PARTICIPATING SPECIAL ENTITY AGREEMENT

Between

THE EAST CONTRA COSTA COUNTY HABITAT CONSERVANCY
and the
PACIFIC GAS AND ELECTRIC COMPANY

1.0 PARTIES

This Agreement is made and entered into by the East Contra Costa County Habitat Conservancy ("Conservancy") and Pacific Gas and Electric Company ("Participating Special Entity" or "PSE") as of the Effective Date.

2.0 RECITALS

The Parties have entered into this Agreement in consideration of the following facts:

2.1 The East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan ("HCP/NCCP," or "Plan") is intended to provide a comprehensive framework to protect natural resources in eastern Contra Costa County, while improving and streamlining the environmental permitting process for certain projects that would cause impacts on endangered and threatened species. The primary policy priority of the Plan is to provide comprehensive species, wetlands, and ecosystem conservation and contribute to recovery of endangered and threatened species within East Contra Costa County while balancing open space, habitat, agriculture, and urban development. To that end, the Plan describes how to avoid, minimize, and mitigate, to the maximum extent practicable, impacts on Covered Species and their habitats while allowing for certain development and other activities in selected regions of the County and the Cities of Pittsburg, Clayton, Oakley, and Brentwood.

2.2 The Conservancy is a joint powers authority formed by its members, the County of Contra Costa ("County"), the City of Pittsburg ("Pittsburg"), the City of Clayton ("Clayton"), the City of Oakley ("Oakley") and the City of Brentwood ("Brentwood"), to implement the HCP/NCCP.

2.3 The HCP/NCCP covers approximately one-third of the County, or 174,082 acres, all in East Contra Costa County, in which impacts from certain development and other activities are evaluated, and in which conservation will occur.

2.4 The area covered by the HCP/NCCP has been determined to provide, or potentially provide, habitat for twenty-eight (28) species that are listed as endangered or threatened, that could in the future be listed as endangered

or threatened, or that have some other special status under federal or state laws.

2.5 The Conservancy has received authorization from the United States Fish and Wildlife Service ("USFWS") under incidental take permit TE 160958-0, and the California Department of Fish and Game ("CDFG"), under incidental take permit 2835-2007-01-03, for the Take of the twenty-eight (28) special-status species and certain other species, as take is defined respectively under federal and state law, while carrying out certain development and other activities.

2.6 The Conservancy may enter into agreements with participating special entities that allow certain activities of theirs to be covered by the Federal Permit and the State Permit, subject to the conditions in the Implementing Agreement ("IA"), the HCP/NCCP and the Permits.

2.7 PSE is responsible for the Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project and seeks extension of the Conservancy's permit coverage for the replacement of approximately 31 miles (24 miles in Contra Costa County) of kilovolt (kV) transmission line between Pittsburg and Telsa Substations on 147 existing towers (111 in Contra Costa County), as further described in Exhibit 1. Coverage through the Conservancy's permit will only be extended to Pacific Gas and Electric Company for work being conducted in Contra Costa County and within the Conservany's Permit Area.

2.8 The Conservancy has concluded, based on the terms of this Agreement and the application submitted by PSE (the "Application"), that PSE has provided adequate assurances that it will comply with all applicable terms and conditions of the IA, the HCP/NCCP, and the Permits. The Application is attached hereto as Exhibit 1 and is hereby incorporated into this Agreement by reference.

3.0 DEFINITIONS

The following terms as used in this Agreement will have the meanings set forth below. Terms specifically defined in FESA, CESA or NCCPA or the regulations adopted by USFWS and CDFG under those statutes shall have the same meaning when used in this Agreement. Definitions used in this Agreement may elaborate on, but are not intended to conflict with, such statutory or regulatory definitions.

3.1 **"Application"** means the application submitted by the PSE in accordance with Chapter 8.4 of the HCP/NCCP, and which is attached hereto as Exhibit 1. The Application contains a cover sheet, the results of required planning surveys and the avoidance, minimization and mitigation measures that will be a condition of the PSE using Conservancy's Permits.

3.2 **"Authorized Take"** means the extent of incidental Take of Covered Species authorized by the USFWS in the Federal Permit issued to the

Conservancy pursuant to Section 10(a)(1)(B) of FESA, and the extent of Take of Covered Species authorized by CDFG in the State Permit issued to the Conservancy pursuant to California Fish and Game Code section 2835.

3.3 **"CDFG"** means the California Department of Fish and Game, a department of the California Resources Agency.

3.4 **"CESA"** means the California Endangered Species Act (Fish & G. Code, § 2050 et seq.) and all rules, regulations and guidelines promulgated pursuant to that Act.

3.5 **"Changed Circumstances"** means changes in circumstances affecting a Covered Species or the geographic area covered by the HCP/NCCP that can reasonably be anticipated by the Parties and that can reasonably be planned for in the HCP/NCCP. Changed Circumstances and planned responses to Changed Circumstances are more particularly defined in Section 12.2 of the IA and Chapter 10.2.1 of the HCP/NCCP. Changed Circumstances do not include Unforeseen Circumstances.

3.6 **"Covered Activities"** means those land uses and conservation and other activities described in Chapter 2.3 of the HCP/NCCP to be carried out by the Conservancy or its agents that may result in Authorized Take of Covered Species during the term of the HCP/NCCP, and that are otherwise lawful.

3.7 **"Covered Species"** means the species, listed and non-listed, whose conservation and management are provided for by the HCP/NCCP and for which limited Take is authorized by the Wildlife Agencies pursuant to the Permits. The Take of Fully Protected Species is not allowed. The Take of extremely rare plants that are Covered Species is allowed only as described in Section 6.0 and the IA.

3.8 **"Effective Date"** means the date when this Agreement is fully executed.

3.9 **"Federal Listed Species"** means the Covered Species which are listed as threatened or endangered species under FESA as of the Effective Date, and the Covered Species which are listed as threatened or endangered pursuant to FESA during the term of the HCP/NCCP as of the date of such listing.

3.10 **"Federal Permit"** means the federal incidental Take permit issued by USFWS to the Conservancy and other local agencies pursuant to Section 10(a)(1)(B) of FESA (permit number TE 160958-0), as it may be amended from time to time.

3.11 **"FESA"** means the Federal Endangered Species Act of 1973, as amended (16 U.S.C § 1531 et seq.) and all rules, regulations and guidelines promulgated pursuant to that Act.

3.12 **"Fully Protected Species"** means any species identified in California Fish and Game Code sections 3511, 4700, 4800, 5050 or 5515 that occur within the Plan Area.

3.13 **"HCP/NCCP"** or **"Plan"** means the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan.

3.14 **"Implementing Agreement"** or **"IA"** means the "Implementing Agreement for the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan," dated January 22, 2007.

3.15 **"Jurisdictional Wetlands and Waters"** means State and federally regulated wetlands and other water bodies that cannot be filled or altered without permits from either the U.S. Army Corps of Engineers under section 404 of the Clean Water Act or, from the State Water Resources Control Boards under either section 401 of the Clean Water Act or the Porter-Cologne Water Quality Act, or CDFG under section 1602 of the Fish and Game Code, as further explained in Chapter 1.3.5 of the HCP/NCCP.

3.16 **"Listed Species"** means a species (including a subspecies, or a distinct population segment of a vertebrate species) that is listed as endangered or threatened under FESA or CESA.

3.17 **"NCCPA"** means the Natural Community Conservation Planning Act (Fish & G. Code, § 2800 et seq.) and all rules, regulations and guidelines promulgated pursuant to that Act.

3.18 **"Non-listed Species"** means a species (including a subspecies, or a distinct population segment of a vertebrate species) that is not listed as endangered or threatened under FESA or CESA.

3.19 **"Party"** or **"Parties"** means any or all of the signatories to this Agreement.

3.20 **"Permit Area"** means the area within the Plan Area where the Conservancy has received authorization from the Wildlife Agencies for the Authorized Take of Covered Species while carrying out Covered Activities.

3.21 **"Permits"** means the Federal Permit and the State Permit.

3.22 **"Plan Area"** means the geographic area analyzed in the HCP/NCCP, located in the eastern portion of Contra Costa County, as depicted in Figure 1-1 of the HCP/NCCP. The Plan Area is further described in detail in Chapter 1.2.1 of the HCP/NCCP. The Plan Area is also referred to as the "Inventory Area" in the HCP/NCCP.

3.23 **"Preserve System"** means the land acquired and dedicated in perpetuity through either a fee interest or conservation easement intended to meet the preservation, conservation, enhancement and restoration objectives of the HCP/NCCP.

3.24 **"Project"** means the Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project, as described in Section 2.7.

3.25 **"State Permit"** means the state Take permit issued to the Conservancy and other local agencies pursuant to Section 2835 of the California Fish and Game Code (permit number 2835-2007-01-03), as it may be amended from time to time.

3.26 **"Take"** has the same meaning provided by FESA and its implementing regulations with regard to activities subject to FESA, and also has the same meaning provided in the California Fish and Game Code with regard to activities subject to CESA and NCCPA.

3.27 **"Unforeseen Circumstances"** under the Federal Permit means changes in circumstances affecting a Covered Species or geographic area covered by the HCP/NCCP that could not reasonably have been anticipated by the Plan developers and USFWS at the time of the Plan's negotiation and development, and that result in a substantial and adverse change in the status of a Covered Species. "Unforeseen Circumstances" under the State Permit means changes affecting one or more species, habitat, natural community, or the geographic area covered by the Plan that could not reasonably have been anticipated at the time of Plan development, and that result in a substantial adverse change in the status of one or more Covered Species.

3.28 **"USFWS"** means the United States Fish and Wildlife Service, an agency of the United States Department of Interior.

3.29 **"Wildlife Agencies"** means USFWS and CDFG.

4.0 PURPOSES

This Agreement defines the Parties' roles and responsibilities and provides a common understanding of actions that will be undertaken to avoid, minimize and mitigate the effects on the Covered Species caused by the Project, and to provide for the conservation of the Covered Species within the Plan Area. The purposes of this Agreement are to ensure implementation of each of the terms and conditions of this Agreement, and the relevant terms of the IA, the HCP/NCCP, and the Permits, and to describe remedies and recourse should either Party fail to perform its obligations as set forth in this Agreement.

5.0 AVOIDANCE, MINIMIZATION AND MITIGATION OF IMPACTS

5.1 General Framework

As required by FESA and NCCPA, the HCP/NCCP includes measures to avoid and minimize take of Covered Species and to conserve natural communities and Covered Species at the landscape-, habitat- and species-level. Chapter 6 of the HCP/NCCP provides further instructions to determine which avoidance and minimization measures are applicable to particular Covered Activities. PSE shall implement all applicable

avoidance and minimization measures as required by the HCP/NCCP, including but not limited to those identified in Chapter 6, as described in the Application and this Agreement.

5.2 Surveys and Avoidance Measures

Planning surveys are required prior to carrying out any Covered Activity for which a fee is collected or land in lieu of a fee is provided. PSE has submitted a planning survey report for approval by the Conservancy in accordance with Chapter 6.2.1 of the HCP/NCCP. This planning survey report is contained within the Application, which describes the results of the planning survey and describes in detail the pre-construction surveys, construction monitoring, avoidance measures and mitigation measures that apply to the Project and shall be performed by PSE. Based on the Application, the Conservancy has determined that PSE will implement and comply with all applicable preconstruction surveys and construction monitoring requirements described in Chapters 6.2.2 and 6.2.3 of the HCP/NCCP.

5.3 No Take of Extremely Rare Plants or Fully Protected Species

Nothing in this Agreement, the HCP/NCCP or the Permits shall be construed to allow the Take of extremely rare plant species listed in Table 6-5 of the HCP/NCCP ("No-Take Plant Population") or any Fully Protected Species under California Fish and Game Code sections 3511, 4700, 4800, 5050 or 5515. PSE shall avoid Take of these species.

5.3.1 Golden Eagle

The Permits do not authorize Take of the golden eagle and PSE shall avoid Take of any golden eagle. The avoidance measures set forth in the HCP/PCCP, including but not limited to Conservation Measure 1.11, should be adequate to prevent Take of golden eagles, but the Conservancy shall notify PSE in writing of any additional or different conservation measures that are designed to avoid Take of these species and that apply to PSE. PSE shall implement all such avoidance measures to avoid Take of golden eagles.

5.4 Delineation of Jurisdictional Wetlands and Waters

Jurisdictional Wetlands or Waters are present on the site of the Project, and PSE has provided to the Conservancy a jurisdictional delineation in accordance with Chapter 6.3.1 of the HCP/NCCP. PSE shall pay the Wetland Mitigation Fee based on the delineation, as specified in the Application.

5.5 Fees and Dedications

As set forth in the Application, PSE agrees to pay the Conservancy a one-time payment of $282,045.36, which amount includes all HCP/NCCP mitigation fees necessary for the Project, minus an existing credit owed PG&E. The payment also includes an amount sufficient to implement additional actions that will contribute to the recovery of endangered and threatened species ("Contribution to Recovery"). The overall payment amount is the sum of the following:

<u>Development Fee: $409,401.59</u>

<u>Wetland Mitigation Fee: $1,765.25</u>

<u>Contribution to Recovery: $41,111.68</u>

Credit Owed PG&E: ($170,233.16)

The payment must be paid in full before any ground-disturbance associated with the Project occurs. Notwithstanding the above, the Parties acknowledge that the Conservancy adjusts its fee schedule annually on March 15 of each year in accordance with the fee adjustment provisions of Chapter 9.3.1 of the HCP/NCCP. If the PSE pays before March 15, 2013 and construction of the Project commences before March 15, 2013, the amount due will be as stated above. If PSE pays on or after March 15, 2013 or construction of the Project does not commence before March 15, 2013, the amount due will be subject to annual fee adjustments for all fees, and subject to annual adjustments of the Contribution to Recovery based on the formula set forth in Chapter 9.3.1 for the HCP/NCCP wetland mitigation fee. Based on these adjustments, if PSE pays before March 15 of any year, but construction does not commence before March 15 of that year, PSE will either be required to submit an additional payment for any increases or be entitled to a refund without interest for any decreases.

6.0 TAKE AUTHORIZATION

6.1 Extension of Take Authorization to PSE

As provided in Chapter 8.4 of the HCP/NCCP, after receipt of the Wildlife Agencies' written concurrence that the Proposed Activity complies with the HCP/NCCP, the Permits and the IA, and after execution of this Agreement, payment of fees [*or dedication of land as set forth in Section 5.6*], compliance with the California Environmental Quality Act (Public Resources Code section 21000, et seq.) ("CEQA"), the Conservancy shall issue a Certificate of Inclusion to PSE that specifically describes the Authorized Take and required conservation measures and extends Take authorization under the Permits to PSE. PSE is ultimately responsible for compliance with all applicable terms and conditions of this Agreement, the IA, the HCP/NCCP and the Permits.

6.1.1 Compliance with the California Environmental Quality Act

The Conservancy's issuance of a Certificate of Inclusion to the PSE is a public agency action that must comply with CEQA. For purposes of the Project, the State Water Resources Control Board ("Water Board") is the CEQA lead agency. The Water Board prepared an Intial Study/Mitigated Negative Declaration ("IS/MND") for the Project, the Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project *(state clearinghouse number 2011102034)*, dated October 17, 2012. The Conservancy is a CEQA responsible agency for purposes of the Project and, as such, will rely on the IS/MND prepared by the Water Board for purposes of fulfilling its responsibilities under CEQA.

6.2 Duration of Take Authorization

Once the Take authorization has been extended to the Project, it shall remain in effect for a period of fifteen (15) years, unless and until the Permits are revoked by USFWS or CDFG, in which case the Take authorization may also be suspended or terminated.

6.3 Section 7 Consultations with USFWS

Nothing in this Agreement is intended to alter the obligation of a federal agency to consult with USFWS pursuant to Section 7 of FESA (16 U.S.C. §1536(a)). The PSE acknowledges that, if the Proposed Activities are authorized, funded, or carried out by a federal agency, the federal agency and the Proposed Activities must also comply with Section 7. As provided in Section 16.1 of the IA, USFWS has made a commitment that, unless otherwise required by law or regulation, it will not require any measures under Section 7 that are inconsistent with or exceed the requirements of the HCP/NCCP and the Permits for activities covered by the HCP/NCCP and the Permits.

