

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



October 25, 2011

Advice Letter 3846-E

Brian K. Cherry
Vice President, Regulation and Rates
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

Subject: Eastshore-Dumbarton 115 kV Power Line Reconductoring Project

Dear Mr. Cherry:

Advice Letter 3846-E is effective May 26, 2011.

Sincerely,

A handwritten signature in blue ink that reads "Julie A. Fitch".

Julie A. Fitch, Director
Energy Division



May 26, 2011

Advice 3846-E

(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

Subject: Eastshore-Dumbarton 115 kV Power Line Reconductoring Project

Purpose

Pursuant to Decision 08-03-07 of the California Public Utilities Commission (“CPUC” or “Commission”) issued March 13, 2008, and in accordance with General Order (“GO”) 96-B, Sections 7.5.3, 7.6.1, and Energy Industry Rule 2, Pacific Gas and Electric Company (“PG&E”) submits this compliance advice letter concerning its Eastshore-Dumbarton 115 kV Power Line Reconductoring Project, which was noticed in Advice 3082-E (effective date 08-10-2007).

Background

On March 13, 2008, the Commission issued its Opinion Granting a Certificate of Public Convenience and Necessity for a Generation Tie Line for the Russell City Project. (D.08-03-007 (“Decision”), attached as Exhibit A.)

In accordance with the Decision, PG&E provides the following information regarding the Eastshore-Dumbarton 115 kV Reconductoring Project:

- (1) Demonstrate that PG&E has or will implement all appropriate measures with respect to the following environmental and engineering disciplines: air quality, facility design, hazardous materials management, power-plant efficiency and reliability, public health, worker safety, socioeconomic resources, and waste management. (Decision at 16)**

PG&E will incorporate the following measures to address these impact areas:

- i. Air quality: PG&E will implement the following measures during construction to ensure impacts to air quality are further minimized:
 - a. Fugitive Dust Minimization
 - Reduce the amount of the disturbed area where possible.
 - Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil and wind exposure.
 - Vehicle speed for all construction vehicles will not exceed 15 miles per hour (mph) on any unpaved surface.
 - Suspend all grading activities during periods of high wind (over 15 miles per hour (mph)).
 - Apply chemical soil stabilizer on inactive construction areas (defined as disturbed lands within the project area that are unused for at least four consecutive days).
 - Cover all trucks hauling dirt, sand or loose materials.
 - Cover inactive storage piles.
 - Install mud bumper mats [or equivalent] at all access points, or if appropriate at designated landing zones and laydown areas, to prevent tracking of mud on to public roads.
 - Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads.
 - Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours.
 - b. GHG Emission Minimization
 - Identify park-and-ride facilities in the project vicinity and encourage construction workers to carpool to the job staging area to the extent feasible. The ability to develop an effective carpool program for the proposed project will depend upon the proximity of carpool facilities to the staging area, the geographical commute departure points of construction workers, and the extent to which carpooling will not adversely affect worker arrival time and the project's construction schedule. Crew transportation to the project site is addressed in Section 3.11 Transportation and Traffic.
 - Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and

where vehicles are needed or staged. Certain vehicles, such as large diesel powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes required by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 hp or larger and manufactured in 2000 or later will be registered under the California Air Resources Board (CARB) Statewide Portable Equipment Registration Program, or will meet at a minimum US EPA/CARB Tier 1 engine standards.
 - Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- ii. Facility Design: Please see detail drawing for the cage top extension, attached as Exhibit B. This is a standard detail drawing that has undergone structural engineering analysis for the specific towers receiving the cage top extensions in the proposed project.
- iii. Hazardous materials, hazardous waste management: Hazardous materials in use by the contractor will be limited to those materials required for construction. Hazardous wastes generated by the contractor will not be stored or disposed of on or at the worksite. All hazardous materials and hazardous waste will be placed in appropriate containers and labeled as to their contents. Any facility to which hazardous wastes may be moved will comply with any and all federal, state, and local laws, rules and regulations pertaining thereto and will be a facility that is suitable to receive and/or dispose of, and may lawfully receive and/or dispose of the hazardous wastes. In the event that hazardous waste or unauthorized hazardous material are discovered on the worksite during the performance of the work, PG&E or its contractor will immediately (1) secure the area around the hazardous waste or hazardous material, and (2) notify PG&E's project manager of the situation. PG&E will engage in appropriate measures to identify, contain, and manage waste

materials for their transportation and disposal as required by applicable regulations. The site will be remediated to a level acceptable to federal, state and local agencies prior to the commencement of construction activities.

- iv. Power plant efficiency and reliability: Not relevant to the reconductoring project; no implementation measures necessary.
- v. Public health: PG&E will implement traffic control plans where construction takes place near streets and highways. (See measures listed in Section 5 below.) In addition, PG&E will restrict public access to construction areas.
- vi. Worker safety: Please see PG&E Code of Safe Practices manual, Section 1, attached as Exhibit C.
- vii. Socioeconomic resources: Not relevant to the reconductoring project; no implementation measures necessary.
- viii. Waste management: All food waste and associated containers will be disposed of in closed lid containers and removed from the work areas at the end of each work day. All waste disposal will be in accordance with all permits and local disposal ordinances with a goal to recycle as much construction materials as possible.

- (2) Provide the final description of the Eastshore-Dumbarton 115 kV Reconductoring Project. The description shall include wetlands delineations, results of all sensitive species surveys, and an assessment of potential impacts. (Decision at 16)**

A detailed project description is provided in the *Eastshore-Dumbarton 115kV Line Reconductoring Project Biological Assessment* prepared by Transcon Environmental, Inc. (attached as Exhibit D, pages 3-6). A discussion of the project area's environmental setting, vegetative communities including wetlands, sensitive species surveys, and an assessment of potential impacts is also included. Maps showing the extent and location of waters of the U.S. and wetlands based on a preliminary jurisdiction determination by the Army Corps of Engineers can be found in the enclosures to Exhibit E.

- (3) Demonstrate that (i) PG&E has consulted to the extent required by applicable laws, ordinances, and regulations, with all resource agencies that have jurisdiction over the Project; (ii) PG&E has or will implement the mitigation measures identified by these agencies, and**

(iii) PG&E will use standard Best Management Practices (BMP) for construction activities. (Decision at 17)

PG&E has consulted with the following resources agencies:

- U.S. Army Corps of Engineers (authorization letter attached at Exhibit E);
- U.S. Fish & Wildlife Service (letter containing biological opinion attached at Exhibit F);
- California Department of Fish & Game (PG&E has consulted with John Krause, Manager, of the Eden Landing Ecological Preserve (CDFG). PG&E will coordinate foot access for pre-construction biological surveys and construction work over the preserve with the Manager; and
- San Francisco Bay Regional Water Control Board (Section 401 permit pending; water quality authorization letter attached as Exhibit G)).

Other agencies discussed in the Decision at 10, including National Marine Fisheries Service, and Bay Conservation and Development Commission, do not have jurisdiction over this Project.

PG&E will implement the mitigation measures identified by the agencies having jurisdiction over this Project, as set forth in Exhibit E, and Exhibit F at 16-19, and Exhibit G at 2.

PG&E will use standard Best Management Practices for construction activities. Examples of such BMPs for biology include the following:

- An environmental training session would be conducted for the work crews prior to initiating construction activities. The training would discuss sensitive species in the action area and the conservation measures being implemented to avoid or minimize effects to those species.
- Where ground access is required, existing access routes (i.e., roads, levees, and boardwalks) would be used. No vehicular traffic would take place in wetlands and foot traffic would be limited to that which is absolutely necessary.
- No work, including helicopter flights, would be conducted in or over tidal marshes (i.e., between towers 2/21 and 3/25 and between towers 4/29 and 4/32) at any times of the year within two hours of high tide at the work site when the high tide is predicted to be equal to or above 6.5 feet Mean Lower Water at the Golden Gate Bridge. Helicopter flights over tidal marshes and work within marshes would proceed on these days outside the three-hour period around a high tide.

- An environmental monitor would be onsite during construction to document work activities.
- No vehicle maintenance or refueling would occur within 100 feet of any water bodies.
- All food waste and associated containers would be disposed of in closed lid containers and removed from the work areas at the end of each work day.
- No staging of materials would occur in wetlands.

See also responses to (1) and (5) herein.

(4) Demonstrate that PG&E has or will implement the measures for archaeological and cultural resources that are described on page 5.6-20 of the CEC Staff Assessment, including a survey for such resources. (Decision at 17)

In accordance with the CEC Staff Assessment on page 5.6-20 (attached as Exhibit H), PG&E obtained a Cultural Resources Inventory Report (attached as Exhibit I). The Report concluded that there are no cultural resources along the Eastshore-Dumbarton 115 kV Power Line. In addition, the Native American Heritage Commission confirmed in writing (see Exhibit I, Appendix B) that there are no Native American cultural resources in the Project area. Since the measures suggested on page 5.6-20 of the CEC Staff Assessment are contingent upon a finding of sensitive sites in the area, implementation of such measures is not applicable to this project.

(5) Demonstrate that PG&E has or will implement BMPs with regard to traffic, transportation, and safety precautions that comply with local permit requirements. (Decision at 17)

The following avoidance and minimization measures will be implemented:

- Employees and contractors performing O&M activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.
- Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- The development of new access and ROW roads by PG&E will be minimized, and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
- Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.

- Trash dumping, firearms, open fires (such as barbecues) not required by the O&M activity, hunting, and pets (except for safety in remote locations) will be prohibited in O&M work activity sites.
- No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.
- During any reconstruction of existing overhead electric facilities in areas with a high risk of wildlife electrocution (e.g., nut/fruit orchards, riparian corridors, areas along canal or creek banks, PG&E's raptor concentration zone [RCZ]), PG&E will use insulated jumper wires and bird/animal guards for equipment insulator bushings or will construct lines to conform to the latest revision of PG&E's Bird and Wildlife Protection Standards.
- During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding. In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.
- Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when O&M activities are the source of potential erosion problems.

In addition, PG&E or its contractor will obtain encroachment permits from Caltrans and the Cities of Hayward, Fremont, Union City, Foster City, and San Mateo, and will comply with the requirements contained in those permits.

(6) Provide a monitoring and reporting program to ensure compliance with measures during project implementation.

PG&E will hire Garcia and Associates ("GANDA") to provide on site environmental monitoring and reporting services for each stage of the project. The monitoring and reporting program complies with all Conditions of the Biological Opinion (Exhibit F). GANDA's scope of work, which describes the monitoring and reporting program, is included as Exhibit J.

The environmental monitors will be on site during each phase of construction of the reconductoring project. The monitors will provide environmental training for all construction personnel and visitors. They will

also prepare daily activity logs and weekly reports to PG&E. In addition, in accordance with conditions of the project Biological Opinion, GANDA will prepare a post-construction compliance report within 30 days following completion of construction.

Index of Exhibits

- Exhibit A – Opinion Granting a Certificate of Public Convenience and Necessity for a Generation Tie Line for the Russell City Energy Center Project (D.08-03-007)
- Exhibit B – Detail drawing of cage extension
- Exhibit C – PG&E Code of Safe Practices General Rules
- Exhibit D – Biological Assessment
- Exhibit E – U.S. Army Corps permit letter
- Exhibit F – U.S. Fish & Wildlife Service letter with biological opinion (BO)
- Exhibit G – San Francisco Bay Regional Water Quality Control Board letter
- Exhibit H – CEC Staff Assessment for the Russell City Energy Center, June 29, 2007 (01-AFC-7C), in relevant part
- Exhibit I – Cultural resources report (including letter from Native American Heritage Commission)
- Exhibit J – Garcia and Associates Monitoring Scope of Work

Protests

Anyone wishing to protest this filing may do so by letter sent via U.S. mail, by facsimile or electronically, any of which must be received no later than **June 15, 2011**, which is 20 days after the date of this filing. Protests should be mailed to:

CPUC Energy Division
Tariff Files, Room 4005
DMS Branch
505 Van Ness Avenue
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: ijnj@cpuc.ca.gov and mas@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest also should be sent via U.S. mail (and by facsimile and electronically, if possible) to PG&E at the address shown below on the same date it is mailed or delivered to the Commission:

Brian K. Cherry
Vice President, Regulation and Rates
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-6520
E-mail: PGETariffs@pge.com

Effective Date

This advice letter is effective pending disposition as indicated in Section 2(g) of the Commission's Decision (Exhibit A, page 17). Thus, in accordance with Section 7.3.3 of GO 96-B, this advice letter is effective upon the date of filing.

Notice

A copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list. Address changes to the service list and all electronic approvals should be directed to e-mail address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov. Advice letter filings can also be accessed electronically at: <http://www.pge.com/tariffs>.

A handwritten signature in black ink that reads "Brian Cherry" followed by a stylized flourish.

Vice President – Regulation and Rates

Attachments: Listed Exhibits

CALIFORNIA PUBLIC UTILITIES COMMISSION

ADVICE LETTER FILING SUMMARY ENERGY UTILITY

MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No. **Pacific Gas and Electric Company (ID U39 M)**

Utility type:

ELC GAS
 PLC HEAT WATER

Contact Person: Linda Tom-Martinez

Phone #: (415) 973-4612

E-mail: lmt1@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas
 PLC = Pipeline HEAT = Heat WATER = Water

(Date Filed/ Received Stamp by CPUC)

Advice Letter (AL) #: **3846-E**

Tier: 1

Subject of AL: **Eastshore-Dumbarton 115 kV Power Line Reconductoring Project**

Keywords (choose from CPUC listing): Compliance, Transmission Lines

AL filing type: Monthly Quarterly Annual One-Time Other _____

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #:

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL¹: _____

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for:

Confidential information will be made available to those who have executed a nondisclosure agreement: Yes No

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: _____

Resolution Required? Yes No

Requested effective date: **May 26, 2011**

No. of tariff sheets:

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected:

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

Protests, dispositions, and all other correspondence regarding this AL are due no later than 20 days after the date of this filing, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division

Tariff Files, Room 4005

DMS Branch

505 Van Ness Ave.,

San Francisco, CA 94102

jnj@cpuc.ca.gov and mas@cpuc.ca.gov

Pacific Gas and Electric Company

Attn: Brian Cherry

Vice President, Regulation and Rates

77 Beale Street, Mail Code B10C

P.O. Box 770000

San Francisco, CA 94177

E-mail: PGETariffs@pge.com

Advice 3846-E

Exhibit A

Decision 08-03-007 March 13, 2008

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of Pacific Gas and Electric Company (U39E) for a Certificate of Public Convenience and Necessity for the Russell City Energy Center 230 kV Transmission Line Pursuant to General Order 131-D.

Application 07-11-008
(Filed November 7, 2007)

**OPINION GRANTING A CERTIFICATE OF PUBLIC CONVENIENCE
AND NECESSITY FOR A GENERATION TIE LINE**

1. Summary

This opinion grants Pacific Gas and Electric Company (PG&E) a certificate of public convenience and necessity (CPCN) to construct and own a 230 kilovolt (kV) transmission line in the City of Hayward. The transmission line will connect a new 600 megawatt (MW) power plant to the electric grid at PG&E's Eastshore Substation. The developer and owner of the power plant is Russell City Energy Center, LLC (RCEC). All costs to construct, operate, and maintain the transmission line will be borne by RCEC.

This proceeding is closed.

2. Procedural Background

In Application (A.) 07-11-008, PG&E requests a CPCN pursuant to Pub. Util. Code §§ 1001 *et seq.*,¹ and General Order (GO) 131-D to construct and own a 230 kV transmission line (Tie-Line) approximately 1.3 miles long that will connect a new 600 MW gas-fired power plant, known as the RCEC Project, to the transmission grid at PG&E's Eastshore Substation. The RCEC Project is located in the City of Hayward and is expected to come on-line in June 2010. A map of the Tie-Line route is contained in Appendix A of today's opinion.

The Tie-Line is scheduled to be completed by September 2009. The Tie-Line must be finished earlier than the power plant so the power plant can be fully tested prior to operation. Commission approval of the Tie-Line is also needed before financing can be finalized for construction of the RCEC Project, which must begin in early 2008 to be on-line in June 2010.

The Tie-Line facilities will consist of aluminum wire conductor supported by approximately 20 tubular steel poles. The poles will be 85-140 feet tall, approximately 600-900 feet apart, and placed primarily in the transmission right-of-way for PG&E's existing Grant-Eastshore 115 kV power line. The poles placed in the right-of-way will be in line with, and approximately 60 feet west of, the existing towers for the Grant-Eastshore power line.

The estimated cost to build the Tie-Line is \$8.644 million, and the estimated cost of ownership is \$32,975/month. All costs for the Tie-Line, including construction, operation, and maintenance, will be paid by the owners of the RCEC Project. PG&E states that consistent with Decision (D.) 93-10-039

¹ All statutory references are to the Public Utilities Code unless otherwise indicated.

and D.06-10-048, there is no need to examine the cost effectiveness of the Tie-Line because it will have no financial impact on ratepayers.²

PG&E is authorized to buy power from the RCEC Project. Specifically, in D.04-12-048 the Commission determined that PG&E had a need for 2,200 MW of new generation capacity in northern California by 2010. To fulfill this need, the Commission in D.06-11-048 authorized PG&E to procure 2,250 MW of power from seven new power plants, including 600 MW from the RCEC Project.³

The California State Energy Resources Conservation and Development Commission (a.k.a. the California Energy Commission or CEC) certified the RCEC Project and Tie-Line in two orders issued on September 11, 2002 and September 26, 2007.⁴ The CEC's orders include an environmental analysis of the RCEC Project and Tie-Line. The CEC found that its Conditions of Certification will ensure that the RCEC Project and Tie-Line will not have significant direct, indirect, or cumulative adverse environmental impacts.

PG&E filed A.07-11-008 on November 11, 2007.⁵ Notice of A.07-11-008 appeared in the Commission's Daily Calendar on November 14, 2007. In addition, PG&E provided the various notices required by GO 131-D, Section XI.A, including the following:

² D.93-10-039, 51 CPUC 2d 594, 597-598; D.06-10-048, *mimeo.*, pp. 4 and 8.

³ D.06-11-048 refers to the RCEC Project as "Calpine Hayward."

⁴ CEC Order Nos. 02-0911-02 and 07-0926-04, issued in Docket Nos. 01-AFC-7 and 01-AFC-7C, respectively. PG&E appended the CEC Orders to A.07-11-008.

⁵ PG&E filed additional information and documents related to A.07-11-008 on November 26, December 6, December 14, and December 20, 2007.

- Notice of A.07-11-008 provided by direct mail to (i) all owners of property within 300 feet of the right-of-way; (ii) the planning commission and the legislative body for each county or city in which the proposed facility would be located; and (iii) the Federal, State, and local agencies specified in GO 131-D that have jurisdiction over the proposed Tie-Line.
- Notice of A.07-11-008 provided by advertisement in a newspaper of general circulation in the county (Alameda County) in which the proposed facilities will be located.
- Notice of A.07-11-008 provided by posting on-site and off-site where the project will be located.

Californians for Renewable Energy (CARE) filed a protest on December 13, 2007, which urged the Commission to deny A.07-11-008. There were no other protests. PG&E responded to CARE's protest on December 26, 2007. PG&E's response asked the Commission to reject CARE's protest and to grant A.07-11-008. On January 2, 2008, the assigned Commissioner issued a Ruling and Scoping Memo that deemed all of the issues raised in CARE's protest to be outside the scope of this proceeding.

3. Discussion

3.1. Need and Cost

A.07-11-008 is subject to GO 131-D, Section III.A,⁶ which states as follows:

"A. Certificate of Public Convenience and Necessity (CPCN)

No electric public utility shall begin construction in this state of any new...major electric transmission line facilities which are designed for immediate or eventual operation at 200 kV

⁶ GO 131-D implements § 1001 *et seq.* with respect to electric generation, transmission, and distribution facilities. (GO 131-D, Section I.)

or more...without this Commission having first found that said facilities are necessary to promote the safety, health, comfort and convenience of the public, and that they are required by the public convenience and necessity.”

In D.04-12-048 and D.06-11-048, the Commission determined that PG&E has a need for new generation capacity in Northern California and authorized PG&E to procure 600 MW of power from the RCEC Project. The proposed Tie-Line must be constructed in order to deliver the needed power from the RCEC Project to the transmission grid. Therefore, in accordance with GO 131-D, Section III.A, we find the Tie-Line is (1) necessary to promote the safety, health, comfort, and convenience of the public, and (2) required by the public convenience and necessity.⁷

PG&E and RCEC have agreed that RCEC will pay all costs for the Tie-Line and that PG&E will construct, own, operate, and maintain the Tie-Line. This arrangement is consistent with the policy of the Federal Energy Regulatory Commission, which requires the costs of connecting new power plants to the grid to be borne by the owners of the power plants.

PG&E represents that none of the costs for the Tie-Line will be borne by ratepayers. Therefore, there is no need for us to consider the cost-effectiveness of the Tie-Line. However, to ensure that ratepayers are protected financially, we will grant A.07-11-008 with the condition that PG&E shall not pass on to its ratepayers any costs, risks, or liabilities associated with the Tie-Line.

⁷ Because the Tie-Line was approved by the CEC under Pub. Res. Code §§ 25000 *et seq.*, A.07-11-008 is exempt from Pub. Util. Code § 1002(a) pursuant to § 1002(b).

3.2. Environmental Review

3.2.1. Tie-Line

The Commission is required by the California Environmental Quality Act (CEQA)⁸ to consider the environmental consequences of a project that is subject to the Commission's discretionary approval. In doing so, the Commission must act as either a Lead Agency or Responsible Agency. The Lead Agency is the one with the most responsibility for supervising or approving the project as a whole.⁹

In this case, the CEC is the Lead Agency and the Commission is a Responsible Agency. As Lead Agency, the CEC conducted an environmental analysis of the RCEC Project and associated Tie-Line pursuant to the CEC's jurisdiction under Pub. Res. Code §§ 25500 *et seq.*, to site power plants and their related tie-lines. The CEC's siting process and associated documents are functionally equivalent to an Environmental Impact Report.¹⁰

The CEC's environmental analysis assessed the impacts of the RCEC Project and Tie-Line with respect to transmission line engineering, safety and nuisance; air quality; public health; hazardous materials management; worker safety/fire protection; biological resources; soil and water resources; cultural resources; geological and paleontological resources; waste management; land use; noise; socio-economics; traffic and transportation; and visual resources. As a

⁸ The provisions of CEQA are set forth in Pub. Res. Code § 21000 *et seq.*

⁹ CEQA Guidelines (Title 14, Division 6, Chapter 3 of the California Code of Regulations), Section 15051(b).

¹⁰ Pub. Res. Code § 25519(c).

result of its environmental analysis, the CEC adopted Conditions of Certification for the RCEC Project and Tie-Line. The CEC found that:

The Conditions of Certification...if implemented by the Applicant, ensure that the project will be designed, sited, and operated in conformity with applicable local, regional, state, and federal laws, ordinances, regulations, and standards, including applicable public health and safety standards, and air and water quality standards.

Implementation of the Conditions of Certification...will ensure protection of environmental quality and assure reasonably safe and reliable operation of the facility. The Conditions of Certification also assure that the project will neither result in, nor contribute substantially to, any significant direct, indirect, or cumulative adverse environmental impacts.¹¹

CEQA requires the Commission to consider the Lead Agency's environmental documents and findings before acting upon or approving a project.¹² Here, the project before the Commission is the Tie-line. The Tie-Line will consist of aluminum wire conductor supported by approximately 20 tubular steel poles. The poles will be 85-140 feet tall, approximately 600-900 feet apart, and placed primarily in existing transmission right-of-way.

The record in this proceeding includes CEC Order Nos. 02-0911-02 and 07-0926-04, which contain the CEC's environmental analysis and Conditions of Certification. We have reviewed the CEC's environmental documents and

¹¹ CEC Order No. 02-0911-2, pp. 1 - 2, Findings of Fact (FOFs) 2 and 3 and Ordering Paragraphs (OPs) 2 and 5; see also CEC Order No. 07-0926-04, p. 2, FOFs 2 and 3 and OPs 2 and 3.

¹² CEQA Guidelines 15050(b) and 15096.

findings as they pertain to the Tie-Line, and we find these documents are adequate for our decision-making purposes.

We conclude that the CEC reasonably found that the proposed Tie-Line, as conditioned, will not result in any significant direct, indirect, or cumulative adverse environmental impacts. Therefore, consistent with CEQA Guidelines 15091(a)(1) and 15096(h), we will adopt the CEC's Conditions of Certification that pertain to the Tie-Line. The CEC is responsible for monitoring compliance with its Conditions of Certification. Thus, there is no need for us to adopt a program for monitoring and enforcing compliance with the CEC's Conditions of Certification as would otherwise be required by CEQA Guideline 15091(d).

3.2.2. Eastshore-Dumbarton Transmission Line

There is one matter in the CEC's environmental documents that is not directly related to the Tie-Line, but which affects the Commission. Specifically, the CEC found in Order No. 07-0926-04, at page 64, that (1) the additional power provided by the RCEC Project would require the reconductoring of PG&E's 115 kV Eastshore-Dumbarton transmission line, and (2) the potential impacts of the reconductoring would not be significant "if mitigation measures similar to those identified in the [CEC] Staff Assessment are applied to the project."¹³ The Commission has primary jurisdiction over the reconductoring project.

¹³ CEC Order No. 07-0926-04, p. 64. Emphasis added.

The CEC Staff Assessment concluded that the impacts of the reconductoring project would likely be less than significant in the following areas if “standard mitigation measures” are implemented¹⁴:

- Air Quality
- Facility Design
- Hazardous Materials Management
- Power Plant Efficiency
- Power Plant Reliability
- Public Health
- Worker Safety
- Socioeconomic Resources
- Waste Management
- Worker Safety

The CEC Staff Assessment also identified three areas of concern: biological resources, cultural resources, and traffic and transportation. The CEC Staff’s findings and conclusions in each of these areas are summarized below.

Biological Resources. The CEC Staff found that reconductoring the Eastshore-Dumbarton 115 kV transmission line could adversely affect sensitive biological resources in the vicinity of the transmission line. To avoid these impacts, the CEC Staff recommend that (1) PG&E submit its final project description (including wetlands delineations, results of sensitive species surveys,

¹⁴ CEC Staff Assessment, p. 5.6-19. PG&E filed a complete copy of the CEC Staff Assessment on December 14, 2007.

and a revised assessment of potential impacts) to the Commission to ensure that the project complies with applicable laws, ordinances, and regulations (LORs); and (2) PG&E consult with the California Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Army Corps of Engineers, Regional Water Quality Control Board, and the Bay Conservation and Development Commission to identify potential impacts and develop measures to avoid, eliminate, or reduce the impacts to a less-than-significant level. The CEC Staff concluded that it is unlikely the reconductoring project would significantly impact biological resources if PG&E complies with all applicable LORs, uses standard Best Management Practices (BMPs) for construction activities, and implements the mitigation measures that may be proposed by the previously identified governmental agencies.

Cultural Resources. The CEC Staff Assessment recommended that PG&E conduct a survey of archaeological and historic sites after the major work areas for the reconductoring project are identified. If sensitive sites are identified, then PG&E and the Commission should perform a preconstruction assessment, develop a training program, and monitor work activities within sensitive sites. If cultural material is discovered, construction should be halted until the find is evaluated. The CEC Staff further recommended that archaeological sites be evaluated for listing in the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR). If avoidance of archaeological sites is impossible, data recovery should be done for those sites that are recommended for the NRHP or CRHR. In addition, the Native American Heritage Commission should be contacted to determine if there are any sacred sites in the vicinity of the work. The CEC Staff concluded that it is unlikely the

reconductoring project would significantly impact cultural resources if the aforementioned procedures and measures are employed.

Traffic and Transportation. To mitigate the potential impacts on the surrounding roadway system, the CEC Staff recommended (1) that work crews avoid adding any vehicles to local roadways during peak travel times by using off-site facilities for staging and laydown, non-peak hour scheduling, and carpooling to the job site; and (2) installation of protective structures to reduce the potential for construction material falling on motorists, bicyclists, or pedestrians. The CEC Staff concluded that it is unlikely the reconductoring project would significantly impact traffic and transportation if the aforementioned measures are employed.¹⁵

After reviewing the substantial evidence in the record of this proceeding, we find pursuant to CEQA Guidelines 15091(a)(1) and 15096(h) that the CEC reasonably concluded that it is unlikely the proposed reconductoring project will result in any significant direct, indirect, or cumulative adverse impacts if the mitigation measures identified in the CEC Staff Assessment (and summarized above) are implemented. To ensure there are no significant impacts, we will order PG&E pursuant to our authority under Pub. Util. Code § 701 to implement the mitigation measures identified in the ordering paragraphs of this opinion. The adopted mitigation measures are substantially similar to those in the CEC's Staff Assessment. PG&E shall demonstrate that it has or will implement the adopted mitigation measures in a compliance advice letter filed pursuant to

¹⁵ CEC Staff Assessment, pp. 5.6-19 - 5.6-20.

GO 96-B, Sections 7.5.3 and 7.6.1. Commission staff may reject the advice letter if it fails to demonstrate that PG&E has or will implement the adopted mitigation measures or if PG&E does not provide additional information requested by staff.

3.3. Compliance with EMF Policy

GO 131-D, Section X, requires an application for a CPCN to construct a tie-line to describe measures taken by the utility to reduce potential exposure to electric and magnetic fields (EMF) generated by the proposed facilities. In D.06-01-042, the Commission affirmed its existing policy of requiring no-cost and low-cost mitigation measures to reduce EMF levels from new transmission lines. The Commission also adopted rules and policies to improve utility design guidelines for reducing exposure to EMF.

PG&E provided a Transmission Magnetic Basic Field Management Plan for the Tie-Line (Management Plan) in Appendix J of A.07-11-008. PG&E's Management Plan describes how the proposed Tie-Line route and configuration will reduce exposure to magnetic fields at low cost or no cost. Based upon our review, we find that PG&E's Management Plan complies with the EMF policy adopted by the Commission in D.06-01-042.

4. Categorization and Need for Hearing

In ALJ Resolution 176-3203, dated November 16, 2007, we preliminarily categorized this proceeding as ratesetting and preliminarily determined that hearings are not needed. The Assigned Commissioner's Ruling and Scoping Memo issued on January 2, 2008, affirmed that this is a ratesetting proceeding and that hearings are not needed.

5. Assignment of Proceeding

Timothy Alan Simon is the assigned commissioner and Timothy Kenney is the assigned Administrative Law Judge (ALJ) in this proceeding.

6. Comments on the Proposed Decision

The ALJ's proposed decision was mailed to the parties in accordance with § 311 and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. CARE filed comments on January 22, 2008. PG&E filed opening and reply comments on February 4 and 11, 2008, respectively. The parties' comments have been reflected, as appropriate, in the final decision adopted by the Commission.

Findings of Fact

1. In A.07-11-008, PG&E requests a CPCN to construct and own a Tie-Line to connect the RCEC Project to the transmission grid.

2. In D.04-12-048 and D.06-11-048, the Commission determined that PG&E has a need for 2,100 MW of new generation capacity in Northern California and authorized PG&E to procure 600 MW of power from the RCEC Project. The proposed Tie-Line must be constructed in order to deliver the needed power from the RCEC Project to the transmission grid.

3. The owners of the RCEC Project have agreed to pay all costs for the Tie-Line.

4. The CEC is the lead agency under CEQA for the RCEC Project and the associated Tie-Line. The Commission is a Responsible Agency under CEQA.

5. The CEC conducted an environmental analysis of the RCEC Project and associated Tie-Line. The CEC found in Order Nos. 02-0911-02 and 07-0926-04 that the proposed Tie-Line, with the CEC's Conditions of Certification, would not result in, nor contribute substantially to, any significant direct, indirect, or cumulatively adverse environmental impacts. The CEC is responsible for monitoring and enforcing compliance with its Conditions of Certification.

6. CEC Order No. 07-0926-04 states at page 64 that the potential effects from the reconductoring of the 115 kV Eastshore-Dumbarton power line would not be significant if mitigation measures similar to those identified in the CEC Staff Assessment are applied to the reconductoring project.

7. The measures that PG&E is required by this opinion to implement for the 115 kV Eastshore-Dumbarton reconductoring project will prevent any significant direct, indirect, or cumulative adverse impacts from the project. These measures are substantially similar to those identified in the CEC Staff Assessment.

Conclusions of Law

1. The proposed Tie-Line is (i) necessary to promote the safety, health, comfort, and convenience of the public, and (ii) required by the public convenience and necessity.

2. There is no need to consider the cost-effectiveness of the proposed Tie-Line because PG&E's ratepayers will not bear any of the costs for the Tie-Line pursuant to the following order.

3. PG&E should be granted a CPCN pursuant to GO 131-D to construct, own, operate, and maintain the Tie-Line as described in A.07-11-008, subject to the conditions in the following order.

4. Pursuant to Pub. Res. Code § 25519(c), CEC Order Nos. 02-0911-02 and 07-0926-04 are functionally equivalent to an environmental impact report under CEQA. These documents are adequate for the Commission's decision-making purposes, and the Commission has considered these documents in its decision-making process in accordance with CEQA Guideline 15096(f).

5. The CEC reasonably concluded that its adopted Conditions of Certification will ensure that that the Tie-Line will not result in, or contribute substantially to, any significant direct, indirect, or cumulatively adverse environmental impacts.

6. Pursuant to CEQA Guideline 15096(g)(1), and to ensure there are no adverse environmental impacts from the Tie-Line, the granting of a CPCN for the Tie-Line should be subject to the Conditions of Certification and Compliance Verifications applicable to the Tie-Line that are contained in CEC Order Nos. 02-0911-02 and 07-0926-04.

7. To ensure that there are no significant impacts from the reconductoring of the 115 kV Eastshore-Dumbarton power line, PG&E should implement the measures identified in the following order. The adopted measures are substantially similar to those identified in the CEC Staff Assessment, which is referenced in CEC Order No. 07-0926-04, at page 64.

8. PG&E should demonstrate in a compliance advice letter filed pursuant to GO 96-B, Sections 7.5.3 and 7.6.1, that it has implemented, or will implement, the measures for the reconductoring of the Eastshore-Dumbarton transmission line that are required by the following order. The advice letter should be rejected if it fails to demonstrate compliance with the adopted measures or if PG&E fails to provide additional information requested by staff.

9. PG&E's Transmission Magnetic Basic Field Management Plan contained in Appendix J of A.07-11-008 complies with GO 131-D and the low-cost, no-cost EMF policy adopted by the Commission in D.06-01-042.

10. The following order should be effective immediately so that construction of the Tie-Line for the RCEC Project may begin when necessary.

O R D E R

IT IS ORDERED that:

1. A certificate of public convenience and necessity is granted to Pacific Gas and Electric Company (PG&E) pursuant to General Order (GO) 131-D to construct, own, operate, and maintain a 230 kilovolt (kV) transmission line from the Russell City Energy Center (RCEC) Project to PG&E's Eastshore Substation, subject to the following conditions:

- a. PG&E shall not recover from its ratepayers, either directly or indirectly, any costs for the transmission line, including any costs to construct, own, operate, or maintain the line. Nor shall PG&E pass on to its ratepayers, either directly or indirectly, any risks or liabilities associated with the transmission line.
- b. PG&E shall comply with all Conditions of Certification and Compliance Verifications applicable to the transmission line that are contained in Order Nos. 02-0911-02 and 07-0926-04 issued by the California Energy Resources Conservation and Development Commission (CEC) in Docket Nos. 01-AFC-7 and 01-AFC-7C.

2. PG&E shall file a compliance advice letter pursuant to GO 96-B, Sections 7.5.3 and 7.6.1, to demonstrate that it has or will implement the following measures for the Eastshore-Dumbarton 155 kV Reconductoring Project:

- a. The advice letter shall demonstrate that PG&E has or will implement all appropriate measures with respect to the following environmental and engineering disciplines: air quality, facility design, hazardous materials management, power-plant efficiency and reliability, public health, worker safety, socioeconomic resources, waste management, and worker safety.
- b. The advice letter shall provide the final description of the Eastshore-Dumbarton 115 kV Reconductoring Project. The description shall include (i) wetland delineations, (ii) results of all sensitive species surveys, and (iii) an assessment of potential impacts.

- c. The advice letter shall demonstrate that (i) PG&E has consulted, to the extent required by applicable laws, ordinances, and regulations, with all resource agencies that have jurisdiction over the Project; (ii) PG&E has or will implement the mitigation measures identified by these agencies, and (iii) PG&E will use standard Best Management Practices (BMP) for construction activities.
 - d. The advice letter shall demonstrate that PG&E has or will implement the measures for archaeological and cultural resources that are described on page 5.6-20 of the CEC Staff Assessment, including a survey for such resources.
 - e. The advice letter shall demonstrate that PG&E has or will implement BMPs with regard to traffic, transportation, and safety precautions that comply with local permit requirements.
 - f. The advice letter shall provide a monitoring and reporting program to ensure compliance with measures during project implementation.
 - g. The advice letter shall be effective pending disposition by the Commission's Energy Division. Commission staff may reject the advice letter if it fails to comply with this order or if PG&E fails to provide additional information requested by Commission staff.
3. Application 07-11-008 is closed.

This order is effective today.

Dated March 13, 2008, at San Francisco, California.

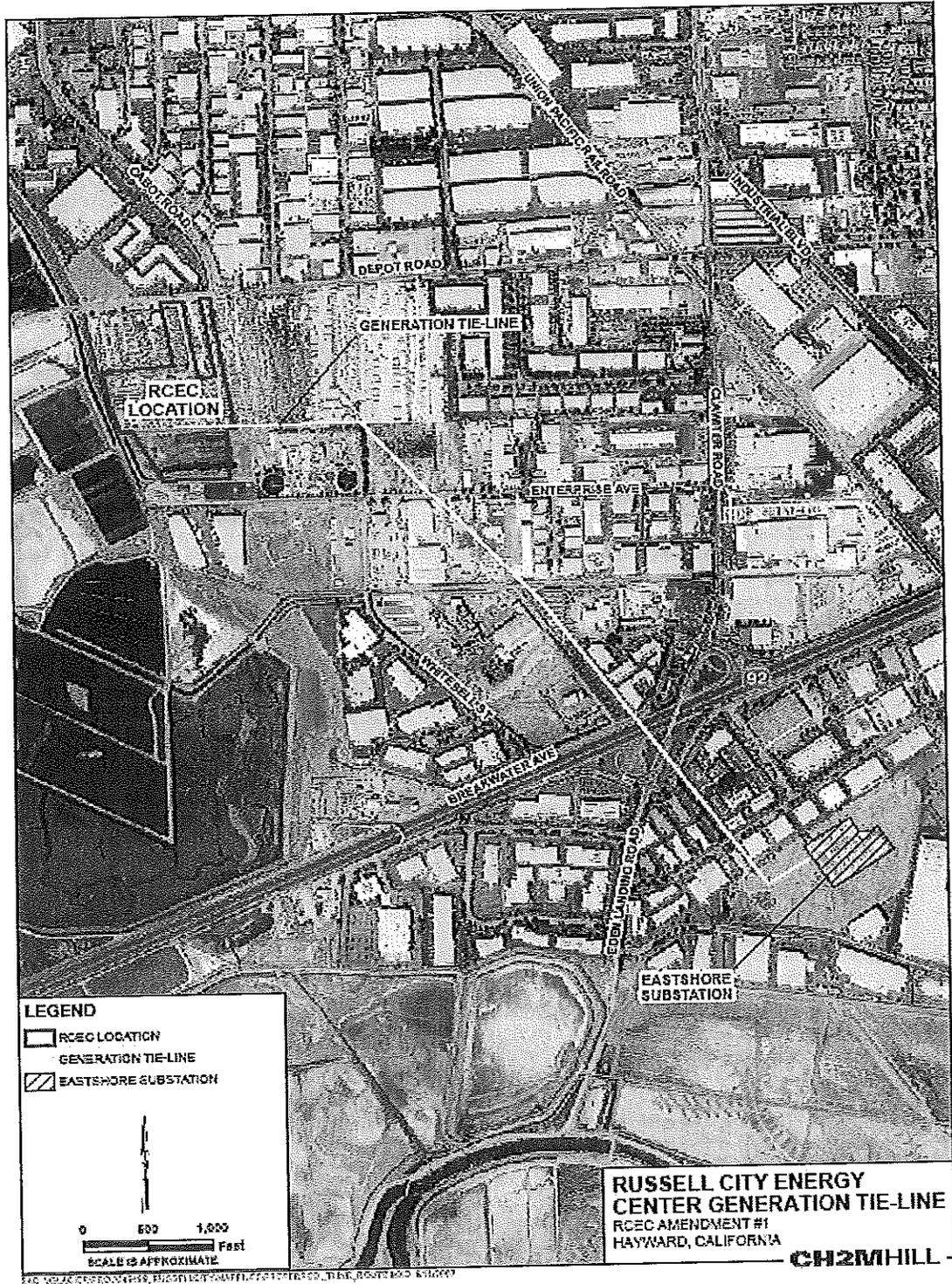
MICHAEL R. PEEVEY
President
DIAN M. GRUENEICH
JOHN A. BOHN
RACHELLE B. CHONG
TIMOTHY ALAN SIMON
Commissioners

A.07-11-008 ALJ/TIM/hl2

Appendix A

Map of the RCEC Tie-Line Route

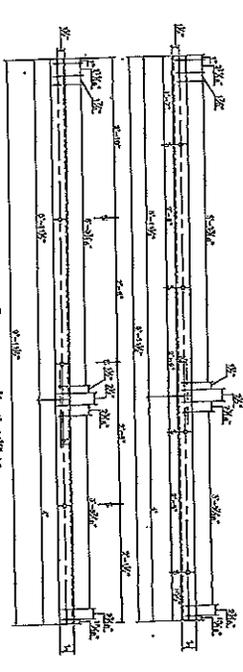
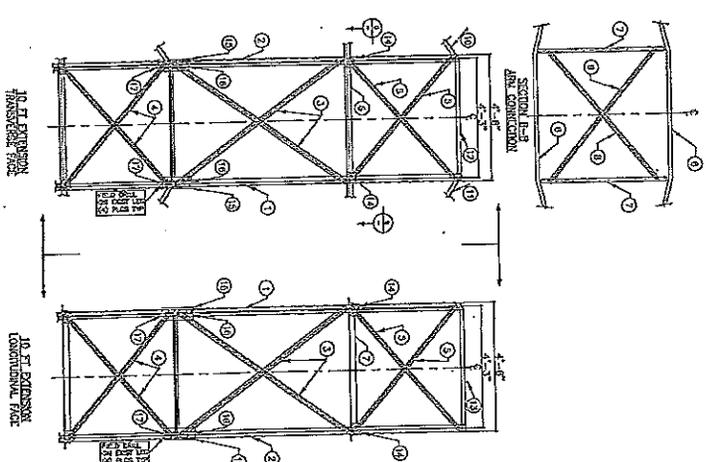
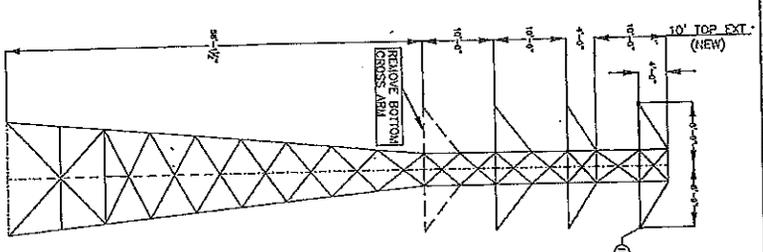
APPENDIX A



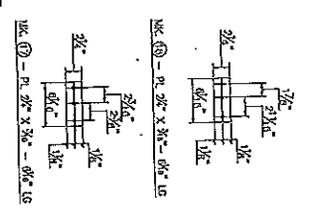
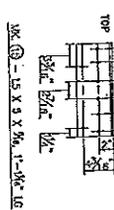
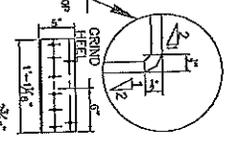
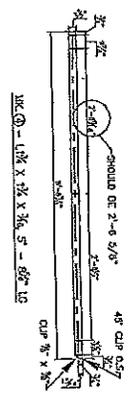
(END OF APPENDIX A)

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Exhibit B



NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
HOLE MARKED "S" OR "D" ONLY (FOR CLAMPING)



MEMBER NO.	QTY	DESCRIPTION	WEIGHT (LBS)	REMARKS
1	1	1/2" X 3/4" X 11'-11 1/2" LG	35.00	MEMBER 1
2	1	1/2" X 3/4" X 9'-1 1/2" LG	19.88	MEMBER 2
3	1	1/2" X 3/4" X 7'-1 1/2" LG	14.76	MEMBER 3
4	1	1/2" X 3/4" X 5'-1 1/2" LG	9.64	MEMBER 4
5	1	1/2" X 3/4" X 3'-1 1/2" LG	4.52	MEMBER 5
6	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 6
7	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 7
8	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 8
9	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 9
10	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 10
11	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 11
12	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 12
13	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 13
14	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 14
15	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 15
16	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 16
17	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 17
18	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 18
19	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 19
20	1	1/2" X 3/4" X 1'-1 1/2" LG	0.90	MEMBER 20
TOTAL WEIGHT, BLACK (lb)			663.58	

- GENERAL NOTES:
1. MATERIAL AND FABRICATION SHALL BE IN ACCORDANCE WITH P.O. & E. ENGINEERING STD. #50, LATEST EDITION.
 2. ALL NEW ANGLES SHALL BE "HIGH ELASTIC" STEEL AND PLATES SHALL BE "MEDIUM GRADE" STEEL.
 3. ALL NEW BOLTS SHALL BE 1/2" DIA. A594 TYPE 1. REMOVE ALL HEX NUTS AND BOLTS FROM ALL DIMENSIONS. ALL DIMENSIONS SHALL BE TO THE CENTER OF THE MEMBER UNLESS OTHERWISE NOTED.
 4. REMOVE ALL 3/8" DIA. HOLES IN EXISTING MEMBERS WHERE APPLICABLE.
 5. ALL FIELD HOLES AND DAMAGED AREAS SHALL BE TREATED WITH P.O. & E. RES. ZINC-ANNEALING REQUIRED.
 6. PROVIDE FILLER METAL AS REQUIRED.
 7. DOOR DISTANCE 1/2" UNLESS OTHERWISE NOTED.

NO.	DATE	ISSUE FOR	DESCRIPTION	REVISIONS
1	12-10-97	ISSUE FOR CONSTRUCTION		

NO.	DATE	ISSUE FOR	DESCRIPTION	REVISIONS
1	12-10-97	ISSUE FOR CONSTRUCTION		

TYPE "X" TOWER
STRUCTURAL DRAWING FOR 10' CAGE TOP EXTENSION
4300 U.S. MARSHAL CONDUCTOR TENSION
ELECTRIC TRANSMISSION & DISTRIBUTION ENGINEERING
PACIFIC GAS & ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA



BLACK & VEITCH
DIVISION: Peninsula
SUPERVISOR: [Name]
DRAWING NO.: 397517
REV.: 1

EXH A

Advice 3846-E

Exhibit C

GENERAL RULES
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- 12 Hazard Communication
- 13 Flammable Liquids
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1. Tailboard Briefings

- (a) Employees shall participate in tailboard briefings given by the employee-in-charge of the job. Conduct a tailboard before performing a job to discuss task involved, hazards and related safety precautions. Conduct a tailboard; once per shift, prior to performing work, after extended delays in activity, anytime the jobsite activities change. After the briefing, each crew member should be able to demonstrate knowledge of:
- (1) The work methods, procedures, and proper sequences for the job. This includes the task purpose, scope sequence, nature of work, review of procedures, work package documents, drawings, turn-over information, prerequisites, etc. that will be used to complete the task.
 - (2) What he/she and the other members of the crew are to do including task assignments, identifying and understanding roles and responsibilities, qualifications, personal limitations, hand-offs, and the controlling authority.
 - (3) The responsibilities and appropriate actions in emergency situations including emergency procedures and emergency contacts.
 - (4) The potential or known hazards or trouble spots involved and the controls to mitigate the hazards including identification of safety hazards, work procedures involved, special precautions, control of energy sources including permits and clearances, personal

protective equipment (PPE) and utilization of Human Performance tools for each critical step relevant to risk with industrial, environmental, safety and operations.

