaning "include") means including without limiting the generality of any description preceding such term; and (8) relative to the determination of any period of time, "from" means "from and including", "to" means "to but excluding" and "through" means "through and including".

- 13.6 Entire Agreement. This Agreement, including all Appendices and Schedules attached hereto, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, any Party's compliance with its obligations under this Agreement.
- 13.7 No Third Party Beneficiaries. This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.
- 13.8 Waiver. The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement. Termination or default of this Agreement for any reason by the Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from the Participating TO or CAISO. Any waiver of this Agreement shall, if requested, be provided in writing.

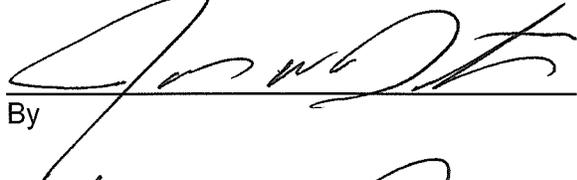
Any waivers at any time by any Party of its rights with respect to any default under this Agreement, or with respect to any other matter arising in connection with this Agreement, shall not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this Agreement. Any delay, short of the statutory period of limitations, in asserting or enforcing any right under this Agreement shall not constitute or be deemed a waiver of such right.

- 13.9 Headings. The descriptive headings of the various Articles and Sections of this Agreement have been inserted for convenience of reference only and are of no significance in the interpretation or construction of this Agreement.
- 13.10 Multiple Counterparts. This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.
- 13.11 Amendment. The Parties may by mutual agreement amend this Agreement by a written instrument duly executed by both of the Parties.

- 13.12 Modification by the Parties. The Parties may by mutual agreement amend the Appendices to this Agreement by a written instrument duly executed by both of the Parties. Such amendment shall become effective and a part of this Agreement upon satisfaction of all applicable laws and regulations.
- 13.13 Reservation of Rights. The CAISO shall have the right to make a unilateral filing with FERC to modify this Agreement with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under section 205 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder, and Interconnection Customer shall have the right to make a unilateral filing with FERC to modify this Agreement pursuant to section 206 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing by another Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties or of FERC under sections 205 or 206 of the Federal Power Act and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.
- 13.14 No Partnership. This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon any Party. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, another Party.
- 13.15 Assignment. This Agreement may be assigned by a Party only with the written consent of the other Party; provided that a Party may assign this Agreement without the consent of the other Party to any Affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement; and provided further that the Interconnection Customer shall have the right to assign this Agreement, without the consent of the other Party, for collateral security purposes to aid in providing financing for the Large Generating Facility, provided that the Interconnection Customer will require any secured party, trustee or mortgagee to notify the other Party of any such assignment. Any financing arrangement entered into by the Interconnection Customer pursuant to this Section will provide that prior to or upon the exercise of the secured party's, trustee's or mortgagee's assignment rights pursuant to said arrangement, the secured creditor, the trustee or mortgagee will notify the other Party of the date and particulars of any such exercise of assignment right(s). Any attempted assignment that violates this Section is void and ineffective. Any assignment under this Agreement shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. Where required, consent to assignment will not be unreasonably withheld, conditioned or delayed.

IN WITNESS THEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

California Independent System Operator Corporation

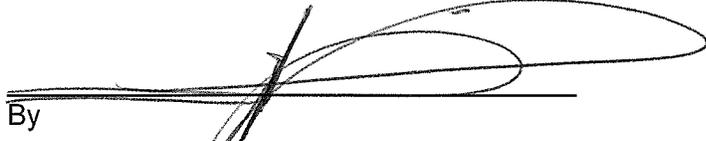

By

SAMUEL W. DETMERS
Printed Name

VP OPERATIONS
Title

9/29/2008
Date

Diamond Generating Corporation


By

Tetsuji Nakagawa
Printed Name

President
Title

November 21, 2008
Date



California ISO
Your Link to Power

California Independent
System Operator Corporation

LGIP TRANSITION CLUSTER DEPOSIT INVOICE

Invoice #: 50277TCD

Date: 9/29/2008

PAYMENT MUST BE RECEIVED BY: 11/25/2008

Project Number: 50277

Project Name: DGC KELSO CT

| | |
|--|----------------------------|
| Required Study Deposit to be included in the Transition Cluster | \$250,000.00 |
| Current amount of Study Deposit with CAISO | (\$20,000.00) |
| Additional Study Deposit Required | <u>\$230,000.00</u> |
| Required In Lieu of Site Control (Site Exclusivity) Deposit | \$250,000.00 |
| Current amount of Deposit In Lieu of Site Control with CAISO | (\$10,000.00) |
| Additional Deposit Required In Lieu of Site Control (Site Exclusivity) | <u>\$240,000.00</u> |
| Total Additional Deposits Required | <u>\$470,000.00</u> |

REMIT PAYMENT TO:

By Wire: Bank of America - ABA # 026009593

Acct # 14994-20225

By Check: The California Independent Systems Operator

P.O.BOX 639015

Folsom, CA 95763-9015

For Inquiries Contact: Julie Balch at
916-608-5873 or jbalch@caiso.com

PRINTED ACCOUNT DOCUMENT FROM ATENSON TECHNOLOGIES, INC.

DGC Nevada Development, Inc.
To: California ISO 0170

Check Number: 004482
Date: 11/19/2008

| Invoice Number | Date | Description | Amount | Discount | Paid Amount |
|----------------|------------|---------------------------------|--------------|----------|--------------|
| 111008 | 11/13/2008 | DGC Kelso CT-PG&E Intercont Dep | \$230,000.00 | \$.00 | \$230,000.00 |

TOTALS: \$230,000.00 \$.00 \$230,000.00

A TRUE WATERMARK IS VISIBLE IN THIS PAPER. HOLD UP TO A LIGHT SOURCE TO VIEW.

DGC Nevada Development, Inc.
333 S. Grand Ave., Suite 1570
Los Angeles, CA 90071

Wells Fargo Bank
Las Vegas, NV 89119
94-7074/3212

004482

Pay **Two Hundred Thirty Thousand Dollars and 00 Cents**

DATE: Nov 19, 2008
AMOUNT: \$230,000.00

To the order of:

California ISO
P.O. Box 639014
Folsom, CA 95763-9014

⑈004482⑈ ⑈44820⑈ ⑈230000⑈ ⑈111908⑈

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Item Details - Windows Internet Explorer
https://wellssuite.wellsfargo.com/sps/sps/ItemDetailsChecks/index.jsp

WELLS FARGO

Print Close

Item Details

| | |
|--------------------------------|---|
| Amount: | \$ 230,000.00 |
| Routing Number: | 321270742 |
| Check #: | 4482 |
| Type Code / Description: | 475 / CHECK PAID |
| Account Number / Account Name: | 2016205320 / Dgc Nevada Development Inc |
| Posting Date: | 12/03/2008 |
| As of Date: | 12/03/2008 |

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Internet 100%

Diamond Generating Corporation

A Subsidiary of Mitsubishi Corporation

John Chiang

Accounting Manager

Direct: 213.620.7654

Fax: 213.620.1170

j.chiang@dgc-us.com

www.dgc-us.com

5.1 Air Quality

8. Compliance Determination (Appendix B (g) (8) (A))

The information necessary for the air pollution control district where the project is located to complete a Determination of Compliance.

Information required to make AFC conform with regulations:

Please provide a copy of the District's Notice of Completeness.

Response: The Bay Area Air Quality Management District (BAAQMD) Notice of Completeness is provided in Attachment DA5.1-1.

9. Potential Offset Sources (Appendix B (g) (8) (J) (ii))

Potential offset sources, including location, and quantity of emission reductions;

Information required to make AFC conform with regulations:

Table 5.1-28 and the discussion address the quantity of emission credits necessary for district compliance. Please provide a description of the potential sources, location and quantity of emission reductions for both district compliance and CEQA mitigation.

Response: Attachment DA5.1-2, which includes a description of the available emission reduction credits identified by Mariposa Energy will be provided separately in a confidential filing.

Attachment DA5.1-1
Bay Area Air Quality Management District
Notice of Completeness

received
7-13-09



July 09, 2009

BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT
SINCE 1955

Mr. Bo Buchynsky
Mariposa Energy, LLC
333 South Grand Avenue, Suite 1570
Los Angeles, CA 90071

ALAMEDA COUNTY
Tom Bates
Scott Haggerty
Janet Lockhart
Nate Miley

Application Number: 20737
Plant Number: 19730
Equipment Location:

Mariposa Energy, LLC
Bruns & Kelso
Byron, CA 94514

CONTRA COSTA COUNTY
John Gioia
Mark Ross
Michael Shimansky
Gayle B. Uilkema

MARIN COUNTY
Harold C. Brown, Jr.

NAPA COUNTY
Brad Wagenknecht
(Secretary)

SAN FRANCISCO COUNTY
Chris Daly
Jake McGoldrick
Gavin Newsom

SAN MATEO COUNTY
Jerry Hill
(Chair)
Carol Klatt

SANTA CLARA COUNTY
Erin Garner
Yoriko Kishimoto
Liz Kniss

SOLANO COUNTY
John F. Silva

SONOMA COUNTY
Tim Smith
Pamela Torliatt
(Vice-Chair)

Jack P. Broadbent
EXECUTIVE OFFICER/APCO

Dear Applicant:

We are pleased to inform you that your application has been assigned the above application number and is now considered to be complete as of 7/09/09. In accordance with Regulation 2, Rule 3, the District shall conduct a review within 180 days of accepting a Determination of Compliance/Authority to Construct Application as complete.

Please include your application number with any correspondence with the District. If you have any further questions, please call me at (415) 749-4623, (Fax 415 749-5030).

Sincerely,

Madhav Patil
Air Quality Engineer II

CC: California Energy Commission

Spare the Air

The Air District is a Certified Green Business

Printed using soy-based inks on 100% post-consumer recycled content paper



Filed Separately under a Request for Confidentiality

**Attachment DA5.1-2
Description of Available
Emission Reduction Credits**

5.2 Biological Resources

10. Survey Protocol (Appendix B (g) (13) (D))

A description and results of all field studies and seasonal surveys used to provide biological baseline information about the project site and associated facilities. Include copies of the California Natural Diversity Database records and field survey forms completed by the applicant's biologist(s). Identify the date(s) the surveys were completed, methods used to complete the surveys, and the name(s) and qualifications of the biologists conducting the surveys. Include field studies and results; copies of CNNDDB field survey forms; dates, methods, and names/qualifications of those involved with field surveys:

Information required to make AFC conform with regulations:

Please provide copies of CNDDDB field survey forms for all sensitive species documented during field surveys.

Response: Copies of the CNDDDB field survey forms are provided in Attachment DA5.2-1. No additional sensitive species were identified during field surveys.

11. Wetland Delineation Status (Appendix B (g) (13) (D) (iii))

If the project or any related facilities could impact a jurisdictional or non-jurisdictional wetland, provide completed Army Corps of Engineers wetland delineation forms and/or determination of wetland status pursuant to Coastal Act requirements, name(s) and qualifications of biologist(s) completing the delineation, the results of the delineation and a table showing wetland acreage amounts to be impacted.

Information required to make AFC conform with regulations:

Please provide completed wetland delineation forms.

Response: A complete wetland delineation report is provided in Attachment DA5.2-2.

Attachment DA5.2-1
CNDDDB Field Survey Forms

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811

Fax: (916) 324-0475 email: CNDDDB@dfg.ca.gov

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 04/08/2009

Reset

California Native Species Field Survey Form

Form

Scientific Name: *Athene cucularia*

Common Name: burrowing owl

Species Found? Yes No If not, why? _____

Total No. Individuals 2 Subsequent Visit? yes no

Is this an existing NDDB occurrence? no unk.
Yes, Occ. # _____

Collection? If yes: _____
Number _____ Museum / Herbarium _____

Reporter: Todd Ellwood

Address: 33 New Montgomery, Suite 2000
San Francisco, CA

E-mail Address: tellwood@ch2m.com

Phone: (415) 541-7220

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

2
adults # juveniles # larvae # egg masses # unknown
 wintering breeding nesting rookery burrow site other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

Approximately 2,300 feet southeast of the Kelso Road and Bruns Road intersection.

County: Alameda Landowner / Mgr.: Private

Quad Name: Clifton Court Forebay Elevation: 125 ft.

T 2S R 3E Sec 1, NW $\frac{1}{4}$ of _____ $\frac{1}{4}$, Meridian: H M S Source of Coordinates (GPS, topo. map & type): Google E.

T _____ R _____ Sec _____, _____ $\frac{1}{4}$ of _____ $\frac{1}{4}$, Meridian: H M S GPS Make & Model N/A

DATUM: NAD27 NAD83 WGS84 Horizontal Accuracy N/A meters/feet

Coordinate System: UTM Zone 10 UTM Zone 11 OR Geographic (Latitude & Longitude)

Coordinates: LATITUDE 37.7889, LONGITUDE -121.6

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:

Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Site of observation characterized as non-native annual grassland supporting moderate cattle grazing use. Dominate plant species include *Avena barbata*, *Bromus hordeaceus*, *Hordium murinum* spp. *leporinum*, and *Grindelia camporum*. Some vernal pools, ephemeral drainages, and cattle stock ponds exist in the vicinity. Two single adult owls observed at this site; one in February 2009 and the other on April 8, 2009. During the site surveys, an owl fled from two burrow entrances located approximately 1,000 feet from each other. White wash at each burrow entrance noted. Owl(s) likely roosting at the time of the observations, and breeding probable during the season.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor

Immediate AND surrounding land use: In immediate vicinity is an existing 1-acre power plant. Portion of site formerly a wind farm.

Visible disturbances: Cattle grazing, off-highway (OHV) vehicles, decommissioned wind farm

Threats: OHV use, wind farm clean-up activities

Comments: Site located near the Altamont Hills wind resource area and in proximity to the California Aqueduct and Delta-Mendota Canal.

Determination: (check one or more, and fill in blanks)

- Keyed (cite reference): _____
- Compared with specimen housed at: _____
- Compared with photo / drawing in: Peterson Guide to Birds of North America
- By another person (name): _____
- Other: _____

Photographs: (check one or more) Slide Print Digital
Plant / animal
Habitat
Diagnostic feature

May we obtain duplicates at our expense? yes no

Attachment DA5.2-2
Wetland Delineation Report

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

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- G List of Plant Species Observed at Sample Points

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 |

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).

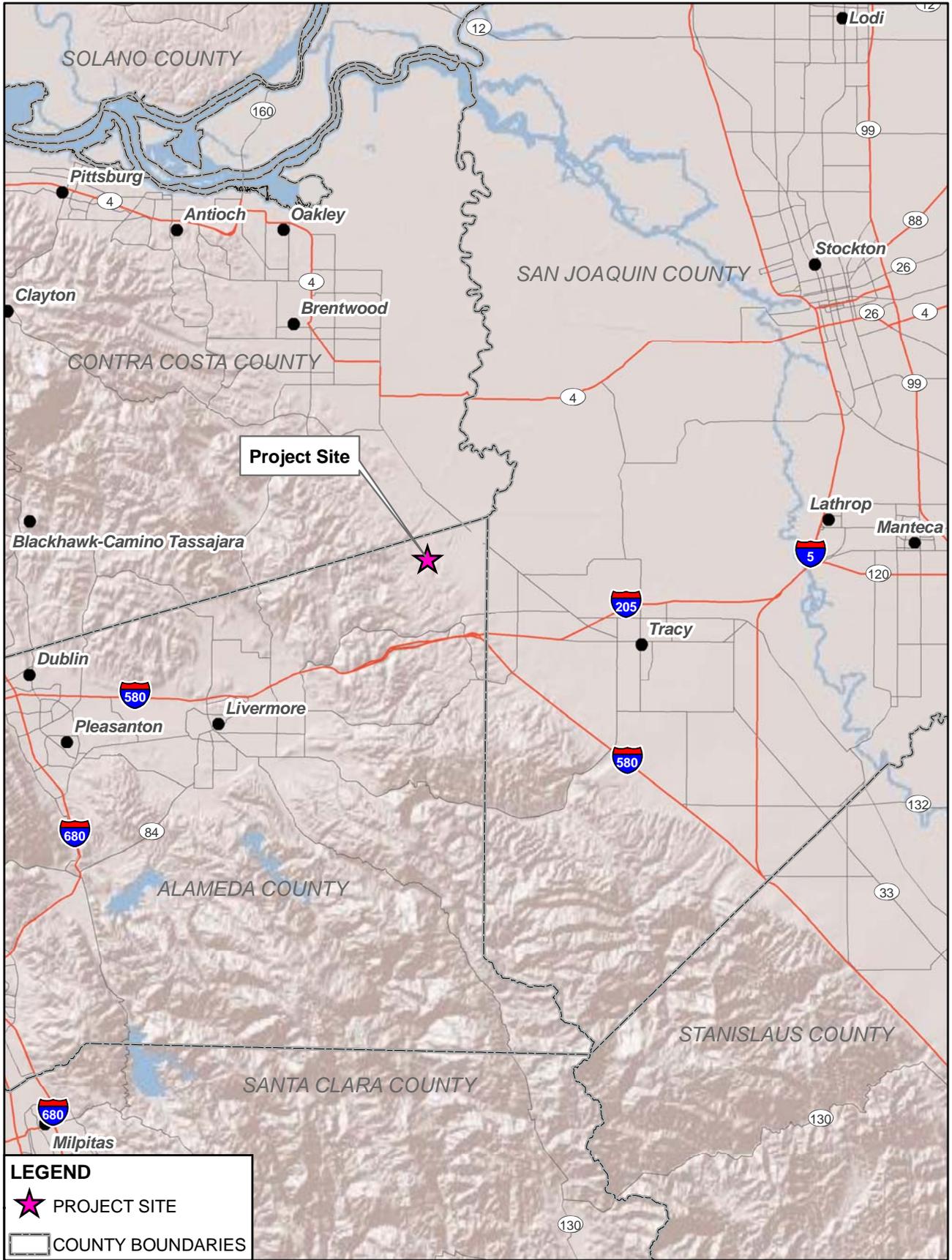
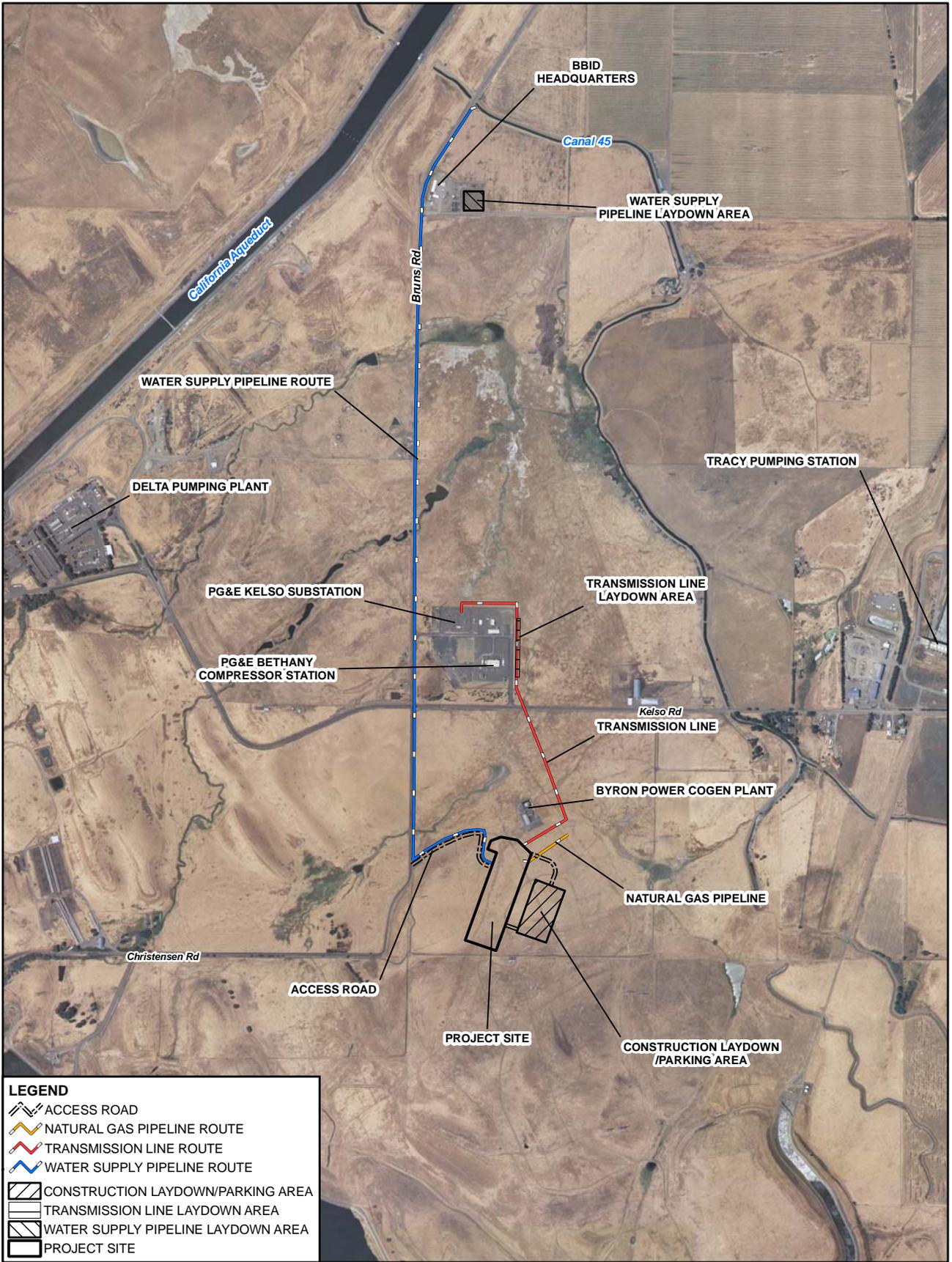


FIGURE 1-1
PROJECT VICINITY
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA



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

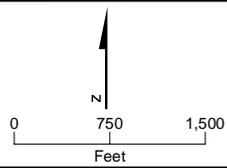


FIGURE 1-2
SITE LOCATION
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA

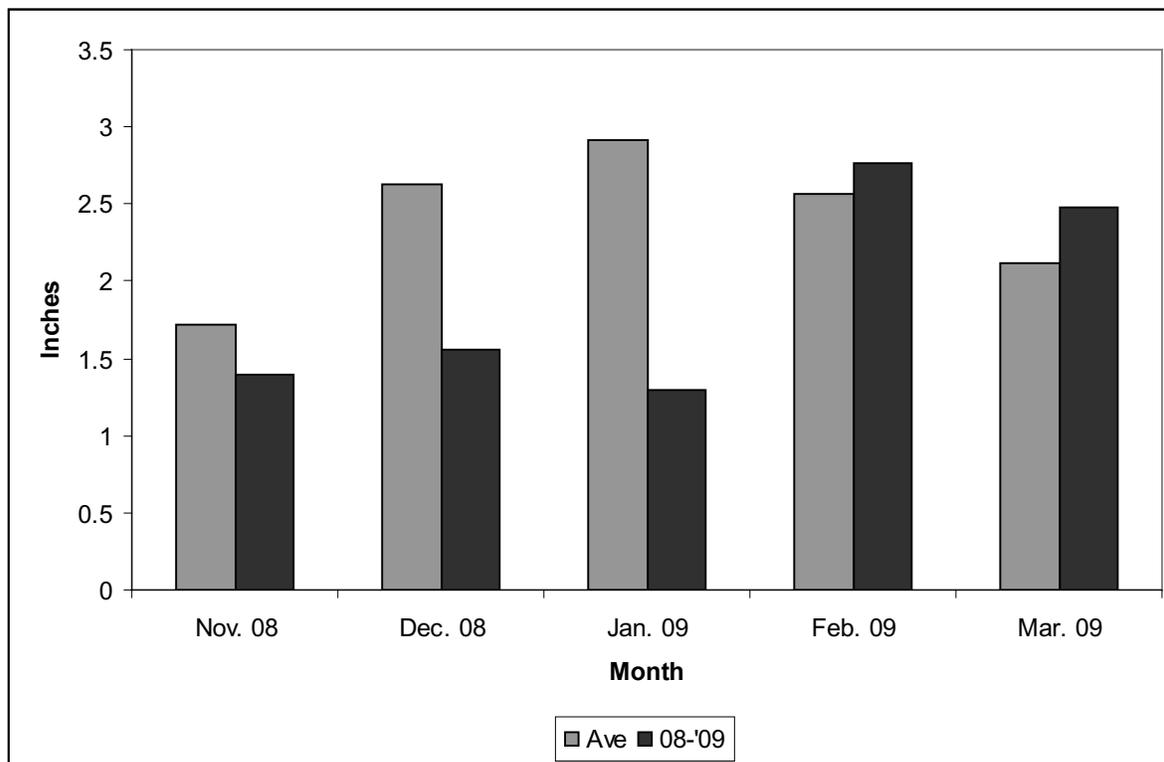


FIGURE 1-3
Precipitation Data November 2008 through March 2009

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 (10YR 3/1) silty clay loam to a depth of 16 inches. From 16 to 25 inches, the soil is very dark grayish-brown (10YR 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.

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.

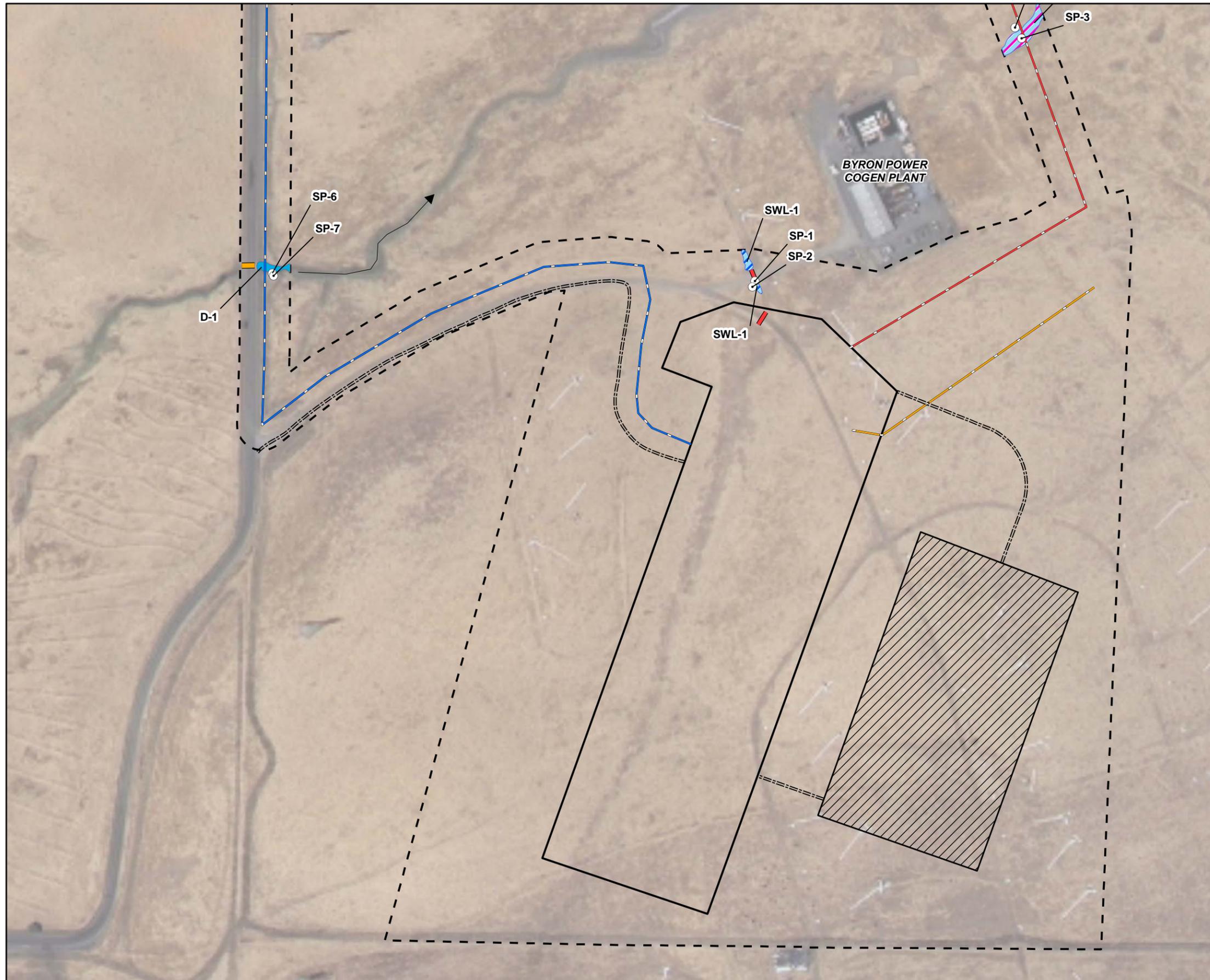
Descriptions of soils were made at each sample location by examining soil pits dug with a tile spade to depths of at least 12 inches where possible. Soil morphological features such as texture, color, and redoximorphic features were noted. Soils texture was estimated in the field using the "ribbon test"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

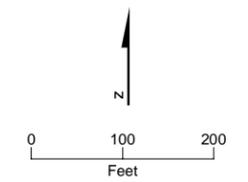
POTENTIAL NON-JURISDICTIONAL WATERS/WETLANDS

- 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.