The Project requires a permit from the U.S. Army Corps of Engineers for fill material that will be discharged into waters of the United States pursuant to Section 404 of the Clean Water Act. The issuance of a Section 404 permit must comply with Section 7 of FESA.. A biological opinion was issued by the USFWS pursuant to Section 7 of ESA. The terms and conditions of the Biological Opion require the PSE to participate in the HCP/NCCP for mitigation of impacts to federal listed species.

7.0 RIGHTS AND OBLIGATIONS OF PSE

7.1 Rights

Upon the Conservancy's issuance of a Certificate of Inclusion to PSE, PSE may Take the Covered Species while carrying out the Project in the Permit Area, as further authorized by and subject to the conditions of this Agreement, the IA, the HCP/NCCP, and the Permits. The authority issued to PSE applies to all of its elected officials, officers, directors, employees, agents, subsidiaries, contractors, and subcontractors, and their officers, directors, employees and agents to the extent that they participate in the implementation of the Project. PSE shall periodically conduct an educational program to fully inform all such persons and entities of the terms and conditions of the Permits, and PSE shall be responsible for supervising their compliance with those terms and conditions. All contracts between PSE and such persons and entities shall require their compliance with the Permits.

7.2 General Obligations

The PSE will fully and faithfully perform all obligations assigned to it under this Agreement, the IA, the HCP/NCCP, the Permits, including but not limited to the obligations assigned in the following chapters of the HCP/NCCP: Chapter 6.0 (Conditions on Covered Activities), Chapter 8.4 (Participating Special Entities), and Chapter 9.0 (Funding). PSE shall implement all measures and adhere to all standards included in the Application, and PSE shall reserve funding sufficient to fulfill its obligations under this Agreement, the IA, the HCP/NCCP and the Permits throughout the term of this Agreement. PSE will promptly notify the Conservancy of any material change in its financial ability to fulfill its obligations under this Agreement.

7.3 Obligations In The Event of Suspension or Revocation

In the event that USFWS and/or CDFG suspend or revoke the Permits pursuant to Sections 19.0 and 21.0 of the IA, PSE will remain obligated to fulfill its mitigation, enforcement, management, and monitoring obligations, and its other HCP/NCCP obligations, in accordance with this Agreement and applicable statutory and regulatory requirements for all impacts resulting from implementation of the Project prior to the suspension or revocation.

7.4 Interim Obligations upon a Finding of Unforeseen Circumstances

If the Wildlife Agencies make a finding of Unforeseen Circumstances with regard to a Federal Listed Covered Species, during the period necessary to determine the nature and location of additional or modified mitigation, PSE will avoid contributing to an appreciable reduction in the likelihood of the survival and recovery of the affected species. As described in Section 15.2.2 and Section 15.3.2 of the IA, the Wildlife Agencies shall be responsible for implementing such additional measures or modifications, unless PSE consents to do so.

7.5 Obligations In The Event Of Changed Circumstances

Changed Circumstances, as described in 50 Code of Federal Regulations section 17.22(b)(5)(i), are adequately addressed in Chapter 7 and Chapter 10 of the HCP/NCCP, and PSE shall implement any measures for such circumstances as called for in the HCP/NCCP, as described in Section 12.2 of the IA.

7.6 Obligation to Compensate Conservancy for Administrative Costs

PSE shall compensate the Conservancy for its direct costs associated with this Agreement, including but not limited to, staff, consultant and legal costs incurred as a result of the review of the Application, drafting and negotiating this Agreement, monitoring and enforcement of this Agreement, and meetings and communications with PSE (collectively, Conservancy's "Administrative Costs"). Conservancy's Administrative Costs shall not exceed $25,000 in the aggregate. Conservancy shall provide PSE with invoices detailing its Administrative Costs monthly or quarterly, at Conservancy's discretion. PSE shall remit payment of each invoice within thirty (30) days of receiving it.

This provision is not intended to, and shall not be construed to, limit PSE's duty to indemnify the Conservancy as provided in Section 7.7 of this Agreement.

7.7 Indemnification

PSE agrees to defend, indemnify, and hold harmless the Conservancy and its board members, officers, contractors, consultants, attorneys, employees and agents from any and all claim(s), action(s), or proceeding(s) (collectively referred to as "Proceedings") brought against Conservancy or its board members, officers, contractors, consultants, attorneys, employees, or agents arising out of or resulting from any of the following.

- Decisions or actions of the Conservancy related to the Project, this PSE Agreement, or compliance with the California Environmental Quality Act of 1970, as amended ("CEQA") with regard to the Project; and

- The negligence, recklessness, or intentional misconduct of any representative, employee, or agent of PSE.

Notwithstanding the above, (i) PSE shall have no duty to defend, indemnify, or hold harmless the Conservancy to the extent damages are sought in a tort claim arising out of or resulting from the individual negligence, recklessness, or intentional misconduct of any representative, employee, or agent of the Conservancy and (ii) the indemnification obligations set forth above shall in no way limit the rights and remedies of PSE with respect to any breach of the terms and conditions of this PSE Agreement by the Conservancy.

PSE's duty to indemnify the Conservancy includes, but is not limited to, damages, fees and/or costs awarded against or incurred by Conservancy, if any, and costs of suit, claim or litigation, including without limitation attorneys' fees and other costs, liabilities and expenses incurred in connection with any Proceedings.

7.7.1 Enforcement of Indemnification Provision

PSE agrees to indemnify Conservancy for all of Conservancy's costs, fees, and damages incurred in enforcing the indemnification provisions of this Agreement.

7.7.2 Compliance Costs

PSE agrees to defend, indemnify and hold harmless Conservancy, its officers, contractors, consultants, attorneys, employees and agents from and for all costs and fees incurred in additional investigation or study of, or for supplementing, redrafting, revising, or amending, any document (such as this Agreement or any document required for purposes of compliance with CEQA) if made necessary by any Proceedings.

7.7.3 Obligations in the Event of Litigation

In the event that PSE is required to defend Conservancy in connection with any Proceedings, Conservancy shall have and retain the right to approve, which approval shall not be withheld unreasonably:

- the counsel to so defend Conservancy;
- all significant decisions concerning the manner in which the defense is conducted; and
- any and all settlements.

Conservancy shall also have and retain the right to decline to participate in the defense, except that Conservancy agrees to reasonably cooperate with PSE in the defense of the Proceedings. If Conservancy participates in the defense, all Conservancy fees and costs shall be paid by PSE.

PSE's defense and indemnification of Conservancy set forth herein shall remain in full force and effect throughout all stages of litigation including any and all appeals of any lower court judgments rendered in the Proceedings.

8.0 REMEDIES AND ENFORCEMENT

If PSE fails to comply with the terms of this Agreement, the IA, the HCP/NCCP, or the Permits, the Conservancy may withdraw the Certificate of Inclusion and terminate any Take authorization extended to PSE. The Conservancy shall also have all of the remedies available in equity (including specific performance and injunctive relief) and at law to enforce the terms of this Agreement, the IA, the HCP/NCCP and the Permits, and to seek redress and compensation for any breach or violation thereof. The Parties acknowledge that the Covered Species are unique and that their loss as species would be irreparable and that therefore injunctive and temporary relief may be appropriate in certain instances involving a breach of this Agreement.

9.0 FORCE MAJEURE

In the event that a Party is wholly or partially prevented from performing obligations under this Agreement because of unforeseeable causes beyond the reasonable control of and without the fault or negligence of Party ("Force Majeure"), including, but not limited to, acts of God, labor disputes, sudden actions of the elements not identified as Changed Circumstances, or actions of non-participating federal or state agencies or local jurisdictions, the Party shall be excused from whatever performance is affected by such unforeseeable cause to the extent so affected, and such failure to perform shall not be considered a material violation or breach, provided that nothing in this section shall be deemed to authorize either Party to violate FESA, CESA or NCCPA, and provided further that:

- The suspension of performance is of no greater scope and no longer duration than is required by the Force Majeure;
- Within seven (7) days after the occurrence of the Force Majeure, the Party invoking this section shall give the other Party written notice describing the particulars of the occurrence;
- The Party shall use best efforts to remedy its inability to perform (however, this paragraph shall not require the settlement of any strike, walk-out, lock-out or other labor dispute on terms which in the sole judgment of the Party is contrary to its interest); and
- When the Party is able to resume performance of their obligations, it shall give the other Party written notice to that effect.

10.0 MISCELLANEOUS PROVISIONS

10.1 Calendar Days

Throughout this Agreement and the HCP/NCCP, the use of the term "day" or "days" means calendar days, unless otherwise specified.

10.2 Notices

Any notice permitted or required by this Agreement shall be in writing, and delivered personally, by overnight mail, or by United States mail, certified and postage prepaid, return receipt requested. Notices may be delivered by facsimile or electronic mail, provided they are also delivered by one of the means listed above. Delivery shall be to the name and address of the individual responsible for each of the Parties, as follows:

John Kopchik
East Contra Costa County Habitat Conservancy
c/o Contra Costa County Department of Conservation and Development
651 Pine Street, North Wing, 4th Floor
Martinez, CA 94553
Email: john.kopchik@dcd.cccounty.us
Phone: 925-335-1227

David Thomas
Senior Planner
Environmental Management, Pacific Gas and Electric Company
P.O. Box 770000
Mail Code N10A
San Francisco, CA 94177
DLTG@pge.com
415 973-5885

Notices shall be transmitted so that they are received within the specified deadlines. Notices delivered personally shall be deemed received on the date they are delivered. Notices delivered via overnight delivery shall be deemed received on the next business day after deposit with the overnight mail delivery service. Notice delivered via certified mail, return receipt requested, shall be deemed received as of the date on the return receipt or five (5) days after deposit in the United States mail, whichever is sooner. Notices delivered by facsimile or other electronic means shall be deemed received on the date they are received.

10.3 Entire Agreement

This Agreement, together with the IA, the HCP/NCCP and the Permits, constitutes the entire agreement among the Parties. This Agreement supersedes any and all other agreements, either oral or in writing, between the Parties with respect to the subject matter hereof and contains all of the covenants and agreements among them with respect to said matters, and each Party acknowledges that no representation, inducement, promise of agreement, oral or otherwise, has been made by any other Party or anyone acting on behalf of any other Party that is not embodied herein.

10.4 Amendment

This Agreement may only be amended with the written consent of both Parties.

10.5 Attorneys' Fees

If any action at law or equity, including any action for declaratory relief is brought to enforce or interpret the provisions of this Agreement, the prevailing Party shall be able to recover its attorneys' fees and costs.

10.6 Governing Law

This Agreement shall be governed by and construed in accordance with the laws of the United States and the State of California, as applicable.

10.7 Duplicate Originals

This Agreement may be executed in any number of duplicate originals. A complete original of this Agreement shall be maintained in the official records of each of the Parties hereto.

10.8 Relationship to the FESA, CESA, NCCPA and Other Authorities

The terms of this Agreement are consistent with and shall be governed by and construed in accordance with FESA, CESA, NCCPA and other applicable state and federal law.

10.9 No Third Party Beneficiaries

Without limiting the applicability of rights granted to the public pursuant to FESA, CESA, NCCPA or other applicable law, this Agreement shall not create any right or interest in the public, or any member thereof, as a third party beneficiary thereof, nor shall it authorize anyone not a Party to this Agreement to maintain a suit for personal injuries or property damages under the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third party beneficiaries shall remain as imposed under existing state and federal law.

10.10 References to Regulations

Any reference in this Agreement, the IA, the HCP/NCCP, or the Permits to any regulation or rule of the Wildlife Agencies shall be deemed to be a reference to such regulation or rule in existence at the time an action is taken.

10.11 Applicable Laws

All activities undertaken pursuant to this Agreement, the IA, the HCP/NCCP, or the Permits must be in compliance with all applicable local, state and federal laws and regulations.

10.12 Severability

In the event one or more of the provisions contained in this Agreement is held invalid, illegal or unenforceable by any court of competent jurisdiction, such portion shall be deemed severed from this Agreement and the remaining parts of this Agreement shall remain in full force and effect as though such invalid, illegal, or unenforceable portion had never been a part of this Agreement.

10.13 Due Authorization

Each Party represents and warrants that (1) the execution and delivery of this Agreement has been duly authorized and approved by all requisite action, (2) no other authorization

or approval, whether of governmental bodies or otherwise, will be necessary in order to enable it to enter into and comply with the terms of this Agreement, and (3) the person executing this Agreement on behalf of each Party has the authority to bind that Party.

10.14 No Assignment

The Parties shall not assign their rights or obligations under this Agreement, the Permits, or the HCP/NCCP to any other individual or entity.

10.15 Headings

Headings are using in this Agreement for convenience only and do not affect or define the Agreement's terms and conditions.

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Implementing Agreement to be in effect as of the date last signed below.

EAST CONTRA COSTA COUNTY HABITAT CONSERVANCY

By:_____ DATE:_____
CATHERINE KUTSURIS, Secretary

By:_____ DATE:_____
JOHN KOPCHIK, Executive Director

PACIFIC GAS AND ELECTRIC COMPANY

By:_____ DATE:_____
STEVEN FERRARA
Director, Environmental Management

East Contra Costa County
Habitat Conservation Plan
Natural Community
Conservation Plan

City of Brentwood
City of Clayton
City of Oakley
City of Pittsburg
Contra Costa County
ECCC Habitat Conservancy

Pacific Gas and Electric Company's Application Form and Planning Survey Report to Comply with and Receive Permit Coverage under the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan

Project Applicant Information:

Project Name: Pacific Gas and Electric Company's Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

Project Applicant's Company/Organization: Pacific Gas and Electric Company (PG&E)

Contact's Name: David Thomas

Contact's Phone: (415) 973-5885 Fax: (415) 973-6347

Contact's Email: dltg@pge.com

Mailing Address: Pacific Gas and Electric Company
245 Market Street, 1054D
San Francisco, CA 94105

Project Description:

Lead Reviewer: Krystal Hinojosa (East Contra Costa County Habitat Conservancy ["Conservancy"])

Project Location: Contra Costa and Alameda Counties

Project APN(s) #: Various

Number of Parcels/Units: Various

Size of Parcel(s): Various

Project Description/Purpose (Summary): In order to maintain service reliability and meet increasing electric load demands in the City of Pittsburg and surrounding areas in Contra Costa and Alameda Counties, PG&E proposes to replace approximately 31 miles (24 miles in Contra Costa County) of 230 kilovolt (kV) transmission line between Pittsburg and Tesla Substations on 147 existing transmission towers (111 in Contra Costa County). This project will minimize the potential for future power demand overloads and ensure service reliability to the East San Francisco Bay area. The Pittsburg-Tesla 230 kV Transmission Reconductoring Project (project) consists of two main components:

1. Modifying 35 of 111 existing steel lattice towers in Contra Costa County (43 of 147 towers total). Of the 35 towers to be modified in Contra Costa County, approximately 32 towers will receive 16.5 foot cage extensions, and 3 towers will receive dead end conversions. (On the total project, 43 towers will be modified: 39 towers will receive cage extensions and 4 towers will receive dead end conversions). All modifications are above ground and no foundation improvements will be required. The work performed at the towers will be conducted by helicopter.

Template prepared by the
ECCC Habitat Conservancy

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2. Reconductoring (replacing wire) on 24 miles of the Pittsburg-Tesla 230 kV Transmission Line in Contra Costa County (31 miles total). Ground access to replace wire will take place at limited areas along the existing rights-of-way.

A more detailed project description has been included in **Attachment A: Project Description.**

Because this project lies partially in Alameda County, which is outside the ECCC HCP/NCCP planning area, other permits have been/and are being obtained; a separate CEQA process, with Initial Study/Mitigated Negative Declaration (IS/MND) has been performed. The final approved CEQA document, and proof of certification, is included at the end of this application as **Attachment F: Initial Study/Mitigated Negative Declaration.** This HCP/NCCP application form refers to some measures in this IS/MND.