- (5) What other work is going on in the area (e.g., PG&E, contractor, County, etc.).
- (b) If the job task or conditions change such that employees become aware of a hazard about which they have not received a tailboard briefing, they shall stop work and notify their supervisor or the employee-in-charge.
- (c) A tailboard briefing is a pre-work meeting or discussion held in a safe location, (usually at the job site), to discuss job activities before starting the work and again at any time conditions at the job site change (e.g., work scope or activities change, crew members change, new equipment introduced, contractor activities change, etc.). Tailboard briefings encourage employee involvement and participation. See the *Safety & Performance Fundamental Handbook* for additional tailboard details.

2. Personal Protective Equipment

- (a) Employees shall be provided with personal protective equipment (PPE) suitable for the hazard (such as hearing protection for noise exposure, respirators for airborne respiratory hazards, gloves for thermal, chemical, electrical or impact hazards, etc.) and, prior to use of the PPE, shall receive training on:
 - (1) The need and limitations of personal protective equipment

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- (2) Selection, use, care and maintenance, and storage of protective equipment
- (3) How to inspect for damage, deterioration and defects.
- (b) Employees shall use only Company approved personal protective equipment that meets regulatory standards and is properly fitted to ensure that the equipment provides adequate protection from the anticipated exposures.
- (c) Employees shall inspect PPE before each use to assure proper fit and that the item has no damage, deterioration or other condition that might impact its effectiveness and protective qualities. PPE that is found to be damaged, deteriorated or defective shall not be used but either tagged, removed from service (and notice given to the supervisor of its condition), or destroyed as authorized by the supervisor.
- (d) If employees suspect that they may need PPE or are unsure if they need PPE, they shall notify their supervisor or contact their safety representative for guidance.
- (e) When employees may be exposed to hazards such as noise, electricity, natural gas, and/or airborne contaminants that make the workplace unsafe, feasible engineering and/or administrative controls shall be implemented to eliminate or minimize the hazard(s) or exposure by controlling it at its source. When the hazard(s) cannot be adequately controlled to a safe level through engineering controls (e.g., changing the process or equipment, using ventilation, isolating the hazard, substituting a safer chemical) or

administrative controls (e.g., work schedule changes to minimize the exposure), employees shall use appropriate personal protective equipment. See the *Safety Equipment Guide* for more information.

3. Head Protection

- (a) Employees shall wear a hard hat, furnished by the Company, when exposed to energized conductors or apparatus, falling or flying objects, or as required by the employee-in-charge. Hard hat and suspension will be inspected prior to use.
- (b) Hard hats shall not be painted, drilled, or marked by stamping, scratching, cutting or by any method which defaces the shell.
- (c) For the purpose of identification, employees may place their name and classification on the shell, using vinyl tape labels.
- (d) Only three decals, in addition to the Company logo, may be applied to the exterior of hard hats.
 - (1) Decals shall be related to the Company and its unions, and be Company-approved.
 - (2) Decals shall be placed on the sides or back of the shell, not on the brim nor extend more than 3 inches from the junctures of the brim and crown, and shall not interfere with the Company logo or another decal.
 - (3) Decals shall be non-metallic. Each decal shall cover an area no larger than 4 square inches (e.g., 2 inches by 2 inches).
- (e) When replacing accessories, manufacturer's standard parts shall be used.

- (f) Employees are responsible for reporting identified cracking or chipping to their supervisor who shall determine if replacement is necessary.
- (g) Replacement shall occur annually for suspension parts and at least every 5 years from the date of issue for the shell, or as required by the manufacturer's instructions.
 - (1) Employees shall write the date of issue on the inside of the hard hat with a permanent marker.
- (h) Employees shall store hard hats/caps away from sunlight and extreme heat or cold, and not on the shelf in the rear of passenger vehicles.
- (i) Only Company approved items listed in the *Safety Equipment Guide* may be worn under or over hard hats. Ball caps, beanies, skull caps, hooded sweatshirts, etc., may not be worn under or over hard hats.

4. Face and Eye Protection

(a) Combined Face and Eye Protection

- (1) Employees shall wear Company-approved face shields and eye protection in work situations where there is the possibility of exposure to splashing chemicals, flying particles, or facial injury.
- (2) Where approved eye protective devices (e.g., cup or cover goggles) are required to be worn, employees may also wear face shields to protect the face. However, wearing a face shield alone is not approved eye protection.

(b) Eye Protection

- (1) Employees who work on jobs that require eye protection shall wear eye protective devices that comply with the applicable American National Standards Institute (ANSI) standards. Employees shall wear eye and face protection when engaged in, or in the vicinity of work involving:
 - a. Drilling or chipping stone, brick, concrete, paint, pipe coatings, or metal
 - b. Grinding, buffing, or wire brushing, whether there is a guard or not
 - c. Dust or flying particles
 - d. Welding, cutting, or burning
 - e. The use of hot or hazardous substances
 - f. Injurious light or heat rays
 - g. Any other job where there is danger of eye injury
 - h. The use of a chain saw.
- (2) Side shields shall be used with eye protective devices whenever the hazard of flying objects is angular as well as frontal.
- (3) Employees working on energized conductors or apparatus, or performing switching operations shall wear approved eye protection as follows:
 - a. During daylight hours, where visibility is not hampered: safety glasses or plastic coverall goggles and a Flame Resistant (FR) rated face shield with shaded lenses.

-
- b. During darkness, or other times when visibility is hampered: Company approved clear, amber, or plastic safety glasses or coverall goggles with a clear lens, and a Flame Resistant (FR) rated face shield with an amber lens or a shaded lens.
 - c. When the switching suit and hood are being used for arc protection: safety glasses or goggles.
 - d. When working on metering equipment energized at a voltage above 300 volts: A Flame Resistant (FR) rated face shield and safety glasses or goggles.
- (c) **FR Face Protection**
- (1) When required by departmental procedures, appropriate FR face protection must be worn. FR face protection consists of the following three levels:
 - a. Level 1: Level 1 face protection consists of arc-rated face shield with a minimum rating of 8 cal/cm² and safety glasses or goggles.
 - b. Level 2: Level 2 face protection consists of one of the following options:
 - 1) FR balaclava (double layer sock hood) with a minimum rating of 25 cal/cm², safety glasses, and an arc-rated face shield.

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- 2) FR balaclava (double layer sock hood) with a minimum rating of 25 cal/cm² and an arc-rated goggle.
 - 3) FR hood rated 25 cal/cm² or greater.
 - c. Level 3: Protective switching suit hoods that come as part of Oberon protective switching suits.
5. **Hand and Foot Protection**
- (a) **Hand Protection**
- (1) Employees working with skin irritants, or performing welding or cutting shall use Company-provided gloves.
 - (2) Employees shall use the following types of gloves when working on or near energized conductors or apparatus:

<u>Maximum Use Voltage</u>		<u>Glove Type</u>
<u>Phase-to-Phase</u>	<u>Phase-to-Ground</u>	
50 to 500 volts AC (nominal); 50 to 750 volts DC	50 to 500 volts AC (nominal); 50 to 750 volts DC	Class 00 rubber gloves with leather keepers
5,000 volts	2,400 volts	Class 2 rubber gloves with leather keepers
21,000 volts	17,000 volts	Class 2 rubber gloves with leather keepers <i>(rubber glove certified employees only)</i>

New rubber gloves must have been electrically tested within the previous 12 months before being placed in service. Gloves may not remain in service for more than 6 months without an

electrical retest. 00 Gloves must be given the required air test (CSP Rule 412) before each use.

(b) **Foot Protection**

- (1) Employees shall wear Company-provided toe guards when using power tampers, pavement breakers, jackhammers or other equipment that could result in crushing injuries to the feet.
- (2) Employees shall wear footwear appropriate for work activities involving chemicals, heavy work, welding or cutting uneven surfaces, slippery floors, frequent walking, etc.
- (3) When working on or near exposed live parts, only work shoes with hard rubber soles and leather uppers are permitted. Tennis shoes or shoes that have non-natural fabrics visible from the outside are not permitted.

6. **Hearing Conservation**

- (a) Employees who may be exposed to noise above 85 dBA for short periods of time and/or who voluntarily use hearing protection shall attend hearing protection PPE training in accordance with SH&C Procedure 222. These employees will not be offered audiometric testing unless they meet the criteria in (b).
- (b) Employees exposed to noise at or above the permissible exposure level (PEL: an 8-hour time-weighted-average [TWA] of 85 decibels [dBA]) shall wear approved hearing protection, participate in annual training, and shall be offered audiometric testing. The identified job

classifications are listed in SH&C Procedure 222, Exhibit A.

- (c) Employees shall wear approved hearing protective devices when:
- (1) Operating tools or equipment to which decals have been affixed indicating that hearing protection shall be worn, or that generate noise at 85 dBA or above.
 - (2) Working in areas where signs have been posted indicating that hearing protection shall be worn, or in areas of noise at 85 dBA or above.
 - (3) Working in other areas where the noise level exposure will, or may, equal or exceed 85 dBA.
 - (4) Instructed to do so by the employee-in-charge.
- (d) Employees shall wear two approved hearing protective devices when noise exposure exceeds 105 dBA. Two hearing protective devices (include wearing approved ear muffs) in addition to wearing approved ear plugs.

7. Respiratory Protection

- (a) Employees shall not wear a respirator until their job task and exposure have been evaluated and the employee has been medically cleared, fit tested, and trained in the proper maintenance, use, and care of the respirator being worn. Respiratory protection will be used only after engineering and administrative controls have been implemented and were not successful in reducing or eliminating airborne exposures.

- (b) Employees who are or may be exposed to airborne levels of dusts, mists, fumes, gases or vapors at or above the permissible exposure level(s) for the particular contaminant(s) shall wear respiratory protection and participate in the Company's medical surveillance program, and receive annual training and fit testing in accordance with the Company's Respiratory Protection Program in SH&C Procedure 223 (RPP).
 - (c) Respirators shall be selected, provided and worn in accordance with the Company's RPP.
 - (d) Employees shall only use respirators provided by the Company.
 - (e) Anytime they don a respirator, employees shall be clean-shaven where the respirator seals to the face. Clean shaven includes removal of facial hair that would interfere with the function of the respirator valve (i.e., goatee or long mustache). Use of a respirator is prohibited when conditions, such as facial hair, prevent a good seal of the respirator.
 - (f) Voluntary Respirator Users: Employees who opt to wear a respirator in areas where respirators are not required shall have the approval of their Supervisor and the Site Administrator for the organization's RPP and comply with program elements of the RPP, including medical clearances. **Exception:** Use of dust masks.
- 8. Working At Heights**
- (a) Employees who are exposed to fall hazards greater than 6 feet shall attend training on proper fall protection methods before such work is

- performed and shall act in accordance with the Company's *Safety at Heights Program*.
- (b) Employees shall use approved harnesses and lanyards, approved ropes/cables, life lines, temporary guard railings, or other adequate protection as required when working in elevated positions such as rope access, work at heights greater than 6 feet above ground surface (including trenches or excavations over 6 feet deep), and erecting and dismantling scaffold.
 - (c) All Fall Protection Equipment including but not limited to primary positioning straps and secondary positioning straps (flip lines) must be inspected each day before use to determine that they are safe. Lineman positioning straps shall not be used when the red safety marker strip is exposed. In addition, all Fall Protection Equipment shall be inspected and documented twice a year by a Competent Person. This does not include equipment exempted by the Cal-OSHA High Voltage or Telecommunications Safety Orders that allows the documented inspection by a competent person to occur just once per year.
 - (d) Any Fall Protection Equipment that fails inspection must be removed from service and destroyed.
 - (e) Any job plan that involves working at heights must include a rescue plan.
 - (f) Tools and other materials shall not be left lying in elevated work areas unless prevented from falling.

9. Scaffolds and Falsework

- (a) No employee, material or equipment shall be supported on any portion of a tree, pole, structure, scaffold, ladder, walkway or other elevated structure, crane or derrick, etc., without it first being determined that such support is adequately strong and properly secured.
- (b) Scaffolding shall be of sufficient strength and rigidity to support four times its intended load (the weight of workers and material).
- (c) Erection and dismantling of scaffolding and false work shall be performed under the supervision and direction of a scaffold Qualified Person.
- (d) Suspended scaffolds that are in service shall be inspected daily by a scaffold Qualified Person and tested as necessary in order to provide proper maintenance.
- (e) Tools and other materials shall be kept in a tool bag or secured from falling.

10. Ladders

- (a) Prior to using a ladder, employees shall receive ladder safety training and use Company approved ladders.
- (b) Employees shall:
 - (1) Inspect the ladder prior to each use.
 - (2) Not use ladders that are damaged or deteriorated.
 - (3) Use a ladder appropriate to the job and location.
 - (4) Place ladders on a base that is solid, even, and free of water, grease or other slip hazard, where possible, and securely

- place, hold, tie, or otherwise make the ladder secure to prevent slipping or falling.
- (5) Not place ladders or stools on grating unless legs are thick enough to prevent legs from falling through the grating openings.
 - (6) Not place a ladder in front of doors opening toward ladder unless the door is open, locked, or guarded.
 - (7) Face the ladder and use both hands when ascending or descending (maintaining three points on contact with the ladder at all times).
 - (8) When working from a ladder, the ladder must be adequately secured and the worker must be belted off to the ladder.
 - (9) Not stand on the top platform of stepladders unless specially constructed for this purpose and there are members of the structure that provide a firm handhold.
 - (10) Not use benches, boxes, tables or other makeshift substitutes as ladders or use the ladder as part of a makeshift scaffold or ramp.
 - (11) Not carry equipment or materials that prevent safe use of the ladder or leave tools or equipment unattended on the ladder.
 - (12) Not use a ladder if the job involves the use of many tools or materials or excessive amounts of force, or if the job takes a long time to complete.

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- (13) Observe the following working load (worker, materials and equipment) limitations for ladders:

Ladder Type	Maximum Load
Type IA -extra heavy duty	300 lbs.
Type I- heavy duty	250 lbs.
Type II- medium duty	225 lbs.
Type III- light duty	200 lbs.

- (c) When using straight or extension ladders:
- (1) The horizontal distance from the top support to the foot of the ladder shall be one-quarter of the working length of the ladder (the length along the ladder between the foot and the top support).
 - (2) The side rails shall extend at least 36 inches (3 feet) above the landing (overlap depends on ladder length). If this is not practical, grab rails that provide a secure grip for an employee moving to or from the point of access shall be installed.
 - (3) Do not lean ladder against a pole or other single top support unless there is a top rest that is rigid and has ample strength.
- (d) Portable ladders shall:
- (1) Be equipped with nonslip bases. This does not include special purpose ladders, such as tower ladders and metal manhole ladders.

- (2) Be blocked, lashed or held, as required, when placed upon oily, metal, or concrete surfaces.
- (3) Not be used in the vicinity of electric circuits if they are made of metal. Metal ladders shall be legibly marked "Caution-Do Not Use Around Electrical Equipment."
Exception: Non-conductive fiberglass railed ladders may be used in the vicinity of electrical circuits.

- (e) Wooden ladders shall only be finished with clear shellac, varnish or other clear finish. Paint shall not be used on wooden ladders.

11. Clothing and Jewelry

- (a) Employees shall wear suitable clothing at all times to minimize danger when they are exposed to live electrical equipment or lines, moving machinery, hot surfaces or substances, potentially injurious substances, rough or sharp surfaces, open flames, explosions, etc.
 - (1) Clothing considered suitable for working on or around open flames is clothing that is made from 100% natural fiber (e.g., cotton, wool or leather). If the worker's job classification requires work on energized exposed electric conductors, and/or equipment energized at 50 volts or greater which have the potential for an unexpected arc, the clothing must be of Company approved flame resistant (FR) material. If the worker's job classification requires FR clothing, all other outer garments (i.e., jackets, coats, rain gear, etc.) shall also be

- FR rated in accordance with SH&C Procedure 237. Traffic vests, disposable coveralls or other protective layers which are worn over FR clothing can be made of flame retardant material.
- (2) FR clothing worn must be arc rated at a level suitable for the activity being performed in accordance with departmental specific guidelines and must meet one of the following levels:
- a. Single-Layer Flame Resistant (SLFR): FR long-sleeved shirt and FR pants, approved by the Company, with a minimum rating of 8 cal/cm².
 - b. Double-Layer Flame Resistant (DLFR): Company approved SLFR clothing plus an approved FR coverall, and level 2 FR face protection. This clothing system must be approved by the Company and have a minimum rating of 25 cal/cm². See CSP Rule 4 (c).
 - c. Suited: Protective switching suits rated a minimum of either 50 cal/cm² or 100 cal/cm². Required ratings will be designated by Suited50 and Suited100 respectively. Protective switching suits require the use of Class 2 high voltage lineman's rubber gloves with leather protectors.
- (b) Jewelry shall not be worn where there is a danger of electrical contact, crushing injuries, or snagging on machinery, materials, or other

objects or when working on or adjacent to energized conductors or apparatus. Examples include but are not limited to: rings, ear rings, body piercings, watch chains, wrist bands, key chains, exposed neck chains, tie chains, clasps and medical alert jewelry.

12. Hazard Communication

- (a) Before performing work that requires handling chemicals, employees shall attend training in accordance with the Company's *Hazard Communication Program* and thoroughly familiarize themselves with the hazards involved; safe handling practices, including proper selection and use of personal protective equipment; proper storage; and spill and disposal procedures.
- (b) Before handling a chemical, employees shall follow work practices, and utilize precautions and protective devices and/or equipment as identified on the label, the material safety data sheet (MSDS) or by the supervisor. Particular care shall be exercised by employees with open wounds.
- (c) Employees shall keep food stored in a separate location from hazardous substances. After handling hazardous substances, employees shall thoroughly wash their hands before eating, drinking, smoking, or applying cosmetics.
- (d) Employees shall only use chemicals that have been reviewed and approved for use by Environmental Affairs and Safety Health & Claims.

13. Flammable Liquids

- (a) Employees shall handle, store and transport flammable liquids only in approved containers. Extreme care shall be used at all times to prevent ignition.
 - (1) Do not transport approved containers inside a vehicle. Containers should be adequately secured and transported in a tool bin or the trunk compartment of the vehicle.
- (b) To minimize the hazard from static electricity, employee shall maintain an electrical contact between the pouring and receiving containers when pouring or pumping flammable liquids from one container to another.
- (c) Employee shall comply with local ordinances and/or other regulatory agency requirements concerning the handling and storage of flammable liquids.
- (d) Employee shall not use equipment which is leaking flammable liquid.

14. Fire Protection

- (a) Employees shall be familiar with the local emergency plan and the instructions relating to fire prevention and suppression, and with the location and use of fire-fighting equipment in the location where they are regularly employed.
- (b) Fire-fighting apparatus shall be maintained in serviceable condition and accessible at all times.
- (c) Employees expected to use fire extinguishers or other fire fighting equipment shall receive training prior to their use.

15. Compressed Gases**(a) General**

- (1) The contents of gas cylinders shall be clearly marked on a label, stencil or tag. Unmarked cylinders shall not be used.
- (2) Leaking or unserviceable cylinders shall be marked or tagged as such and the vendor promptly notified.
- (3) To minimize explosion hazard, oil or grease shall not be allowed to come in contact with valves, regulators, or any other parts of oxygen cylinders or apparatus.
- (4) Employees shall use only cylinders that have a current hydrostatic test date.
- (5) Pressure relief devices and regulators shall be used in accordance with the manufacturer's recommendations and shall not be changed, modified, tampered with, obstructed or repaired.

(b) Use and Storage

- (1) Compressed gases shall not be used from a cylinder, cylinder manifold, or other container unless an acceptable pressure-regulating device is installed on the cylinder, valve or manifold. Regulators are not required when using fuel gases cylinders with torches or other devices that are not equipped with shutoff valves.
- (2) Connections to piping, regulators, and other appliances shall be kept tight to prevent leakage. If leaks develop, never

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- test with an open flame. Use soap solution or other leak test solution.
- (3) Portable gas cylinders or containers shall be handled with extreme care and shall be stored in a suitable, well ventilated location and properly secured with one or more restraints to a fixed object. The cylinder or container shall be in a vertical position with valve cap in place.
 - (4) Cylinders shall not be placed where they might become part of an electrical circuit.
 - (5) Cylinders shall not be stored near elevators, gangways, unprotected platform edges, or where heavy objects might strike or fall on them.
 - (6) Portable gas cylinders or containers shall not be exposed to excessive heat. Sparks and flames shall be kept away from such cylinders or containers.
 - (7) Oxygen cylinders shall not be stored near cylinders containing flammable gases (hydrogen, butane, propane, acetylene, etc.) or with oils, greases, or flammable liquid.
 - (8) When cylinders or containers are not in use, valves shall be kept tightly closed.
 - (9) Compressed oxygen shall never be used as a substitute for:
 - a. Compressed air
 - b. Dry breathable air.
 - (10) Compressed air or other gas in excess of 10 pounds per square inch (psi) shall not

be used to blow dirt, chips or dust from clothing while it is being worn.

(c) **Transportation**

- (1) Compressed gas cylinders shall be transported in a manner to prevent them from falling, rolling or creating a tripping hazard. Liquefied petroleum gas and welding fuel gas cylinders shall be stored and/or transported in an upright position so that the safety relief valve is always in direct contact with the vapor space in the cylinder. Unless cylinders are secured on a suitable truck, rack or container, regulators shall be removed and valve protection devices (valve cap) installed before cylinders are moved.
- (2) When transporting compressed gas cylinders "in portable service," a suitable truck, equipped with the means to substantially secure the cylinder(s) and/or racks to the transport vehicle, shall be used. Pressure regulating devices may remain in place during transportation of compressed gas cylinders used in portable service.

16. Lights

- (a) Employees shall not use artificial light near escaping gas, gasoline, or other flammable vapors, or when entering a room or enclosure suspected of containing combustible gases.
- Exception:** Approved explosion-proof electric flashlights or explosion-proof extension cords and fixtures (such device shall be UL/FM-approved

and marked "explosion-proof") may be used in these circumstances.

- (b) Employees shall not enter dark places, such as basements, cellars, etc., without proper light; the use of matches or other open flames is strictly forbidden.

17. Welding, Cutting, Metalizing, Soldering, and Use of Open Flames

- (a) Open flames shall not be brought near - nor shall welding processes, brazing, flame cutting, or soldering be performed on - an empty container, tank, or other vessel that has, or may have, previously contained a flammable or explosive substance (except pipelines, see (j) below) until the following precautions are taken to prevent explosion or fire:
 - (1) Fill container or vessel with water or inert gas, such as carbon dioxide or nitrogen **OR** clean the inside with steam, caustic solution, or sandblasting
 - (2) Remove residue or other flammable material from the work area **OR** perform work with an observer who is equipped with proper fire extinguishing devices.
 - (3) If the container is filled with inert gas, then also provide means to prevent air from entering the vessel while work is in progress.
- (b) Welding processes may be performed on the outside surface of a container, tank, or other vessel containing a liquid flammable material (except pipelines, see (j) below and LPG vessels), provided the work is done not less than

- 6 inches below the level of the liquid, and there is little likelihood of burning through the vessel wall. Adequate venting to preclude internal pressure buildup shall be provided as required.
- (c) Welding processes may be performed on the top surface of a vessel that is partially filled with a liquid flammable material that cannot be removed (except LPG vessels), only after the area above the liquid is filled with steam, carbon dioxide, or other inert gas and the vessel is held under positive pressure.
 - (d) Welding processes, flame cutting, brazing, metalizing, soldering, and the use of open flames on vessels subject to possible ignition of contents, shall be done in accordance with approved procedures by Qualified Persons who shall observe the following additional precautions:
 - (1) Keep as far away from vessel opening as possible
 - (2) Provide suitable fire protection equipment adjacent to the work
 - (3) Hazardous areas shall be designated by signs and protected by approved barricades as required.
 - (e) It shall be the responsibility of the welder to see that, where practical, screens are properly placed to prevent fires and eye injury to fellow workers and onlookers. Employees assisting the welder shall wear suitable eye protection.
 - (f) Welding, brazing, and cutting operations inside buildings shall use local exhaust ventilation (LEV) systems supplying a minimum air velocity of 100 linear feet per minute in the welding zone.

(g) LEV shall be used when potentially hazardous materials are employed as base metals, fluxes, coatings, platings or filler metals during welding, cutting or brazing in an enclosed space. These include, but are not limited to, the following materials:

- Beryllium
- Cadmium
- Chromium
- Fluorides
- Lead
- Mercury
- Inert-gas metal-arc welding or oxygen cutting of stainless steel
- Zinc

The following additional precautions shall be observed:

- (1) Sufficient ventilation shall be provided for the protection of others to prevent accumulation of harmful quantities of fumes in the work area, or
- (2) The operation shall be isolated, or
- (3) The work shall be performed outdoors in such a location that fumes will not enter any building in harmful quantities.

If LEV cannot reduce the airborne concentrations of these compounds to below the respective permissible exposure limits (PELs), then supplied-air respiratory protection will also be used.

(h) Respiratory protection shall be used when welding, cutting, or brazing operations are

- performed outside and involve exposure to beryllium, lead, cadmium, or mercury.
- (i) In all operations involving beryllium-containing base or filler metals, supplied air respirators shall be used.
 - (j) When performing repairs or alterations on chemical or fuel piping, a Qualified Person shall be accountable for the work to see that proper precautions to prevent explosion or fire are observed and procedures applicable to the use of special apparatus to affect such repairs or alterations are followed.
 - (k) The use of open flames or other sources of ignition in battery rooms is prohibited except under the direct supervision of a Qualified Person, and then only after the room has been well ventilated.
 - (l) Coatings on pipes and other surfaces (e.g., paint, etc.) shall be removed mechanically, or by other safe means, before welding. Coatings shall not be burned off with a torch.

18. Explosives

Only employees holding a valid California blaster's license or who are at least 18 years of age and under the direct supervision of the licensed blaster, shall handle or use explosives, and then only in accordance with approved, lawful methods and the most recent edition of the *Company's Guide for Handling Explosives*.

19. Smoking

- (a) Employees shall not smoke in proximity to flammable liquids, explosives, or gases, or where "No Smoking" signs are displayed.

- (b) Matches, cigars, cigarettes, tobacco, or other substances shall not be discarded while still burning except when placed in a proper receptacle or otherwise disposed of safely.
- (c) No employee shall have matches or other sources of ignition on his/her person when entering an explosive or combustible area.
- (d) Smoking shall not be permitted in areas indicated as danger zones or areas closed by federal, state, county, or city officials.
- (e) When hydrogen-filled equipment, such as generators and synchronous condensers, are out-of-service for overhaul, smoking or open flames shall not be permitted around the unit until all hydrogen has been purged from the equipment and the unit is declared safe to enter. Smoking or open flames shall not be permitted while filling the equipment with hydrogen. The area around the equipment shall be roped off and plainly marked and posted with approved signs during these operations.
- (f) PG&E does not allow smoking in buildings, places of employment, other enclosed workplaces and as directed by state and local law. As a result, employees who wish to smoke must exit the buildings to do so. As a courtesy to these employees, the Company often makes ashtrays and other amenities available in an outdoor area. Such locations balance the needs of our smoking and non-smoking employees. So long as others are not obliged to walk through the smoking area, these locations do not require any warning notices. However, when these informal

smoking areas are in the immediate vicinity of the entrance to Company facilities (such as in a courtyard or patio area or Company-owned walkway outside the door to the lobby, or adjacent to the main office trailer), Proposition 65 requires us to warn anyone walking through that area of the presence of tobacco smoke *before* they are exposed to it.

While a Proposition 65 sign could be posted to accomplish this warning, it is recommended that you prohibit smoking in locations immediately adjacent to the public access points to our buildings. This can be accomplished by clearly posting No Smoking signs in the area around the public entrances, and by assuring that ashtrays or other amenities that signal smoking is permitted are not placed adjacent to the building entry points. The goal is to make it possible for someone to enter or exit the building without having to be exposed to second-hand tobacco smoke. Please note that when access to the building is directly off a public right-of-way (such as a public sidewalk) there is no need to post signs, however ashtrays or other indications that smoking is permitted should not be placed at these locations. A variety of No Smoking signs are available through E-Buy. Should you choose to permit smoking in public access areas, you may procure an approved Proposition 65 sign warning about the presence of tobacco smoke through E-Buy under part number P65-TOB-PGE.

- (g) USP 12, indicates specific requirements that are prohibited when operating any Company passenger or work vehicle. These requirements include "any personal use that would likely damage the vehicle or cause discomfort for those later using the vehicle, such as smoking in the vehicle." As such, Smoking is never permitted in Company passenger or work vehicles under any circumstances.

20. **Confined Spaces**

(a) **Other Confined Spaces:**

- (1) Excavations and underground electric, gas and telecommunication vaults, manholes and pits that have the concurrent existence of the following conditions are considered "Other Confined Spaces" (OCS):

- a. Existing ventilation insufficient to remove dangerous air contamination and/or oxygen enrichment or oxygen deficiency that may exist or develop. **Dangerous air contamination** is an atmosphere presenting a threat of causing death, injury, acute illness, or disablement due to the presence of flammable and/or explosive, toxic, or otherwise injurious or incapacitating substances.
- b. Ready access or egress for the removal of a suddenly disabled employee is difficult due to the location and/or size of the opening(s).

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- (2) Employees who enter an Other Confined Space (OCS) shall follow SH&C Procedure 232 and their department's written operating and rescue procedures and attend OCS training before they enter an OCS. Entry is defined as any time in which the entrant's breathing zone (i.e., an entrant's face, mouth and/or nose) breaks the plane of the opening into the space.
- (b) **Permit Required Confined Spaces (PRCS)**
- (1) A confined space for Company work operations and locations not listed in 20(a) that has all three of the following conditions:
- a. Large enough and so configured that an employee can bodily enter and perform assigned work
 - b. Limited or restricted means for entry or exit
 - c. Not designed for continuous employee occupancy.
- (2) A Permit Required Confined Space is a confined space [as defined in 20(b)(1)] that also has one or more of the following characteristics:
- a. Contains or has the potential to contain a hazardous atmosphere. An atmosphere is hazardous if it may expose an employee to the risk of death, injury, acute illness, incapacitation, or impair the ability to

escape unaided from the space from one or more of the following causes:

- 1) Flammable gas or vapor exceeding 10% of its LEL
 - 2) Oxygen levels below 19.5% or above 23.5%
 - 3) Combustible dust at or above its LEL
 - 4) An airborne substance exceeding its Permissible Exposure Limit (PEL)
 - 5) Any other atmospheric condition that is considered to be immediately dangerous to life or health (IDLH).
- b. Contains a material that has the potential for engulfing the entrant
 - c. An internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section
 - d. Any other recognized serious safety or health hazard such as mechanical or electrical equipment that, if energized or contacted, could cause serious injury.
- (3) A Qualified Person shall evaluate every confined space to determine if it is a PRCS.
 - (4) Employees who enter a PRCS (i.e., any part of the body breaks the plane of the

opening) shall follow SH&C Procedure 232 and their department's written PRCS program and attend PRCS training before entering a PRCS or being assigned to a PRCS work team.

- (5) Employees shall identify and evaluate the hazards associated with entering a PRCS prior to entry. Posted signage shall be taken into account to identify the PRCS and ensure that all PRCS procedures are followed when entering the space.
- (6) Employees who work in PRCS owned by another organization must be trained in and follow that organization's PRCS program.

21. Water Safety

- (a) Employees swimming or wading in water that may be deep or dangerous, working near dock edges, on walkways, or other locations where it is possible to fall into the water, shall wear a Coast Guard-approved life vest, or a safety strap or lifeline that is adequately secured.
- (b) Employees working from, or traveling in, boats or other watercraft shall wear a Coast Guard-approved life vest.
- (c) If employees are protected from falling into the water by suitable hand railing, bulkheads, or the equivalent, no life vest or fall protection is required.

Note: The requirements for wearing life vests or lifelines do not apply when engaged in authorized diving activities.

- (d) At least one U.S. Coast Guard approved 30-inch life ring with not less than 90 feet of 600 pound capacity line attached shall be kept in a conveniently accessible place where employees work exposes them to the hazard of drowning or each employee so exposed shall wear a U.S. Coast Guard approved personal flotation device. **Exception:** Flume Patrol. Flumes provided with caps
- (e) Any personal flotation device shall be approved by the United States Coast Guard as a Type I PFD, Type II PFD, Type III PFD, or their equivalent, pursuant to 46 CFR 160 (Coast Guard Lifesaving Equipment Specifications) and 33 CFR 175.23 (Coast Guard table of devices equivalent to personal flotation devices.)
- (f) Personal flotation devices shall be maintained in good condition. They shall be removed from service when damaged so as to affect their buoyant properties or capability of being fastened.

Weather:

Before you begin work on boats, check the local "weather and sea" conditions. Detailed information can be obtained by tuning in to local radio stations or the National Weather Radio broadcasts on frequencies of 162.400, 162.475, and 162.550 MHz in areas where available, or by consulting local newspapers.

Training:

In California, you do not need a license to operate a boat but the Company requires that any operator of any rented or owned company boat

take and successfully pass a Boating Safety Course approved by California Department of Boating and Waterways (CDBW). The CDBW offers a boating course at no charge.

Fueling:

Most fires happen after fueling. To prevent fires:

- Don't smoke or strike matches.
- Shut off motors.
- Turn off electric equipment.
- Close all windows, doors and openings.
- Take portable tanks out of the boat and fill them on the dock.
- Keep the filling nozzle in contact with the tank.
- Wipe up any spilled gas with petroleum-absorbent pads.
- Discard the pads in a safe manner.
- Ventilate for at least five minutes.
- Make sure there is no odor of gasoline anywhere in the boat.
- Periodically check the system for fuel leaks.
- Visually check for leaks or fuel in the bilges.

Boat Capacity

Single-hull motorboats less than 20 feet in length which are manufactured after 1972 must display capacity and safe horsepower information. The maximum weight in persons, gear and motors is offered as a guide to boaters, and should not be exceeded.

Loading

It's the operator's responsibility that supplies be

carefully loaded and all passengers be properly seated. Spread weight evenly. Fasten gear to prevent shifting. Keep passengers seated. Don't overload.

Before embarking:

Develop and communicate to all passengers the "Float Safety Plan" (route, communication devices, job task, PPE, emergency response, etc.)

Give consideration to basic safety items, including the following:

- Vessel in good condition
- Tools
- Vessel properly loaded
- Extra starting battery
- Ample supply of fuel
- Personal flotation devices
- Check weather reports
- Compass and charts
- Fire extinguisher
- Good anchoring equipment
- Bailing Device
- Visual distress signals
- Spare parts
- Oars or paddles
- First-aid kit
- Marine VHF radio
- Flashlight

22. Electrical Hazards

- (a) Electrical apparatus and lines shall be considered energized until they have been tested de-energized, grounded, or cleared as required by a Qualified Electrical Worker (QEW).

- (b) Employees shall not perform work or take a conducting object closer than the minimum working distance or within the area where there exists a hazard of creating an arc, or of contact with energized equipment by reason of the work being done unless that person is qualified and using approved equipment and work procedures or unless directly under the observation of a Qualified Electrical Worker.
- (c) All electrical controls, annunciators, alarms, and indicating light circuits in the back of control and gauge boards shall be considered energized. Employees working in back of these boards shall exercise caution against contact with exposed energized parts. Adequate minimum distances or suitable barriers shall be used to avoid electrical contact. (See CSP Rule 405 for minimum distances.)
- (d) Caution shall be exercised to prevent materials or tools from contacting energized conductors or equipment.
- (e) No material or tools shall be carried on the shoulder when working around energized equipment. Long material, including lumber, shall be carried in a horizontal position.

23. Clearances

Before employees start work on equipment or apparatus for which clearances are required, they shall either obtain a clearance or report to and work under a Qualified Person who holds a clearance on the equipment or apparatus involved.

24. Responsibilities for Primary Operations**(a) Equipment in Service**

Employees shall consider all equipment in-service unless properly tagged (e.g., with "Man on Line" or "Out of Order" tags, etc.). Employees shall inspect all equipment for damage, deterioration and defects prior to use. Employees shall not assume that untagged equipment is free of hazards.

(b) Clearance Requirements

Clearance, where required, shall be obtained in accordance with the applicable Company guidance documents.

(c) Employees Operating Equipment

When employees operate or work on equipment, they shall properly tag the equipment with their name, location, number and/or other required information. The Employee-in-Charge will verify that equipment is properly tagged.

(d) Abnormal Operating Conditions

Employees shall continually evaluate operating equipment to prevent potential hazards to employees and equipment. The evaluation shall include, but not be limited to, excessive temperatures and pressures, over speeding of rotating equipment, abnormal noises, and unusual vibration.

(e) Records

Employees shall keep logs and records current and accurate. Abnormal or special conditions shall be called to the attention of the employee-in-charge and shall be logged promptly. Shift employees shall review the records of the

previous shift to familiarize themselves with the operations and condition of equipment within their jurisdiction.

25. "Man on Line" and "Caution" Tags

- (a) When employees shut down or isolate a section of a main or line, or piece of equipment involved in conveying gas, oil, steam, or high pressure air by closing valves, they shall properly fill out a "Man on Line" tag and place a completed tag on each closed valve or mechanism which constitutes a clearance point.
- (b) Employees shall securely block or otherwise secure prime air movers, machines, or equipment that are capable of movement when there is a possibility of hazard to employees working on them. Lockable controls shall be locked in "off" position during repair work. Machines not equipped with lockable controls shall be sealed or disconnected from the source of power, or other steps shall be taken which will prevent the prime mover or machine from being started. In addition, "Man on Line" tags shall be placed at these locations.
- (c) Employee shall not remove "Man on Line" tags until work by employees is completed. Tags shall then be removed only under the direction of the employee-in-charge and only after it has been determined that no one is working on the line.
- (d) "Caution" tags shall be used to mark valves or equipment which, for some special reason, shall not be operated except upon specific instructions from the Operating Department or individual

named on the tag. This tag shall not be used in place of a "Man on Line" tag.

26. Cleaning, Repairing, Servicing, Adjusting, and Un-jamming Machinery and Equipment

- (a) During cleaning, servicing, adjusting, or un-jamming operations, machinery or equipment capable of movement shall be stopped and the power source de-energized or disengaged, and, if necessary, the moveable parts shall be mechanically blocked or locked out per established clearance procedures to prevent inadvertent movement unless the machinery or equipment must be capable of movement during this period in order to perform the specific task. If so, appropriate tools shall be used (e.g., extended swabs, brushes, scrapers) or other methods or means employed to protect employees from injury due to such movement.
- (b) Prior to de-energizing equipment/machinery, all employees working on or with the equipment shall be notified.

27. Use of Safety Devices - DELETED

28. Machine Guards

- (a) Safeguards shall not be removed except on approval of the employee-in-charge.
- (b) Where regular safeguards are removed, employee shall replace or install suitable temporary guards before returning equipment to normal operation.
- (c) Employees shall inspect each safeguard before each use.

29. Tools and Equipment

- (a) Employees shall inspect tools and equipment for damage, deterioration and defects prior to use and periodically during the duration of the job, and use only those in good repair. Employees shall report damage, deterioration or defects to their supervisor.
- (b) Employees shall not use damaged or defective tools or equipment but shall tag them and take them out of service until repairs can be made.
- (c) Employees shall use tools and equipment for the task for which they were designed, and use, store and maintain them in accordance with manufacturer's instructions or directions.
- (d) Proper handles shall be fitted to tools where required.
- (e) Cutting tools shall be kept properly sharpened and cutting edges guarded with scabbards (sheaths) or other safe storage provided when not in use.
- (f) Metallic tapes or metallic rules shall not be used near exposed, energized electrical equipment. Cloth tapes with metal reinforcing shall not be used under any circumstances.

30. General Office Work

- (a) Chairs, wastebaskets, cords, and other articles shall not be left in aisles or where they constitute a tripping hazard.
- (b) Desk and file drawers, cabinet doors, and slides shall not be left standing open while unattended.
- (c) Common or sharp-pointed pins shall not be used for fastening papers together. Staples, clips, or other approved fasteners shall be used.

- (d) Broken glass or other sharp-edged objects shall not be placed in wastebaskets unless properly protected. Toner cartridges shall be recycled.
- (e) Employees may only work on mechanical office equipment to the extent they have been trained to do so.
- (f) Approved ladders or other safe supports shall be used to reach material on high shelves or at other elevated positions.

31. Ergonomics

(a) Individual Employee Responsibilities

Employees shall participate in biennial ergonomics training and tailboard discussions in order to apply ergonomic practices to their daily work activities. Employees shall be able to identify ergonomic risks and apply preventive ergonomic principles when exposed to repetition, high forces, awkward positions and static loading. These include proper body mechanics, taking breaks, using proper tools and asking for help when moving heavy loads or when applying high forces.

(b) Field Employees:

- 1) When handling or transferring heavy loads, employees shall work within their physical capabilities and practice proper material handling techniques. Mechanical or additional co-worker assistance shall be utilized when lifting heavy or awkward loads.
- 2) Employees shall report suspected ergonomic hazards to their supervisor and/or safety teams as soon as possible

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- 3) Employees shall report early signs of discomfort (e.g., fatigue, soreness, aching, pain) to their immediate supervisor as soon as it is noticed.
 - 4) Employees are responsible to be aware of and utilize PPE appropriate for the task such as hand and knee protection.
 - 5) Employees shall assume responsibility for appropriate task specific warm-up prior to strenuous work and apply compensatory stretching following prolonged awkward postures.
- (c) **Office Employees:**
- 1) Employees shall complete a self assessment/training WBT according to their Department Ergonomics Plan.
 - 2) Employees shall apply ergonomic practices to their daily work activities and request assistance through their supervisor whenever they cannot resolve issues themselves.
 - 3) Employees shall report work related discomfort (e.g., fatigue, soreness, aching, pain) to their supervisor in its early stage to prevent injury.
 - 4) Employees shall utilize micro breaks and practice break behaviors which provide relief from repetitive office work. Options include PG&E approved break software, scheduled group breaks or individual break strategies.

32. Packing, Unpacking, Storage, Loading, and Unloading of Materials

- (a) Nail points, ends of wires or bands shall not be left exposed when packing or unpacking boxes, crates, barrels, or other containers.
- (b) Nails shall be removed from loose lumber, the points bent down, or the lumber shall be properly disposed of so it will not become a hazard.
- (c) Sharp or pointed articles shall be so stored as to prevent persons from coming in contact with the sharp edges and points.
- (d) Care shall be exercised when packing or unpacking glassware, porcelain, and other fragile objects that may have sharp edges.
- (e) Loads shall not be handled from the street side of a vehicle if it can be avoided.
- (f) Special regulations and instructions governing the loading and unloading of poles, pipes, etc., shall be strictly observed in every case.

33. Stairways, Doors, Landings, and Halls - DELETED**34. Work Area Protection****(a) Protective Signs and Devices**

- (1) Company-approved warning signs, barricades, "caution" and barricade tapes, guards, cones, flags, etc., shall be placed to protect the public and employees from open excavations, pits, manholes, and similar substructures. Care shall be taken to provide unobstructed walkways for pedestrians around such open excavations. Artificial lighting, flashers, etc., shall be used, as needed, for additional protection.

- (2) Employees shall use information tags or other warning devices to identify a hazard that is not obvious.
 - (3) Employees shall not enter barricaded areas by going over or under barricades or tape; access shall be through designated opening points.
 - (4) Employees shall be continuously observed by a qualified observer while inside the barricaded area.
- (b) Barricade tape shall only be used for the intended purpose/exposure, as described below. Barricade tape shall not be used as a substitute for guard railings on work platforms or around floor holes.
- (1) Black and yellow woven barricade tape shall be used to identify and restrict access to areas of high voltage electrical exposure.
 - (2) Red and white woven barricade tape shall be used to identify hazardous areas other than those involving high voltage electrical exposure.
 - (3) Yellow and red woven barricade tape shall be used to identify a recognized Arc Flash Boundary.
- (c) **Vehicular Traffic Exposure**
- (1) Where the job site is on or near a roadway, work area protection devices and advance warning signs shall be placed and maintained in accordance with the most recent edition of the Company's *Work Area Protection Guide*.

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- (2) Provision shall be made for all pedestrians, bicyclist and those with disabilities. Follow WP9401 for pedestrians with disabilities.
 - (3) Before performing flagger's duties, employees shall have flagger training.
 - (4) Where conditions warrant (i.e., on heavily traveled streets, on highways, lane obstructions, etc.), properly trained flaggers shall be used.
 - (5) Employees (on foot) exposed to vehicular traffic shall wear approved high visibility orange warning garments, such as vests, jackets, or shirts. During rainy weather, employees exposed to vehicular traffic may wear either orange or yellow rainwear.
 - (6) Warning garments shall be outfitted with approved reflective material and must be worn during the day and at night. Warning garments with approved reflective material (vests, jacket or shirt) must be worn at all times while exposed to vehicular traffic. Orange colored clothing does not exempt employees from wearing approved warning garments with reflective material.
- 35. Transportation**
- (a) All loads in automobiles, trucks or construction equipment shall be secured. This includes ladders, tools, materials and equipment. Items that cannot be stored in a vehicle trunk or bin must be placed on the floor or secured so they cannot injure the vehicle occupants. Before proceeding, driver shall make certain that loads are properly secured and that passengers are not

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exposed to falling or overhead hazards or hazards from shifting loads.

- (b) Employees shall not ride on fenders, running boards, side rails, or on top of vehicles.
- (c) Employees shall ride in designated passenger seats of any vehicle used for Company business and shall not ride with their legs hanging out of the rear or side of a vehicle.

Exception: Employee may be transported in buckets if all of the following conditions are met:

- (1) The equipment is specifically designed for this type of operation
- (2) All controls and signaling devices are tested and are in good operating condition
- (3) An effective communication system is maintained at all times between the bucket or platform operator and where applicable, the vehicle operator
- (4) The route to be traveled is surveyed immediately prior to the work trip, checking for overhead obstructions, traffic, holes in the pavement, ground or shoulder, ditches, slopes, etc. For areas other than paved, a survey shall be made on foot
- (5) The speed of the vehicle does not exceed 3 miles per hour
- (6) Only one employee is in the basket
- (7) Both the driver and/or the elevated employee have been specifically trained for this type of work (towering) in accordance with the manufacturer's recommendations.