1 OF 5

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



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

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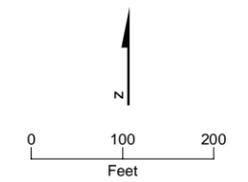


FIGURE 2-1
WETLAND DELINEATION
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA



- LEGEND**
- DATA POINTS
 - == ACCESS ROAD
 - NATURAL GAS PIPELINE ROUTE
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- EROSIONAL CHANNEL
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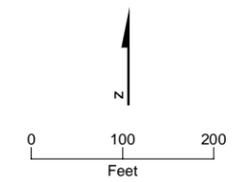
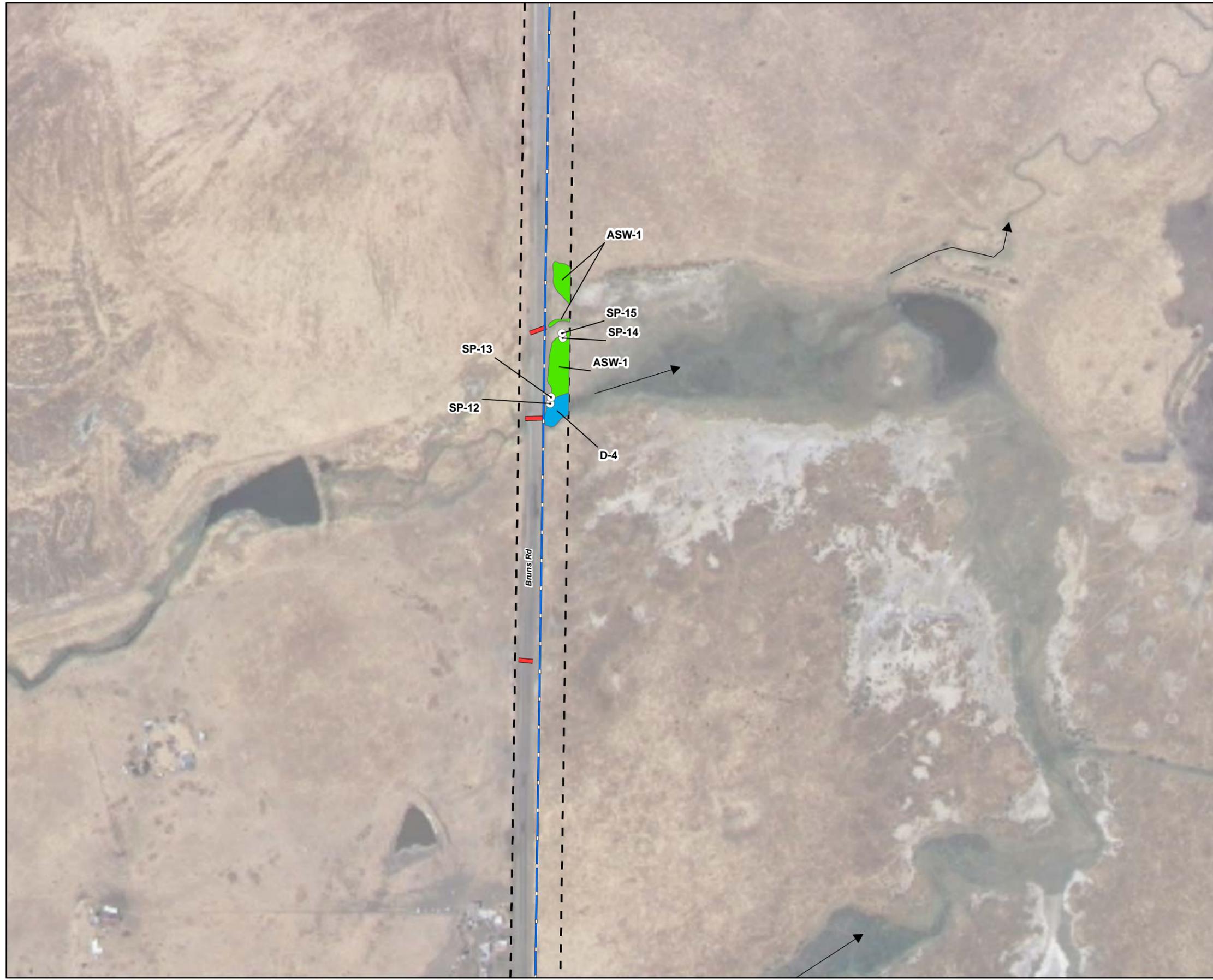


FIGURE 2-1
WETLAND DELINEATION
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA



- 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
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 - ▭ PROJECT SITE
 - ▭ PROJECT STUDY AREA

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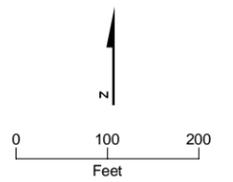
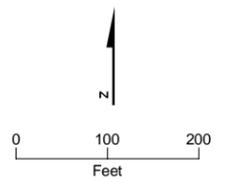


FIGURE 2-1
WETLAND DELINEATION
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA



- LEGEND**
- DATA POINTS
 - == ACCESS ROAD
 - NATURAL GAS PIPELINE ROUTE
 - TRANSMISSION LINE ROUTE
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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 | Acreeage | 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 cnp 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

----- 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 |

| | | | | | | | | | | | | | |
|----|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 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 |
| 2 | | | | | | | | | | | | | |

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.) | | | | Precipitation (Inches) | | | | |
|-----------|-----------------------------|-------|-------|-------|---------------------------|-------|------|-------|-------|
| | ----- | | | | ----- | | | | |
| | | | | | 30% chance will have | | avg | # of | avg |
| | avg | avg | avg | avg | less | more | w/.1 | days | total |
| daily | daily | | | than | than | or | | snow | |
| max | min | | | | | more | | 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 * | ----- > 365 days | 12/30 to 12/30 > 365 days | > 365 days > 365 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 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 |

| 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 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.) | | | Precipitation (Inches) | | | | | |
|-----------|-----------------------------|---------------------|-------|---------------------------|-------------------------|--------------|------------------------------------|-----------------------|--|
| | avg daily max | avg daily min | avg | avg | 30% chance will have | | avg | total snow fall | |
| | | | | | less than | more than | # of days w/.1 or more | | |
| 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 | 28 F or higher | 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 | | avg | total |
|-----------|---------------------|---------------------|------|-------|-------------------------|--------------|------------------------------------|-------|
| | | | | | less than | more than | # of days w/.1 or more | |
| 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 |
| 70 percent * | > 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



LEGEND

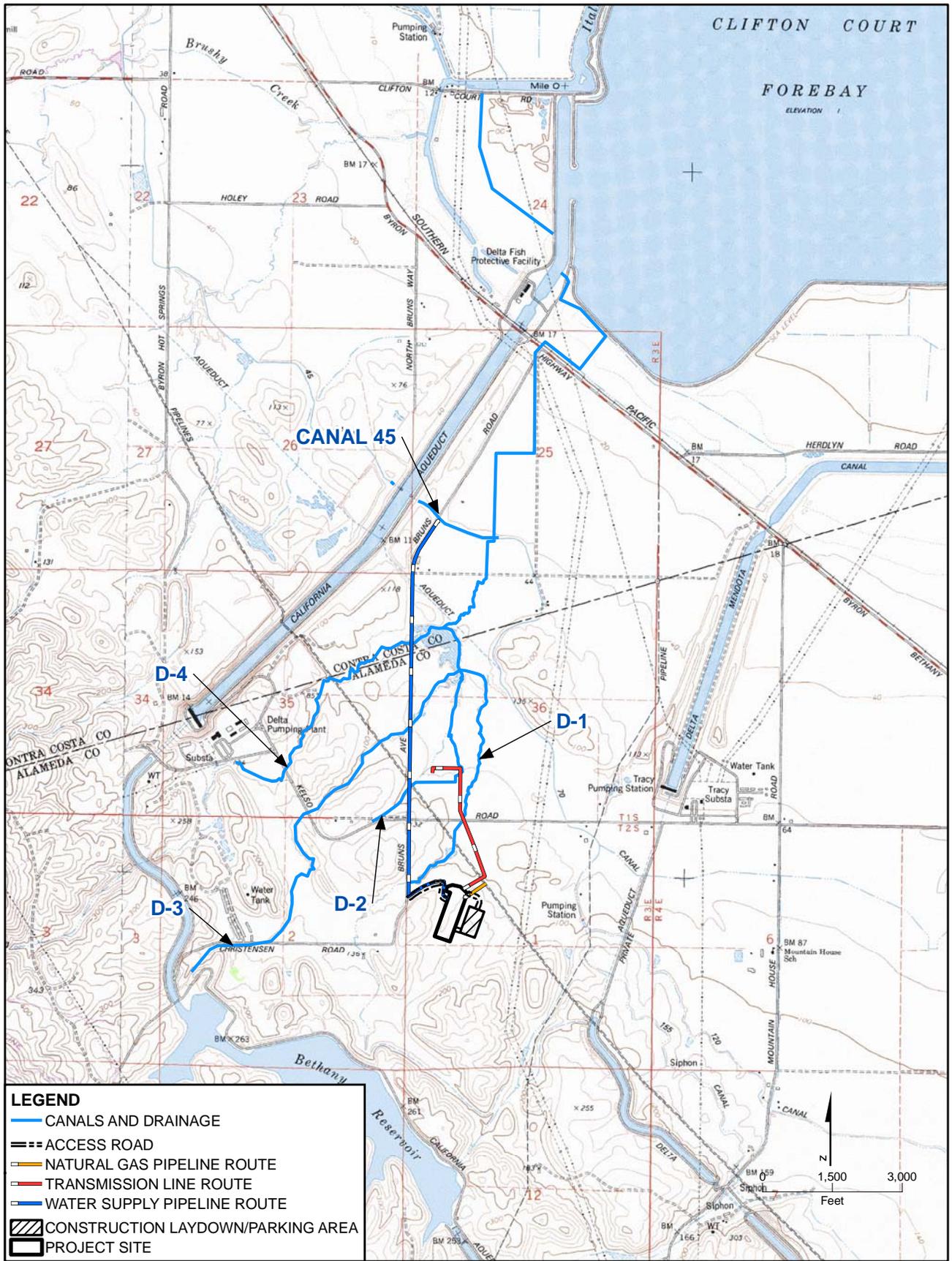
| | |
|------------------------------------|-----------------------------------|
| ACCESS ROAD | WETLAND TYPE |
| NATURAL GAS PIPELINE ROUTE | FRESHWATER EMERGENT WETLAND |
| TRANSMISSION LINE ROUTE | FRESHWATER FORESTED/SHRUB WETLAND |
| WATER SUPPLY PIPELINE ROUTE | FRESHWATER POND |
| CONSTRUCTION LAYDOWN/PARKING AREA | LAKE |
| TRANSMISSION LINE LAYDOWN AREA | OTHER |
| WATER SUPPLY PIPELINE LAYDOWN AREA | RIVERINE |
| PROJECT SITE | |

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

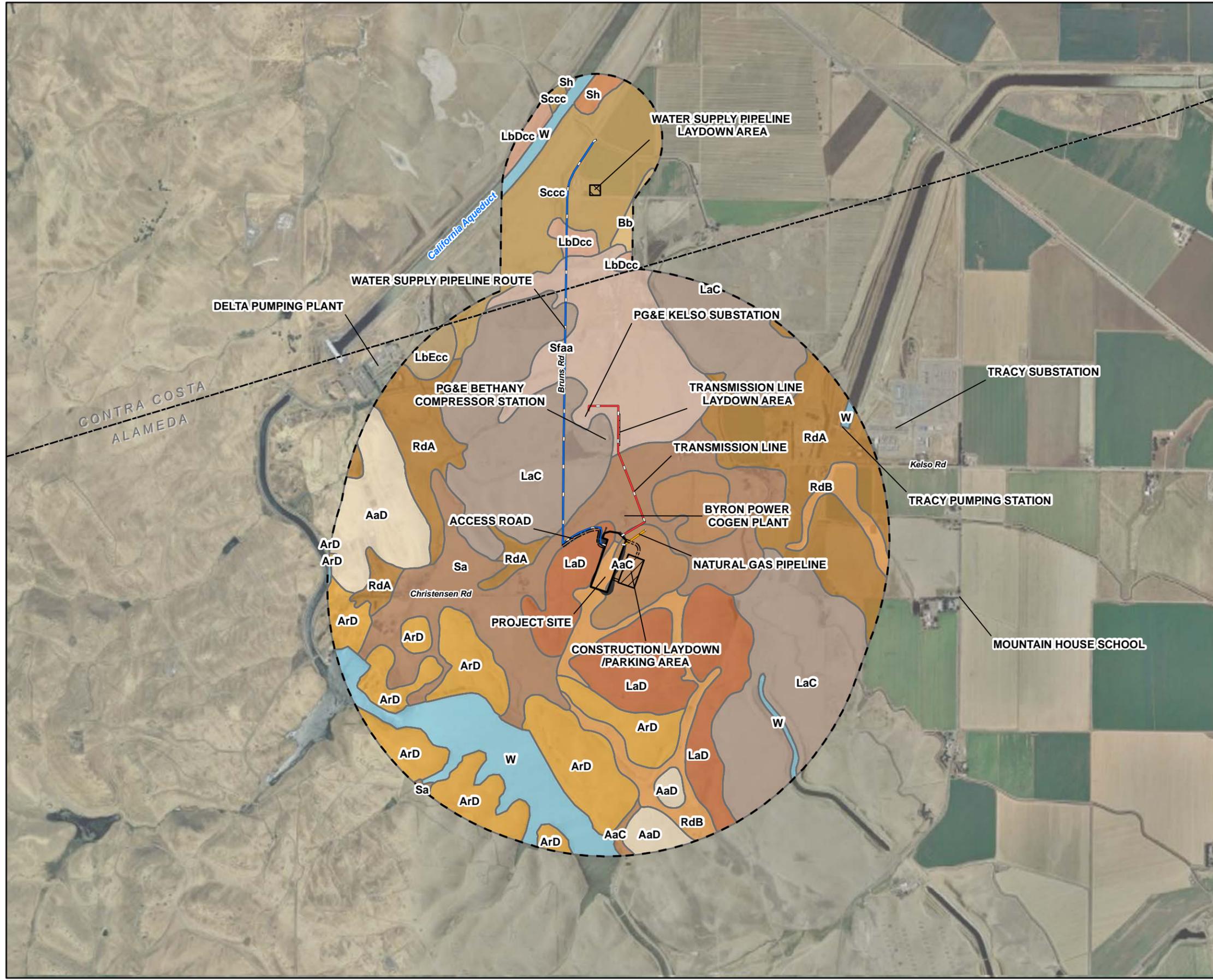
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

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

Appendix C
Drainage and Topography Map



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
- Sfcc, 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 Alameda 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.

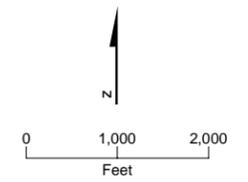


FIGURE D-1
SOIL TYPES
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA

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 No (If no, explain in Remarks.)

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

Are Vegetation , Soil , or Hydrology 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Hydric Soil Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | |
| Wetland Hydrology Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | |

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 | Dominance Test worksheet: | |
|--|------------------|------------------------------------|------------------|---|-----------------------|
| 1. None | | | | Number of Dominant Species that are OBL, FACW, or FAC: | <u>1</u> (A) |
| 2. | | | | Total Number of Dominant Species Across All Strata: | <u>1</u> (B) |
| 3. | | | | Percent of Dominant Species that are OBL, FACW, or FAC: | <u>100%</u> (A/B) |
| 4. | | | | | |
| Total Cover: | <u>N/A</u> | | | | |
| Sapling/Shrub Stratum | | | | Prevalence Index Worksheet: | |
| 1. None | | | | Total % Cover Of: | Multiply By: |
| 2. | | | | OBL species | ×1 = |
| 3. | | | | FACW species | ×2 = |
| 4. | | | | FAC species | ×3 = |
| 5. | | | | FACU species | ×4 = |
| | | | | UPL species | ×5 = |
| Total Cover: | <u>N/A</u> | | | Column Totals: | <u>(A)</u> <u>(B)</u> |
| | | | | Prevalence Index = B/A = | |
| Herb Stratum Plot Area: ~1m ² | | | | Hydrophytic Vegetation Indicators: | |
| 1. <u>Plagiobothrys stipitatus</u> | <u>20%</u> | <u>X</u> | <u>OBL</u> | <input checked="" type="checkbox"/> Dominance Test is >50% | |
| 2. <u>Lolium multiflorum</u> | <u>3%</u> | | <u>(FAC)</u> | <input type="checkbox"/> Prevalence Index is ≤3.0* | |
| 3. <u>Grindelia camporum</u> | <u>3%</u> | | <u>FACU</u> | <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) | |
| 4. <u>Epilobium densiflorum</u> | <u>2%</u> | | <u>OBL</u> | <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) | |
| 5. <u>Psilocarphus oregonus</u> | <u>1%</u> | | <u>OBL</u> | * Indicators of hydric soil and wetland hydrology must be present. | |
| 6. <u>Crassula aquatica</u> | <u>1%</u> | | <u>OBL</u> | | |
| 7. <u>Veronica peregrina</u> | <u>T</u> | | <u>OBL</u> | | |
| 8. <u>Juncus bufonius</u> | <u>T</u> | | <u>FACW</u> | | |
| Total Cover: | <u>30%</u> | | | | |
| Woody Vine Stratum | | | | Hydrophytic Vegetation Present? | |
| 1. None | | | | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| 2. | | | | | |
| Total Cover: | <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>70</u> | | % Cover of Biotic Crust <u>N/A</u> | | | |

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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|----|-------------------|------------------|---------|--------------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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 | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: 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: 10"

Depth (inches): Clay Layer

Hydric Soil Present? Yes 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)
 - 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 Depth (inches): _____
- Water Table Present? Yes No Depth (inches): >16
- Saturation Present? Yes No Depth (inches): >16
- (includes capillary fringe)

Wetland Hydrology Present? Yes 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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> * Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 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. <u>None</u> | | | | Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0%</u> (A/B) |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Sapling/Shrub Stratum | | | | |
| 1. <u>None</u> | | | | 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 = _____ |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Herb Stratum Plot Area: ~1m² | | | | |
| 1. <u>Bromus hordeaceus</u> | 45% | X | FACU- | 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. |
| 2. <u>Erodium moschatum / E. botrys</u> | 15% | X | NL | |
| 3. <u>Grindelia camporum</u> | 10% | | FACU | |
| 4. <u>Medicago polymorpha</u> | 2% | | NL | |
| 5. <u>Trifolium hirtum</u> | 1% | | NL | |
| 6. <u>Hordeum murinum subsp. leporinum</u> | 1% | | NL | |
| 7. <u>Lolium multiflorum</u> | 1% | | (FAC) | |
| 8. _____ | | | | |
| Total Cover: <u>75%</u> | | | | |
| Woody Vine Stratum | | | | |
| 1. <u>None</u> | | | | Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 2. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>25%</u> % Cover of Biotic Crust <u>N/A</u> | | | | |
| Remarks: Annual grassland habitat located adjacent to well-defined topographic basin; distinct upland/wetland boundary at this location. Note: <i>Lolium multiflorum</i> 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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|---|-------------------|------------------|---------|------------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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 Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 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

| <u>Tree Stratum</u> (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status | |
|--|------------------|------------------------------------|------------------|--|
| 1. <u>None</u> | | | | Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100</u> (A/B) |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| <u>Sapling/Shrub Stratum</u> | | | | 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 = _____ |
| 1. <u>None</u> | | | | |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| <u>Herb Stratum</u> Plot Area: ~1m² | | | | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0* <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present. |
| 1. <u>Hordeum marinum</u> | 85 | X | FAC | |
| 2. <u>Distichlis spicata</u> | 5 | | FACW | |
| 3. <u>Frankenia salina</u> | 5 | | FACW+ | |
| 4. <u>Lolium multiflorum</u> | T | | (FAC) | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Total Cover: <u>95</u> | | | | |
| <u>Woody Vine Stratum</u> | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 1. <u>None</u> | | | | |
| 2. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>5</u> | | % Cover of Biotic Crust <u>N/A</u> | | |
| 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: <i>Lolium multiflorum</i> 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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|----|----------------|---|-------------------|------------------|---------|---------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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)
- 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

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**)
- 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 Depth (inches):
 Water Table Present? Yes No Depth (inches): >12
 Saturation Present? Yes No Depth (inches): >12
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 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

| <u>Tree Stratum</u> (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status | |
|--|------------------|-------------------|------------------|---|
| 1. <u>None</u> | | | | Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0%</u> (A/B) |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| <u>Sapling/Shrub Stratum</u> | | | | |
| 1. <u>None</u> | | | | 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 = _____ |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| <u>Herb Stratum</u> Plot Area: <u>~1m²</u> | | | | |
| 1. <u>Bromus hordeaceus</u> | 80% | X | FACU- | 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. |
| 2. <u>Grindelia camporum</u> | 10% | | FACU | |
| 3. <u>Erodium botrys</u> | 5% | | NL | |
| 4. <u>Eryngium vaseyi</u> | 3% | | FACW | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Total Cover: <u>98%</u> | | | | |
| <u>Woody Vine Stratum</u> | | | | |
| 1. <u>None</u> | | | | Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 2. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>2%</u> % Cover of Biotic Crust <u>N/A</u> | | | | |
| 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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|---|-------------------|------------------|---------|---------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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)
- 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 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 Depth (inches): _____
- Water Table Present? Yes No Depth (inches): _____
- Saturation Present? Yes No Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes No

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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u> | Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> |
| 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

| <u>Tree Stratum</u> (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status | |
|---|------------------|-------------------|------------------|---|
| 1. <u>None</u> | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0%</u> (A/B) |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| Total Cover: <u>N/A</u> | | | | |
| <u>Sapling/Shrub Stratum</u> | | | | |
| 1. <u>None</u> | _____ | _____ | _____ | Prevalence Index Worksheet: _____ Total % Cover Of: _____ Multiply By: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| Total Cover: <u>N/A</u> | | | | |
| <u>Herb Stratum</u> <u>Plot Area: ~1m²</u> | | | | |
| 1. <u>Bromus hordeaceus</u> | <u>70</u> | <u>X</u> | <u>FACU-</u> | 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. |
| 2. <u>Erodium moschatum</u> | <u>10</u> | _____ | <u>NL</u> | |
| 3. <u>Eryngium vaseyi</u> | <u>5</u> | _____ | <u>FACW</u> | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| Total Cover: <u>85%</u> | | | | |
| <u>Woody Vine Stratum</u> | | | | |
| 1. <u>None</u> | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes _____ No <u>X</u> |
| 2. _____ | _____ | _____ | _____ | |
| Total Cover: <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>15%</u> % Cover of Biotic Crust <u>N/A</u> | | | | |
| 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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|---|-------------------|------------------|----------|---------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils^c:

| |
|---|
| <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> 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

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)

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

Secondary Indicators (two or more required)

| |
|---|
| <input type="checkbox"/> Water Marks (B1) (Riverine) |
| <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes No Depth (inches):
 Water Table Present? Yes No Depth (inches): >12
 Saturation Present? Yes No Depth (inches): >12
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 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

| <u>Tree Stratum</u> (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | |
|---|-----------------------------------|------------------------------------|------------------|---|-------------------|
| 1. <u>None</u> | | | | Number of Dominant Species that are OBL, FACW, or FAC: | <u>1</u> (A) |
| 2. _____ | | | | Total Number of Dominant Species Across All Strata: | <u>1</u> (B) |
| 3. _____ | | | | Percent of Dominant Species that are OBL, FACW, or FAC: | <u>100%</u> (A/B) |
| 4. _____ | | | | | |
| Total Cover: <u>N/A</u> | | | | | |
| <u>Sapling/Shrub Stratum</u> | | | | Prevalence Index Worksheet: | |
| 1. <u>None</u> | | | | Total % Cover Of: | Multiply By: |
| 2. _____ | | | | OBL species _____ x1 = _____ | |
| 3. _____ | | | | FACW species _____ x2 = _____ | |
| 4. _____ | | | | FAC species _____ x3 = _____ | |
| 5. _____ | | | | FACU species _____ x4 = _____ | |
| Total Cover: <u>N/A</u> | | | | UPL species _____ x5 = _____ | |
| | | | | Column Totals: _____ (A) _____ (B) | |
| | | | | Prevalence Index = B/A = _____ | |
| <u>Herb Stratum</u> | <u>Plot Area: ~1m²</u> | | | Hydrophytic Vegetation Indicators: | |
| 1. <u>Distichlis spicata</u> | 40% | X | FACW | <input checked="" type="checkbox"/> Dominance Test is >50% | |
| 2. <u>Polypogon monspeliensis</u> | 5% | | FACW | <input type="checkbox"/> Prevalence Index is ≤3.0* | |
| 3. <u>Lolium multiflorum</u> | 5% | | (FAC) | <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) | |
| 4. <u>Cotula coronopifolia</u> | <1% | | FACW+ | <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) | |
| 5. <u>Spergularia marina</u> | <1% | | FACW* | * Indicators of hydric soil and wetland hydrology must be present. | |
| 6. <u>Hordeum marinum subsp. leporinum</u> | <1% | | NL | | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| Total Cover: <u>55%</u> | | | | | |
| <u>Woody Vine Stratum</u> | | | | Hydrophytic Vegetation Present? | |
| 1. <u>None</u> | | | | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| 2. _____ | | | | | |
| Total Cover: <u>N/A</u> | | | | | |
| % Bare Ground in Herb Stratum <u>45%</u> | | % Cover of Biotic Crust <u>N/A</u> | | | |
| Remarks: Dense <i>Lepidium latifolium</i> between the fence and the culvert west of the sample point. Lower part of channel characterized by saltgrass and rabbitsfoot grass. Note: <i>Lolium multiflorum</i> 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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|----|-------------------|------------------|---------|---------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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 | | | | | | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

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

Indicators for Problematic Hydric Soils^c:

| |
|---|
| <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> 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)

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

Secondary Indicators (two or more required)

| |
|---|
| <input type="checkbox"/> Water Marks (B1) (Riverine) |
| <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input checked="" type="checkbox"/> Drainage Patterns (B10) |
| <input checked="" type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 12
 (includes capillary fringe)

Wetland Hydrology Present? Yes **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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 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

| <u>Tree Stratum</u> (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | |
|---|------------------|------------------------------------|------------------|---|---|
| 1. <u>None</u> | | | | Number of Dominant Species that are OBL, FACW, or FAC: | <u>0</u> (A) |
| 2. _____ | | | | Total Number of Dominant Species Across All Strata: | <u>2</u> (B) |
| 3. _____ | | | | Percent of Dominant Species that are OBL, FACW, or FAC: | <u>0%</u> (A/B) |
| 4. _____ | | | | | |
| Total Cover: | <u>N/A</u> | | | | |
| <u>Sapling/Shrub Stratum</u> | | | | Prevalence Index Worksheet: | |
| 1. <u>None</u> | | | | Total % Cover Of: | Multiply By: |
| 2. _____ | | | | OBL species _____ | x1 = _____ |
| 3. _____ | | | | FACW species _____ | x2 = _____ |
| 4. _____ | | | | FAC species _____ | x3 = _____ |
| 5. _____ | | | | FACU species _____ | x4 = _____ |
| Total Cover: | <u>N/A</u> | | | UPL species _____ | x5 = _____ |
| <u>Herb Stratum</u> Plot Area: <u>~1m²</u> | | | | Column Totals: | <u> </u> (A) <u> </u> (B) |
| 1. <u>Hordeum marinum subsp. leporinum</u> | 60% | X | NL | Prevalence Index = B/A = | <u> </u> |
| 2. <u>Bromus hordeaceus</u> | 30% | X | FACU- | | |
| 3. <u>Medicago polymorpha</u> | 2% | | NL | | |
| 4. <u>Erodium moschatum</u> | 1% | | NL | | |
| 5. <u>Lolium multiflorum</u> | <1% | | (FAC) | | |
| 6. _____ | | | | | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| Total Cover: | <u>95%</u> | | | | |
| <u>Woody Vine Stratum</u> | | | | Hydrophytic Vegetation Indicators: | |
| 1. <u>None</u> | | | | <input type="checkbox"/> Dominance Test is >50% | |
| 2. _____ | | | | <input type="checkbox"/> Prevalence Index is ≤3.0* | |
| Total Cover: | <u>N/A</u> | | | <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) | |
| % Bare Ground in Herb Stratum <u>5%</u> | | % Cover of Biotic Crust <u>N/A</u> | | <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) | |
| | | | | * Indicators of hydric soil and wetland hydrology must be present. | |
| | | | | Hydrophytic Vegetation Present? | |
| | | | | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| Remarks: <i>Lolium multiflorum</i> 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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|---|-------------------|------------------|---------|---------------------------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 0-12 | 10 YR 4/1 | 100 | | | | | CL | No Redoximorphic Features |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

Indicators for Problematic Hydric Soils^c:

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

^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

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

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (two or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): >12
 Saturation Present? Yes No Depth (inches): >12
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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 No (If no, explain in Remarks.)

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

Are Vegetation , Soil , or Hydrology 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Hydric Soil Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | |
| Wetland Hydrology Present? | Yes <input checked="" type="checkbox"/> * No <input type="checkbox"/> | | |

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

| <u>Tree Stratum</u> (Use scientific names.) | <u>Absolute % Cover</u> | <u>Dominant Species?</u> | <u>Indicator Status</u> | Dominance Test worksheet: | |
|---|-------------------------|------------------------------------|-------------------------|---|---|
| 1. <u>None</u> | | | | Number of Dominant Species that are OBL, FACW, or FAC: | <u>3</u> (A) |
| 2. _____ | | | | Total Number of Dominant Species Across All Strata: | <u>3</u> (B) |
| 3. _____ | | | | Percent of Dominant Species that are OBL, FACW, or FAC: | <u>100%</u> (A/B) |
| 4. _____ | | | | | |
| Total Cover: | <u>N/A</u> | | | | |
| <u>Sapling/Shrub Stratum</u> | | | | Prevalence Index Worksheet: | |
| 1. <u>None</u> | | | | <u> </u> Total % Cover Of: | <u> </u> Multiply By: |
| 2. _____ | | | | OBL species <u> </u> x1 = <u> </u> | |
| 3. _____ | | | | FACW species <u> </u> x2 = <u> </u> | |
| 4. _____ | | | | FAC species <u> </u> x3 = <u> </u> | |
| 5. _____ | | | | FACU species <u> </u> x4 = <u> </u> | |
| Total Cover: | <u>N/A</u> | | | UPL species <u> </u> x5 = <u> </u> | |
| | | | | Column Totals: | <u> </u> (A) <u> </u> (B) |
| | | | | Prevalence Index = B/A = <u> </u> | |
| <u>Herb Stratum</u> <u>Plot Area: ~1m²</u> | | | | Hydrophytic Vegetation Indicators: | |
| 1. <u>Lolium multiflorum</u> | <u>40</u> | <u>X</u> | <u>(FAC)</u> | <input checked="" type="checkbox"/> Dominance Test is >50% | |
| 2. <u>Distichlis spicata</u> | <u>35</u> | <u>X</u> | <u>FACW</u> | <input type="checkbox"/> Prevalence Index is ≤3.0* | |
| 3. <u>Hordeum brachyantherum</u> | <u>25</u> | <u>X</u> | <u>FACW</u> | <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) | |
| 4. _____ | | | | <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) | |
| 5. _____ | | | | * Indicators of hydric soil and wetland hydrology must be present. | |
| 6. _____ | | | | | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| Total Cover: | <u>95%</u> | | | | |
| <u>Woody Vine Stratum</u> | | | | Hydrophytic Vegetation Present? | |
| 1. <u>None</u> | | | | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| 2. _____ | | | | | |
| Total Cover: | <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>5%</u> | | % Cover of Biotic Crust <u>N/A</u> | | | |

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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|----|----------------|---|-------------------|------------------|---------|------------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

Indicators for Problematic Hydric Soils^c:

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

^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

Remarks: Surface soil is moderately alkaline in this area.