Biologist Information:

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Biological/Environmental Firm: Garcia and Associates

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East Contra Costa County HCP/NCCP Planning Survey Report for Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

I. Project Overview

Project proponent:	Pacific Gas and Electric Company
Project Name:	Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project - Participating Special Entity
Application Submittal Date:	Final Application Date January 2013
Jurisdiction:	☐ Contra Costa County ☐ City of Oakley ☐ City of Pittsburg ☐ City of Clayton ☐ City of Brentwood ☒ Participating Special Entity[2]
Check appropriate Development Fee Zone(s):	☒ Zone I ☐ Zone IV ☒ Zone II ☐ Zone III See Figure 9-1 of the Final HCP/NCCP for a generalized development fee zone map. Detailed development fee zone maps by jurisdiction are available from the jurisdiction or at www.cocohcp.org.
Acreage of land to be permanently disturbed[3]:	None. All impacts are temporary. See temporary impacts section below.
Acreage of land to be temporarily disturbed[4]:	This project involves approximately 23.518 acres of temporary impacts in the East Contra Costa County Habitat Conservation Plan Area (HCP Planning Area). Of this acreage, 19.340 acres is located in non-exempt areas. PG&E is planning to mitigate for these temporary impacts using the *permanent* impact fees for the footprint of the temporary impacts, consistent with Chapter 9.3.1.

[2] *Participating Special Entities* are organizations not subject to the authority of a local jurisdiction. Such organizations may include school districts, water districts, irrigation districts, transportation agencies, local park districts, geologic hazard abatement districts, or other utilities or special districts that own land or provide public services.

[3] *Acreage of land permanently disturbed* is broadly defined in the HCP/NCCP to include all areas removed from an undeveloped or habitat-providing state and includes land in the same parcel or project that is not developed, graded, physically altered, or directly affected in any way but is isolated from natural areas by the covered activity. Unless such undeveloped land is dedicated to the Preserve System or is a deed-restricted creek setback, the development fee will apply. The development fees were calculated with the assumption that all undeveloped areas within a parcel (e.g., fragments of undisturbed open space within a residential development) would be charged a fee; the fee per acre would have been higher had this assumption not been made. See Chapter 9 of the HCP/NCCP for details.

[4] *Acreage of land temporarily disturbed* is broadly defined in the HCP/NCCP as any impact on vegetation or habitat that does not result in permanent habitat removal (i.e. vegetation can eventually recover).

As part of the Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project, PG&E proposes to reconductor 31 miles of existing 230kV electric transmission line in Contra Costa and Alameda counties. Approximately 24 miles are located in Contra Costa County. The transmission line originates at Pittsburg Substation in the City of Pittsburg in Contra Costa County, then runs south for approximately four miles, and turns east-southeast, crossing Black Diamond Mines Regional Park, part of John Marsh State Historic Park, and Marsh Creek Reservoir and Dam. The line then turns southeast through Alameda County and terminates at Tesla Substation in northern Alameda County. A more detailed project description is included as **Attachment A : Project Description**. An overview of the project area is depicted in **Attachment B – Figure 1: Project Vicinity Map** and a detailed view of the project area, including work sites, is shown in **Attachment B – Figure 2: Detailed Project and Land Cover Map**.

II. Existing Conditions and Impacts

Methodology

Pre-field Research

Prior to conducting surveys, target lists of special status wildlife and plant species with potential to occur in the transmission corridor, were prepared. Special status species were those in one or more of the following categories:

- Federally- and/or state-listed species, including candidate and proposed species;
- Species of special concern; and
- Species with California Rare Plant Ranks (CRPR) of 1 through 3[5]

The background search area consisted of 27 United States Geological Survey (USGS) 7.5 minute quadrangles; the seven quads in which the project is located (*Honker Bay, Clayton, Antioch South, Brentwood, Bryon Hot Springs, Clifton Court Forebay*, and *Midway*) and all 20 adjacent quads (*Antioch North, Birds Landing, Denverton, Fairfield South, Vine Hill, Walnut Creek, Las Trampas Reservoir, Diablo, Tassajara, Jersey Island, Bouldin Island, Woodward Island, Livermore, Altamont, Tracy, Union Island, Holt, Mendenhall Springs, Cedar Mountain*, and *Lone Tree Creek*). Because some animals, particularly birds, have long ranges, the county lists (Alameda and Contra Costa counties) were also consulted for species that might have habitat in the project corridor.

Background research was performed initially in 2007, and has been updated periodically (in 2008, and 2011). Sources of information included California Native Plant Society's (CNPS) *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2007, 2008, 2011), the California Natural Diversity Database (CNDDB) maintained by the California Department of Fish and Game[6] (CDFG 2007, 2008, 2011), and the U.S. Fish and Wildlife (USFWS) website (USFWS 2007, 2008c, 2011). Other sources of information such as the *East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan* (Contra Costa County 2007), and *The Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties (*Lake 2004*)* were also consulted. Critical habitat maps from the USFWS website were also reviewed, as was the Federal Register description of listed species and primary constituent elements (PCE's) for the critical habitat units in question (USFWS 1980, 1994, 2005a, 2006a, 2006b, 2006c, 2008b, 2010). USFWS recovery plans were reviewed for vernal pool habitats (USFWS 2005b), large-flowered fiddleneck (*Amsinckia grandiflora*) (USFWS 1997), California red-legged frog (*Rana*

[5] Formerly known as California Native Plant Society (CNPS) listed plants.
[6] California Department of Fish and Game (CDFG) changes its name to California Department of Fish and Wildlife in January 2013.

aurora draytonii) (USFWS 2002), Alameda whipsnake (*Masticophis lateralis euryxanthus*) (USFWS 2003), and San Joaquin kit fox (*Vulpes macrotis mutica*) (USFWS 1998).

Known information on habitat conditions was also investigated. Topographic maps, aerial photographs, and the CNDDB were used to provide information on habitat types, water bodies and water features (e.g., ponds, reservoirs, "blue line" creeks, etc.), and special habitats (e.g. vernal pools and alkaline marshes).

While habitat for many special status species were reviewed, the methods and results below focus on plants and wildlife from the *East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan* (ECCC HCP/NCCP) (Contra Costa County 2007).

Field Surveys

GANDA biologists conducted biological surveys of the project corridor between October 2007 and June 2012.

All project work areas were surveyed with the exception of one: "alternate LZ-3." Alternate LZ-3 was chosen and considered after planning surveys took place. Time did not allow for ground assessment/planning surveys of alternate LZ-3. If alternate LZ-3 is chosen for use, the required planning and preconstruction surveys will take place prior to use.

Habitat Level Surveys

Habitat types and potential for special status species in the project area was assessed between October 2007 and August 2008. Teams of two biologists conducted the surveys. Areas that were surveyed included the actual project footprint (pull site, guard structure site, helicopter landing zones, unimproved access routes) and a buffer. These footprints and associated buffers (collectively referred to as "work areas") are depicted in **Attachment B – Figure 2: Detailed Project and Land Cover Map**. Surveys were typically conducted by driving to each individual project work area on existing paved, gravel, or native surface access roads. Each project work area was then thoroughly inspected for the presence of plants and wildlife and suitable habitat for special-status plants and wildlife. Special attention was given to identification of habitat attributes associated with special-status species, such as unique soil types, vernal pools, riparian areas, and waterbodies. Potentially sensitive resources occurring outside each study area were documented but not inspected in detail. Land cover classes were recorded within each study area (see **Attachment B – Figure 2: Detailed Project and Land Cover Map**).

For each project work area, the teams mapped habitat attributes and potentially sensitive resources using the Trimble GEO XT handheld GPS or Juno handheld GPS with ArcPad Mobile GIS Software. Mapping was supplemented using aerial photographs, and digital photographs were taken of project habitats.

Plant Surveys

Initial seasonally-timed floristic plant surveys of proposed work areas (pull sites, landing zones, guard structure areas, and undeveloped access routes) were performed on May 13-16 and 20th, July 22-23, and August 25, 2008, by GANDA biologists Ann Howald and Eliza Shepard; early spring surveys were performed April 6, 7, and 8, 2009, by GANDA biologists Samantha Hillaire, Theresa Johnson, and Eric Wrubel.

At the time of these initial 2008-2009 surveys, some proposed work areas were either disturbed, or had not yet been identified. These were Pull Site 6 (P-6), P-7, P-10 and associated access routes, guard structures TL10, TL11, TL12, SR37, DL14, DL25, TL15, DL29, TL26, TL31, TL32, TL33, TL34, and landing zone 3 (LZ-3). By Fall 2011, these areas had revegetated and/or had been identified on project maps. Therefore, Samantha Hillaire and Susan Infalt performed rare plant surveys/resurveys in this subset of work areas on March 26-28, April 24, and June 18-20,

2012. After the 2012 surveys, all proposed work areas have been surveyed during appropriate blooming seasons for special status plants.

The area surveyed for rare plants consisted of the area of planned disturbance, and a buffer. The study areas within Contra Costa County are depicted in **Attachment B – Figure 2: Detailed Project and Land Cover Map**, and **Attachment B - Figure 3: Biological Survey Results Map**. Areas were surveyed on foot. Surveys were conducted by walking transects (which were approximately 25-30 feet apart) back and forth through the designated areas. Surveys were floristic: all identifiable plant species were recorded. One population of round-leaved filaree (*California macrophylla*) was located at P-2 (see **Attachment B – Figures 2 and 3, Map 3**); no other special status plants were observed. GPS was used to record this location, and a CNDDB form was completed for this occurrence (included as **Attachment C**).

Jurisdictional (Wetland) Delineation

A wetland delineation was conducted in March 2010. This delineation was carried out in study areas that contained wetlands (P-2), and in other specific areas where modifications to potential access roads would require impacts to wetlands (access road to P-9). This delineation is included as **Attachment D: Wetland Delineation.** The areas with impacted wetlands are also depicted in **Attachment B – Figure 2: Detailed Project and Land Cover Map, Maps 3 and 24.**

PG&E has applied to the San Francisco District of USACE to be included in Nationwide Permit #12 for Utility Line Activities. The application materials, including wetland impact area maps, are included in **Attachment D: Wetland Delineation.**

Wildlife Surveys

In 2008, California red-legged frog habitat assessments were conducted where potential aquatic habitat was located within 200 feet of work areas by GANDA biologist Jackie Finck. The USFWS assessment protocol guidelines were used (USFWS 2005c)[7].

In addition to this California red-legged frog assessment, a habitat assessment for California tiger salamander (*Ambystoma californiese*) was performed by GANDA herpetologist Kevin Wiseman in February 2012. This assessment involved identifying closest known and potential breeding sites (pools, stock ponds, etc.), using a combination of desktop review, aerial photographs, and field visits. Any work area located in upland grassland habitat (or a similar type) within 1.3 miles of a known or potential breeding feature was assumed to be suitable migration or aestivation habitat. His assessment also identified the closest potential California red-legged frog breeding sites (ponds, slow creeks, etc.) to each work site. This assessment is included as **Attachment E: Pittsburg-Tesla Reconductoring Project Pull Site Assessment for California Tiger Salamander.**

As of March 2012 to present, surveys for western burrowing owl (*Athene cunicularia),* Swainson's hawk (*Buteo swainsonii*), and golden eagle (*Aquila chrysaetos*) are being conducted by GANDA biologists, led by biologist Eric Jepsen, to determine nesting locations of these birds. Survey areas used for these surveys are larger than the ones used for the plant and other wildlife surveys. The survey area for burrowing owl surveys includes work areas extending 500 feet from the boundaries of the work areas. Swainson's hawk surveys are being conducted within 0.5 mile from the transmission line and golden eagle surveys are conducted within 1 mile from the transmission line (survey area). The western burrowing owl surveys are conducted generally following the protocols for nesting surveys per the *California Department of Fish and Game Staff Report on Burrowing Owl Mitigation* 2012, including up to four visits spaced during the nesting season. Swainson's hawk surveys are conducted generally following the *Recommending Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley, Swainson's Hawk Technical Advisory Committee 2000*.

[7] The results of the California red-legged frog assessments were summarized in the biological assessment for the project, submitted to the USFWS in 2010 (GANDA 2010).

To date, Burrowing owl and Swainson's hawk surveys have been performed by GANDA biologists Eric Jepsen, Mara Solomon, and Brittany Wendell on 2, 4, 18, 23, 24, 25, and 26 April; and 1, 2, 4, 15, 16, 21, and 30 May 2012. Driving, walking, and binocular surveys are being performed. A CNDDB form of Swainson's hawk located within 1000 feet of work area P-5 is included in **Attachment C;** also see **Attachment B – Figure 3: Biological Survey Results Map, Map 12.** Golden eagle surveys have been performed with a ground survey to determine territories, followed up by a helicopter flight to identify nesting sites. The golden eagle surveys were performed by GANDA biologists Eric Jepsen, Terry Hunt, and Ronald Jackman. Ground surveys took place on April 1-6, and 15-10, 2012, with a helicopter survey on May 14, 2012. The helicopter survey was also used to search for other raptor nests within the survey area.

Land Cover Types

Table 1. Land Cover Types on the Project Site as Determined in the Field and Shown in Figure 3 (Contra Costa County Acreage in parentheses).

Land Cover Type (acres, except where noted)	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Temporarily Disturbed" by Project[b]	Acreage of Land Proposed for HCP/NCCP Dedication on the Parcel[c]		TOTAL IMPACTED ACREAGE
			Stream Setback	Preserve System Dedication	
Grassland[a]					
☒ Annual grassland	0	14.616 in HCP/NCCP planning area (includes a small area for protecting round-leaved filaree, and the purple needlegrass grassland below)			14.616 in HCP/NCCP planning area (includes a small area for protecting round-leaved filaree, and the purple needlegrass grassland below)
☐ Alkali grassland					
☒ Ruderal	0	0.630[f] (1.523 in HCP/NCCP planning area, minus 0.893 exempt at LZ-6 on a gravel pad)			0.630[f] (1.523 in HCP/NCCP planning area, minus 0.893 exempt at LZ-6 on a gravel pad)
☐ **Chaparral and scrub**					
☐ **Oak savanna[a]**					
☐ **Oak woodland**					
Jurisdictional wetlands and waters					

Land Cover Type (acres, except where noted)	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Temporarily Disturbed" by Project[b]	Acreage of Land Proposed for HCP/NCCP Dedication on the Parcel[c]		TOTAL IMPACTED ACREAGE
			Stream Setback	Preserve System Dedication	
☐ Riparian woodland/scrub					
☐ Permanent wetland[a]					
☒ Seasonal wetland[a]	0	0.007 in HCP/NCCP planning area			0.007 in HCP/NCCP planning area
☐ Alkali wetland[a]					
☐ Aquatic (Reservoir/ Open Water)[a]					
☐ Slough/Channel[a]					
☐ Pond[a]					
☐ Stream (acres)[a, d]					
☐ Total stream length (feet)[a, d]					
Stream length by width category					
☐ ≤ 25 feet wide					
☐ > 25 feet wide					
Stream length by type and order[e]					
☐ Perennial					
☐ Intermittent					
☐ Ephemeral, 3rd or higher order					
☐ Ephemeral, 1st or 2nd order					
Irrigated agriculture[a]					
☐ Cropland					
☒ Pasture	0	4.087 in HCP/NCCP planning area			4.087 in HCP/NCCP planning area
☐ Orchard					

Land Cover Type (acres, except where noted)	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Temporarily Disturbed" by Project[b]	Acreage of Land Proposed for HCP/NCCP Dedication on the Parcel[c]		TOTAL IMPACTED ACREAGE
			Stream Setback	Preserve System Dedication	
☐ Vineyard					
Other					
☐ Nonnative woodland					
☐ Wind turbines	0				
Developed					
☒ Urban	0	3.285 in HCP/NCCP planning area			3.285 in HCP/NCCP planning area
☐ Aqueduct					
☐ Turf	0				
☐ Landfill					
Uncommon Vegetation Types (subtypes of above land cover types)					
☒ Purple needlegrass grassland	0	0.045 in HCP/NCCP planning area (also included in the grassland number above)			0.045 in HCP/NCCP planning area (also included in the grassland number above)
☐ Wildrye grassland					
☐ Wildflower fields					
☐ Squirreltail grassland					
☐ One-sided bluegrass grassland					
☐ Serpentine grassland					
☐ Saltgrass grassland (= alkali grassland)					
☐ Alkali sacaton bunchgrass grassland					
☐ Other uncommon vegetation types (please describe)					
Uncommon Landscape Features or Habitat Elements					

Land Cover Type (acres, except where noted)	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Temporarily Disturbed" by Project[b]	Acreage of Land Proposed for HCP/NCCP Dedication on the Parcel[c]		TOTAL IMPACTED ACREAGE
			Stream Setback	Preserve System Dedication	
☐ Rock outcrop					
☐ Cave[a]					
☐ Springs/seeps					
☐ Scalds					
☐ Sand deposits					
☐ Mines[a]	—	—		—	
☐ Buildings (bat roosts) [a]	—	—		—	
☐ Potential nest sites (trees or cliffs) [a]	—	—		—	
Total		**19.340 non-exempt in ECCC HCP/NCCP area**			**19.340 non-exempt in ECCC HCP/NCCP area**
		4.178 exempt in ECCC HCP/NCCP area			**4.178 exempt in ECCC HCP/NCCP area**
TOTAL IMPACTED ACREAGE		**19.340 non-exempt in ECCC/NCCP HCP area**			**19.340 non-exempt in ECCC HCP/NCCP area**
		4.178 exempt in ECCC/NCCP HCP area			**4.178 exempt in ECCC/NCCP HCP area**

[a] Designates habitat elements that may trigger specific survey requirements and/or best management practices for key covered wildlife species. See Chapter 6 in the HCP/NCCP for details.