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- (d) Employees shall not get on or off vehicles in motion.
- (e) Each employee in a vehicle shall use a seat belt that is properly fastened at all times while driving or riding in Company vehicles. **Exception:** Seat belts need not be worn by employees using motor graders not designed for seated operations or smooth steel wheel rollers where the operator stands at the extreme rear of the vehicle.
- (f) No internal combustion engine fuel tank shall be filled while the engine is running.
- (g) While fueling, the vehicle or equipment operator must be present while fuel is dispensed. The operator should discharge static electricity prior to fueling. The operator shall not re-enter the vehicle during fueling.
- (h) Fuel shall only be dispensed into approved containers.
- (i) Employees working on vehicles with bucket/digger derrick shall follow fall protection practices.
 - (1) When possible, move the bucket to the ground using the lower controls and access bucket from the ground level.
 - (2) Walkways ("catwalks") used to access buckets and controls shall be kept clear at all times.
 - (3) Keep your "eyes-on-path" when accessing buckets and controls.
 - (4) Maintain 3 points of contact when on top of the vehicle, accessing buckets and controls whenever possible. Always face

the vehicle or equipment when you climb in or climb out.

- (5) Do not carry material and tools to the bucket from the walkways.
- (6) Booms should be fully stowed before accessing the catwalk.
- (7) No work shall be performed while on the walkways unless fall restraint is in place.

36. Cranes, Hoists, and Derricks

- (a) Cranes, hoists, and derricks shall be operated only by an authorized person with the training and knowledge required for the specific crane, hoist or derrick.
- (b) When mobile hoists, cranes, booms, or other similar lifting devices are used near energized equipment, employees shall remain clear of energized equipment until the equipment is in a safe position. The employee-in-charge shall check and determine that employees remain in the clear while the vehicle is being moved or the boom is being repositioned.
- (c) Employees shall not ride on loads suspended from cranes, hoists, or derricks.
- (d) Employees shall ensure that a sign is posted in the cab of outdoor portable cranes, hoists, and derricks that reads essentially as follows:

"Unlawful to operate this equipment within 10 feet of high voltage lines of 50,000 volts or less. The clearances in the table below do not apply to authorized work by Qualified Electrical Workers on or

near energized high voltage conductors or apparatus."

Operators not qualified to exercise the above exemption, or not under the immediate, direct supervision of a QEW, shall maintain the distances from energized high voltage lines specified in the following table:

Minimum Clearance Distances

(For Operators of Cranes, Hoists, and Derricks who are not Qualified Electrical Workers or Under the Direct Supervision of a Qualified Electrical Worker)

Nominal Voltage (phase-to-phase)	Minimum Required Clearance (feet)
600 - 50,000	10'
50,001 - 75,000	11'
75,001 - 125,000	13'
125,001 - 175,000	15'
175,001 - 250,000	17'
250,001 - 370,000	21'
370,001 - 550,000	27'

Note: If the voltage of the power line involved is not known, consult an appropriate electric department representative.

- (e) Operators shall not move loads over workers or others unless authorized by the employee-in-charge. Operators shall not leave cranes, hoists, or derricks unattended while load is suspended, unless suspended over a barricaded area,

- blocked or otherwise supported from below during repair, or in an emergency.
- (f) No crane, hoist, or derrick shall be loaded in excess of its rated capacity.
 - (g) Crane, hoist, or derrick operators shall take signals only from the person designated by the employee-in-charge.
 - (h) Employees shall use the uniform hand signals at the end of this section to signal overhead traveling cranes, and the signals in the Data Section to signal derrick and crane operators. The appropriate chart depicting and explaining the system of signals to be used shall be conspicuously posted in the vicinity of hoisting operations (cage or cab if so equipped).

37. Meter Reading and Collection

- (a) A proper type ladder or other safe support shall be used when it is necessary to climb to an elevated position.
- (b) Employees shall close or properly guard the opening upon entering a cellar, basement, stairway, shaft, or similar enclosure through an opening that is equipped with a closing device.
- (c) Regularly used walkways and gates shall be used.
- (d) Employees shall note unfriendly animals or hazardous conditions in the electronic meter reading (EMR) device. Where necessary, arrangements shall be made with the customer to remove or confine the animal or abate the hazard. Hazardous conditions shall be reported to the appropriate supervisor.

- (e) Employees shall never enter a yard when multiple dogs are present. Employees shall alert the customer by knocking on door, or honking vehicle horn, in an effort to have all animals secured. Employees shall evaluate the situation before proceeding to determine safe access to obtain a meter reading, or the meter shall be missed.
- (f) Employees shall carry the Dog Wand as personal protective equipment to every meter location.
Exception: carrying a dog wand is not required for NON-RESIDENTIAL areas such as business parks, or commercial industrial areas.
- (g) Meter readers must wear appropriate type footwear that provides high ankle support with an aggressive sole to prevent slips and falls while performing their assigned route.

38. Radio Operation

Transmitting radios shall be turned off, or otherwise rendered incapable of transmitting when vehicle is being fueled, or within 50 feet of fuel pumps, or within 300 feet of a blasting zone.

39. Rigging

- (a) Only employees trained and qualified to rig shall do so.
- (b) Employees shall:
 - (1) Use Company-approved rigging
 - (2) Inspect rigging components prior to and during use to ensure they are in good working order
 - (3) Not exceed the working load limits of any component.

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- (c) Employees shall position themselves such that they are not at risk of an injury in the event that one of the rigging components fails or control is lost.

Advice 3846-E

Exhibit D

BIOLOGICAL ASSESSMENT

Eastshore-Dumbarton 115kV Line Reconductoring Project
Alameda County, California

Prepared for:

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INTRODUCTION

Pacific Gas and Electric Company (PG&E) maintains the Eastshore-Dumbarton 115kV electrical power line, which extends for approximately 6.7 miles between the Eastshore and Dumbarton substations (Figure 1). Reconductoring activities are required on this line. Activities involved in the reconductoring include: installing one new tubular steel pole and replacing two others; raising the height of several existing towers; reinforcing several existing towers; and finally, reconductoring the line.

This Biological Assessment has been prepared to summarize the existing biological conditions within the project area, highlight special status species occurring in the project area, and convey potential impacts and means to minimize impacts to these species. A portions of the project falls within the boundaries of the South Bay Salt Pond Restoration (SBSP) Project, which is a project that involves restoring huge tracts of former salt ponds to marshes. The SBSP has undergone Section 7 Endangered Species Act (ESA) consultation and the US Fish and Wildlife Service (USFWS) has issued biological opinions and take permits for the SBSP Project. Maintenance of PG&E's electrical lines in the South Bay of San Francisco was analyzed as part of the SBSP Project. Species analyzed in this consultation include the California clapper rail, salt marsh harvest mouse, pacific coast population of the western snowy plover and critical habitat, California least tern, California brown pelican, vernal tadpole shrimp, California tiger salamander, and Contra Costa goldfields and critical habitat.

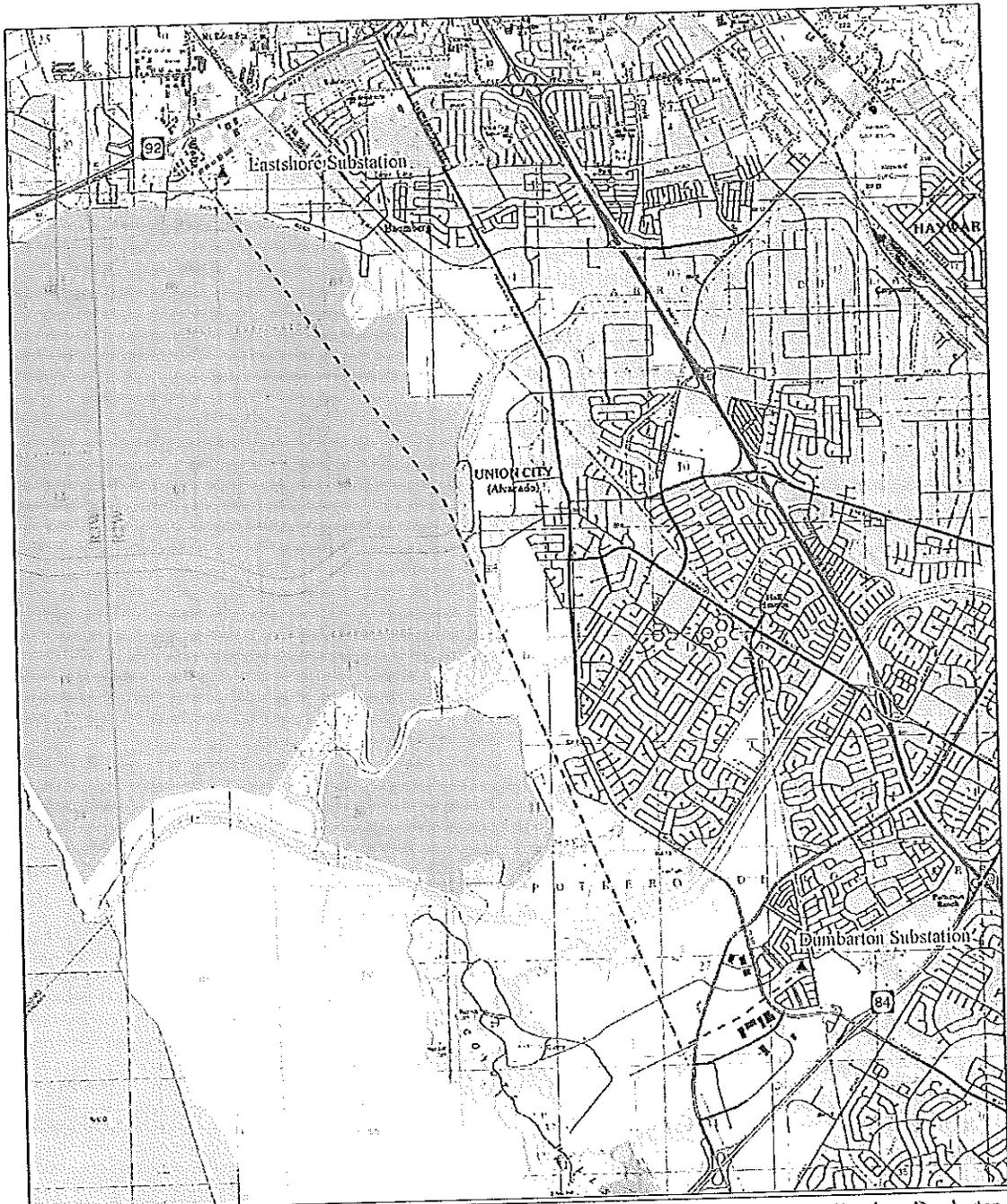
This document addresses sensitive species potentially occurring within the project area. The portions of this project within the Eden Landing Ecological Reserve (ELER) and the Don Edwards San Francisco Bay National Wildlife Refuge have been analyzed in the SBSP consultation. Other areas have not been analyzed and require further review.

PROJECT LOCATION

The project is located in the South San Francisco Bay area within, Hayward, Union City, and Fremont, Alameda County, California. Aerial photographs depicting the power line alignment can be found in Appendix A. The power line primarily runs north-south beginning on its northern end at the Eastshore Substation located just south of the San Mateo Bridge. It travels southeast through the ELER, passes just west of the Union City Wastewater Treatment Plant and continues south along the eastern edge of the Coyote Hills Regional Park. At a point just south of the Coyote Hills Regional Park, the line turns east and heads along an unnamed canal to the Dumbarton Substation.

CONSULTATION HISTORY

On August 12, 2008 the USFWS issued a Biological Opinion for the SBSP Project Long-term Plan and Project Level Phase I Actions for Alameda, Santa Clara, and San Mateo Counties, California (Service File No. 81420-08-F-0621). The Biological Opinion has a two-tiered approach. It contains a programmatic opinion issued to cover the 50-year SBSP Project as well as a project level opinion on Phase I actions related to the SBSP Project. Phase I actions were evaluated and take was issued. There were eight Phase I actions analyzed and one of them was "Operations and Maintenance Activities" for PG&E within the South Bay Salt Pond Action Area. It was determined that operation and maintenance of PG&E's existing electrical lines, in conjunction with other Phase I actions, would not jeopardize the continued existence of the salt marsh harvest mouse, California clapper rail, snowy plover, and least tern and would not adversely affect the vernal tadpole shrimp, California tiger salamander, and Contra Costa goldfields. This consultation covers the portions of the project area within the ELER and Don Edwards San Francisco Bay National Wildlife Refuge.



Eastshore-Dumbarton
115kV Reconductoring Project

Legend

- Alignment
- ▲ Substation
- Don Edwards
San Francisco Bay
National Wildlife Refuge
- Eden Landing
Ecological Reserve

FIGURE 1

PROPOSED ACTION

Project Description

The proposed Eastshore-Dumbarton 115 kV Reconductoring Project involves reconductoring an existing 115kV power line between PG&E's Eastshore and Dumbarton substations. Reconductoring of the power line will increase the carrying capacity of the line which is needed as a result of the construction and operation of the approved Russell City Energy Center. It is proposed that PG&E reconductor the existing Eastshore-Dumbarton 115kV Power Line from assorted existing conductors to 477 kcmil ACSS 24/7 strand high-temperature conductor.

Approximately 6.7 miles of the existing double-circuit, overhead 115kV power line will be reconducted. The line is supported by 39 lattice towers and seven tubular steel poles. The power line leaves from the Eastshore Substation and traverses over agricultural land, salt ponds, and open fields for six miles until turning east into the Dumbarton Substation. The line consists of assorted tower types including; 2A, AH, B-DE, 2D-DE and mostly A towers. There are two transposition towers along the line. A fiber optic overhead ground wire (OPGW) line is also integrated into the power line from Towers 0/3 to 5/40. The OPGW will be retensioned to a higher tension to avoid wire clearance issues with the new conductor. The OPGW will also be deadended at all supply conductor deadend structures. From Dumbarton Substation to Tower 5/40 the conductor will be double bundled. Two of the tubular steel poles, Poles 6/43 and 6/44, will need to be replaced because of the weight of the new bundled conductor. From Tower 5/40 to Tower 0/2 the line will be super-bundled. From Tower 0/2 into the Eastshore Substation the line will convert into a double bundled conductor configuration. A new tubular steel pole will be installed to limit the loads from the new loading of the bundled conductor on the three terminal deadend poles outside of the Eastshore Substation.

The single-circuit Eastshore-Dumbarton 115kV line will be reconducted from assorted existing conductors to 477 kcmil ACSS 24/7 strand high-temperature conductor.

The existing insulators will be replaced with ceramic insulators and appropriate assemblies in accordance with current PG&E standards. The insulator types to be used will be for the AAA insulation district. Due to the properties of the new conductor, a number of the existing lattice structures require modifications, such as adding arm extensions and/or cage extensions to allow proper electrical clearances. Tower locations where modifications are required are depicted on aerials in Appendix A.

Construction Activities

Four basic construction activities are involved in the reconductoring project: 1) replacing two existing tubular steel poles near the Dumbarton Substation and installing a new inter-set tubular steel pole near the Eastshore Substation; 2) extending 13 lattice structures using ten foot cage top extensions; 3) reinforcing five lattice structures; and 4) reconductoring the existing power line.

Three staging areas have been located along the project alignment. These areas will be used to store materials that will be used for each of the four construction activities that have been proposed.

The majority of the project will be constructed from the air, using helicopters to transport crews and materials. Ground disturbing activities will be limited to the three staging areas, seven pull/tension sites, three pole replacement/construction sites, access roads, and several guard structure sites. The staging areas and pull/tension sites have been strategically placed within previously disturbed areas in order to minimize impacts. In addition, all access roads, with the exception of the route used to access the staging area and pull/tension sites near Tower 5/40, are existing. The single new access route is located within an agricultural field and will be temporary. The location and extent of each of the ground disturbing activities are depicted on aerials in Appendix A.

New Tubular Steel Poles

Three new tubular steel poles will be installed. The new poles will have a dull galvanized finish and will be approximately 105 feet in height and 2.5 to 3.5 feet in diameter at the base, similar to the existing poles that will be replaced. The locations of these structures are depicted on the maps attached as Appendix A. Installation of these structures will be from the ground. Access to the new inter-set pole site, located between structure 0/1 and 0/2, will be from within the fenced area of the Eastshore Substation. Access to structures 6/43 and 6/44 will be from a paved recreational trail (Figure 2). An auger and crane will be used to install the new structures. The structures will be direct embedded and backfilled with native soil or mounted on concrete foundations. In addition, structures 6/43 and 6/44 will be constructed with one circuit energized. This will require the use of a shoo-fly. A shoo-fly is a temporary pole that is installed in proximity to the existing pole. The existing conductor is transferred from the existing pole to the temporary pole. Once construction is complete the shoo-fly is removed and the conductor is transferred back to the replacement pole, if applicable.

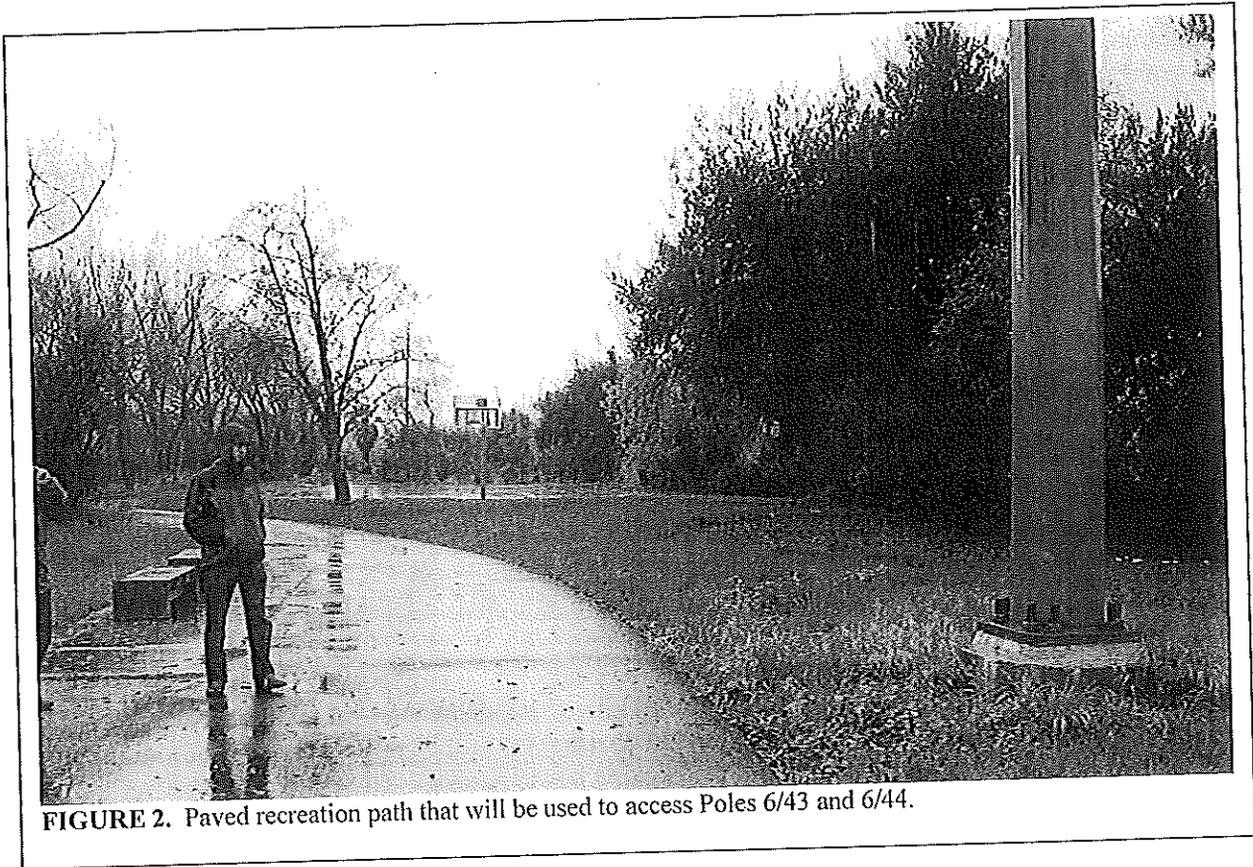


FIGURE 2. Paved recreation path that will be used to access Poles 6/43 and 6/44.

Assembly includes mounting the arms on the body of each structure. Hardware and insulators would be attached to the horizontal arms. Structure assembly would take place at each structure location. For each structure, construction would require auguring a single five foot diameter hole to a depth of approximately 10 to 12 feet. This diameter allows for replacement and compaction of removed soils around the pole. A 50 foot-wide radius around each structure would be temporarily impacted by construction activities. Grading would not occur for these activities.

Erection of the structures would require a crane to lift the assembled structure from the ground and set it into the augured hole or onto the foundation; augured holes would then be backfilled. It is anticipated that earth moving equipment would not be required for this activity.

Cage Top Extensions

Extensions to several of the existing lattice structures are required to maintain ground clearance requirements. A cage top extension is the equivalent of adding a new cross arm assembly to the top of the existing lattice structure and removing the bottom cross arm assembly from the structure, effectively increasing the height of the structure (Figure 3). The cage top extension will be assembled at one of the project staging areas. The cage top extension and work crew will be flown in by helicopter to each of the structure locations. Upon securing the extension to the structure the work crew will then be picked up from the structure by helicopter. No ground disturbance will result from the activity.

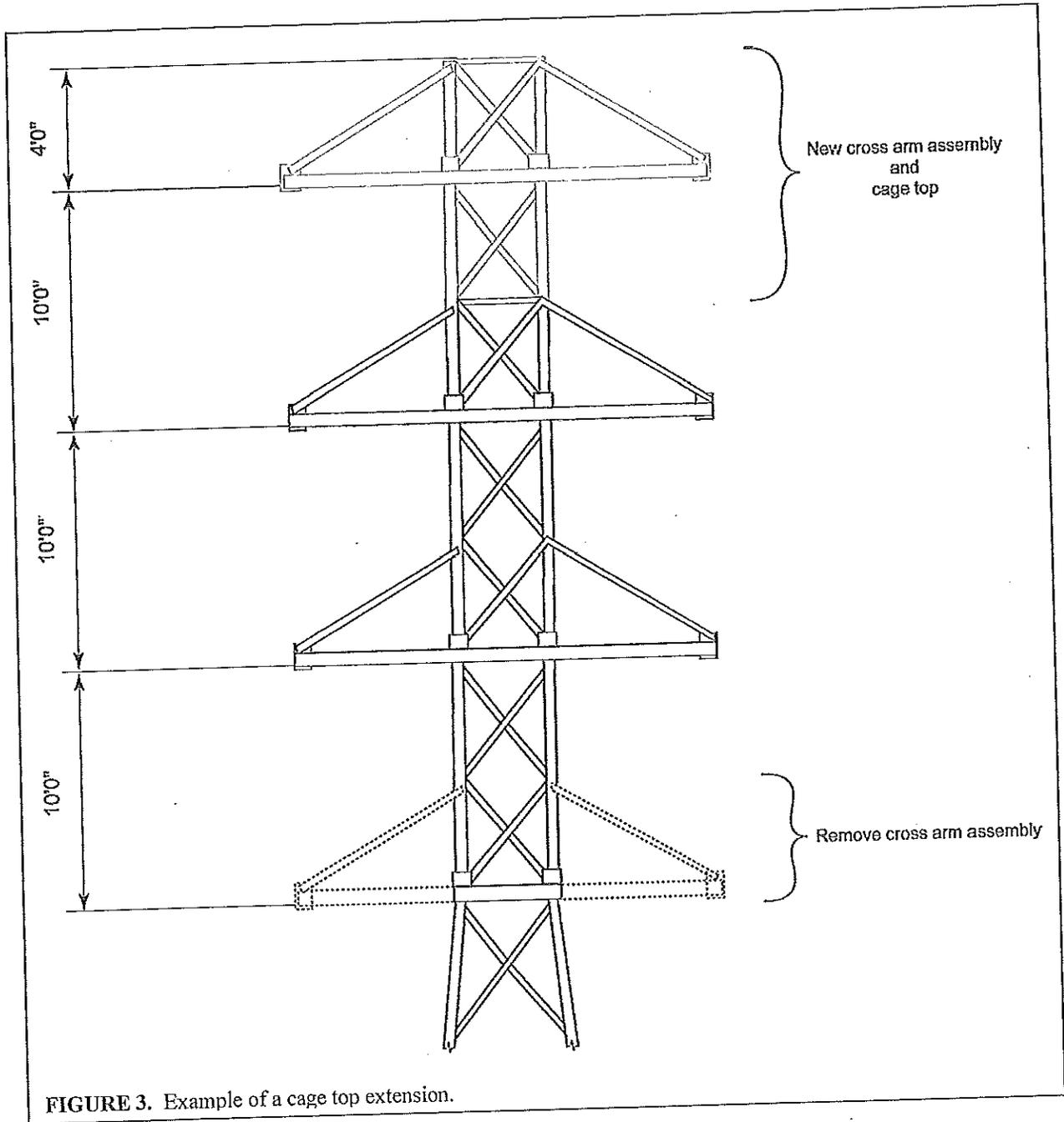


FIGURE 3. Example of a cage top extension.

Reinforcement

Several of the existing lattice structures require reinforcements in order to accommodate the new conductor. Crew members who will be completing the activities required to reinforce the structures will be flown to the towers by helicopter along with all materials that are needed.

Reconductoring

Once the three new structures are in place, existing structures have been extended, and reinforcements have been made to structures as needed, the line will be reconducted.

Crew members will be flown to each tower site by helicopter. The existing insulators will be replaced with new ceramic insulators on each tower and a pulley will be attached to the end of each insulator. The existing conductor will be threaded through the pulley. The existing conductor will then be attached to a cable, which in turn will be attached to the new conductors on truck mounted reels. The existing conductor, cable, and new conductor will be pulled through the pulley system to the appropriate tension pulling and tensioning locations. Pulling locations typically require an area about 150 feet by 300 feet and tensioning locations require an area about 150 feet by 300 feet. The majority of this area would not be disturbed and minimal or no brush clearing would be required. When pulling is complete, crew members will be flown to each tower site by helicopter. The pulley will be removed and the conductors will be clamped to the bottom of each insulator.

SURVEY METHODS

Species target lists of Federal and State listed threatened, endangered, proposed, candidate, and rare species, as well as plants listed as 1A, 1B and 2 list plants by the California Native Plant Society (CNPS) were prepared prior to conducting a field survey of the project area. Information was gathered from the California Department of Fish and Game (CDFG) California Natural Diversity Database (CNDDDB) as well as from the USFWS Sacramento Fish and Wildlife Office for the Newark quadrangle map and eight surrounding quadrangle maps (San Leandro, Hayward, Dublin, Redwood Point, Niles, Palo Alto, Mountain View and Milpitas). Records of species from the CNDDDB database within the project vicinity are depicted on the aerials contained in Appendix A.

A wildlife biologist conducted a review of the project area in April and June of 2009. Access was not available for the entire project area as much of the line traverses the ELER and this area was not visited to prevent disturbance to the nesting western snowy plovers. Areas that were not readily accessible were surveyed using optics and reviewed on aerial photographs and USGS topographic maps. Habitat was evaluated for its potential to accommodate special status species with a concentrated effort to identify signs and/or presence of special status species.

Existing literature was reviewed for the study area. A primary source of information was the Biological Opinion for the Proposed SBSP Project Long-term Plan and Project-level Phase I Actions Alameda, Santa Clara, and San Mateo counties.

ENVIRONMENTAL SETTING

The project occurs in the South San Francisco Bay area. Historically, this area was primarily made up of tidal marshes surrounding the bay. However, the majority of the tidal marsh has been converted for other uses. In fact, the San Francisco Bay has lost more than 90 percent of its original wetlands due to diking, draining, and filling. In the project area, the largest conversions of tidal marshes were for use as salt evaporative ponds, flood control, as well residential, industrial, and commercial development.

Species diversity is high in the San Francisco Bay area with more than 250 bird species, 120 fish species, 81 mammal species, 30 reptile species, and 14 amphibian species occurring in the area. The diversity of habitats found in this area is the primary reason for such a diversity of animal species. The area is an

important bird breeding, overwintering, and migratory stopover. It is located along the migratory path known as the Pacific Flyway.

There are several waterways in the project area. Most of the drainages are flood control channels and sloughs. The most prominent drainage is Alameda Creek, which is the main drainage of the largest watershed in the South Bay, draining almost 700 square miles. Alameda Creek is currently diverted into the Alameda County Flood Control Channel. It used to follow what is referred to as Old Alameda Creek. Old Alameda Creek now is a tidal slough that drains an area of approximately 22 square miles (Phillip Williams & Associates, Ltd. 2005). Old Alameda Creek now consists of an excavated channel with levees on both sides. The Alameda Creek Flood Control Channel (also referred to as the Coyote Hills Slough) is now the main conveyance channel for the Alameda Creek watershed. This channel was originally constructed by the US Army Corps of Engineers.

Recently, CDFG and USFWS have acquired nearly 15,000 acres of former industrial salt ponds in the project area to be managed primarily for wildlife. These salt ponds will be restored primarily to wetlands. This is the largest wetland restoration project on the west coast. PG&E's power line passes through one of the three restoration areas known as the Eden Landing pond complex (Figure 4.)

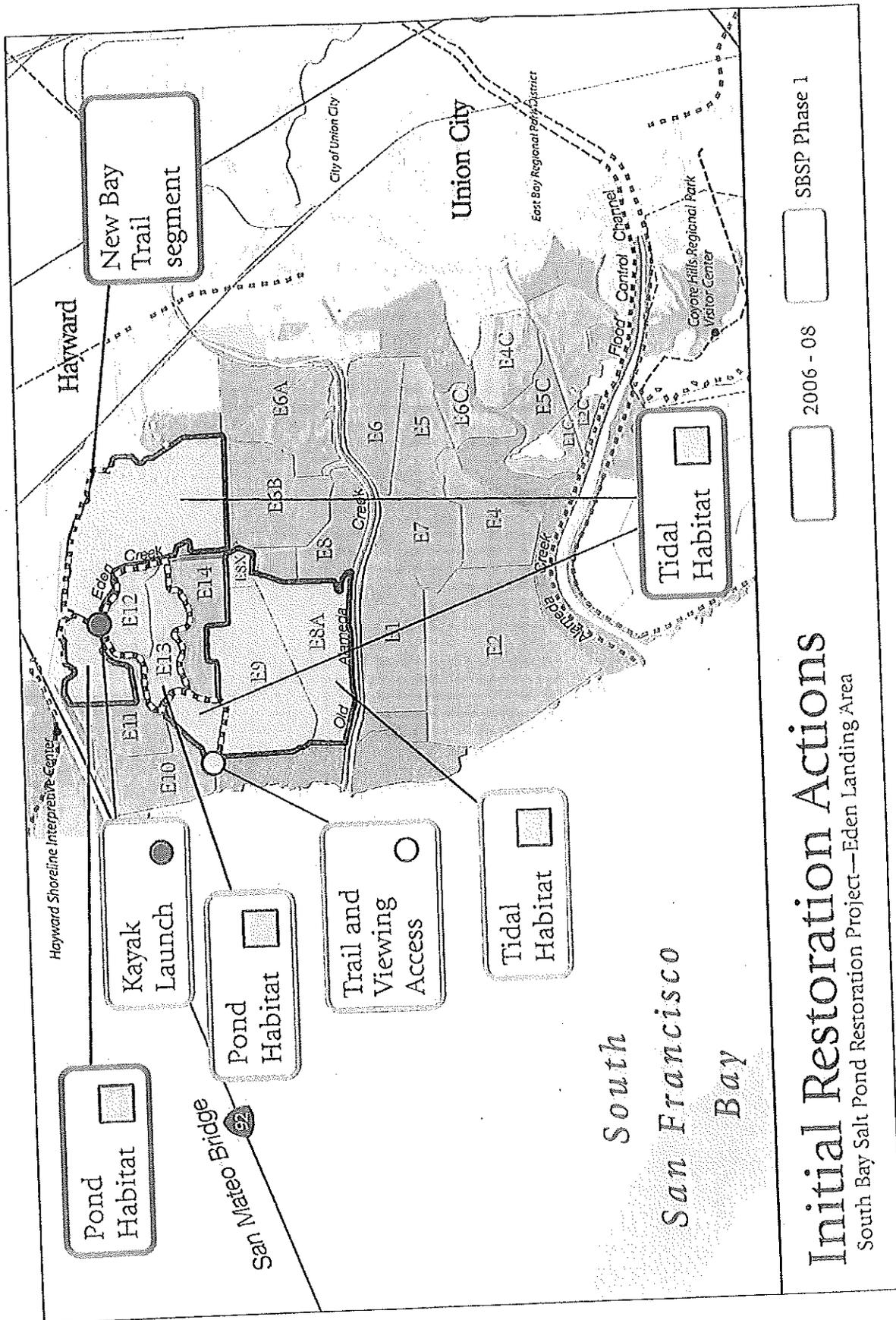


FIGURE 4. (<http://www.southbayrestoration.org/images/Pond%20Maps/edenlanding.pdf>)

VEGETATIVE COMMUNITIES

The project traverses a variety of habitats, which are described in general terms below.

Coastal Salt Marsh and Brackish Marsh

Salt marsh habitat is found throughout the project area as the project is located on the margins of the South San Francisco Bay. Salt marsh habitat is generally only submerged during the highest tides and is dominated by herbs. The most common species in this community is Virginia pickleweed (*Salicornia virginica*). Saltgrass (*Distichlis spicata*) is often found along the tidal marsh – upland ecotone. Other dominant species include Pacific cordgrass (*Spartina foliosa*), marsh gumplant (*Grindelia stricta*), jaumea (*Jaumea carnosa*), and salt marsh dodder (*Cuscuta salina* var. *major*).

Areas where there is no tidal influence, and the water is more fresh than salt water but is also slightly brackish, are considered brackish marshes. Two rushes, Hardstem bulrush (*Scirpus acutus* var. *occidentalis*) and robust bulrush (*Scirpus robustus*) as well as perennial peppergrass (*Lepidium latifolium*) occur in brackish marshes. These types of marsh habitats are generally located in the area from Towers 2/21 south to Tower 4/35.

Freshwater Marsh

Freshwater marshes are mainly found along the margins of ponds, lakes, and slow moving waters. These marshes are dominated by cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), and sedges (*Carex* spp.). Freshwater marshes within the project area are located on the edges of a couple of ponds immediately east of Tower 3/26 and within the Coyote Hills Regional Park near Tower 5/36.

Vernal Pool

Vernal pools are low spots in meadows that are full of water in the wet season and dry out during the dry season. Species that occur within vernal pools have adapted to this fluctuation in the presence of water. Some common plant species occurring in vernal pools include downingia species (*Downingia* spp.), yellow-rayed goldfields (*Lasthenia glabrata*), and douglas meadowform (*Limnanthes douglasii* spp. *Douglasii*). A vernal pool was delineated between Towers 0/1 and 0/2 outside of the Eastshore Substation (Figure 5).

Riparian Woodland

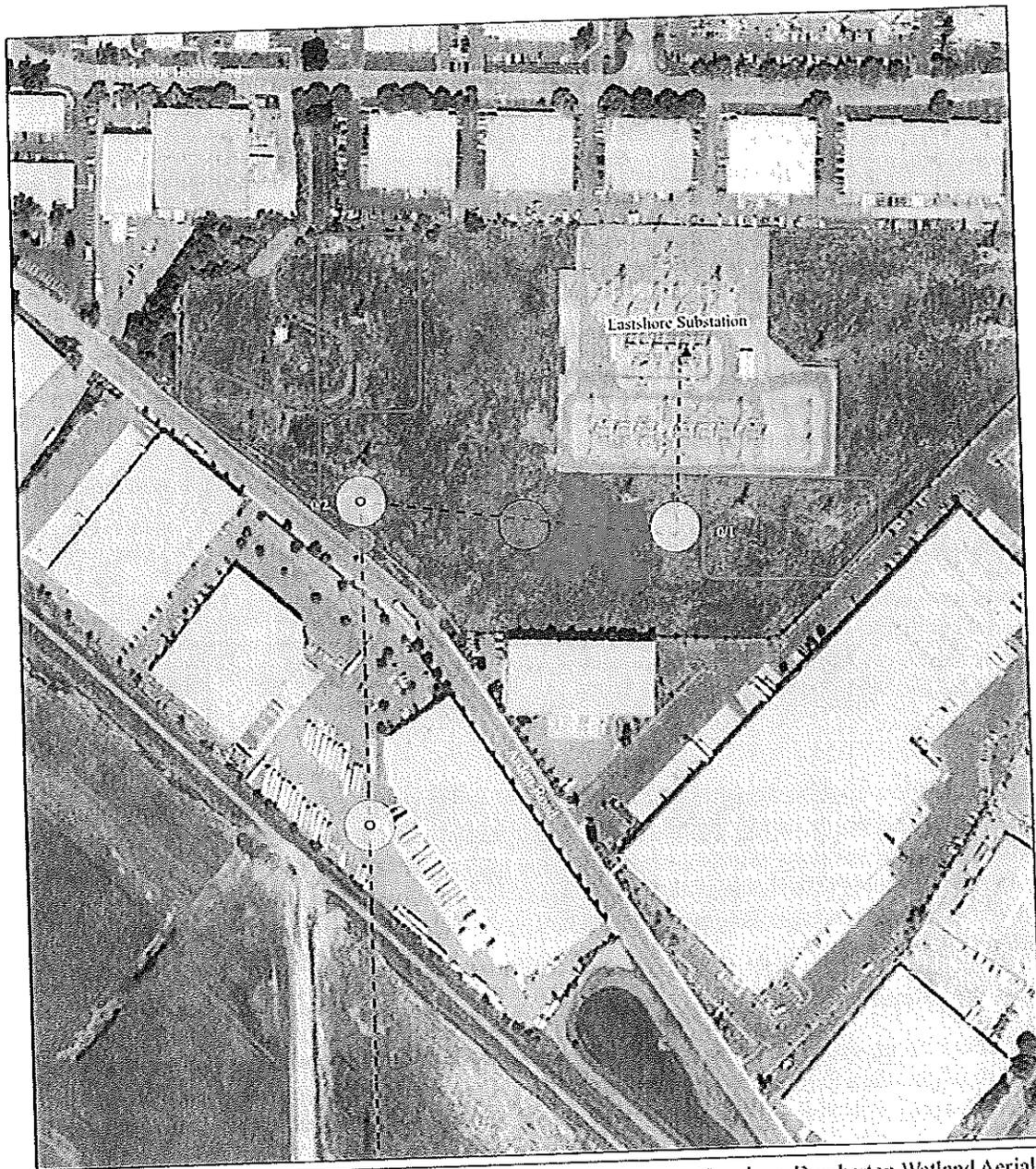
This woodland occurs along streams, creeks, and channels as the species growing in these areas require more soil moisture than those growing in upland areas. Tree species found in riparian woodlands include willow (*Salix* spp.), cottonwood (*Populus trichocarpa*), and western sycamore (*Platanus racemosa*). This community is primarily found south of Coyote Hills Slough near Tower 5/36 and along an unnamed slough paralleling the segment of electrical line between Towers 5/40 through 6/44.

Valley Grassland

Grasslands are found scattered throughout the project area in upland areas. All grassland areas have been previously disturbed and are mainly dominated by non-native species. Species occupying these areas include ripgut brome (*Bromus diandrus*), wild oat (*Avena fatua*), and black mustard (*Brassica nigra*).

Agricultural Lands

Agricultural lands are located immediately east of the Coyote Hills Regional Park and surrounding Tower 4/33. These lands are either used as pasture or to grow crops.



Legend

- - - - Alignment
- ▲ Substation
- ⊙ Guard Structure (50' diameter work area)
- Existing Tower (No Modification) (100' diameter work area)
- Existing Tower (Proposed Extension) (100' diameter work area)
- ⊙ New Tubular Steel Pole (TSP) (100' diameter work area)
- Pull Sites (150' x 300')
- ▨ Seasonal Wetland
- ▨ Seasonal Wetland Upland Mosaic
- Vernal Pool

Eastshore-Dumbarton Wetland Aerial
Eastshore-Dumbarton
115kV Reconductoring Project

FIGURE 5



Salt Pond

Salt ponds are constructed ponds used for commercial salt production. These non-tidal, ponds are generally flat, mud or salt bottom areas with little or no vegetation. They are surrounded by levees. The salt ponds within the project area are no longer used as commercial salt ponds as they have been acquired by CDFG and are being managed to provide for wildlife habitat and recreational opportunities. The ponds within the ELER crossed by the power line are primarily dry and seasonal ponds.

Urban/Developed

The project passes through some developed areas. Generally these are located at the north end of the project between the substation and the start of the Eden Landing Ecological Reserve, near Tower 2/20 and near the southeastern end of the alignment. Urban/developed lands include lands used for residential, commercial, and industrial development, parks, and agricultural lands.

SPECIAL STATUS SPECIES EFFECTS

Special status species¹ and designated critical habitat potentially occurring in the project area were identified using information from federal and state resource agencies. No critical habitat is located within the project area. A total of 76 special status species with the potential to occur within the project study area were identified and include:

- San Mateo thorn-mint (*Acanthomintha duttonii*) – FE, SE, 1B
- Green sturgeon (*Acipenser medirostris*) – FT (NMFS)
- Western pond turtle (*Actinemys marmorata*) – SC
- Tricolored blackbird (*Agelaius tricolor*) – SC
- Franciscan onion (*Allium peninsulare* var. *franciscanum*) – 1B.2
- California tiger salamander (*Ambystoma californiense*) –
- FT Pallid bat (*Antrozous pallidus*) – SC
- Kings Mountain manzanita (*Arctostaphylos regismontana*) – 1B.2
- Short-eared owl (*Asio flammeus*) – SC
- Alkali milk-vetch (*Astragalus tener* var. *tener*) – 1B.2
- Burrowing owl (*Athene cunicularia*) – SC
- Brittsescale (*Atriplex depressa*) – 1B.2
- San Joaquin spearscale (*Atriplex joaquiniana*) – 1B.2
- Big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*) – 1B.2
- Marbled murrelet (*Brachyramphus marmoratus*) – FT
- Conservancy fairy shrimp (*Branchinecta conservation*) – FE
- Longhorn fairy shrimp (*Branchinecta longiantenna*) – FE

¹ **USFWS categories:** Endangered (FE)—Taxa in danger of extinction throughout all or a significant portion of its range; Threatened (FT) - Taxa likely to become endangered within the foreseeable future throughout all or a significant portion of its range; Candidate (FC) - Species for which the USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened. Candidate species, however, are not protected legally because proposed rules have not been issued; Proposed Endangered (PE) - Any species for which a proposed rule has been published in the Federal Register to list the species as endangered under the Endangered Species Act; Proposed Threatened (PT) - Any species for which a proposed rule has been published in the Federal Register to list the species as threatened under the Endangered Species Act.

CDFG categories: Endangered (SE) - Taxa in danger of extinction throughout all or a significant portion of its range; Threatened (ST) - Taxa likely to become endangered within the foreseeable future throughout all or a significant portion of its range; Rare (SR) - Species that, although not currently threatened with extinction, is found in such minimal numbers throughout its range that it may become endangered if current environment deteriorate; Candidate Species (SCS) - Species that has been officially under review by the CDFG for addition to the threatened or endangered species. [Source: CDFG Fish and Game Code]. Species of concern (SSC) - Animals not listed under the federal Endangered Species Act or the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist.

CNPS categories: 1A - Presumed extinct in California; 1B - Rare or Endangered in California and elsewhere; 2 - Rare or endangered in California, more common elsewhere.

- Vernal pool fairy shrimp (*Branchinecta lynchi*) – FT
- Chaparral harebell (*Campanula exigua*) – 1B.2
- Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*) – 1B.2
- Western snowy plover (*Charadrius alexandrinus nivosus*) – SC
- Robust spineflower (*Chorizanthe robusta* var. *robusta*) – 1B.1
- Northern harrier (*Circus cyaneus*) – SC
- Crystal Springs fountain thistle (*Cirsium fontinale* var. *fontinale*) – 1B.1
- Lost thistle (*Cirsium praeteriens*) – 1A
- San Francisco collinsia (*Collinsia multicolor*) – 1B.2
- Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) – 1B.2
- Yellow warbler (*Dendroica petechia brewsteri*) – SC
- Western leatherwood (*Dirca occidentalis*) – 1B.2
- Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*) – 1B.1
- Tidewater goby (*Eucyclogobius newberryi*) – FE
- Western mastiff bat (*Eumops perotis californicus*) – SC
- Bay checkerspot butterfly (*Euphydryas editha bayensis*) – FT
- Fragrant fritillary (*Fritillaria lilicea*) – 1B.2
- Saltmarsh common yellow throat (*Geothlypis trichas sinuosa*) – SC
- Diablo helianthella (*Helianthella castanea*) – 1B.2
- Western flax (*Hesperolinon congestum*) – FT, ST, 1B.1
- Santa Cruz tarplant (*Holocarpha macradenia*) – 1B.1
- Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*) – 1B.1
- Delta smelt (*Hypomesus transpacificus*) – FE
- San Bruno elfin butterfly (*Incisalia mossii bayensis*) – FE
- Contra Costa goldfields (*Lasthenia conjugens*) – FE, 1B.1
- California black rail (*Laterallus jamaicensis coturniculus*) – ST
- Vernal pool tadpole shrimp (*Lepidurus packardii*) – FE
- Marin Arcuate bush-mallow (*Malacothamnus arcuatus*) – 1B.2
- Davidson's bush-mallow (*Malacothamnus davidsonii*) – 1B.2
- Hall's bush-mallow (*Malacothamnus hallii*) – 1B.2
- Alameda whipsnake (*Masticophis lateralis euryxanthus*) – FT, ST
- Alameda song sparrow (*Melospiza melodia pusillula*) – SC
- Robust monardella (*Monardella villosa* ssp. *globosa*) – 1B.2
- Prostrate vernal pool navaretia (*Navarretia prostrata*) – 1B.1
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) – SC
- Coho salmon - Central California coast fall/late fall-run (*Oncorhynchus kisutch*) – FE (NMFS)
- Steelhead - Central California coast ESU (*Oncorhynchus mykiss irideus*) – FT
- Chinook salmon - Central Valley spring-run (*Oncorhynchus tshawytscha*) – FT
- Chinook salmon - Sacramento River winter-run (*Oncorhynchus tshawytscha*) – FE
- California brown pelican (*Pelecanus occidentalis californicus*) – FE
- Hairless popcorn-flower (*Plagiobothrys glaber*) – 1A
- Oregon polemonium (*Polemonium carneum*) – 2.2
- Slender-leaved pondweed (*Potamogeton filiformis*) – 2.2
- California clapper rail (*Rallus longirostris obsoletus*) – FE, SE
- California red-legged frog (*Rana draytonii*) – FT, SC
- Salt-marsh harvest mouse (*Reithrodontomys raviventris*) – FE, SE
- Bank swallow (*Riparia riparia*) – ST
- Black skimmer (*Rynchops niger*) – SC
- Adobe sanicle (*Sanicula maritime*) – SR, 1B.1

- Alameda Island mole (*Scapanus latimanus parvus*) – SC
- Salt-marsh wandering shrew (*Sorex vagrans halicoetes*) – SC
- California least tern (*Sternula antillarum browni*) – FE, SE
- Most beautiful jewel-flower (*Streptanthus albidus ssp. peramoenus*) – 1B.2
- California seablite (*Suaeda californica*) – FE, 1B.1
- American badger (*Taxidea taxus*) – SC
- San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) – FE, SE
- Saline clover (*Trifolium depauperatum var. hydrophilum*) – 1B.2
- Caper-fruited tropidocarpum (*Tropidocarpum capparideum*) – 1B.1
- San Joaquin kit fox (*Vulpes macrotis mutica*) – FE, ST

The majority of the species were eliminated from review as there is no suitable habitat in the project area to support the species. The following discussion focuses on species that were determined to have suitable habitat and/or potential to occur within the project area and required further analysis. These 19 species, the California clapper rail, California least tern, western snowy plover, salt marsh harvest mouse, California brown pelican, California black rail, steelhead-Central California Coast ESU, chinook salmon - Central California Coast fall/late fall-run, Contra Costa goldfields, California tiger salamander, vernal tadpole shrimp, tricolored blackbird, short-eared owl, northern harrier, Alameda song sparrow, salt-marsh wandering shrew, burrowing owl, American peregrine falcon, and western pond turtle have the potential to occur and are addressed below.