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (two or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes 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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 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. <u>None</u> | | | | Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Sapling/Shrub Stratum | | | | |
| 1. <u>None</u> | | | | Prevalence Index Worksheet: Total % Cover Of: _____ Multiply By: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Herb Stratum Plot Area: ~1m² | | | | |
| 1. <u>Hordeum brachyantherum</u> | 90 | X | FACW | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0* <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present. |
| 2. <u>Distichlis spicata</u> | <1 | | FACW | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Total Cover: <u>90%</u> | | | | |
| Woody Vine Stratum | | | | |
| 1. <u>None</u> | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 2. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>10%</u> % Cover of Biotic Crust <u>N/A</u> | | | | |
| 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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|----|-------------------|------------------|---------|---|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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 |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: 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

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

Wetland Hydrology Present? Yes No

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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 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

| <u>Tree Stratum</u> (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status | |
|--|------------------|-------------------|------------------|--|
| 1. <u>None</u> | | | | Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| <u>Sapling/Shrub Stratum</u> | | | | Prevalence Index Worksheet: Total % Cover Of: _____ Multiply By: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 1. <u>None</u> | | | | |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| <u>Herb Stratum</u> Plot Area: <u>~1m²</u> | | | | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0* <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present. |
| 1. <u>Bolboschoenus maritimus</u> | <u>70</u> | <u>X</u> | <u>OBL</u> | |
| 2. <u>Distichlis spicata</u> | <u>15</u> | | <u>FACW</u> | |
| 3. <u>Chenopodium album</u> | <u><1</u> | | <u>FAC</u> | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Total Cover: <u>85%</u> | | | | |
| <u>Woody Vine Stratum</u> | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 1. <u>None</u> | | | | |
| 2. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>15%</u> % Cover of Biotic Crust <u>N/A</u> | | | | |
| 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 | | Redox Features | | | | Texture | Remarks |
|----------------|----------------|----|----------------|---|-------------------|------------------|---------|---------------------------------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

Indicators for Problematic Hydric Soils^c:

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

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

Restrictive Layer (if present):

Type: NE
 Depth (inches): >6

Hydric Soil Present? Yes 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:

Secondary Indicators (two or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 3
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____ **Wetland Hydrology Present? Yes No**
 (includes capillary fringe)

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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 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

| <u>Tree Stratum</u> (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status | |
|---|------------------|-------------------|------------------|--|
| 1. <u>None</u> | | | | Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| <u>Sapling/Shrub Stratum</u> | | | | |
| 1. <u>None</u> | | | | Prevalence Index Worksheet: Total % Cover Of: _____ Multiply By: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| <u>Herb Stratum</u> Plot Area: ~1m² | | | | |
| 1. <u>Distichlis spicata</u> | 100 | X | FACW | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0* <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present. |
| 2. <u>Cressa truxillensis</u> | <1 | | FACW | |
| 3. <u>Cirsium vulgare</u> | <1 | | FACU | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Total Cover: <u>100%</u> | | | | |
| <u>Woody Vine Stratum</u> | | | | |
| 1. <u>None</u> | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 2. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>0%</u> % Cover of Biotic Crust <u>N/A</u> | | | | |
| 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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|----|----------------|---|-------------------|------------------|---------|-----------------------------------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 0-12 | 2.5 Y 4/2 | 80 | | | | | SL | CaCO ₃ Nodules Present |
| | 2.5 Y 5.2 | 20 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: 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

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 Depth (inches): _____
 Water Table Present? Yes No Depth (inches): >12
 Saturation Present? Yes No Depth (inches): >12
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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 No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Hydric Soil Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | |
| Wetland Hydrology Present? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | |

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 | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. <u>None</u> | | | | |
| 2. _____ | | | | Total Number of Dominant Species Across All Strata: <u>1</u> (B) |
| 3. _____ | | | | Percent of Dominant Species that are OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 4. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Sapling/Shrub Stratum | | | | Prevalence Index Worksheet: |
| 1. <u>None</u> | | | | Total % Cover Of: _____ Multiply By: _____ |
| 2. _____ | | | | OBL species _____ x1 = _____ |
| 3. _____ | | | | FACW species _____ x2 = _____ |
| 4. _____ | | | | FAC species _____ x3 = _____ |
| 5. _____ | | | | FACU species _____ x4 = _____ |
| Total Cover: <u>N/A</u> | | | | UPL species _____ x5 = _____ |
| Herb Stratum Plot Area: ~1m ² | | | | Column Totals: _____ (A) _____ (B) |
| 1. <u>Distichlis spicata</u> | <u>75</u> | <u>X</u> | <u>FACW</u> | Prevalence Index = B/A = _____ |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Total Cover: <u>100%</u> | | | | |
| Woody Vine Stratum | | | | Hydrophytic Vegetation Indicators: |
| 1. <u>None</u> | | | | <input checked="" type="checkbox"/> Dominance Test is >50% |
| 2. _____ | | | | <input type="checkbox"/> Prevalence Index is ≤3.0* |
| Total Cover: <u>N/A</u> | | | | <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) |
| % Bare Ground in Herb Stratum <u>25%</u> | | | | <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) |
| % Cover of Biotic Crust <u>N/A</u> | | | | * Indicators of hydric soil and wetland hydrology must be present. |
| | | | | Hydrophytic Vegetation Present? |
| | | | | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |

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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|---|-------------------|------------------|---------|---------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 0-3.5 | 10 YR 4/2 | 100 | | | | | FSCl | pH 9.6 |
| 3.6-16 | 10 YR 4/2 | 100 | | | | | CL | pH 9.2 |
| | | | | | | | | |
| | | | | | | | | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

Indicators for Problematic Hydric Soils^c:

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

^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

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:

Secondary Indicators (two or more required)

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

Field Observations:

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

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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
|---|---|

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. <u>None</u> | | | | Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Sapling/Shrub Stratum | | | | |
| 1. <u>None</u> | | | | Prevalence Index Worksheet: Total % Cover Of: _____ Multiply By: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Herb Stratum Plot Area: ~1m² | | | | |
| 1. <u>Distichlis spicata</u> | <u>30</u> | <u>X</u> | <u>FACW</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0* <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present. |
| 2. <u>Kochia californica</u> | <u>30</u> | <u>X</u> | <u>FACW</u> | |
| 3. <u>Hordeum brachyantherum</u> | <u>25</u> | <u>X</u> | <u>FACW</u> | |
| 4. <u>Lolium multiflorum</u> | <u><1</u> | | <u>(FAC)</u> | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Total Cover: <u>85%</u> | | | | |
| Woody Vine Stratum | | | | |
| 1. <u>None</u> | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 2. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>15%</u> | | % Cover of Biotic Crust <u>N/A</u> | | |

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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|---|-------------------|------------------|---------|------------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

Indicators for Problematic Hydric Soils^c:

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

^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

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:

Secondary Indicators (two or more required)

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

Field Observations:

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

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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 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. <u>None</u> | | | | Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Sapling/Shrub Stratum | | | | |
| 1. <u>None</u> | | | | Prevalence Index Worksheet: Total % Cover Of: _____ Multiply By: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Herb Stratum Plot Area: ~1m² | | | | |
| 1. <u>Distichlis spicata</u> | <u>50</u> | <u>X</u> | <u>FACW</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0* <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present. |
| 2. <u>Kochia californica</u> | <u>25</u> | <u>X</u> | <u>FACW</u> | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Total Cover: <u>75%</u> | | | | |
| Woody Vine Stratum | | | | |
| 1. <u>None</u> | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 2. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>25%</u> % Cover of Biotic Crust <u>N/A</u> | | | | |
| 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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|---|-------------------|------------------|---------|-----------------------------------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

Indicators for Problematic Hydric Soils^c:

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

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

Restrictive Layer (if present):

Type: NE
 Depth (inches): _____

Hydric Soil Present? Yes 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:

Secondary Indicators (two or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): >24
 Saturation Present? Yes No Depth (inches): >24 **Wetland Hydrology Present? Yes No**
 (includes capillary fringe)

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 No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| 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. <u>None</u> | | | | Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Sapling/Shrub Stratum | | | | |
| 1. <u>None</u> | | | | Prevalence Index Worksheet: Total % Cover Of: _____ Multiply By: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| Herb Stratum Plot Area: ~1m² | | | | |
| 1. <u>Hordeum marinum</u> | <u>50</u> | <u>X</u> | <u>FAC</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0* <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present. |
| 2. <u>Lolium multiflorum</u> | <u>30</u> | <u>X</u> | <u>(FAC)</u> | |
| 3. <u>Frankenia salina</u> | <u>15</u> | | <u>FACW</u> | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Total Cover: <u>95%</u> | | | | |
| Woody Vine Stratum | | | | |
| 1. <u>None</u> | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 2. _____ | | | | |
| Total Cover: <u>N/A</u> | | | | |
| % Bare Ground in Herb Stratum <u>5%</u> % Cover of Biotic Crust <u>N/A</u> | | | | |
| Remarks: <i>Lolium multiflorum</i> 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 | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|---|-------------------|------------------|---------|-------------------------|
| | Color (moist) | % | Color (moist) | % | Type ^a | Loc ^b | | |
| 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 | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

^aType: C=Concentration, D=Depletion, RM=Reduced Matrix.

^bLocation: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

Indicators for Problematic Hydric Soils^c:

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

^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

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:

Secondary Indicators (two or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): >14
 Saturation Present? Yes No Depth (inches): >14 **Wetland Hydrology Present?** Yes No
 (includes capillary fringe)

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

5.3 Cultural Resources

12. Cultural Literature Search (Appendix B (g) (2) (B))

The results of a literature search to identify cultural resources within an area not less than a 1-mile radius around the project site and not less than one-quarter (0.25) mile on each side of the linear facilities. Identify any cultural resources listed pursuant to ordinance by a city or county, or recognized by any local historical or archaeological society or museum. Literature searches to identify the above cultural resources must be completed by, or under the direction of, individuals who meet the Secretary of the Interior's Professional Standards for the technical area addressed.

Copies of California Department of Parks and Recreation (DPR) 523 forms (Title 14 CCR §4853) shall be provided for all cultural resources (ethnographic, architectural, historical, and archaeological) identified in the literature search as being 45 years or older or of exceptional importance as defined in the National Register Bulletin Guidelines, (36CFR60.4(g)). A copy of the USGS 7.5' quadrangle map of the literature search area delineating the areas of all past surveys and noting the California Historical Resources Information System (CHRIS) identifying number shall be provided. Copies also shall be provided of all technical reports whose survey coverage is wholly or partly within .25 mile of the area surveyed for the project under Section (g)(2)(C), or which report on any archaeological excavations or architectural surveys within the literature search area.

Information required to make AFC conform with regulations:

1. *Please make inquiries about cultural resources listed under a city or county ordinance and provide any resulting information to the Commission.*
2. *Please provide the DPR523 forms for the following previously known built-environment resources, located within the one-mile-radius literature search area: P-01-10435, P-01-10438, P-01-10439, P-01-10442, and P-07-2547.*
3. *Two reports for cultural resources surveys covering areas wholly or partly within 0.25 mile of the proposed plant site were not included in Vol. 2, App. 5.3C. Please provide copies of CHRIS reports S-012300 and S-023674.*

Response:

1. Inquiries were made to both Alameda and Contra Costa counties, and to several local historical societies and museums to determine if they had ordinances related to cultural resources and/or if they maintained lists of cultural resources. Neither county has a cultural resource ordinance or related landmark list or historic register, nor do they maintain separate or unique lists of cultural resources. None of the historical societies and museums maintains lists, although the Alameda County Historical Agency provides honorary and not officially recognized plaques for 12 historic sites. None are within the project area.
2. DPR523 forms for P-01-10435, P-01-10438, P-01-10439, P-01-10442, and P-07-2547 are provided as Attachment DA5.3-1.

3. S-012300 and S-023674 are survey reports for a four-state pipeline project from 1990 and 1995, respectively. There are no sites from either of these surveys in the MEP project area (see AFC Confidential Figure 5.3-1A). For additional detail, please refer to Attachment DA5.3-2 containing the individual CHRIS bibliographies for these reports and the response letter from the CHRIS noting that these reports were not provided to CH2M HILL, are not readily accessible, and are in the thousands of pages in size.

13. Architecture Qualifications (Appendix B (g) (2) (C) (iv))

A map at a scale of 1:24,000 U.S. Geological Survey quadrangle depicting the locations of all previously known and newly identified cultural resources compiled through the research required by Appendix B (g)(2)(B) and Appendix B (g)(2)(C) (ii)

Information required to make AFC conform with regulations:

Known resource P-07-2547 is not plotted on Figure 5.3-1A. Please revise the figure.

Response: Site P-07-2547 and P-01-010445 are the same resource, the “Byron Bethany Irrigation District Main Canal, No.9.” In 2002 the Northwest Information Center assigned P-01-010445 to encompass three numbers given to this same resource. A CHRIS letter describing the merging of these numbers provided in Attachment DA5.3-3. Figure 5.3-1AR has been revised to show that P-07-2547 and P-01-010445 refer to the same resource, and will be filed separately under confidential cover.

14. Native American Consultation (Appendix B (g) (2) (D))

Provide a copy of your request to the Native American Heritage Commission (NAHC) for information on Native American sacred sites and lists of Native Americans interested in the project vicinity, and copies of any correspondence received from the NAHC. Notify the Native Americans on the NAHC list about the project, including a project description and map. Provide a copy of all correspondence sent to Native American individuals and groups listed by the NAHC and copies of all responses. Provide a written summary of any oral responses.

Information required to make AFC conform with regulations:

1. *Please submit copies of letters sent to Native Americans on the list provided by the NAHC.*
2. *Please provide a summary of oral responses obtained during the consultation indicated in Vol. 1, Sec. 5.3, p. 5.3-15*

Response:

1. Letters sent to Native Americans on the list provided by the NAHC are provided in Attachment DA5.3-4.
2. No responses have been received from consultation with any of the tribes or individuals contacted.

15. LORS Table (Appendix B (g) (2) (D))

Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the

application wherein conformance, with each law or standard during both construction and operation of the facility is discussed.

Information required to make AFC conform with regulations:

Please add to Table 5.3-5 the application page numbers where conformance with each law, during both construction and operation, is discussed.

Response: Table 5.3-5 has been revised and is provided below as Table 5.3-5R.

TABLE 5.3-5R
Applicable Cultural Resource Laws, Ordinances, Regulations, and Standards

| Law, Ordinance, Regulation, or Standard | Applicability | Project Conformity? | AFC Page Explaining Conformance |
|--|---|----------------------------|--|
| California Environment Quality Act Guidelines | Project construction may encounter archaeological and/or historical resources | Yes | 5.3-20 |
| Health and Safety Code Section 7050.5 | Construction may encounter Native American graves; coroner calls the NAHC | Yes | 5.3-21 |
| Public Resources Code Section 5097.98 | Construction may encounter Native American graves; NAHC assigns Most Likely Descendant | Yes | 5.3-21 |
| Public Resources Code Section 5097.5/5097.9 | Would apply only if some project land were acquired by the state (currently no state land) | Yes | 5.3-20 |
| Contra Costa County General Plan 1995-2020 | Sets goals to identify and preserve important archaeological and historic resources within the county | Yes | 5.3-21 |
| East Alameda County General Plan | Sets goals to protect cultural resources from development | Yes | 5.3-22 |

Attachment DA5.3-1
DPR523 Forms

P-07-002558

P-07-002558

This resource has been assigned two Primary Numbers, one from each of the two counties in which it is located. Please see the following Primary File for the record:

P-01-010435

24 July 02
Leigh Jordan
Coordinator NWIC

State of California - The Resources Agency
 DEPARTMENT OF PARKS AND RECREATION
 PRIMARY RECORD

Primary # P-01-010435 / P-07-002558
 HRI# _____
 Trinomial _____
 NRHP Status Code 3D

Other Listings Review Code _____ Reviewer _____ Date _____

Page P1 of P3 *Resource Name or #: (Assigned by recorder) Segment of the Delta Mendota Canal and Intake Channel (No. 27)

P1. Other Identifier: None
 *P2. Location: Not for Publication Unrestricted *a. County Alameda
 and (P2b and P2c or P2d. Attach a Location Map as necessary.)
 *b. USGS 7.5' Quad Clifton Court Forebay Date 1978 T1S, R4E; unsectioned; MDM
 c. Address N/A (Map No. 4634) City Byron Area Zip N/A
 d. UTM: (Give more than one for large and/or linear resources) Zone 10 ; See Continuation Sheet
 e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
 From Tracy, proceed west on Highway 280. Take Mountain House Parkway exit and proceed north to Byron Bethany Road. Turn left on Byron Bethany Road and proceed roughly two miles. Road crosses canal at the intake channel.

*P3a. Description: (Describe resource and its major elements. Include design, materials condition, alterations, size, setting and boundaries)
 The Delta Mendota Canal (DMC) is part of the Central Valley Project constructed between 1946 and 1952. The Intake Channel takes water from the Sacramento River to the Tracy Pumping Plant, where it is lifted using massive pumps into the DMC. From the plant, the DMC runs 116.6 miles to the Mendota Pool, 30 miles west of Fresno. The channel is trapezoidal in cross-section and concrete-lined. It is 75 feet wide at the water line and 84 feet wide at the top. It has an average depth of 16 feet. The segment of channel described in this form runs through undeveloped farmland.

*P3b. Resource Attributes: (List attributes and codes) HP20. Canal/aqueduct

*P4. Resources Present: Building Structure Object Site District Element of District Other (Isolates, etc.)
 P5a. Photo or Drawing (Photo required for buildings, structures and objects.)



P5b. Description of Photo: (View, date, accession #) Canal viewed from Byron Bethany Rd., View SW, 9/21/01, frame 25, Accession #01-944-BW-1

*P6. Date Constructed/Age and Sources: Historic Prehistoric Both
1946-1952

*P7. Owner and Address:
San Luis Delta Mendota Water Authority, Route 1, Box 35F
Byron, CA 94514

*P8. Recorded by: (Name, affiliation and address)
Cindy Baker
PAR Environmental Services, Inc.
1906 21st Street, Sacramento

*P9. Date Recorded: 10-04-01

*P10. Survey Type: (Describe)
Inventory and evaluation

*P11. Report Citation: (Cite survey report and other sources, or enter "None")
None.

*Attachments: NONE Location Map Sketch Map Continuation Sheet Building, Structure and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List) _____
 DPR 523A (1/95)

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P-01-010435 / P-07-0025
HRI# _____
Trinomial _____

Page P2 of P3 *Resource Name or #: (Assigned by recorder) Segment of the Delta Mendota Canal and Intake Channel (No. 27)

*Recorded by: PAR Environmental Services, Inc. *Date 10/04/01 Continuation Update

P2d.

- A. 0626733 mE, 4186148 mN
- B. 0625541 mE, 4186180 mN
- C. 0625129 mE, 4185645 mN
- D. 0624624 mE, 4184047 mN

P3a.

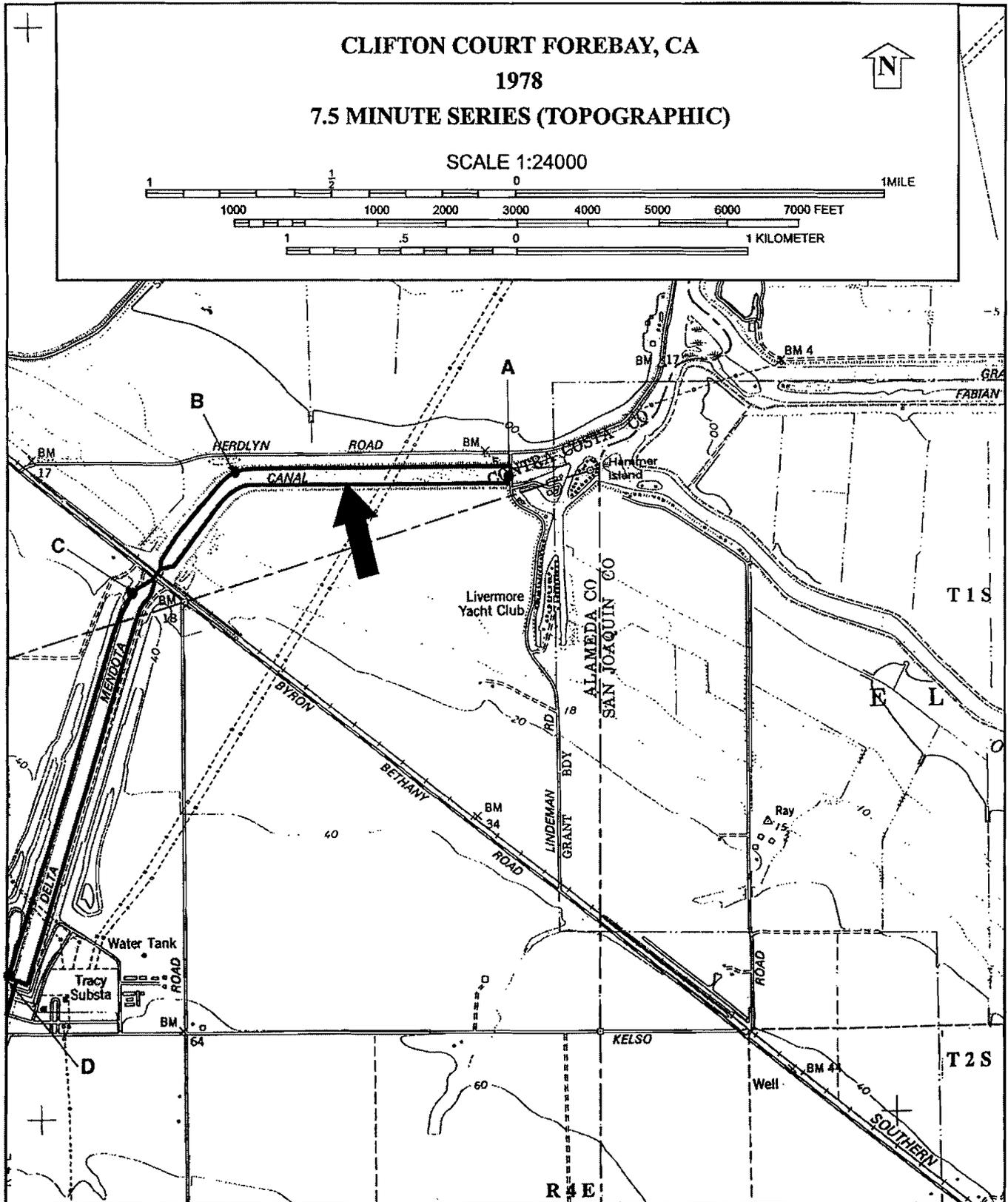
Most of the canal (95 miles) is lined with concrete while the remaining 18 miles at the southern end is earthen. The entire canal was engineered with a standard trapezoidal cross-section design. Concrete sections are roughly 15 feet deep and 48 feet wide at the bottom with sides sloping at a rate of one-and-a-half feet of height to one foot of width. Earthen sections are wider at the base with less steeply sloping sides and less depth (JRP 2000:77). This segment of the canal is concrete-lined and includes a section that runs beneath Byron-Bethany Road and the adjacent alignment of the Southern Pacific Railroad.

Reference:

JRP Historic Consulting Services

2000 *Water Conveyance Systems in California*. California Department of Transportation, Environment Program, Cultural Studies Office, Sacramento.

Page P3 of P3 * Resource Name or # (Assigned by recorder) Segment of Delta Mendota Canal and Intake Channel (No. 27)
*Map Name: Clifton Court Forebay, CA 7.5 Minute USGS quadrangle *Scale 1:24,000 * Date of map: 1978



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**BUILDING, STRUCTURE, AND OBJECT
RECORD**

Primary # P-01-010435 / P-07-002558
HRI# _____

Page B1 of B3 *NRHP Status Code 3D
*Resource Name or #: (Assigned by recorder) Segment of the Delta Mendota Canal and Intake Channel (No. 27)

B1. Historic Name: Delta Mendota Canal and Intake Channel
B2. Common Name: Delta Mendota Canal and Intake Channel
B3. Original Use: Irrigation Canal B4. Present Use: Irrigation Canal

*B5. Architectural Style: N/A

*B6. Construction History: (Construction date, alterations, and date of alterations)
The Delta Mendota Canal was constructed between 1946 and 1952. This segment was completed in April, 1951.

*B7. Moved? No Yes Unknown Date: _____ Original Location: _____

*B8. Related Features:
Tracy Pumping Station, Tracy Switch Station

B9a. Architect: Bureau of Reclamation b. Builder Morrison-Knudsen Co., Inc., and M. H. Hasler Construction Company of Los Angeles

*B10. Significance: Theme Central Valley Project Water Control Area California
Period of Significance 1946-1952 Property Type Canal system Applicable Criteria A, C

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity).

In the post-World War II prosperity of the 1940s, more far-reaching developments began to impact Tracy's agricultural economy. The Bureau of Reclamation began the Central Valley Project (CVP) in 1946, considered among the most massive human water developments ever attempted. The CVP is a major water conservation and management project extending from the Cascade Range to the Kern River. The first developments of the project were intended to balance the state's year-round water supply to buffer drought and flood conditions to better serve irrigation demands in California's growing agricultural economic base.

The CVP initially consisted of two developments each containing a dam and a conduit. For Tracy and much of the western San Joaquin Valley, water that previously came from the San Joaquin River was dammed by the new Friant Dam. To replace this water, Shasta Dam was constructed to impound water in the southern Cascade Range, which was then delivered to the area by the Sacramento River. The intake channel was constructed from the river to the Tracy Pumping Plant. The pumping plant, completed in 1951, lifted water from the river 197 feet into the Delta-Mendota Canal. The canal then carried the water 116.5 miles along the western San Joaquin Valley for irrigation (United States Department of the Interior [USDI] 1981:014-015).

Work on the canal lasted from 1946 to 1952. Workers used walking draglines to excavate the canal. Four construction companies received the bids to install the concrete linings. Still in operation, the Delta Mendota Canal was heralded as the first integrated operation of CVP, meaning joint state and federal cooperative operation. The canal terminates at the Mendota Pool 30 miles west of Fresno. The canal's initial diversion is 4,600 cubic feet per second (cfs). It delivers 3,211 cfs to pool (San Luis and Delta Mendota Water Authority 2001).

The DMC is a key feature of the CVP. The CVP has allowed irrigated farming to develop on the million acres of land that were previously restricted to dry-land farming, at best. Numerous irrigation districts on the DMC were established after completion of the canal, receiving water from no other source. The CVP has been called the "most ambitious public works project ever built" and turned on the "Golden Faucet" (Hattersley-Drayton 2000).

According to recent intensive survey and evaluation, "the Delta-Mendota Canal is virtually unchanged from its period of construction with minor exceptions: approximately three additional miles were added to the northern terminus around 1964. The concrete lining has also been extended with 2-5 feet of side slopes added to compensate for ground settling. The canal is regularly maintained and structural features are replaced as needed according to standard plans and spaces developed when the canal was designed and built. Due to its construction - state of the art in the early 1950s - the integrity of design, materials and workmanship remains high" (Hattersley-Drayton 2000).

(continued)

***B10.**

Historical resources can be eligible for the National Register if they are associated with events that have made a significant contribution to the broad patterns of our history (Criterion A), with persons important in the past (Criterion B), with manmade expressions of culture or technology (Criterion C), or are likely to yield important information about prehistory or history (Criterion D).

The Delta Mendota Canal is associated with the development of the Central Valley Project (CVP), California's statewide water control project that made a significant contribution to the development of agricultural operations and communities throughout California's inland valleys. As an integral part of the CVP, the Delta Mendota Canal appears to be eligible for the National Register under Criterion A. The Delta Mendota Canal is not associated with any individual person, since it was designed by the United States Department of the Interior, Bureau of Reclamation. As such, it does not appear eligible for the National Register under Criterion B. While the canal's basic function does not represent a technological breakthrough, it was unique in scale. As such, the Delta Mendota Canal does appear eligible under Criterion C. The canal does not have any archaeological resources and plans of its construction are on file with the Bureau of Reclamation. As such, the canal does not have the ability to yield important information about prehistory or history and, therefore, does not appear eligible under Criterion D. Its period of significance would be 1952, the year the project was completed.

The canal has a high degree of all seven types of integrity including setting, materials, location, feeling, association, workmanship, and design. In this light, the Delta Mendota Canal appears eligible for the National Register under criteria A and C with a period of significance of 1952, the year it was completed.

In recent years, numerous cultural resource specialists have addressed the historical significance of the CVP. All have determined the CVP to be of great historic importance as one of the first civil engineering projects designed for the control and delivery water on a massive scale (Hattersley-Drayton 2000; JRP Historic Consulting Services 2000; San Luis and Delta Mendota Water Authority 2001). In this light, the current form has been prepared with the assumption that the CVP is eligible for the National Register and could potentially be recorded in the future as an historic district. As an integral component of the CVP, the Delta Mendota Canal would today apparently be a contributor to the CVP historic district.

B11. Additional Resource Attributes: (List attributes and codes) N/A

***B12. References:**

Hattersley-Drayton, Karana

2000 *Historic Architectural Survey Report and Historic Resource Evaluation Report for Rehabilitation State Route 165, Merced County*. California Department of Transportation, District 6.

JRP Historic Consulting Services

2000 *Water Conveyance Systems in California*. California Department of Transportation, Environment Program, Cultural Studies Office, Sacramento.

San Luis and Delta Mendota Water Authority

2001 *The Delta Mendota Canal*. http://sldmwa.org/delta-mendota_canal.

United States Department of the Interior

1981 *Water and Power Resources Service, Project Data*. United States Department of the Interior, Water and Power Resources Service, Mid-Pacific Region. On file, Mid-Pacific Region Library, U.S. Bureau of Reclamation, Sacramento, California.

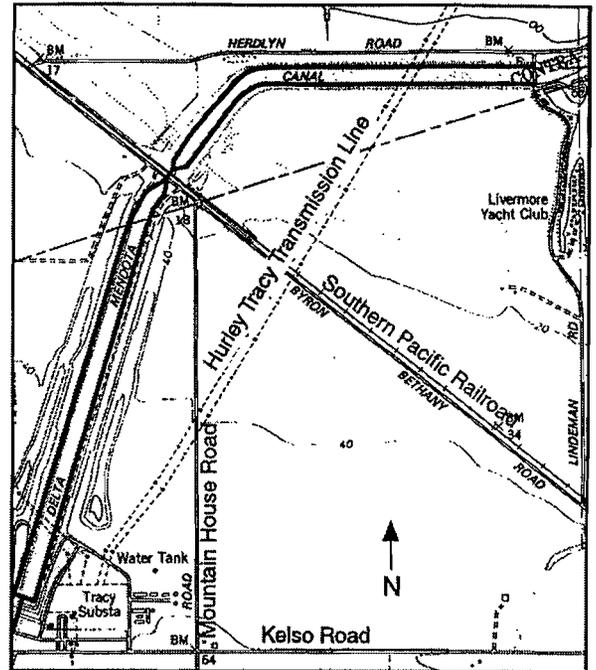
Segment of the Delta Mendota Canal and Intake Channel (No. 27)

B3 of B3

B13. Remarks: None.

*B14. Evaluator: Cindy Baker
PAR Environmental Services, Inc.
Date of Evaluation: 10/15/01

(This space reserved for official comments.)