[b] See Section 9.3.1 of the HCP/NCCP for a definition of "permanently disturbed" and "temporarily disturbed." In nearly all cases, all land in the subject parcel is considered permanently disturbed.

[c] Dedication of land in lieu of fees must be approved by the local agency and the Implementing Entity before they can be credited toward HCP/NCCP fees. See Section 8.6.7 on page 8-32 of the Plan for details on this provision. Stream setback requirements are described in Conservation Measure 1.7 in Section 6.4.1 and in Table 6-2.

[d] Specific requirements on streams are discussed in detail in the HCP/NCCP. Stream setback requirements pertaining to stream type and order can be found in Table 6-2. Impact fees and boundary determination methods pertaining to stream width can be found in Table 9-5. Restoration/creation requirements in lieu of fees depend on stream type and can be found in Tables 5-16 and 5-17.

[e] See glossary (Appendix A) for definition of stream type and order.

[f] 1.523 total ruderal in HCP/NCCP planning area, minus 0.893 exempt at LZ-6 on a gravel pad = 0.630 acre. An additional 0.045 acre is present in Contra Costa County, outside of the HCP/NCCP area in the City of Pittsburg; this acreage is not accounted in the table.

Land Cover Survey Results

Land cover types that will be impacted by the project, as determined during planning surveys, include the following: annual grassland, purple needlegrass grassland, ruderal, pasture, seasonal wetland, and Developed (urban). Additional land cover types not impacted by the project, but included in the study area buffers include channel, oak woodland, pond, and wind turbines. Land cover survey results are shown in **Attachment B – Figure 2: Detailed Project and Land Cover Map**.

Field-Verified Land Cover Map

Insert field-verified land cover map. The map should contain all land cover types present on-site. The map should be representative of an aerial photo. Identify all pages of the field-verified land cover map as **Attachment B - Figure 2: Detailed Project and Land Cover Map.** Photos are also attached **(See Attachment B - Figure 2b: Representative Photos of Project Site)**.

Jurisdictional Wetlands and Waters

Indicate agency that certified the wetland delineation:

☒ USACE, ☒ State Water Quality Control Board, ☐ RWQCB, or ☐ the ECCC Habitat Conservancy.

☒ Wetland delineation is attached (Jurisdictional Determination) – **See Attachment D: Wetland Delineation.**

Field investigators identified three locations where potentially jurisdictional features may be temporarily impacted by project activities, for a total of 0.007 acre. All locations are in Contra Costa County. Along the access road to P-2, PG&E plans to temporarily lay rock in a seasonal wetland feature in order to widen the road for construction equipment; this measure will result in the temporary fill of 0.005 acre of wetland (see **Attachment B - Figure 2a: Land Cover Map, Map 3**). An additional 0.002 acre of seasonal wetland may be temporarily disturbed concurrently with the replacement of two (2) culverts along a large gravel access route to P-9 (see **Attachment B – Figure 2a: Land Cover Map, Map 24**). PG&E has applied to the San Francisco District of USACE to be included in Nationwide Permit #12 for Utility Line Activities. PG&E requested that USACE make a preliminary jurisdictional determination of the wetland delineation. The application materials, including wetland impact area maps, are included in **Attachment D: Wetland Delineation.** All wetland areas (0.007 acre) lie within Contra Costa County, in the ECCC HCP/NCCP coverage area.

In keeping with General Condition 23 (mitigation) of the USACE 2012 Nationwide Permit Program (formerly General Condition 20 in the USACE 2007 Nationwide Permit Program), PG&E proposes to address temporary wetland disturbances at a ratio of “one to one” (1:1) with onsite restoration of the disturbed areas. Following construction, the disturbed features will be returned to pre-project topographical conditions, temporary protective construction elements (e.g., rock, protective fencing, etc.) will be removed. Any denuded areas will be replanted and/or reseeded as necessary, per the Revegetation Plan in the project’s IS/MND (**see Planned Restoration Activities** section below, and **Attachment F: Initial Study/Mitigated Negative Declaration**). These actions will ensure minimal level of impact on jurisdictional areas.

In all other areas, wetlands will be avoided. The wetland delineation, and Nationwide Permit application materials, including impact maps, are included as **Attachment D: Wetland Delineation.**

Species-Specific Planning Survey Requirements

Table 2a. Species-Specific Planning Survey Requirements Triggered by Land Cover Types and Habitat Elements in the project area based on Chapter 6 of the Final HCP/NCCP.

Land Cover Type in the project area?	Species	Habitat Element in the project area?	**Planning Survey Requirement**
☒ Grasslands, oak savanna, agriculture, ruderal	San Joaquin kit fox	Assumed if within modeled range of species	Identify and map potential breeding and denning habitat and potential dens if within modeled range of species (see Appendix D of HCP/NCCP).
	Western burrowing owl	Assumed	Identify and map potential breeding habitat.
	Alameda whipsnake	Assumed in oak savannah and chaparral and adjacent grasslands within modeled range of species	Species is covered by the HCP/NCCP. No species-level avoidance and minimization measures required. (Habitat is mapped in **Appendix B – Figure 3. Biological Survey Results Map**).
☒ Aquatic (ponds, wetlands, streams, slough, channels, & marshes)	Giant garter snake	☐ Aquatic habitat accessible from San Joaquin River	Identify and map potential habitat.
	California tiger salamander	☒ Ponds and wetlands in grassland, oak savanna, oak woodland ☐ Vernal pools ☒ Reservoirs ☐ Small lakes	Identify and map potential breeding habitat. Document habitat quality and features. Provide Implementing Entity with photo-documentation and report.
	California red-legged frog	☒ Slow-moving streams, ponds, and wetlands	Identify and map potential breeding habitat. Document habitat quality and features. Provide Implementing Entity with photo-documentation and report.
☒ Seasonal wetlands	Covered shrimp	☐ Vernal pools ☐ Sandstone rock outcrops ☐ Sandstone depressions	Identify and map potential breeding habitat.

Land Cover Type in the project area?	Species	Habitat Element in the project area?	**Planning Survey Requirement**
Any	Townsend's big-eared bat	☐ Rock formations with caves ☐ Mines ☐ Abandoned buildings outside urban areas	Map and document potential breeding or roosting habitat.
	Swainson's hawk	☒ Potential nest sites (trees within species' range usually below 200')	Inspect large trees for presence of nest sites.
	Golden eagle	☒ Potential nest sites (secluded cliffs with overhanging ledges; large trees)	Document and map potential nests.

[a] Vernal pool fairy shrimp, vernal pool tadpole shrimp, longhorn fairy shrimp, and midvalley fairy shrimp.

Results of Species-Specific Planning Surveys Required in Table 2a

The following is a summary of results of the wildlife planning surveys. Survey results are depicted in **Attachment B – Figure 3: Biological Survey Results Map**.

As stated earlier, planning surveys have not taken place in alternate LZ-3. If chosen, suitable planning and preconstruction surveys will take place at alternate LZ-3 prior to its use. Alternate LZ-3 has land cover of annual grassland: based surveys in the surrounding areas, it likely has suitable habitat for San Joaquin kit fox, western burrowing owl, California tiger salamander, and covered plants that have potential habitat in grassland.

San Joaquin Kit Fox
San Joaquin kit foxes have been observed within three miles of the Pittsburg-Tesla line within the last 10 years, and historical occurrences are recorded from under the line and within a half mile of the right-of-way (CDFG 2007, 2008, 2011). The entire project has CNDDB occurrences at or within 10 miles of project work areas. San Joaquin kit fox is assumed present within the project area. GANDA biologist Jackie Finck observed one *Vulpes* species at P-7 near Kellogg Creek; the observed species looked like San Joaquin kit fox, but the identity was not confirmed and no CNNDDB record was made. Burrows of suitable size for San Joaquin kit fox are present at P-4, P-7, and P-11. No potential kit fox burrows have been observed within 50 feet of a guard structure, but potential kit fox burrows were noted within 200 feet of guard structure SR21.

Many work areas in Contra Costa County contain suitable habitat for San Joaquin kit fox with the following exceptions:

1. P-1 and LZ-1 (located within Pittsburg Substation),
2. LZ-6 (an abandoned gravel pad), and
3. Nine guard structures between SR01 and DL09 (along roads within the City of Pittsburg, not within the HCP/NCCP planning area).

A total of 19.025 acres of suitable San Joaquin kit fox habitat are present in work areas within the ECCC HCP/NCCP planning area.

Western Burrowing Owl
Burrowing owl occurrences have been documented from under the Pittsburg-Tesla line and within half a mile of the right-of-way. Generally suitable habitat (grassland, pasture, or ruderal areas with mammal burrows) is present at all work areas in Contra Costa County with the following exceptions:

1. P-1 and LZ-1 (located within Pittsburg Substation),
2. LZ-6 (an abandoned gravel pad), and
3. Nine guard structures between SR01 and DL09 (along roads within the City of Pittsburg, not within the HCP/NCCP planning area).

Western burrowing owl presence is assumed in the project area. To date, surveys have observed burrowing owls at approximately 29 locations. Approximately 14 pairs and 14 unpaired individuals have been observed. At one location, only burrowing owl sign was observed. Only one (1) owl was observed in Contra Costa County on the access route to P-8; the location with only sign was also located at P-8 (see **Attachment B – Figure 4: Biological Survey Results Map, Maps 21-22**.) All other burrowing owl observations occurred in Alameda County. A total of approximately19.340 acres of potential burrowing owl habitat (with approximately 17 acres of particularly good habitat) are present in work areas located in the ECCC HCP/NCCP planning area.

California Tiger Salamander
California tiger salamander occurrences have been documented from under the Pittsburg-Tesla line (CNDDB 2007, 2008, 2011), and most upland work areas are located within 1.3 miles of a potential aquatic breeding site. California tiger salamander presence is assumed within the project corridor.

Generally suitable habitat (grassland, pasture, or ruderal areas with mammal burrows) is present at all work areas in Contra Costa County with the following exceptions:

1. P-1 and LZ-1 (located within Pittsburg Substation),
2. LZ-6 (an abandoned gravel pad), and
3. Nine guard structures between SR01 and DL09 (along roads within the City of Pittsburg, not within the HCP/NCCP planning area).

A total of approximately19.025 acres of suitable upland California tiger salamander habitat are present in work areas located in the ECCC HCP/NCCP planning area. No aquatic breeding habitat is present in work areas, and no breeding habitat is expected to be impacted by project activities. More detail of this assessment is presented in **Attachment E: Pittsburg-Tesla Reconductoring Project Pull Site Assessment for California Tiger Salamander.**

Alameda Whipsnake
Alameda whipsnake is known from occurrences under and within ½ mile of the Pittsburg-Tesla line (CNDDB 2007, 2008, 2011). This snake inhabits areas with a mosaic of shrubs, oak trees, and grasses, and can be found in adjacent grasslands. Alameda whipsnake presence is assumed within the study area in suitable habitat within the modeled range of the species.

Generally suitable habitat (chaparral, oak woodland, and adjacent grassland) is present in the following work areas:

1. P-4 and associated unimproved access route, and
2. Two guard structures (DL16 and E [also labeled 'DL17' on older maps]).

A total of 2.911 acres of suitable habitat for Alameda whipsnake habitat are present within work areas located in the ECCC HCP/NCCP planning area. Habitat is mapped in **Attachment B –**

Figure 4: Biological Survey Results Map (maps 6, 8, and 10). Although the species is covered by the ECCC HCP/NCCP, this species has no species-level avoidance and minimization requirements.

California Red-legged Frog
California red-legged frog presence is assumed within the study area. During surveys, GANDA biologists observed California red-legged frog in and adjacent to the buffer of P-7 (although not within the pull site itself). California red-legged frog tadpoles and an adult were observed in Kellogg Creek (immediately outside the survey area), and one adult was observed in the uplands at P-7 in March 2012. The frogs are well-known from the area around P-7, as this site is used for "California red-legged frog handling classes" due to strong frog presence.

Within Contra Costa County, suitable breeding habitat for California red-legged frog exists at or within one-mile of proposed pull sites and landing zones P- 2, LZ-2, P-3, LZ-3, P-4, P-7, P-8, and LZ-8. Suitable upland habitat occurs within a 50-foot radius of Guard Structures SR21, TL34, and SR37.

A total of 11.022 acres of suitable upland California red-legged frog habitat are present in work areas located in the ECCC HCP/NCCP planning area. No aquatic breeding habitat is present in work areas, and no breeding habitat is expected to be impacted by project activities.

Vernal Pool Crustaceans
Portions of the project corridor and access routes lie within areas designated as critical habitat for vernal pool fairy shrimp, and vernal pool fairy shrimp occurrences are documented from under the line and within a half mile of the right-of-way (CNDDB 2007, 2008, 2011). However, no suitable habitat for any vernal pool crustacean species occurs within 250 feet of work areas. The wetlands being impacted are very shallow features that become saturated, but do not hold standing water long enough to support vernal pool crustaceans. No impacts are expected to vernal pool crustaceans.

Swainson's Hawk and Golden Eagle
Uplands and riparian forest within the project corridor provide habitat for Swainson's hawk. CNDDB occurrences for Swainson's hawk have been recorded within five miles of the project corridor (CNDDB 2007, 2008, 2011), and several Swainson's hawks were observed during project surveys. Golden eagle nests are also known from nearby locations.

To date, project surveys have located three (3) Swainson's hawk nests, one (1) golden eagle nest, and one (1) white-tailed kite nest in Contra Costa County. None of these nests are within work areas. Those nests close to the Pittsburg-Tesla Transmission line are depicted in **Attachment B – Figure 3: Biological Survey Results Map (particularly Map 12).**

We request a variance for the 1,000 foot Swainson's hawk nest buffer for work at Tower 57 (**Figure 3, Map 12**). At this location, a Swainson's hawk nest was located in Spring 2012 at 900 feet from the tower. We request that the buffer be reduced to 900 feet, in the case that this nest is occupied at the time work takes place, and cannot be postponed. The nest is located in a dense stand of trees, and tower work at this location would last only a few days. Therefore, no impacts are expected to this nest.

This was the only active Swainson's hawk nest located within 1,000 feet of planned work activities in spring 2012. No active golden eagle nests were found within 0.5 mile of planned work activities in spring 2012. In the event that other active Swainson's hawk or golden eagle nests are located within these distances during project construction, any additional variances will be approved with Conservancy staff rather than Board approval.