Special Status Plants

Generally, the project area is not expected to support special-status plants due to the absence of suitable habitat and lack of ground disturbance. Furthermore, no records of special-status plants are documented from the area based upon the review of the CNDDDB records. The project will involve limited ground disturbance as a majority of the reconductoring work will be performed using helicopters and will not involve ground disturbance. Ground disturbance will occur at staging areas, where poles are placed temporarily as guard structures, and where two poles will be replaced. All of these sites have been highly disturbed in the past. Staging areas and pulling sites are in substation yards, at the waste water treatment plant, and in an agricultural field. Guard structures will be placed adjacent to road crossings. The two poles (6/43 and 6/44) to be replaced are within a pathway where there is a manicured lawn and concrete pathway. A new tubular steel pole will be erected within the Eastshore Substation yard and will not be placed within wetland habitat at this site. These areas are not likely to support special-status plant species. One plant species, the Contra Costa goldfields is discussed below.

Contra Costa Goldfields

Species Information

The Contra Costa goldfields have been listed as endangered since June 1997 (62 FR 33029). The final ruling for its critical habitat was published in August 2003 (68 FR 46683) and no conservation plan has been developed. It is listed as a California Native Plant Society (CNPS) list 1B.1 species. The reduction of numbers is mainly caused by loss and degradation of their habitat.

The goldfields inhabit mainly vernal pools in open grassy areas located at elevations up to 470 meters (NatureServe, 2009). They are found on the edges of drying vernal pools. They germinate with the first rain and then enter a state of dormancy while the pools are inundated. As the pool dries, it resumes its growth. This annual herb produces a showy yellow flower from March to June.

Environmental Baseline

No occurrences of Contra Costa goldfields are known within the project area. The nearest known population is in Newark, California, at the Pacific Commons Preserve Mitigation Site approximately five

miles south of the project area. The one vernal pool in the project area was visited in June and no Contra Costa goldfields were observed.

Impacts

No impacts to the Contra Costa goldfields are expected to occur as a result of the project. One vernal pool was identified in the project area. This vernal pool is located between Towers 0/1 and 0/2 (see Figure 5). There will be no disturbance of this vernal pool. A new tubular steel pole will be erected approximately 150 feet west of the pool. To ensure the erection of this pole and other reconductoring activities in this area do not impact the vernal pool, conservation measures will be employed when working in this area. Conservation measures include; fencing off the vernal pool, erecting silt fencing or other storm water pollution prevention measures to ensure runoff does not enter the pool; and having a biological monitor onsite to ensure activities do not impact the pool. It is also recommended that activities to install this pole occur when conditions are dry.

Special Status Wildlife

California Clapper Rail

Species Information

The California clapper rail was federally listed as endangered in 1970 (35 FR 16047). Critical habitat has not been designated. It is fully protected under the California Endangered Species Act (CESA). Habitat loss was the primary factor that led to the species decline and listing. Another factor negatively impacting the species is predation by mammals and birds. A lack of high marsh habitat and cover during high tides increases predation. DeGroot (1927) noted that clapper rails were extremely susceptible to predation by raptors during high tides as they tried to seek refuge in areas outside their typical marsh habitat.

Clapper rails typically occur in the intertidal zone of salt and brackish marshes and along sloughs. Vegetation is typically dominated by pickleweed, Pacific cordgrass, gumplant, jaumea (*Jaumea carnosa*), and salt grass. They also occupy habitats with vegetation consisting of bulrush (*Scirpus americanus* and *S. maritimus*), cattails, and Baltic rush (*Juncus balticus*). Clapper rail breeding can begin as early as February and the end of the breeding season is generally defined as the end of August (Evans and Page 1983). A detailed account of the natural history of the clapper rail is provided in the *Salt Marsh Harvest Mouse and California Clapper Rail Recovery Plan* (USFWS 1984).

Environmental Baseline

Clapper rails breed within the ELER. Breeding sites include the marsh along Old Alameda Creek south of Pond E8A often referred to as the Whale's Tail Marsh. Previous surveys have not covered all marsh habitat in and around the project area. It is possible that clapper rails breed in any suitable tidal salt marsh habitat and may also occur in brackish marshes.

Potential Impacts

Impacts to breeding California clapper rails will be minimized by employing conservation measures. Work within 1,000 feet of wetlands will be limited to the period between September 1 to January 31, the non-breeding season, to avoid impacts to breeding rails, unless surveys are conducted during the breeding season and no rails are found within 700 feet of the location of project activities.

Impacts to non-breeding clapper rails will primarily result from elevated noise and activity levels. Impacts during the non-breeding season may lead to an increased potential for predation of clapper rails. Human use of upland areas and high plain marshes during high tides can preclude rails from fleeing to these areas during high tides. Instead they may remain in the marsh where there is little vegetative cover remaining and predation pressures increase. The rails are most vulnerable during the highest tides of the year. Impacts to rails during high tides will be minimized as project activities within salt marshes will not occur within two hours of high tide on days when tides are higher than 6.5 feet as measured at Golden Gate.

The overhead flights of the helicopters may result in elevated stress levels, which could reduce foraging time and impact daily behaviors. These impacts will be temporary as work is being completed. There will be no loss of habitat resulting from this project and crushing of individuals is not likely. Work within marshes will be completed using helicopters to access the structures. Foot or vehicular travel through marshes is not anticipated. None of the prescribed work that involves ground disturbing activities will occur within marsh habitat.

California Least Tern

Species Information

The California least tern was federally listed as endangered in October 1970 (35 FR 16047). Critical habitat has not been designated. It is fully protected under the CESA. Population declines have resulted from habitat loss, pesticide use, predation, and nest disturbance by humans.

Breeding occurs from April through August. Least terns require large, open areas of sand or gravel with little vegetation for nesting. Nesting must be located near open water to support adults and juveniles throughout the nesting season. One of the most successful and important breeding sites in California for the species is located at Alameda Point in the San Francisco Bay area.

Least terns feed primarily on small, surface swimming, nonspiny fish, but will also eat shrimp and other invertebrates. More than 50 fish species have been documented as prey species throughout their range (Thompson et. al. 1997). A more detailed account of the natural history of the species can be found in the species approved recovery plan (USFWS 1980).

Environmental Baseline

Least terns are not believed to currently breed in the project area. At ELER, previous unsuccessful breeding attempts were made at ponds E10 and E11, of which the last known breeding attempt was from 1985 and at pond E8A in 2007 and 2008 (H.T. Harvey and Associates 2005). California least terns occasionally forage among ponds at the ELER. Foraging has been observed at Ponds E8A, E9, and E10. They typically are observed foraging in late summer (June through late-August). They roost on salt pond levees and boardwalks.

Potential Impacts

Impacts to breeding California least terns will be avoided. Work within 1,000 feet of the ponds at ELER where terns have been observed in breeding attempts and are known to forage will occur between the period September 1 to January 1 outside of the period when terns are present. Since work will occur outside of the period when terns are present in the project area impacts to the least tern are not expected.

There will be no loss of habitat resulting from this project. Work within marshes will be completed using helicopters to access the structures. Foot or vehicular travel through marshes is not anticipated. None of the prescribed work that involves ground disturbing activities will occur within marsh habitat.

Western Snowy Plover

Species Information

The western snowy plover was federally listed as threatened in 1993 (58 FR 12864), with critical habitat being designated in 2005 (70 FR 56969). The project area does not fall within any critical habitat units. In California it is a species of special concern. Habitat degradation is the biggest threat to the species, although human and domestic dog disturbance and predation are also important threats.

The western snowy plover is a small, pale shorebird that nests on sparsely vegetated beaches, salt flats, levees, river bars, and salt evaporation ponds. In California, the breeding season is March through September. Nesting areas are usually located near water, where prey is abundant, although they have nested in dry salt ponds. Snowy plovers feed mainly on brine flies and other insects, but have been known to consume beetles, crabs, polychaete worms, sand hoppers, small crustaceans mollusks and plant

seeds (Page *et. al.* 1995). The nesting season is considered to extend from March 1 through September. In the South Bay the birds may remain during the non-breeding season.

Environmental Baseline

The largest concentration of breeding and wintering snowy plover occurs within the ELER. They nest on barren or very sparsely vegetated salt pond levees and islands, pond edges, and salt pan areas of dry ponds (Feeney and Maffei 1991, Marriot 2003). Many of the ponds at the ELER are actively managed to provide suitable breeding conditions. Nesting at ponds E12, E13, and E16b has been observed on a periodic basis over the years depending upon pond conditions. Nesting was observed in 2007 and 2008 (USFWS 2008). Ponds E8, E6A, E6B, E11, E14B, E15B, and E16B may also be used for nesting depending upon pond conditions.

Potential Impacts

Impacts to the western snowy plover will be minimized. Impacts will primarily result from the loud noises of the helicopter used during recondotoring. The loud noises and elevated human activity could alter plover behavior such as breeding, foraging, sheltering, and dispersal. Impacts will be minimized as a minimum 600-foot buffer will be implemented around plover nests to minimize disturbance during the breeding season (March 1 through September).

There will be no loss of habitat resulting from this project and crushing of individuals is not likely. Work within marshes will be completed using helicopters to access the structures. Foot or vehicular travel through marshes is not anticipated. None of the prescribed work that involves ground disturbing activities will occur within marsh habitat.

Salt Marsh Harvest Mouse

Species Information

The salt marsh harvest mouse was federally listed as endangered in 1970 (35 FR 16047). Critical Habitat has not been proposed or designated. It is fully protected under the CESA. The primary threat to the species is habitat loss and fragmentation.

Salt marsh harvest mice are found in salt and brackish marshes in tidally influenced areas. They rely mainly on dense pickleweed as their primary source of food and cover, although they have been found in other low, thick vegetation in salt and brackish marshes. They require cover in adjacent upland areas for refuge during high tide events. They are extremely susceptible to habitat fragmentation, and open areas as small as 16.4 feet wide, or marshes as small as 820 feet wide may act as barriers to movement (Shellhammer and Duke 2004).

Environmental Baseline

The salt marsh harvest mouse occurs in the project area, but habitat quality is considered poor. Salt marsh harvest mouse habitat in the South Bay has been highly fragmented and most suitable marshes are best described as strips of habitat. Shellhammer and Duke (2004) reported that most of the marshes in the South Bay are not likely wide enough to support viable populations, but likely act as dispersal corridors. Most of the marshes are isolated from each other by levees and their associated roads and other linear features. Shellhammer and Duke (2004) have suggested that barren land more than 5 meters wide, open water more than four meters wide, and brackish and freshwater marsh more than 250 meters wide act as barriers to movement.

Records of the salt marsh harvest mouse from the CNDDDB have been indicated on the aerial maps contained in Appendix A. There are five records of the salt marsh harvest mouse along the project alignment, scattered throughout marshes along the line.

Potential Impacts

Impacts to salt marsh harvest mice may occur as a result of the proposed action. Impacts will primarily result from the loud noises of the helicopter used during reconductoring. Such disturbance may displace the mice from their cover and territories. Displaced mice may be more susceptible to predation and experience competition as they overlap into adjacent mice territories. This could disrupt the normal breeding, foraging, sheltering, and dispersal of the mice. Disturbance during the breeding season (March through November) could result in female abandonment of litters. Impacts will be minimized by limiting the amount of time helicopters hover over marshes to the minimum necessary to complete reconductoring activities.

There will be no loss of habitat resulting from this project and crushing of individuals is not likely. Work within marshes will be completed using helicopters to access the structures. Foot or vehicular travel through marshes is not anticipated. None of the prescribed work that involves ground disturbing activities will occur within marsh habitat.

California Brown Pelican

Species Information

The California brown pelican was federally listed as endangered in October 1970 (35 FR 16047) and is fully protected in California. Critical habitat has not been designated. The primary cause of decline was due to the use of the pesticide dichloro-diphenyl-trichloroethane (DDT). While recovering from the chemical contamination, the species is still threatened by commercial competition and overharvesting of their primary food sources, including the Pacific mackerel (*Scomber japonicus*), Pacific sardine (*Sardinops sagax*), and the northern anchovy (*Engraulis mordax*).

Pelicans nest colonially on southern islands ranging from Mexico to Florida beginning as early as January, with post-breeding dispersal occurring northward as far as Canada. In California, they breed in the Salton Sea and on the California Channel Islands. By June, many post-breeding birds are found in Central California.

Environmental Baseline

Several hundred, post-breeding, brown pelicans are found in the South San Francisco Bay area during summer and fall, but numbers fluctuate (Ainley 2000). They typically begin arriving in June and July and leave by late fall. A few individuals may stay during the winter and spring seasons. Recent USGS counts documented a high number of 237 individual brown pelicans at the ELER. These birds primarily use ponds E1 and E2 (USGS Unpublished Preliminary Data). The daily patterns of brown pelicans in this area are not well studied but they are known to use salt ponds and levees for foraging and roosting.

Potential Impacts

Pelican breeding habitat is restricted to the south coast of California, Baja California, and the Gulf of California. However, non-breeding pelicans use local coastal areas for foraging and roosting habitat. Impacts to non-breeding individuals could result from elevated noise and disturbance levels associated with reconductoring activities, primarily helicopter flights. However, work within areas that would potentially be used by pelicans will be limited to the late fall and winter when pelicans have generally migrated away from the project area.

California Black Rail

Species Information

The California black rail currently has no federal regulatory status, although it is on the USFWS Region 1 list of Birds of Conservation Concern (BCC). It is classified as threatened under the CESA. Species decline is mainly associated with habitat loss and degradation.

California black rails prefer tidal marshes, but may also be found in low elevation brackish and freshwater marshes. The California black rail occurs in coastal California, northwestern Baja California, the lower Imperial Valley, and the lower Colorado River in Arizona, and is largely a resident throughout its range. Information on reproduction and feeding habits is limited, but pairing occurs from February through July. They are mostly opportunistic feeders, taking small aquatic and terrestrial invertebrates as well as some seeds.

Environmental Baseline

The black rail is not believed to currently breed in the South Bay, but may disperse to the South Bay following breeding. Late-season (April) calling birds were heard approximately one mile up Old Alameda Creek near pond E6A (Albertson pers. comm. as taken from H.T. Harvey and Associates 2005) and one was heard along Coyote Hills Slough approximately 0.1 mile west of the electrical line. Black rails are very secretive and rarely observed except during high tides when they seek refuge in marsh edges. They also don't call during the winter, which makes broadcast survey methods useless. Thus, little information on the numbers of black rails using the South Bay is known. The species has been observed at the ELER. The lack of breeding birds in the South Bay is likely a result of a combination of loss of marsh habitat as well as upland refugia where they seek shelter during high tides.

Potential Impacts

Impacts to breeding California black rails are not expected as black rails are not believed to breed in the project area. Impacts to non-breeding rails will primarily result from elevated noise and activity levels. Impacts during the non-breeding season may lead to an increased potential for predation of California black rails. Human use of upland areas and high plain marshes during high tides can preclude rails from fleeing to these areas during high tides. Instead they may remain in the marsh where there is little vegetative cover remaining and predation pressures become greater. The rails are most vulnerable during the highest tides of the year. Impacts to rails during high tides will be minimized as project activities within salt marshes will not occur within two hours of high tide on days when tides are higher than 6.5 feet as measured at Golden Gate.

There will be no loss of habitat resulting from this project and crushing of individuals is not likely. Work within marshes will be completed using helicopters to access the structures. Foot or vehicular travel through marshes is not anticipated. None of the prescribed work that involves ground disturbing activities will occur within marsh habitat.

Steelhead-Central California Coast ESU

Species Information

This particular population was listed as a threatened species on August 18, 1997 (Federal Register, Vol. 12, No. 159, August 18, 1997, p 43937). Steelhead is the common name applied to the anadromous form of *O. mykiss*, commonly referred to as rainbow trout. The particular population of steelhead within the project area falls under the designation of Central California Coast Evolutionary Significant Unit (ESU). The Central California Coast steelhead inhabits watershed basins from the Russian River (Sonoma County), to Soquel Creek (Santa Cruz County) inclusive (Busby *et al*, 1996). Critical habitat was designated for the Central California Coast steelhead in September of 2005 (Federal Register, Vol. 70, No. 170, September 2, 2005).

Steelhead migrate to the ocean as juveniles and return to freshwater to spawn. Juveniles usually spend one to two years in fresh water streams before making the migration to the ocean and return to the fresh water streams to spawn once they have matured. Migration and spawning take place from January through early April.

Suitable steelhead spawning habitat is composed of many variables. One factor is stream substrate. Steelhead spawn in areas with gravel and cobble as the primary substrates. Fine materials such as sand and clay and larger substrates than cobble are not suitable for steelhead spawning. Another factor is

instream and overhead shelter abundance. Steelhead require a diverse structure of aquatic vegetation, root wads, woody debris, undercut banks, boulders, and overhanging vegetation which allow shelter and escape from predators. Another major factor is a stream's geomorphology. A stream with a diverse geomorphology, which includes meanders, varying depths and widths, and an array of stream features such as pools, riffles, and runs, provides the best habitat.

Environmental Baseline

Steelhead are known to occur in several stream systems in the South San Francisco Bay Area such as the Coyote Creek, Guadalupe River, Stevens Creek, and San Francisquito Creek watersheds (Foxgrover and others 2004). They could potentially spawn in nearly any segment of a stream with suitable spawning habitat and a lack of barriers. There is not a lot of information on the use of smaller streams, sloughs, and channels in the project area. Restoration activities are taking place in Alameda Creek, which may lead to a salmon spawning. Currently, very low numbers of adult steelhead use Alameda Creek (Leidy et al. 2003). Steelhead may use the sloughs and creek channels within the project area to access upstream reaches of creeks, but suitable spawning habitat does not exist.

Potential Impacts

Impacts to steelhead are not expected to result from the project. Activities will not occur within waterways and will not involve the removal, alteration, or modification of drainages, their banks, or riparian vegetation. Therefore, the project will have no effect upon the Central California Coast ESU of steelhead.

Chinook Salmon – Central California Coast fall/late fall-run

Species Information

Fall run chinook salmon are a candidate species under the ESA for listing due to concerns over reduced population size and hatchery influence. In North America, Chinook salmon occur in streams north to Kotzebue Sound, Alaska, with the southern most spawning runs occurring in the Central Valley of California, specifically in the San Joaquin and King Rivers. Along the North Coast of California, spawning runs occur (or occurred) in larger coastal streams north of San Francisco Bay to the Oregon border. Chinook also spawned in all the major Central Valley streams draining the Sierra Nevada and Cascade Ranges.

The California Coastal ESU has several fall runs of Chinook salmon that migrate from the Pacific to spawn in cool, clear, well-oxygenated streams and rivers with small cobble and gravel bottoms (Moyle 2002). According to Yoshiyama et al. (1998), fall run adult Chinook begin upstream migration to the spawning grounds as early as June, extending into December, with peak migration occurring September to October. Juveniles emerge from December to March and emigrate soon thereafter to main stem rivers or estuaries to rear before heading out to sea.

Environmental Baseline

Chinook salmon did not historically spawn in streams of the South San Francisco Bay, but since the mid-1980's low numbers of fall-run Chinook salmon have been documented in streams such as Coyote Creek, Los Gatos Creek, and the Guadalupe River (Leidy and others 2003). Chinook salmon have also been recorded in lower Alameda Creek. These salmon do not likely breed among the waters in the project area, but may use them as corridors to access other habitat.

Potential Impacts

Impacts to Chinook salmon are not expected to result from the project. Activities will not occur within waterways and will not involve the removal, alteration, or modification of drainages, their banks, or riparian vegetation. Therefore, the project will have no effect upon the California Coastal ESU of Chinook salmon.

California Tiger Salamander

Species Information

The California tiger salamander Sonoma population was listed as endangered in March, 2003 (68 FR 13497). In August 2004, the California tiger salamander was listed as threatened throughout its range (69 FR 47211). Because the salamander status became threatened throughout the rest of its distribution, USFWS changed the status of the salamander occurring in Sonoma and Santa Barbara County from endangered to threatened (69 FR 47212). In August 2005, the Sonoma population regained its status of endangered (USFWS 2009). Critical habitat was designated in August 2005 (70 FR 49379) and a Recovery Plan, The Santa Rosa Conservation Strategy, was completed but has not yet been implemented (USFWS 2009). The population decline is caused by degradation and loss of habitat as well as introduction of nonnative species such as the bullfrog. Reduction in ground squirrels might also affect the population since it decreases the amount of burrows available for the salamander.

The California tiger salamander is generally restricted to vernal and seasonal pools, but is also found in constructed stock ponds located in grassland and oak savannah plant communities (USFWS 2009). They have also been known to breed in slow streams and some permanent waters (CaliforniaHerps.Com, accessed 2009). They typically breed between December and March. Adults migrate during rainy nights and leave the breeding ponds shortly after breeding. Unlike other amphibians, the California tiger salamander is a poor burrower. It requires access to refuges created by other burrowing mammals such as ground squirrels for shelters during the dry months.

In the Coastal region, the salamander populations are scattered from Sonoma County to Santa Barbara County. Those populations are part of the endangered Sonoma population and occur at elevations up to 3,500 feet. In the Central Valley and Sierra Foothills, the populations are spread from Yolo to Kern counties and are found at elevations up to 2,000 feet.

Environmental Baseline

California tiger salamanders are not known from the project area but are known from the Warm Springs Areas in the Don Edwards National Wildlife Refuge west of the project area. There is a vernal pool and seasonal wetlands located around Towers 0/1 and 0/2.

Potential Impacts

No impacts to the California tiger salamander are expected to occur as a result of the project. The California tiger salamander is not likely to occur within the project area. The nearest known population is at the Don Edwards National Wildlife Refuge, which is located nearly four miles from the vernal pool and seasonal wetlands at the Eastshore Substation. There are large expanses of salt ponds and levees between the Eastshore Substation and the Don Edwards National Wildlife Refuge. The locations of the seasonal wetlands are the site of the old Eastshore Substation, which was moved to its current location back in the mid 1900's. Conservation measures to minimize impacts to the vernal pool and wetland habitat include fencing off the vernal pool, erecting silt fencing or other storm water pollution prevention measures to ensure runoff does not enter the pool, and having a biological monitor onsite to ensure activities do not impact the pool. It is also recommended that activities to install the new tower inter-set occur when conditions are dry and that pulling activities use protective matting if conditions warrant to prevent creating ruts in seasonal wetlands.

Vernal Pool Tadpole Shrimp

Species Information

The vernal tadpole shrimp was listed as endangered in September 1994 (59 FR 48136) and the final rule for designation of critical habitat was published in August 2003 (68 FR 46683). There are four Habitat Conservation Plans (HCP) written that pertain to the vernal pool tadpole shrimp and they are: the East Contra Costa County HCP/Natural Community Conservation Plan (NCCP), Kern Water Bank, San Joaquin County Multi-Species Habitat Conservation and Open Space Plan, and Natomas Basin Revised

HCP and Litigation Resolution – City of Sacramento, Sutter County and Natomas Basin Conservancy.
The reduction of population numbers is mainly caused by the degradation and loss of habitat.

The vernal pool tadpole shrimp can be found in a variety of habitat including natural, artificial and seasonally dry habitat. Those habitats commonly known as seasonal wetlands, includes vernal pools, swales, ephemeral drainage, stock ponds, reservoirs, ditches, backhoe pits and even ruts caused by vehicles. These seasonal wetlands may vary from very small to very large and usually have a depth that varies between 2 and 15 cm (NatureServe, 2009).

Environmental Baseline

There are no known records of vernal tadpole shrimp from the project area or in the vicinity of the project area. There is one vernal pool located within the project area that does not appear to support vernal tadpole shrimp.

Potential Impacts

No impacts to the vernal tadpole shrimp are expected to occur as a result of the project. One vernal pool was identified in the project area, but will not be impacted by project activities. A new tubular steel pole will be erected approximately 150 feet west of the pool. To ensure the erection of this pole and other reductoring activities in this area do not impact the vernal pool conservation measures will be employed when working in this area. Conservation measures include fencing off the vernal pool, erecting silt fencing or other storm water pollution prevention measures to ensure runoff does not enter the pool, and having a biological monitor onsite to ensure activities do not impact the pool. It is also recommended that activities to install the new inter-set pole occur when conditions are dry.

Tricolored Blackbird

Species Information

The tricolored blackbird was originally listed as a Species of Special Concern in California due to concerns over the loss of wetland habitats in the state. However, in 1992, surveys by the CDFG determined that the population of this species was much larger than previously believed (Beedy and Hamilton 1997). The species remains a Species of Special Concern at its nesting sites.

They nest in tall, dense, stands of cattails or tules, in blackberry, wild rose bushes and other tall herbs, located near freshwater. During the non-breeding season they occur further from their breeding habitat. This species may nest along the freshwater ponds near Tower 3/26 and at ponds located within the Coyote Hills Regional Park. The most recent breeding record in the project area is from Coyote Hills Regional Park and was from 1986 (H.T. Harvey and Associates 2005).

Potential Impacts

Breeding blackbirds are not known in the project area, but focused surveys have not been conducted and suitable habitat may harbor breeding pairs. Impacts to breeding tricolored blackbirds will be minimized because work within 1,000 feet of wetlands will generally be limited to the period between September 1 to January 31, the non-breeding season, to avoid impacts to breeding birds.

Impacts to non-breeding blackbirds could primarily result from elevated noise and activity levels. There will be no loss of habitat resulting from this project and crushing of individuals is not likely. Work within marshes will be completed using helicopters to access the structures. Foot or vehicular travel through marshes is not anticipated. None of the prescribed work that involves ground disturbing activities will occur within marsh habitat.

Short-eared Owl

Species Information

The short-eared owl is listed as a California Species of Special Concern. Only nesting owls are listed as a species of special concern. Short-eared owls occupy open habitats such as grasslands, wet meadows, and

marshes. They use tall herbaceous vegetation for nesting and daytime refuge. The short-eared owl used to breed in the Bay Area but now is generally thought to be a migrant and winter visitor. In the winter they are found at the Coyote Hills Regional Park.

Potential Impacts

No impacts to nesting short-eared owls are expected. The owls are not believed to currently breed within the project area. Wintering owls have been observed at Coyote Hills Regional Park, just west of the project area.

Northern Harrier

Species Information

The northern harrier is listed as a California Species of Special Concern. Northern harriers are considered Species of Special Concern in California only at nesting sites. The northern harrier occupies open grasslands, agricultural areas, and marshes. Nests are built on the ground where there is suitable plant cover for protection. This species is known to forage in the project area during the non-breeding season, but is not believed to breed in the project area.

Potential Impacts

The project is not likely to impact the nesting sites of the northern harrier. Breeding is not known in the project area.

Alameda Song Sparrow

Species Information

The Alameda song sparrow is a State Species of Special Concern. The Alameda song sparrow breeds in salt marshes. In the Bay Area it is most abundant in taller vegetation such as salt marsh cordgrass and marsh gumplant found along tidal sloughs (H.T. Harvey and Associates 2005). They are found along several of the streams in the South Bay. They may begin nesting in March, but nesting peaks in May and June. This species is fairly common in the project area.

Potential Impacts

Impacts to breeding song sparrows will be minimized by employing conservation measures. Work within 1,000 feet of wetlands will generally be limited to the period between September 1 to January 31, the non-breeding season, to avoid impacts to breeding birds. Impacts to non-breeding sparrows will primarily result from elevated noise and activity levels. There will be no loss of habitat resulting from this project and crushing of individuals is not likely. Work within marshes will be completed using helicopters to access the structures. Foot or vehicular travel through marshes is not anticipated. None of the prescribed work that involves ground disturbing activities will occur within marsh habitat.

Salt-marsh Wandering Shrew

Species Information

The salt-marsh wandering shrew is listed as a California Species of Special Concern. It was once widespread throughout the Bay but is now confined to salt marshes of the South Bay (Findley 1955). They occur most often in wet tidal marsh (6 to 8 feet above sea level), with pickleweed and abundant driftwood and other debris for cover (Shellhammer 2000b). They have also been recorded occasionally in diked marsh. They breed and give birth in the spring. They may occur in salt marshes within the project area. However, the limited patch size of salt marshes in the project area likely limits the population size of the shrew.

Potential Impacts

Impacts to salt marsh wandering shrew may occur as a result of the proposed action. Impacts will primarily result from the loud noises of the helicopter used during reconductoring. Such disturbance may

displace the shrews from their cover and territories. Displaced shrews may be more susceptible to predation and experience competition as they overlap into adjacent territories. This could disrupt the normal breeding, foraging, sheltering, and dispersal behaviors. Disturbance during the spring breeding season could result in abandonment of litters.

There will be no loss of habitat resulting from this project and crushing of individuals is not likely. Work within marshes will be completed using helicopters to access the structures. Foot or vehicular travel through marshes is not anticipated. None of the prescribed work that involves ground disturbing activities will occur within marsh habitat.

Burrowing Owl

Species Information

The burrowing owl is listed as a California Species of Special Concern. The western burrowing owl is a small, ground-dwelling owl often occurring in colonies. They inhabit open areas such as grasslands, edges of agricultural fields, sparse desert scrub, golf courses, cemeteries, airports, and vacant lots. The presence of burrows is a critical habitat requirement for the owls. Burrowing owls nest in burrows, however, they do not excavate their own burrows. They are dependent upon other species to construct burrows.

Burrowing owl diets may include numerous prey items including rodents, small birds, frogs, invertebrates, and carrion. The nesting season, as recognized by the CDFG, runs from February 1 through August 31. The burrowing owl is known from the ELER and may use and breed in any of the suitable upland grassy areas. Owls were not observed during biological surveys. Areas where ground disturbance would occur were reviewed, but access was not available within the ELER.

Potential Impacts

Impacts to burrowing owls will be limited to noise disturbance associated with reconductoring equipment. Elevated disturbance levels may result in a decrease in foraging, altered daily movements, and increased foraging competition. No owls or their burrows were observed at sites where there will be ground disturbance.

American Peregrine Falcon

Species Information

The peregrine falcon has been delisted from the Federal ESA, but is considered a Fully Protected species under the CESA. They nest on ledges and caves on steep cliffs, as well as human-made structures such as buildings and electrical line towers. They breed and winter in California. They often feed upon waterfowl and shorebirds. Breeding peregrine falcons are not common in the project area. Non-breeding birds are present in small numbers and use the electrical line towers as perches to hunt waterbirds over salt ponds, marshes, and the open bay.

Potential Impacts

Breeding is not likely in the project area and, thus, impacts to breeding birds are not likely. Most of the work will occur during the non-breeding season when falcons are more likely to be encountered, albeit in low numbers. The elevated noise disturbance and activity would deter the use of towers in the vicinity of activities as hunting perches. This may lead to decreased foraging or use of other areas by the falcons. While this may negatively impact the falcon the impacts will be temporary, only lasting for the period of time that work occurs in that area. These impacts are not likely to lead to the mortality of individual peregrine falcons.

Western Pond Turtle

Species Information

The western pond turtle is a California Species of Special Concern. The turtle prefers slow water, but will occupy fast moving water if there are good food resources. Usually they are found in freshwater ponds and the backwaters of slow moving rivers. They typically reproduce, aestivate, and over-winter out of the water. Nesting usually occurs from March to July. Young hatch and disperse during the winter rains. There are no records of the western pond turtle within the project area. A couple of freshwater ponds are present near Tower 3/26 and at the Coyote Hills Regional Park. These ponds and other areas will not be directly impacted by reconductoring activities.

Potential Impacts

No impacts to the pond turtle are anticipated.

CUMULATIVE AND OTHER PROJECT RELATE EFFECTS

Cumulative effects under the federal ESA include all future actions reasonably certain to occur within the action area. The project, as described, involves the reconductoring of an existing electrical power line and will not induce growth. Future maintenance on the electrical line can be reasonably anticipated. Future actions associated with the SBSP Project have been analyzed under the ESA and are not likely to jeopardize any listed species.

OTHER RULES AND REGULATIONS

Migratory Bird Treaty Act

Birds protected under the Migratory Bird Treaty Act of 1918, as amended (16 USC 703-712) are listed in the Interior Department regulations found at 50 CFR 10.13. The Migratory Bird Treaty Act states it is unlawful to take, kill, or possess migratory birds that are listed under its protection without a permit.

The project area is rich in bird diversity and is an important breeding, migratory stop-over, and over wintering area for many species of birds. Waterfowl and shorebirds are especially abundant in the project area. Impacts to birds will generally be avoided as the majority of project activities will occur outside of the bird breeding season. If active bird nests are observed during project activities then all construction will cease in that area until a wildlife biologist investigates the nest and suggests appropriate conservation measures.

CONSERVATION MEASURES

The following conservation measures are included as part of the project to reduce impacts upon sensitive species.

- A worker environmental training will be conducted prior to initiating project construction activities which will detail sensitive species of the project area and those conservation measures which have been identified to minimize impacts to them.
- PG&E will notify the USFWS and CDFG prior to initiating project activities occurring on the Don Edwards National Wildlife Refuge or ELER. PG&E will give the Don Edwards National Wildlife Refuge Manager (Refuge Manager) or ELER Manager, as appropriate, at least one week notice before the start of each approved work project and a one day notice prior to commencement of helicopter work. PG&E will notify the Refuge Manager or ELER Manager, as appropriate, at completion of each work project so the Manager can review the project's compliance with permit conditions.
- Where ground access is required, existing access routes (roads, levees, and boardwalks) will be used.

- There will be no vehicular traffic allowed in wetlands and foot traffic will be limited to that which is absolutely necessary. Foot traffic in wetlands is not anticipated but may be required due to unforeseeable conditions.
- Construction in and within 1,000 feet of wetlands will be restricted to the non-breeding season for clapper rails, which is generally defined as the period from September 1 to January 31, to avoid disturbances unless surveys are conducted and there are no clapper rails within 700 feet of project activities and clearance is obtained from the ELER Manager to ensure snowy plovers are not impacted. Thus work at Towers 0/7 through Towers 5/37 should be restricted to the period from September 1 to January 31. Work may proceed outside of this period at towers in heavily disturbed areas (at towers 0/3, 2/20, 2/21, 3/27, 4/33, and 5/38) if prior approval from the USFWS and CDFG is granted.
- To minimize or avoid the loss of individual snowy plovers, no construction, reconductoring, or inspections will be performed within at least 600 feet of an active snowy plover nest or brood during the snowy plover breeding season, March 1 through September 14 (or as determined through surveys). Snowy plovers are known to breed on the ELER and this conservation measure applies to work on the ELER. Although vehicle use of levee road is not anticipated, if snowy plover chicks are present and are foraging along any levee that will be accessed by vehicles (e.g., for construction, inspection, or access), vehicle use will be under the supervision of a qualified biologist (to ensure that no chicks are present within the path of the vehicle).
- All work will be done in a manner which minimizes disturbance to wildlife and habitat. Access to and work on towers in areas of breeding waterbirds (e.g., gulls, terns, shorebirds) will not be conducted from March 1 through August 31. Work may be allowed in these areas during the early and late portions of the breeding season (March, July, and August) if the Refuge Manager and ELER Manager determines that the birds are not nesting. To avoid impacts to breeding birds, a PG&E provided biologist, approved by the Refuge Manager and ELER Manager, will conduct surveys to confirm that any proposed work in these months will not impact breeding waterbirds. The results of these surveys will be presented to and approved by the Refuge Manager and ELER Manager before work can occur in the breeding season March to August.
- No work including helicopter flights will be conducted in or over tidal marshes (i.e., between towers 2/21 to 3/25 and 4/29 to 4/32) at any times of the year within two hours of high tide at the work site when high tide is equal to or above 6.5 feet MLLW at the Golden Gate Bridge. Helicopter flights over and work in tidal marshes can proceed on these days outside the three-hour period around the high tide.
- PG&E will have an environmental monitor onsite to document construction activities.
- No vehicle maintenance or refueling will occur within 100 feet of water bodies.
- PG&E will not repair any vehicles when on USFWS property.
- All food waste and associated containers will be disposed of in closed lid containers and removed from the project area at the end of each day.
- PG&E will immediately report any sightings of trespassers, feral cats, dogs, red foxes, or Raven observed on USFWS property to the USFWS (including locations and nearest tower number). Fox dens will not be approached or searched.
- Construction activities in the vicinity of the Eastshore Substation related to installing a new tubular steel pole between Towers 0/1 and 0/2 should be scheduled to avoid the rainy season (generally October 1 to May 31). Prior to initiating activities adequate storm water erosion and sediment

control devices (i.e., silt fencing) will be erected around the working side perimeter of the vernal pool to ensure no runoff enters the pool.

- Pulling activities that will occur at the towers (0/2 and 0/1) adjacent to the Eastshore Substation will use protective matting to avoid impacts to delineated wetlands if the onsite environmental monitor determines that soil conditions are such that activities will disturb the soil and create ruts.
- Wetlands, including the vernal pool, delineated outside of the Eastshore Substation will be flagged for avoidance. Adequate fencing shall be placed around the vernal pool. The vernal pool will be avoided by construction activities. An environmental monitor will be onsite during project construction activities at this location to ensure compliance.
- No staging of materials will occur in wetlands. All staging will occur in previously disturbed upland areas.
- Adequate storm water pollution prevention measures will be employed to prevent sediment from entering the nearby slough when installing new tubular steel poles to replace Poles 6/43 and 6/44.
- In the event that burrowing owls are found within the project area conservation measures based on methods described by the California Burrowing Owl Consortium (1993) and the CDFG Staff Report on Burrowing Owl Mitigation (1995) will be implemented to minimize effects on Western burrowing owl in the project area.
- When working on the National Wildlife Refuge, all work will be performed as described in the work plans developed by the Refuge and PG&E and accepted by the Refuge Manager.
- Waterfowl hunting season is usually held from mid October through the end of January. Care should be taken to minimize impacts to the hunting public such as low helicopter flights over hunters and disruption of hunters when driving levees and using boats in sloughs within the ELER. No work will be done on Wednesdays, Saturdays, and Sundays on ponds within the ELER open to hunting during hunting season. Access through hunted ponds within the ELER to projects beyond the hunted ponds is allowed before sunrise and after sunset on hunt days.
- Whenever possible, PG&E helicopters will be flown over mud flats rather than over marshes. Helicopter disturbance to wildlife will be kept to a minimum. For example, when flying over mudflats, minimize disturbance to shorebirds. If hovering is necessary, it should be done at a high enough elevation, as determined by the onsite environmental monitor, to minimize wildlife disturbance. When approaching work areas, avoid flying over salt ponds with nesting snowy plovers and other birds and ponds being used by hunters. Helicopters will hover as high over marshes as is possible.
- Helicopter landings will take place only on existing levees or roads. No landings in tidal marshes are permitted.
- Although driving on levees is not anticipated, if required, PG&E will notify the Refuge Manager or ELER Manager, as appropriate, prior to accessing levee roads. PG&E will not drive on levees under conditions that may damage the levee such as after rain. Equipment and/or other materials brought to the work site over levees must be done in a way that does not damage levees or water control structures. Levees and water control structures damaged by PG&E will be repaired to at least pre-project conditions. Improvements to levees made by PG&E to allow their access will be removed after consultations with the Refuge Manager. Do not block levees with vehicles.
- Excess materials, equipment, and debris will be promptly removed from National Wildlife Refuge lands (no later than the completion of the project).

- If National Wildlife Refuge keys are loaned to PG&E for specific projects, they will be returned within two weeks of the completion of the project or a late fee of \$50.00 per key will be assessed. Lost keys will result in a fine of \$100.00 per key.
- PG&E will close all drive through gates behind them making sure that locks are replaced in the correct position so that all locks are properly aligned for gate opening. PG&E will keep all their gates on their boardwalks closed and locked whenever PG&E staff and/or contractors are not present.

CONCLUSION

The proposed project may affect but is not likely to adversely affect the California brown pelican, salt marsh harvest mouse, California clapper rail, California black rail, snowy plover, and least tern. The conservation measures that will be applied will be suitable to avoid adverse impacts to these species. Impacts will be minimized by avoiding these species' breeding seasons, halting construction during high tide events, use of helicopters to construct the majority of the work to avoid ground disturbing activities in suitable/sensitive habitat, and using general construction best management practices.

The proposed project would have no effect to the vernal tadpole shrimp, California tiger salamander, Contra Costa goldfields, Central California Coast ESU Steelhead, and Chinook salmon - Central Valley fall/late fall-run. These species may occur in their appropriate habitat within the project area, but these habitats would not be impacted by project activities.

Several State Species of Special Concern such as the tricolored blackbird, short-eared owl, northern harrier, Alameda song sparrow, salt-marsh wandering shrew, burrowing owl, American peregrine falcon, and western pond turtle have the potential to occur. Impacts were discussed in the report. The project is not likely to cause mortality to any of these individual species and is not likely to lead to the listing of these species under the ESA. Conservation measures have been recommended to protect species.

REFERENCES

- Ainley, D.G. 2000. Brown Pelican. In: Olofson P, editor. Goals Project. *Baylands Ecosystem Species and Community Profiles: Life Histories and Environmental Requirements of Key Plants, Fish and Wildlife*. Oakland, California: San Francisco Bay Area Wetlands Ecosystem Goals Project. San Francisco Bay Regional Water Quality Control Board. p 322-323.
- Beedy, E.C. and Hamilton W.J. 1997. *Tricolored Blackbird Status Update and Management Guidelines*. Jones & Stokes Associates, Inc. 97-099, Sacramento. Prepared for U.S. Fish and Wildlife Service, Portland and California Department of Fish and Game, Sacramento.
- Busby, P.J., T.C. Wainwright, G.J. Bryant, L.J. Lierheimer, R.S. Waples, F.W. Waknitz, and I.V. Lagomarsino 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California. National Oceanic and Atmospheric Administration Technical Memorandum NMFS-NWFSC-27.
- California Burrowing Owl Consortium 1993. Burrowing Owl Survey Protocol and Mitigation Protocols. April. http://www.dfg.ca.gov/hcpb/species/stds_gdl/bird_sg/boconsortium.pdf.
- California Department of Fish and Game 1995. Staff Report on Burrowing Owl Mitigation. Sacramento. 17 October.
- California Department of Fish and Game 2009. California Natural Diversity Database. Natural Heritage Division. Sacramento. Accessed April 13, 2009.
- CaliforniaHerps.Com. *Ambystoma californiense*, Species Account. <http://www.californiaherps.com/salamanders/pages/a.californiense.html>. Accessed July 2009.
- DeGroot, D.S. 1927. *The California Clapper Rail: Its Nesting Habitats, Enemies, and Habitat*. Condor. 29:259-270.
- Evans and Page 1983. *The Ecology of Clapper Rail Populations at Corte Madera Ecological Preserve with Recommendations for Management*. Report prepared for Marin Audubon Society. 62 pp.
- Feeney, L.R. and Maffei W.A. 1991. *Snowy Plovers and Their Habitat at the Baumberg Area and Oliver Salt Ponds Hayward, California March 1989 through May 1990*. Hayward, California: Report prepared for the City of Hayward. 162 p.
- Findley, J.S. 1955. Speciation of the Wandering Shrew. Occasional Papers of the Museum of Natural History 9:1-68.
- Foxgrover, A.C., S.A. Higgins, M.K. Ingraca, B.E. Jaffe, and R.E. Smith 2004. *Deposition, Erosion, and Bathymetric Change in South San Francisco Bay: 1858-1983*. U.S. Geologic Survey.
- H. T. Harvey & Associates 2005. *Marsh Plant Associations of South San Francisco Bay: 2004 Comparative Study*. Project No. 477-27. San Jose, California: Prepared for City of San Jose. 65 p.
- H.T. Harvey and Associates 2005. *Biology Habitats and Existing Conditions Reports*. March, 2005. 237pp.
- Leidy, R.A., G.S. Becker, and B.N. Harvey 2003. Historical Distribution and Current Status of Steelhead (*Oncorhynchus mykiss*), Coho Salmon (*Oncorhynchus kisutch*), and Chinook Salmon (*Oncorhynchus tshawytscha*) in Streams of the San Francisco Estuary, California. San Francisco, California: Unpubl. report, USEPA.