*Required Information

Historic Properties within the East Altamont Energy Center Project*

| Resource No. | Name/Address | Date of Construction | Not Evaluated | Appears Eligible | Appears Not Eligible |
|--------------|---|----------------------|---------------|------------------|----------------------|
| 1 | Southern Pacific Railroad Grade (segment of) | 1878 | | | X |
| 2 | Byron Bethany Road (segment of) | 1878 | | | X |
| 3 | Mountain House Road (segment of) | circa 1874 | | | X |
| 4 | Hurley-Tracy Transmission Line (segment of) | 1951 | | | X |
| 5 | Tracy-Contra Costa-Ygnacio Transmission Line (segment of) | circa 1946-1951 | | | X |
| 6 | Tracy-Los Vaqueros Transmission Line (segment of) | circa 1946-1951 | | | X |
| 7 | PG&E Distribution Line (segment of) | 1909 | | | X |
| 8 | West Side Irrigation District Complex, Wicklund Road | 1917 | | X | |
| 9 | Byron Bethany Irrigation District Canal | 1919, 1968 | | | X |
| 10 | Mountain House School 3950 Mountain House Road | 1923 | | | X |
| 11a | Tracy Pumping Station 16650 Kelso Road | 1952 | | X | |
| 11b | Tracy Switch Station 16650 Kelso Road | 1952 | | | X |
| 12 | Adobe Ranch Complex 17700 W. Byron Road | 1931 | | | X |
| 13 | Patteson Ranch 17491 and 17590 S. Kelso Road | circa 1920, 1940s | X | | |
| 14 | Ranch 16941 S. Kelso Road | circa 1940 | X | | |
| 15 | Livermore Yacht Club | 1937-1970s | X | | |
| 16 | Costa Ranch 5840 Lindeman Road | circa 1900, 1943 | X | | |
| 17 | Wing Ranch Kelso Road | circa 1944 | X | | |
| 18 | Dexter Ranch 17499 Kelso Road | circa 1917 | | | X |
| 19 | Holck Ranch 16606 Kelso Road | 1948 | | | X |
| 20 | Kuhn Ranch 4378 Mountain House Road | circa 1925 | | | X |
| 21 | Schropp Farm Complex 3880 Mountain House Road | circa 1944, 1960s | | | X |
| 22 | PG&E Substation Byron Bethany Road | circa 1910 | X | | |
| 23 | Peterson Ranch 15991 Kelso Road | circa 1956 | X | | |
| 24 | Griffith Property 15616 Kelso Road | circa 1950 | X | | |
| 25 | Clark Ranch 15685 Kelso Road | circa 1942 | X | | |
| 26 | Jess Property 15547 Kelso Road | circa 1940s | X | | |
| 27 | Delta Mendota Canal and Intake Channel (segment of) | 1946-1952 | | X | |

* See attached Figure 1

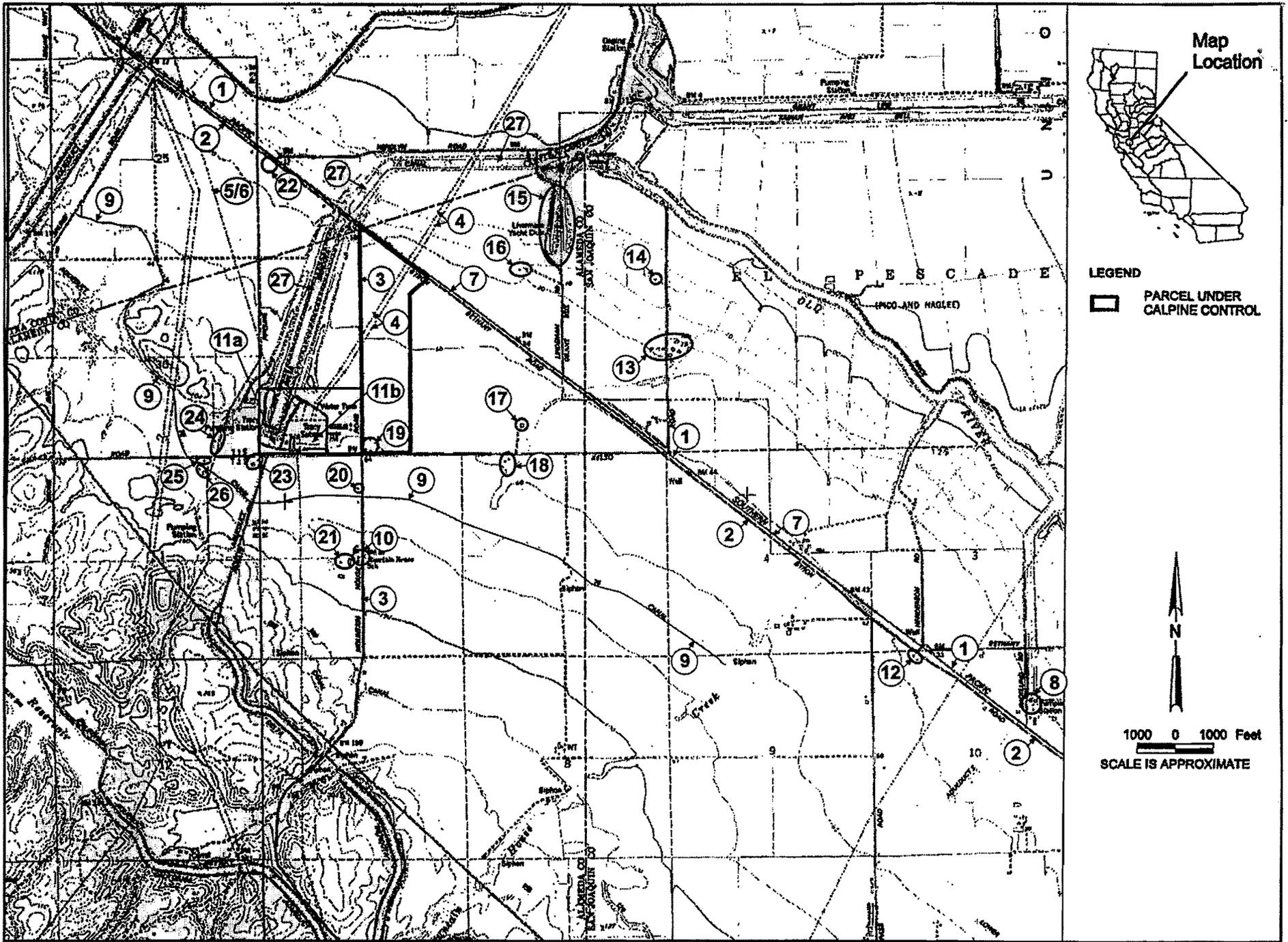


Figure 1. Locations of Historic Properties in the East Altamont Energy Center Project

(Base Map Source: Figure 1.1-3 Jurisdiction of Property under Calpine Interest, Application for Certification for East Altamont Energy Center, CH2MHILL)

**State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD**

Primary # P-01-010438
HRI# _____
Trinomial _____
NRHP Status Code 7

Other Listings
Review Code _____

Reviewer _____ Date _____

Page P1 of P5 *Resource Name or #: (Assigned by recorder) Griffith Property (No. 24)

P1. Other Identifier: None

*P2. Location: Not for Publication Unrestricted *a. County Alameda

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Clifton Court Forebay Date 1978 T 1S R3E; SE¼ of SE¼ of Sec. 36; MDM

c. Address 15616 Kelso Road (4634) City Byron Zip 94514

d. UTM: (Give more than one for large and/or linear resources) Zone 10 ; 624171 mE/ 4183906 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

Accessor's Parcel No. 99b-7030-003-03 and 99b-7030-003-04

*P3a. Description: (Describe resource and its major elements. Include design, materials condition, alterations, size, setting and boundaries). Construction of the extant buildings at the Griffith Property began sometime in the early 1950s by Donald Griffith. The property consists of at least five buildings - two houses, a barn, and two other ancillary buildings. Vegetation at the property consists of groupings of shade trees. Due to restrictions of access, the complex was viewed and photographed from Kelso Road only. The Griffith Property is actually made up of two parcels, each with its own complex of buildings. The parcel with the buildings closest to Kelso Road is a rental property and the parcel with the buildings elevated on a hill is the residence of Don Griffith.

(continued)

*P3b. Resource Attributes: (List attributes and codes) HP3. Multiple family property, HP4. Ancillary Building, HP30. Trees/vegetation, HP33. Farm/Ranch, HP32. rural open space.

*P4. Resources Present: Building Structure Object Site District Element of District Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures and objects.)



P5b. Description of Photo: (View, date, accession #) Overview;

View NW, 10/4/01, frame 12,

Accession #01-944-BW-6

*P6. Date Constructed/Age and

Sources: Historic

Prehistoric Both

circa 1950

*P7. Owner and Address:

Donald Griffith et al

15616 Kelso Road

Byron, CA 94514

*P8. Recorded by: (Name, affiliation and address)

Tracy Bakic

PAR Environmental Services, Inc.

1906 21st Street, Sacramento

*P9. Date Recorded: 10-04-01

*P10. Survey Type: (Describe)

Inventory

*P11. Report Citation: (Cite survey report and other sources, or enter "None")

None

*Attachments: NONE Location Map Sketch Map Continuation Sheet Building, Structure and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List)

DPR 523A (1/95)

*Required Information

MAR 29 2002

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P-01-010438
HRI# _____
Trinomial _____

Page P2 of P5 *Resource Name or #: (Assigned by recorder) Griffith Property (No. 24)
*Recorded by: PAR Environmental Services, Inc. *Date 10/4/01 Continuation Update

P3a.

The rental property includes at least three buildings – a house, barn, and another ancillary building. This property is surrounded by wood- or metal-post and wire fencing. The rectangular, single-story, ranch style house (a) appears to have horizontal siding (possibly asbestos shingle) and a composition shingle-surfaced gable roof. It is probably on a concrete foundation. The front (south side) includes a pent-roofed overhang that is supported by metal posts. Fenestration includes aluminum slider windows. Northeast of the house is a gabled ancillary building (b) with a shed-roofed extension to the west. It has vertical wood board siding on the south side and the other sides are left open. This building appears to be used for storage, such as hay.

Northwest of the house (a) is a barn (c). The barn appears to have a gabled mid-section with shed-roofed wings. It is sided with vertical wood boards and has corrugated metal roof surfacing. Between the house and barn is a large area of trees that obstruct the view to any other permanent buildings or structures that may be on the property. A modern mobile home/trailer can be seen in this area and there appears to be a building or structure behind it.

The Griffith residence is set atop a hill just north of the rental property. It appears to include a modern, rectangular, ranch style house (d) and possible a barn/storage building behind the house (e). Viewed from Kelso Road, it was impossible to determine building materials.

P5b.



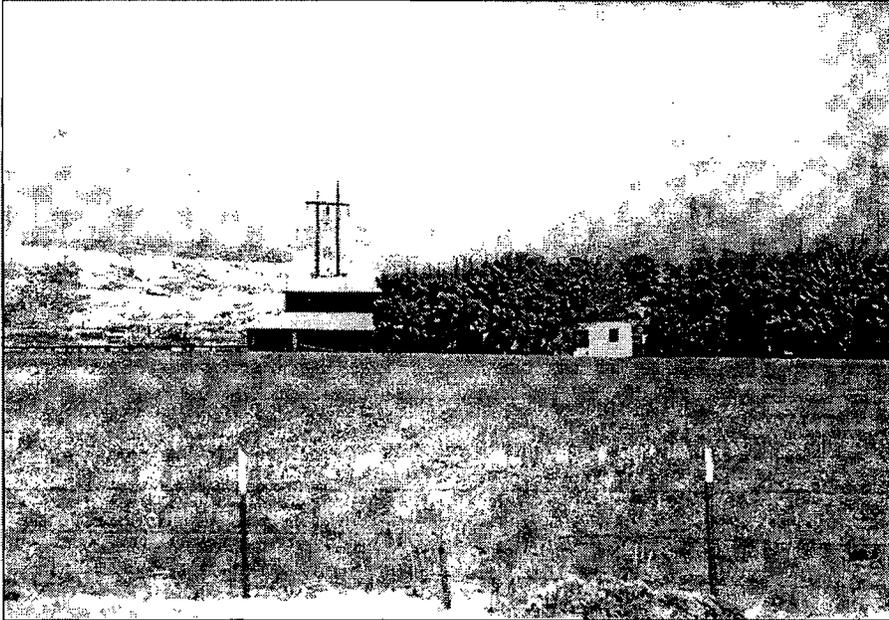
Rental property house; View NW, 10-4-01, frame 13, Accession #01-944-BW-6

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

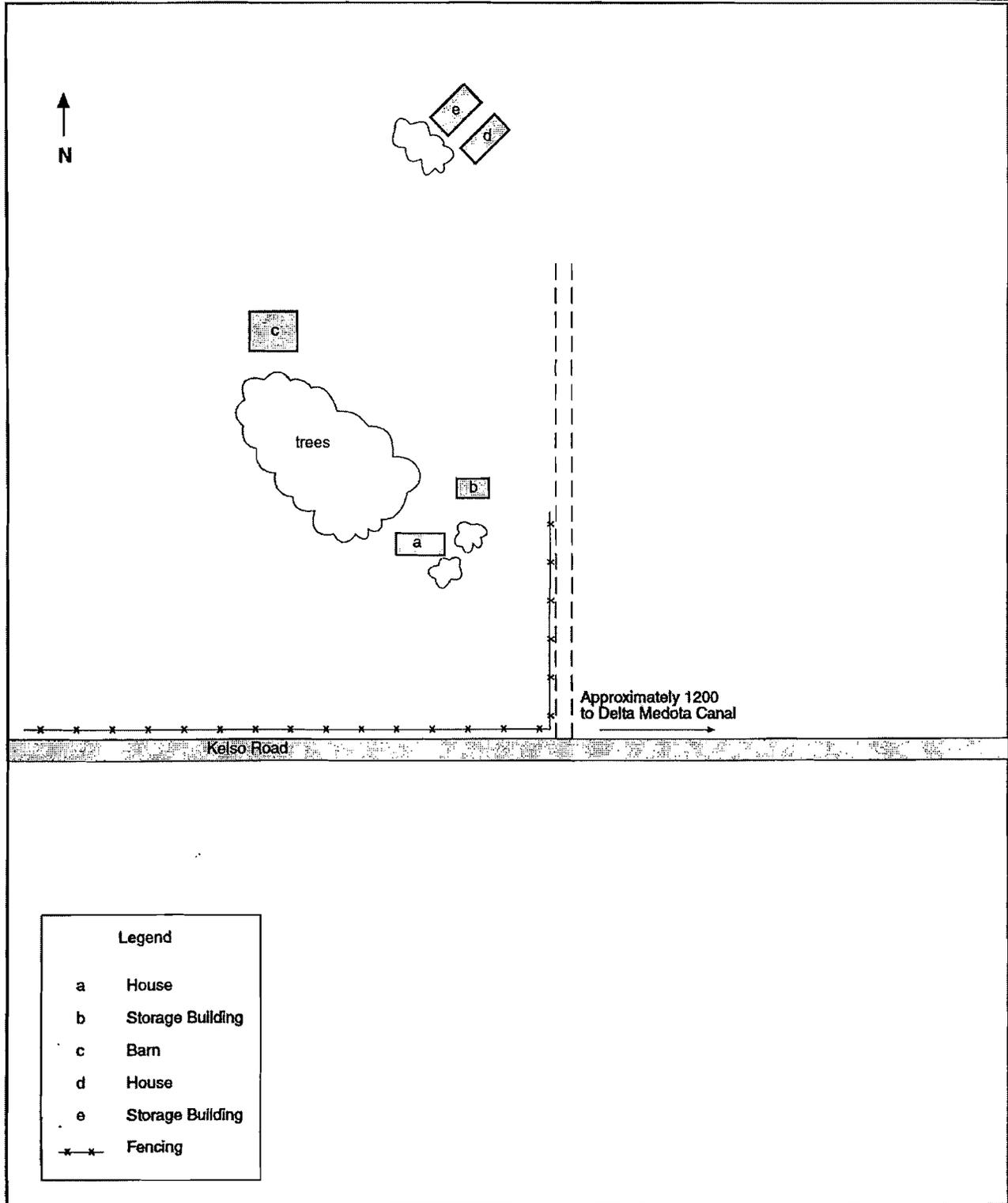
Primary # P-01-010438
HRI# _____
Trinomial _____

Page P3 of P5 *Resource Name or #: (Assigned by recorder) Griffith Property (No. 24)
*Recorded by: PAR Environmental Services, Inc. *Date 10/4/01 Continuation Update

P5b.



Rental property barn; View NE, 10/4/01, frame 11, Accession #01-944-BW-6



Historic Properties within the East Altamont Energy Center Project*

| Resource No. | Name/Address | Date of Construction | Not Evaluated | Appears Eligible | Appears Not Eligible |
|--------------|---|----------------------|---------------|------------------|----------------------|
| 1 | Southern Pacific Railroad Grade (segment of) | 1878 | | | X |
| 2 | Byron Bethany Road (segment of) | 1878 | | | X |
| 3 | Mountain House Road (segment of) | circa 1874 | | | X |
| 4 | Hurley-Tracy Transmission Line (segment of) | 1951 | | | X |
| 5 | Tracy-Contra Costa-Ygnacio Transmission Line (segment of) | circa 1946-1951 | | | X |
| 6 | Tracy-Los Vaqueros Transmission Line (segment of) | circa 1946-1951 | | | X |
| 7 | PG&E Distribution Line (segment of) | 1909 | | | X |
| 8 | West Side Irrigation District Complex, Wicklund Road | 1917 | | X | |
| 9 | Byron Bethany Irrigation District Canal | 1919, 1968 | | | X |
| 10 | Mountain House School 3950 Mountain House Road | 1923 | | | X |
| 11a | Tracy Pumping Station 16650 Kelso Road | 1952 | | X | |
| 11b | Tracy Switch Station 16650 Kelso Road | 1952 | | | X |
| 12 | Adobe Ranch Complex 17700 W. Byron Road | 1931 | | | X |
| 13 | Patteson Ranch 17491 and 17590 S. Kelso Road | circa 1920, 1940s | X | | |
| 14 | Ranch 16941 S. Kelso Road | circa 1940 | X | | |
| 15 | Livermore Yacht Club | 1937-1970s | X | | |
| 16 | Costa Ranch 5840 Lindeman Road | circa 1900, 1943 | X | | |
| 17 | Wing Ranch Kelso Road | circa 1944 | X | | |
| 18 | Dexter Ranch 17499 Kelso Road | circa 1917 | | | X |
| 19 | Holck Ranch 16606 Kelso Road | 1948 | | | X |
| 20 | Kuhn Ranch 4378 Mountain House Road | circa 1925 | | | X |
| 21 | Schropp Farm Complex 3880 Mountain House Road | circa 1944, 1960s | | | X |
| 22 | PG&E Substation Byron Bethany Road | circa 1910 | X | | |
| 23 | Peterson Ranch 15991 Kelso Road | circa 1956 | X | | |
| 24 | Griffith Property 15616 Kelso Road | circa 1950 | X | | |
| 25 | Clark Ranch 15685 Kelso Road | circa 1942 | X | | |
| 26 | Jess Property 15547 Kelso Road | circa 1940s | X | | |
| 27 | Delta Mendota Canal and Intake Channel (segment of) | 1946-1952 | | X | |

* See attached Figure 1

**State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD**

Primary # P-01-010439
HRI# _____
Trinomial _____
NRHP Status Code 7

Other Listings Review Code _____ Reviewer _____ Date _____

Page P1 of P6 *Resource Name or #: (Assigned by recorder) Peterson Ranch (No. 23)

P1. Other Identifier: N/A

*P2. Location: Not for Publication Unrestricted *a. County Alameda
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Clifton Court Forebay Date 1978 T 2S R 3E; NW¼ of NE¼ of Sec.1; MDM

c. Address 15991 Kelso Road (4634) City Byron Zip 94514

d. UTM: (Give more than one for large and/or linear resources) Zone 10 ; 624068 mE/ 4183683 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
Accessor's Parcel No. 99b-7050-003-08 and 99b-7050-003-09

*P3a. Description: (Describe resource and its major elements. Include design, materials condition, alterations, size, setting and boundaries)
It is uncertain who constructed the ranch. In 1907, W.R. Ellerbrook owned the property this complex of buildings sat on (Prather & Haviland 1907). No buildings are depicted at this location on 1911 and 1952 USGS maps. The earliest USGS map depiction appears to be on a 1978 map (USGS 1911, 1952, 1978). In 1917, it sat on a 160-acre parcel owned by William Kilso (Haviland 1917). The complex consists of at least four or five buildings - a house, a barn, two storage buildings, and a modern mobile home (that may or may not be part of the property). Vegetation at the property consists of groupings of trees, including pepper trees. Due to restrictions of access, the complex was viewed and photographed from Kelso Road only. The property is surrounded by a variety of fencing, including wood post and rail and wood post and wire.

(continued)

*P3b. Resource Attributes: (List attributes and codes) HP2. Single family property, HP4, Ancillary Building, HP32 Rural Open Space, HP33. Farm/Ranch

*P4. Resources Present: Building Structure Object Site District Element of District Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures and objects.)



P5b. Description of Photo: (View, date, accession #) Overview; View SE, 10/04/02, frame 24, Accession #01-944-BW-6

*P6. Date Constructed/Age and Sources: Historic Prehistoric Both
circa 1956

*P7. Owner and Address:
Laverne and Jane Peterson
15991 Kelso Road
Byron, CA 94514

*P8. Recorded by: (Name, affiliation and address)
Tracy Bakic

PAR Environmental Services, Inc.
1906 21st Street, Sacramento

*P9. Date Recorded: 10/04/01

*P10. Survey Type: (Describe)
Inventory and evaluation

*P11. Report Citation: (Cite survey report and other sources, or enter "None")
None

*Attachments: NONE Location Map Sketch Map Continuation Sheet Building, Structure and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List)

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P-01-010439
HRI# _____
Trinomial _____

Page P2 of P6 *Resource Name or #: (Assigned by recorder) Peterson Ranch (No. 23)
*Recorded by: PAR Environmental Services, Inc. *Date 10/04/01 Continuation Update

P3a.

The L-shaped, single-story, ranch style house (a) is on a concrete foundation and includes stuccoed walls, composition shingle-surfaced hipped roofing, an exterior brick chimney, and aluminum slider windows. To the southeast of the house is a large storage building (b), possibly a barn or hay storage. It is probably wood-framed and is gabled with a shed-roofed extension to the north. This building is surfaced with corrugated metal.

Southwest of the house is a wood-framed barn (c) that has a central gabled section with shed-roofed wings to the east and west. It includes horizontal wood board siding, composition sheet- or corrugated metal-surfaced roofing, and a large bay opening at the north side. The bay opening has a vertical wood board-surfaced sliding door (on upper metal track). North of the barn is another storage building (d). This single-story, wood-framed building is partially gable (west) with a low-pitched, shed-roofed, three-bay addition to the east. The building includes two types on horizontal wood board siding and plywood siding (west side). The roof appears to be surfaced with composition sheets. Fenestration includes metal slider windows.

References:

Alameda County

- 2001 Personal communication with Tracy Bakic, PAR Environmental Services, Inc. October 2001, Sacramento.
Records of communication on file, PAR Environmental Services, Inc., Sacramento.

Haviland, P.

- 1917 *Official Map of Alameda County and Contra Costa County and Portions of Solano, Sacramento, San Joaquin, and Santa Clara Counties.* Oakland Blueprint Com., Oakland, California.

Prather, E. and P. Haviland

- 1907 *Official Map of Alameda County.* Tribune Pub. Co., Oakland, California.

United States Geological Survey (USGS)

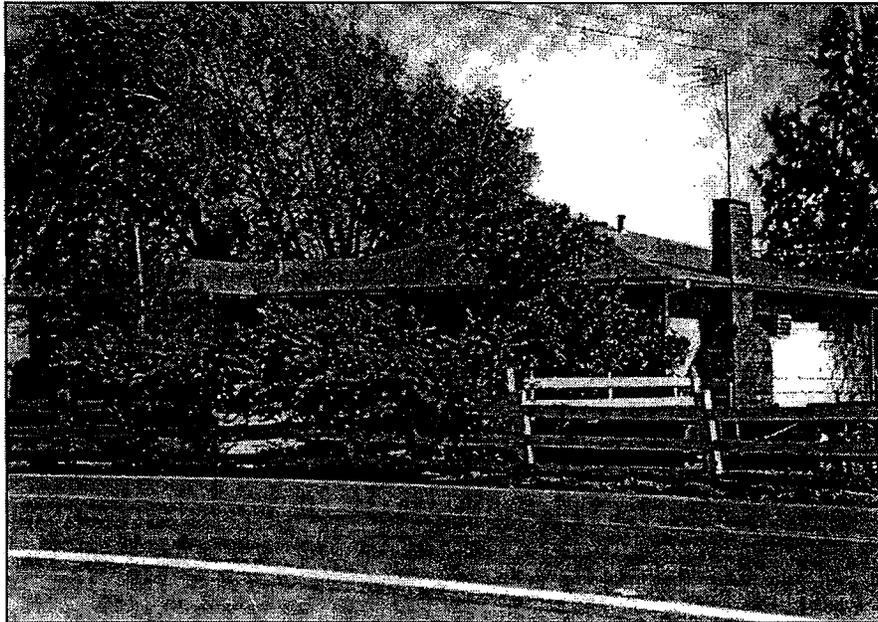
- 1911 Bethany Topographical 7.5-minute Quadrangle Map. On file, Government Publications, California State Library, Sacramento.
1952 Bethany Topographical 7.5-minute Quadrangle Map. On file, Government Publications, California State Library, Sacramento.
1978 Clifton Court Forebay Topographical 7.5-minute Quadrangle Map. Washington, D.C. On file, Government Publications, California State Library, Sacramento.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

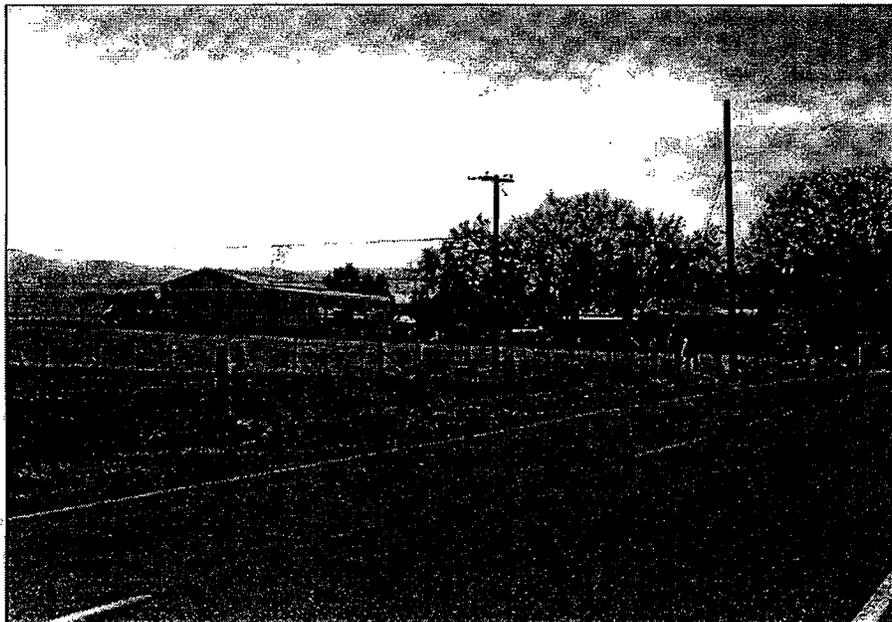
Primary # P-01-010439
HRI# _____
Trinomial _____

Page P3 of P6 *Resource Name or #: (Assigned by recorder) Peterson Ranch (No. 23)
*Recorded by: PAR Environmental Services, Inc. *Date 10/04/01 Continuation Update

P5b.