Covered and No-Take Plants

Table 2b. Covered and No-Take Plant Species, Typical Habitat Conditions, and Typical Blooming Periods

Land Cover Type in the project area?	Plant Species	Covered (C) or No-Take (N)?	Typical Habitat or Physical Conditions, if Known	Typical Blooming Period[a]
☐ Oak savanna	Diablo Helianthella (*Helianthella castanea*)	C	Elevation above 650 feet[b]	Mar–Jun
	Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Elevation between 650 and 2,600 feet[b]	Apr–Jun
☒ Oak woodland	Brewer's dwarf flax (*Hesperolinon breweri*)	C		May–Jul
	Diablo Helianthella (*Helianthella castanea*)	C	Elevation above 650 feet[b]	Mar–Jun
	Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Elevation between 650 and 2,600 feet[b]	Apr–Jun
	Showy madia (*Madia radiata*)	C		Mar–May
☐ Chaparral and scrub	Brewer's dwarf flax (*Hesperolinon breweri*)	C		May–Jul
	Diablo Helianthella (*Helianthella castanea*)	C	Elevation above 650 feet[b]	Mar–Jun
	Mount Diablo buckwheat (*Eriogonum truncatum*)	N		Apr–Sep; uncommonly Nov–Dec.
	Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Elevation between 650 and 2,600 feet[b]	Apr–Jun
	Mount Diablo Manzanita (*Arctostaphylos auriculata*)	C	Elevation between 700 and 1,860 feet; restricted to the eastern and northern flanks of Mt. Diablo[b]	Jan–Mar
☐ Alkali grassland	Brittlescale (*Atriplex depressa*)	C	Restricted to soils of the Pescadero or Solano soil series; generally found in southeastern region of plan area[b]	May–Oct
	Caper-fruited tropidocarpum (*Tropidocarpum capparideum)*	N		Mar-Apr

Land Cover Type in the project area?	Plant Species	Covered (C) or No-Take (N)?	Typical Habitat or Physical Conditions, if Known	Typical Blooming Period[a]
	Contra Costa goldfields (*Lasthenia conjugens*)	N	Generally found in vernal pools	Mar–Jun
	Recurved larkspur (*Delphinium recurvatum*)	C		Mar–Jun
	San Joaquin spearscale (*Atriplex joaquiniana*)	C		Apr-Oct
☐ Alkali wetland	Alkali milkvetch (*Astragalus tener* ssp. *tener*)	N		Mar–Jun
	Brittlescale (*Atriplex depressa*)	C	Restricted to soils of the Pescadero or Solano soil series; generally found in southeastern region of plan area[b]	May–Oct
	San Joaquin spearscale (*Atriplex joaquiniana*)	C		Apr–Oct
☒ Annual grassland	Alkali milkvetch (*Astragalus tener* ssp. *tener*)	N		Mar–Jun
	Big tarplant (*Blepharizonia plumosa*)	C	Elevation below 1500 feet[b]	Jul–Oct
	Brewer's dwarf flax (*Hesperolinon breweri*)	C	Restricted to grassland areas within a 500+ buffer from oak woodland and chaparral/scrub[b]	May–Jul
	Contra Costa goldfields (*Lasthenia conjugens*)	N	Generally found in vernal pools	Mar–Jun
	Diamond-petaled poppy (*Eschscholzia rhombipetala*)	N		Mar–Apr
	Large-flowered fiddleneck (*Amsinckia grandiflora*)	N		Apr–May
	Mount Diablo buckwheat (*Eriogonum truncatum*)	N		Apr–Sep; uncommonly Nov–Dec
	Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Elevation between 650 and 2,600[b]	Apr–Jun

Land Cover Type in the project area?	Plant Species	Covered (C) or No-Take (N)?	Typical Habitat or Physical Conditions, if Known	Typical Blooming Period[a]
	Round-leaved filaree (*California macrophylla*)[1]	C		Mar–May
	Showy madia (*Madia radiata*)	C		Mar–May
☒ Seasonal wetland	Adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*)	C	Generally found in vernal pools[b]	Apr–Jun
	Alkali milkvetch (*Astragalus tener* sp. *tener*)	N		Mar–Jun
	Contra Costa goldfields (*Lasthenia conjugens*)	N	Generally found in vernal pools	Mar–Jun

[a] From California Native Plant Society. 2007. *Inventory of Rare and Endangered Plants* (online edition, v7-07d). Sacramento, CA. Species may be identifiable outside of the typical blooming period; a professional botanist shall determine if a covered or no take plant occurs on the project site.
[b] See Species Profiles in Appendix D of the Final HCP/NCCP.

Results of Covered and No-Take Plant Species Planning Surveys Required in Table 2b

Habitat-level surveys identified that the project corridor has at least minimally suitable habitat to potentially support 11 no-take and ECCC HCP/NCCP covered rare plant species: large-flowered fiddleneck (*Amsinckia grandiflora*), alkali milk-vetch (*Astragalus tener var. tener*), big tarplant (*Blepharizonia plumosa*), round-leaved filaree (*California macrophylla*), Brewer's dwarf flax (*Hesperolinon breweri*), Mt. Diablo buckwheat (*Eriogonum truncatum*), diamond-petaled poppy (*Eschscholzia rhombipetala*), Contra Costa goldfields (*Lasthenia conjugens*), showy madia (*Madia radiata*). Floristic surveys have taken place at suitable blooming times for these species in all work areas with suitable habitat.

One of these species, round-leaved filaree, was observed during floristic surveys; a population of nine (9) flowering plants was observed in a drainage at P-2 (see **Attachment B - Figure 3: Biological Survey Results Map, Map 3**). This occurrence is not present every year; it was not observed in 2009, was observed in 2010 and 2011, then was not observed in 2012. Therefore this occurrence may not be particularly healthy. The CNDDB form for this occurrence is included as **Attachment C: CNDDB Forms**. This population is located where it can be protected from disturbance from project activities. This species was associated with a seasonal wetland channel at P-2, and is located on a locally steep slope that is unsuitable for construction activity. The plants are located on the opposite side of a drainage from the proposed work, in a location where they can be easily flagged or fenced for avoidance. Therefore, no impacts are expected to this occurrence.

Surveys have determined that no other covered plant species are present. Field surveys determined that all other covered plant species are absent.

A total of 0.045 acre of purple needlegrass grassland was observed within work areas in Contra Costa County. This uncommon vegetation type is located in at Guard Structure TL-11, and is included in the ground cover mapping for annual grassland (Table 1 and **Attachment B – Figure 3: Land Cover Map, Map 4**). Direction in the HCP/NCCP (Chapter 6, Section 6.3.1) states that "impacts to these features will be avoided and minimized when projects occur adjacent to HCP/NCCP preserves (i.e., when their avoidance will help meet HCP/NCCP biological goals)," and "If uncommon landscape features or uncommon vegetation alliances are preserved on site, they should be connected to other open space." The purple needlegrass population is not located next to an HCP/NCCP preserve property.

Avoidance and Minimization Measures

PG&E will implement five measures during and after ground disturbing activities near populations of round-leaved filaree (*California macrophylla*, CRPR 1B.1) at P-2. These measures are outlined in an IS/MND and mitigation monitoring and reporting plan (MMRP) completed for the project (GANDA 2012); see **Attachment F: Initial Study/Mitigated Negative Declaration (refer to APM-BIO-02)**. These measures would also be implemented for any other ECCC HCP/NCCP covered and no-take special status plant species located in or near the project area These measures will be implemented in order to avoid all impacts to all ECCC HCP/NCCP covered and no-take plant species:

a) installation of protective fencing or flagging (including a buffer of approximately 20 feet) around the population and limiting nearby ground disturbance;

b) on-site biological monitoring;

c) environmental awareness training for construction personnel, including information on the locations, habitat requirements and distribution of special status plants;

d) returning the construction site to pre-project conditions; and

e) managing stormwater runoff with the implementation of a Storm Water Pollution Prevention Plan (SWPPP).

With the implementation of these avoidance measures, impacts to covered and no-take plant species will be avoided.

In the unlikely event that an HCP/NCCP covered plant is documented during pre-construction surveys, the project proponent will meet and confer with Conservancy staff to develop and implement a suitable plan to address the following sections in the HCP/NCCP: Conservation Measure 3.10, "Plant Salvage when Impacts are Unavoidable"; Section 6.31, "Covered and No-Take Plants"; and Table 5-20, "Protection Requirements for Covered Plants."

The purple needlegrass grassland in the project area (0.045 acre) is surrounded by similar grassland habitat (in private ranchland). A guard structure (a few poles) will be placed here, and then removed after project activities have taken place. While a small amount of disturbance is unavoidable at this location, the amount of disturbance will be limited to the minimum necessary to complete work safely. The site will be returned to pre-project conditions, and will be restored in accordance the Revegetation Plan in the IS/MND (see **Attachment F: Initial Study/Mitigated Negative Declaration, refer to Appendix I** in this document). After construction, this area will remain surrounded by open space grassland of a similar type.

Planned Restoration Activities[8]

These restoration activities are outlined in an IS/MND Revegetation Plan completed for the project (GANDA 2012); see **Attachment F: Initial Study/Mitigated Negative Declaration** (refer to **Appendix I** in the IS/MND). Prior to commencement of construction activities, and as part of the pre-construction surveys, biologists will photo-document the condition of all work areas where disturbance is expected . An estimate of absolute herbaceous ground cover at each location will also be recorded. These pre-construction photographs and measurements will serve as the benchmark for determining 1) need for revegetation at the end of project construction, and 2) revegetation success after restoration efforts have been implemented.

Some restoration activities can be accomplished by using native materials and BMPs built into the construction methods. When installing temporary guard structures, the initial 10-12 inches of topsoil will be stored separately from the rest of the spoil. When the guard structures are removed, this topsoil will be used to recontour the surface of the filled holes. The seed in this topsoil is expected to be enough to revegetate the relatively small patches of disturbed ground left by this process (approximately 18-24 inch diameter holes).

Not all disturbed areas will require reseeding. Active revegetation will be considered for areas that have been denuded more than 50 percent of their original cover, as compared to pre-construction photographs and measurements. In addition, very small areas (up to 25 square feet) of bare ground may be left to revegetate on their own if the area around them is well-vegetated and provides a local seed source, and if no noxious weed populations are present.

Initial revegetation activities will typically take place in the fall and early winter after activities at individual work areas are completed. This timing will reduce or eliminate the need for artificial irrigation by relying on natural winter rainfall.

Many disturbed areas are expected to be small, and vegetation will be only partially removed. Therefore, active revegetation is expected to be relatively small scale. Small disturbed areas (up to 400 square feet) will be hand-seeded. Clean straw mulch will be applied and stabilized (e.g., crimped or tackified) at these locations.

A few areas of disturbance greater than 400 square feet are expected. These include new temporary access routes, and any graded areas. More intense revegetation efforts are expected at these locations. Any graded work areas will be recontoured to approximate pre-construction topography. Then these areas are expected to be hydroseeded and hydromulched (which may occur as a single application of material). Fertilizer will not be used at any sites where runoff may deliver the fertilizer to drainages or water bodies (e.g. Pull Sites P-2 and P-7 in Contra Costa County; also P-12 in Alameda County, not shown on project maps).

Disturbance areas greater than 400 square feet will be documented and mapped, and revegetation efforts implemented at those sites will be provided in mitigation and monitoring reports.[9]

The seed mix used for the project area will be certified weed-free. Natives and non-invasive non-natives will be emphasized. Seed mixes will be formulated and presented to interested agencies (State Water Quality Control Board, CDFG, USFWS, and USACE) for approval when disturbed areas are determined to require reseeding. Specified seed mixes are expected to contain native perennial grass(es), native annual grass(es), non-native non-invasive annual grass(es), and legume(s). Some native wildflowers may also be included. In addition, a sterile wheatgrass such

[8] These restoration measures are those presented in the Initial Study/Mitigated Negative Declaration for the project,that was approved in June 2012. The State Water Quality Control Board is the lead agency.
[9] The Mitigation and Monitoring Reporting Plan in the project initial study/mitigated negative declaration outlines reporting requirements to the responsible agencies.

as Regreen sterile wheatgrass (*Elymus x triticum*) may be optionally used to achieve quick cover the first year, especially if revegetation is needed on steeper ground.

Most project work areas are located on relatively level ground, without steep slopes; vegetation around sites will be preserved to the greatest extent practicable. Therefore, soil movement as a result of vegetation loss is expected to be insignificant. However, if any long-term or permanent erosion control installations are warranted, these will include only biodegradable materials. All materials (seed, mulch, etc.) used during the installation will be certified weed-free.

Restored areas will be monitored regularly per the project SWPPP requirements. Any disturbed areas that do not quickly gain vegetative cover may be reseeded and/or re-mulched on an as-needed basis. Any new occurrences of noxious weeds will be treated on an as-needed basis. Revegetation efforts will be considered successful when 1) the area is stable (i.e., no sedimentation or erosion), and 2) when the vegetation cover has reached 70 percent of the original site cover, as compared to pre-construction photographs and records.

Report(s) documenting restoration actions, current conditions, and pre- and post-construction photographs of sites, will be presented to the State Water Quality Control Board. The reports will be presented yearly, starting in 2013[10], to document restoration efforts at sites each year; these reports will be concurrently submitted to the East Contra Costa County HCP/NCCP. Areas are expected to be considered successful within three years after construction activities are completed.

III. Species-Specific Monitoring and Avoidance Requirements

Preconstruction Surveys for Selected Covered Wildlife

Table 3. Applicable Preconstruction Survey and Notification Requirements based on Land Cover Types and Habitat Elements Identified in Table 2a.

Species	Preconstruction Survey and Notification Requirements
☐ None	
☒ San Joaquin kit fox (p. 6-38)	Map all dens (>5 in. diameter) and determine status. Determine if breeding or denning foxes are in the project area. Provide written preconstruction survey results to USFWS within 5 working days after surveying.
☒ Western burrowing owl (p. 6-40)	Map all burrows and determine status[11]. Document use of habitat (e.g. breeding, foraging) in/near disturbance area (within 500 ft.)
☒ Alameda whipsnake	No species-level avoidance and minimization measures required for this species.
☐ Giant garter snake (p. 6-44)	Delineate aquatic habitat up to 200 ft. from water's edge. Document any sightings of garter snake.

[10] Or later, as appropriate, if the project is postponed until 2013-2014.
[11] Within project work areas and a 500-foot survey buffer.

☒ California tiger salamander (p. 6-46) (notification only)	Provide written notification to USFWS and CDFG regarding timing of construction and likelihood of occurrence in the project area.
☒ California red-legged frog (p. 6-47) (notification only)	Provide written notification to USFWS and CDFG regarding timing of construction and likelihood of occurrence in the project area.
☐ Covered shrimp species (p. 6-47)	Document and evaluate use of all habitat features (e.g., vernal pools, rock outcrops). Document occurrences of covered shrimp.
☐ Townsend's big-eared bat (p. 6-37)	Determine if site is occupied or shows signs of recent occupation (guano).
☒ Swainson's hawk (p. 6-42)	Determine whether nests are occupied.
☒ Golden eagle (p. 6-39)	Determine whether nests are occupied.
Note: Page numbers refer to the HCP/NCCP (Contra Costa County 2007).	

Required preconstruction surveys include surveys for San Joaquin kit fox, western burrowing owl, California tiger salamander, California red-legged frog, Swainson's hawk, and golden eagle. These preconstruction surveys are described in Chapter 6 of the HCP, and are reiterated below. The survey protocols for each of these species are the following:

San Joaquin Kit Fox (HCP page 6-37)
Prior to any ground disturbance related to covered activities, a USFWS/CDFG–approved biologist will conduct a preconstruction survey in areas identified in the planning surveys as supporting suitable breeding or denning habitat for San Joaquin kit fox. The surveys will establish the presence or absence of San Joaquin kit foxes and/or suitable dens and evaluate use by kit foxes in accordance with USFWS survey guidelines (U.S. Fish and Wildlife Service 1999). Preconstruction surveys will be conducted within 30 days of ground disturbance. At the work area where the activity is proposed, the biologist will survey the proposed disturbance footprint and a 250-foot radius from the perimeter of the proposed footprint to identify San Joaquin kit foxes and/or suitable dens. Adjacent parcels under different land ownership will not be surveyed. The status of all dens will be determined and mapped. Written results of preconstruction surveys will be submitted to USFWS within 5 working days after survey completion and before the start of ground disturbance. Concurrence is not required prior to initiation of covered activities.

If San Joaquin kit foxes and/or suitable dens are identified in the survey area, the San Joaquin kit fox avoidance and minimization measures (HCP page 6-38), as well as the construction monitoring measures will be implemented.

Western Burrowing Owl (HCP page 6-40)
Prior to any ground disturbance related to covered activities, a USFWS/CDFG approved biologist will conduct a preconstruction survey in areas identified in the planning surveys as having potential burrowing owl habitat. The surveys will establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFG survey guidelines (California Burrowing Owl Consortium 1993).