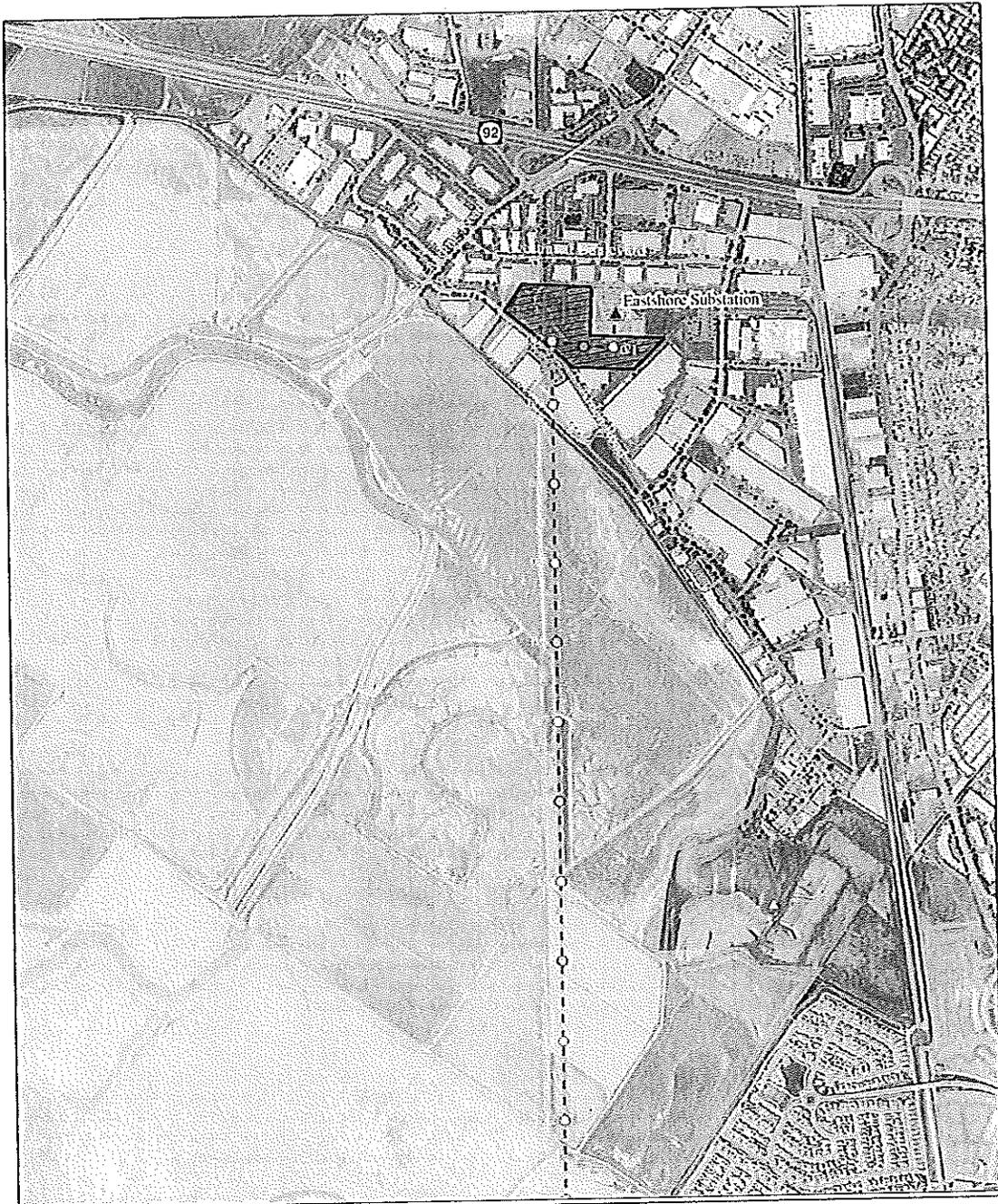
- Marriott, M.A. 2003. Microhabitat characteristics predictive of Snowy Plover (*Charadrius alexandrinus nivosus*) Nest Site Selection in South San Francisco Bay [Unpublished Masters thesis]: Humboldt State University.
- Moyle, P.B. 2002. *Inland Fishes of California*. Revised Edition. University of California Press, Berkeley.
- NatureServe 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. Accessed: July 9, 2009.
- Page, G.W., J.S Warriner, J.C. Warriner, and P.W.C Paton 1995. Snowy Plover (*Charadrius alexandrinus*). In: A. Pool, F. Gill, editors. *The Birds of North America: No. 154*. Academy of Natural Sciences, Philadelphia, and American Ornithologists Union, Washington, D.C.
- Phillip Williams & Associates, Ltd. 2005. *Flood Management and Infrastructure Existing Conditions Report*. March 2005. 71 pp.
- Shellhammer, H.S. 2000. Salt marsh wandering shrew, *Sorex vagrans halicoetes*. In: Olofson PR, editor. *Goals Project. Baylands Ecosystem Species and Community Profiles: Life Histories and Environmental Requirements of Key Plants, Fish and Wildlife*. Oakland, California: San Francisco Bay Area Wetlands Ecosystem Goals Project. San Francisco Bay Regional Water Quality Control Board. p 231-233.
- Shellhammer, H.S., and R. Duke 2004. *Salt Marsh Harvest Mouse Habitat of the South San Francisco Bay: An Analysis of Habitat Fragmentation and Escape Cover*. San Francisco Estuarine Institute:26 + maps.
- Thompson, Bruce C., Jerome A. Jackson, Joanna Burger, Laura A. Hill, Eileen M. Kirsch, and Jonathan L. Atwood 1997. Least Tern (*Sterna antillarum*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the *Birds of North America Online*: <http://bna.birds.cornell.edu/bna/species/290>.
- U.S. Fish and Wildlife Service 1980. *California Least Tern Recovery Plan*. April 2, 1980. U.S. Department of the Interior, Fish and Wildlife Service, Region 1, Portland, Oregon. 56 pp.
- U.S. Fish and Wildlife Service 1984. *Salt Marsh Harvest Mouse and California Clapper Rail Recovery Plan*. Portland: U.S. Department of the Interior, Fish and Wildlife Service. 141 pp.
- U.S. Fish and Wildlife Service 2008. *Biological Opinion for the Proposed South Bay Salt Pond Restoration Project Long-term Plan and Project-level Phase I Actions Alameda, Santa Clara, and San Mateo counties, California*. U.S. Department of the Interior, Fish and Wildlife Service. 190pp.
- U.S. Fish and Wildlife Service 2009. *Ambystoma californiense*, Species Account. http://www.fws.gov/sacramento/es/animal_spp_acct/california_tiger_salamander.rtf. Accessed July 2009.
- Yoshiyama, R.M., F.W. Fisher, and P.B. Moyle 1998. Historical Abundance and Decline of Chinook Salmon in the Central Valley Region of California. *North American Journal of Fisheries Management*. 18: 487-521. 87-521.

Personal Communication:

- Alberston J. A. 2004. (USFWS) pers. comm. to L. Henkel, 26 Oct 2004. As taken from Harvey and Associates. 2005. *Biology Habitats and Existing Conditions Reports*. March, 2005. 237pp.

APPENDIX A

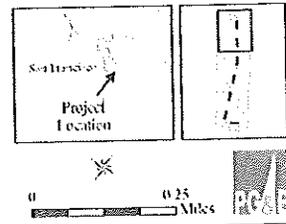
PROJECT ALIGNMENT AERIALS

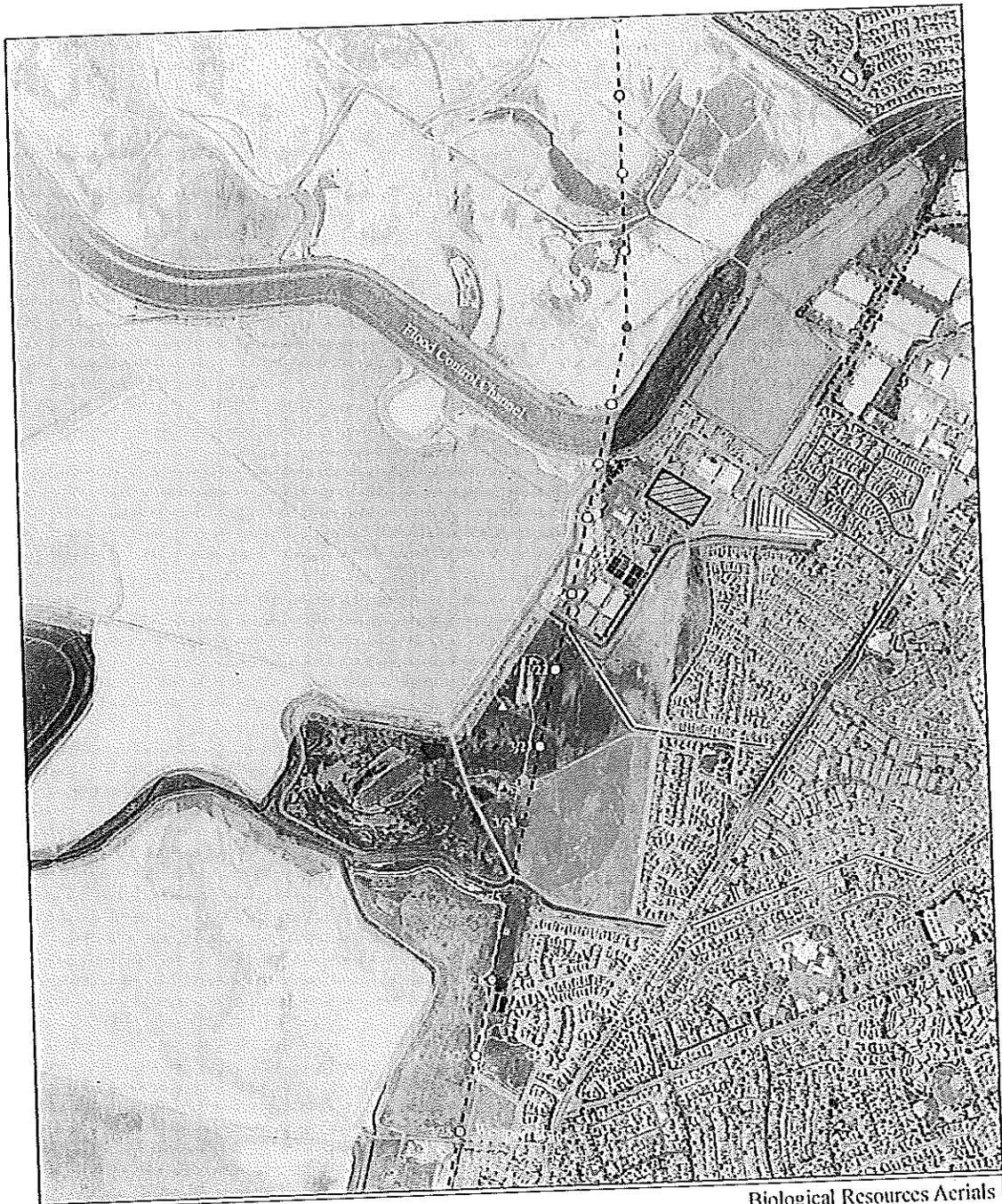


Legend

- - - - 115 kV Transmission Line Alignment
- ▲ Substation
- Existing Tower (No Modification)
- Existing Tower (Proposed Extension)
- Existing Tower (Reinforce)
- Ground Disturbing Activities
 - Guard Structure
 - New Tubular Steel Pole (TSP)
 - Pull/Tension Sites
 - ▨ Staging Area
 - Work Area
 - Access Route (Unpaved)
- Don Edwards San Francisco Bay National Wildlife Refuge
- Eden Landing Ecological Reserve
- CNDDB Species Occurrences
 - ▲ Bank Swallow
 - ▲ California Black Rail
 - Salt Marsh Harvest Mouse

**Biological Resources Aerials
Eastshore-Dumbarton
115kV Reconductoring Project**

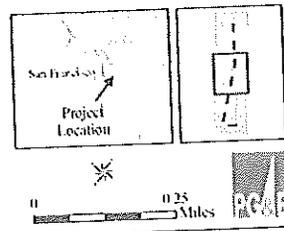


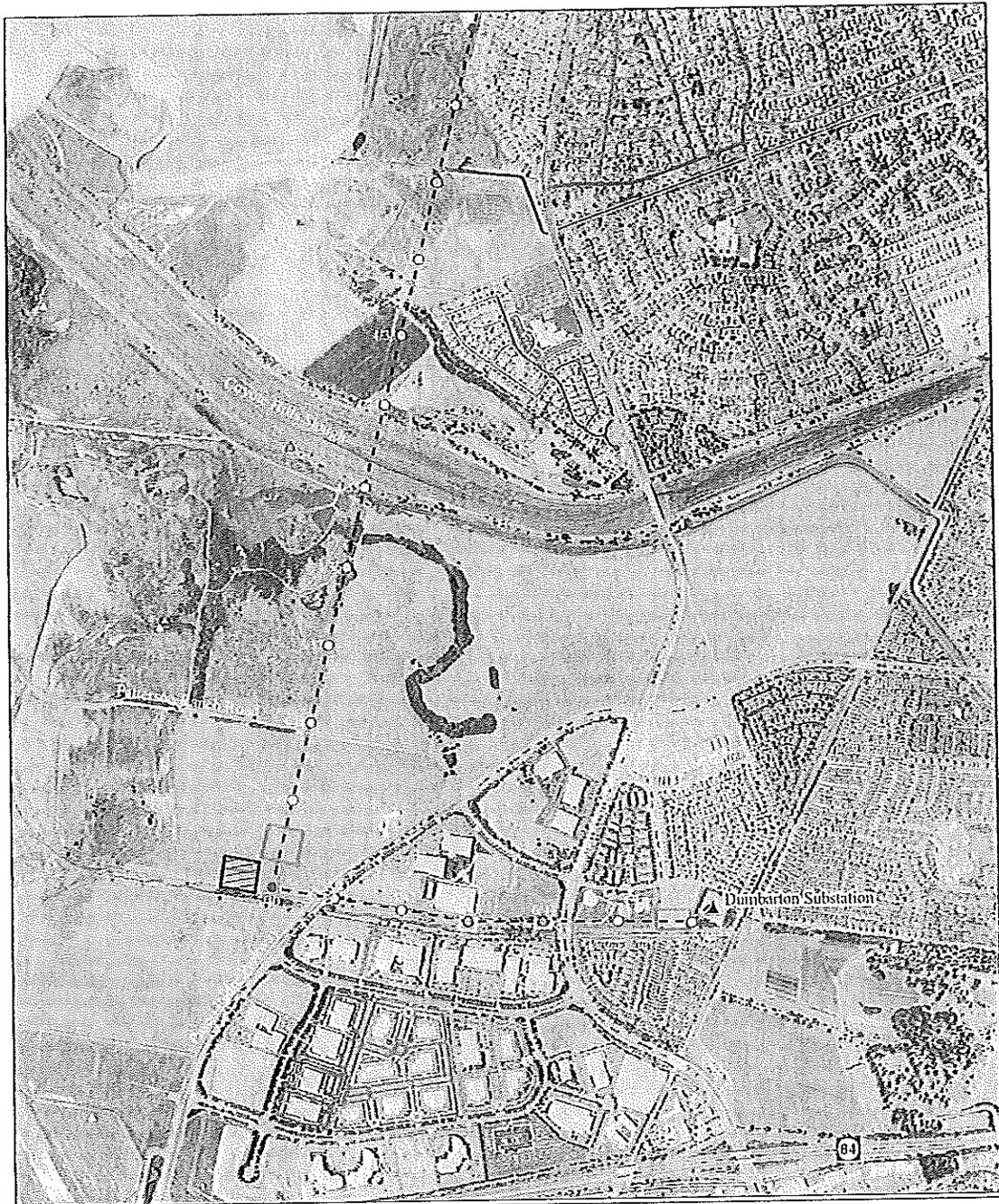


Legend

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- ▲ Substation
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 - ▲ Bank Swallow
 - ▲ California Black Rail
 - ▲ Salt Marsh Harvest Mouse

**Biological Resources Aerials
Eastshore-Dumbarton
115kV Reconductoring Project**



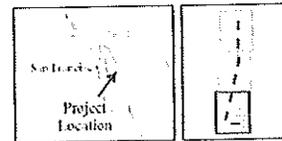


Legend

- - - 115 kV Transmission Line Alignment
 - ▲ Substation
 - Existing Tower (No Modification)
 - Existing Tower (Proposed Extension)
 - Existing Tower (Reinforce)
- Ground Disturbing Activities**
- Guard Structure
 - New Tubular Steel Pole (TSP)
 - Pull/Tension Sites
 - ▨ Staging Area
 - Work Area
 - Access Route (Unpaved)

- ▨ Don Edwards San Francisco Bay National Wildlife Refuge
 - ▨ Eden Landing Ecological Reserve
- CNDDB Species Occurrences**
- ▲ Bank Swallow
 - ▲ California Black Rail
 - ▲ Salt Marsh Harvest Mouse

Biological Resources Aerials
Eastshore-Dumbarton
115kV Reconductoring Project



Advice 3846-E

Exhibit E



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

JUL 30 2010

REPLY TO

Regulatory Division

SUBJECT: File Number 2009-00442S

Mike Gunby
Pacific Gas and Electric Company
2730 Gateway Oaks Drive
Sacramento, California, 95833

Dear Mr. Gunby:

This letter is written in response to your submittal of December 2, 2009 concerning Department of the Army authorization to conduct work along the existing 6.7 mile 115 kV steel Eastshore-Dumbarton overhead power transmission line. The project will take place within the Cities of Hayward, Union City, and Fremont, Alameda County, California.

Enclosed are maps showing the extent and location of waters of the U.S. and wetlands, entitled "USACE File # 2009-00442S, Preliminary Jurisdictional Determination, Eastshore to Dumbarton Project" in 4 pages, dated July 1, 2010. We have based this preliminary jurisdictional determination on the current conditions on the site as verified during a site visit performed by our staff on January 20, 2010. A change in those conditions may also change the extent of our jurisdiction. This preliminary jurisdictional determination issued pursuant to the Regulatory Guidance Letter, RGL 08-02, can be used only to determine that wetlands or other water bodies that exist on your project site may be jurisdictional waters of the United States under Section 404 of the Clean Water Act (33 U.S.C. Section 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403).

You are advised that preliminary jurisdictional determinations may not be appealed (33 C.F.R. Section 331.2). The Corps does not have an established administrative appeal process for findings associated with preliminary jurisdictional determinations, thus the preliminary jurisdictional determination is not an appealable action. However, you may request an approved jurisdictional determination, which may be appealed, that precisely identifies the limits of Corps jurisdiction subject to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. You may also provide new information for further consideration by the Corps to reevaluate this preliminary jurisdictional determination.

The transmission line primarily runs north-south beginning at the Eastshore Substation south of the San Mateo Bridge extending south of the Coyote Hills Regional Park to the Dumbarton Substation. The proposed transmission line work will involve four basic construction activities: (1) the replacement of two the existing tubular steel poles near the Dumbarton Substation and the installation of a new inter-set tubular steel pole near the Eastshore Substation, (2) the extension of 13 lattice structures using ten-foot cage extensions, (3) the reinforcement of five lattice structures, and (4) the reconductoring of the entire power transmission line. The majority of the work will be conducted from the air using helicopters. Ground disturbance activities will be limited to the three staging areas, seven pull/tension sites, three pole replacement/construction sites, access roads, and several guard structure sites located along the power line corridor. If necessary the applicant will use temporary matting to protect the wetland features located within the Eastshore Substation property. The protective matting will result in the placement of 100 cubic yards of temporary fill to be placed into the wetland.

Based on a review of the information you submitted and an inspection of the project site conducted by Corps personnel on January 20, 2010, your project qualifies for authorization under Department of the Army Nationwide Permit 12 for Utility Line Activities (72 Fed. Reg. 11092, March 12, 2007), pursuant to Section 404 of the Clean Water Act (33 U.S.C. Section 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403). See Enclosure 1. All work shall be completed in the work areas defined by the Preliminary Jurisdictional Map Set dated, July 1, 2010, in 4 pages.

The project must be in compliance with the General Conditions cited in Enclosure 2 for this Nationwide Permit authorization to remain valid. Non-compliance with any condition could result in the suspension, modification or revocation of the authorization for your project, thereby requiring you to obtain an Individual Permit from the Corps. This Nationwide Permit authorization does not obviate the need to obtain other State or local approvals required by law.

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 18, 2012. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. Upon completion of the project and all associated mitigation requirements, you shall sign and return the Certification of Compliance, Enclosure 3, verifying that you have complied with the terms and conditions of the permit.

This authorization will not be effective until you have obtained a Section 401 water quality certification from the San Francisco Regional Water Quality Control Board (RWQCB). If the RWQCB fails to act on a valid request for certification within two (2) months after receipt of a complete application, the Corps will presume a waiver of water quality certification has been obtained. You shall submit a copy of the certification to the Corps prior to the commencement of work.

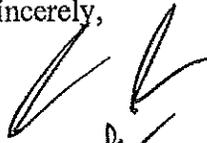
To ensure compliance with this Nationwide Permit authorization, the following special conditions shall be implemented:

1. This Corps permit does not authorize you to take an endangered species. In order to legally take a listed species, you must have a separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit or a Biological Opinion (BO) under ESA Section 7 with "incidental take" provisions with which you must comply). The enclosed U.S. Fish and Wildlife Service (FWS) BO dated May 20, 2010 contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take authorized by the attached BO, whose terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take and it would also constitute non-compliance with this Corps permit. The FWS is the appropriate authority to determine compliance with the terms and conditions of its BO and with the ESA.
2. All wetland and other water features within the project impact areas shall be clearly marked and fenced off from construction activities.
3. If the use of heavy machinery occurs within a wetland, temporary protective matting shall be used to protect the area. All matting and construction materials shall be removed in its entirety after construction activities have been completed.
4. All construction activities must be in compliance with the conservation measures outlined in the "Biological Assessment titled, Eastshore to Dumbarton 115 KV Reconductoring Project", Prepared by Transcon Environmental, dated, November 2009, pages 19-21.
5. A post construction report shall be submitted 45 days after the conclusion of construction activities. The report shall document construction activities and contain as-built drawings (if different from drawings submitted with application) and include before and after photos.

6. All staging, maintenance, and storage of heavy machinery shall be conducted in such a location and manner that no fuel, oil, or other petroleum products may run off or be washed by rainfall into the water.
7. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

Should you have any questions regarding this matter, please call Nina Cavett-Cox of our Regulatory Division at 415-503-6765. Please address all correspondence to the Regulatory Division and refer to the File Number at the head of this letter. If you would like to provide comments on our permit review process, please complete the Customer Survey Form available online at <http://per2.nwp.usace.army.mil/survey.html>.

Sincerely,



Jane M. Hicks
Chief, Regulatory Division

Enclosures

Copy furnished:

Copy furnished (w/jurisdictional map and project locations):

US FWS, Sacramento, CA
CA RWQCB, Oakland, CA



U.S. Army Corps
of Engineers
San Francisco District
Regulatory Division

Preliminary Jurisdictional
Determination USACE File #2009-00442
PG&E Eastshore to Dumbarton Project
Alameda County pg.1 of 3 dated, 7/1/2010



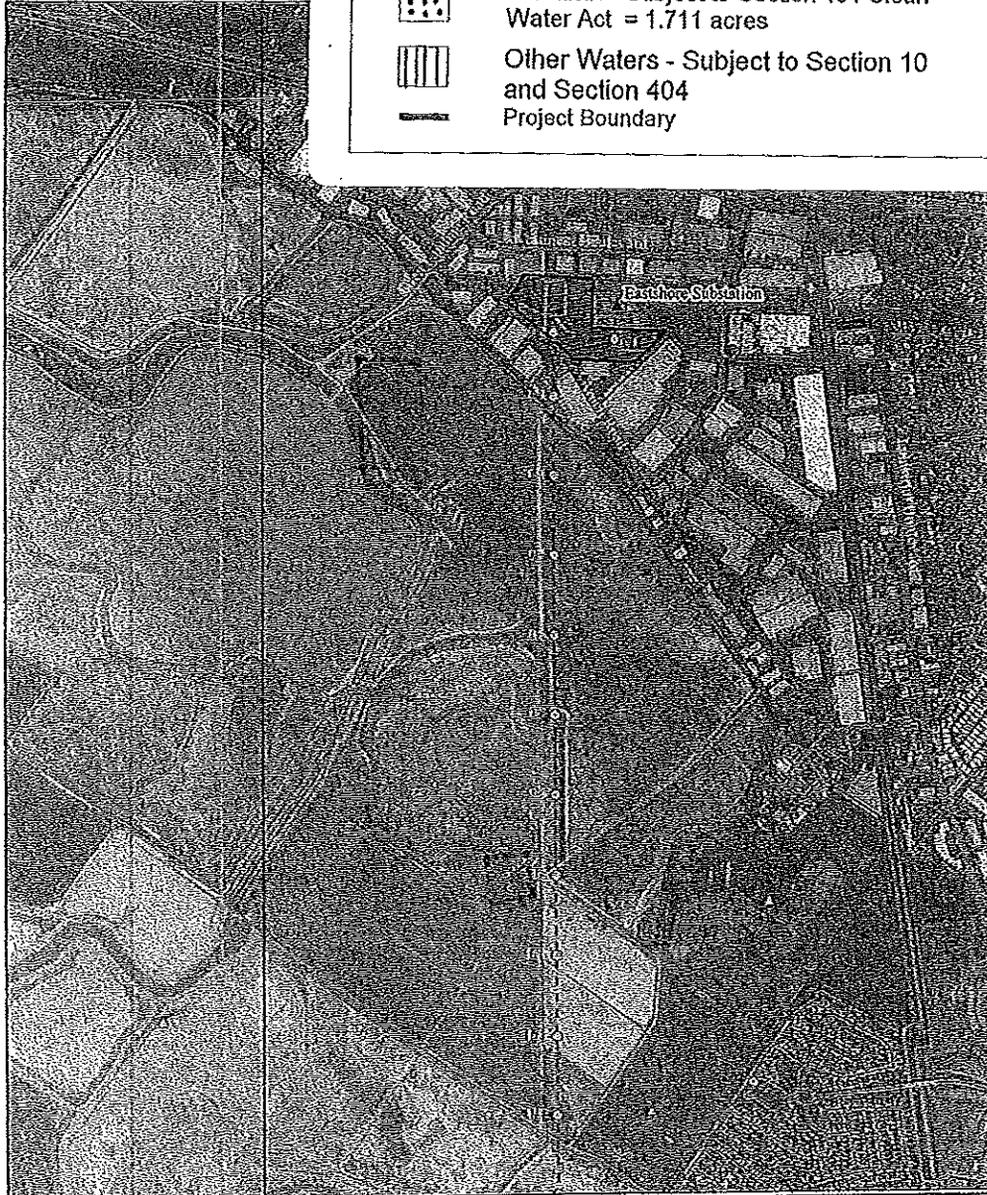
Wetlands - Subject to Section 404 Clean
Water Act = 1.711 acres



Other Waters - Subject to Section 10
and Section 404



Project Boundary

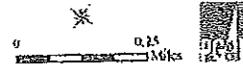


Legend

- 115 kV Transmission Line Alignment
- ▲ Substation
- Existing Tower (No Modification)
- Existing Tower (Proposed Extension)
- Existing Tower (Reinforce)
- Ground Disturbing Activities
 - Guard Structure
 - New Tubular Steel Pole (TSP)
- Pull/Tension Sites
- ▨ Staging Area
- Work Area
- Access Route (Unpaved)

- Don Edwards
San Francisco Bay
National Wildlife Refuge
- Eden Landing
Ecological Reserve
- CNDDDB Species Occurrences
 - ▲ California Black Rail
 - ▲ Salt Marsh Harvest Mouse

**Biological Resources Aerials
Eastshore-Dumbarton
115kV Reconductoring Project**





U.S. Army Corps
of Engineers
San Francisco District
Regulatory Division

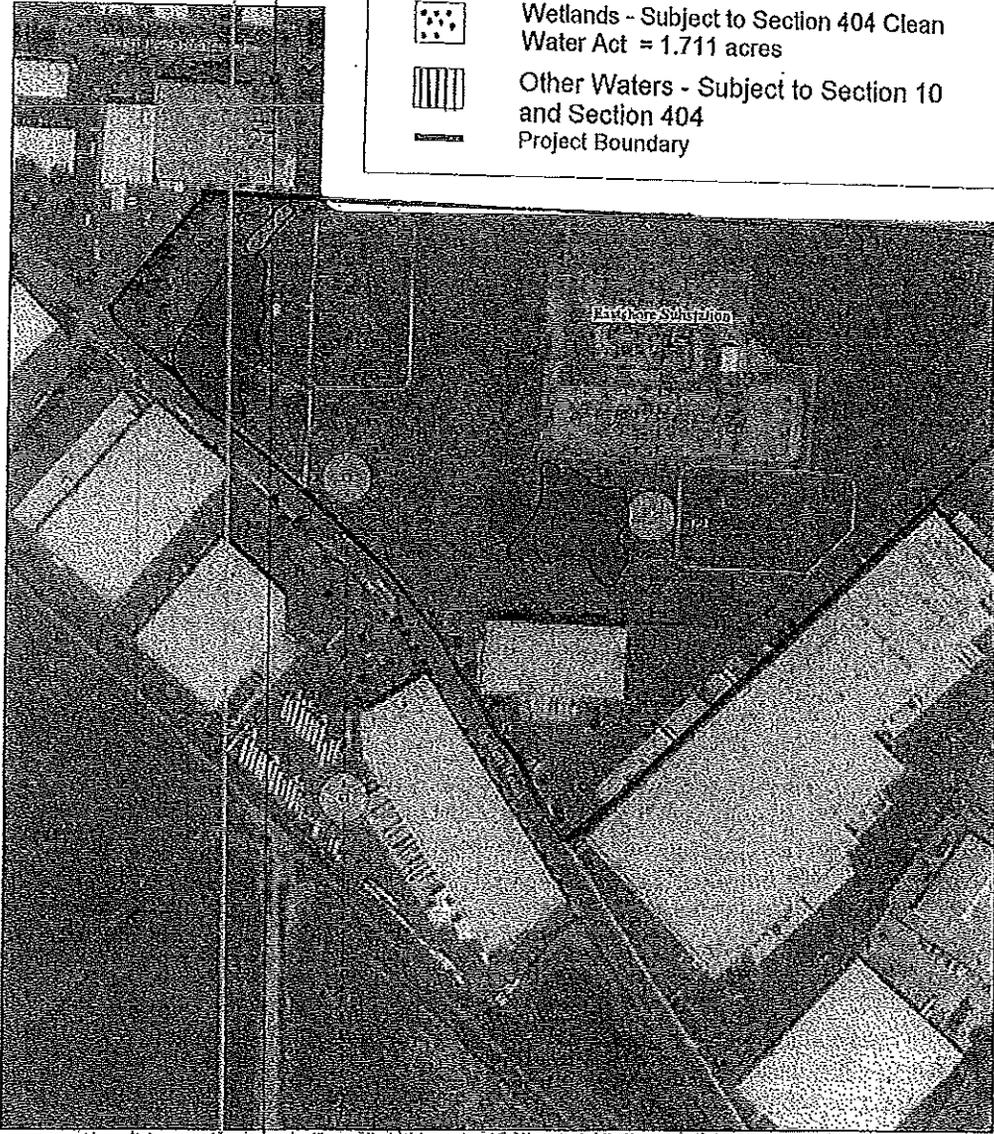
Preliminary Jurisdictional
Determination USACE File #2009-00442
PG&E Eastshore to Dumbarton Project
Alameda County pg.1 detail dated, 7/1/2010



Wetlands - Subject to Section 404 Clean
Water Act = 1.711 acres



Other Waters - Subject to Section 10
and Section 404
Project Boundary



Legend

- Alignment
- ▲ Substation
- ⊙ Guard Structure (50' diameter work area)
- ⊙ Existing Tower (No Modification) (100' diameter work area)
- ⊙ Existing Tower (Proposed Extension) (100' diameter work area)
- ⊙ New Tubular Steel Pole (TSP) (160' diameter work area)
- ▭ Pull Sites (150' x 300')
- ▨ Seasonal Wetland
- ▩ Seasonal Wetland/Upland Mosaic
- Vernal Pool

Eastshore-Dumbarton Wetland Aerial
Eastshore-Dumbarton
115kV Reconductoring Project

FIGURE 5





U.S. Army Corps
of Engineers
San Francisco District
Regulatory Division

Preliminary Jurisdictional
Determination USACE File #2009-00442
PG&E Eastshore to Dumbarton Project
Alameda County pg.2 of 3 dated, 7/1/2010



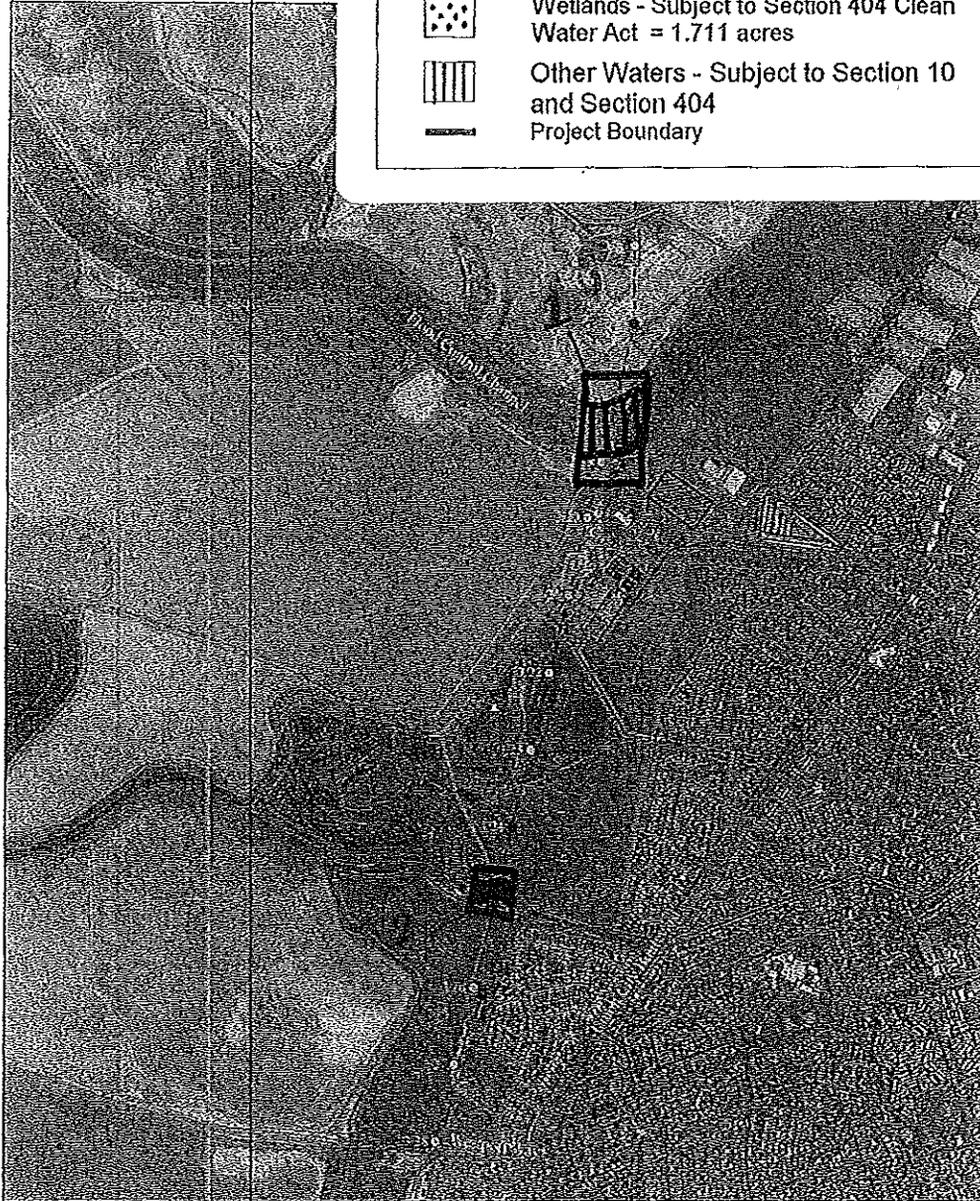
Wetlands - Subject to Section 404 Clean
Water Act = 1.711 acres



Other Waters - Subject to Section 10
and Section 404



Project Boundary

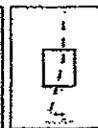


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- Access Route (Unpaved)

- Don Edwards
San Francisco Bay
National Wildlife Refuge
- Eden Landing
Ecological Reserve
- CNDDDB Species Occurrences
- ▲ California Black Rail
- △ Salt Marsh Harvest Mouse

Biological Resources Aerials
Eastshore-Dumbarton
115kV Reconductoring Project





U.S. Army Corps
of Engineers
San Francisco District
Regulatory Division

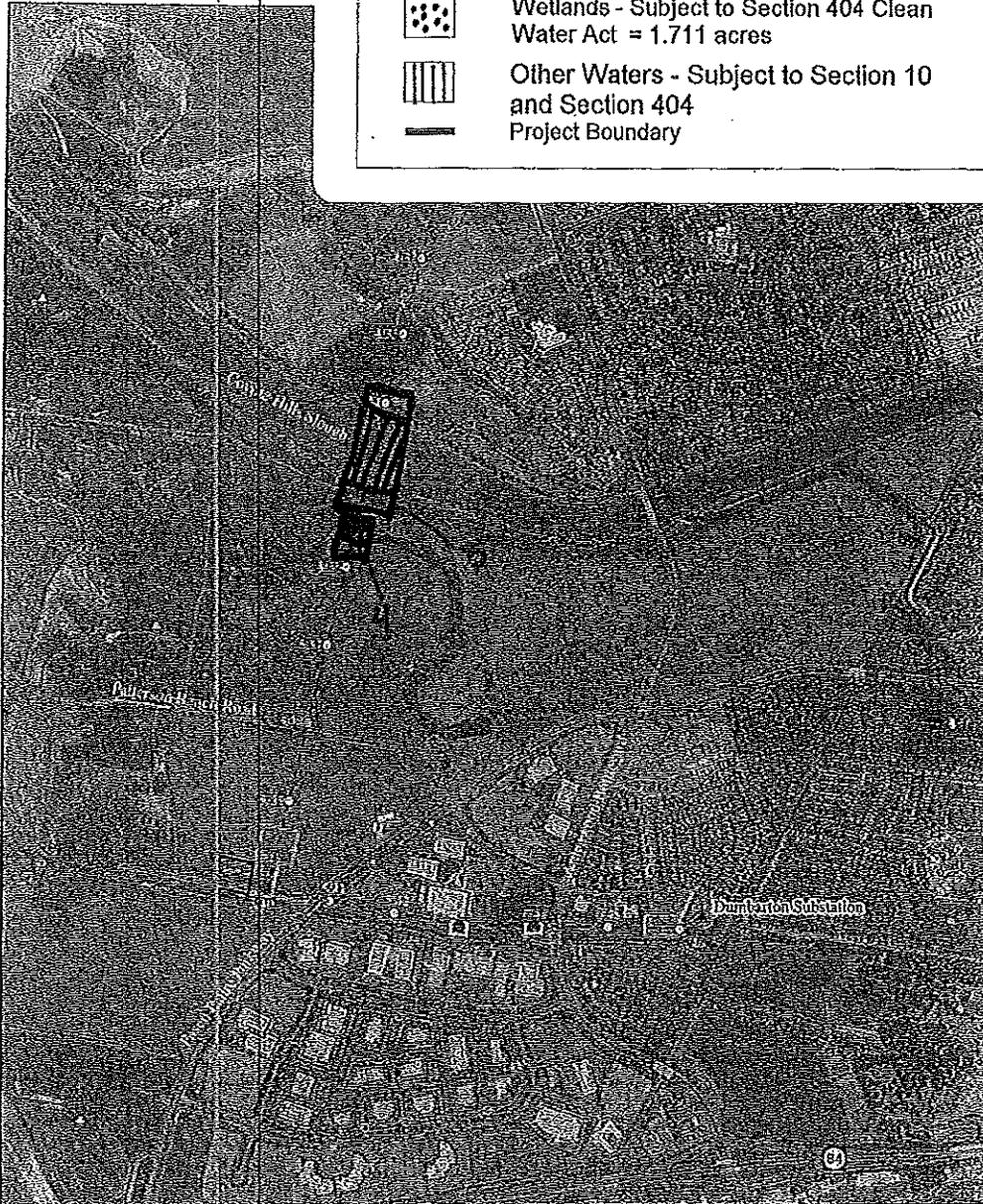
Preliminary Jurisdictional
Determination USACE File #2009-00442
PG&E Eastshore to Dumbarton Project
Alameda County pg.3 of 3 dated, 7/1/2010



Wetlands - Subject to Section 404 Clean
Water Act = 1.711 acres



Other Waters - Subject to Section 10
and Section 404
Project Boundary

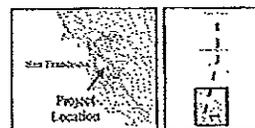


Legend

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- ▲ Substation
- Existing Tower (No Modification)
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Ecological Reserve
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 - ▲ California Black Rail
 - △ Salt Marsh Harvest Mouse

Biological Resources Aerials
Eastshore-Dumbarton
115kV Reconductoring Project



Enclosure 3

Permittee: Mike Gunby, Pacific Gas and Electric Company

File Number: 2009-00442S

**Certification of Compliance
for
Nationwide Permit**

"I hereby certify that the work authorized by the above referenced File Number and all required mitigation have been completed in accordance with the terms and conditions of this Nationwide Permit authorization."

(Permittee)

(Date)

Return to:

Nina Cavett-Cox
U.S. Army, Corps of Engineers
San Francisco District
Regulatory Division, CESP-OR-R
1455 Market Street
San Francisco, CA 94103-1398

Advice 3846-E

Exhibit F



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In Reply Refer To:
81420-2010-F-0220

MAY 20 2010

Ms. Jane M. Hicks
Chief, Regulatory Division
(Attn: Nina Cavett-Cox)
U.S. Army Corps of Engineers
1455 Market Street
San Francisco, California 94103-1398

Subject: Biological Opinion for the Proposed Eastshore-Dumbarton 115kV Power Line Reconductoring Project by the Pacific Gas and Electric Company; Cities of Hayward, Union City, and Fremont, Alameda County, California (Corps File No. 2009-00442S)

Dear Ms. Hicks:

This is in response to the U.S. Army Corps of Engineers' (Corps) December 16, 2009, request for section 7 consultation with the U.S. Fish and Wildlife Service (Service) regarding the proposed Eastshore-Dumbarton 115kV Power Line Reconductoring Project (proposed action) by the Pacific Gas and Electric Company (project proponent) in the cities of Hayward, Union City, and Fremont in Alameda County, California. Your request for consultation was received in our office on December 17, 2009.

The Service concurs with your determination that the proposed action is not likely to adversely affect the endangered California least tern (*Sternula antillarum brownii*) and threatened Coastal Population of the Western Snowy Plover (*Charadrius alexandrinus nivosus*) based on the successful implementation of conservation measures included in the proposed action. Therefore, this document represents the Service's biological opinion on the effects of the proposed action on the endangered salt marsh harvest mouse (*Reithrodontomys raviventris*) and California clapper rail (*Rallus longirostris obsoletus*) in accordance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

This biological opinion is based on information provided in the following documents: (1) the Corps' consultation request letter dated December 16, 2009; (2) the *Pacific Gas and Electric Company Eastshore-Dumbarton 115kV Power Line Reconductoring Project Section 10*

TAKE PRIDE
IN AMERICA 

Navigable Waters Impact Assessment submitted to the Corps on December 2, 2009; (3) the *Biological Assessment, Eastshore-Dumbarton 115kV Power Line Reconductoring Project, Alameda County, California* prepared by Transcon Environmental, Inc. and dated November 2009; and (4) miscellaneous correspondence and electronic mail concerning the proposed action between the Service, Corps, California Department of Fish and Game (CDFG), and project proponent. This opinion also is based on other relevant published and unpublished studies, and communications on the distribution and abundance of the salt marsh harvest mouse and California clapper rail, and information available to the Service.

CONSULTATION HISTORY

- December 16, 2009: The Corps requested section 7 consultation for the proposed action.
- December 17, 2009: The Service received the Corps' request for consultation for the proposed action.
- December 2009-April 2010: Electronic mail messages and telephone conversations between the Corps, Service, CDFG, and biological consultants for the project proponent took place concerning the proposed action.

BIOLOGICAL OPINION

Description of the Proposed Action

The purpose of the proposed action would be to conduct work along the existing 6.7-mile 115 kV Eastshore-Dumbarton overhead power transmission line within the boundaries of the cities of Hayward, Union City, and Fremont in Alameda County, California. The power line primarily runs north-south beginning at the Eastshore Substation south of the San Mateo Bridge and extends south of the Coyote Hills Regional Park to the Dumbarton Substation. The proposed action would involve four basic construction activities: (1) replacement of two existing tubular steel poles near the Dumbarton Substation and the installation of a new inter-set tubular steel pole near the Eastshore Substation, (2) extension of 13 lattice structures using ten-foot cage top extensions, (3) reinforcement of five lattice structures, and (4) reconductoring of the entire power transmission line.

The majority of the proposed action would be conducted from the air using helicopters to transport work crews and materials to and from structures along the power transmission line. Ground-disturbing activities would be limited to three staging areas, seven pull/tension sites, three pole replacement/construction sites, access roads, and several guard structure sites located along the power line corridor. The staging areas would be used to store materials to be used for each of the proposed construction activities. The staging areas and pull/tension sites have been sited in previously disturbed areas. In addition, all access roads currently exist with the

exception of the route planned to access the staging area and pull/tension sites near Tower 5/40. This temporary new access route would be located within an existing agricultural field.

Three new tubular steel poles would be installed on the ground. The structures would be embedded and backfilled with native soil or mounted on concrete foundations. Access to the new in-set pole site located between structure 0/1 and 0/2 would be from within the fenced area of the Eastshore Substation. In addition, structures 6/43 and 6/44 would be constructed with one circuit energized. Access to structures 6/43 and 6/44 would be from an existing paved recreational trail. Assembly would involve mounting the arms on the body of each structure. Hardware and insulators would be attached to the horizontal arms. Assembly of each structure would take place at each structure installation location. For each structure, construction would require auguring a single five-foot diameter hole to a depth of approximately 10 to 12 feet to allow for replacement and compaction of removed soils around each pole. A 50-foot wide radius around each structure would be temporarily affected by the construction activities. Erection of the structures would require a crane to lift the assembled structure from the ground and to set it into the augured hole or onto the concrete foundation. The augured holes would then be backfilled with soil.

Cage top extensions would be installed on several existing lattice structures to maintain ground clearance requirements. Each cage top extension would be assembled at one of the three staging areas. Each cage top extension and associated work crew would be flown to each of the structure locations by helicopter. After the work crew secures the extension to the structure, the work crew would be removed from the structure by helicopter. No ground disturbance is anticipated during installation of the cage top extensions.

Several of the existing lattice structures would be reinforced to accommodate new conductors. Work crews who perform the reinforcement work and the material needed would be flown to and from the towers by helicopter.

After the three structures are in place, existing structures have been extended, and reinforcements have been made, the entire power transmission line would be reconductored. Work crews would be flown to each tower site by helicopter. Existing insulators would be replaced with new ceramic insulators on each tower and a pulley would be attached to the end of each insulator. The existing conductor would be threaded through a pulley and then attached to a cable, which will be attached to a new conductor on truck-mounted reels. The existing conductor, cable, and new conductor would be pulled through the pulley system to the proper tension using the conductor puller and truck-mounted tensioning rig and then temporarily anchored to the ground at pulling and tensioning locations. Each pulling and tensioning location typically encompasses a 150-foot-by-300-foot area. When pulling is completed, work crews would be flown to each tower site by helicopter. Each pulley would be removed and the new conductors clamped to the bottom of each insulator.

Implementation of the proposed action is not anticipated to result in any temporary or permanent loss of habitat available to the salt marsh harvest mouse and California clapper rail. Potential

indirect adverse effects to these species from the construction and work activities could take place.

Proposed Conservation Measures

The following conservation measures are proposed by the project proponent for implementation as part of the proposed action to directly or indirectly minimize or eliminate potential adverse effects to individual salt marsh harvest mice, California clapper rails, and/or their habitat:

1. Work within 1,000 feet of wetlands would be conducted between September 1 and January 31. This restriction would be most relevant to work at towers 0/7 through 5/37. If work is required between February 1 and August 31, surveys for California clapper rails would be conducted. No work would be conducted within 700 feet of any breeding rails detected during the surveys. If needed, work may occur between February 1 and August 31 at towers in heavily disturbed areas (i.e., towers 0/3, 2/20, 2/21, 3/27, 4/33, and 5/38) if prior approval is provided by the Service and CDFG.
2. An environmental training session would be conducted for the work crews prior to initiating construction activities. The training would discuss sensitive species in the action area and the conservation measures being implemented to avoid or minimize effects to those species.
3. Where ground access is required, existing access routes (i.e., roads, levees, and boardwalks) would be used. No vehicular traffic would take place in wetlands and foot traffic would be limited to that which is absolutely necessary.
4. No work, including helicopter flights, would be conducted in or over tidal marshes (i.e., between towers 2/21 and 3/25 and between towers 4/29 and 4/32) at any times of the year within two hours of high tide at the work site when the high tide is predicted to be equal to or above 6.5 feet Mean Lower Low Water at the Golden Gate Bridge. Helicopter flights over tidal marshes and work within marshes would proceed on these days outside the three-hour period around a high tide.
5. An environmental monitor would be onsite during construction to document work activities.
6. No vehicle maintenance or refueling would occur within 100 feet of any water bodies.
7. All food waste and associated containers would be disposed of in closed lid containers and removed the work areas at the end of each work day.
8. The project proponent would immediately report any sightings of feral cats, dogs, red foxes, or ravens observed on lands managed by the Service's Don Edwards San Francisco Bay National Wildlife Refuge to Service personnel.