House; View SE, 10/4/01, frame 23, Accession #01-944-BW-6



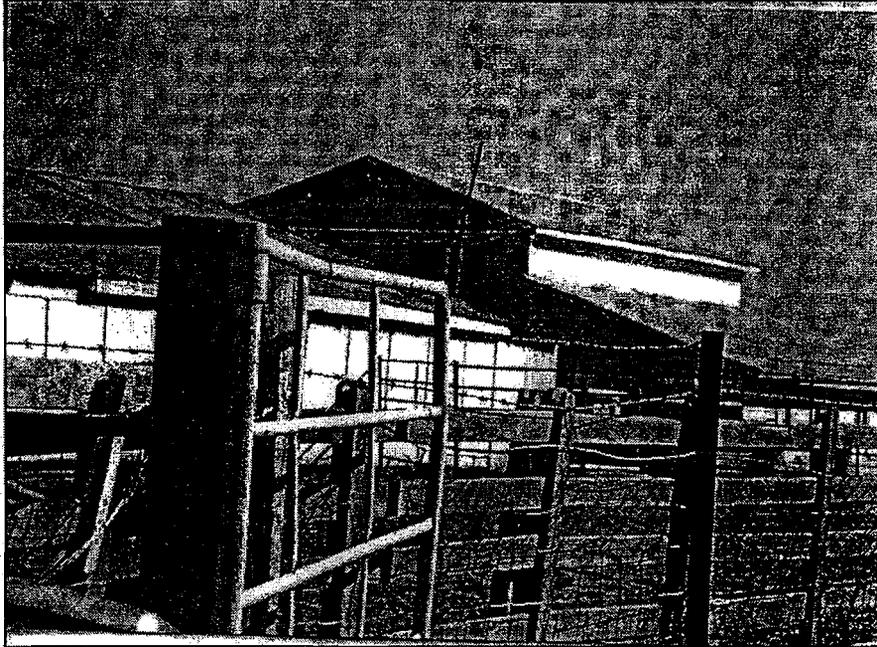
House and Storage Building (b); View SW, 10/4/01, frame 21, Accession #01-944-BW-6

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P-01-010439
HRI# _____
Trinomial _____

Page P4 of P6 *Resource Name or #: (Assigned by recorder) Peterson Ranch (No. 23)
*Recorded by: PAR Environmental Services, Inc. *Date 10/04/01 Continuation Update

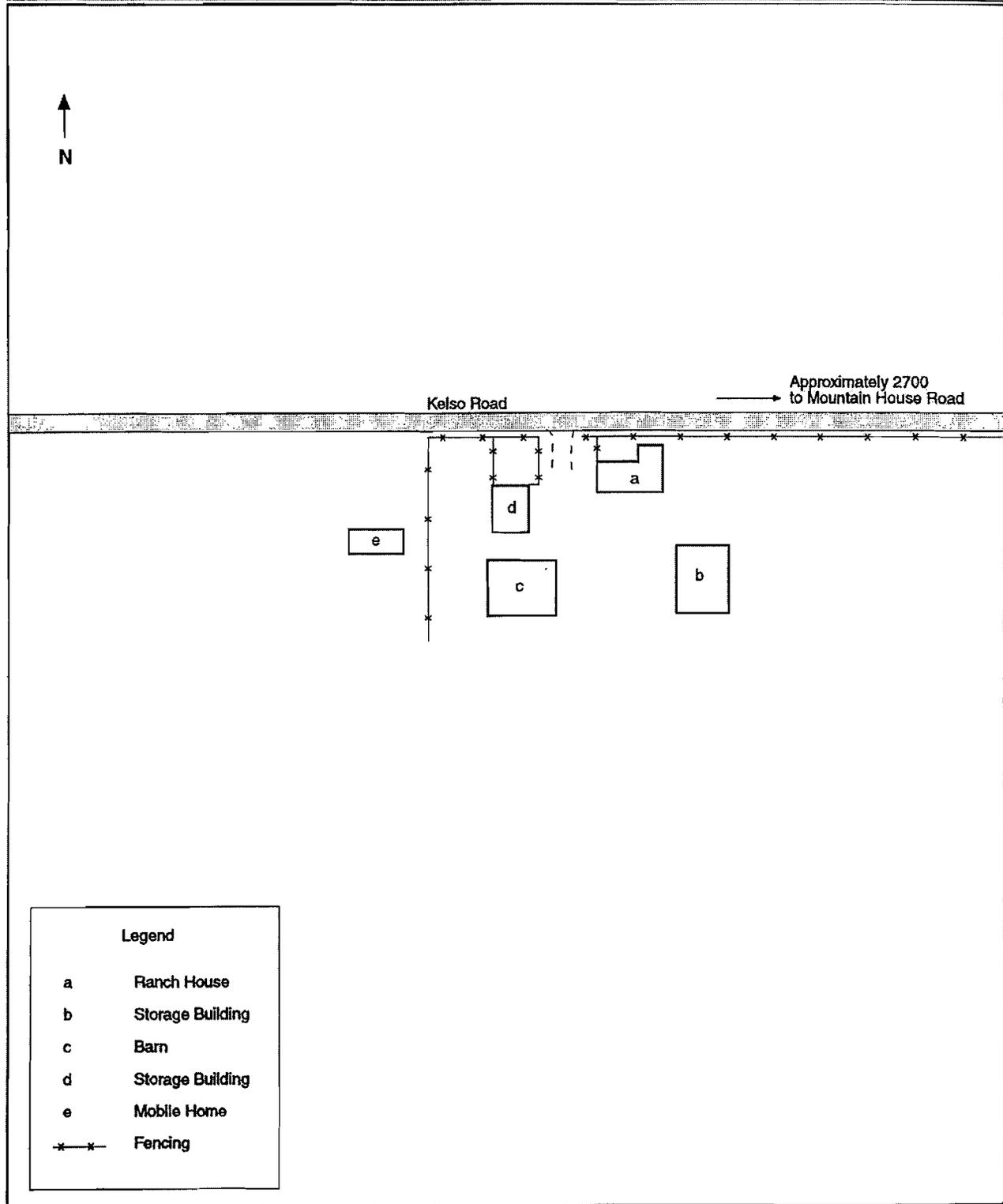
P5b.



Barn; View SE, 10/4/01, frame 5, Accession #01-944-BW-7



Storage building (d); View SW, 10/4/01, frame 22, Accession #01-944-BW-6



Historic Properties within the East Altamont Energy Center Project*

| Resource No. | Name/Address | Date of Construction | Not Evaluated | Appears Eligible | Appears Not Eligible |
|--------------|---|----------------------|---------------|------------------|----------------------|
| 1 | Southern Pacific Railroad Grade (segment of) | 1878 | | | X |
| 2 | Byron Bethany Road (segment of) | 1878 | | | X |
| 3 | Mountain House Road (segment of) | circa 1874 | | | X |
| 4 | Hurley-Tracy Transmission Line (segment of) | 1951 | | | X |
| 5 | Tracy-Contra Costa-Ygnacio Transmission Line (segment of) | circa 1946-1951 | | | X |
| 6 | Tracy-Los Vaqueros Transmission Line (segment of) | circa 1946-1951 | | | X |
| 7 | PG&E Distribution Line (segment of) | 1909 | | | X |
| 8 | West Side Irrigation District Complex, Wicklund Road | 1917 | | X | |
| 9 | Byron Bethany Irrigation District Canal | 1919, 1968 | | | X |
| 10 | Mountain House School 3950 Mountain House Road | 1923 | | | X |
| 11a | Tracy Pumping Station 16650 Kelso Road | 1952 | | X | |
| 11b | Tracy Switch Station 16650 Kelso Road | 1952 | | | X |
| 12 | Adobe Ranch Complex 17700 W. Byron Road | 1931 | | | X |
| 13 | Patteson Ranch 17491 and 17590 S. Kelso Road | circa 1920, 1940s | X | | |
| 14 | Ranch 16941 S. Kelso Road | circa 1940 | X | | |
| 15 | Livermore Yacht Club | 1937-1970s | X | | |
| 16 | Costa Ranch 5840 Lindeman Road | circa 1900, 1943 | X | | |
| 17 | Wing Ranch Kelso Road | circa 1944 | X | | |
| 18 | Dexter Ranch 17499 Kelso Road | circa 1917 | | | X |
| 19 | Holck Ranch 16606 Kelso Road | 1948 | | | X |
| 20 | Kuhn Ranch 4378 Mountain House Road | circa 1925 | | | X |
| 21 | Schropp Farm Complex 3880 Mountain House Road | circa 1944, 1960s | | | X |
| 22 | PG&E Substation Byron Bethany Road | circa 1910 | X | | |
| 23 | Peterson Ranch 15991 Kelso Road | circa 1956 | X | | |
| 24 | Griffith Property 15616 Kelso Road | circa 1950 | X | | |
| 25 | Clark Ranch 15685 Kelso Road | circa 1942 | X | | |
| 26 | Jess Property 15547 Kelso Road | circa 1940s | X | | |
| 27 | Delta Mendota Canal and Intake Channel (segment of) | 1946-1952 | | X | |

* See attached Figure 1

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-01-010442

HRI# _____

Trinomial _____

NRHP Status Code 6Z

Other Listings: _____

Review Code: _____

Reviewer: _____

Date: _____

Page 1 of 4

Resource Name or #: (assigned by recorder) Tracy Pumping Plant

P1. Other Identifier:

P2. Location: Not for Publication Unrestricted

(P2b and P2c or P2d. Attach a Location Map as necessary)

a. County Alameda

b. USGS 7.5' Quad: Clifton Court Forebay Date: 1978 T. 1S; R. 4E; SW 1/4 of 1/4 of Sec. 31; MD B.M.

(Map #4634)

[Section extrapolated—El Pescadero (Pico and Naglee) grant]

c. Address: 16650 Kelso Road

City: Byron

Zip: 94514

d. UTM: (Give more than one for large and/or linear resources)

Zone: 10; 624630 mE; 4184020 mN

e. Other Locational Data: (e.g. parcel#, directions to resource, elevation, etc., as appropriate) Entrance is 1800 feet west of the corner of Kelso Road and Mountain House Road northwest of Tracy at the head of the Delta Mendota Intake Canal.

P3a. Description:

(Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) The main facility is the Tracy Pumping Plant itself, a two story concrete block 362 feet long by 59 feet wide with a steel hoist frame on top, that spans the Delta Mendota Intake Canal. Inside are six pumps with discharge pipes 10 feet in diameter. Each pair of discharge pipes is Y-connected to a discharge pipe 15 feet in diameter, which discharge water into the Delta Mendota canal after a lift of 200 feet. Associated with the pumping plant, adjacent to the Western Area Power Administration's Tracy Switching Plant, are a small administration building, a control building and a prefab storage building.

P3b. Resource Attributes: (List attributes and codes) (HP4) Ancillary Building, (HP9) Public Utility

P4. Resources Present: Building Structure Object Site District Element of a District Other (Isolates etc.)

P5b. Description of Photo: (View, date, accession #) Pumping station viewed from the edge of the Delta Mendota Intake Canal, looking SSW, 3/15/02

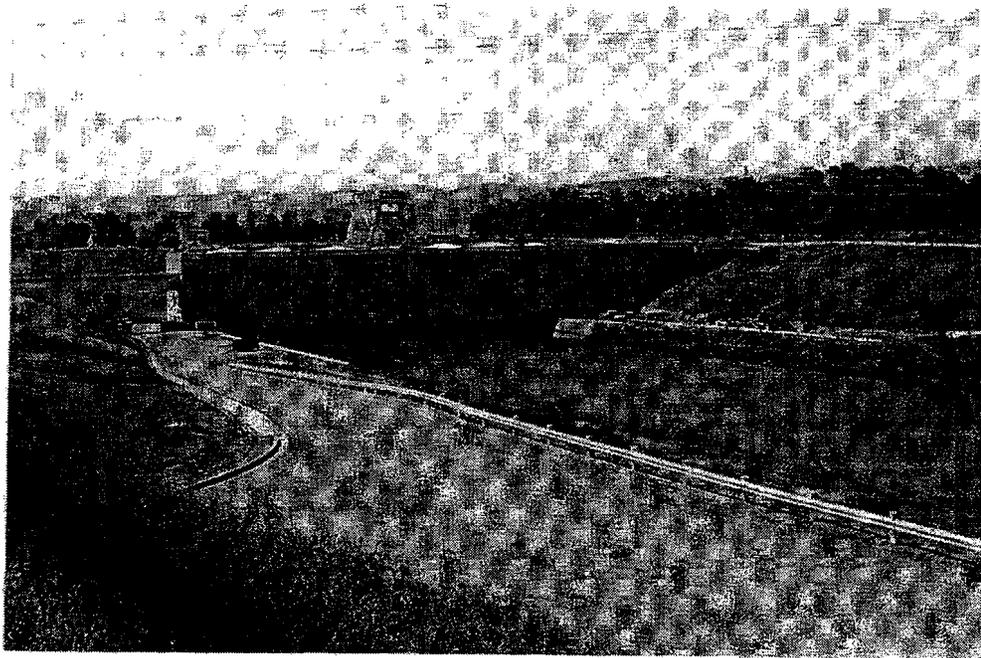
P6. Date Construction/Age and Sources: Historic
Prehistoric Both

P7. Owner and Address: Public-administered by the Bureau of Reclamation

P8. Recorded By: (Name, affiliation, and address)
Robert Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 20-329
El Dorado Hills, CA 95762

P9. Date Recorded: 3/15/02

P10. Survey Type: (Describe)
Recording only



P11. Report Citation: (Cite Survey report and other resources, or enter "none")

ATTACHMENTS: NONE Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record

Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record

Artifact Record Photograph Record Other: Photographic plates

b.
MAY - 1 2003

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary #: P-01-010442
 HRI #: _____

Page 2 of 4 *NRHP Status Code: 62

- B1. Historic Name: Tracy Pumping Plant
 B2. Common Name: same
 B3. Original Use: Pumping Plant B4. Present Use: same
 B5. Architectural Style: Concrete block-functional
 B6. Construction History: (Construction date, alterations, and date of alterations.)
 The Tracy pumping plant, intake canal and discharge lines were constructed between 1947 and 1951. The administration and control buildings were constructed at about the same time and a large prefabricated storage structure has been added recently.
 B7. Moved? No Yes Unknown Date: _____ Original Location: _____
 B8. Related Features: At entrance area: administration building, control building, storage facility, trailer/office and parking

- B9a. Architect: unknown b. Builder: Bureau of Reclamation
 B10. Significance: Theme _____ Area _____
 Period of Significance _____ Property Type _____ Applicable Criteria _____
 (Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
 The buildings are recent, designed for function rather than style and common in purpose and general aspects of design. If there is any significance to this property it is through association with the Delta Mendota Canal, but this too is one of many irrigation canals built throughout the west. The resource does not appear to be significant in terms of the National Register criteria.

B11. Additional Resource Attributes: (List attributes and codes) _____

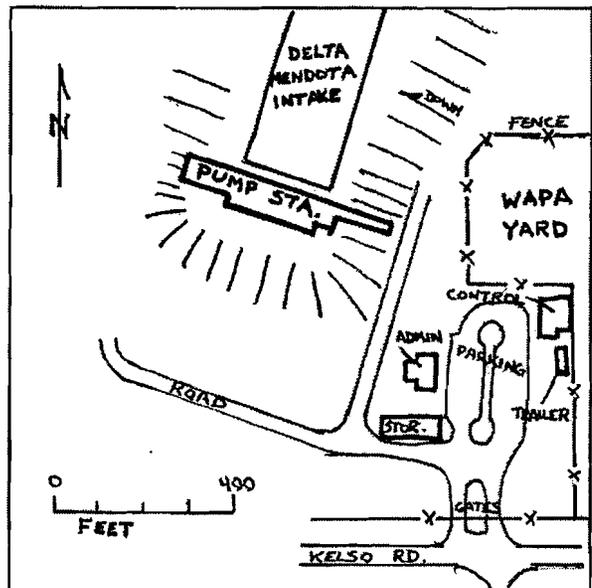
B12. References: See primary record and:
 Technical Record of Design and Construction: Tracy Pumping Plant and Intake Canal and Discharge Lines. Bureau of Reclamation, Denver, Colorado, 1959

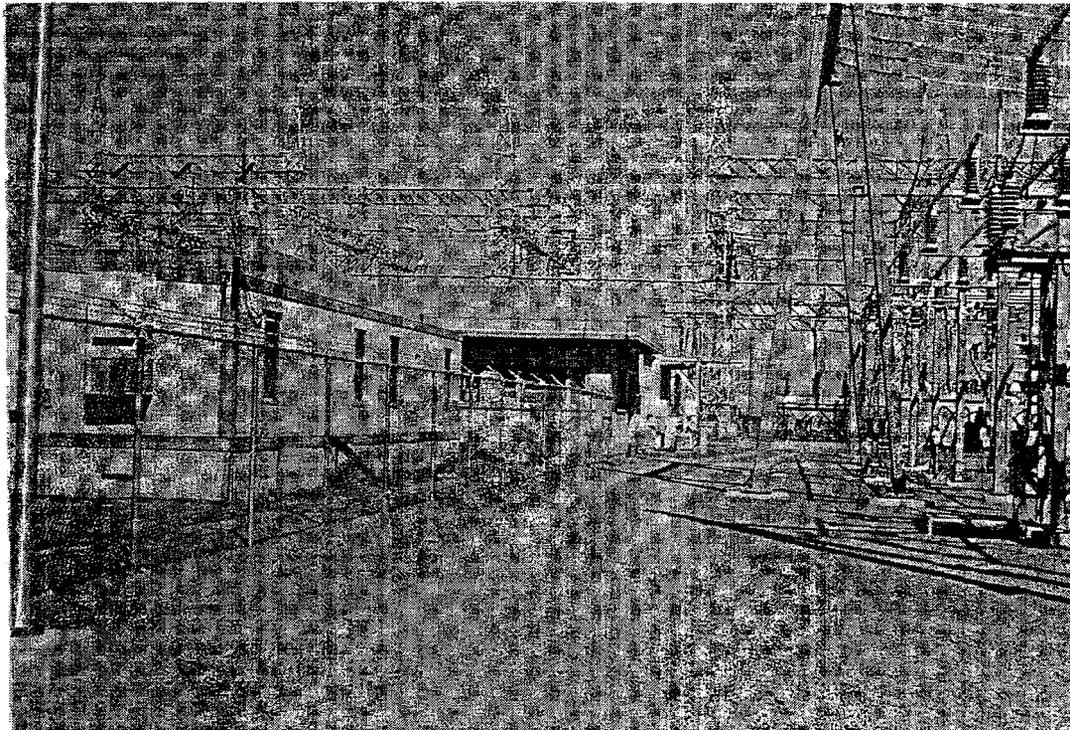
B13. Remarks:

B14. Evaluator: Melinda Peak and Robert Gerry, Peak & Associates, Inc.

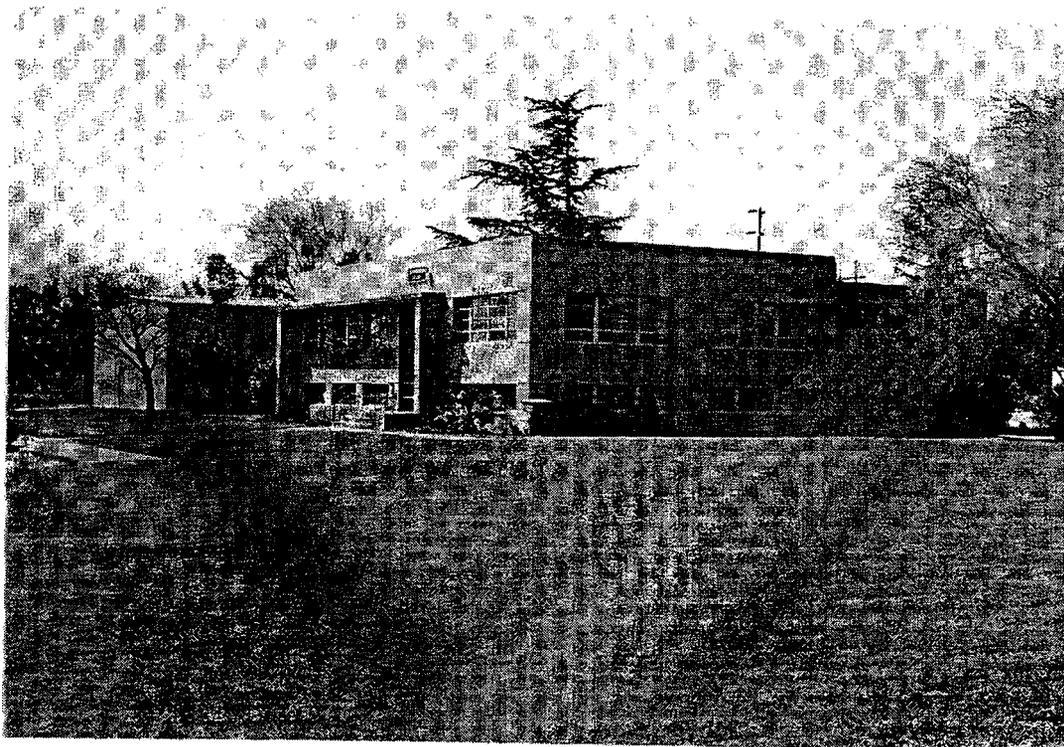
Date of Evaluation: 3/25/02

This space reserved for official comments.

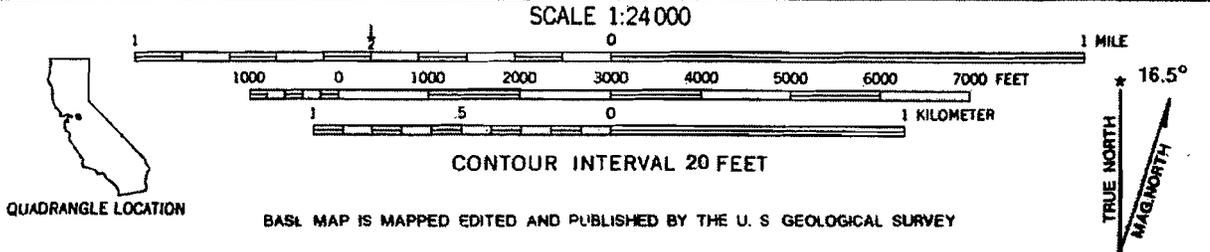
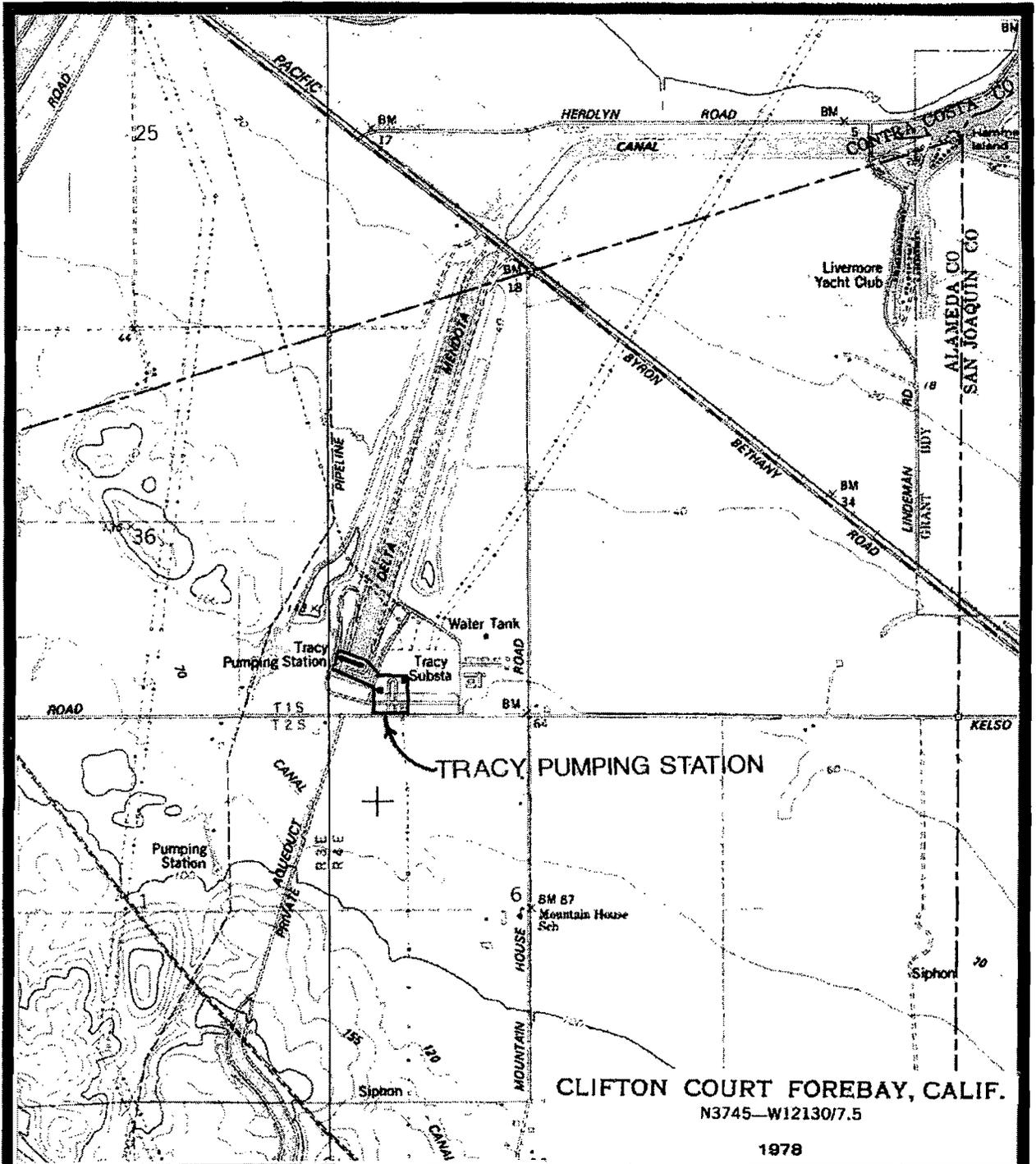




Control Building and adjunct trailer looking NNW from Tracy Switchyard



Administration building and storage facility (behind) looking SW



b.

State of California - The Resources Agency
 DEPARTMENT OF PARKS AND RECREATION
 PRIMARY RECORD

Primary # P-01-010442

HRI# _____

Trinomial _____

NRHP Status Code 3D

Other Listings _____

Review Code _____

Reviewer _____

Date _____

Page P1 of P5 *Resource Name or #: (Assigned by recorder) Tracy Pumping Station (No. 11a)

P1. Other Identifier: Tracy Pumping Station

*P2. Location: Not for Publication Unrestricted *a. County Alameda
 and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Clifton Court Forebay Date 1978 T 1S R 4E; unsectioned; MDM

c. Address 16650 Kelso Road (4634) City Byron Zip 94514

d. UTM: (Give more than one for large and/or linear resources) Zone 10 ; See Continuation Sheet

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

From Tracy, take Highway 280 west. Take the Mountain House Parkway exit. Proceed north to Byron Bethany Road. Turn left and go roughly two miles to Mountain House Road. Turn south on Mountain House Road. Proceed 1.25 miles. Turn west on Kelso Road and proceed less than .25 miles to gated entrance of station on right.

*P3a. Description: (Describe resource and its major elements. Include design, materials condition, alterations, size, setting and boundaries)

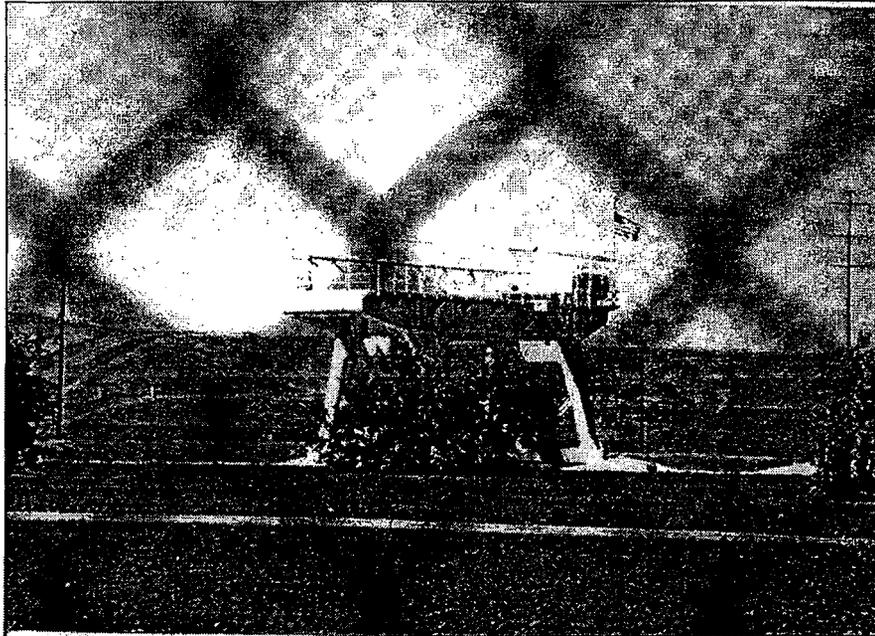
The Bureau of Reclamation constructed this complex from 1946 until its completion in 1952. It consists of three buildings, and a pumping facility associated with the Delta Mendota Canal. Due to restrictions of access, the complex was viewed and photographed from outside of fence lines along Kelso Road only. The entire complex is surrounded by chain-link fencing. To the western side of the complex, as well as the Tracy Switch Station complex to the north and east, is the Delta Mendota Canal, extending in a northeast-southwest direction, and the associated pumping plant (a). Viewed from Kelso Road, the only portion of the pumping plant that could be seen is a large steel structure that extends over the canal.

(continued)

*P3b. Resource Attributes: (List attributes and codes) HP11. Engineering structure, HP9. Public Utility building

*P4. Resources Present: Building Structure Object Site District Element of District Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures and objects.)



P5b. Description of Photo: (View, date, accession #) Pumphouse; View NW, 10/4/01, frame 20, Accession #01944-BW-6

*P6. Date Constructed/Age and

Sources: Historic
 Prehistoric Both
1952

*P7. Owner and Address:

USDI, Bureau of Reclamation
 2800 Cottage Way
 Sacramento, CA 95825

*P8. Recorded by: (Name, affiliation and address)

Tracy Bakic
 PAR Environmental Services, Inc.
 1906 21st Street, Sacramento

*P9. Date Recorded: 10/04/01

*P10. Survey Type: (Describe)
Inventory and evaluation

*P11. Report Citation: (Cite survey report and other sources, or enter "None")

None

*Attachments: NONE Location Map Sketch Map Continuation Sheet Building, Structure and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List)

DPR 523A (1/95)

*Required Information

MAR 29 2002

Page P2 of P5 *Resource Name or #: (Assigned by recorder) Tracy Pumping Station (No. 11a)
*Recorded by: PAR Environmental Services, Inc. *Date 10/04/01 Continuation Update

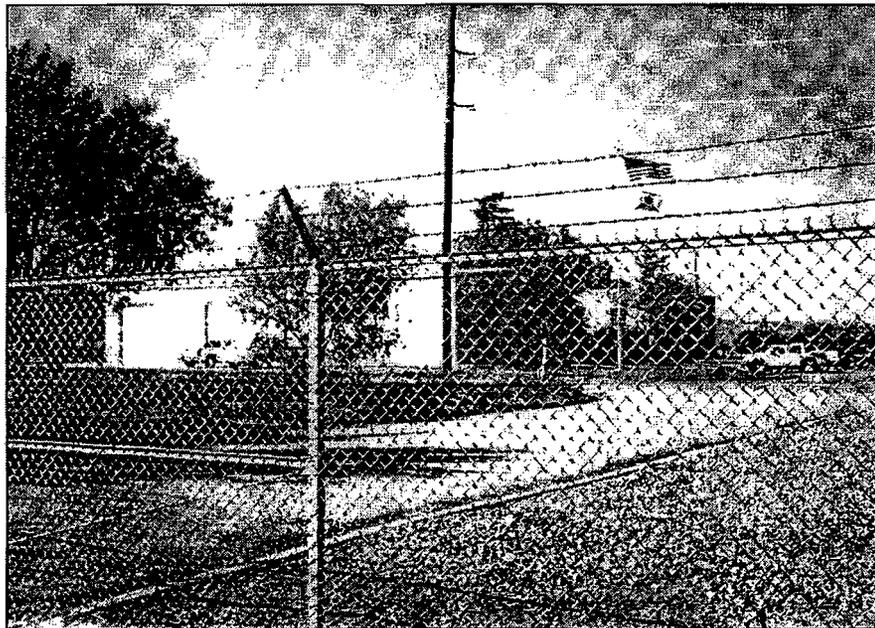
P2d.

- A. 0624528 mE, 4183807 mN
- B. 0624522 mE, 4184349 mN
- C. 0624792 mE, 4184275 mN
- D. 0624762 mE, 4183960 mN
- E. 0624850 mE, 4183965 mN
- F. 0624856 mE, 4183808 mN

P3a.

The paved entry into the complex from Kelso Road leads to a parking lot with two buildings to the west and one building to the east. The southwestern-most of the four buildings is a large rectangular metal-clad storage building. It has a low-pitched gable roof and a pedestrian door on the east side of metal roll-up bay doors on the south side. The northwestern building (c) is rectangular and is constructed of concrete. It appears to have two stories of interior space, a flat roof, an inset east side entry, and metal sash and louvered windows. The northeastern building (d) appears to be similar in construction materials and design to the previously described building, except it seems to only have one story. In October 2001, there was a modern mobile building directly south of building (d); this building was removed by January 2002 (Floyd Summers, personal communication 2002).

P5b.