Around the work area where the activity is proposed, the biologist will survey the proposed disturbance footprint and a 500-foot radius from the perimeter of the proposed footprint to identify burrows and owls. Adjacent parcels under different land ownership will not be surveyed. Surveys should take place near sunrise or sunset in accordance with CDFG guidelines (California Burrowing Owl Consortium 1993). All burrows or burrowing owls will be identified and mapped. Surveys will take place no more than 30 days prior to construction. During the breeding season (February 1–August 31), surveys will document whether burrowing owls are nesting in or directly

adjacent to disturbance areas. During the nonbreeding season (September 1–January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results will be valid only for the season (breeding or nonbreeding) during which the survey is conducted.

If western burrowing owls are identified in the survey area, the western burrowing owl avoidance and minimization measures (HCP page 6-40) as well as the construction monitoring measures will be implemented.

Alameda whipsnake The project contains suitable habitat for Alameda whipsnake. There are no species-level avoidance and minimization requirements for this species.

California Tiger Salamander and California Red-legged Frog (HCP pages 6-45 and 6-46)
The project contains suitable upland habitat for both California tiger salamander and California red-legged frog. No breeding habitat will be filled. Presence of these species is assumed. No preconstruction surveys are required.

Swainson's Hawk (HCP page 6-41)
Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15-September 15), a qualified biologist will conduct a preconstruction survey no more than 1 month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring are required.

Golden Eagle (HCP page 6-39)
Prior to implementation of covered activities, a qualified biologist will conduct a preconstruction survey to establish whether nests of golden eagles are occupied (see HCP Section 6.3.1, *Planning Surveys*). If nests are occupied, minimization requirements and construction monitoring will be required.

Construction Monitoring & Avoidance and Minimization Measures for Selected Covered Species

Construction Monitoring Plan Requirements in Section 6.3.3, Construction Monitoring, of the Final HCP/NCCP:

☒ Before implementing a covered activity, the applicant will develop and submit a construction-monitoring plan to the Implementing Entity[12] for approval.

Table 4. Applicable Construction Monitoring Requirements

Species Assessed by Preconstruction Surveys	Monitoring Action Required if Species Detected
☐ None	N/A

[12] The East Contra Costa County Habitat Conservancy and the local land use Jurisdiction must review and approve the plan **prior** to the commencement of all covered activities (i.e. construction).

Species Assessed by Preconstruction Surveys	Monitoring Action Required if Species Detected
☒ San Joaquin kit fox (p. 6-38)	Establish exclusion zones (>50 ft) for potential dens. Establish exclusion zones (>100 ft) for known dens. Notify USFWS of occupied natal dens.
☒ Western burrowing owl (p. 6-40)	Establish buffer zones (250 ft) around nests. Establish buffer zones (160 ft) around burrows.
☐ Giant garter snake (p. 6-44)	Delineate 200-ft buffer around potential habitat. Provide field report on monitoring efforts. Stop construction activities if snake is encountered; allow snake to passively relocate. Remove temporary fill or debris from construction site. Mandatory training for construction personnel.
☐ Covered shrimp species (p. 6-47)	Establish buffer around outer edge of all hydric vegetation associated with habitat (50 feet of limit of immediate watershed supporting the wetland, whichever is larger). Mandatory training for construction personnel.
☒ Swainson's hawk (p. 6-42)	Establish 1,000-ft buffer around active nest and monitor compliance.
☒ Golden eagle (p. 6-39)	Establish 0.5-mile buffer around active nest and monitor compliance.

The following avoidance and minimization, and construction monitoring measures will be implemented for SanJoaquin kit fox, western burrowing owl, Swainson's hawk and golden eagle as required by the results of the preconstruction surveys. These measures are presented in the HCP Chapter 6, and are reiterated here.

San Joaquin Kit Fox (HCP page 6-38)

Avoidance and Minimization

- If a San Joaquin kit fox den is discovered in the proposed development footprint, the den will be monitored for 3 days by a USFWS/CDFG–approved biologist using a tracking medium or an infrared beam camera to determine if the den is currently being used.

- Unoccupied dens will be destroyed immediately to prevent subsequent use.

- If a natal or pupping den is found, USFWS and CDFG will be notified immediately. The den will not be destroyed until the pups and adults have evacuated and then only after further consultation with USFWS and CDFG.

- If kit fox activity is observed at the den during the initial monitoring period, the den will be monitored for an additional 5 consecutive days from the time of the first observation to allow any resident animals to move to another den while den use is actively discouraged. For dens other than natal or pupping dens, use of the den will be discouraged by partially plugging the entrance with soil such that any resident animal can easily escape. Once the den is determined to be unoccupied it may be excavated under the direction of the biologist. Alternatively, if the animal is still present after 5 or more consecutive days of plugging and monitoring, the den may be excavated when, in the judgment of a biologist, it is temporarily vacant (i.e., during the animal's normal foraging activities).

- If dens are identified in the survey area outside the proposed disturbance footprint, exclusion zones around each den entrance or cluster of entrances will be demarcated. The configuration of exclusion zones will be circular, with a radius measured outward from the den entrance(s). No covered activities will occur within the exclusion zones.

Exclusion zone radii for potential dens will be at least 50 feet and will be demarcated with four to five flagged stakes. Exclusion zone radii for known dens will be at least 100 feet and will be demarcated with staking and flagging that encircles each den or cluster of dens but does not prevent access to the den by kit fox.

Construction Monitoring
If dens are identified in the survey area outside the proposed disturbance footprint, exclusion zones around each den entrance or cluster of entrances will be demarcated. The configuration of exclusion zones should be circular, with a radius measured outward from the den entrance(s). No covered activities will occur within the exclusion zones. Exclusion zone radii for potential dens will be at least 50 feet and will be demarcated with four to five flagged stakes. Exclusion zone radii for known dens will be at least 100 feet and will be demarcated with staking and flagging that encircles each den or cluster of dens but does not prevent access to the den by kit fox.

Western Burrowing Owl (HCP page 6-40)
Avoidance and Minimization, and Construction Monitoring
If burrowing owls are found during the breeding season (February 1–August 31), PG&E will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance will include establishment of a nondisturbance buffer zone (described below). Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the nonbreeding season (September 1– January 31), PG&E will avoid the owls and the burrows they are using, if possible. Avoidance will include the establishment of a buffer zone (described below).

If occupied burrows for burrowing owls are not avoided, passive relocation will be implemented. Owls will be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. These doors will be in place for 48 hours prior to excavation. The project area will be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows will be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure will be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

Swainson's Hawk (HCP page 6-41 and 6-42)
No nest trees will be removed as a result of project activities. However the project will adhere to the following avoidance and minimization measures where necessary.

Avoidance and Minimization, and Construction Monitoring
During the nesting season (March 15–September 15), covered activities within 1,000 feet[13] of occupied nests or nests under construction will be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, then PG&E will coordinate with CDFG/USFWS to determine the appropriate buffer size.

A variance of a buffer of 900 feet is requested at Tower 057 (see page 15).

If young fledge prior to September 15, covered activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, PG&E can apply to the Habitat Conservancy for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFG. While the nest is occupied,

[13] The MMRP indicates that PG&E will find all Swainson's hawk nests within ½ mile of project work areas and evaluate them for disturbance and buffers.

activities outside the buffer can take place.

No nest trees will be removed as a result of project activities.

Golden Eagle (HCP page 6-39)
Avoidance and Minimization
Covered activities will be prohibited within 0.5 mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the PG&E biologist will coordinate with CDFG/USFWS to determine the appropriate buffer size[14].

Construction Monitoring
Construction monitoring will focus on ensuring that no covered activities occur within the buffer zone established around an active nest. Although no known golden eagle nest sites occur within or near the urban limit line, covered activities inside and outside of the Preserve System have the potential to disturb golden eagle nest sites. Construction monitoring will ensure that direct effects to golden eagles are minimized.

IV. Landscape and Natural Community-Level Avoidance and Minimization Measures

Describe relevant avoidance and minimization measures required to address the conservation measures listed below. <u>If a conservation measure is not relevant to the project, explain why.</u>

<u>For All Projects</u>

PG&E has developed a Mitigation Monitoring and Reporting Plan (MMRP) in the initial study/mitigated negative declaration for this project that was approved in June 2012. Whenever applicable to the conservation measures in the following section, measures from the MMRP have been included. See **Attachment F: Initital Study/Mitigated Negative Declaration**.

HCP/NCCP Conservation Measure 1.10. Maintain Hydrologic Conditions and Minimize Erosion

The following measures were developed for the MMRP in order to minimize erosion:

- Erosion, sediment, material stockpile, and dust control BMPs will be employed on site. A SWPPP will be developed, and construction crews will adhere to all additional requirements of the project SWPPP.

- To the extent possible, whenever holes are excavated or augured, the top 10 inches of soil will be stored separately from the rest of the spoil. If possible, this seed source will be used to refill the top of the excavation.

- When in proximity to a wetland or other waters of the state, including waters of the U.S., spoils will be placed into a secondary container (truck, cart, etc.) to prevent introducing fill to wetlands and waters.

[14] The MMRP recommends at least a 1,000-foot buffer.

In order to maintain hydrologic conditions and minimize erosion, PG&E is developing a SWPPP that will identify BMPs to be implemented to minimize the introduction of foreign material into waterbodies, control stormwater runoff, minimize any wind- or water-related erosion and sedimentation, and limit the amount of surface disturbance to the area. The proposed project will not violate any water quality standards or waste discharge requirements. All measures outlined in the SWPPP will be implemented in order to ensure that no sediment or other debris is allowed to enter stream beds or banks. See Conservation Measure 2.12 for erosion control details.

Additionally, the SWPPP is being designed to minimize impacts to the local groundwater supplies by introducing measures to control hazardous liquids. All BMP's implemented during the project will be monitored by the on-site Biological Monitor. PG&E will also implement a monitoring program to ensure that appropriate storm water and erosion control devices are installed properly and maintained throughout the project. Any degradation of the BMP's will be attended to without delay in order to eliminate the potential for impacts to occur. No additional permanent roads will be created as a result of this project. Many roads will be limited to project usage and will not cause a large increase in vehicular traffic outside of the minimum amount needed to complete the project.

The project will not create any impermeable surfaces. Up to four of the pull sites (with associated access and landing zones) will be graded to provide a level work area. Fabric and rock, or similar measures, may be temporarily placed on these areas to prevent erosion, compaction, and rutting. Some dirt roads and temporary access routes will be covered with a layer of fabric and gravel in order to facilitate movement of heavy equipment. After project completion, the fabric and gravel will be removed, restoring the roads to their original state. Temporary routes will be restored according to the project restoration plan (described earlier in this application).

The project does not propose to substantially alter existing drainage patterns. Although small amounts of grading are necessary at some pull sites, the grading will occur in upland areas that are well-removed from waterways. This grading is not expected to alter the overall drainage pattern of an area, and no intermittent or perennial channels will be altered by grading.

In addition, the project will not divert water in a way that would affect local hydrology or groundwater resources.

HCP/NCCP Conservation Measure 1.11. Avoid Direct Impacts on Extremely Rare Plants, Fully Protected Wildlife Species, or Covered Migratory Birds

Planning phase biological surveys were conducted to determine the presence or potential for presence of protected plant and wildlife species. Potentially sensitive locations and habitats were documented. No direct or indirect impacts on any covered or no-take plants or fully protected wildlife species are anticipated.

Survey methods and avoidance and minimization measures for covered and no-take plants are discussed above in the section entitled "Covered and No-Take Plants".

An invasive vegetation management plan has been developed to minimize the spread of noxious weeds into and between work areas (incorporated into the IS/MND, see **Attachment F: Initial Study/Mitigated Negative Declaration**). This plan includes equipment cleaning measures.

PG&E will avoid construction activities that could result in disturbance to breeding/nesting birds during the breeding season (February 1 – September 1) to the extent feasible; this measure includes identifying active nests, and avoidance of work including helicopter activity around raptor nests (within appropriate buffers, see previous section). The project will also comply with

PG&E's *Avian Protection Plan*, Utility Standard S2321, approved by the USFWS, and outlined in Work Procedure (WP) 2321-01.

Surveys will take place at the appropriate time of day, and will occur no more than one week in advance of scheduled activities at locations where construction will occur. In consultation with CDFG and USFWS, inactive nests on towers (other than those of eagles and special status species) may be removed proactively to prevent their being utilized.

If nesting birds are found, an approximately 50-foot radius buffer will be estabished around the nest, approximately 300-foot radius buffer in the case of most raptors, and at least a 1,000-foot radius buffer in the case of Swainson's hawk and eagles. Appropriate buffer distances will depend on site-specific conditions. Activity within the buffer with the potential to cause nest failure will be delayed or moved to another location, to the extent feasible. The area will generally be marked off and avoided until the young have fledged, or the nest has failed, as determined by a CDFG/USFWS approved monitor (see below).

A qualified monitor with experience in raptor behavior will monitor the behavior of any raptor in the buffer zone when project activities are occurring at that location. The qualified monitor shall have the authority to order the cessation of all project activities in the vicinity of any nest (regardless of distance) if the birds exhibit abnormal nesting behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to: defensive flights or vocalizations directed towards Project personnel, standing up from a brooding position, and flying away from the nest.

If the risk of nest failure appears to be low for a particular nest, CDFG and USFWS will be consulted regarding if work activity may proceed, or if buffer distances can be reduced. Risk will depend on many factors, including the nature of the activity, the type of bird, the stage of the nest and its distance from the work site, the intervening topography and vegetation, and the acclimatization of the birds to human activity.

Project activities disturbing a protected bird nest shall not resume until the qualified monitor has confirmed that the bird's behavior has normalized, the young have left the nest, and/or the nest has failed.

Work will be limited to daylight hours (from 0.5 hour before dawn to 0.5 hour after dusk). Biological Monitors will be on site during work activities to advise construction crews to prevent impacts to special-status species. If a listed wildlife species is found within the work area during active construction, activities will be halted in the immediate area (when it is safe to do so) and the animal will be allowed to escape. In addition, all work crews will receive an environmental training conducted by the Biological Monitor prior to working on the project. This environmental training will include a number of measures, including a description of the life history and avoidance measures pertaining to specific special-status species.

For Projects on or adjacent to Streams or Wetlands

HCP/NCCP Conservation Measure 1.7. Establish Stream Setbacks

Stream setbacks of at least 75 feet can be implemented at all but one location within the HCP planning area.

P-2/LZ-2[15] is located within 75 feet of an ephemeral drainage (1st order ephemeral reach) within an annual grassland. At this location, a 20-foot buffer can be implemented, and additional erosion control and sedimentation measures (such as wattles) will be installed (see **Attachment**

[15] P-2 and LZ-2 are located on PG&E fee title property

B – Figure 2: Detailed Project and Land Cover Map, Map 3). The construction monitoring plan will detail the necessary documentation of this installation, such as photo documentation, that will be needed for compliance. In addition, in the event that fueling equipment is necessary, a refueling area with impervious containment will be constructed. Hazardous material spill kits will be made available in the case of a spill. No permanent impacts within the stream setback are anticipated.

Ground disturbance of wetlands and water bodies will be avoided except at three locations. At these locations, temporary impacts will occur to seasonal wetlands which lie in ephemeral channels in natural areas. These impacts, and the avoidance and minimization measures, are described below (see measure 2.12).

HCP/NCCP Conservation Measure 2.12. Wetland, Pond, and Stream Avoidance and Minimization

Along the access road to P-2 and LZ-2, PG&E plans to temporarily lay no more than 10 cubic yards of clean rock on either side of the existing access road, in a seasonal wetland feature, in order to widen the road for construction equipment; this measure will result in the temporary fill of 0.005 acre of wetland for approximately one to two months. At this pull site wetlands occur in low areas and basins between and at the base of two hills; topography in the area generally directs water flow downhill from south to north. Seasonal wetlands occur at the lowest spots in this drainage. Two small seasonal wetlands are located at a low spot in the topography, where a created road crossing has blocked the normal drainage path. At two locations on the access road to P-9, damaged culverts may be replaced (0.002 acre wetland temporarily impacted). <u>All of these areas are located within the ECCC HCP/NCCP planning area.</u>

PG&E is obtaining permits for these temporary fill activities from the appropriate agencies, and the wetlands will be returned to their pre-project condition once the road is no longer needed for larger construction equipment.