9. Pulling activities at towers 0/2 and 0/1 adjacent to the Eastshore Substation would use protective matting to avoid impacting wetlands if the environmental monitor determines that soil conditions are such that work activities would disturb the soil.
10. Wetlands outside the Eastshore Substation would be flagged. No staging of materials would occur in wetlands.
11. Adequate storm water pollution prevention measures would be employed to prevent sediment from entering a nearby slough during installation of new tubular steel poles as replacements for poles 6/43 and 6/44.
12. Construction activities related to the installation of a new tubular steel pole between towers 0/1 and 0/2 in the vicinity of the Eastshore Substation would be scheduled to avoid the rainy season (i.e., typically October 1 to May 31). Prior to initiating work activities at this location, adequate storm water erosion and sediment control devices would be employed to protect adjacent wetlands.
13. Helicopters would be flown over mud flats and not over tidal marshes whenever possible. Helicopter hovering, if necessary, would be done at high elevations as much as possible. Helicopter landings would only take place on existing levees or roads. No landings in tidal marshes would take place (except under emergency situations).

Analytical Framework for the Jeopardy Analysis

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this biological opinion relies on three components: (1) the *Status of the Species and Environmental Baseline*, which evaluates the salt marsh harvest mouse and California clapper rail range-wide conditions, the factors responsible for that condition, and their survival and recovery needs; and evaluates the condition of these two listed species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of these listed species; (2) the *Effects of the Proposed Action*, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on these species; and (3) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the species.

In accordance with policy and regulation, this jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the salt marsh harvest mouse and California clapper rail current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of these species in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery of the salt marsh harvest mouse and California clapper rail and

the role of the action area in the survival and recovery of these listed species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the proposed action, the action area includes 1,000 feet of both sides of the existing 6.7-mile 115 kV Eastshore-Dumbarton overhead power transmission line corridor, including three staging areas, seven pull/tension sites, three pole replacement/construction sites, access roads, and several guard structure sites located along the power transmission line corridor in Alameda County, California.

Status of the Species

Salt Marsh Harvest Mouse

The salt marsh harvest mouse was federally listed as endangered in 1970 (35 FR 16047). Critical habitat has not been proposed or designated. A detailed account of the taxonomy, ecology, and biology of the salt marsh harvest mouse is presented in the *Salt Marsh Harvest Mouse & California Clapper Rail Recovery Plan* (Service 1984) (Recovery Plan), the *Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (Service 2009) (Draft Ecosystems Recovery Plan), and the references cited therein. The salt marsh harvest mouse is a fully protected species under California law (See California Fish and Game Code Section 4700):

The salt marsh harvest mouse is a rodent endemic to the salt and brackish marshes of the San Francisco Bay Estuary and adjacent tidally influenced areas. The salt marsh harvest mouse closely resembles the western harvest mouse (*R. megalotis*). The salt marsh harvest mouse typically weighs about 0.35 ounce, has a head and body length ranging from 2.7-2.9 inches, a tail length ranging from 2.6-3.2 inches, and a hind foot length of 0.7 inch (Fisler 1965). As stated in the recovery plan, the salt marsh harvest mouse, when compared to the western harvest mouse, have darker ears, belly and back, and a slightly thicker, less pointed and unicolored tail. The salt marsh harvest mouse is further distinguished taxonomically into the northern and southern subspecies, *R. raviventris halicoetes* and *R. raviventris raviventris*, respectively. Of the two subspecies, *R. r. halicoetes* more closely resembles *R. megalotis*, and can be difficult to differentiate in the field; body color and color of ventral hairs as well as the thickness and shape of the tail have been used to distinguish the two.

The salt marsh harvest mouse has evolved to a life in tidal marshes. Specifically, they have evolved to depend mainly on dense pickleweed (*Sarcocornia perennis*) as their primary cover and food source. However, salt marsh harvest mice may utilize a broader source of food and cover which includes saltgrass (*Distichlis spicata*) and other vegetation typically found in the salt and brackish marshes of this region. In natural systems, salt marsh harvest mice can be found in

the middle tidal marsh and upland transition zones. Upland refugia is an essential habitat component during high tide events. Salt marsh harvest mice are highly dependent on cover, and open areas as small as 33 feet wide may act as barriers to movement (Shellhammer 1978, as cited in Service 1984). The salt marsh harvest mouse does not burrow. It has been noted that the northern subspecies may build nests of loose grasses.

As described by Fisler (1965), male salt marsh harvest mice are reproductively active from April through September, but may appear active throughout the year. Females are reproductively active from March to November, and have a mean litter size of approximately four offspring.

The historic range of the species included tidal marshes within the San Francisco and San Pablo bays, east to the Collinsville-Antioch areas. Agriculture and urbanization has claimed much of the former historic tidal marshes, resulting in a 79 percent reduction in the amount of tidal marshes in these areas (Goals Project 1999). At present, the distribution of the northern subspecies occurs along Suisun and San Pablo Bays north of Point Pinole in Contra Costa County and Point Pedro in Marin County. The southern subspecies is found in marshes in Corte Madera, Richmond, and South San Francisco Bay mostly south of the San Mateo Bridge (Highway 92).

California Clapper Rail

The California clapper rail was federally listed as endangered in 1970 (35 FR 16047). Critical habitat has not been proposed or designated. This subspecies is one of three subspecies in California listed as endangered under the Act. The other subspecies include the light-footed clapper rail (*R. l. levipes*) which is found in tidal marshes in southern California and northwestern Baja California, and the Yuma clapper rail (*R. l. yumanensis*) which is restricted to the Colorado River basin. A detailed account of the taxonomy, ecology, and biology of the California clapper rail is presented in the Recovery Plan (Service 1984), the *Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (Service 2009) (Draft Ecosystems Recovery Plan), and the references cited therein. The California clapper rail is a fully protected species under California law (See California Fish and Game Code Section 3511).

The California clapper rail is endemic to tidally influenced salt and brackish marshes of California. Historically, the California clapper rail occurred in tidal marshes along California's coast from Morro Bay, San Luis Obispo County, to Humboldt Bay, Humboldt County. Currently, California clapper rails are known to occur in tidal marshes in the San Francisco Estuary (San Francisco, San Pablo, Grizzly, Suisun and Honker bays).

The California clapper rail is distinguishable from other rails by its large body size of 12.6 to 18.5 inches from bill to tail, and weighs approximately 8.8 to 12.3 ounces. It has an orange bill, a rufous breast, black and white barred flanks, and white under tail coverts (Albertson and Evens 2000). California clapper rails are sexually dimorphic; the males are slightly larger than females (Garcia 1995). Juveniles have a pale bill and dark plumage. California clapper rails are capable of producing several vocalizations, most common of which is a series of keks or claps.

California clapper rails are typically found in the intertidal zone and sloughs of salt and brackish marshes dominated by pickleweed, Pacific cord grass (*Spartina foliosa*), gumplant (*Grindelia* spp.), saltgrass, jaumea (*Jaumea carnosa*) and adjacent upland refugia. They may also occupy habitats with other vegetative components, which include, but are not limited to bulrush (*Scirpus americanus* and *S. maritimus*), cattails (*Typha* spp.), and Baltic rush (*Juncus balticus*).

Evens and Page (1983) concluded from research in a northern San Francisco Bay marsh that the California clapper rail breeding season, including pair bonding and nest construction, may begin as early as February. Field observations in south San Francisco Bay marshes suggest that pair formation also occurs in February in some areas (J. Takekawa, pers. comm.). The end of the breeding season is typically defined as the end of August, which corresponds with the time when eggs laid during renesting attempts have hatched and young are mobile. Harvey (1988) and Foerster (1990) reported mean clutch sizes of 7.27 and 7.47 for California clapper rails, respectively. The California clapper rail builds a bowl shaped platform nest of marsh vegetation and detritus (DeGroot 1927, Foerster et al. 1990, Garcia 1995). The California clapper rail typically feeds on benthic invertebrates, but its diet is wide ranging, and includes seeds, and occasionally small mammals such as the salt marsh harvest mouse.

An estimated 40,191 acres of tidal marshes remained in 1988 of the 189,931 acres of tidal marsh that historically occurred in the Estuary; this represents a 79 percent reduction from historical conditions (Goals Project 1999). Furthermore, a number of factors influencing remaining tidal marshes limit their habitat values for California clapper rails. Much of the east San Francisco Bay shoreline from San Leandro to Dumbarton Bridge is rapidly eroding, and many marshes along this shoreline could lose their California clapper rail populations in the future, if they have not already. In addition, an estimated 600 acres of former salt marsh along Coyote Creek, Alviso Slough, and Guadalupe Slough, has been converted to fresh- and brackish-water vegetation due to freshwater discharge from wastewater facilities in the southern part of San Francisco Bay and is of lower quality for California clapper rails. The introduction of non-native, invasive plant species such as smooth cord grass (*S. alterniflora*) and its hybrids into tidal wetlands within the Estuary is potentially impacting California clapper rails by reducing the amount of foraging habitat within tidal channels. The suitability of many marshes for California clapper rails is further limited, and in some cases precluded, by their small size, fragmentation, and lack of tidal channel systems and other micro-habitat features. These limitations render much of the remaining tidal marsh acreage unsuitable or of low value for the species.

Throughout the San Francisco Estuary, the remaining California clapper rail population is impacted by a suite of mammalian and avian predators. At least 12 native and 3 non-native predator species are known to prey on various life stages of the California clapper rail (Albertson 1995). Artificially high local populations of native predators, especially raccoons and skunks, result as development occurs in the habitat of these predators around the San Pablo and San Francisco bay margins (J. Takekawa, pers. comm.). Encroaching development not only displaces lower order predators from their natural habitat, but also adversely affects higher order predators, such as coyotes, which would normally limit population levels of lower order native and non-native predators, especially red foxes (Albertson 1995). Hunting intensity and efficiency by raptors on California clapper rails also is increased by electric power transmission lines, which

cris-cross tidal marshes and provide otherwise-limited hunting perches and nesting opportunities (J. Takekawa, pers. comm.). Non-native Norway rats (*Rattus norvegicus*) long have been known to be effective predators of California clapper rail nests (DeGroot 1927, Harvey 1988, Foerster et al. 1990). Placement of shoreline riprap, levees, buildings, and landfills favor rat populations, which results in greater predation pressure on California clapper rails in certain marshes. Raven (*Corvus corax*) populations have recently increased dramatically within the Estuary and evidence of egg predation by this species has been detected (Joy Albertson, pers. comm.). Feral cats also represent another predation threat on adult and young California clapper rails near residential areas and landfills (Joy Albertson, pers. comm.). These predation impacts are exacerbated by a reduction in high marsh and natural high tide cover in marshes.

The proliferation of non-native red foxes into tidal marshes of southern San Francisco Bay since 1986 has had a profound effect on California clapper rail populations. As a result of the rapid decline and almost complete elimination of California clapper rail populations in certain marshes, the San Francisco Bay National Wildlife Refuge (Refuge) implemented a predator management plan in 1991 (Foerster and Takekawa 1991) with an ultimate goal of increasing rail population levels and nesting success through management of red fox predation. This program initially was successful in increasing the overall south San Francisco Bay populations from an all-time low (see below); however, it has been difficult to effectively conduct predator management over such a large area as the south San Francisco Bay, especially with the many constraints associated with conducting the work in urban environments (J. Takekawa, pers. comm.).

Predator management for California clapper rails is not being regularly practiced in San Pablo and Suisun bays, and California clapper rail populations in this area remain susceptible to red fox predation. Red fox activity has been documented along Sonoma Creek and in the bayshore marshes between Sonoma Creek and the Petaluma River (Evens 2000) and along Dutchman Slough and in Guadalcanal Village on the west side of the Napa River (J. Collins, pers. comm.). Red fox activity also has been documented along the levees at Carl's Marsh and in baylands on the east side of the Petaluma River (Peter Baye, pers. comm.). Along Wildcat Creek near Richmond, where red fox activity was observed in the mid-1990's, the rail population level in one tidal marsh area declined considerably after 1987 (J. Evens, pers. comm.). Red fox predation may be a major reason for recent decreases in California clapper rail populations within certain parts of San Pablo Bay.

Mercury accumulation in eggs is perhaps the most significant contaminant problem affecting California clapper rails in the Estuary, with south San Francisco Bay containing the highest mercury levels. Mercury is extremely toxic to embryos and has a long biological half-life. The Service collected data from 1991 and 1992 on mercury concentrations in rail eggs in the southern portion of the estuary and found that the current accumulation of mercury in rail eggs occurs at potentially harmful levels. The percentage of non-viable eggs ranged from 24 to 38 percent (mean = 29 percent) (Service, unpubl. data).

The California clapper rail was listed as endangered primarily as a result of habitat loss. The factors described above have contributed to the more recent population reduction, which has

occurred since the mid-1980s. Although Gill (1978) may have overestimated the total California clapper rail population in the mid-1970s at 4,200 to 5,900 birds, surveys conducted by the California Department of Fish and Game (CDFG) and the Service estimated that the California clapper rail population approximated 1,500 birds in the mid-1980s (Harvey 1988). In 1988, the total rail population was estimated to be 700 individuals, with 400 to 500 rails in south San Francisco Bay (Foerster 1989). The total rail population reached an estimated all-time historical low of about 500 birds in 1991, with about 300 rails in south San Francisco Bay (Service unpubl. data). In response to predator management, the south San Francisco Bay rail population rebounded from this lowest population estimate to an estimated 650 to 700 individuals in 1997-98 (Service unpubl. data). Subsequently, the south San Francisco Bay population declined again the following year to about 500 individuals and remained at that level through early 2002 (Service unpubl. data). However, the south San Francisco Bay population declined further in 2002-2003 and is now estimated to be 400-500 individuals (Service unpubl. data), which represents the lowest estimated population level in this area since the late 1980's and early 1990's. A conservative estimate of the north San Francisco, San Pablo, and Suisun bay population, was 195 to 282 pairs based on a synoptic survey conducted in 1992-93 (Collins et al. 1994). Since then, several population centers in San Pablo Bay have declined. The population in the White Slough tidal marshes on the west side of the Napa River declined from an estimated 16-23 pairs as recent as 2000 to an estimated 2-5 pairs in 2002, while the population in the Sonoma Creek marshes declined from 13 pairs in 1992 to 0-1 pair in 2000 (Avocet Research Associates 2003). Although many factors are at work, predation by native and non-native predators, in conjunction with historic habitat loss and fragmentation, are the current known primary threats. With historic populations at Humboldt Bay, Elkhorn Slough, and Morro Bay now extirpated, the San Francisco Estuary represents the last stronghold and breeding population of this subspecies.

Environmental Baseline

Salt Marsh Harvest Mouse

The preservation and growth of existing populations of the salt marsh harvest mouse is considered important to assuring the survival of this species. The Recovery Plan identifies essential habitat areas to be preserved or restored throughout the Estuary to meet the recovery objectives for this species (Service 1984). No essential habitat for the salt marsh harvest mouse is identified in the Recovery Plan for the action area. The action area does occur in the Central/Southern San Francisco Bay Recovery Unit contained in the Draft Ecosystems Recovery Plan and transverses several existing tidal marshes and several areas identified for possible tidal marsh restoration within this unit (Service 2009).

Although no surveys for salt marsh harvest mice were conducted within the action area as part of the proposed action, pickleweed-vegetated tidal wetlands and other potential habitat areas suitable for the salt marsh harvest mouse occur within the action area. Salt marsh harvest mice have been detected at numerous locations within suitable habitat along and adjacent to the power transmission line corridor. In particular, salt marsh harvest mice have been detected at several locations along the corridor between Alameda Creek and the Alameda Flood Control Channel.

Therefore, given the biology and ecology of this animal, the presence of suitable habitat within the action and occupied habitat in other areas adjacent to the power transmission line corridor, and recent records, the salt marsh harvest mouse is likely to inhabit the action area. The Service is not aware of any factors currently affecting salt marsh harvest mice within the action area.

California Clapper Rail

The Recovery Plan identifies the recovery objectives or conservation needs of the California clapper rail (Service 1984). The fundamental tenet of the Recovery Plan is to preserve and increase existing populations of the California clapper rail to assure the survival of this species. To accomplish this, the Recovery Plan identifies the preservation and restoration of essential habitat areas throughout the Estuary that are important in meeting the recovery objectives for this species. No essential habitat for the California clapper rail is identified in the Recovery Plan for the action area. The action area does occur in the Central/Southern San Francisco Bay Recovery Unit contained in the Draft Ecosystems Recovery Plan and transverses several existing tidal marshes and several areas identified for possible tidal marsh restoration within this unit (Service 2009).

Suitable tidal marsh habitat for California clapper rails occurs at various locations along the power transmission line corridor. The best suitable habitat for this species occurs in the marsh habitat surrounding towers 3/22 and 3/23. This habitat could be used by California clapper rails for dispersal, sheltering, foraging, and/or breeding. Therefore, given the biology and ecology of this animal, the presence of suitable habitat along the power transmission line corridor and occupied habitat in tidal marshes in the vicinity of the corridor, and recent records, the California clapper rail is likely to inhabit the action area. The Service is not aware of any factors currently affecting California clapper rails within the action area.

Effects of the Proposed Action

The proposed work activities could result in disturbance to California clapper rails within tidal marsh habitat. California clapper rails vary in their sensitivity to human disturbance, both individually and between marshes. Certain types of disturbances have occurred within or adjacent to some tidal marsh areas for a long time and certain California clapper rails appear to have habituated or become tolerant of these disturbances, while others appear to habituate over time or are unable to habituate to these disturbances at all. For example, certain California clapper rails in Palo Alto Baylands Nature Preserve appear to be somewhat tolerant of the relatively common pedestrian traffic on the public boardwalk that dissects the marsh. California clapper rail nests have been documented within 10 feet of trails in Elsie Romer and Cogswell marshes in Alameda County, and within 65 feet of a busy street near White Slough (Solano County). In contrast, Albertson (1995) documented a California clapper rail abandoning its territory in Laumeister Marsh in south San Francisco Bay, shortly after a repair crew worked on a nearby transmission tower. The bird did not establish a stable territory within the duration of the breeding season, but eventually moved closer to its original home range several months after the disturbance. As a result of this territorial abandonment, the opportunity for successful reproduction during the breeding season was eliminated (J. Takekawa, pers. comm.). California

clapper rails in Laumeister Marsh have little contact with people, and are apparently quite sensitive to human-related disturbance. A similar sensitivity to disturbance could exist with California clapper rails within some of the tidal marshes adjacent to the work sites where human access activity is presently limited.

California clapper rail reactions to disturbance may vary with season, however both breeding and non-breeding seasons are critical times. Disturbance during the non-breeding season may primarily affect survival of adult and juvenile rails. Adult California clapper rail mortality is greatest during the winter (Albertson 1995; Eddleman 1989), and primarily due to predation (Albertson 1995). Human-related disturbance of clapper rails in the winter, particularly during high tide and storm events, may increase the bird's vulnerability to predators. The presence of people and their pets in the high marsh plain or near upland areas during winter high tides may prevent rails from leaving the lower marsh plain (Evens and Page 1983). Rails that remain in the marsh plain during inundation are vulnerable to predation due to minimal vegetative cover available (Evens and Page 1986). California clapper rails disturbed by work activities within the tidal marshes also could be subjected to predation if they increase their movements within the tidal marshes adjacent to the work sites or disperse to other nearby or distant tidal wetlands.

If work activities occur in the tidal marshes during the California clapper rail breeding season, rails that disperse within or away from the marshes may not establish new breeding territories and successfully breed. California clapper rails forced to disperse as a result of these activities would need to either maintain existing pair bonds or develop new pair bonds and establish new breeding territories in other suitable habitat areas. The ability of these rails to reestablish new breeding territories would be hampered by the fact that California clapper rails maintain year-round home ranges and defend established breeding territories from intrusions by other California clapper rails. As observed in the Laumeister Marsh example, California clapper rails could be forced to move considerable distances in search of unoccupied suitable habitat. Such movement by rails from established territories is likely to significantly increase the risk of predation and mortality. The farther rails must range in search of other suitable habitat outside of the tidal marsh adjacent to the airfield, the more vulnerable they are to predation. DeGroot (1927) noted that rails were extremely vulnerable to predation by raptors during high tide events when they were forced to seek refuge in exposed locations. Similarly, Johnston (1956, 1957) and Fisler (1965) observed heightened predator activity in marshes coinciding with extreme high tides. Evens and Page (1986) also documented the susceptibility of black rails (*Laterallus jamaicensis coturniculus*) to predation during extreme high tides.

Dispersal or movements by clapper rails in California occurs between and outside of marshes (Orr 1939; Zembal et al. 1985; San Francisco Bay Bird Observatory 1986; Page and Evens 1987; Albertson 1995). Eddleman (1989) identified movements by Yuma clapper rails outside of their territories as juvenile dispersal; dispersal by an unmated individual bird; and shifts in home ranges after the breeding, in the winter, and during high water periods; and attributed these movements to a search for more suitable habitat where territories, mates, food or safe refuge were better available. Juvenile dispersal apparently constitutes the main type of long distance movements by light-footed clapper rails, while adult birds tend to stay within territories once they are established (Zembal and Massey 1988, Zembal et al. 1989, Ledig 1990; Zembal 1990,

Zemba 1994, Zemba et al. 1996, Zemba et al. 1997, Zemba et al. 1998). Similarly, California clapper rails tend to stay within established territories or home ranges year-round (San Francisco Bay Bird Observatory 1986; Albertson 1995). Survivorship of California clapper rails displaced from the tidal marsh adjacent to the work sites likely would be less than if they are allowed to remain in established and familiar territories within this area. Increased movements by clapper rails likely result in lower survivorship through increased exposure to predators (Zemba and Massey 1988; Eddleman 1989; Albertson 1995). Zemba and Massey (1988) noted that three of six telemetered light-footed clapper rails that moved extensively were preyed upon within a relatively short period of time. By comparison, seven other birds that remained sedentary within established territories were not preyed upon during the telemetry period. Loss of any female rails would be compounded by the loss of potential future progeny. Reduced survival of adult California clapper rails would likely impact the long-term viability of the population. A population viability analysis under development for California clapper rails identifies changes in adult survivorship as causing the greatest change in the population growth rate (M. Johnson, pers. comm.). Another model also indicates that adult survivorship of California clapper rails is the primary demographic variable for maintaining a stable population or causing the population to either increase or decline (Foin et al. 1997). These models indicate that survival of adult birds has the strongest effect on the perpetuation or extinction of the overall population.

To avoid disturbance effects to breeding California clapper rails, the project proponent proposes to conduct any work within 1,000 feet of any wetlands between September 1 and January 31 to avoid the California clapper rail breeding season (i.e., February 1 through August 31). If any work was proposed to be conducted within 1,000 feet of any wetlands, the project proponent would conduct surveys for California clapper rails and no work would be conducted within 700 feet of any rails detected during the surveys. Avoiding the breeding season does not completely eliminate the possibility that California clapper rails would be disturbed during the non-breeding season for the reasons identified above. The project proponent does propose to implement additional conservation measures to minimize potential disturbances to California clapper rails during the non-breeding season. These would include, but not be limited to: (1) the presence of an environmental monitor on-site during work activities, (2) a training session being presented to the work crews for the proposed action that discusses sensitive species in the area, (3) restricting helicopter use to areas that are likely to cause the least disturbance, and (4) limiting the areas where work and ground access would take place. Based on the best available survey information, the successful implementation of proposed conservation measures, and the analysis stated above, we anticipate that a maximum of two California clapper rail individuals could be harassed or harmed by activities associated with the proposed action.

Implementation of the proposed action could affect individual salt marsh harvest mice through increased disturbance. Increased levels of disturbance to salt marsh harvest mice would result from noise and vibrations from helicopter operations and other work activities. Operation of helicopters and equipment could result in displacement of salt marsh harvest mice from protective cover and their territories/home ranges (through noise and vibrations). These disturbances likely would disrupt normal behavior patterns of breeding, foraging, sheltering, and dispersal, and likely result in the displacement of salt marsh harvest mice from their territory/home range. Displaced salt marsh harvest mice may have to compete for resources in

occupied habitat, and may be more vulnerable to predators. Female salt marsh harvest mice are reproductively active from March through November (Fisler 1965), so disturbance during this period could result in abandonment or failure of their litter. Thus, displaced salt marsh harvest mice may suffer from increased predation, competition, injury, and reduced reproductive success. The project proponent would implement a number of conservation measures to minimize disturbances to salt marsh harvest mice at the work sites. These would include, but not be limited to: (1) the presence of an environmental monitor on-site during work activities, (2) a training session being presented to the work crews for the proposed action that discusses sensitive species in the area, (3) restricting helicopter use to areas that are likely to cause the least disturbance, and (4) limiting the areas where work and ground access would take place.

No habitat for the California clapper rail and salt marsh harvest mouse is anticipated to be permanently or temporarily lost as a result of implementation of the proposed action.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions affecting listed species and their critical habitat that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

No cumulative effects are anticipated that may affect listed species in the action area.

Conclusion

After reviewing the current status of the salt marsh harvest mouse and California clapper rail, the environmental baseline for the action area, the effects of the proposed action and cumulative effects, it is the Service's biological opinion that the proposed Eastshore-Dumbarton 115kV Power Line Reconductoring Project by the Pacific Gas and Electric Company in the cities of Hayward, Union City, and Fremont in Alameda County, California, is not likely to jeopardize the continued existence of these listed species. We base this conclusion on no habitat for the salt marsh harvest mouse and California clapper rail being permanently or temporarily lost from the proposed action and the expected successful implementation of conservation measures designed to minimize adverse effects to these species from work activities.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to,

breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The incidental take statement accompanying this biological opinion exempts take of salt marsh harvest mice and California clapper rails carried out in accordance with the reasonable and prudent measures and terms and conditions from the prohibitions contained in section 9 of the Act. It does not address the restrictions or requirements of other applicable laws.

The measures described below are non-discretionary, and must be implemented by the Corps. If the Corps (1) fails to adhere to the terms and conditions of the incidental take, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

Conservation measures proposed by the project proponent and described above in the *Description of the Proposed Action* section of this biological opinion will reduce, but do not eliminate, the potential for incidental taking of salt marsh harvest mice and California clapper rails. The Service anticipates incidental take of the salt marsh harvest mouse will be difficult to detect or quantify because of the variable, unknown size of any resident population over time, and the difficulty of finding injured small mammals. The level of take of individual salt marsh harvest mice can be anticipated by the area affected along the 6.7-mile power transmission line corridor. The Service expects that incidental take of the California clapper rail will be difficult to detect because of the reclusive nature of this species. The Service considers the number of salt marsh harvest mice and California clapper rails subject to harassment from noise and vibrations to be impracticable to estimate. However, we anticipate that a maximum of two California clapper rail individuals could be present along the 6.7-mile power transmission line corridor and could be harmed or harassed based on the timing and duration of the proposed action and the successful implementation of proposed conservation measures. The Service, therefore, anticipates the following levels of take for these two listed species as a result of implementation of the proposed action.

Incidental take of salt marsh harvest mice and California clapper rails is expected in the form of:

1. Harm or harassment of a maximum of two California clapper rails due to implementation of the proposed action; and
2. Harm or harassment of salt marsh harvest mice (either directly or by affecting their food sources and habitat) in the action area due to predation.

The Service anticipates the level of incidental of take identified above for the salt marsh harvest mouse and California clapper rail would not be exceeded provided that the proposed action, including proposed conservation measures, is implemented as described in this biological opinion.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impact of take on the salt marsh harvest mouse and California clapper rail:

1. All of the Conservation Measures proposed in the *Project Description*, and restated in this Biological Opinion, must be fully implemented.
2. The project proponent shall minimize adverse effects to the salt marsh harvest mouse and California clapper rail.
3. The project proponent shall ensure their compliance with this biological opinion.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the Corps shall ensure that the project proponent complies with the following terms and conditions, which implement the reasonable prudent measures described above. These terms and conditions are nondiscretionary.

The following term and condition implements Reasonable and Prudent Measures 1 and 2:

1. The Corps will incorporate the requirement to fully implement all the proposed conservation measures as a condition of its permit to the applicant for the proposed action.
2. The environmental monitor (s) will be present during all work activities. The monitor(s) will have demonstrated experience in monitoring sensitive resource issues on construction projects. Prior to the initiation of any work activities in the action area, the project proponent will submit the qualifications of the prospective environmental monitor(s) to the Service and CDFG for review and approval. The monitor(s) will have the authority to halt the project, if necessary, when noncompliance actions occur. The environmental monitor(s) at the work sites will be the contact person for any employee or contractor who might inadvertently kill or injure a listed species or anyone who finds a dead, injured, or entrapped listed species. The monitor(s) at the work sites will possess a working mobile telephone and the phone number will be provided to the Service.
3. At a minimum, the employee training session will consist of a brief presentation by persons knowledgeable about California clapper rail and salt marsh harvest mouse biology and legislative protection to explain concerns to contractors, their employees, and

agency personnel involved with the proposed action. The session will include the following: a description of the two species and their habitat needs; any reports of occurrences in the action area; an explanation of the status of the California clapper rail and salt marsh harvest mouse and their protection under the Act; and a list of measures being taken to reduce impacts to these species during the work and implementation of the proposed action. Fact sheets containing this information will be distributed to the above-mentioned people and anyone else entering the work sites.

4. Surveys for California clapper rails shall follow the Service's December 7, 2009, draft survey protocol (or any subsequent revision). A survey protocol(s) shall be developed by the project proponent. Prior to initiation of the planned work activities, the proposed survey protocol(s) shall be provided to the Service for review and approval. After the surveys are completed and prior to initiation of the planned work activities, the results of the surveys shall be provided to the Service for review to evaluate the appropriateness of work being proposed by the project proponents. Work activities shall not be initiated until after the Service has approved the planned work based on the review of the survey results.
5. If a California clapper rail or mouse of any species is observed at any time, then work will not be initiated or will be stopped immediately by the biological monitor until the rail or mouse leaves the work area on its own volition and the Service and CDFG are notified. If the rail or mouse does not leave the work area, work will not be reinitiated until the Service and CDFG are contacted and have made a decision on how to proceed with work activities. The biological monitor will direct the contractor on how to proceed accordingly. The biological monitor or any other persons in the action area will not pursue, capture, handle or harass any rail or mouse observed.
6. All personnel and their equipment will be required to stay within the designated work sites and access corridors to perform job-related tasks, and will not be allowed to enter adjacent wetlands, drainages, and habitat of listed species. Pets will not be allowed in or near the work sites. Firearms will not be allowed in or near the work sites. No intentional killing or injury of wildlife will be permitted. The work sites will be maintained in a clean condition. No fires will be permitted in any of the work sites.
7. Hazardous materials (e.g., fuels, lubricants, solvents, and pipe coating substances) used during the work period will be controlled, cleaned up, and properly disposed of outside tidal marsh areas.
8. The project proponent will include Special Provisions that incorporate the Proposed Conservation Measures of the proposed action and the Terms and Conditions of the Service's biological opinion for the proposed action in the solicitation for bid information. In addition, the project proponent will inform all contractors involved in the proposed action about the requirements of the Service's biological opinion for the proposed action.

9. The project proponent will ensure that a readily available copy of the Service's biological opinion for the proposed action is maintained by the construction foreman/manager at the work sites whenever work activities are taking place. The name and telephone number of the construction foreman/manager will be provided to the Service prior to any work being initiated in the action area.
10. After work is completed, a final clean-up will include removal of all stakes, temporary fencing, flagging and other refuse generated by any work activities. Vegetation will not be removed or disturbed in the clean-up process.
11. The project proponent will submit a post-construction compliance report prepared by a Service-approved biologist(s) to the Service's Sacramento Fish and Wildlife Office within sixty (60) calendar days following final work activities or within sixty (60) calendar days of any break in work activities lasting more than sixty (60) calendar days. This report will detail (i) dates that work occurred; (ii) pertinent information concerning the success of the proposed action in meeting the Proposed Conservation Measures of the proposed action and Terms and Conditions of the Service's biological opinion for the proposed action; (iii) an explanation of any failure to meet such measures; (iv) known project effects on the salt marsh harvest mouse and California clapper rail, if any; (v) occurrences of incidental take of either of these listed species; (vi) documentation of employee environmental education; and (vii) other pertinent information. The reports will be addressed to the Assistant Field Supervisor of the Endangered Species Program in the Service's Sacramento Fish and Wildlife Office.
12. If requested, before, during, or upon completion of the work or any other associated activities, the project proponent will allow access by Service and/or CDFG personnel to the work areas to inspect effects of the proposed action.

The following term and condition implements Reasonable and Prudent Measure 3:

The Corps will condition its permit to require compliance with the reporting requirements of this biological opinion.

Reporting Requirements

The Service must be notified within 24 hours of the finding of any injured or dead salt marsh harvest mice or California clapper rail, or any unanticipated damage to their habitat associated with the proposed action. Injured salt marsh harvest mice and California clapper rail shall be cared by a licensed veterinarian or other qualified person, such as the Service-approved biologist for the proposed action. Notification must include the date, time, and precise location of the specimen/incident, and any other pertinent information. Dead animals should be sealed in a zip lock bag containing a piece of paper indicating the location, date and time when it was found, and the name of the person who found it; and the bag should be frozen in a freezer in a secure location. The Service contact persons are Chris Nagano, Division Chief, Endangered Species

Program, at the Sacramento Fish and Wildlife Office at (916) 414-6600 and Resident Agent-in-Charge Dan Crum of the Service's Law Enforcement Division at telephone (916) 414-6660.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purpose of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and databases.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations. We propose the following conservation recommendations:

1. Assist the Service in implementing recovery actions identified within most current recovery plans for the salt marsh harvest mouse and California clapper rail.
2. Encourage or require the use of appropriate California native plant species in re-vegetation and habitat enhancement efforts associated with projects authorized or carried out by the Corps.
3. Encourage the Corps' participation in a program being implemented by Federal and State resource agencies to limit and reverse the spread on non-native *Spartina* within the San Francisco Bay Estuary.

REINITIATION STATEMENT

This concludes formal consultation on the proposed Eastshore-Dumbarton 115kV Power Line Reconductoring Project by the Pacific Gas and Electric Company in the cities of Hayward, Union City, and Fremont in Alameda County, California. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

LITERATURE CITED

- Albertson, J.D. 1995. Ecology of the California clapper rail in south San Francisco Bay. A thesis submitted to San Francisco State University, San Francisco, California. 147 pp.
- Albertson, J.D. and J.G. Evens. 2000. California clapper rail. In: Baylands ecosystem species and community profiles: life histories and environmental requirements of key plants, fish and wildlife. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. P.R. Olofson, editor. San Francisco Bay Regional Water Quality Control Board, Oakland, California. Pages 332-341.
- Avocet Research Associates. 2003. Regional significance of the California clapper rail population at Bahia Lagoon and evaluation of the Bahia Homeowner Association's biological assessment and proposal for dredging and mitigation. Appendix B in Environmentally Superior Redesign, Bahia Homeowners Boat Lock Project, Novato, California, 22 July 2003, Project No. 1076. 13 pp.
- Collins, J.N., J.G. Evens, and B. Grewell. 1994. A synoptic survey of the distribution and abundance of the California clapper rail *Rallus longirostris obsoletus* in the northern reaches of the San Francisco Estuary during the 1992 and 1993 breeding seasons. Final report to California Department of Fish and Game. 22 pp. plus appendix.
- DeGroot, D.S. 1927. The California clapper rail: its nesting habitats, enemies, and habitat. *Condor* 29:259-270.
- Eddleman, W.R. 1989. Biology of the Yuma clapper rail in the southwestern U.S. and northwestern Mexico. Final report to the U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service. 127 pp.
- Evens, J. 2000. Sonoma Creek bridge seismic retrofit and barrier placement project: Sonoma and Solano counties, California clapper rail & California black rail: 2000 breeding season surveys. Final report prepared for California Department of Transportation. 7 pp. plus figures.
- Evens, J. and G. Page. 1983. The ecology of rail populations at Corte Madera Ecological Preserve with recommendations for management. Report prepared for Marin Audubon Society. 62 pp.
- Evens, J. and G. Page. 1986. Predation on black rails during high tides in salt marshes. *Condor* 88:107-109.
- Fisler, G.F. 1965. Adaptations and speciation in harvest mice of the marshes of San Francisco Bay. University of California Publications in Zoology, Volume 77: 1-108.

- Foin, T.C., E.J. Garcia, R.E. Gill, S.D. Culberson, and J.N. Collins. 1997. Recovery strategies for California clapper rail (*Rallus longirostris obsoletus*) in the heavily-urbanized San Francisco estuarine ecosystem. *Landscape and Urban Planning*. 38(1997): 229-243.
- Forester, K.S. 1989. Summary of California clapper rail winter populations in the San Francisco Bay National Wildlife Refuge, Nov. 1988 to Jan. 1989. Unpubl. Report. San Francisco Bay National Wildlife Refuge, Fremont, California.
- Foerster, K.S., J.E. Takekawa, and J.D. Albertson. 1990. Breeding density, nesting habitat, and predators of the California clapper rail. Unpubl. Rpt. No. SFBNWR-116400-90-1, prep. for San Francisco Bay NWR, Fremont, California. 46 pp.
- Foerster, K.S. and J.E. Takekawa. 1991. San Francisco Bay National Wildlife Refuge Predator Management Plan and Final Environmental Assessment. U.S. Fish and Wildlife Service. San Francisco Bay National Wildlife Refuge, Fremont, California. 54 pp.
- Garcia, E.J. 1995. Conservation of the California clapper rail: An analysis of survey methods and habitat use in Marin County, California. Master Thesis, University of California-Davis. 135 pp.
- Gill, R., Jr. 1978. Status and distribution of the California clapper rail (*Rallus longirostris obsoletus*). 21 pp. plus appendix.
- Goals Project. 1999. Baylands ecosystem habitat goals. A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. U.S. Environmental Protection Agency, San Francisco, California, and San Francisco Bay Regional Water Quality Control Board, Oakland, California. 209 pp. plus appendices.
- Harvey, T.E. 1988. Breeding biology of the California clapper rail in south San Francisco Bay. 1988 *Transactions of the Western Section of the Wildlife Society* 24: 98-104.
- Johnston, R.F. 1956. Predation by short-eared owls in a *Salicornia* salt marsh. *Wilson Bulletin* 68: 91-101.
- Johnston, R.F. 1957. Adaptation of salt marsh mammals to high tides. *Journal of Mammalogy* 38: 529-531.
- Ledig, D. 1990. Preliminary report on the ecology of the light-footed clapper rail at Mugu Lagoon, Ventura Co., California. Final Report to California Department of Fish and Game. 11 pp. plus appendices.
- Orr, R.T. 1939. Fall wanderings of clapper rails. *Condor* 41(4): 151-152.

- Page, G.W. and J.G. Evens. 1987. The sizes of clapper rail populations at Corte Madera Ecological Preserve, Muzzi Marsh, San Clemente Creek, and Triangle Marsh. Report to Marin Audubon Society from Point Reyes Bird Observatory. 10 pp plus figures.
- San Francisco Bay Bird Observatory. 1986. California clapper rail study, 1983-1986. Report submitted to California Department of Fish and Game. 23 pp. plus appendix.
- U.S. Fish and Wildlife Service. 1970. United States List of Endangered Native Fish and Wildlife. October 13, 1970. Fed. Reg. 35(199): 16047-16048
- _____. 1984. Salt Marsh Harvest Mouse and California Clapper Rail Recovery Plan. Portland, Oregon. 141 pp.
- _____. 2009. Draft Recovery Plan for Tidal Marsh Ecosystems in Northern and Central California. Sacramento, California. xviii + 636 pp.
- Zemba, R. 1990. Light-footed clapper rail census and study, 1990. Nongame Bird and Mammal Section Report to California Department of Fish and Game. 28 pp.
- _____. 1994. Light-footed clapper rail management and population assessment, 1993. Final Report to California Department of Fish and Game. 32 pp.
- Zemba, R. and B.W. Massey. 1988. Light-footed clapper rail census and study, 1988. Final Report to California Department of Fish and Game. 29 pp.
- Zemba, R., J.M. Fancher, C.S. Nordby, and R.J. Bransfield. 1985. Intermarsh movements by light-footed clapper rails indicated in part through regular censusing. California Fish and Game 71(3): 164-171.
- Zemba, R., B.W. Massey and J.M. Fancher. 1989. Movements and activity patterns of the light-footed clapper rail. J. Wild. Manage. 53(1): 39-42.
- Zemba, R., S.M. Hoffman, and J.R. Bradley. 1996. Light-footed clapper rail management and population assessment, 1995. Final Report to California Department of Fish and Game. 43 pp.
- _____. 1997. Light-footed clapper rail management and population assessment, 1996. Final Report to California Department of Fish and Game. 28 pp.
- _____. 1998. Light-footed clapper rail management and population assessment, 1997. Final Report to California Department of Fish and Game. 23 pp.

Ms. Jane M. Hicks

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PERSONAL COMMUNICATIONS

Ms. Joy Albertson. San Francisco Bay National Wildlife Refuge, California.

Dr. Peter Baye. Environmental Consultant. Annapolis, California.

Dr. Josh Collins. San Francisco Estuary Institute. Oakland, California.

Mr. Jules Evens. Avocet Research Associates. Point Reyes Station, California.

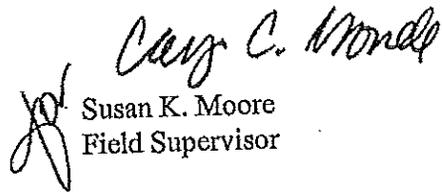
Dr. Mike Johnson. Ecotoxicology Lead Campus Program. University of California, Davis.

Ms. Jean Takekawa. Nisqually National Wildlife Refuge, Washington. Formerly with San Francisco Bay National Wildlife Refuge, California.

Ms. Jane M. Hicks

If you have any questions regarding this biological opinion on the proposed Eastshore-Dumbarton 115kV Power Line Reconductoring Project by the Pacific Gas and Electric Company, you can contact Jim Browning (james_browning@fws.gov) or Ryan Olah (ryan_olah@fws.gov) at (916) 414-6625.

Sincerely,


Susan K. Moore
Field Supervisor

cc:

Greg Martinelli, California Department of Fish and Game, Yountville, CA

Advice 3846-E

Exhibit G



California Regional Water Quality Control Board

San Francisco Bay Region



Linda S. Adams
Secretary for
Environmental Protection

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
<http://www.waterboards.ca.gov/sanfranciscobay>

Arnold Schwarzenegger
Governor

November 30, 2010
Site No. 02-01-C1097 (bkw)
CIWQS Place ID No. 758929
ACOE File No. 2009-00442S

Sent via electronic mail: No hardcopy to follow

Pacific Gas and Electric Company
2730 Gateway Oaks Drive, Room 220
Sacramento, CA 95833

Attn: Mike Gunby, Principal Planner (magb@pge.com)

Subject: Water Quality Certification for Pacific Gas and Electric Company's 2010 Eastshore-Dumbarton 115 kV Power Line Reconductoring Project in the Cities of Hayward, Union City, and Fremont, in Alameda County

Dear Mr. Gunby:

San Francisco Bay Regional Water Quality Control Board (Water Board) staff have reviewed the application submitted by Transcon Environmental on behalf of Pacific Gas and Electric Company (the Applicant) for the project to reconductor the Eastshore-Dumbarton 115 kilovolt (kV) electrical power line, which extends for about 6.7 miles between the Eastshore and Dumbarton substations in Alameda County (Project). On July 30, 2010, the Applicant was informed by the U.S. Army Corps of Engineers that the Project was authorized under Clean Water Act (CWA) Section 404 Nationwide Permit No. 12 (*Utility Lines*) and Section 10 of the Rivers and Harbors Act of 1899 (ACOE file No. 2010-00243S). You applied to this office pursuant to Section 401 of the CWA for water quality certification verifying that the Project does not violate State water quality standards.

Project Description: The Project purpose is to reconductor (i.e., replace the conductor) of the Eastshore-Dumbarton 115 kV overhead electrical power line, which runs for about 6.7 miles through the Cities of Hayward, Union City, and Fremont in Alameda County (See the USGS 7.5' quadrangle map in the Attachment to this certification). Reconductoring of the power line is necessary to alleviate existing electricity overloads and to accommodate the operation of the new Russell City Energy Center power plant.

The majority of the reconductoring project will be constructed from the air, using helicopters to transport crews and materials. The only component of the reconductoring project that will impact waters of the State will take place within two pull sites adjacent to Tower 0/2 in the Eastshore Substation, located just south of State Route 92, within the city of Hayward, Alameda County (See the USGS 7.5' quadrangle map and the aerial photograph depicting the project location in the Attachment to this certification). Pull sites are temporary work areas in which a

puller and truck-mounted tensioning rig are temporarily anchored to the ground. This equipment pulls the existing conductor, cable, and new conductor to the desired tension.

Pull sites require an area of about 150 feet by 300 feet. The two pull sites near Tower 0/2 in the Eastshore Substation will cover a total area of about 2.5 acres. However, only one of the pull sites overlaps with the small seasonal wetland and wetland/upland mosaic located approximately 350 feet to the west of Tower 0/2. A total of 0.32 acre of the pull site overlaps with seasonal wetland areas.

Impacts: The Project will have no permanent impacts to waters of the State and will result in temporary impacts to a total of 0.32 acres (14,000 square feet) of seasonal wetlands, composed of 0.01 acre of seasonal wetland and 0.31 acre of wetland/upland mosaic (See the aerial photograph and ground level photograph in the Attachment to this certification). The wetland/upland mosaic area is a mix of wetland plant species and uplands species; drawing a clear boundary between wetlands and uplands in the mosaic area is difficult. These seasonal wetlands are located about 350 feet west of Tower 0/2, a lattice tower within the Eastshore Substation. To avoid long-term impacts to wetlands, 520 cubic yards of temporary mats will be laid down over the portions of seasonal wetland and wetland/upland habitat mosaic that overlap with the pull site.

Mitigation: The Project will not have significant permanent impacts to waters of the State, because temporarily impacted areas of wetland vegetation are anticipated to recover after the temporary mats are removed from the wetlands. During Project work, exclusion fencing will be installed along the northern border of the pull site to keep personnel and equipment from entering the wetland/upland mosaic and seasonal wetland. The Project shall also comply with the Reasonable and Prudent Measures and Terms and Conditions presented in the *Biological Opinion for the Proposed Eastshore-Dumbarton 115 kV Power Line Reconductoring Project by the Pacific Gas and Electric Company, Cities of Hayward, Union City, and Fremont, Alameda County* (Reference No. 81420-2010-0220; May 20, 2010) by the U.S. Fish and Wildlife Service (USFWS).

CEQA: The Project is categorically exempt from review under the California Environmental Quality Act (CEQA), pursuant to Article 19, Section 15302 of the CEQA Guidelines, which exempts the replacement or reconstruction of existing structures and facilities from review under CEQA, if the new structure will be located at the same site as the old structure.