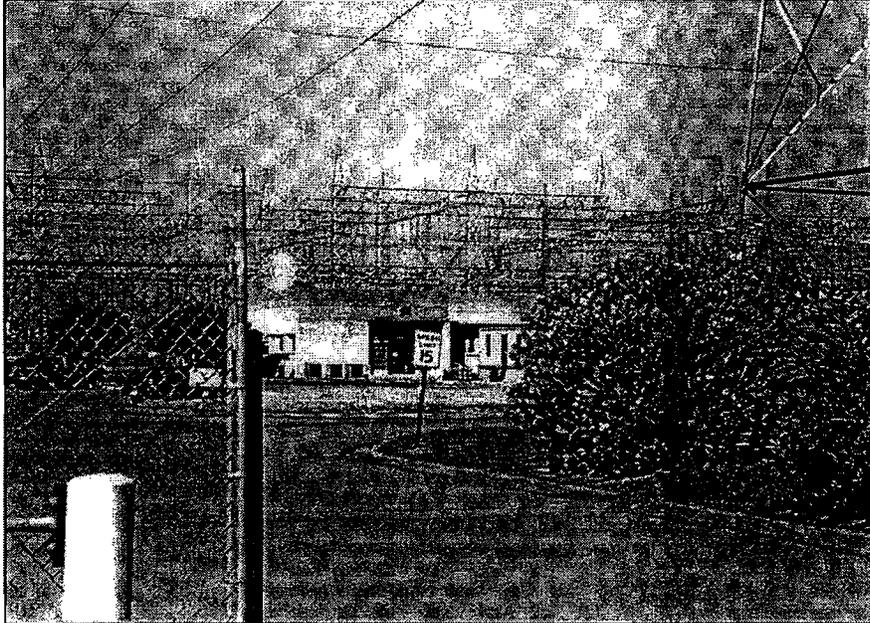
Storage building (b) and Office building (c, in background);
View NW, 10/4/01, frame 18, Accession #01-944-BW-6

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

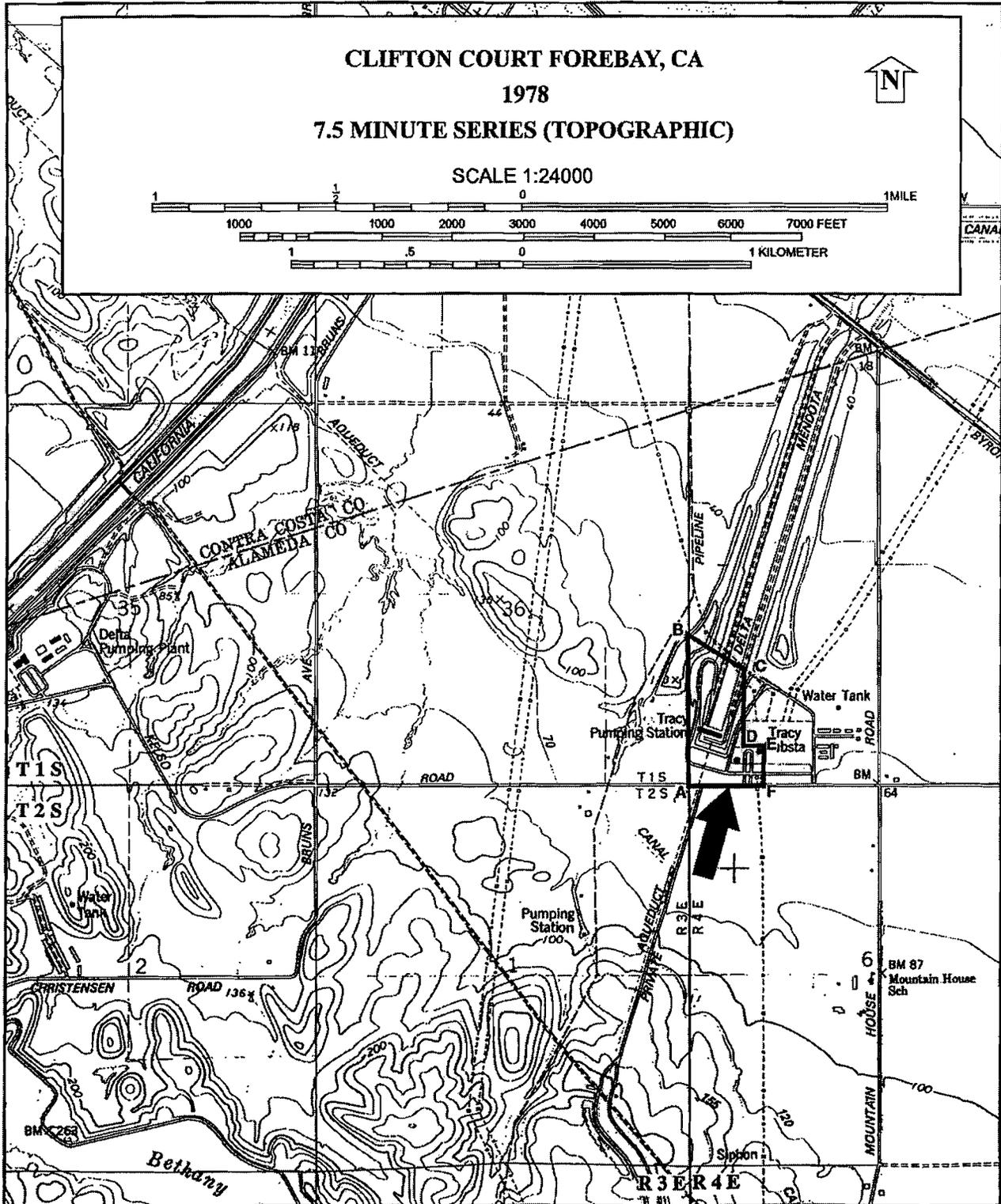
Primary # P-01-010442
HRI# _____
Trinomial _____

Page P3 of P5 *Resource Name or #: (Assigned by recorder) Tracy Pumping Station (No. 11a)
*Recorded by: PAR Environmental Services, Inc. *Date 10/04/01 Continuation Update

P5b.



Office building (d)
View NE, 10/4/01, frame 15, Accession #01-944-BW-6



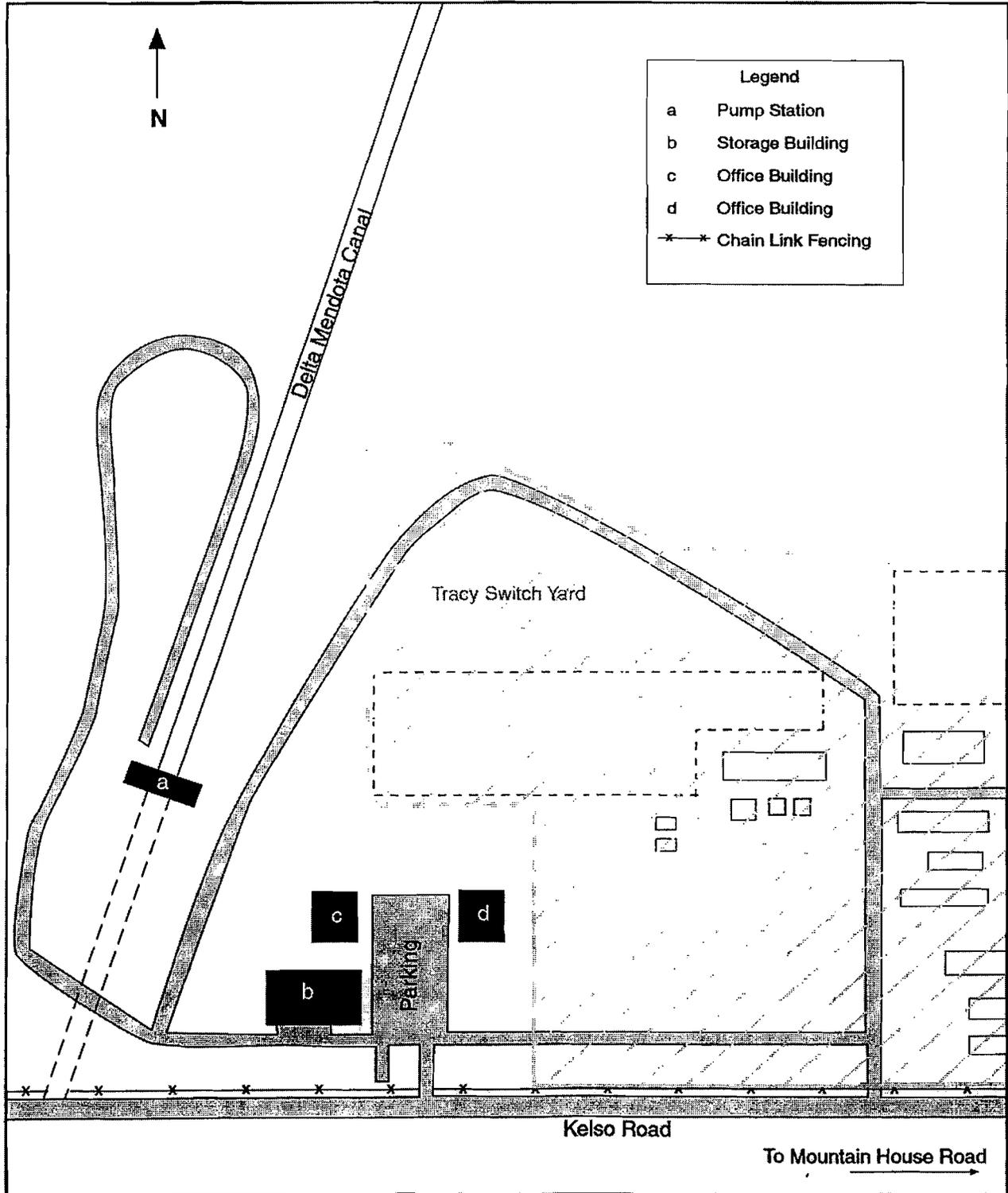
SITE SKETCH MAP

Page P5 of P5

* Resource Name or # (Assigned by recorder) Tracy Pumping Station (No. 11a)

Drawn by: Tracy Bakic

* Date of map: October 15, 2001



a.

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 3D

Page B1 of B2 *Resource Name or #: (Assigned by recorder) Tracy Pumping Station (No. 11a)

B1. Historic Name: Tracy Pumping Station

B2. Common Name: Tracy Pumping Station

B3. Original Use: Irrigation and water project B4. Present Use: Irrigation and Water Project

*B5. Architectural Style: 20th Century Public Utility (buildings include vernacular and modernistic styles)

*B6. Construction History: (Construction date, alterations, and date of alterations)

The pumping station was constructed between 1946 and 1952. The station has undergone normal maintenance and upgrade procedures in the last 50 years but there have been no major alterations to the site.

*B7. Moved? No Yes Unknown Date: _____ Original Location: _____

*B8. Related Features:

Delta Mendota Canal, Tracy Switch Station and the Hurley-Tracy, Tracy-Los Vaqueros, Tracy-Olinda, and Tracy-Contra Costa transmission lines

B9a. Architect: Bureau of Reclamation b. Builder Bureau of Reclamation

*B10. Significance: Theme Irrigation Area Alameda County

Period of Significance 1952 Property Type Industrial Applicable Criteria A

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity).

In the post-World War II prosperity of the 1940s, more far-reaching developments began to impact Tracy's agricultural economy. The Bureau of Reclamation began the Central Valley Project (CVP) in 1946, considered among the most massive human water developments ever attempted. This project consisted of two developments each containing a dam and a conduit. For Tracy, water that previously came from the San Joaquin River was dammed by the new Friant Dam. To replace Tracy's water, Shasta Dam was constructed to impound water in the southern Cascade Range, which was then delivered to the area by the Sacramento River. The Tracy Pumping Plant, completed in August 1951, lifted water 197 feet from the river into the Delta-Mendota Canal. The canal then carried the water 115 miles along the western San Joaquin Valley for irrigation. The Tracy Switching Station sits at the end of major high-tension transmission lines constructed as integral elements of the CVP to transfer power for operation of the massive pumping plant. The switching station is basically a substation and switching yards where power is stepped up or down depending on its direction of transmission. The Switching Station is operated by the Western Area Power Administration today (United States Department of the Interior [USDI] 1981:014-015).

The Tracy Pumping Plant includes an inlet channel, the plant itself, and discharge pipes. Water stored in Shasta, Claire Engle, and Folsom Lakes, or draining to the Sacramento River below Folsom, is taken from the inlet channel (fitted with the Tracy Fish Screen) and lifted 197 feet into the Delta Mendota Canal. There are six pumps, each powered by a 22,500-horsepower motor. Each is capable of pumping 767 cubic feet per second. Three 15-foot-diameter discharge pipes carry the water one mile to the Delta-Mendota Canal. The fish screen intercepts downstream migrating fish to be placed into the main channel leading to the ocean (Bureau of Reclamation web site).

Historical resources can be eligible for the National Register of Historic Places (National Register) if they are associated with events that have made a significant contribution to the broad patterns of our history (Criterion A), with persons important in the past (Criterion B), with manmade expressions of culture or technology (Criterion C), or are likely to yield important information about prehistory or history (Criterion D).

The Tracy Pumping Station is associated with the development of the Central Valley Project (CVP), California's statewide water control project that made a significant contribution to the development of agricultural operations and communities throughout California's inland valleys. As an integral part of the CVP, the Tracy Pumping Station appears to be eligible for the National Register under Criterion A. The Tracy Pumping Station is not associated with any individual person, since it was designed by the United States Department of the Interior, Bureau of Reclamation. As such, it does not appear eligible for the National Register under Criterion B. The pumping station is a massive pump designed to lift a vast quantity of water into the DMC. While the pump facility's basic function and design does not represent a technological breakthrough, it was unique in scale. As such, the Tracy Pumping Station does appear eligible under Criterion C. The station does not have any archaeological resources and plans of its construction are on file with the Bureau of Reclamation. As such, the station does not have the ability to yield important information about prehistory or history and, therefore, does not appear eligible under Criterion D. Its period of significance would be 1952, the year the project was completed.

(continued)

a.

***B10.**

The pump station has a high degree of all seven types of integrity including setting, materials, location, feeling, association, workmanship, and design. In this light, the Tracy Pump Station appears eligible for the National Register under criteria A and C with a period of significance of 1952, the year it was completed. As such, the pump station also appears to be an historic resource for the purposes of the California Environmental Quality Act.

In recent years, numerous cultural resource specialists have addressed the historical significance of the CVP. All have determined the CVP to be of great historic importance as one of the first civil engineering projects designed for the control and delivery water on a massive scale (Hattersley-Drayton 2000; JRP Historic Consulting Services 2000; San Luis and Delta Mendota Water Authority 2001). In this light, the current form has been prepared with the assumption that the CVP is eligible for the National Register and could potentially be recorded in the future as an historic district. As an integral component of the CVP, the Tracy Pumping Station would today apparently be a contributor to the CVP historic district.

B11. Additional Resource Attributes: (List attributes and codes)

HP4. Ancillary building, HP11. Engineering structure,
HP9. Public Utility building

***B12. References:**

Hattersley-Drayton, Karana

2000 *Historic Architectural Survey Report and Historic Resource Evaluation Report for Rehabilitation State Route 165, Merced County.* California Department of Transportation, District 6.

JRP Historic Consulting Services

2000 *Water Conveyance Systems in California.* California Department of Transportation, Environment Program, Cultural Studies Office, Sacramento.

San Luis and Delta Mendota Water Authority

2001 *The Delta Mendota Canal.* http://sldmwa.org/delta-mendota_canal.

Summers, Floyd

2002 Personal communications with Cindy Baker.

United States Department of the Interior

1981 *Water and Power Resources Service, Project Data.* United States Department of the Interior, Water and Power Resources Service, Mid-Pacific Region. On file, Mid-Pacific Region Library, U.S. Bureau of Reclamation, Sacramento, California.

B13. Remarks: None

(Sketch Map with north arrow required.)

***B14. Evaluator:** Cindy Baker

PAR Environmental Services, Inc.

Date of Evaluation: 10/15/01

See Sketch Map

(This space reserved for official comments.)

a.

Historic Properties within the East Altamont Energy Center Project*

| Resource No. | Name/Address | Date of Construction | Not Evaluated | Appears Eligible | Appears Not Eligible |
|--------------|---|----------------------|---------------|------------------|----------------------|
| 1 | Southern Pacific Railroad Grade (segment of) | 1878 | | | X |
| 2 | Byron Bethany Road (segment of) | 1878 | | | X |
| 3 | Mountain House Road (segment of) | circa 1874 | | | X |
| 4 | Hurley-Tracy Transmission Line (segment of) | 1951 | | | X |
| 5 | Tracy-Contra Costa-Ygnacio Transmission Line (segment of) | circa 1946-1951 | | | X |
| 6 | Tracy-Los Vaqueros Transmission Line (segment of) | circa 1946-1951 | | | X |
| 7 | PG&E Distribution Line (segment of) | 1909 | | | X |
| 8 | West Side Irrigation District Complex, Wicklund Road | 1917 | | X | |
| 9 | Byron Bethany Irrigation District Canal | 1919, 1968 | | | X |
| 10 | Mountain House School 3950 Mountain House Road | 1923 | | | X |
| 11a | Tracy Pumping Station 16650 Kelso Road | 1952 | | X | |
| 11b | Tracy Switch Station 16650 Kelso Road | 1952 | | | X |
| 12 | Adobe Ranch Complex 17700 W. Byron Road | 1931 | | | X |
| 13 | Patteson Ranch 17491 and 17590 S. Kelso Road | circa 1920, 1940s | X | | |
| 14 | Ranch 16941 S. Kelso Road | circa 1940 | X | | |
| 15 | Livermore Yacht Club | 1937-1970s | X | | |
| 16 | Costa Ranch 5840 Lindeman Road | circa 1900, 1943 | X | | |
| 17 | Wing Ranch Kelso Road | circa 1944 | X | | |
| 18 | Dexter Ranch 17499 Kelso Road | circa 1917 | | | X |
| 19 | Holck Ranch 16606 Kelso Road | 1948 | | | X |
| 20 | Kuhn Ranch 4378 Mountain House Road | circa 1925 | | | X |
| 21 | Schropp Farm Complex 3880 Mountain House Road | circa 1944, 1960s | | | X |
| 22 | PG&E Substation Byron Bethany Road | circa 1910 | X | | |
| 23 | Peterson Ranch 15991 Kelso Road | circa 1956 | X | | |
| 24 | Griffith Property 15616 Kelso Road | circa 1950 | X | | |
| 25 | Clark Ranch 15685 Kelso Road | circa 1942 | X | | |
| 26 | Jess Property 15547 Kelso Road | circa 1940s | X | | |
| 27 | Delta Mendota Canal and Intake Channel (segment of) | 1946-1952 | | X | |

* See attached Figure 1

a.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-07-002547
HRI # _____
Trinomial CA-CCO-738H
NRHP Status Code _____
Other _____
Review Code _____ Reviewer _____ Date _____

Page 1 of 5 Resource Name or #: (Assigned by recorder) Byron Bethany Irrigation District Main Canal (No.9)

UPDATE OF RECORD

P1. Other Identifier: P-39-004312; P-01-010445; CA-ALA-594H

*P2. Location: Not for Publication Unrestricted *a. County Contra Costa County

and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Clifton Court Forebay Date 1978

T 1S; R 3E; NE ¼ of Sec 22; MDM B.M.

T 1S; R 3E; SE ¼ of SE ¼ of Sec 23; MDM B.M.

T 1S; R 3E; N ½ of Sec 26; MDM B.M.

c. Address Vicinity of City Byron, CA Zip 94514

d. UTM: (Give more than one for large and/or linear resources) See Continuation Sheet

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

APN Numbers 001-011-011, 001-031-014, 001-031-013, 001-031-016

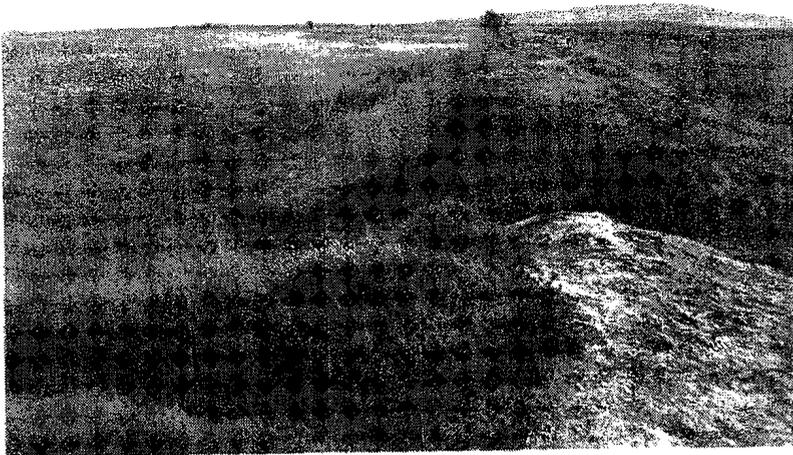
From the town of Byron, CA travel south on the Byron Highway (Contra Costa County Road J4) to Byron Hot Springs Road. Turn right (south) on Byron Hot Springs Road and follow for 1.25 miles to the intersection of Holey Road. Park here. Byron Bethany Irrigation District Main Canal (No.9) is visible immediately adjacent to (south of) this intersection.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) Three segments of the canal within Contra Costa County not recorded previously. Segment 2 is a short segment that appears to have been completely rebuilt ca 1990 for the construction of the main runway of the Byron Airport. This segment does not retain any integrity of design or construction, just location. Segment 3 is a short segment that appears to have been abandoned in 1990. However, this segment retains some integrity of the 1917 design, construction and location.

*P3b. Resource Attributes: (List attributes and codes) HP20. Canal/Aqueduct

*P4. Resources Present: Building Structure Object Site District Element of District
 Other (Isolates, etc.)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)



P5b. Description of Photo: (view, date, accession #) Photo of

*P6. Date Constructed/Age and Sources: Historic 1917
 Prehistoric Both

*P7. Owner and Address:

Contra Costa County

Byron Airport

500 Eagle Court

Byron, CA 94514

*P8. Recorded by: (Name, affiliation, and address)

Sean Dexter, Armando Cuellar

Condor Country Consulting

808 Arlington Way

Martinez, CA 94553-1575

*P9. Date Recorded: 10/15/2005

*P10. Survey Type: (Describe)

Intensive pedestrian

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Dexter, Sean.
2005. Cultural Resources

Reconnaissance of the Byron Airport, Contra Costa County, CA.

*Attachments: NONE Location Map Continuation Sheet Building, Structure, and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List):

Page 2 of 5

*Resource Name or # (Assigned by recorder) Byron Bethany Irrigation District Main Canal (No.9)

*Recorded by: Sean D. Dexter, Armando A. Cuellar *Date Recorded September 15, 2005 Continuation Update

P2d. UTM (continued):

| | |
|---|--|
| A | Zone 10, 621,080 mE/ 4,188,337 mN 1927 NAD |
| B | Zone 10, 621,105 mE/ 4,187,969 mN 1927 NAD |
| C | Zone 10, 621,498 mE/ 4,187,164 mN 1927 NAD |
| D | Zone 10, 622,037 mE/ 4,186,742 mN 1927 NAD |
| E | Zone 10, 622,128 mE/ 4,186,731 mN 1927 NAD |
| F | Zone 10, 622,606 mE/ 4,186,194 mN 1927 NAD |
| G | Zone 10, 621,601 mE/ 4,186,956 mN 1927 NAD |

***P3a. Description (continued):**

Segment 4 is a short segment that appears to have been partially rebuilt ca 1990 for the construction of the Byron Airport (a new pumping plant UTM #E), and the concrete lined segment constructed in 1968. This segment does not retain any integrity of design or construction, just location.

At UTM point G there is a 20' long, 12' wide wooden bridge constructed over the canal. It is constructed of 4"x12" planks nailed on 18" center over 4"x12" beams. Beams rest on two concrete bridge abutments and are supported in the center of span by five 8"x6" timber supports. Bridge abutments appear to be quite old with river rock aggregate in the concrete matrix; probably dates to 1917/1919. There is a breach in the levee approximately 20' south of the bridge. Other than some rodent damage to levee, it appears intact.

P5b. Description of Photo (continued)



Photo of bridge over Byron Bethany Irrigation District Main Canal (No.9), Segment 3 near UTM point G; view towards South



Photo of bridge over Byron Bethany Irrigation District Main Canal (No.9). Segment 3 near UTM point G; view towards South

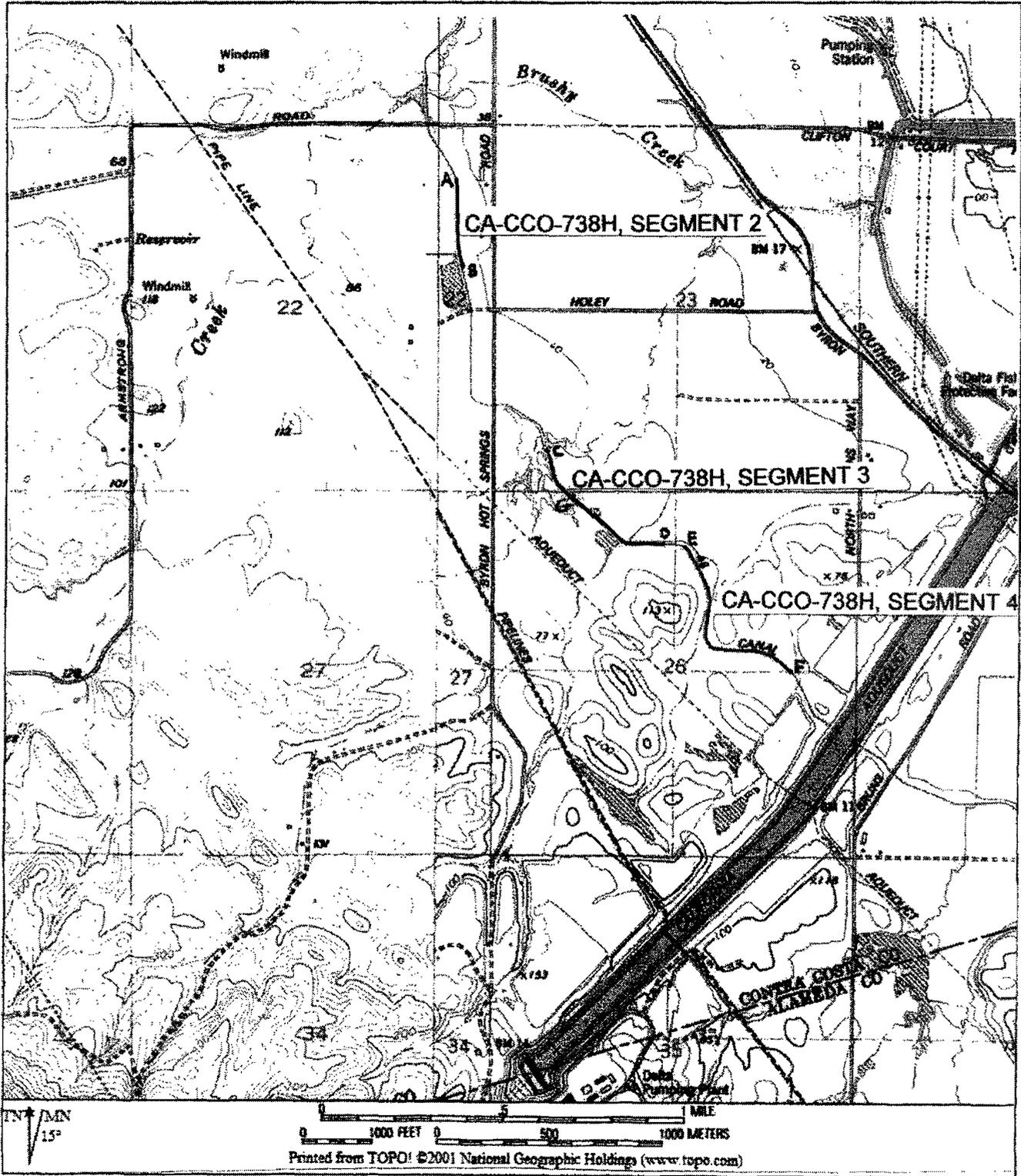


Photo of bridge over Byron Bethany Irrigation District Main Canal (No.9), Segment 3 at UTM point G; view towards northeast



Photo of bridge over Byron Bethany Irrigation District Main Canal (No.9), Segment 3 at UTM point G; view towards north

d.



d.

CA-ALA-594

CA-ALA-594

This trinomial was inadvertently assigned to two different resources with two different Primary Numbers, P-01-002258 and P-01-010445. This trinomial has been removed from P-01-002258 because it is a resource type that has not been recorded on the forms required for a trinomial to be assigned. The Trinomial has been retained with the Primary Number P-01-010445 and the records are located in the corresponding file:

P-01-010445

6 April 2005
Leigh Jordan
Coordinator NWIC

Q

P-07-002547 ✓
CA-CCO-738H

P-39-004312

P-07-002547
CA-CCO-738H

P-39-004312

This resource has been assigned three Primary Numbers and two Trinomials, one Primary Number for each of the three counties in which it is located. The Central California Information Center staff did not elect to assign a Trinomial when they assigned the Primary Number, P-39-004312. Please see the following Primary File for the Record:

P-01-010445

25 July 2002
Leigh Jordan
NWIC Coordinator

| | | |
|--|------------------|---------------------------|
| State of California - The Resources Agency DEPARTMENT OF PARKS AND RECREATION PRIMARY RECORD | Primary # | P-01-010445 / P-07-002547 |
| | HRI# | |
| | Trinomial | CA-ALA-594H/CA-CCO-738H |
| | NRHP Status Code | 6Z |
| Other Listings | Reviewer | Date |
| Review Code | | |

Page P1 of P5 *Resource Name or #: (Assigned by recorder) Byron Bethany Irrigation District Main Canal (No. 9)

P1. Other Identifier: N/A

*P2. Location: Not for Publication Unrestricted *a. County Alameda/ Contra Costa/San Joaquin
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Clifton Court Forebay Date 1978 See Continuation Sheet

c. Address N/A (4634) City Byron/Tracy Area Zip N/A

d. UTM: (Give more than one for large and/or linear resources) Zone 10 ; See Continuation Sheet

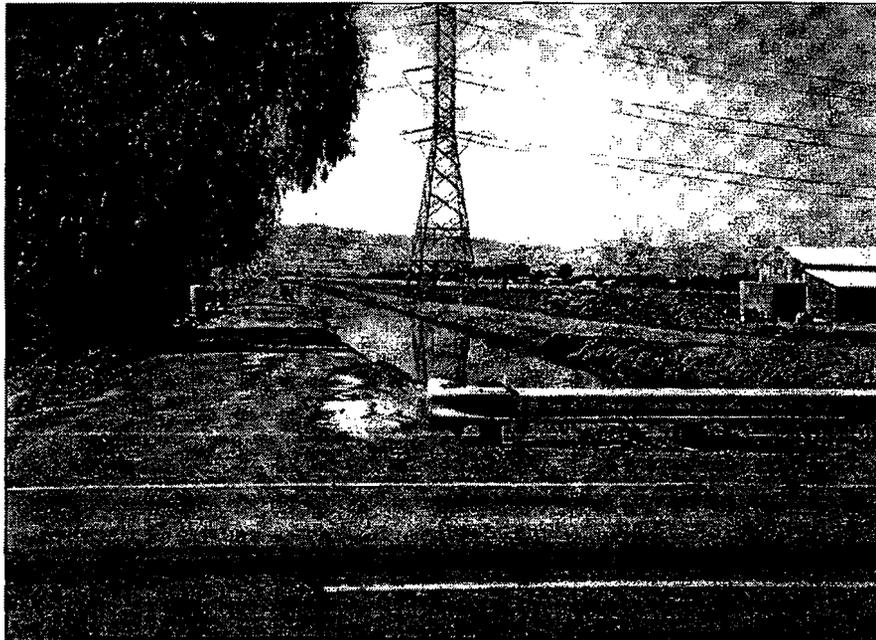
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
From Tracy, go west on Highway 280. Exit at Mountain House Parkway and go north. Turn left on Byron-Bethany Road. Go northwest 3.5 miles.