As specified in the SWPPP, all motorized equipment will be inspected for leaking oil, fuels, or fluids, and repaired prior to on-site use, fueling BMPs will be specified (i.e., “housekeeping rules” as specified in the Stormwater Construction General Permit), and fueling locations will be specified in advance. At most pull sites, refueling will not take place within 100 feet of a wetland (see Stream Setback section above for description of P-2). Spill control kits will be kept on site in all PG&E construction vehicles. If a spill occurs on site, measures will be enacted immediately to contain the material, and the designated PG&E Environmental Field Specialist will be notified. As directed by the Field Specialist, the site will be cleaned, and contaminated materials will be disposed of properly.

Avoidance and minimization measures are required to meet the biological bjectives of the HCP/NCCP to avoid and minimize effects on wetlands. Wetland protection measures as described in Chapter 6 Section 2.12 of the ECCC HCP/NCCP will be implemented to meet these objectives. These measures are as follows:

> **“Measures**
> All projects that discharge into or fill waters of the United States, including jurisdictional wetlands, are required to obtain applicable permits from the USACE. All projects that discharge into or fill waters of the State, including jurisdictional wetlands, are required to obtain applicable permits from the RWQCB. Projects that fill streams under the jurisdiction of the State are also required to obtain a streambed alteration agreement with CDFG.
>
> All covered activities will implement the following measures to avoid and minimize impacts of covered activities on wetlands, ponds, streams, and riparian woodland/scrub.

- Like avoidance and minimization measures for terrestrial habitats, this conservation measure is not intended to create small, isolated wetland mitigation sites. Some impacts on aquatic land cover types are expected under the Plan. The intent of the Plan is to concentrate mitigation for filled aquatic features in areas away from urban development and within large preserves that are linked to existing protected areas. Larger preserves will be more effective for protecting, enhancing, and restoring wetlands. Theanalysis conducted in this Plan assumes that small, isolated wetlands will not be avoided on projects within the urban development area.

  Projects proposing to fill less than 3.0 acres of jurisdictional wetlands and waters do not need additional avoidance analysis beyond that in the HCP/NCCP. Projects proposing to fill greater than 3.0 acres of jurisdictional wetland and waters must conduct a site-specific analysis of avoidance and minimization measures in the wetland delineation report to demonstrate the project avoids and minimizes impacts on these features to the maximum extent practicable. The avoidance and minimization analysis for projects proposing impacts on more than 3.0 acres of jurisdictional wetlands and waters must be reviewed and approved by the Implementing Entity for projects within the urban development area (UDA) or by CDFG and USFWS for projects outside the UDA, consistent with the regional avoidance accomplished by the HCP/NCCP.

  Any regional permit program for aquatic resources that is subsequently adopted by the USACE, RWQCB, or CDFG will contain avoidance and minimization requirements. Those requirements may differ from the avoidance and minimization requirements in this Plan.

- Applicants with streams on site must follow the stream setback requirements in Conservation Measure 1.7.

- Applicants for coverage under the HCP/NCCP must follow the guidelines in Conservation Measure 1.10 to minimize the effects of urban development on downstream hydrology, streams, and wetlands.

- All wetlands, ponds, streams, and riparian woodland/scrub to be avoided by covered activities will be temporarily staked in the field by a qualified biologist.

- Buffer zones should be established where feasible between the aquatic resource and development. Required setbacks for streams are described in Conservation Measure 1.7. Credit for preservation of aquatic habitat will be given only if these features meet minimum distances from dense urban development (see Table 5-6).

- Fencing will be erected between the outer edge of the buffer zone and the project area. The type of fencing will match the activity and impact types. For example, projects that have the potential to cause erosion will require erosion control barriers (see below), and projects that may bring more household pets to a site should be fenced to keep the pets out. The temporal requirements for fencing also depend on the activity and impact type. For example, fencing for permanent impacts should be permanent, and fencing for short-term impacts should be removed after the activity is completed.

- Personnel conducting ground-disturbing activities within or adjacent to the buffer zone of wetlands, ponds, streams, or riparian woodland/scrub will be trained by a qualified biologist in these avoidance and minimization measures and the permit obligations of project proponents working under this HCP/NCCP.

- Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas.

- Trash generated by covered activities will be promptly and properly removed from the site.

- No construction or maintenance vehicles will be refueled within 200 feet of wetlands, ponds, streams, or riparian woodland/scrub unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.

- Appropriate erosion-control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian woodland/scrub.

  Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion control blankets shall be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians. Erosion-control measures will be placed between the outer edge of the buffer and the project site.

- Fiber rolls used for erosion control will be certified as free of noxious weed seed.
- Seed mixtures applied for erosion control will not contain invasive nonnative species, and will be composed of native species or sterile nonnative species.

- Where feasible, stream crossings will be located in stream segments without riparian vegetation, and bridge footings will be built outside the stream banks (i.e., clear span structures).

- Herbicide will not be applied within 100 feet of wetlands, ponds, streams, or riparian woodland/scrub; however, where appropriate to control serious invasive plants, herbicides that have been approved for use by EPA in or adjacent to aquatic habitats may be used as long as label instructions are followed and applications avoid or minimize impacts on covered species and their habitats. In seasonal or intermittent stream or wetland environments, appropriate herbicides may be applied during the dry season to control nonnative invasive species (e.g., yellow star-thistle). Herbicide drift should be minimized by applying the herbicide as close to the target area as possible."

The impacts to Waters of the U.S. will be much less than 3.0 acres (0.007 acre impact). PG&E has applied to the USACE for inclusion in Nationwide Permit #12 (see **Attachment D: Wetland Delineation**, with the State Water Board for a clean water certification, and to CDFG for a Lake and Streambed Alteration Agreement. PG&E will implement the remainder of the measures listed above during project implementation.

For Projects adjacent to Protected Natural Lands (existing and projected)

HCP/NCCP Conservation Measure 1.6. Minimize Development Footprint Adjacent to Open Space

The project will cross Black Diamond Mines Regional Park, portions of the John Marsh State Historic Park (P-6 and portions the associated access route, 0.993 acre of annual grassland), and

the Los Vaqueros Watershed (P-7 and the associated access route, 0.114 acre of annual grassland).

The work footprint associated with the towers and work areas in these parks will be limited to the minimum amount possible in order to minimize impacts within these protected lands. PG&E will limit the use of overland access roads in these areas to the minimum feasible. Because this project involves the reconductoring of an existing transmission line, no further development footprint will result from the construction of the project.

HCP/NCCP Conservation Measure 1.8. Establish Fuel Management Buffer to Protect Preserves and Property

Because the project involves reconductoring an existing transmission line, fuel management considerations listed in the HCP/NCCP applying to urban development are not applicable to this project. Completion of the project will not result in a change in the fire potential in the area.

HCP/NCCP Conservation Measure 1.9. Incorporate Urban-Wildland Interface Design Elements

Because the project involves reconductoring an existing transmission line, design and development considerations listed in the HCP/NCCP applying to urban development are not applicable to this project.

For Rural Infrastructure Projects

HCP/NCCP Conservation Measure 1.12. Implement Best Management Practices for Rural Road Maintenance

Conservation measure 1.12 does not generally apply to this project. Whenever possible, existing private paved, gravel, or native surface roads will be used to access work areas.
However, some temporary improvements to existing access roads (such as laying rock) will be made to accommodate larger vehicles. In two locations, culverts may be replaced on an existing access road (to P-9, 0.002 acre). Water will be applied to unpaved roads for dust abatement as necessary. Best management practices as outlined in the MMRP and SWPPP will be used in these locations to prevent erosion and sedimentation. In addition, noxious weed control measures will be implemented, such as equipment cleaning between sites, use of weed-free materials (e.g., straw, rock, etc.), and revegetating with native/non-invasive plants. These measures are fully outlined in the MMRP and invasive weed prevention plan of the initial study/mitigated negative declaration. See **Attachment F: Initial Study/Mitigated Negative Declaration.**

HCP/NCCP Conservation Measure 1.13. Implement Best Management Practices for Flood Control Facility Maintenance

No work associated with this project will involve flood control facilities. Because of this, measures outlined in this section are not applicable to the project.

HCP/NCCP Conservation Measure 1.14. Design Requirements for Covered Roads outside the Urban Development Area

Conservation measure 1.14 does not apply to this project.

V. Mitigation Measures

This project will result in approximately 23.563 acres of temporary disturbance in Contra Costa County. A total of 23.518 acres are located within the ECCC HCP/NCCP area. Within the HCP area, 19.340 acres are non-exempt; approximately 4.178 acres are exempt temporary impacts (including LZ-6 which is located on an abandoned gravel pad), and another 0.045 acre is located outside of the HCP/NCCP area in the City of Pittsburg. All project impacts will be temporary in nature. These impacts have been broken down by temporary construction areas in Table 5: Project Disturbance by Land Cover Type and Table 6: Project Disturbance by Fee Zone.

Although all project impacts are temporary, PG&E is planning to mitigate for these temporary impacts using the permanent impact ratio. This project involves 19.340 acres of temporary non-exempt disturbance located in the HCP area. Of this non-exempt area, all 19.340 acres are located in Fee Zone 2, and 0.007 acre is in wetland. Areas located in Fee Zone 1 were exempt from fees because the impacts are in areas designated as developed land cover types.

PG&E will be compensating for approximately 19.340 acres of temporary impacts in Fee Zone 2, including 0.007 acre of wetland impacts, by paying approximately **$411,166.84** in development fees. Of this amount PG&E will be using an existing fee credit with the East Contra Costa County Habitat Conservancy ("Conservancy") in the amount of $170,233.16. With the Contribution to Recovery and the Credit applied to the Project the resulting final payment due the Conservancy is **$282,045.36**. The details of the credit are explained below.

In January of 2009 PG&E received take coverage from the Conservancy for the Contra Costa-Las Positas 230-kV Transmission Line Reconductoring Project. The full payment made to the Conservancy for the Contra Costa-Las Positas 230-kV Transmission Line Reconductoring Project was $540,446.19. Of this amount, $49,131.47 was for the contribution to recovery of endangered species, and $491,314.72 was for the HCP/NCCP development fees based on the total project impacts. Shortly after the project was constructed, PG&E realized they overestimated the amount of temporary impacts associated with the project. The original fee calculator dated December 14, 2008 shows a temporary impact development fee calculation of $491,314.72, which was paid to the Conservancy. The final development fees, calculated using sub-meter accurate GPS data, resulted in $321,081.56 of temporary impact development fees.

The following is a summary of the HCP/NCCP development fees for Contra Costa-Las Postitas Project described above:

Original estimated development fee (paid): $491,314.72
Final development fee: $321,081.56
Difference between the two fees (Credit to PG&E): $170,233.16

The largest difference in impact acreage was in Fee Zone 2, which was the highest-paying fee zone at $24,155 per acre. PG&E had originally calculated the impact acreage in Fee Zone 2 to be 15.94 acres, but the final calculations showed that PG&E only impacted 9.87 acres in Fee Zone 2. The 6.07-acre-difference accounts for $146,620.85 of the difference between the original estimated and the final development fees.

The mitigation calculations have been included as **Exhibit 1: HCP/NCCP Fee Calculator.**

In the event that alternate LZ-3 is used instead of the current LZ-3, the acreage impacted will be the same to the same type of habitat (annual grassland). Approval to use the alternative LZ-3 site in lieu of LZ-3 would occur via ECCC Habitat Conservancy staff review. This approval would not require additional board review or approval.

Table 5: Project Disturbance by Land Cover Type[16]

	HCP Inventory Area						Contra Costa County, Outside HCP Area	Alameda County			
Land Cover Type[17]	**AnG**	**PNg**	**Rud**	**Urb**	**Pas**	**Seas Wet**	**Rud**	**AnG**	**Rud**	**Urb**	**Turf**
Pull Sites	9.805	0	0	1.754	2.660	0	0	5.62	0	1.48	Golf course acreage included in ruderal
Landing Zones	2.886	0	0.893[18]	0.893	0.893	0	0				
Access Routes	1.475	0	0	0.638	0.534	0.007	0	0.23	0	0	0
Guard Structures	0.405	0.045	0.630	0	0	0	0.045	0.63	0.09	0	0

[16] All area measurements are in acres.
[17] Land cover type abbreviations:
AnG: Annual Grassland
PNg: Purple Needlegrass Grassland
Rud: Ruderal
Urb: Urban
SeasWet: Seasonal Wetland
Pas: Pasture
Turf: Turf
[18] This 0.893 acre located on LZ-6 is located on an abandoned gravel pad, and is not suitable habitat for covered species. This was considered exempt in calculations.

Table 6: Project Disturbance by Fee Zone

Construction Activities	Impact Acreage				
	East Contra Costa County HCP Area				Alameda County
	Fee Zone 1	Fee Zone 2	Wetland	HCP-Exempt Areas	Disturbed and natural areas
Pull Sites	0	12.465	0	1.754	7.99
Landing Zones	0	3.779	0	1.786	
Access Routes	0	2.016	0.007	0.638	0.23
Guard Structures / Crossing Structures	0	1.080	0	0.00 (0.045 outside HCP/NCCP area in City of Pittsburg)	0.72
Total	**0**	**19.340**	**0.007**	**4.178** (4.223 acres including areas outside the HCP/NCCP planning area)	**8.94**

Exhibit 1: HCP/NCCP FEE CALCULATOR WORKSHEET

PROJECT APPLICANT INFO:

Project Applicant: Pacific Gas and Electric Company

Project Name: Pittsburg Tesla 230 kV Transmission Reconductoring Project

APN (s): Several

Date: January 7, 2013 Jurisdiction:

DEVELOPMENT FEE (see appropriate ordinance or HCP/NCCP Figure 9-1 to determine Fee Zone)

	Acreage of land to be permanently disturbed (from Table 1)[1] Full Development Fee		Fee per Acre (subject to change on 3/15/13)		
Fee Zone 1		x	$10,584.32	=	$0.00
Fee Zone 2	19.34	x	$21,168.64	=	$409,401.59
Fee Zone 3		x	$5,292.61	=	$0.00
Fee Zone 4[2]		x	$15,876.48	=	$0.00
			Development Fee Total =		**$409,401.59**

WETLAND MITIGATION FEE	Acreage of wetland		Fee per Acre (subject to change on 3/15/13)		
Riparian woodland / scrub		x	$69,992.40	=	$0.00
Perennial Wetland		x	$120,428.10	=	$0.00
Seasonal Wetland	0.007	x	$252,178.50	=	$1,765.25
Alkali Wetland		x	$234,680.40	=	$0.00
Ponds		x	$120,428.10	=	$0.00
Aquatic (open water)		x	$59,699.40	=	$0.00
Slough / Channel		x	$127,633.20	=	$0.00
Streams	**Linear Feet**				
Streams 25 Feet wide or less (Fee is per Linear Foot)		x	$418.93	=	$0.00
Streams greater than 25 feet wide (Fee is per Linear Foot)		x	$630.96	=	$0.00
			Wetland Mitigation Fee Total =		**$1,765.25**

FEE REDUCTION

Development Fee reduction (authorized by Implementing Entity) for land in lieu of fee	
Development Fee reduction (up to 33%, but must be approved by Conservancy) for permanent assessments	
Wetland Mitigation Fee reduction (authorized by Implementing Entity) for wetland restoration/creation performed by applicant	
Reduction Total =	**$0.00**

CALCULATE FINAL FEE

Development Fee Total		$409,401.59
Wetland Mitigation Fee Total	+	$1,765.25
Fee Subtotal		$411,166.84
Contribution to Recovery	+	$41,111.68
Credit to PG&E	-	$170,233.16
TOTAL AMOUNT TO BE PAID	**=**	**$282,045.36**

Notes:

1 City/County Planning Staff will consult the land cover map in the Final HCP/NCCP and will reduce the acreage subject to the Development Fee by the acreage of the subject property that was identified in the Final HCP/NCCP as urban, turf, landfill or aqueduct land cover.