Certification and General Waste Discharge Requirements: I hereby issue an order certifying that any discharge from the referenced Project will comply with the applicable provisions of sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, and with other applicable requirements of State law. This discharge is also regulated under State Water Resources Control Board Order No. 2003 - 0017 - DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality

Certification" which requires compliance with all conditions of this Water Quality Certification. The following conditions are associated with this certification:

1. No debris, rubbish, creosote-treated wood, soil, silt, sand, cement, concrete, or washings thereof, or other construction related materials or wastes, oil or petroleum products or other organic or earthen material shall be allowed to enter into, or be placed where it may be washed by rainfall or runoff into waters of the State. Any of these materials placed within or where they may enter waters of the State by the Applicant or any party working under contract, or with the permission of the Applicant shall be removed immediately. When operations are completed, any excess material shall be removed from the work area and any areas adjacent to the work area where such material may be washed into waters of the State. During construction, the contractor shall not dump any litter or construction debris within marsh habitat. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site;
2. All Standard and Special Conditions of the ACOE permit authorization under Nationwide Permit No.12 shall be fully implemented (ACOE file No. 2009-00442S);
3. The Applicant shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in the presented in the *Biological Opinion for the Proposed Eastshore-Dumbarton 115 kV Power Line Reconductoring Project by the Pacific Gas and Electric Company, Cities of Hayward, Union City, and Fremont, Alameda County*, dated May 20, 2010 (Ref. No. 81420-2010-0220), issued for the Project by the USFWS;
4. The Project shall be constructed in conformance with the Project description in this certification, as was well as the project description provided in the consultation with the the USFWS. Any changes to these project descriptions must be submitted to the Water Board's Executive Officer for review and approval before they are implemented;
5. Within 60 days of Project completion, the Applicant shall submit an as-built report for the Project pull sites near Tower 0/2 to the Water Board. The as-built report shall include pre- and post-construction photographs of the pull sites that overlap with the seasonal wetland and seasonal wetland/upland mosaic about 350 feet west of Tower 0/2, as well as a short description of the work that was performed at these pull sites, including the number of days the temporary work mats were in place;
6. One year after of Project completion, the Applicant shall submit a letter report documenting the condition of wetland vegetation at the pull sites described in Condition 5. The letter report shall include pre- and post-construction photographs of the pull sites and photographs documenting the recovery of wetland vegetation within the footprint of the pull sites. If wetland vegetation has not recovered to pre-Project levels, the Applicant shall consult with the Water Board and implement any measures deemed necessary to restore wetland vegetation;

7. No equipment shall be operated in areas of flowing or standing water; no fueling, cleaning, or maintenance of vehicles or equipment shall take place within any areas where an accidental discharge to waters of the State may occur;
8. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to CWC Section 13330 and 23 CCR Section 3867;
9. This certification action does not apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license, unless the pertinent certification application was filed pursuant to California Code of Regulations (CCR) Title 23, Subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought; and
10. Certification is conditioned upon full payment of the required fee as set forth in 23 CCR Section 3833. Water Board staff received payment in full of \$1,521 on October 13th, 2010.

This certification applies to the Project as proposed in the application materials and designs referenced above in the conditions of certification. Be advised that failure to implement the Project as certified is a violation of this water quality certification. Also, any violation of water quality certification conditions is a violation of State law and subject to administrative civil liability pursuant to California Water Code (CWC) Section 13350. Failure to respond, inadequate response, late response, or failure to meet any condition of a certification may subject the Applicant to civil liability imposed by the Water Board to a maximum of \$5,000 per day of violation or \$10 for each gallon of waste discharged in violation of this action. Any requirement for a report made as a condition to this action (i.e., conditions 5 and 6) is a formal requirement pursuant to CWC Section 13267, and failure or refusal to provide, or falsification of such requirement report is subject to civil liability as described in CWC Section 13268. Should new information come to our attention that indicates a water quality problem with this Project, the Water Board may issue individual Waste Discharge Requirements pursuant to 23 CCR Section 3857. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to CWC Section 13330 and 23 CCR Section 3867.

Please contact Brian Wines of my staff at (510) 622-5680 or bwines@waterboards.ca.gov if you have any questions. All future correspondence regarding this Project should reference the Site Number indicated at the top of this letter.

Sincerely,

Bruce H. Wolfe

Mr. Gunby

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PG&E Eastshore-Dumbarton 115 kV Reconductoring
Site No. 02-01-C1097

Executive Officer

Attachment

USGS 7.5' Quadrangle Map with Extent of Reconductoring Project
Eastshore-Dumbarton Wetland Aerial Photograph
Ground Level Photograph of Seasonal Wetland and Seasonal Wetland/Upland Mosaic

cc: State Board, Bill Orne (Stateboard401@waterboards.ca.gov)
EPA, Jason Brush (R9-WTR8-Mailbox@epa.gov)
USACE, Jane Hicks (jane.m.hicks@usace.army.mil)
USACE, Cameron Johnson (Cameron.L.Johnson@usace.army.mil)
USACE, Nina Cavett-Cox (Christina.Cavett-Cox@usace.army.mil)
USWS, James Browning (james_browning@fws)
USWS, Ryan Olah (ryan_olah@fws.gov)
Transcon Environmental, Christina Homes (cholmes@transconusa.com)

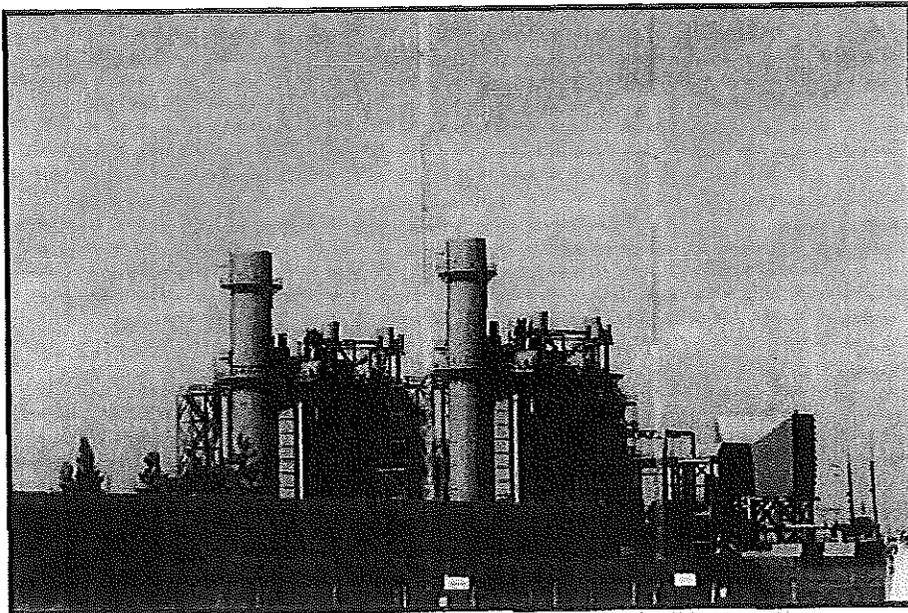
Advice 3846-E

Exhibit H

Staff Assessment - Part 1 and Part 2
Combined

RUSSELL CITY ENERGY CENTER

Amendment No. 1 (01-AFC-7C)
Alameda County



CALIFORNIA
ENERGY
COMMISSION

STAFF REPORT

CALIF ENERGY COMMISSION
01-AFC-7
JUN 29 2007
RECEIVED IN DOCKETS

JUNE 2007
(01-AFC-7C)
CEC-700-2007-005-FSA



Mitigation

No additional mitigation measures are required.

Conclusion

PG&E would likely be able to comply with applicable LORS related to the identified reconductoring project. No significant geologic or paleontological resources have been identified in the project area. The existing transmission line was designed and constructed in accordance with the Seismic Zone 4 requirements contained in the California Building Code. In addition, the project owner proposes to mitigate impacts due to seismic hazards by complying with the requirements and design standards of the CBC (1998). The project should have no adverse impact with respect to geologic and paleontologic resources if it complies with applicable LORS.

4 CONCLUSION

Sections 2 and 3 of this Appendix describe the process and the potential impacts of reconductoring the Eastshore-Dumbarton 115kV Transmission Line. This study was undertaken to inform the Energy Commission and the general public of the potential indirect environmental and public health effects caused by the approval of the RCEC.

The environmental and engineering disciplines can be divided into two groups: those with the potential for significant impacts, and those in which impacts are easily mitigable or less than significant. This analysis determined that impacts in the following discipline areas would likely be less than significant for reconductoring projects (some with implementation of standard mitigation measures, such as fugitive dust control to control emissions of particulate matter during construction, for example):

- Air Quality
- Facility Design
- Hazardous Materials Management
- Power Plant Efficiency
- Power Plant Reliability
- Public Health
- Worker Safety
- Socioeconomic Resources
- Waste Management
- Worker Safety

The disciplines where potential impacts from reconductoring are of most concern are biological resources, cultural resources, and traffic & transportation. The conclusions of these analyses are described below.

Biological Resources: Because it appears some of the reconductoring work would occur in or near sensitive species and/or habitats, staff concludes that reconductoring the Eastshore-Dumbarton line could adversely impact sensitive biological resources in and/or adjacent to the transmission line corridor. Staff recommends that after PG&E

completes its final construction, that it submit a complete project description (including wetland delineations, results of all sensitive species surveys, and a revised assessment of potential impacts) to the project's lead agency, which would ensure the reconductoring complies with applicable Federal, State and local laws, ordinances and regulations. Staff also recommends consultation with the California Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Army Corp of Engineers, Regional Water Quality Control Board and the Bay Conservation and Development Commission to identify potential impacts and develop mitigation measures that would avoid, eliminate, reduce to a less than significant level or compensate for those impacts. Therefore, if the reconductoring work complies with all applicable LORS, mitigation measures proposed by the project owner (i.e., PG&E) are implemented, and standard Best Management Practices for construction activities are employed, the reconductoring of the Eastshore-Dumbarton line would not likely create significant impacts to Biological Resources.

Cultural Resources: An archaeological and historic survey should be conducted after the major work areas associated with the reconductoring project are identified. If sensitive archaeological or historic resources are identified, the project owner (i.e., PG&E) and the lead agency should conduct a preconstruction assessment and develop a training program. In addition, excavation (if any), pulling and tensioning, modifying towers, and other key project activities taking place within archaeological sites should be monitored. If cultural material is identified, the construction should be halted until the find can be evaluated. Staff recommends that after the construction area has been identified and after the cultural resources surveys are completed that archaeological sites be evaluated for eligibility for listing in the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR). If avoidance is not possible, data recovery should be conducted as a mitigation measure for archaeological sites that are recommended as eligible to the CRHR or NRHP and would be impacted by the project. The Native American Heritage Commission would need to be contacted to determine whether there are any Native American sacred sites in the vicinity of the work. The proposed reconductoring route may be sensitive for cultural resources. However, it will be possible to mitigate all impacts to cultural resources to a less than significant level.

Traffic and Transportation: In order to mitigate potential impacts of the reconductoring project on the surrounding roadway system, the work crews involved should avoid adding any vehicles to local roadways during peak travel times by using off-site facilities for reconductoring staging and laydown, non-peak hour scheduling, and workers carpooling to the job site. Finally, installation of protective structures as a safety precaution would reduce the potential for construction materials falling on motorists, bicyclists, or pedestrians during the tensioning/cable pulling process. Implementation of these mitigation measures would likely ensure that any potential impacts of the reconductoring project to traffic and transportation will be insignificant.

Advice 3846-E

Exhibit I

CULTURAL RESOURCES INVENTORY REPORT

Eastshore-Dumbarton 115kV Reconductoring Project, Alameda County, California

Prepared for:

Pacific Gas and Electric Company

For submittal to:

California Public Utilities Commission

Prepared by:

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March 2010

Restricted Distribution:

To prevent vandalism, restrict information in this report about the location of archaeological sites.

REPORT SUMMARY

Project Title: PG&E Eastshore-Dumbarton 115kV Reconductoring Project

Report Title and Date: Cultural Resources Inventory Report, Eastshore-Dumbarton 115kV Reconductoring Project, Alameda County, California
March 2010

Agencies: California Public Utilities Commission
U.S. Army Corps of Engineers
California Office of Historic Preservation

Project Numbers: Transcon Environmental Project No. U03-63

Project Description: The proposed Eastshore-Dumbarton 115 kV Reconductoring Project involves reconductoring an existing 6.7 mile long 115 kV power line between PG&E's Eastshore and Dumbarton substations. Due to the properties of the new conductor to be installed, a number of modifications will need to be made to the line. This report of the pedestrian survey covers the 17 locations that will be subjected to ground disturbing activities during construction.

Location: The project area is located within Section 31 of T3S, R2W and Sections 5, 6, 8, 9, 16, 21, 26, 27, and 28 of T4S, R2W, Mount Diablo Baseline and Meridian, on the Hayward (1993) and Newark (1959, photorevised 1980), California 7.5-minute USGS quadrangles.

Acreage and Jurisdiction: Approximately 34.5 acres of private land were surveyed at 17 locations along an approximate 6.7 mile long power line alignment.

Personnel and Dates of Fieldwork: Everett Bassett conducted the cultural resources surveys on May 23 and 24, 2009. Two person-days of effort were spent on the fieldwork.

Identified Sites: none

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INTRODUCTION

The proposed Eastshore-Dumbarton 115 kV Reconductoring Project involves reconductoring an existing 115kV power line between Pacific Gas & Electric Company's (PG&E) Eastshore and Dumbarton substations. Reconductoring of the power line will increase the carrying capacity of the line, which is needed as a result of the construction and operation of the new Russell City Energy Center.

Project Description

The existing Eastshore-Dumbarton 115kV Power Line encompasses approximately 6.7 miles of double-circuit 115kV overhead power line. The line is supported by 39 lattice towers and seven tubular steel poles. The power line leaves the Eastshore Substation and traverses salt ponds, agricultural land, and open fields for six miles before turning east into Dumbarton Substation. Due to the properties of the new conductor to be installed, a number of modifications will need to be made to the line.

Four basic construction activities are involved in the reconductoring project: 1) replacing two existing tubular steel poles near the Dumbarton Substation and installing a new interset tubular steel pole near the Eastshore Substation; 2) extending 13 lattice structures using cage top extensions; 3) reinforcing five lattice structures; and 4) reconductoring the existing power line.

The majority of the project will be constructed from the air using helicopters to transport crews and materials. Ground disturbing activities will be limited to three staging areas, seven pull/tension sites, three pole sites, access roads, and several temporary guard structure sites. The staging areas and pull/tension sites have been strategically placed within previously disturbed areas in order to minimize impacts. The location and extent of each of the 17 ground disturbing activities are depicted on the attached Project Description Aerials (Appendix A).

Project Location

The proposed project is located on private lands in San Francisco's East Bay region, within the cities of Hayward, Union City, and Fremont, Alameda County, California (Figure 1). The project would originate at the existing Eastshore Substation in Hayward and terminate at the existing Dumbarton Substation in Fremont. Along the way it travels through the Eden Landing Ecological Reserve, passes just west of the Union City Wastewater Treatment Plant, and continues south along the eastern edge of the Coyote Hills Regional Park. The power line crosses portions of federal, state, and private lands; the 17 survey parcels are all located on private land.

The project area is located within Section 31 of Township 3 South, Range 2 West and Sections 5, 6, 8, 9, 16, 21, 26, 27, and 28 of Township 4 South, Range 2 West, Mount Diablo Baseline and Meridian, on the Hayward (1993) and Newark (1959, photorevised 1980), California 7.5-minute USGS quadrangles.

Scope of Survey

This pedestrian survey covers the 17 locations that will be subjected to ground disturbing activities; approximately 34.5 acres were surveyed along the 6.7 mile long power line. Everett Bassett of Transcon Environmental conducted the survey on May 23 and 24, 2009. This cultural resource survey and resulting report were completed to assist the California Public Utilities Commission (CPUC) in their review of the application. In addition, PG&E has applied to the U.S. Army Corps of Engineers for Nationwide 3 Permit, providing a federal nexus for the project.

To help define areas of concern for the project, areas of potential effect (APE) have been delineated. The APE is defined here as the area where actual ground disturbing activities are anticipated or likely to occur

or areas adjacent to the project area that will be affected. For this project the APE was divided into 17 separate survey parcels as defined by PG&E engineers and archaeologists after field visits and careful consideration of construction activities and potential impacts. The vertical extent of the APE for each parcel varies. The vertical APE is limited to surface disturbance only at access roads, pulling/tensioning areas, and laydown areas. The vertical APE ranges between a depth of 10 and 25 feet at temporary guard structures and new tower construction sites, respectively; these are described later in the report. A determination was made by the PG&E archaeologist that background research for the project should cover all areas within one-quarter mile of the entire 6.7 mile long Eastshore-Dumbarton 115kV Power Line, but that intensive pedestrian survey need only be done within the 17 survey parcels.

ENVIRONMENTAL SETTING

The Eastshore-Dumbarton 115kV Reconductoring Project area is located on the east shore of the south San Francisco Bay area. Historically, this area was primarily made up of tidal marshes consisting of alluvial flood plain sediments. However, much of the tidal marsh has been converted for other uses through diking, draining, and filling (Figure 2). Within the project area, the largest conversions of tidal marshes were for use as salt evaporative ponds and flood control, as well as residential, industrial, and commercial development. The Coyote Hills, a remnant Bay island, are located to the west of the southern portion of the project area. The hills rise to a height of 250 feet and are underlain by a heavily weathered Franciscan formation and capped with immature soils (Figure 3).

There are several waterways within the project area, with most being flood control channels and sloughs. The most prominent drainage is Alameda Creek, which is the main drainage of the largest watershed in the South Bay. The waters of Alameda Creek are currently diverted away from old Alameda Creek and into the Alameda County Flood Control Channel (Coyote Hills Sough); old Alameda Creek is now a smaller, leveed tidal slough. Smaller tidal sloughs in the vicinity include Mt. Eden, North, and Patterson creeks. These waterways provided a rich source of estuarine resources during prehistory, including plant foods, mollusks, fish, and ducks.

The project traverses a variety of habitats (Sawyer and Keeler-Wolf 1968, Mayer and Laudenslayer 1988), but salt marsh dominates the project area. The most common species in this community is Virginia pickleweed (*Salicornia virginica*) with saltgrass (*Distichlis spicata*) found along the tidal marsh-upland ecotone. Other dominant species include Pacific cordgrass (*Spartina foliosa*), marsh gumplant (*Grindelia stricta*), jaumea (*Jaumea carnosa*), and salt marsh dodder (*Cuscuta salina* var. *Major*). Brackish marshes are also present, dominated by hardstem bulrush (*Scirpus acutus* var. *Occidentalis*) and robust bulrush (*Scirpus robustus*) as well as perennial peppergrass (*Lepidium latifolium*). Freshwater marshes and vernal pools are also present within the project area. These are dominated by cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), and sedges (*Carex* spp.) (H.T. Harvey & Associates 2005).

Riparian woodlands occur along the streams, creeks, and channels that cross the project area. Tree species found in riparian woodlands include willow (*Salix* spp.), cottonwood (*Populus trichocarpa*), and western sycamore (*Platanus racemosa*). Prior to drainage activities, the southern portion of the project area was a large willow thicket. Valley grasslands were once scattered throughout the project area in upland areas. However, all grassland areas have been disturbed and are now dominated by non-native species, including ripgut brome (*Bromus diandrus*), wild oat (*Avena fatua*), and black mustard (*Brassica nigra*) (H.T. Harvey & Associates 2005). Other portions of the project area are now covered by salt ponds, cultivated fields, and urban development.

CULTURAL SETTING

Professional investigations of the project area were initiated in the 1900s and, since that time, the cultural history of the project area has been reviewed by a number of archaeologists. Studies have included some shell mound excavations and, since the 1970s, cultural resource management surveys.

Prehistory

Some evidence exists that the earliest occupation of California occurred during the late Pleistocene and early Holocene, including a fluted projectile point found near Nipomo (Mills et al. 2005). Paleoindian use was probably episodic with occupations centered on the Great Basin's pluvial lakes or the San Joaquin Valley, both well to the east of the study area. Occupation of the project area probably followed the rapid rise in sea level that occurred between 12,000 and 10,000 B.C. This was followed by the sedimentation of the bay margins, resulting in tidal flats and marshes by 8000 B.C. (Bickel 1978). Early Holocene (7000–5000 B.C.) sites in the region attest to fishing, intensive shellfish collecting, hunting, and plant collecting by nomadic or semisedentary groups. Intensive exploitation of marine resources may have contributed to the extinction of the flightless sea duck (*Chendytes lawi*) (Jones et al. 2008).

After about 6500 B.C. there was an apparently rapid diffusion of Millingstone traits from the east with a shift in emphasis to hard seed processing. It is possible this trend was triggered by the onset of the Altithermal and resulting biotic changes. However, this later trend continued to incorporate a broad-spectrum diet, including hunting, fishing, and exploitation of coastal resources. The origins of several later regional cultures can be seen in these early manifestations (Fredrickson 1974; Erlandson 1997).

After circa 3000 B.C. these coastal cultures began to become more diverse with economic specialization becoming increasingly visible. This interval is typically divided into three subperiods (Lower, Middle, and Upper Archaic) based on changes in sociopolitical complexity, trade networks, population, and the introduction of new artifact types.

During the Emergent or Late Period (ca. A.D. 1000 to the historic period), there was an increase in social complexity leading to a settlement pattern that included large, central villages along with smaller hamlets and specialized activity sites. New technology included the bow and arrow, small corner notched points, and a variety of beads, charms, and ornaments. Occupation sites became more common and varied throughout the North Coast ranges. Most of the larger shell mound sites near the project area appear to date to the Middle Archaic and several were occupied into the early Emergent Period.

A large number of villages and associated shell mounds were established that remained visible well into the historic period. These mounds are characterized by black, friable, ashy soil with a high density of shell, especially oyster (*Ostrea lurida*). In 1878, 40 prehistoric 'mound' sites were reported in Washington Township alone with 14 or 16 still reported in 1899 (Basin Research 2003). Between 1906 and 1908 Nelson (1909) recorded 425 shell mounds around the periphery of San Francisco Bay. A number of these shell mounds have been associated with the "Willow Marsh" (later referred to as the 'Patterson Marsh') at the south end of the project area. Over 900 burials have been recovered from just three of these mound sites with a large number exhibiting traumatic pathologies (Garaventa et al. 1991; Kubal 2008). In general, most shell mound sites were established near the ecotone between the salt marsh and alluvial plain ecozones.

Ethnohistory

The project area is located within the ethnographic and early historic territory of Native American groups referred to as the *Costanoan* (coast people) by the Spanish, but whose descendants refer to as *Ohlone*. At least eight separate Penutian languages were used by these groups. Within the project area *Chochenyo*

was probably spoken; the language dominated the East Bay in the region between present-day Richmond and Mission San Jose, and as far east as Livermore Valley (Kroeber 1925; Levy 1978; Bean 1994; Milliken 1995).

The basic political unit of the Ohlone and most native California groups was the 'tribelet,' a politically autonomous group of approximately 200 individuals using one or more permanent village surrounded by a number of temporary camps. These tribelets were generally organized by totemic moieties or lineage association (Levy 1978). There appears to be some confusion as to which tribelet occupied the project area. Kroeber (1925) and Levy (1978) state that the nearest tribelet was the *Oroysom*, whose settlement was located close to Mission San Jose. However, Milliken (1995) relies on mission registers to suggest that either the *Alson* or *Tuibun*, both associated with the Alameda Creek marshlands, may have been resident. The northern portion of the project area may have been utilized by the Yrgin group of the Ohlone who occupied the area of Hayward and Castro valleys and the San Lorenzo Creek watershed (Milliken 1995). In 1776 the Anza-Font expedition noted six Ohlone villages between Irvington and San Lorenzo, including an abandoned village near Alvarado.

The Ohlone followed a seasonal round of subsistence activities, congregating around stored resources in the difficult winter and early spring and dispersing by family group across their territory during the remainder of the seasons. The most important food resource was acorns, especially those from the tanbark oak, valley oak, and California black oak. Other important food sources included the seeds of gray pine, dock, and tarweed, as well as gooseberries, madrone, wild grapes, onion, cattail, and wild carrot (Kroeber 1925, Levy 1978).

Animal food resources were mostly dominated by Bay species. The primary shellfish were mussels, abalone, clams, oysters, and scallops. Utilization of these species caused the development of the numerous shell mounds found around the Bay. Migratory waterfowl, such as geese, ducks, and coots were captured with nets and salmon, sturgeon, and lampreys were caught from tule balsas. Terrestrial species included deer, tule elk, pronghorn, rabbits, quail, and grasshoppers; wild honey was also collected (Kroeber 1925, Levy 1978).

There appears to have been a drastic decrease in Native populations between the 1770s and early 1800s. The Ohlone aboriginal lifeway apparently disappeared by about 1810 due to introduced diseases, a declining birth rate, and the impact of the mission system (Milliken 1995).

History

The history of the project area has been previously summarized by Wood (1883); Merrit (1928); Basin Research Associates (2003); and Swenson (2008).

It is generally accepted that in 1542 Juan Rodriguez Cabrillo became the first European to visit Alta California. However, the Spanish government generally had little regard for California, except as a possible port of call for its Manila galleons. It was not until 1769 that the 'sacred expedition' entered Alta California, establishing a mission at San Diego. Over the next 53 years, 21 missions were established in California, including Mission Dolores in 1776, Mission Santa Clara in 1777, and Mission San Jose in 1797. In 1776 the Anza-Font expedition traveled across the project area and recorded Native Americans in the vicinity of Alameda Creek (*Arroyo de la Alameda* -- 'avenue lined with trees').

Mission San Jose, located six miles southeast of the project, had the most influence over the region. Between 1802 and 1822 Mission San Jose baptized 4,573 Indians and conducted 1,378 marriages; during this period 2,933 Indians died at the Mission. The *reducción* missions were the institution used by the Spanish to establish control over Indian territories and peoples. Local groups were gathered together in a single location under the absolute control of the Franciscans and soldiers. Secondary goals were

economic support for military establishments, assimilation into Hispanic society, and conversion to Spanish Catholicism. The effect the mission system had on native cultures was both rapid and devastating (Castillo 1978).

After 1823, California became part of the new Mexican Republic and the economic focus shifted from the missions to the ranchos of wealthy Mexicans. Portions of the project area were within the Rancho Arroyo de la Alameda (north of Alameda Creek), granted to Jose de Jesus Vallejo in 1842. Rancho San Lorenzo, granted to Guillermo Castro in 1841, was located near to the project's north end. The area south of Alameda Creek, including the Coyote Hills, was included in Rancho Potrero de Los Cerritos, granted to Augustin Alviso and Thomas Pacheco in 1844. An economy based on the export of hides and tallow from cattle herds generated huge amounts of money for these landowners. A hacienda-peon society was transplanted from Mexico and the plight of the remaining natives continued to worsen (Castillo 1978). Many of the remaining Indians lived near the old Mission and at a village site on San Lorenzo Creek. A small Hispanic settlement was located at the Vallejo Mills (present day Niles).

In 1846 John C. Fremont took possession of much of the region for the United States. The lifestyle of most Mexican Californios prevailed until the 1860s when severe drought destroyed their cattle herds. Anglos bought much of the land, often with wealth gleaned from the goldfields to the east. The new owners transformed the land into beef and dairy cattle production. Union City and Alvarado were established in the early 1850s as landings to provide produce to larger Bay communities. In 1856 George Patterson purchased a portion of the Rancho Potrero de Los Cerritos. The Patterson family would eventually accumulate 1,237 acres around their house, 'Ardenwood.' Around the community of Alvarado the major industries were beet sugar, iron castings, and salt. The salt industry there began in 1862, although Native Americans had collected and traded salt from this area for centuries. Salt was used extensively in the extraction of silver by mining companies working the Comstock Lode and this stimulated production. Higher elevation areas to the east of the salt marshes were used for the cultivation of grapes, cereals, and grains.

Transportation improved with the construction of the Southern Pacific Coast Narrow Gauge in 1878, the first railway system in the area. Newark, at the south end of the project area, was established as a rail town that same year.

RECORDS REVIEW

A review was undertaken to determine the extent of prior survey in and near the study area and to identify previously recorded cultural resources located within one-quarter mile of the power line. Records were reviewed on April 27, 2009 at the Northwest Information Center, and through historic General Land Office maps and plats at the Bureau of Land Management. Letters were sent to the Native American Heritage Commission and eight regional tribal communities to determine if properties of concern to Native Americans are present within the project area. These letters and a telephone log of contacts are included as Appendix B.

Prior Cultural Resource Studies

The review of established site files documented 23 cultural resource studies that had been conducted within one-quarter mile of the power line (Table 1). The largest of these surveys were in support of converting historic salt ponds into engineered wetlands and, at the southern end of the project area, the development of subdivisions and industrial parks. Nine of the surveys partially or completely overlap with one of the 17 current project survey locations (Table 1). Since a number of these surveys were old, and because the survey methodology was often coarse-grained, no portion of the project area was

excluded from survey due to prior survey efforts. Maps depicting the locations of previous surveys are included in Appendix C.

Previously Recorded Cultural Resources

As a result of the prior cultural study efforts, 18 previously recorded archaeological or historical sites were identified within one-quarter mile of the power line (Table 2). Of these, ten have prehistoric or Native American affiliations and include areas of buried shell midden with associated groundstone, tools, or lithic debitage. Three of these are large, significant shell mounds with deeply buried midden deposits and extensive human burial complexes (CA-ALA-13/340, CA-ALA-328, and CA-ALA-329). The eight remaining previously recorded sites have historic affiliations. Two of the sites consist of salt ponds and other aspects of the salt processing industry and four are secondary trash scatters. Also present are the hull of a sunken barge and an electrical power line. The Eastshore-Dumbarton 115kV Power Line was constructed in 1969 (Mike Gunby pers. comm. 2009), is less than 45 years old, and does not qualify as a cultural resource. Maps depicting the locations of previously recorded sites are included in Appendix C.

Four of the previously recorded sites had been mapped overlapping with or within 200 feet of a current project survey location. These are as follows:

Site P-01-000168

P-01-000168 (CA-ALA-446) is an area of buried shell midden that was discovered during construction of an irrigation canal in 1984; no surface artifacts were visible at that time. The midden was 50 centimeters thick, near to the ground surface, and covered an area of at least 17 meters by 33 meters. This was thought by the archaeologists to be either the base of a then-leveled shell mound or a, small, shallow habitation site. At least half of the site area has now been destroyed. As previously mapped, the site overlaps with or lies immediately south of survey parcels #3 and 4 on the west side of Ardenwood Boulevard.

Site P-01-000236

P-01-000236 (CA-ALA-465) is a 90 meter by 190 meter scatter of cultural materials that was discovered after the removal of four to six inches of surface material and included shell, vitrified clay, fire cracked rock, faunal material, chert debitage, and groundstone. A program of auger testing in 1985 revealed a midden depth of between 15 and 20 centimeters. The site had been mapped adjacent to and southwest of survey parcel #5.

Site P-01-002269

P-01-002269 is a PG&E 115kV power line that runs between the Grant and Eastshore substations. The steel lattice towers were erected in 1922 and have been recommended as not eligible for listing on the National Register of Historic Places (NRHP) (DeBaker and Siskin 2008). The power line had been mapped adjacent to survey parcels #16 and #17 at the extreme north end of the project area.

Site P-01-010834

P-01-010834 is a large area containing portions of the Union City Alvarado salt ponds that date from between 1862 and 2003. Components include crystallizing ponds, concentration ponds, levees, board retaining walls, and water control gates. The current configuration of the ponds is believed to date to between 1924 and 1931, but is now badly eroded. The site had been mapped adjacent to survey parcel #14, a pull/tension site.

SURVEY METHODS

Survey Expectations

The project is located in an area that has seen both prehistoric use and historic development. Prehistoric sites are expected to be more common on slight elevations close to tidal sloughs and other areas of open water. However, less intense usage, including lithic reduction activity areas, hunting blinds, trails, and resource use areas could occur almost anywhere. Much of the survey area is characterized by formerly submerged tidal marshes where prehistoric activity would be difficult to recognize. Many areas of higher elevation have been disturbed by historic development. This development, along with soil infilling, may have caused areas of prehistoric activity to be buried.

Historic sites, if present, would be more likely than prehistoric sites to be recognized in the environment of the project area. This is partially a function of the greater visibility of historic sites. Such sites are often adjacent to roads and are often characterized by standing or partially standing structures, landscape elements, equipment, or large artifacts, such as cans. It is expected that most historic sites present will be associated with transportation, ranching, salt production, or public utilities.

Field Survey Methods

A one-person field crew (Everett Bassett) conducted the survey on May 23 and 24, 2009. The inventory was carried out by walking parallel, five-meter transects across each of the 17 survey parcels.

An attempt was made to locate each of the four previously recorded sites that had been mapped on or adjacent to a survey parcel to determine the exact relationship between the site and the parcel. Field notes and photographs were taken and a Garmin submeter global positioning system (GPS) was used for mapping cultural resources.

SURVEY RESULTS

A 100 percent pedestrian survey was carried out for each of the 17 parcels. The surface extent (APE) of each is shown in Appendix A. The vertical APE includes surface disturbance only, except where indicated otherwise. A number was assigned to each parcel, which are described below.

Parcel #1

Survey parcel #1 is an access road location lined with mature eucalyptus and pepper trees and adjacent to the Dumbarton Substation. The parcel had been partially disked for weed control and surface visibility was excellent. No previously recorded sites are in the vicinity and no cultural resources were identified during the survey.

Parcel #2

Survey parcel #2 is a pull/tension area adjacent to the Dumbarton Substation. The area had been built up with historic fill materials as indicated by the presence of pea gravel, broken brick, asphalt, and concrete fragments. Water mains and valves are present, but these are less than 45 years old. No previously recorded sites are in the vicinity and no cultural resources were identified during the survey.

Parcel #3

Survey parcel #3 is the location of two temporary guard structures adjacent to Ardenwood Road. This area has been extensively landscaped and there was no original ground surface visibility. The proposed guard structure on the west side of the road is immediately northeast of the mapped boundary of site P-01-000168 (CA-ALA-446), an area with a depth of approximately 50 cm of buried prehistoric midden. No evidence of cultural materials was identified here during the survey or in the main area of the site to the southwest, which is now extensively landscaped. If the buried area of midden extends into the area of the temporary guard structure, which has a vertical APE of ten feet, limited impact to the site could result from the excavation for the pole. Preconstruction testing or monitoring of this location would be appropriate.

Parcel #4

Survey parcel #4 is the location of a tower replacement adjacent to Ardenwood Road. This location has been built up and the ground recontoured. A small playground and an asphalt trail are present as well as mature willows, cottonwoods, live oaks, and privet. Because of infilling, the natural ground surface is no longer visible. The proposed new tower and temporary shoo-fly structures at this location are immediately north of the mapped boundary of site P-01-000168 (CA-ALA-446), an area with a depth of approximately 50 cm of buried prehistoric midden. No evidence of cultural materials was identified here during the survey or on the area to the south, which has been extensively landscaped and paved. If the buried area of midden extends into this area, extensive impacts to the site could result from the augered holes for the temporary shoo-fly structures, which have a vertical APE of ten feet and the excavated pit for the permanent tubular steel pole, which has a vertical APE of 25 feet. Preconstruction testing or monitoring of this location would be appropriate.

Parcel #5

Survey parcel #5 is the location of a tower replacement to the west of Ardenwood Road and is similar to parcel #4 except there are fewer trees. The area has been planted in wild rye. Because of infilling, the natural ground surface is no longer visible. The proposed new tower and temporary shoo-fly structures at this location is immediately northeast of the mapped boundary of site P-01-000236 (CA-ALA-465), a prehistoric site with buried midden. The site's north boundary was mapped ending at the property boundary fence just to the southwest of the survey parcel. Approximately 15-20 cm of midden had been identified beginning at a depth of ten cm. However, the current survey parcel is outside of the Ardenwood Technology Park, which is where the only surface testing was conducted in the past. During the current survey no evidence of cultural materials was identified within the survey parcel or on the previously tested area to the southwest, which is now extensively landscaped and paved. If buried elements of the site do extend into the proposed APE, extensive impacts to the site could result from the excavation of the augered holes for the temporary shoo-fly structures, which have a vertical APE of ten feet and the excavated pit for the permanent tubular steel pole, which has a vertical APE of 25 feet. Preconstruction testing or monitoring of this location would be appropriate.

Parcel #6

Survey parcel #6 is the location of two temporary guard structures at Paseo Padre Parkway. The east side of the road has been extensively landscaped and the west side is hard-packed dirt and gravel. The structures have a vertical APE of ten feet. No previously recorded sites are in the vicinity and no cultural resources were identified during the survey.

Parcel #7

Survey parcel #7 is an access road location between a weedy irrigation ditch and a cultivated field. Surface visibility was good, but no previously recorded sites are in the vicinity and no cultural resources were identified during the survey.

Parcel #8

Survey parcel #8 is a large pull/tension and staging area. This is within a recently cultivated field and fragments of concrete drain tile are present. Surface visibility was excellent, but no previously recorded sites are in the vicinity and no cultural resources were identified during the survey.

Parcel #9

Survey parcel #9 is a pull/tension area adjacent to and similar to parcel #8. Surface visibility was excellent, but no previously recorded sites are in the vicinity and no cultural resources were identified during the survey.

Parcel #10

Survey parcel #10 is the location of two temporary guard structures adjacent to Patterson Ranch Road. The structures have a vertical APE of ten feet. Cultivated fields are located on both sides, but the area has been disturbed by road crown and ditching. No previously recorded sites are in the vicinity and no cultural resources were identified during the survey.

Parcel #11

Survey parcel #11 is the location of a graveled access road. Adjacent portions are either cultivated fields or walled subdivisions. No previously recorded sites are in the vicinity and no cultural resources were identified during the survey.

Parcel #12

Survey parcel #12 is the location of a temporary guard structure. The structure has a vertical APE of ten feet. It is located within a compacted dirt lot stockpiled with abandoned farm and construction equipment. No previously recorded sites are in the vicinity and no cultural resources were identified during the survey. A small, wooden, possibly historic ditch headgate is located to the north of the survey area.

Parcel #13

Survey parcel #13 is the location of a temporary guard structure at a gravel road heavily overgrown with wild mustard and fennel. The structure has a vertical APE of ten feet. No previously recorded sites are in the vicinity and no cultural resources were identified during the survey.

Parcel #14

Survey parcel #14 is a pull/tension area located entirely on asphalt pavement within the Union City Wastewater Treatment Plant. Site P-01-010834, the area of the Union City Alvarado salt ponds, had been mapped adjacent and to the west of the survey parcel. The site was determined to be well away from the survey parcel and separated by a drainage ditch.

Parcel #15

Survey parcel #15 is a large staging area located in a vacant lot adjacent to the Union City Wastewater Treatment Plant. The fenced lot had been recently graded and numerous piles of dirt, debris, and abandoned equipment are present. No previously recorded sites are in the vicinity and no cultural resources were identified during the survey.

Parcel #16

Survey parcel #16 is a large staging and pull/tension area, the site of a new interset tubular steel pole, as well as the location of two temporary guard towers. The parcel is located on PG&E property adjacent to PG&E's Eastshore Substation. The temporary guard structures have a vertical APE of ten feet and the new pole has a vertical APE of 25 feet. This large, fenced lot appears to have been graded in the past and is now covered with grasses and shrubs; numerous mature eucalyptus and willow trees are located on the west side of the parcel. Large swatches of the ground surface had recently been disked or chemically treated for weed control. At other locations, piles of soil, gravel, and concrete and twisted rebar have been dumped. Also present are remnants of a now-removed portion of the substation, including wooden utility pole stubs, concrete slabs, and hardened connector vaults. The pole stubs have 1984 mill marks and the other features appear to be of a similar age. Surface visibility ranged between excellent and poor and no cultural resources were identified during the survey. Site P-01-002269, the PG&E Grant to Eastshore 115kV Power Line, had been mapped adjacent and to the north. During this survey the power line was determined to be outside of the parcel.

Parcel #17

Survey parcel #17 is an access road location that had been graded in the past and is now lined with mature eucalyptus trees and other plantings. Surface visibility was poor and no cultural resources were identified during the survey. Site P-01-002269, the PG&E Grant to Eastshore 115kV Power Line, had been mapped adjacent and to the east. During this survey the power line was determined to be outside of the parcel.

SUMMARY

The proposed Eastshore-Dumbarton 115kV Reconductoring Project involves reconductoring an existing 6.7 mile long 115 kV power line between PG&E's Eastshore and Dumbarton substations. Due to the properties of the new conductor to be installed, a number of modifications will need to be made to the line and, as a result, 17 locations will be subjected to potential ground disturbing activities. Vertical disturbance varies from 10 to 25 feet.

Approximately 34.5 acres at the 17 survey parcels were surveyed. No cultural resources were identified. However, three of the survey parcels are at locations where buried cultural resources have a potential for being present. Portions of P-01-000168 (CA-ALA-446) at survey parcels #3 and #4 and P-01-000236 (CA-ALA-465) at parcel #5, if present, could be impacted by the excavation of auger holes and pits proposed at those locations. Preconstruction testing or monitoring at these locations would be appropriate.

Should previously undiscovered cultural materials or human remains be identified during the reconductoring project, construction at that location should cease and a PG&E archaeologist notified immediately.

REFERENCES CITED

Ambro, Richard

- 1992 *A Report on Archaeological Hand Auger Testing at a Suspected Shell Midden Deposit in the Ardenbrook Project Area, Patterson Road, Fremont, Alameda County, California.* Report 014670 on file at the Northwest Information Center, Sonoma State University.

Banks, Peter

- 1983 *Subsurface Archaeological Investigations at CA-ALA-13, Line K, Alameda County, California.* Report 006085 on file at the Northwest Information Center, Sonoma State University.

Banks, Peter, and David Fredrickson

- 1977 *An Archaeological Investigation of Project 3, Zone 5 and 6 of the Alameda County Flood Control and Water Conservation District.* Report 000814 on file at the Northwest Information Center, Sonoma State University.

Bard, James, and Patricia Ogrey

- 1982 *A Cultural Resources Assessment of Five Salinity Barrier Well Sites, Alameda County, California.* Report 002916 on file at the Northwest Information Center, Sonoma State University.

Basin Research Associates

- 2003 *Historic Properties Survey Report/Finding of Effect for the Maintenance Dredging Zone No. 5, Line K (Crandall Creek), Coyote Hills Regional Park, Fremont, Alameda County, California.* Report 028945 on file at the Northwest Information Center, Sonoma State University.

Baxter, Scott

- 1996 *Archaeological Survey and Historic Resource Evaluation Report for the Baumberg Biological Investigation Tract, Alameda, California.* Report 031419 on file at the Northwest Information Center, Sonoma State University.

Bean, Lowell

- 1994 *The Ohlone Past and Present: Native Americans of the San Francisco Bay Region.* Balena Press Anthropological Papers No.42., Novato, Oklahoma

Bickel, Polly

- 1978 *Changing Sea Levels Along the California Coast: Anthropological Implications.* In *The Journal of California Anthropology* 5(1):6-20.

Breece, William

- 1981 *An Archaeological Survey of Ardenwood Estates, Fremont, California.* Report 002666 on file at the Northwest Information Center, Sonoma State University.

California Department of Transportation (Caltrans)

- 1996 *Archaeological Survey and Historical Resource Evaluation Report for the Baumberg Biological Mitigation Tract, Alameda County, California.* Report 018903 on file at the Northwest Information Center, Sonoma State University.
- 2001 *A Historic Property Survey Report and Finding of No Adverse Effect for the Eden Landing (Baumberg) Ecological Mitigation Tract.* Report 031708 on file at the Northwest Information Center, Sonoma State University.

- Castillo, Edward
 1978 The Impact of Euro-American Exploration and Settlement. In *Handbook of North American Indians*, William C. Sturtevant, ed. Volume 8: California. Smithsonian Institution: Washington.
- Chaney, David
 1992 *Archaeological Resource Investigations for the Union Sanitary District Monitor Plan EIR, Alameda County, California*. Report 0014619 on file at the Northwest Information Center, Sonoma State University.
- Clark, Matthew, Randy Wiberg, and Miley Holman
 1984 *Archaeological Investigations and Construction Monitoring in Coyote Hills Regional Park, Alameda County, California*. Report 006558 on file at the Northwest Information Center, Sonoma State University.
- Coberly, Mary
 1973 The Archaeology of the Ryan Mound, Site CA-ALA-329, A Central California Coastal Village Site. In *Occasional Publications in Anthropology*. Series #4. Report 011031 on file at the Northwest Information Center, Sonoma State University.
- DeBaker, Cassidy, and Barb Siskind
 2008 *Cultural Resources Survey and Historic Properties Inventory for the Russell City Energy Project, Alameda County, California*. Report 034825 on file at the Northwest Information Center, Sonoma State University.
- Erlandson, Jon
 1997 The Middle Holocene on the Western Santa Barbara Coast. In *The Archaeology of the California Coast during the Middle Holocene*, edited by J. M. Erlandson and M. A. Glassow. Perspectives in California Archaeology 4:91-109. UCLA Institute of Archaeology.
- Fredrickson, D.A.
 1974 Cultural Diversity in Early Central California: A View from the North Coast Ranges. In *The Journal of California Anthropology*. 1(1):41-54.
- Garaventa, Donna, Michael Fong, Stuart Guedon, Sondra Jarvis, David Brittin, and Steven Rossa
 1991 *Cultural Resources Assessment for a General Plan Amendment of the Ardenwood Forest Completion, Fremont, Alameda County, California*. Report 013191 on file at the Northwest Information Center, Sonoma State University.
- H.T. Harvey and Associates
 2005 *Marsh Plant Associations of South San Francisco Bay: 2004*. Comparative Study. Project No. 477-27. San Jose, California: Prepared for City of San Jose.
- Holman, Miley
 1999 *Report of Finding for an Archaeological Field Inspection of the 80-Acre Weber Tract, Hayward, Alameda County, California*. Report 021693 on file at the Northwest Information Center, Sonoma State University.
- Jackson, Thomas
 1973 *An Archaeological Impact Evaluation of the Proposed East Bay Dischargers Water Quality Management Pipeline*. Report 012967 on file at the Northwest Information Center, Sonoma State University.

- Jones, T., J. Porcasi, J. Erlandson, H. Dallas, T. Wake, and R. Schwadereret
 2008 The Protracted Holocene Extinction of California's Flightless Sea Duck (*Chendytes lawi*) and its Implications for the Pleistocene Overkill Hypothesis. In *Proceedings of the National Academy of Science* 105(11): 4105-4108.
- Kubal, Kathleen
 2008 *A Cultural Resources Survey of CA-ALA-329, the Ryan Mound, Coyote Hills Regional Park, Fremont, Alameda County, California*. Report 034787 on file at the Northwest Information Center, Sonoma State University.
- Kroeber, Alfred
 1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington D.C. Reprinted 1976 by Dover, New York.
- Levy, R.
 1978 Costanoan. In R.F. Heizer, *Handbook of North American Indians Volume 8: California*. Smithsonian, Washington D.C.
- LSA Associates
 2002 *Cultural and Paleontological Records and Locality Searches for the Zone 5, Line P Vegetation Management and Flow Way Enhancement Project, Coyote Hills Regional Park, Fremont, Alameda County, California*. Report 025233 on file at the Northwest Information Center, Sonoma State University.
- Merrit, Frank Clinton
 1928 *History of Alameda County, California*. S.J. Clarke Publishing Co.
- Meyer, Michael
 1986 *A Cultural Resources Assessment of Village 1, Neighborhood 3, Ardenwood Forest – New Town, City of Fremont, County of Alameda, California*. Report 008128 on file at the Northwest Information Center, Sonoma State University.
- Milliken, R.
 1995 *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810*. Ballena Press Anthropological Papers No. 43, Menlo Park, California.
- Mills, W., M. Rondeau, and T. Jones
 2005 A Fluted Projectile Point from Nipomo, San Luis Obispo County, California. In *Journal of California and Great Basin Anthropology* 25:68-74.
- Mayer, K., and W. Laudenslayer (eds.)
 1988 *Guide to Wildlife Habitats of California*. California Department of Forestry and Fire Protection, Sacramento.
- Nelson, Nels
 1909 *Shellmounds of the San Francisco Bay Region*. University of California Publications in American Archaeology and Ethnology 7(4):309-356. University of California, Berkeley
- Rackerby, Frank
 1967 *The Archaeological Salvage of Two San Francisco Bay Shell Mounds (CA-ALA-12 and 13)*. Report 009131 on file at the Northwest Information Center, Sonoma State University

- Reese, Elena
2005 *Archaeological Survey of the Proposed Union City/Dyer Cell Site, Alameda County, California*. Report 030882 on file at the Northwest Information Center, Sonoma State University.
- Sawyer, J.O., and T. Keeler-Wolf
1968 *A Manual of California Vegetation*. California Native Plant Society. Sacramento.
- Shoup, Laurence
2007 *Historic Resources Evaluation Report for the Union City Bay Trail Project, Alameda County, California*. Report 033816 on file at the Northwest Information Center, Sonoma State University.
- Swenson, Timothy
2008 *Union City (Images of America: California)*. Arcadia Publishing Company.
- Tinsley, Wendy
2006 *National Register of Historic Places Evaluation and Proposed Cell Tower Finding of Effect Statement, Ardenwood Corporate Park*. Report 0031356 on file at the Northwest Information Center, Sonoma State University.
- Wood, M.W.
1883 *History of Alameda County*. Published by M.W Wood.