*P3a. Description: (Describe resource and its major elements. Include design, materials condition, alterations, size, setting and boundaries).
Constructed in 1919, the Byron Bethany Irrigation District Main Canal was significantly modified in 1968. It was in 1968 that all original pumps were replaced with modern equipment. Turnout gates were also replaced and many ditches and canals were improved.

*P3b. Resource Attributes: (List attributes and codes) HP20. Canal/Aqueduct

*P4. Resources Present: Building Structure Object Site District Element of District Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures and objects.)



P5b. Description of Photo: (View, date, accession #) Viewed from Mountain House Rd., View NW, 9-21-01, frame 4, Accession #01-944-BW-1

*P6. Date Constructed/Age and Sources: Historic Prehistoric Both
Circa 1919, 1968

*P7. Owner and Address:
Byron Bethany Irrigation District
3944 Main Street
Byron, CA

*P8. Recorded by: (Name, affiliation and address)
Tracy Bakic/Cindy Baker
PAR Environmental Services, Inc.
1906 21st Street, Sacramento

*P9. Date Recorded: 10/04/01

*P10. Survey Type: (Describe)
Inventory and evaluation

*P11. Report Citation: (Cite survey report and other sources, or enter "None")
None.

*Attachments: NONE Location Map Sketch Map Continuation Sheet Building, Structure and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List) a.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P-01-010445 / P-07-002547
HRI#
Trinomial CA-ALA-594H / CA-COO-738H

Page P2 of P5 *Resource Name or #: (Assigned by recorder) Byron Bethany Irrigation District Main Canal (No. 9)
*Recorded by: PAR Environmental Services, Inc. *Date 10/04/01 Continuation Update

P2b.

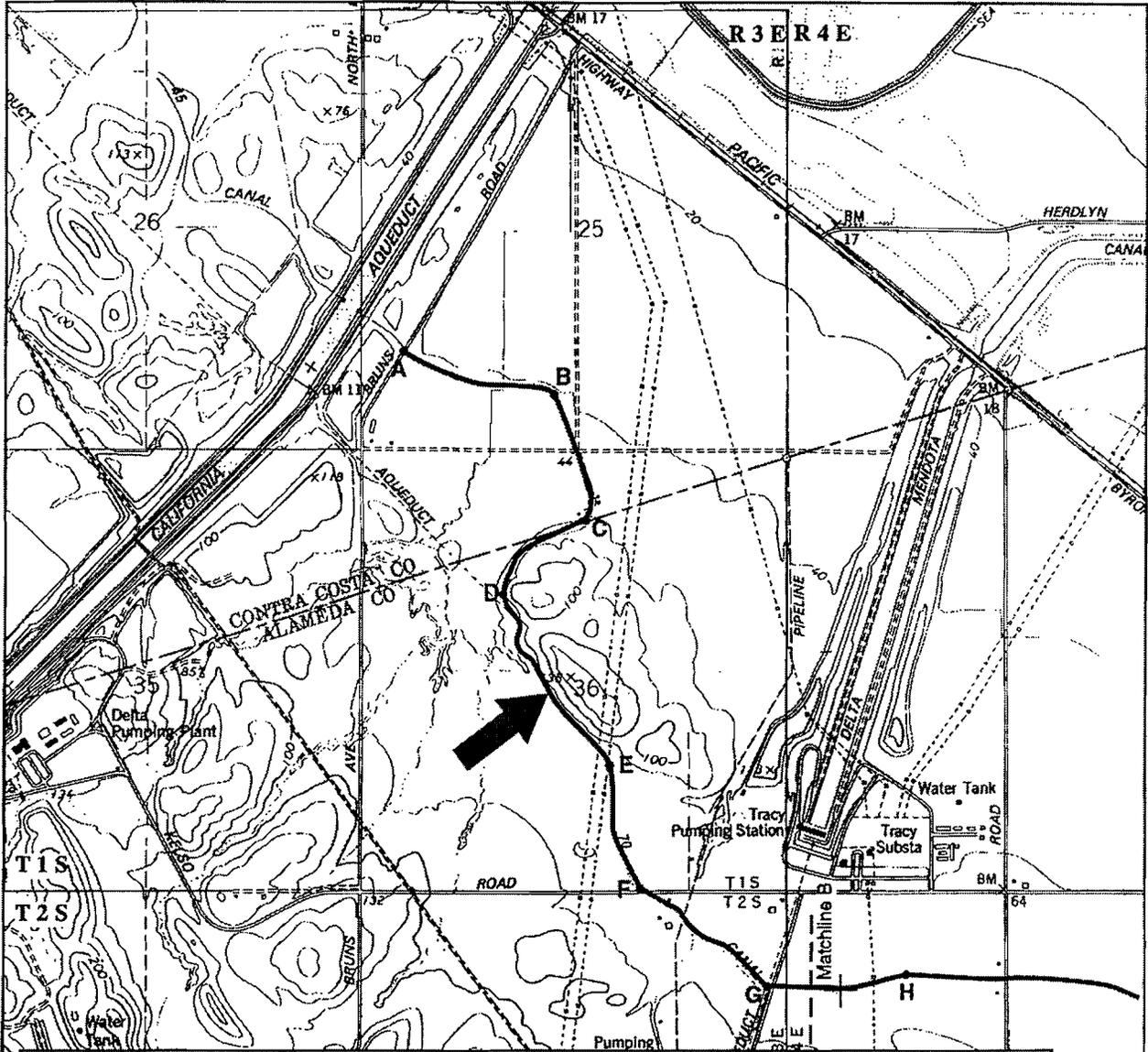
T1S, R3E; SE1/4 of Sec. 25
T1S, R3E; Sec. 36
T1S, R3E; NE1/4 of Sec. 1
T1S, R4E; Sec. 6
T1S, R4E; unsectioned
T1S, R4E; SW1/4 of Sec. 4
T1S, R4E; NW1/4 of Sec. 9

The canal is within the Mount Diablo Meridian.

P2d.

A. 0623070 mE, 4185756 mN
B. 0623587 mE, 4185633 mN
C. 0623755 mE, 4185115 mN
D. 0623446 mE, 4184876 mN
E. 0623853 mE, 4184277 mN
F. 0623959 mE, 4183754 mN
G. 0624748 mE, 4183451 mN
H. 0624972 mE, 4186486 mN
I. 0625721 mE, 4183486 mN
J. 0628209 mE, 4182148 mN

Page P3 of P5 * Resource Name or # (Assigned by recorder) Byron Bethany Irrigation District Main Canal (No. 9)
*Map Name: Clifton Court Forebay, CA 7.5 Minute USGS quadrangle *Scale 1:24,000 * Date of map: 1978



CLIFTON COURT FOREBAY, CA
1978
7.5 MINUTE SERIES (TOPOGRAPHIC)

SCALE 1:24000

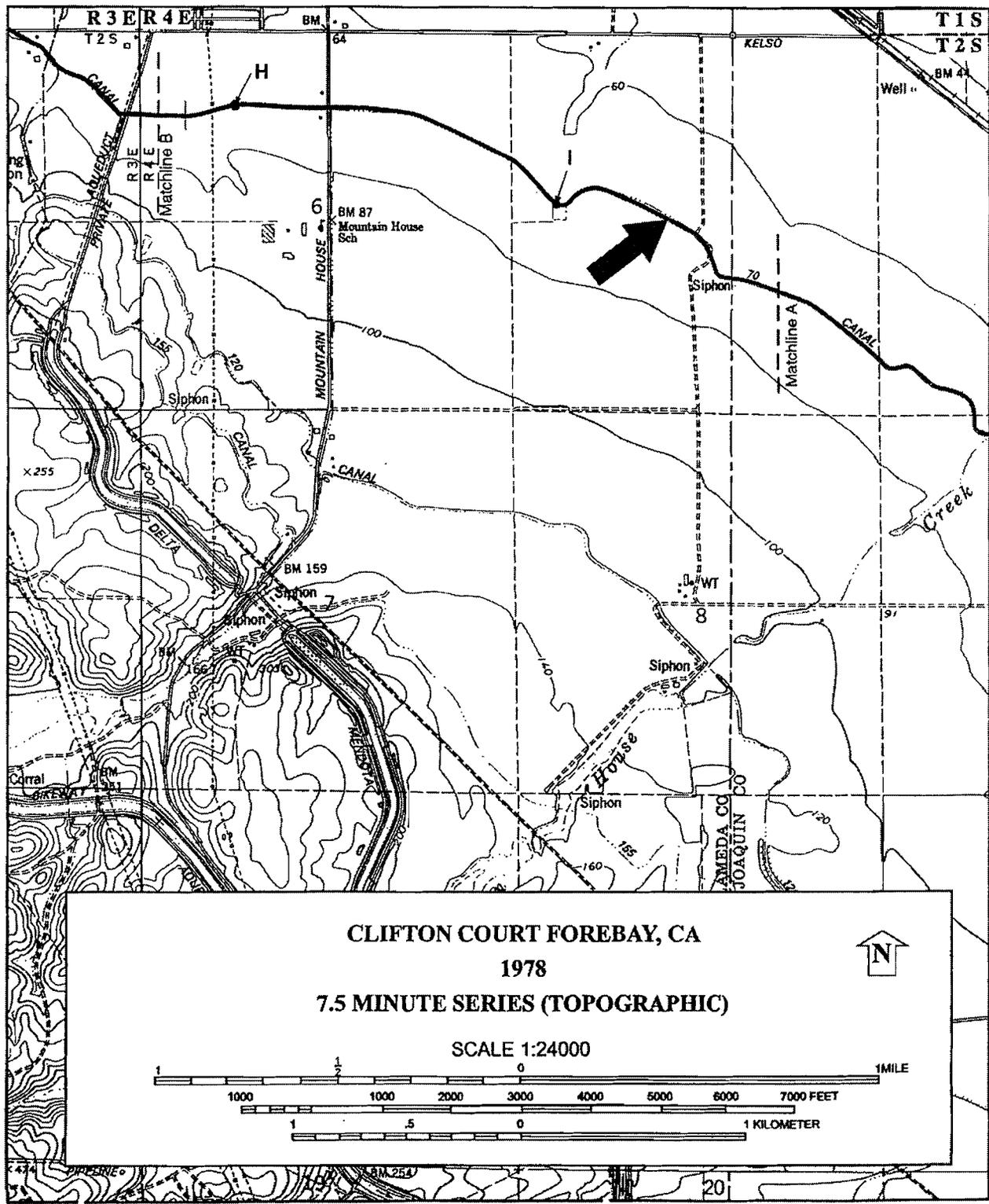
1 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

↑ N

a.

Page P4 of P5 * Resource Name or # (Assigned by recorder) Byron Bethany Irrigation District Main Canal (No. 9)
 *Map Name: Clifton Court Forebay, CA 7.5 Minute USGS quadrangle *Scale 1:24,000 * Date of map: 1978

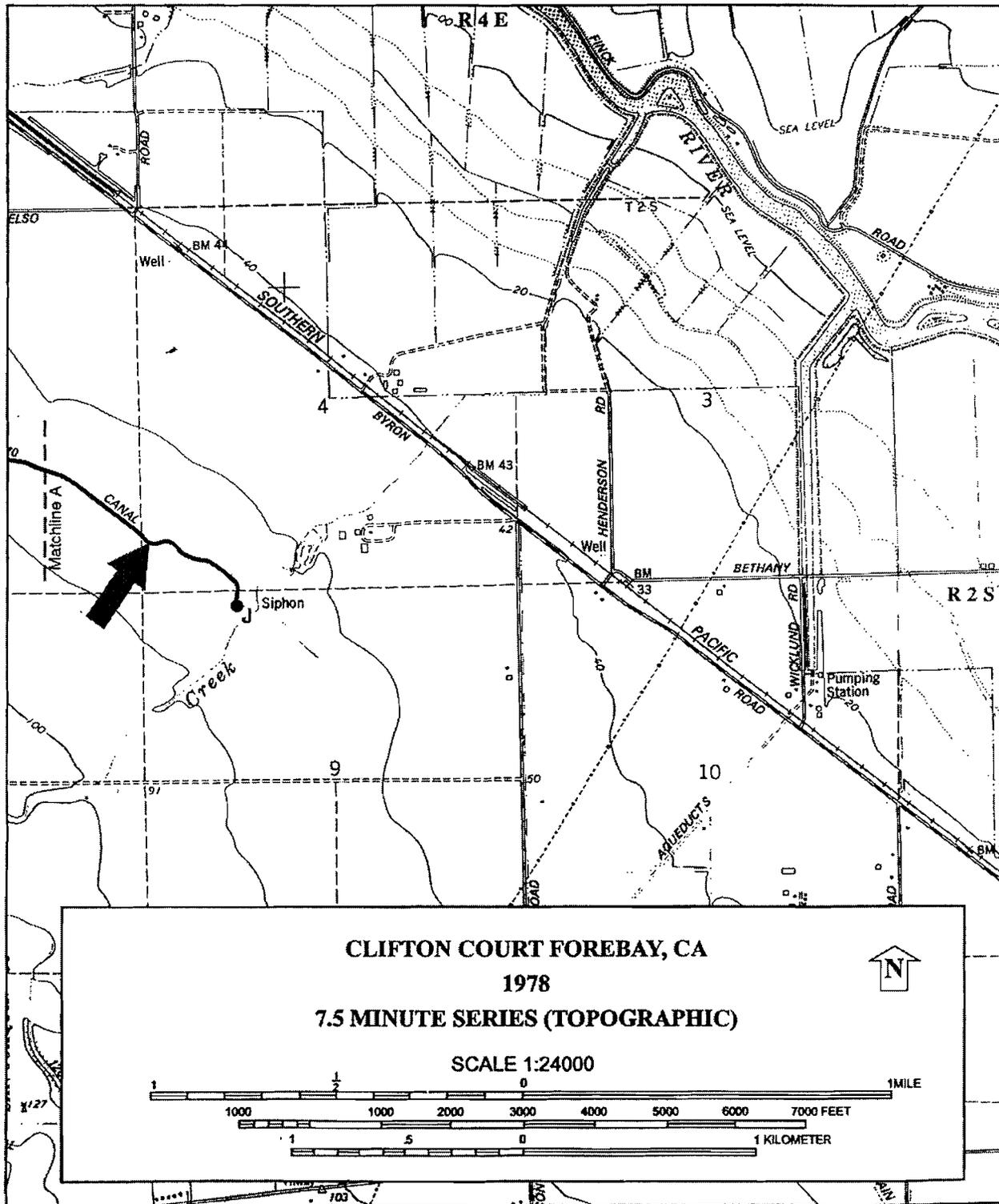


CLIFTON COURT FOREBAY, CA
 1978
 7.5 MINUTE SERIES (TOPOGRAPHIC)

SCALE 1:24000

1 MILE
 1000 1000 2000 3000 4000 5000 6000 7000 FEET
 1 .5 0 1 KILOMETER

a.



a.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-01-010445 / P-07-002547
HRI# _____
Trinomial CA-ALA-549H / CA-CCO-738H

Page L1 of L2 *Resource Name or #: (Assigned by recorder) Byron Bethany Irrigation District Canal (No. 9)

L1. Historic and/or Common Name: Byron Bethany Irrigation District Canal

L2a. Portion Described: Entire Resource Segment Point Observation Designation: 6Z

b. Location of point or segment (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map)

From Tracy, go west on Highway 280. Exit at Mountain House Parkway and go north. Turn left on Byron-Bethany Road. Go northwest 3.5 miles. The UTM coordinates for this site are Zone 10, T1S, R3E, SE1/4 of Sec. 25; T1S, R3E, Sec. 36; T1S, R3E, NE1/4 of Sec. 1; T1S, R4E, Sec. 6; T1S, R4E, unsectioned; T1S, R4E, SW1/4 of Sec. 4; and T1S, R4E, NW1/4 of Sec. 9.

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate)

The canal was constructed in 1919 as an earthen ditch. Today sections of it have been improved and are concrete-lined. Major alterations were made to the ditch in 1968 as part of a system-wide renovation program.

L4. Dimensions: (In feet for historic features and Meters for prehistoric features)

L4e. Sketch of Cross-Section (Include scale)

Facing: _____

a. Top Width Approximately 12 feet

b. Bottom Width Approximately 8 feet

c. Height or Depth Approximately 4 feet

N/A

d. Length of Segment Approximately 4 miles

L5. Associated Resources:

Turnout gates for local distribution ditches

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate)

The segment of the canal in the project area meanders along a contour line from west to east over gently rolling largely undeveloped ranch land. An exception to this is where the canal must cross the massive Delta Mendota Canal system of the Central Valley Project. The formerly rural landscape has also been altered by numerous high-tension overhead electrical transmission lines.

L7. Integrity Considerations:

Tracy's early economy depended on the railroad and dry-land farming, specifically wheat and barley. These grain crops relied on the natural irrigation provided by winter and spring rains, leaving the fields fallow in summer. Irrigation, however, became increasingly important to the valley's productivity. To bring water to farmers in the area, a series of irrigation districts were established. The first was the Naglee Burk Irrigation District north of Tracy, established in 1912. It was followed in 1915 by the Westside Irrigation District and in 1921 by Banta Carbona Irrigation District. With the increased production, farmers were able to divide up their formerly vast grain ranches to sell portions for more intensive farming and for dairying operations. New crops included sugar beets, corn, hay, alfalfa, beans and tomatoes. As irrigation became increasingly more reliable, tomatoes, apricots, almonds, and walnuts became the main cash crops in the Tracy area (Matthews 1997:3).

The Byron Bethany Irrigation District was formed in 1914 and constructed in 1917-1919. It serves Contra Costa, San Joaquin, and Alameda counties and is the only irrigation district in Alameda County. The canal in the project area is Canal 70 and was reportedly constructed in 1919, although its alignment is depicted on the 1917 Budd and Widows map as an irrigation canal. There are three lifting pumps in the area; all of which were completely replaced with new equipment in 1968 during a phase of extensive reconstruction of the system. Customers in the area are served through gravitational feed at turnouts. Turnout #7 on Kelso Road west of the Tracy Pumping Station, for instance, feeds a 30 to 40-acre field (Budd & Widows 1917; Gilmore 2001).

(continued)

a.

L7.

The canal's integrity of setting, feeling, design, workmanship, and materials have been compromised. The setting and feeling has changed as the rural undeveloped farmland became a central location of the Central Valley Project (CVP). In the project area, major features of the CVP include the Delta Mendota Canal, the Tracy Pumping and Switching Stations, and numerous high-profile electric transmission towers and lines, all of which have significantly altered the historical landscape. The design, materials, and workmanship have been altered by the major reconstruction of the system in 1968. Only the canal's integrity of location remains intact. The canal was not associated with any significant persons, technology, or historic trends in local or state history. While it is associated with the early development of irrigated farming in the region, the nearby Westside Irrigation District system retains a far higher degree of integrity and predates the Byron Bethany system by three years. As a result, the Byron Bethany Irrigation District does not appear eligible for the National Register of Historic Places, nor is it considered an historic property for the purposes of the California Environmental Quality Act.

References:

Budd and Widows

1917 Map of San Joaquin County, California. Oakland Blueprint Company, Oakland, California.

Gilmore, R.

2001 Personal communication with Cindy L. Baker, PAR Environmental Services, Inc., Sacramento. Records of communication on file, PAR Environmental Services, Inc., Sacramento.

Matthews, S.

1997 *Tracy: A Gateway City*. Tracy Press, April 1997. Matthews Publisher Emeritus.
www.rootsweb.com/~catags/tracyhist.htm.

L8a. Photograph, Map or Drawing



L8b. Description of Photo, Map or Drawing (View, scale, etc.)

Viewed from Bruns Ave., View E,
9-21-01, frame 17, Accession
#01-944-BW-1

L9. Remarks:

None

L10. Form Prepared by: (Name, affiliation, and address)

Cindy Baker
PAR Environmental Services, Inc.
1906 21st Street
Sacramento, CA 95814

L11. Date 10/15/01

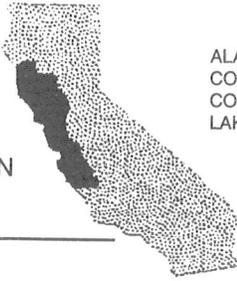
Historic Properties within the East Altamont Energy Center Project
CA-CCO-594H / CA-CCO-738H

| Resource No. | Name/Address | Date of Construction | Not Evaluated | Appears Eligible | Appears Not Eligible |
|--------------|---|----------------------|---------------|------------------|----------------------|
| 1 | Southern Pacific Railroad Grade (segment of) | 1878 | | | X |
| 2 | Byron Bethany Road (segment of) | 1878 | | | X |
| 3 | Mountain House Road (segment of) | circa 1874 | | | X |
| 4 | Hurley-Tracy Transmission Line (segment of) | 1951 | | | X |
| 5 | Tracy-Contra Costa-Ygnacio Transmission Line (segment of) | circa 1946-1951 | | | X |
| 6 | Tracy-Los Vaqueros Transmission Line (segment of) | circa 1946-1951 | | | X |
| 7 | PG&E Distribution Line (segment of) | 1909 | | | X |
| 8 | West Side Irrigation District Complex, Wicklund Road | 1917 | | X | |
| 9 | Byron Bethany Irrigation District Canal | 1919, 1968 | | | X |
| 10 | Mountain House School 3950 Mountain House Road | 1923 | | | X |
| 11a | Tracy Pumping Station 16650 Kelso Road | 1952 | | X | |
| 11b | Tracy Switch Station 16650 Kelso Road | 1952 | | | X |
| 12 | Adobe Ranch Complex 17700 W. Byron Road | 1931 | | | X |
| 13 | Patteson Ranch 17491 and 17590 S. Kelso Road | circa 1920, 1940s | X | | |
| 14 | Ranch 16941 S. Kelso Road | circa 1940 | X | | |
| 15 | Livermore Yacht Club | 1937-1970s | X | | |
| 16 | Costa Ranch 5840 Lindeman Road | circa 1900, 1943 | X | | |
| 17 | Wing Ranch Kelso Road | circa 1944 | X | | |
| 18 | Dexter Ranch 17499 Kelso Road | circa 1917 | | | X |
| 19 | Holck Ranch 16606 Kelso Road | 1948 | | | X |
| 20 | Kuhn Ranch 4378 Mountain House Road | circa 1925 | | | X |
| 21 | Schropp Farm Complex 3880 Mountain House Road | circa 1944, 1960s | | | X |
| 22 | PG&E Substation Byron Bethany Road | circa 1910 | X | | |
| 23 | Peterson Ranch 15991 Kelso Road | circa 1956 | X | | |
| 24 | Griffith Property 15616 Kelso Road | circa 1950 | X | | |
| 25 | Clark Ranch 15685 Kelso Road | circa 1942 | X | | |
| 26 | Jess Property 15547 Kelso Road | circa 1940s | X | | |
| 27 | Delta Mendota Canal and Intake Channel (segment of) | 1946-1952 | | X | |

* See attached Figure 1

a.

**Attachment DA5.3-2
CHRIS Bibliographies and
Response Letter from the CHRIS**



MEMO

Date: 5 February 2009

To: Clint Helton, CH2M HILL, 1 Homestead Drive, Trabuco Canyon, CA 92679

From: Lisa Hagel

Re: DGC Kelso Combustion Turbine Project, #382914.AP.DR.CR; NWIC File #: 08-0903

Clifton Court Forebay 7.5'

Sites in or within 1 mile radius of the project area:

1. Power Plant: There were no recorded sites within the project area. P-01-10435, 10436, 10437, 10438, 10439, 10442, & 10445 (an extension of P-07-2547) are within one mile. Pdf files of the site record forms are on the enclosed cd. The site locations are plotted on Map #1 (in pdf format).
2. Utilities: There were no recorded sites within the utilities locations. P-07-2547 (an extension of P-01-10445) is adjacent to the proposed water line. A pdf of the site record form is on the enclosed cd. The site location is plotted on Map #3 (in pdf format).

Studies in or within 1 mile radius of the project area:

1. Power Plant: S-6127, 13453, & 5208 are within the project area. S-12300*, 14712, 23674*, 9119, 5657, 10509, & 6502 are within ¼ mile. S-14597, 24271, 8942, 6125, 5862, 11647, 12800, 18762, 7074, 26873, 16208, 9995, & 7075 are within one mile. Copies of the studies within the project area and within ¼ mile of the project are in pdf format on the enclosed cd. The study locations are plotted on Map #2 (in pdf format).
2. Utilities: S-9119, 5208, 13453, 14957, 6127, 12300*, 14712, 23674*, & 24271 are within the project areas. S-7074, 5657, & 6502 are within ¼ mile. Copies of these studies are in pdf format on the enclosed cd. The study locations are plotted on Map #3 (in pdf format).

→ Enclosed are bibliographic references for the reports. *We do not have pdf files for S-12300 and S-23674. These are both reports on the PGE-PGT Pipelines in Idaho, Washington, Oregon, and California. Each report is thousands of pages in length.

Northwest Information Center Report Detail Record: S-012300

Previous designation(s):

Citation Information

Authors: Michael J. Moratto
Thomas L. Jackson
Richard Pettigrew
Randall F. Schalk
David Chavez
Eric C. Gibson
Claudia B. Hemphill
Christian J. Miss
Barry A. Price
Melinda Romano
C. Kristina Roper
Brian P. Wickstrom
Michael S. Burney
Clayton G. Lebow

Year: 1990

Title: Final Cultural Resources Assessment Report, PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California, Phase 1: Survey, Inventory, and Preliminary Evaluation of Cultural Resources

Originator: INFOTEC Research, Inc., Biosystems Analysis, Inc.

No. Pages: 2000

No. Maps: 169

Report Type(s): Archaeological survey

Inventory Size: c 845 li mi

No. Sites: 223

No. Informal:

Collections:

Disclosure: Not for publication

Associated Resources

| <i>Primary No.</i> | <i>HRI No.</i> | <i>Trinomial</i> | <i>Name</i> |
|--------------------|----------------|------------------|---------------------------------|
| P-06-000228 | | CA-COL-164 | |
| P-06-000229 | | CA-COL-165 | |
| P-06-000230 | | CA-COL-166 | |
| P-07-000027 | | CA-CCO-7 | |
| P-07-000321 | | CA-CCO-551 | EAST CONTRA COSTA COUNTY AIRPOR |
| P-07-000377 | | CA-CCO-612 | PEP 12-1 |
| P-07-000378 | | CA-CCO-613 | PEP 12-2 |
| P-48-000401 | | CA-SOL-347 | |
| P-48-000402 | | CA-SOL-348 | |
| P-48-000403 | | CA-SOL-349 | |
| P-48-000404 | | CA-SOL-350 | |
| P-48-000405 | | CA-SOL-351 | |
| P-57-000130 | | CA-YOL-161 | CA SITE 16 |
| P-57-000131 | | CA-YOL-162 | 4-YOL-162 |
| P-57-000184 | | CA-YOL-167 | |
| P-57-000185 | | CA-YOL-168 | |
| P-57-000186 | | CA-YOL-169 | |
| P-57-000187 | | CA-YOL-170 | |
| P-57-000188 | | CA-YOL-171 | |

Notes

Location Info

County(ies): Alameda
Colusa
Contra Costa
Solano

Northwest Information Center Report Detail Record: S-012300

Yolo
Sacramento
USGS 7.5' Quads: Allendale
Antioch North
Antioch South
Bird Valley
Birds Landing
Brentwood
Byron Hot Springs
Clifton Court Forebay
Cortina Creek
Dozier
Elmira
Esparto
Jersey Island
Manor Slough
Monticello Dam
Rumsey
Sites
Wildwood School
Williams
Winters

Address:

Database Record Metadata

| | <i>Date</i> | <i>User</i> | |
|-----------------------|-------------|-------------|--|
| <i>Entered:</i> | 4/7/2005 | nwic-main | |
| <i>Last Modified:</i> | 4/17/2008 | hagell | |
| <i>IC Actions:</i> | <i>Date</i> | <i>User</i> | <i>Action taken</i> |
| | 4/7/2005 | jay | Appended records from NWICmain bibliographic database. |

Date Mapped:

Northwest Information Center Report Detail Record: S-023674

Previous designation(s):

Citation Information

Authors: Michael Moratto
Richard Pettigrew
Barry Price
Lester Ross
Randall Schalk
Judith Willig
Christian Miss
Clayton Lebow
Ricky Atwell
Gary Bowyer
Lou Ann Speulda
Lynda Sekora
Robert Bryson
Craig Skinner
William Hildebrandt
Patricia Mikkelsen

Year: 1995

Title: Archaeological Investigations, PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California (Volume I , II, III, IV, V)

Originator: INFOTEC Research, Inc., Far Western Anthropological Research Group, Inc.