TABLES

TABLE 1	Prior Cultural Resource Surveys Conducted within One-quarter Mile of the Project Area	16
TABLE 2	Previously Recorded Cultural Resource Sites within One-quarter Mile of the Project Area ..	17

TABLE 1
PRIOR CULTURAL RESOURCE STUDIES CONDUCTED WITHIN ONE-QUARTER MILE OF THE PROJECT AREA

Survey No.	Project	Reference	Parcel Overlap
000814	Project 3, Zones 5 and 6, ACFCWCD	Banks and Fredrickson 1977	
002666	Ardenwood Estates survey	Breece 1981	
002916	Five salinity barrier wells	Bard and Ogrey 1982	
006085	CA-ALA-13 testing program	Banks 1983	
006558	Construction monitoring at Coyote Hills Park	Clark, Wiberg, and Holman 1984	
008128	Ardenwood Forest survey	Meyer 1986	
009131	San Francisco Bay shell mound salvaging	Rackenby 1967	
011031	Ryan Mound area	Coberly 1973	
012967	East Bay discharge	Jackson 1973	
013191	Ardenwood Forest amendment	Garaventa et al. 1991	
014619	Union Sanitary District plan	Chaney 1992	
014670	Shell midden testing program	Ambro 1992	
018903	Baumberg Biological Mitigation Tract	Caltrans 1996	
021693	Weber Tract	Holman 1999	
025233	Zone 5, Line P vegetation management	LSA Associates 2002	
028945	Zone 5, Line K maintenance dredging	Basin Research Associates 2003	
030882	Union City/Dyer cell site	Reese 2005	
031356	Ardenwood Cell Tower	Tinsley 2006	
031419	Baumberg Biological Mitigation Tract	Baxter 1996	
031708	Eden Landing area survey	Caltrans 2001	
033816	Union City Bay Trail	Shoup 2007	
034787	Ryan Mound area	Kubal 2008	
034825	Russell City Energy Project	DeBaker and Siskind 2008	

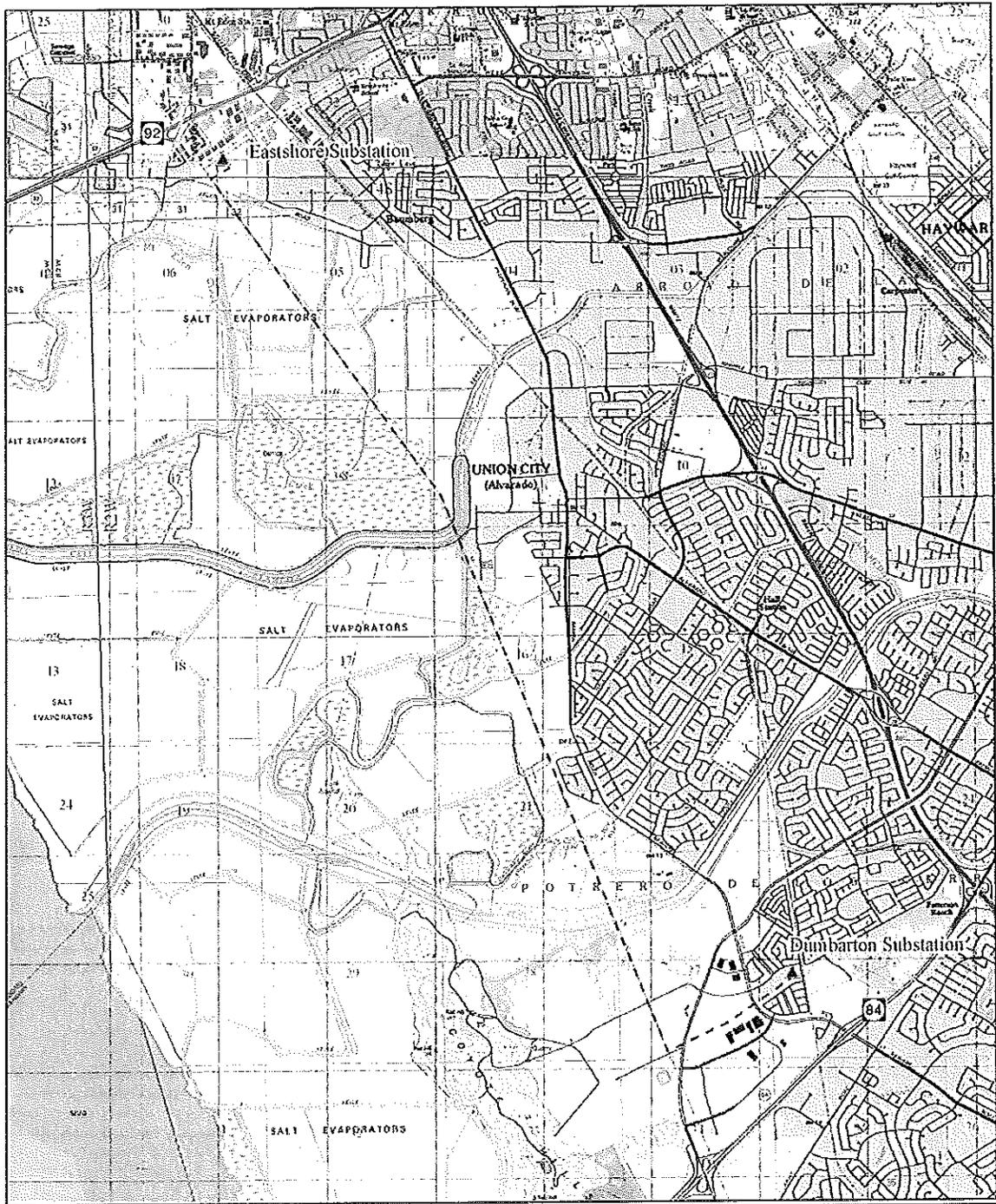
TABLE 2
PREVIOUSLY RECORDED CULTURAL RESOURCE SITES WITHIN ONE-QUARTER MILE OF
THE PROJECT AREA

Site No.	Trinomial No.	Description	Within Survey ¹
P-01-000034	CA-ALA-13/340	large, linear shell mound with burial complex	—
P-01-000104	CA-ALA-328	large shell mound with burial complex	—
P-01-000105	CA-ALA-329	Ryan Mound/large shellmound	—
P-01-000122	CA-ALA-392	small shell mound	—
P-01-000168	CA-ALA-446	buried shell midden	Parcels 3, 4
P-01-000201	CA-ALA-485	shallow area of shell midden with Stockton serrated projectile point	—
P-01-000203	CA-ALA-487H	historic trash scatter	—
P-01-000206	CA-ALA-490H	dispersed historic trash scatter	—
P-01-000207	CA-ALA-491H	historic trash scatter (possible destroyed)	—
P-01-000208	CA-ALA-492H	historic trash scatter	—
P-01-000217	CA-ALA-501H/489H/497H	remnants of Allen's Landing and salt collecting complex	—
P-01-000234	CA-ALA-424	shell midden/artifact scatter	—
P-01-000236	CA-ALA-465	shell midden/artifact scatter	Parcel 5
P-01-000237	CA-ALA-466	shell midden/artifact scatter	—
P-01-001791	CA-ALA-N	sunken barge hull	—
P-01-002058	CA-ALA-340	shell midden (now subsumed under CA-ALA-13)	—
P-01-002269	CA-ALA-N	Northern Mission Transmission System	Parcels 16, 17
P-01-010834	CA-ALA-N	circa. 1862-2003 Union City/Alvarado salt ponds	Parcel 14

¹ refers to site whose boundaries had been previously mapped within 200 feet of the current survey parcel

FIGURES

FIGURE 1 Project Vicinity Map 19
FIGURE 2 Photograph–North end of the project area with reclaimed salt ponds 20
FIGURE 3 Photograph–South end of the project area with Coyote Hills in the background..... 20



Legend

- - - - Alignment
- ▲ Substation

Eastshore-Dumbarton
115kV Reconductoring Project



FIGURE 1

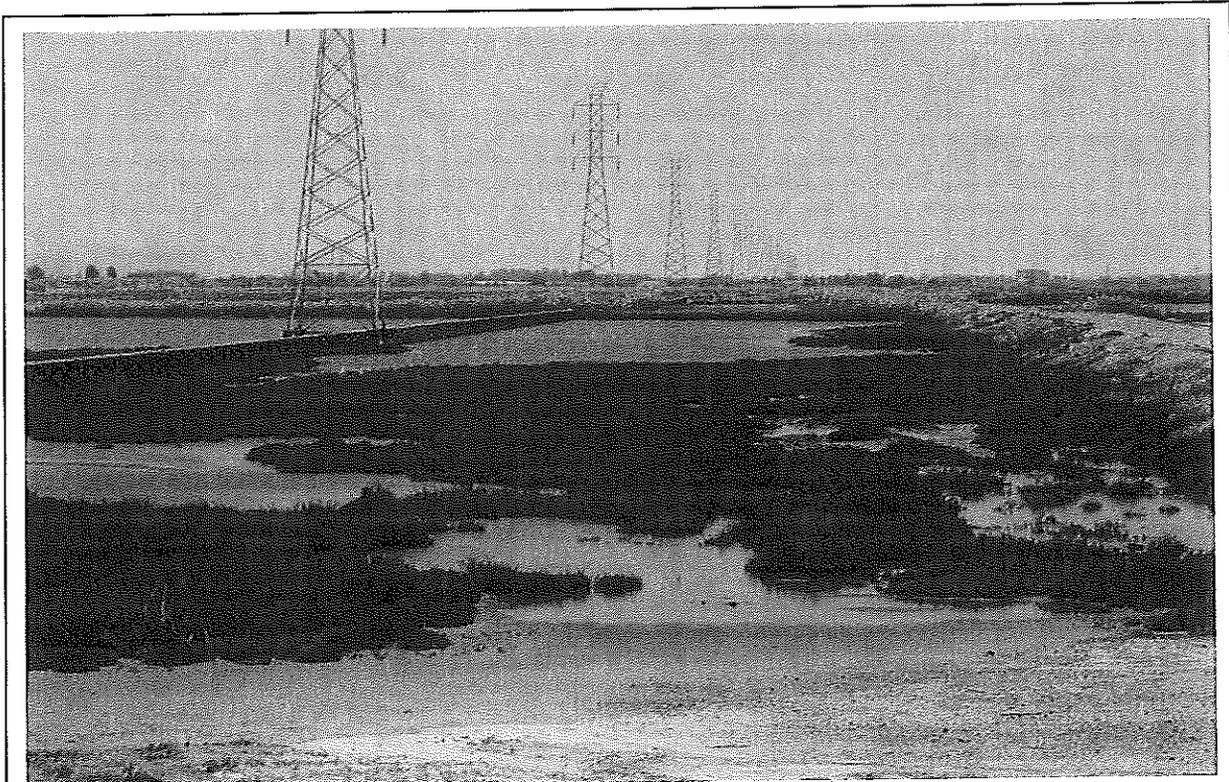


FIGURE 2. North end of the project area with reclaimed salt ponds. View to the south.

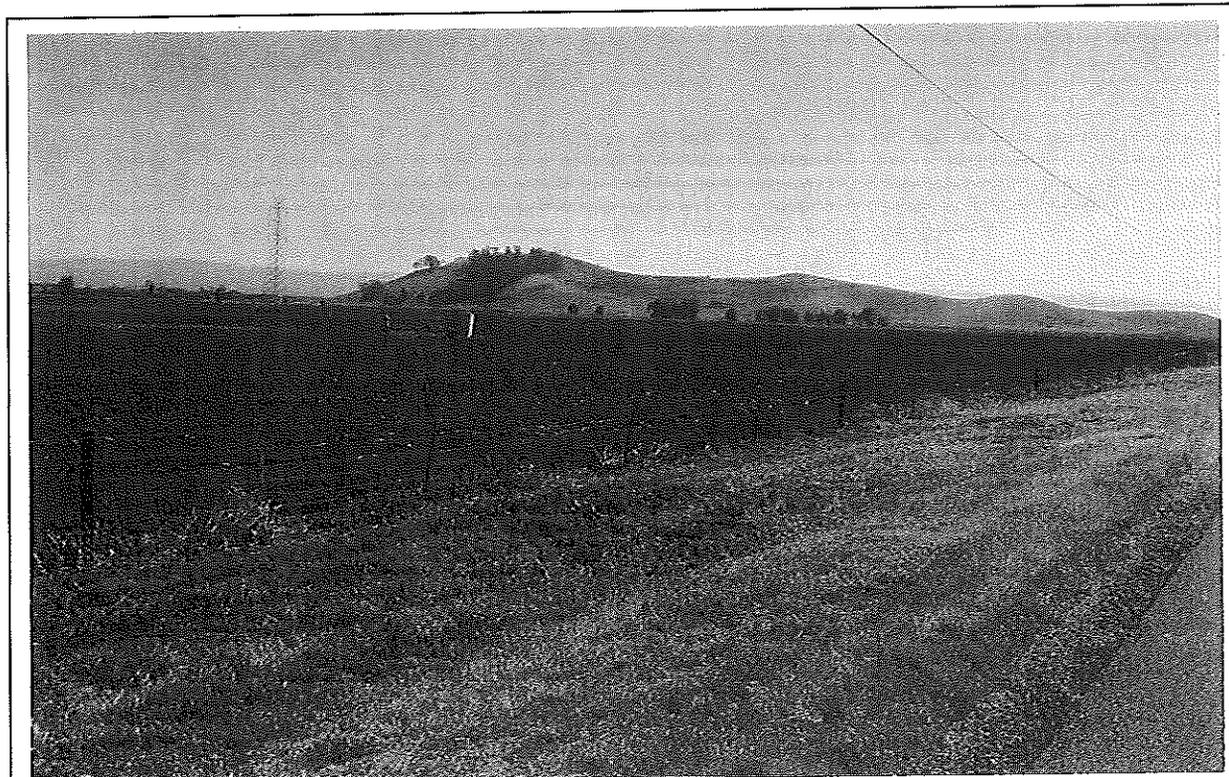


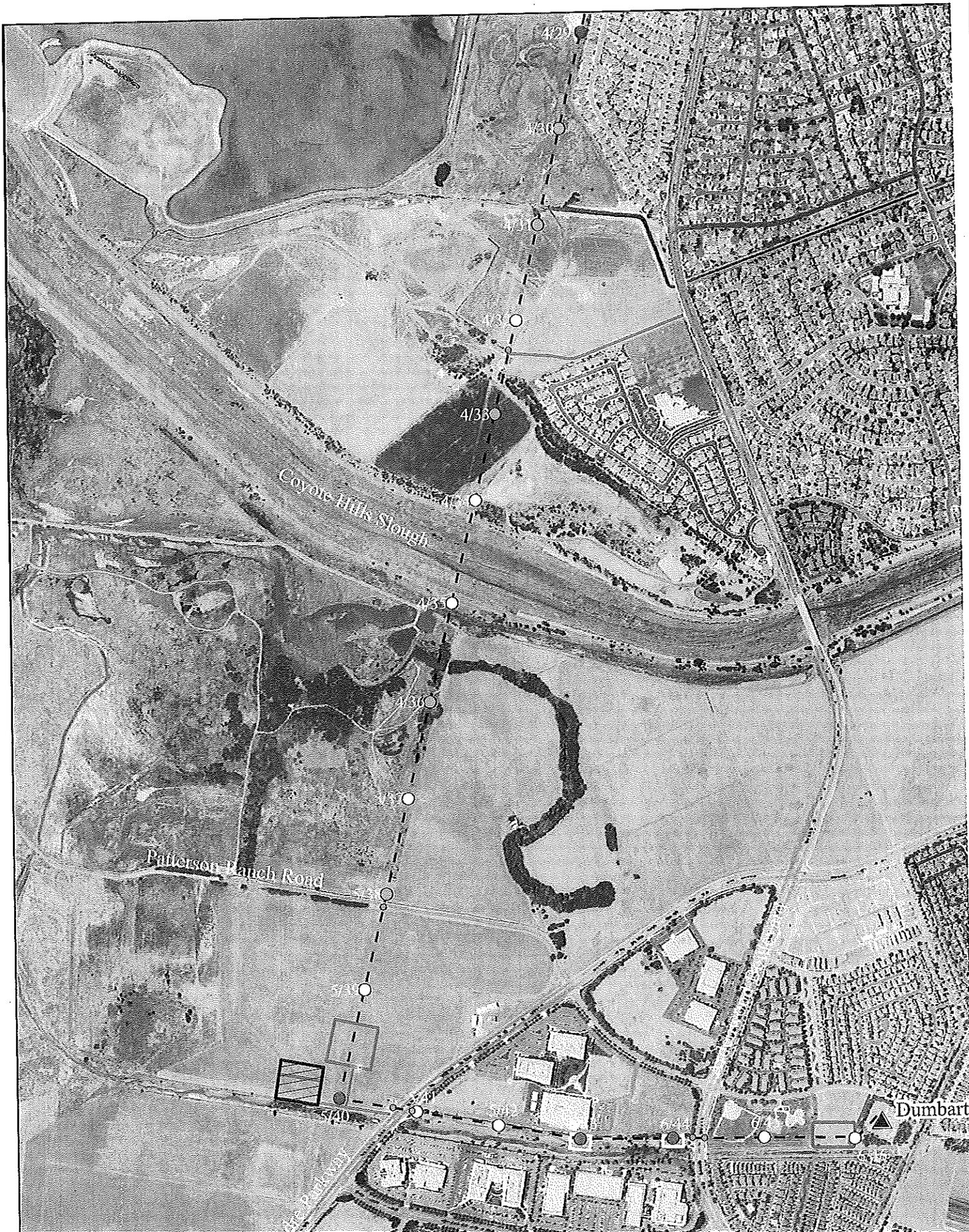
FIGURE 3. South end of the project area with Coyote Hills in the background. View to the southwest.

APPENDIX A

PROJECT DESCRIPTION AERIALS







APPENDIX B

TRIBAL CONSULTATION



August 7, 2009

Larry Meyers, Executive Secretary
Native American Heritage Commission
915 Capitol Mall, Rm. 364
Sacramento, CA 95814

Re: PG&E Eastshore-Dumbarton 115kV Reconductoring Project, Alameda County, California

Dear Mr. Meyers:

The purpose of this letter is to request any information or comments that you might have regarding cultural resources or areas of concern to Native American communities within or near PG&E's proposed Eastshore-Dumbarton 115kV Reconductoring Project (see enclosed map). The project involves reconductoring approximately 6.7 miles of double-circuit 115kV overhead transmission line. Due to the properties of the new conductor to be installed, a number of modifications will need to be made to the line.

The majority of the project will be constructed from the air using helicopters. As a result, ground-disturbing activities will be limited to 19 small parcels near to the line, all on private, previously disturbed land. We appreciate that several large shell mound sites are located within the vicinity; the Areas of Potential Effect (APE) for this project are well away from all of them. Approval by the California Public Utilities Commission (CPUC) is required and California Environmental Quality Act (CEQA) analyses, including Tribal consultation, are being conducted. PG&E has retained Transcon Environmental to conduct the evaluation and to do an archaeological survey of the APE.

The proposed project area covers approximately 12 acres of private land. The project area is located within Section 31 of T3S, R2W and Sections 5, 6, 8, 9, 16, 21, 26, 27, and 28 of T4S, R2W, Mount Diablo Baseline and Meridian, on the Hayward (1993) and Newark (1959, photorevised 1980), California 7.5-minute USGS quadrangles.

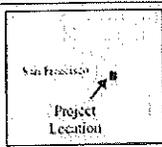
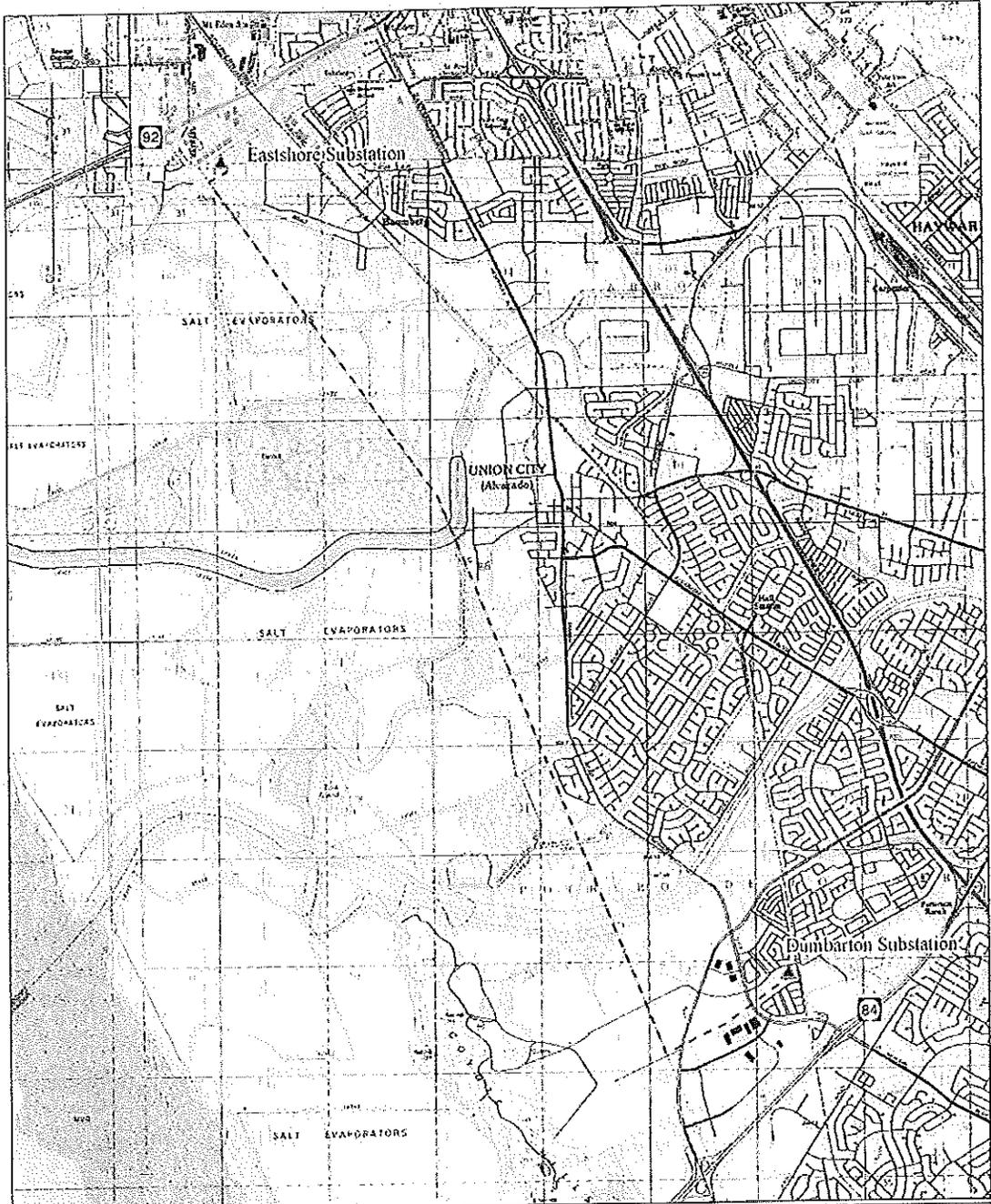
Please let us know if you have any concerns with the project. Any other information that you can provide for this project area would also be helpful. If you have any questions or comments, please feel free to contact me at (415) 309-4505.

Sincerely,

A handwritten signature in black ink, appearing to read 'Everett Bassett', is written over a horizontal line.

Everett Bassett
Cultural Resources Director

encl.



Legend

- - - Alignment
- ▲ Substation

Eastshore-Dumbarton
115kV Reconductoring Project



NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov



August 18, 2009

Everett Bassett
Transcon Environmental
3740 E. Southern Avenue, Suite 218
Mesa, Arizona 85206

Sent by Fax: N/A
Number of Pages: 2

Re: Proposed PG&E Eastshore-Dumbarton 115kV Reconductoring Project, Alameda County.

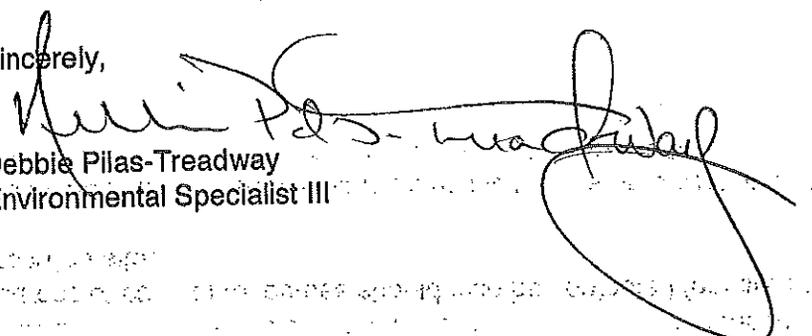
Dear Mr. Bassett:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,


Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Alameda County
August 18, 2009

Jakki Kehl
720 North 2nd Street
Patterson, CA 95363
jakki@bigvalley.net
(209) 892-1060

Ohlone/Costanoan

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA 95024
ams@garlic.com
831-637-4238
Ohlone/Costanoan

Katherine Erolinda Perez
PO Box 717
Linden, CA 95236
(209) 887-3415

Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

Muwekma Ohlone Indian Tribe of the SF Bay Area
Rosemary Cambra, Chairperson
PO Box 360791
Milpitas, CA 95036
muvekma@muvekma.org
408-434-1668
408-434-1673
Ohlone / Costanoan

Amah/Mutsun Tribal Band
Irene Zwierlein, Chairperson
789 Canada Road
Woodside, CA 94062
amah_mutsun@yahoo.com
(650) 851-7747 - Home
(650) 851-7489 - Fax

Ohlone/Costanoan

The Ohlone Indian Tribe
Andrew Galvan
PO Box 3152
Fremont, CA 94539
chochenyo@AOL.com
(510) 882-0527 - Cell
(510) 687-9393 - Fax
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

Amah/Mutsun Tribal Band
Jean-Marie Feyling
19350 Hunter Court
Redding, CA 96003
amah_mutsun@yahoo.com
530-243-1633

Ohlone/Costanoan

Trina Marine Ruano Family
Ramona Garibay, Representative
16010 Halmar Lane
Lathrop, CA 95330
soaproot@msn.com
209-629-8619
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed telecommunication site: PG&E Eastshore-Dumbarton 115kV Reconductoring project, Alameda County

Note: Tribal scoping letters were sent to all Tribes/Native American Groups recommended by the Native American Heritage Commission letter dated August 18, 2009. The following letter is representative of the letter sent to each Tribe/Native American Group on September 14, 2009.



September 14, 2009

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

RE: PG&E Eastshore-Dumbarton 115kV Reconductoring Project, Alameda County, California

Dear Ms. Garibay:

The purpose of this letter is to request any information or comments that you might have regarding cultural resources or areas of concern to Native American communities within or near PG&E's proposed Eastshore-Dumbarton 115kV Reconductoring Project (see enclosed map). The project involves reconstructing approximately 6.7 miles of double-circuit 115kV overhead power line. Due to the properties of the new conductor to be installed, a number of modifications will need to be made to the line.

The majority of the project will be constructed from the air using helicopters. As a result, ground-disturbing activities will be limited to 19 small parcels near to the line totaling approximately 12 acres and all on private, previously disturbed land. We appreciate that several known, large shell mound sites are located within the vicinity; the portions of land subject to ground disturbance for this project are well away from all of them. Approval by the California Public Utilities Commission (CPUC) is required and California Environmental Quality Act (CEQA) analyses, including Tribal consultation, are being conducted. PG&E has retained Transeon Environmental to conduct the evaluation and to do an archaeological survey of the portions subject to disturbance.

Coordination with the Native American Heritage Commission (NAHC) has been conducted and NAHC recommended that your community be contacted. The proposed project area covers approximately 12 acres of private land. The project area is located within Section 31 of T3S, R2W and Sections 5, 6, 8, 9, 16, 21, 26, 27, and 28 of T4S, R2W, Mount Diablo Baseline and Meridian, on the Hayward (1993) and Newark (1959, photorevised 1980), California 7.5-minute USGS quadrangles.

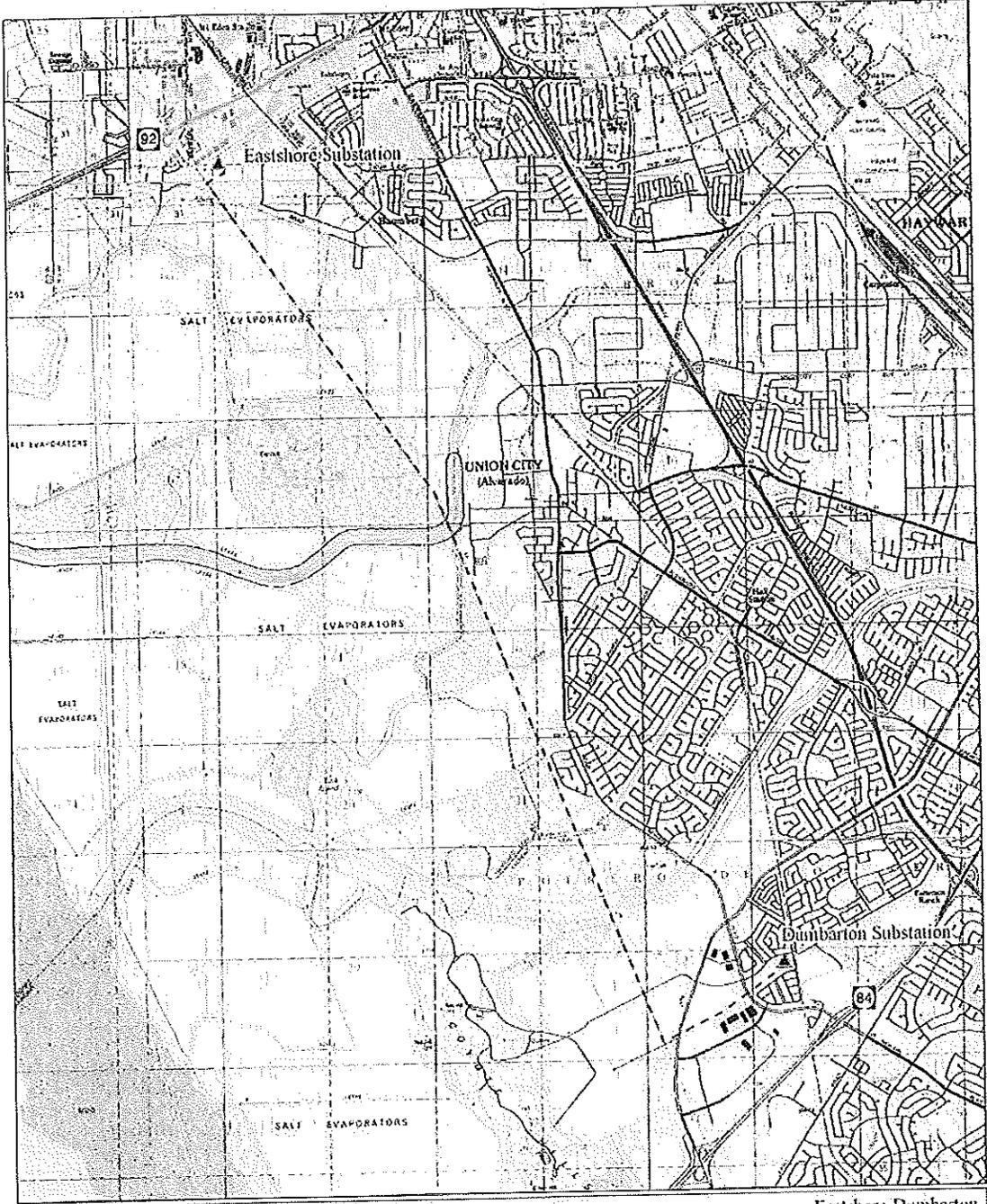
Please let us know if you have any concerns with the project. Any other information that you can provide for this project area would also be helpful. If you have any questions or comments, please feel free to contact me at (415) 738-8497.

Sincerely,

A handwritten signature in black ink that reads 'Everett Bassett'.

Everett Bassett
Cultural Resources Director

encl.



Eastshore-Dumbarton
115kV Reconductoring Project

Legend

- - - Alignment
- ▲ Substation



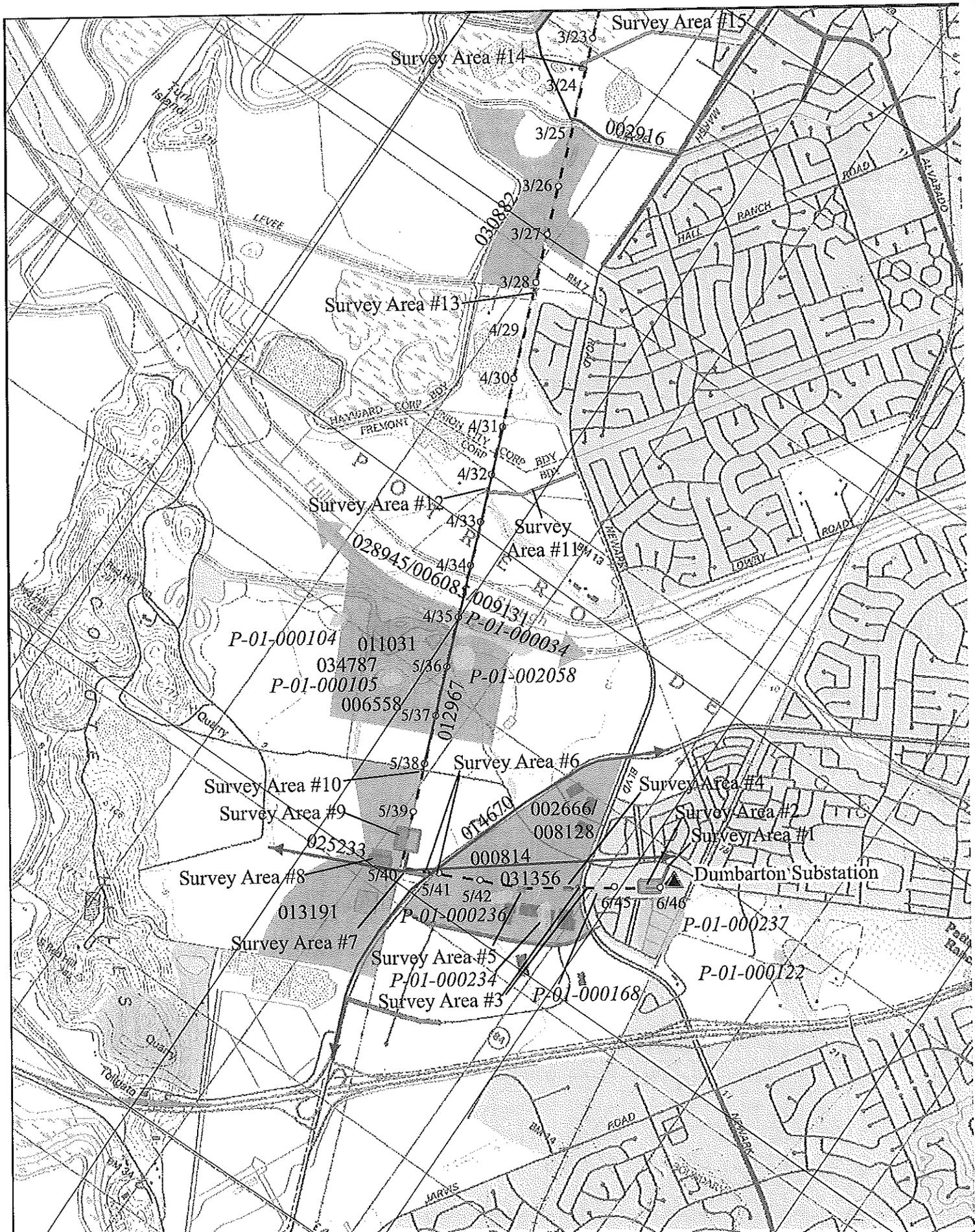
NATIVE AMERICAN CONSULTATION RECORD
EASTSHORE-DUMBARTON 115kV RECONDUCTORING PROJECT

Contact	Date of Letter	Response	Phone Follow-Up
Jakki Kehl Ohlone/Costanoan Tribe (209) 892-1060	09/14/2009	None	02/22/2010
Katherine Erolinda Perez Northern Valley Yokuts, Bay Miwok (209) 887-3415	09/14/2009	None	02/16/2010
Irene Zwierlein, Chairperson Amah/Mutsun Tribal Band (650) 851-7747	09/14/2009	None	02/16/2010
Jean-Marie Feyling Amah/Mutsun Tribal Band (530) 243-1633	09/14/2009	Yes*	N/A
Ann Marie Sayers, Chairperson Indian Canyon Mutsun Band of Costanoan (831) 637-4238	09/14/2009	None	02/16/2010
Rosemary Cambra, Chairperson Muwekma Ohlone Indian Tribe of the SF Bay Area (408) 434-1668	09/14/2009	None	02/16/2010
Andrew Galvan The Ohlone Indian Tribe (510) 882-0527	09/14/2009	None	02/22/2010
Trina Marine Ruano Family Ramona Garibay, Representative (209) 629-8619	09/14/2009	None	02/16/2010

*On 10/14/2009 a representative of the Amah/Mutsun Tribal Band contacted Everett Bassett of Transcon Environmental with information that Native American sites had been identified in the area around the Eastshore Substation and that important sites are located all around the Bay. The Amah/Mutsun Tribal Band would like care taken when subsurface disturbance occurs and would like a monitor to be present under these circumstances.

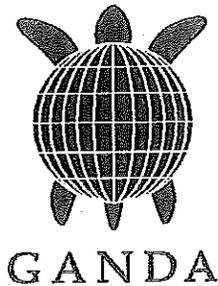
APPENDIX C

PREVIOUS RESEARCH AND SURVEY AREAS



Advice 3846-E

Exhibit J



Garcia and Associates
435 Lincoln Way
Auburn, CA 95603
Phone: (530) 823-3151
Fax: (530) 823-3138

To: Ken DiVittorio, PG&E Senior Scientist
From: Rob Witthaus
Date: February 25, 2011
RE: Cost Estimate to Provide Biological Resource Support Services for the Eastshore-Dumbarton Reconductor Project

Garcia and Associates (GANDA) is pleased to present the following scope of work and cost estimate to provide Pacific Gas & Electric Company (PG&E) with support services to assist with compliance with laws and regulations related to biological resources associated with the reconductor of the Eastshore-Dumbarton 115kV Transmission Line. PG&E is conducting the reconductor project under authorization from the U.S. Army Corps of Engineers (ACOE) for use of Nationwide Permit 12. The U.S. Fish and Wildlife Service has issued a Biological Opinion for the project specifying reasonable and prudent measures as well as terms and conditions for protection of salt marsh harvest mouse and California clapper rail during project implementation. Conditions of the opinion include pre-project environmental training, construction monitoring and reporting, and potentially protocol surveys for California clapper rail. GANDA shall also attend a project kick-off meeting. The total cost associated with providing environmental support services for the Eastshore-Dumbarton Reconductor Project is \$94,291.00.

Task 1 – Worker Environmental Awareness Training

GANDA shall provide environmental awareness training for all crews and supervisors which will be working on the project. The training shall include a review of proposed conservation measures and terms and conditions defined in project permits for protection of biological resources during construction. GANDA will provide a training brochure and a narrative description for project staff regarding the biology and legislative protections for the California clapper rail and salt-marsh harvest mouse. During the course of construction activities, the GANDA biological monitor shall provide

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environmental awareness training for any new construction personnel. GANDA shall maintain a log of trained personnel which shall be included with the final compliance report for the project and hardhat stickers will be provided to trained staff to assist the monitor with tracking on-site personnel for training compliance.

Task 2 – Construction Monitoring and Reporting

GANDA shall provide construction monitoring services for the duration of all work activities on the reconductor project. Prior to initiation of construction monitoring, GANDA will provide PG&E with resumes of personnel proposed for monitoring on the project for submittal to the USFWS for approval. For the purpose of this scope of services, it is understood that reconductor of the transmission line is anticipated to require 59 days to complete. It is understood that the Company is attempting to alter the construction schedule to complete the reconductor project within the seasonal restrictions for California clapper rail. Under this revised schedule it is assumed that the duration of construction will remain consistent with the originally planned duration. It is assumed that monitoring shall be required for ten-hour days during the construction period. GANDA shall maintain daily monitoring logs and shall provide weekly status reports of project monitoring via e-mail. The project monitor shall photo-document project progress before, during, and after construction. GANDA shall prepare a draft post-construction compliance report in accordance with condition #11 of the project Biological Opinion for submittal to PG&E within 30 days following completion of construction. A final report shall be submitted within seven (7) days following receipt of comments from PG&E.

Task 3 – California Clapper Rail Surveys

If necessary, GANDA shall conduct surveys for California clapper rail (CCR) within 700 feet from project facilities where work activities may be necessary outside of the limited operating period of September 1 through January 31. During the initial phases of construction of the project, the biological monitor shall map areas having potentially suitable habitat for CCR in the project area. Using the results of habitat mapping, GANDA shall prepare a survey protocol for the project based on the USFWS draft CCR survey protocols dated December 7, 2009 (or any subsequent revision). For the purpose of this scope of services, GANDA proposes to conduct four replicates of passive surveys in areas of suitable habitat within 700 feet from project facilities. Since surveys will only be necessary if construction activities are necessary during the initial month of the typical nesting period, CCR surveys will be initiated early in the survey season and will be concentrated in the minimum allowable period between survey replicates (two weeks). For the purpose of this scope of services, it is assumed that surveys will require 6 hours per person per survey replicate and 10 people will be required to complete a replicate. GANDA shall prepare a letter report with preliminary survey results in mid-January for submittal to the USFWS in support of the Company requesting an extension of the work window into the month of February (if initial survey results support such a request). A draft final survey report shall be prepared within one-week following completion of the surveys. A final report shall be submitted within one-week following receipt of comments on the draft report.

Deliverables

GANDA shall provide the following documentation of training, monitoring, and survey activities:

- Environmental awareness training brochure and hardhat stickers shall be prepared prior to project initiation
- A weekly status report of project construction and monitoring activities shall be provided via e-mail
- Final compliance report with photo-documentation of project work areas prior to and during construction and upon completion of construction and removal of all project materials from the work area.
- Preliminary survey report of interim California clapper rail surveys
- Final California clapper rail survey report

Schedule

Initial phases of the reconductoring project are scheduled to commence in August 2011. The environmental awareness training brochure, stickers and documentation materials shall be prepared and submitted to PG&E for review by July 1, 2011. Monitoring is anticipated to be conducted for 59 days between September 1, 2011 and January 31, 2012. Weekly electronic monitoring updates shall be provided during the monitoring period. A draft monitoring report shall be submitted to PG&E within 30 days following completion of construction activities. The final post-construction monitoring report shall be submitted within 7-days following receipt of comments from PG&E. A preliminary letter report with interim CCR survey results shall be submitted in mid-January within three days following completion of the third survey replicate. A draft CCR survey report shall be submitted to PG&E within 7 days following completion of surveys. A final survey report shall be submitted within 7 days following receipt of comments on the draft report.

The estimated cost for this effort is \$94,291.00; a detailed spreadsheet is attached. Should you have any questions regarding this cost estimate, do not hesitate to call me at (408) 779-6529.

**PG&E Gas and Electric
Advice Filing List**

AT&T	Dept of General Services	Northern California Power Association
Alcantar & Kahl LLP	Douglass & Liddell	Occidental Energy Marketing, Inc.
Ameresco	Downey & Brand	OnGrid Solar
Anderson & Poole	Duke Energy	Praxair
Arizona Public Service Company	Dutcher, John	R. W. Beck & Associates
BART	Economic Sciences Corporation	RCS, Inc.
Barkovich & Yap, Inc.	Ellison Schneider & Harris LLP	Recurrent Energy
Bartle Wells Associates	Foster Farms	SCD Energy Solutions
Bloomberg	G. A. Krause & Assoc.	SCE
Bloomberg New Energy Finance	GLJ Publications	SMUD
Boston Properties	GenOn Energy, Inc.	SPURR
	Goodin, MacBride, Squeri, Schlotz & Ritchie	San Francisco Public Utilities Commission
Braun Blaising McLaughlin, P.C.	Green Power Institute	Santa Fe Jets
Brookfield Renewable Power	Hanna & Morton	Seattle City Light
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CLECA Law Office	In House Energy	Sierra Pacific Power Company
CSC Energy Services	International Power Technology	Silicon Valley Power
California Cotton Ginners & Growers Assn	Intestate Gas Services, Inc.	Silo Energy LLC
California Energy Commission	Lawrence Berkeley National Lab	Southern California Edison Company
California League of Food Processors	Los Angeles Dept of Water & Power	Spark Energy, L.P.
California Public Utilities Commission	Luce, Forward, Hamilton & Scripps LLP	Sun Light & Power
Calpine	MAC Lighting Consulting	Sunshine Design
Cardinal Cogen	MBMC, Inc.	Sutherland, Asbill & Brennan
Casner, Steve	MRW & Associates	Tabors Caramanis & Associates
Chris, King	Manatt Phelps Phillips	Tecogen, Inc.
City of Palo Alto	McKenzie & Associates	Tiger Natural Gas, Inc.
City of Palo Alto Utilities	Merced Irrigation District	TransCanada
Clean Energy Fuels	Modesto Irrigation District	Turlock Irrigation District
Coast Economic Consulting	Morgan Stanley	United Cogen
Commercial Energy	Morrison & Foerster	Utility Cost Management
Consumer Federation of California	NLine Energy, Inc.	Utility Specialists
Crossborder Energy	NRG West	Verizon
Davis Wright Tremaine LLP	Navigant Consulting	Wellhead Electric Company
Day Carter Murphy	Norris & Wong Associates	Western Manufactured Housing Communities Association (WMA)
		eMeter Corporation
Defense Energy Support Center	North America Power Partners	
Department of Water Resources	North Coast SolarResources	