No. Pages:

No. Maps:

Report Type(s): Archaeological survey

Inventory Size: c 1,044 li mi

No. Sites: 14

No. Informal:

Collections:

Disclosure: Not for publication

Associated Resources

| <i>Primary No.</i> | <i>HRI No.</i> | <i>Trinomial</i> | <i>Name</i> |
|--------------------|----------------|------------------|-------------------------|
| P-06-000183 | | CA-COL-197H | PEP 10-15 |
| P-06-000184 | | CA-COL-198 | PEP10-14 |
| P-06-000228 | | CA-COL-164 | |
| P-06-000229 | | CA-COL-165 | |
| P-06-000242 | | CA-COL-178 | PEP-10-13 |
| P-07-000071 | | CA-CCO-129 | Voided, See P-07-000080 |
| P-07-000080 | | CA-CCO-138 | C-138 |
| P-07-000383 | | CA-CCO-618H | DEP-11B-1 |
| P-07-000412 | | CA-CCO-652H | |
| P-07-000413 | | CA-CCO-653 | |
| P-07-000721 | | CA-CCO-368 | |
| P-48-000402 | | CA-SOL-348 | |
| P-57-000192 | | CA-YOL-176 | |
| P-57-000193 | | CA-YOL-177 | PEP 11-20 |

Notes

Location Info

County(ies): Alameda
Colusa
Contra Costa
Solano
Yolo
Sacramento

USGS 7.5' Quads: Allendale

Northwest Information Center Report Detail Record: S-023674

Antioch North
Antioch South
Bird Valley
Birds Landing
Brentwood
Byron Hot Springs
Clifton Court Forebay
Cortina Creek
Dozier
Elmira
Esparto
Jersey Island
Manor Slough
Monticello Dam
Rumsey
Sites
Wildwood School
Williams
Winters
Woodward Island

Address:

Database Record Metadata

| | <i>Date</i> | <i>User</i> | |
|-----------------------|-------------|-------------|--|
| <i>Entered:</i> | 4/7/2005 | nwic-main | |
| <i>Last Modified:</i> | 4/17/2008 | hagell | |
| <i>IC Actions:</i> | <i>Date</i> | <i>User</i> | <i>Action taken</i> |
| | 4/7/2005 | jay | Appended records from NWICmain bibliographic database. |

Date Mapped:

**Attachment DA5.3-3
CHRIS Letter Regarding
Sites P-07-2547 and P-01-010445**

P-07-002547 ✓
CA-CCO-738H

P-39-004312

P-07-002547
CA-CCO-738H

P-39-004312

This resource has been assigned three Primary Numbers and two Trinomials, one Primary Number for each of the three counties in which it is located. The Central California Information Center staff did not elect to assign a Trinomial when they assigned the Primary Number, P-39-004312. Please see the following Primary File for the Record:

P-01-010445

25 July 2002
Leigh Jordan
NWIC Coordinator

Attachment DA5.3-4
Letters to NAHC List of Native Americans



CH2M HILL
5660 Helm Lane
Stansbury Park, UT 84074
Tel 435.843.1378
Fax 801.322.8242

April 2, 2009

Muwekma Ohlone Indian Tribe of the SF Bay Area
Rosemary Cambra, Chairperson
PO Box 360791
Milpitas, CA 95036

Subject: DGC Kelso Combustion Turbine Project Information

Dear Chairperson Cambra,

CH2M HILL is assisting Diamond Generation Corporation (DGC) with the preparation of an Application for Certification (AFC) before the California Energy Commission (CEC) for a new power plant to be located in east Alameda County, California. The project will be located near the Pacific Gas & Electric (PG&E) Kelso Substation, on privately-held land immediately south of the PG&E Kelso Substation/Byron Natural Gas Compressor Station facility. Please see the enclosed study area map (T2S R3E Section 1), Clifton Court Forebay 7.5 Minute USGS quadrangle).

In March of this year CH2M HILL conducted a cultural resources study for the proposed project and has researched the archaeological literature and records for the area. Results of the record search at the Northwest Information Center failed to identify any known cultural resources within the project area. A search of the Sacred Land Files by the Native American Heritage Commission (NAHC) failed to indicate the presence of Native American sacred sites in the immediate project vicinity.

If you know if any traditional cultural properties or values (e.g., burial sites, religious sites, or gathering sites) within the project as shown on the attached map, or if you have any concerns regarding issues related to the overall project, please contact me at 435-843-1378, or my mail; you may also contact me at aaron.fergusson@ch2m.com.

Sincerely,

CH2M HILL

A handwritten signature in blue ink, appearing to read "Aaron Fergusson".

Aaron Fergusson, M.A., RPA
Cultural Resources Specialist

Enclosures: Project Location Map



CH2M HILL
5660 Helm Lane
Stansbury Park, UT 84074
Tel 435.843.1378
Fax 801.322.8242

April 2, 2009

Amah/Mutsun Tribal Band
Jean-Marie Feyling
19350 Hunter Court
Redding, CA 96003

Subject: DGC Kelso Combustion Turbine Project Information

Dear Ms. Feyling,

CH2M HILL is assisting Diamond Generation Corporation (DGC) with the preparation of an Application for Certification (AFC) before the California Energy Commission (CEC) for a new power plant to be located in east Alameda County, California. The project will be located near the Pacific Gas & Electric (PG&E) Kelso Substation, on privately-held land immediately south of the PG&E Kelso Substation/Byron Natural Gas Compressor Station facility. Please see the enclosed study area map (T2S R3E Section 1), Clifton Court Forebay 7.5 Minute USGS quadrangle).

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Sincerely,

CH2M HILL

A handwritten signature in blue ink, appearing to read "Aaron Fergusson".

Aaron Fergusson, M.A., RPA
Cultural Resources Specialist

Enclosures: Project Location Map



CH2M HILL
5660 Helm Lane
Stansbury Park, UT 84074
Tel 435.843.1378
Fax 801.322.8242

April 2, 2009

The Ohlone Indain Tribe
Andrew Galvan
PO Box 3152
Fremont, CA 94539

Subject: DGC Kelso Combustion Turbine Project Information

Dear Mr. Galvan,

CH2M HILL is assisting Diamond Generation Corporation (DGC) with the preparation of an Application for Certification (AFC) before the California Energy Commission (CEC) for a new power plant to be located in east Alameda County, California. The project will be located near the Pacific Gas & Electric (PG&E) Kelso Substation, on privately-held land immediately south of the PG&E Kelso Substation/Byron Natural Gas Compressor Station facility. Please see the enclosed study area map (T2S R3E Section 1), Clifton Court Forebay 7.5 Minute USGS quadrangle).

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Sincerely,

CH2M HILL

A handwritten signature in blue ink, appearing to read "Aaron Fergusson".

Aaron Fergusson, M.A., RPA
Cultural Resources Specialist

Enclosures: Project Location Map



CH2M HILL
5660 Helm Lane
Stansbury Park, UT 84074
Tel 435.843.1378
Fax 801.322.8242

April 2, 2009

Jakki Kehl
1307 Horizon Lane
Patterson, CA 95363

Subject: DGC Kelso Combustion Turbine Project Information

Dear Jakki Kehl,

CH2M HILL is assisting Diamond Generation Corporation (DGC) with the preparation of an Application for Certification (AFC) before the California Energy Commission (CEC) for a new power plant to be located in east Alameda County, California. The project will be located near the Pacific Gas & Electric (PG&E) Kelso Substation, on privately-held land immediately south of the PG&E Kelso Substation/Byron Natural Gas Compressor Station facility. Please see the enclosed study area map (T2S R3E Section 1), Clifton Court Forebay 7.5 Minute USGS quadrangle).

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Sincerely,

CH2M HILL

A handwritten signature in blue ink, appearing to read "Aaron Fergusson".

Aaron Fergusson, M.A., RPA
Cultural Resources Specialist

Enclosures: Project Location Map



CH2M HILL
5660 Helm Lane
Stansbury Park, UT 84074
Tel 435.843.1378
Fax 801.322.8242

April 2, 2009

Katherine Erolinda Perez
PO Box 717
Linden, CA 95236

Subject: DGC Kelso Combustion Turbine Project Information

Dear Ms. Perez,

CH2M HILL is assisting Diamond Generation Corporation (DGC) with the preparation of an Application for Certification (AFC) before the California Energy Commission (CEC) for a new power plant to be located in east Alameda County, California. The project will be located near the Pacific Gas & Electric (PG&E) Kelso Substation, on privately-held land immediately south of the PG&E Kelso Substation/Byron Natural Gas Compressor Station facility. Please see the enclosed study area map (T2S R3E Section 1), Clifton Court Forebay 7.5 Minute USGS quadrangle).

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Sincerely,

CH2M HILL

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Aaron Fergusson, M.A., RPA
Cultural Resources Specialist

Enclosures: Project Location Map



CH2M HILL
5660 Helm Lane
Stansbury Park, UT 84074
Tel 435.843.1378
Fax 801.322.8242

April 2, 2009

Trina Marine Ruano Family
Ramona Garibay, Representative
16010 Halmar Lane
Lanthrop, CA 95330

Subject: DGC Kelso Combustion Turbine Project Information

Dear Ms. Garibay,

CH2M HILL is assisting Diamond Generation Corporation (DGC) with the preparation of an Application for Certification (AFC) before the California Energy Commission (CEC) for a new power plant to be located in east Alameda County, California. The project will be located near the Pacific Gas & Electric (PG&E) Kelso Substation, on privately-held land immediately south of the PG&E Kelso Substation/Byron Natural Gas Compressor Station facility. Please see the enclosed study area map (T2S R3E Section 1), Clifton Court Forebay 7.5 Minute USGS quadrangle).

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Sincerely,

CH2M HILL

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Aaron Fergusson, M.A., RPA
Cultural Resources Specialist

Enclosures: Project Location Map



CH2M HILL
5660 Helm Lane
Stansbury Park, UT 84074
Tel 435.843.1378
Fax 801.322.8242

April 2, 2009

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
PO Box 28
Hollister, CA 95024

Subject: DGC Kelso Combustion Turbine Project Information

Dear Chairperson Sayers,

CH2M HILL is assisting Diamond Generation Corporation (DGC) with the preparation of an Application for Certification (AFC) before the California Energy Commission (CEC) for a new power plant to be located in east Alameda County, California. The project will be located near the Pacific Gas & Electric (PG&E) Kelso Substation, on privately-held land immediately south of the PG&E Kelso Substation/Byron Natural Gas Compressor Station facility. Please see the enclosed study area map (T2S R3E Section 1), Clifton Court Forebay 7.5 Minute USGS quadrangle).

In March of this year CH2M HILL conducted a cultural resources study for the proposed project and has researched the archaeological literature and records for the area. Results of the record search at the Northwest Information Center failed to identify any known cultural resources within the project area. A search of the Sacred Land Files by the Native American Heritage Commission (NAHC) failed to indicate the presence of Native American sacred sites in the immediate project vicinity.

If you know if any traditional cultural properties or values (e.g., burial sites, religious sites, or gathering sites) within the project as shown on the attached map, or if you have any concerns regarding issues related to the overall project, please contact me at 435-843-1378, or my mail; you may also contact me at aaron.fergusson@ch2m.com.

Sincerely,

CH2M HILL

A handwritten signature in blue ink, appearing to read "Aaron Fergusson".

Aaron Fergusson, M.A., RPA
Cultural Resources Specialist

Enclosures: Project Location Map



CH2M HILL
5660 Helm Lane
Stansbury Park, UT 84074
Tel 435.843.1378
Fax 801.322.8242

April 2, 2009

Amah/Mutsun Tribal Band
Irene Zwierlein, Chairperson
789 Canada Road
Woodside, CA 94062

Subject: DGC Kelso Combustion Turbine Project Information

Dear Chairperson Zwierlein,

CH2M HILL is assisting Diamond Generation Corporation (DGC) with the preparation of an Application for Certification (AFC) before the California Energy Commission (CEC) for a new power plant to be located in east Alameda County, California. The project will be located near the Pacific Gas & Electric (PG&E) Kelso Substation, on privately-held land immediately south of the PG&E Kelso Substation/Byron Natural Gas Compressor Station facility. Please see the enclosed study area map (T2S R3E Section 1), Clifton Court Forebay 7.5 Minute USGS quadrangle).

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Aaron Fergusson, M.A., RPA
Cultural Resources Specialist

Enclosures: Project Location Map

5.4 Geological Hazards and Resources

16. Potential Geological Hazards (Appendix B (g) (2) (D))

A map at a scale of 1:24,000 and description of all recognized stratigraphic units, geologic structures, and geomorphic features within two (2) miles of the project site and along proposed facilities. Include an analysis of the likelihood of ground rupture, seismic shaking, mass wasting and slope stability, liquefaction, subsidence, tsunami runup, and expansion or collapse of soil structures at the plant site. Describe known geologic hazards along or crossing linear facilities.

Information required to make AFC conform with regulations:

Please discuss the potential for a tsunami/seiche to affect the site.

Response: Tsunamis are seismically induced ocean waves with very long periods. Tsunamis may be manifested in the form of wave bores or a gradual upwelling of sea level and can be caused by landslides or earthquakes. Because the project site is located approximately 30 miles inland from the San Francisco Bay, the potential for a significant tsunami event that would affect the MEP site is highly unlikely.

A seiche is a wave that is generated by oscillations in an inland body of water as seismic waves propagate through the water body. The potential for development of a seiche and the magnitude of the resulting wave are dependent on the coincidence of the period of the seismic ground motion and the natural period of the water body. The period of the seismic wave is a characteristic of the type and magnitude of the earthquake and the distance from the source of the earthquake. The period of the water body can be determined using the Merian formula which relates the shape, depth, and orientation (relative to the direction of movement of the seismic wave) of the water body. Due to the complexity of the variables associated with the seiche generation, a seiche could develop as a result of local earthquake and also from events on very distant seismic sources. Therefore, it is difficult to predict the potential for seiche development within the Bethany Reservoir Bethany Reservoir, located approximately 0.6 miles southwest of the MEP site with a crest elevation of 250 feet. However, the general shape of the reservoir and the fact that it is only just over 1,000 feet wide along the axis of concern suggests that the first-, second-, and third-order periods of the reservoir (calculated to be 42 sec, 21 sec, and 15 sec respectively) are significantly larger than (and therefore not coincident with) the period of near-source seismic waves. In addition, even when the reservoir is at capacity, the water impounding structures have a minimum of 5 feet of freeboard, as required by the State of California. Therefore, the potential for damaging seiche development is considered low and less than significant.

5.6 Land Use

17. Zoning Changes and/or General Plan Amendments (Appendix B (g) (3) (A) (ii))

A discussion of any recent or proposed zone changes and/or general plan amendments; noticed by an elected or appointed board, commission, or similar entity at the state or local level;

Information required to make AFC conform with regulations:

Please list any recent or proposed zone changes and/or general plan amendments; noticed by an elected or appointed board, commission, or similar entity at the state or local level.

Response: There have been no zone changes or general plan amendments in the Alameda County lands surrounding the project site. Because the entire area is located within the portion of Alameda County affected by the voter-approved Measure D, any General Plan amendment would require voter approval. Consequently, zoning change applications are rare in this area and there have been no such changes made in the past 18 months (Weldon, 2009).¹

There have been no zone changes or general plan amendments in the Contra Costa County lands surrounding the project site in the past 18 months (Roche, 2009).²

18. Public Agency Reviews (Appendix B (g) (3) (A) (iii))

Identification of all discretionary reviews by public agencies initiated or completed within 18 months prior to filing the application for those changes or developments identified in subsection (g)(3)(A)(ii);...

Information required to make AFC conform with regulations:

Please identify all discretionary reviews by public agencies initiated or completed within 18 months prior to filing the application. Section 5.6.1.5 does not include timeframes.

Response: Section 5.6.1.5 in the AFC listed the six projects in the vicinity of the proposed MEP site that are currently in development, meaning that applications have been submitted to the County and, in some cases, construction is underway. Of these six projects, discretionary reviews by public agencies have been initiated or completed for the following projects within 18 months prior to filing the application for the MEP:

- GreenVolts Solar Field – This 10-acre, 2-MW, utility-scale solar farm is located on the southern side of Kelso Road, across from the Tracy Pumping Station (approximately 1 mile away from the MEP site). The developer, GreenVolts, Inc., applied for a Conditional Use Permit (C-8719), which was approved on June 28, 2008. The project's Initial Study / Mitigated Negative Declaration was also adopted on that date.

¹ Weldon, Jana Beatty, Senior Planner/Alameda County Community Development Agency. 2009. Personal communication with CH2M HILL staff. July 15.

² Roche, Patrick, Division Manager/Contra Costa County Department of Conservation and Development, Advance Planning. 2009. Personal communication with CH2M HILL staff. July 20.

- East Altamont Energy Center – The AFC for this 1,100-MW power plant project proposed for a location near the northeast intersection of Mountain House Road and Kelso Road, approximately 1.5 miles northeast of MEP site, was approved by CEC in 2003. On August 15, 2008, CEC approved the applicant’s request for a 3-year extension of the deadline for commencing construction.
- Mountain House Community Buildout – This 16,000 home, master-planned community is located in San Joaquin County, approximately 2.5 miles east of MEP site. Southern neighborhoods have been constructed and are partially occupied, but development of northern neighborhoods is currently on hold. In November 2008, the Initial Study for the Mountain House Town Center Tentative Subdivision Map was published. This is a current, ongoing planning process for which discretionary review will eventually be necessary (Groover, 2009).³
- Altamont Motorpark Sports Rezoning Project – This project would allow expansion of uses and capacity of the existing motor speedway, approximately 4 miles southeast of MEP; the Environmental Impact Review for the project was published in July 2008, but the project is currently on hold (Jensen, 2009).⁴
- Jess Ranch Organics Processing Facility – This composting facility is located on the south side of I-580 at Grant Line Road, approximately 4.5 miles south of the MEP site. A Notice of Preparation was distributed in early 2009 and a public scoping meeting held on April 29, 2009. Environmental review is expected to be completed by the end of 2009 (Jensen, 2009).

There has been no apparent discretionary activity in the past 18 months related to the sixth project, Midway Power, LLC. This 1,100-MW power plant project is proposed for a location on the San Joaquin County border, 0.5 miles away from existing PG&E Tesla Substation, and approximately 5 miles away from the MEP site. Approved by the CEC in 2004 as the Tesla Power Plant, the project was acquired by PG&E in July 2008. In April 2009, PG&E submitted to the CEC a petition for ownership change and an extension of license. There has not been an approval order issued yet.

³ Groover, Morgan, Development Manager/Mountain House Community Services District. 2009. Personal communication with CH2M HILL staff. July 20.

⁴ Jensen, Bruce, Senior Planner/Alameda County Community Development Agency. 2009. Personal communication with CH2M HILL staff. March 20.

5.12 Traffic and Transportation

19. Road Classification and Design Capacity (Appendix B (g) (5) (C) (i))

Road classification and design capacity

Information required to make AFC conform with regulations:

Please provide design capacity for Kelso, Mountain House, and West Grant Line Roads.

Response: Based on inquiries with Alameda County Traffic Division beginning in early January 2009, John Bates (Lead Traffic Engineer for Alameda County Public Works, Traffic Division) was identified by Traffic Division staff as the appropriate source within the Division of traffic count and roadway design capacity information. At this time, CH2M HILL placed a request for: (1) road classification; (2) ADT; (3) turning movement counts; and (4) truck percentages for Byron Bethany Road, Kelso Road, Bruns Avenue, Mountain House Road, W. Grant Line Road, and Midway Road. After several attempts, CH2M HILL succeeded in speaking with Mr. Bates on February 11, 2009. During this conversation, Mr. Bates indicated that the 2-lane roadways in the project area, including Kelso, Mountain House, and West Grant Line roads were not approaching capacity on any of the links, but that there were no design capacities available. There were also no turning movement counts available because the volumes are too low.

In an attempt to inquire about the availability of any additional data in response to this data adequacy request, CH2M HILL called and left a message for Mr. Bates on July 13, 2009 but did not receive a response. A follow-up call was placed on July 22. Additionally, a formal data request was placed through the Public Works Department main phone number on July 20, 2009; no response has been received as of the print date of this supplement.

Therefore, CH2M HILL is providing an estimation of the capacity of the 2-lane roadways. In the East Altamont AFC (CH2M HILL, 2002⁵), the peak hour capacity of Mountain House Road and Kelso Road were estimated to be 2,040 passenger cars per hour.

Because West Grant Line Road has the same roadway classification as Mountain House Road (both are arterials), and because they have similar characteristics, the peak hour capacity of West Grant Line Road is also estimated to be 2,040 passenger cars per hour.

20. Current Daily Average and Peak Traffic Counts (Appendix B (g) (5) (C) (ii))

Current daily average and peak traffic counts

Information required to make AFC conform with regulations:

Please provide peak traffic counts for the local roads other than the interstates.

⁵ CH2M HILL. 2002. East Altamont Energy Center Application for Certification. Submitted to the California Energy Commission. January.

Response: The following traffic counts were provided by Mr. Bates with Alameda County on February 11, 2009:

| Peak Traffic Counts | | | | | |
|----------------------------|-------------|--------------------------------------|--------------------|-----------------------|-------------------------|
| Road Name | Year | Two-Way Average Daily Traffic | Peak Period | Peak Direction | Peak Hour Count* |
| Bruns Avenue | 2007 | 280 | 7-8 AM | SB | 8 |
| Bruns Avenue | 2007 | 280 | 3-4 PM | NB | 11 |
| Byron Highway | 2007 | 13000 | 4-5 AM | NB | 550 |
| Byron Highway | 2007 | 13000 | 2-3 PM | SB | 480 |
| Kelso Road | 2006 | 650 | 6-7 AM | WB | 58 |
| Kelso Road | 2006 | 650 | 3-4 PM | EB | 48 |
| Mountain House Road | 2006 | 3300 | 7-8 AM | SB | 224 |
| Mountain House Road | 2006 | 3300 | 5-6 PM | NB | 215 |
| West Grant Line Road | 2007 | 8200 | 5-6 AM | WB | 1400 |
| West Grant Line Road | 2007 | 8200 | 4-5 PM | EB | 500 |

*Peak Hour Count is assumed to be one-way. CH2M HILL attempted to obtain the peak hour counts in the non-peak direction, but was subsequently not able to contact Mr. Bates.

CH2M HILL spoke with Nader Shareghi (Mountain House Public Works Director) on July 27, 2009. Mr. Shareghi directed all traffic-related questions to Christopher Thnay with TKJM Transportation Consultants. Mr. Thnay indicated via e-mail on July 28, 2009 that there were 3,740 vehicles on average per day on Grant Line Road, west of Mountain House Parkway in 2008. No peak traffic count data were available. Additionally, no data were available for Mountain House Road or Kelso Road.

Based on the East Altamont AFC (CH2M HILL, 2002), San Joaquin County does not conduct traffic counts on highways unless the count is directly related to a specific project. Therefore, no actual peak hour counts for the portions of the streets in San Joaquin County were provided within that document, although the East Altamont AFC does provides estimates of 1999 peak hour volumes on Mountain House Road and Kelso Road. No data was provided for West Grant Line Road.

The 1994 Mountain House Final Environmental Impact Report provides 1990 ADT for Mountain House Road (2800) and Grant Line Road (1200), as well as 1990 AM peak hour counts along Mountain House Road (50 NB/255 SB) and Grant Line Road (25 WB/110 EB) and PM peak hour counts along Mountain House Road (285 NB/50 SB) and Grant Line Road (145 EB/30 WB).

The Mountain House Commerce Center Initial Study provides 2007 turning movement counts during peak hours from which peak hour volumes on Grant Line Road near Mountain House Parkway could be derived. During the AM peak hour, there would be 33 vehicles traveling eastbound along Grant Line Road and 462 vehicles traveling westbound. During the PM peak hour, there would be 309 vehicles traveling eastbound

along Grant Line Road and 44 vehicles traveling westbound. Apparently, the same counts were used in the Mountain House Revised Neighborhood I and J Initial Study.

The Mountain House Town Center Initial Study provides 2008 turning movement counts during peak hours from which peak hour volumes on Grant Line Road near Mountain House Parkway could be derived. During the AM peak hour, there would be 74 vehicles traveling eastbound along Grant Line Road and 390 vehicles traveling westbound. During the PM peak hour, there would be 289 vehicles traveling eastbound along Grant Line Road and 35 vehicles traveling westbound.

The Altamont Motorsport Park Rezoning Draft EIR provides 2007 turning movement counts during Friday and Sunday PM peak hours, from which Friday and Sunday PM peak hour volumes on Grant Line Road could be derived. On Friday, there would be 696 vehicles traveling northbound along Grant Line Road near Midway Road and 125 vehicles traveling southbound. On Sunday, there would be 90 vehicles traveling northbound along Grant Line Road near Midway Road and 186 vehicles traveling southbound.

21. Current Traffic Flows for Passenger Vehicles and Trucks (Appendix B (g) (5) (C) (v))

Estimated percentage of current traffic flows for passenger vehicles and trucks

Information required to make AFC conform with regulations:

Please provide estimated percentage of current traffic flows for passenger vehicles and trucks for the local roads other than the interstates

Response: During the same conversation with Mr. John Bates on February 11, 2009 (see Response to Request #20), Mr. Bates indicated that truck percentages are less than 10 percent in the area, but could not provide a more accurate estimate because there were no counts to back up his assessment.

Mr. Thnay (e-mail communication on July 28, 2009) indicated that 28 percent of two or more axle trucks circulated on Grant Line Road (west of Mountain House Parkway). After review of the documents listed below, CH2M HILL was not able to find any additional pertinent information. Therefore, CH2M HILL proposes to use a conservative truck mix estimate of 10 percent on Mountain House Road and Kelso Road, and 28 percent on West Grant Line Road.

Notes pertaining to data sources searched for traffic Data Adequacy Responses 19, 20, and 21:

- Alameda County was considered to be the primary source of information because of the project location.
- Because portions of the key roads are in San Joaquin County, CH2M HILL contacted San Joaquin County to find relevant data. However, Xao Vang (San Joaquin County Traffic Division, emails on January 13, 2009 and July 21, 2009) indicated that the local roads of interest were under Mountain House's jurisdiction.
- CH2M HILL has reviewed existing available literature likely to provide pertinent information to respond to the data requests. Below is the list of documents that have

either traffic counts of roads of interest, truck percentages, or local roads of interest capacities:

- 1994 Mountain House Final Environmental Impact Report. Provides 1990 ADT for Mountain House Road (2800) and Grant Line Road (1200), as well as 1990 AM peak hour counts along Mountain House Road (50 NB/255 SB) and Grant Line Road (25 WB/110 EB) and PM peak hour counts along Mountain House Road (285 NB/50 SB) and Grant Line Road (145 EB/30 WB). No truck percentage data for non-interstate roads were found.
- Mountain House Commerce Center Initial Study. 2007 peak hour volumes on Grant Line Road near Mountain House Parkway could be derived from turning movement counts during peak hours. During the AM peak hour, there would be 33 vehicles traveling eastbound along Grant Line Road and 462 vehicles traveling westbound. During the PM peak hour, there would be 309 vehicles traveling eastbound along Grant Line Road and 44 vehicles traveling westbound.
- Mountain House Revised Neighborhood I and J Initial Study. 2006 peak hour volumes on Grant Line Road near Mountain House Parkway could be derived from turning movement counts during peak hours. During the AM peak hour, there would be 33 vehicles traveling eastbound along Grant Line Road, and 462 vehicles traveling westbound. During the PM peak hour, there would be 309 vehicles traveling eastbound along Grant Line Road and 44 vehicles traveling westbound.
- Mountain House Town Center Initial Study. 2008 peak hour counts on Grant Line Road near Mountain House Parkway could be derived from turning movement counts during peak hours. During the AM peak hour, there would be 74 vehicles traveling eastbound along Grant Line Road and 390 vehicles traveling westbound. During the PM peak hour, there would be 289 vehicles traveling eastbound along Grant Line Road and 35 vehicles traveling westbound.
- Altamont Motorsport Park Rezoning Draft EIR (http://www.acgov.org/cda/planning/Altamont_DEIR/4_15_Transportation_and_Traffic.pdf), which mentions that “truck traffic was considered based on actual field counts conducted as part of the analysis (for each studied intersection turn movement) and applied as a percentage”, but no truck data were made available in any exhibit or table. Friday and Sunday PM peak hour volumes in 2007 on Grant Line Road could be derived from turning movement counts during Friday and Sunday PM peak hours. On Friday, there would be 696 vehicles traveling northbound along Grant Line Road near Midway Road and 125 vehicles traveling southbound. On Sunday, there would be 90 vehicles traveling northbound along Grant Line Road near Midway Road and 186 vehicles traveling southbound.
- Below is the list of documents CH2M HILL also reviewed, from which no relevant data were obtained:
 - Business Park at Mountain House Initial Study.
 - College Park at Mountain House Specific Plan III.

- College Park at Mountain House Specific Plan III Environmental Impact Report.
- Mountain House Master Plan.
- Mountain House Neighborhood D (West) Initial Study: Refers to a traffic study that would have turning movement counts, but the traffic study itself could not be found readily.
- Mountain House Specific Plan I.
- Mountain House Specific Plan II.
- Mountain House Specific Plan III.
- Mountain House Specific Plan III Initial Study.
- GreenVolts Utility-Scale Solar Field Initial Study (http://www.acgov.org/cda/planning/GreenVoltsMND_InitSt.pdf).

22. Road Features Affecting Public safety (Appendix B (g) (5) (C) (vi))

An identification of any road features affecting public safety.

Information required to make AFC conform with regulations:

Please identify any road features affecting public safety

Response: No road features causing significant impacts to public safety were identified on the proposed access routes. There are no at-grade railroad crossings. No physical changes to any public roadway are proposed; the access road to the MEP site from Bruns Road will be improved and will accommodate truck turning radii. The roads serving the MEP project area are currently used to support agricultural and infrastructure operations in the area, including the Delta Pumping Plant, Byron Bethany Irrigation District Headquarters, Delta Mendota Canal Tracy Pumping Station, PG&E Bethany Compressor Station, etc. Therefore, the nature of roadway use associated with the MEP project will not significantly differ from the current uses.

23. Hazardous Materials Transport (Appendix B (g) (5) (E))

A discussion of project-related hazardous materials to be transported to or from the project during construction and operation of the project, including the types, estimated quantities, estimated number of trips, anticipated routes, means of transportation, and any transportation hazards associated with such transport.

Information required to make AFC conform with regulations:

Please provide discussion of project-related hazardous materials to be transported to or from the project during operation of the project.

Response: Project operation will require regular transportation of hazardous materials to the project site. Transportation of hazardous materials will comply with all California Department of Transportation (Caltrans), U.S. Environmental Protection Agency, California Department of Toxic Substances Control, California Highway Patrol, and California State Fire Marshal regulations. Aqueous ammonia, a regulated substance, will be delivered to the

facility and transported in accordance with Vehicle Code Section 32100.5, which regulates the transportation of hazardous materials that pose an inhalation hazard. Additionally, ammonia will only be transported along approved transportation routes. The recommended routes subject to Caltrans approval for hazardous materials delivery to the MEP site is from I-580 and/or I-205 to northwest along Byron Bethany Road and south along Bruns Road. From Contra Costa County, the route will be southeast on Byron Bethany Road and south on Bruns Road to the site. From Stockton, the route will be west along Highway 4, southeast along Byron Highway, and south along Bruns Road. These routes were selected to avoid residential and sensitive receptor locations.

At maximum permitted operations of 4,000 hours per year, approximately two to three times per month at (or a maximum of 33 deliveries per year), one 6,500-gallon tanker truck will deliver aqueous ammonia to the site. At expected operating levels of 600 hours per year, five deliveries per year would be needed. Additionally, there will be infrequent deliveries of small quantities of miscellaneous hazardous materials delivered to the site during operations.