2 "Fee Zone 4" is not shown on Figure 9.1 of the HCP/NCCP but refers to the fee applicable to those few covered acitivities located in northeastern Antioch (see page 9-21 of the HCP).

Template date: March 15, 2012

VI. References

Contra Costa County. 2007. East Contra Costa County Habitat Conservation Plan and Community Conservation Plan. October, Volume I. Accessed November 2010 online at: http://www.co.contra-costa.ca.us/depart/cd/water/HCP/archive/final-hcp-rev/final_hcp_nccp.html

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California Department of Fish and Game (CDFG). 2007, 2008, 2011. California Natural Diversity Database (CNDDB). A database of special status biological resources maintained by the Natural Heritage Division, Sacramento, California.

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Attachment A – Project Description

Project Description

1.0 Introduction

Pacific Gas and Electric Company (PG&E) proposes to reconductor (replace existing conductors with new conductors) the existing Pittsburg-Tesla 230 kV Transmission Line (Pittsburg-Tesla line) between Pittsburg Substation, in the City of Pittsburg, and Tesla Substation, in northern Alameda County - a distance of approximately 31 miles (24 miles in Contra Costa County). PG&E owns and operates the existing line, which is located in the City of Pittsburg and unincorporated portions of Contra Costa and Alameda counties, California. The Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project (project) consists of raising (adding height to the top of) 43 of 147 existing steel lattice structures (35 of 111 in Contra Costa County), and replacing conductor (wire) along the entire 31-mile section. The project will be engineered and constructed pursuant to applicable engineering guidelines and standards (e.g., California Public Utilities Commission General Order Number 95).

Reconductoring the existing Pittsburg-Tesla line will avoid impacts that would be expected to occur with construction of a new transmission line route. In coordination with reviewing agencies, PG&E has incorporated numerous project modifications and avoidance measures, in order to avoid and minimize potential impacts to sensitive wildlife and wetlands.

1.1 Project Location and Regional Context

The proposed project is located in eastern Contra Costa and Alameda counties (*Honker Bay, Clayton, Antioch South, Brentwood, Byron Hot Springs, Clifton Court Forebay, and Midway* U. S. Geological Survey 7.5 Minute Quadrangles; USGS 1980a, 1994, 1980b, 1978, 1968, 1978 and 1980c). The Pittsburg-Tesla line runs roughly northwest to southeast for approximately 31 miles (24 miles in Contra Costa County). The line originates at Pittsburg Substation in the City of Pittsburg, Contra Costa County, south of the confluence of the Sacramento and San Joaquin Rivers. The line runs south for approximately four miles, and then turns east-southeast for 13 miles, crossing Black Diamond Mines Regional Park, portions of the John Marsh State Historic Park, and Marsh Creek Reservoir Dam. The line turns southeast for 14 miles to enter Alameda County, crosses a western branch of Bethany Reservoir and Interstate 580 (I-580), and then ends at Tesla Substation.

The local roadway network in the project area includes Deer Valley Road, Kirker Pass Road, Vasco Road, Marsh Creek Road, Altamont Pass Road, and Patterson Pass Road. State Route (SR) 4 and I-580 are major highways that provide regional access to local communities (Alameda and Contra Costa County 2010). This transmission line and surrounding project area are depicted in **Attachment B – Figure 1: Project Vicinity Map.** Work areas that lie within Contra Costa County are depicted in **Attachment B – Figure 2 and Figure 3**.

The overall transmission corridor is characterized by steep hillsides, rolling hills, ridgelines, riparian corridors, and valleys. The area's hillsides and ridgelines are recognizable landscape features seen from many locations, thus contributing to a strong sense of place and orientation. Elevations along the transmission corridor range from three (3) to 500 feet.

1.2 Purpose and Need and Project Objectives

The Pittsburg-Tesla line is a critical supply line for Contra Costa and Alameda counties. The line will accommodate the current load demand in the East Bay region once PG&E completes the proposed line and tower facility upgrades.

PG&E's electric transmission system serving the City of Pittsburg and eastern Contra Costa and Alameda communities has been strained by recent population growth. PG&E predicts that it will not be able to

sustain reliable electric service in the area if the capacity improvements proposed by the Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project are not made to the system. The purpose of the project is to increase electric capacity to the existing transmission line and provide safe and reliable service to PG&E customers.

1.3 Proposed Construction

The following provides a description of the activities that will take place in order to raise towers and reconductor the Pittsburg-Tesla 230 kV Transmission Line. This project description describes the entire project as a whole (31 miles). The portion of the line in Contra Costa County is the northernmost 24 miles, including 111 existing towers (see **Attachment B – Figure 2 and Figure 3**). Most of the portion within Contra Costa County (minus a small section within the City of Pittsburg) lies in the East Contra Costa County HCP/NCCP Planning Area.

The reconductoring project involves two basic components:

1. **Transmission tower work** – These activities involve modifications to 43 of 147 existing towers to allow the towers to support new, heavier conductor while maintaining required ground clearances (distance between the wire and the ground). In Contra Costa County, 35 of 111 existing towers will be modified.

2. **Transmission line work** – These activities require installing new conductor, and adjusting the conductor tension so that it hangs properly between the towers. The new conductor will be approximately the same size as the old conductor. Old hardware, such as insulators, is also replaced during line work.

These two basic components will be carried out as a series of multi-stage activities, including the installation of reconductoring equipment at all towers; installation of top cage extensions, new insulators, arm extensions, and/or other modifications at select towers; use of guard structures to protect road, utility line, and railway crossings; and the establishment of pull sites (P) on which to set up and pull the conductor. Ground work is site-specific, taking place at the towers (accessed by helicopter) and at 12 designated sites between spans (accessed by ground). All applicable regulations and restrictions will be determined and complied with prior to and during construction. The proposed construction activities are depicted on maps included in **Attachment B – Figure 2: Detailed Project and Land Cover Map;** this figure illustrates the portions of the project in Contra Costa County.

1.3.1 Project Equipment

Equipment that may be used during project construction includes the following: a line truck (sometimes with auger arms), water truck, 50-ton crane and/or boom truck, rope truck for reconductoring, truck-mounted rope puller and conductor tensioner, backhoe or other tracked equipment for tensioning wire, reels of conductor to receive the old conductor as it is removed, reels of new conductor to “feed out,” and trucks or other equipment to handle the weight of the conductor reels and to move them on and off site. In addition, four-wheel drive pick-up trucks, passenger vehicles, and hand tools will be used. Helicopters will be used to install and remove reconductoring equipment at 111 towers in Contra Costa County (147 towers total) and will also be used to install cage extensions at 35 towers in Contra Costa County (43 towers total). See Table 1: Major Construction Equipment and Uses.

1.3.2 Project Access

1.3.2.1 Ground Access

The primary roads that will be used for construction access include Willow Pass Road, State Route 4 (SR 4), Leland Road, Deer Valley Road, Diablo Camino, Altamont Pass Road, Midway, and Patterson Pass Road. Existing public and private paved, gravel, or native surface roads will be used to access work areas within the existing rights-of-way. At all times during construction, vehicles and equipment will stay within

designated routes, and biological monitors will assist ground crews in locating appropriate access routes during work activities in sensitive resource areas.

At one location in Contra Costa County, four non-native pepper trees (*Schinus molle*) overhang the paved access road to Pull Site 3 (P-3) (near Nortonville Road). These trees may be trimmed to accommodate equipment passage to P-3.

At two locations, the existing access roads require small repairs or alterations to be suitable for construction equipment. Both of these locations are within Contra Costa County, in the ECCC HCP/NCCP planning area. At the first location, along the access road to Pull Site 2 (P-2), PG&E plans to temporarily lay rock in a seasonal wetland feature in order to widen the road for construction equipment. This will result in a temporary impact of 0.005 acre impact to a seasonal wetland (refer to **Attachment B – Figure 2: Detailed Project and Land Cover Maps, Map 3**). In addition, along the access road to P-9, a 24-inch and a 30-inch culvert are in disrepair. PG&E plans to replace both of these culverts with new 30-inch culverts in order to support the weight of equipment; these repairs will result in the temporary disturbance of 0.002 acre of wetland (refer to **Attachment B – Figure 2: Detailed Project and Land Cover Maps, Map 24**), PG&E will obtain permits for these temporary fill activities (0.007 acre total temporary wetland impact in Contra Costa County) from the appropriate agencies.

Most of the access routes are located on existing paved roads, or on well-established/well-maintained gravel or native surface roads. These are labeled as “paved” or “unpaved” access routes on the maps in **Attachment B**. These paved and unpaved roads are either used by the public, or otherwise regularly used by multiple entities.

At five (5) locations in Contra Costa County, access will require the use of short segments of overland travel in areas that are either not regularly used (e.g., small dirt roads or farmer’s tracks), or areas not previously used for vehicle access. These routes are marked as “unimproved access” on the maps in Attachment B. These temporary access routes are in the vicinity of P-2 (690 feet), P-4 (564 feet), P-5 (1,928 feet), P-6 (3,596 feet), and P-7 (401 feet) (a sixth access route to P-11 [830 feet] is located in Alameda County). 2.016 acres of access are located in non-exempt portions of the HCP/NCCP planning area. At P-2, the temporary overland access route is located behind a locked water treatment plant gate, and is not open to the public. At P-4 and P-5, temporary access routes are located through private property and rangeland area not open to the public. The access route to P-6 is located behind a subdivision currently under construction; some newly-installed landscaping will be removed to use this access. The access route to P-7 is located behind a locked gate. All of these access routes will be 12 feet wide. All of these short temporary road segments are located in or near the existing transmission line right-of-way easement, and will be used for approximately three to four weeks. None of these route segments will require grading, and each segment is located on flat to gently sloping, pre-disturbed ground with non-native grassland vegetation. These routes are not intended to be permanent access roads.

Depending on road and weather conditions during construction, rock or gravel may be placed on any native surface access route, existing or temporary. A maximum of 2.016 acres in non-exempt areas of the HCP/NCCP planning area may be modified in this fashion. Upon project completion, any rock or gravel will be removed, and the temporary access routes will be re-vegetated (see Planned Restoration Activities in HCP).

1.3.2.2 Helicopter Access

Construction activities at individual towers will be carried out by helicopter to minimize ground disturbance. Helicopter models expected to be used on this project may include the following: Bell 214-B1, Bell Super 204 or 205, Bell 206 L-3, and Bell 206 B-3, although other similar aircraft may be used. Helicopters will use seven designated staging areas/landing zones (see **Attachment B – Figure 2: Detailed Project and Land Cover Map).** These landing zones are located within 0.5 mile of the transmission line right-of-way.

Generally one helicopter will be used on the project at a time. In a few cases, two helicopters may be used concurrently, but their use would be separated by several miles along the project corridor, and only one helicopter would be used at a landing zone at a time. Workers and materials will be transported to and from tower locations. Materials to be transported include rollers, insulators, and metal tower parts. Helicopters will generally hover at or above the tops of towers at heights of 80 to 120 feet, and workers will access towers directly from the helicopter. Helicopters will travel to the towers within five or six miles or less of a landing site. No materials will be carried by helicopter over major highways.

Helicopters will be used for two types of project activities 1) installation of cage extensions (see section 3.3.4), and 2) roller/insulator installation and removal. Cage extensions/modifications will occur at 35 towers located in Contra Costa County (43 towers total). Each of these repairs is expected to take approximately one day, and will require approximately six round-trips from the landing site to the tower. Helicopters will be used to fly steel lattice segments, insulators, and workers to the tower sites. In order to install and remove rollers and insulators, 111 towers in Contra Costa County (147 towers total) will be visited by helicopter. Each tower is expected to be visited twice: once prior to line replacement, and once after line replacement, although additional visits may occur for some sites. Approximately eight to ten towers can be visited in a single day for roller and insulator work.

Helicopters will be fueled on site during the day with a fuel truck. Overnight storage and any required servicing will occur at Byron Airport, which is located 1.7 miles northeast of the transmission line.

1.3.3 Project Staging and Landing Zones

Six (6) staging areas/landing zones (LZ) will be used for helicopter landing, temporary equipment storage, and tower cage assembly in Contra Costa County. A total of 5.565 acres of LZs are present in the HCP/NCCP planning area: 3.779 acres in non-exempt areas and 1.786 acres in exempt areas. (An additional two LZs are located in Alameda County). One of the LZs in Contra Costa County is located on a developed surface in a substation (LZ-1, 0.893 acre in an exempt area). An additional LZ (LZ-6, 0.893 acre) is located on an abandoned gravel pad, and was also considered exempt. The LZs located on native surfaces may be rocked and/or misted with water from an on-site water truck during construction. The LZs were selected within flat areas with existing disturbance from agricultural or commercial/industrial uses. These sites were selected because they are already disturbed, and because no wetlands or other sensitive resources are nearby. To minimize potential safety hazards, moreover, the staging areas are well-removed from dense population areas and are not accessible to the public.

One location for LZ-3 was originally selected at the corner of Kirker Pass and Nortonville Roads. The ownership of LZ-3 has changed since planning surveys took place. In case access to LZ-3 is not granted by the new owner, an “Alternative LZ-3” has been chosen and is also shown in Attachment B, Figures 2 and 3. Both sites are located in annual grassland. Only one of these two sites will be used. The impact acreage will be the same to the same type of habitat, regardless of which site is used.

A fuel truck will be present at the staging areas to refuel the helicopter. A water truck will be present for dust abatement. Portable toilet facilities will be provided at these sites. All landing zones are located within 0.5 mile of the right-of-way for the transmission line. PG&E has contacted, or is in the process of contacting, individual landowners of these properties to obtain permission for their use, including any applicable encroachment permits. In Contra Costa County, LZ-1 (substation) and LZ-2 are located on PG&E fee-title property; LZ-3 is located on lands previously owned by Save Mount Diablo; LZ-5 is located in a pasture owned by Jack Roddy; LZ-6 (gravel pad) is located in a subdivision construction area (The Vineyards) owned by Brentwood Commercial Partners; and LZ-8 is located in a windfarm on lands owned by East Bay Parks District. LZ-3 and LZ-8 are located on lands managed by the East Contra Costa County Habitat Conservancy. See maps in **Attachment B – Figure 2: Detailed Project and Land Cover Maps** for locations.

Project activities at each staging area/landing zone are expected to take approximately two weeks during the cage tower extension work to occur between September 2013 through March 2014. From March

2014 through May 2015, during the line reconductoring process, each staging area/landing zone will be used for a duration of approximately three to four weeks.[1]

1.3.4 Cage extensions/Modifications

As part of the reconductoring work, 35 towers in Contra Costa County (43 towers total) will be modified by adding structures known as cage extensions to the top of the towers. The cage top extensions are expected to raise towers by approximately 16.5 feet in height. Cage extensions will be assembled at staging areas and lifted into position on the towers using a helicopter. No ground access is required, and no foundation work or modifications to the base of any towers is expected at any tower location. This work is expected to take approximately one day per tower, and will require approximately six round-trips made by helicopter from the designated staging area/landing zones to each of the 35 towers in Contra Costa County. Cage extension work will take place between September 2013 and March 2014. See Appendix B for maps of cage extension locations.

1.3.5 Roller and Insulator Installation

Rollers and insulators will be flown to each of the 111 towers in Contra Costa County by helicopter (147 total towers). A crew on the tower will remove the old insulators and install new insulators along with conductor rollers. It is estimated eight to ten towers can be completed in a single day. An estimated 15 to 16 helicopter trips will take place every day in order to access these towers.

1.3.6 Guard Structures

Crossing guard structures will be installed at all roads, railroad, and aerial utility crossings along the project alignment to prevent injury or damage if the conductor were to inadvertently fall (25 in Contra Costa County; 17 in the HCP/NCCP planning area; 41 locations total). These structures typically consist of paired, single Y-configured pole structures, or paired wood poles with cross bracing designed to catch falling conductors; a network of cables and netting may also be tied into these poles. Typically, a line truck will be used to auger and set the required number of wooden poles on each side of a crossing. (Hand digging and helicopter delivery may also be used.) These structures will generally be installed along roadsides or railroad crossings in disturbed areas, and will cause relatively little disturbance. Crossing guard structures will be installed along paved roads whenever possible. In some instances, boom vehicles/equipment may be used instead of utility poles to catch any conductor that may potentially fall. Following reconductoring activities, crossing structure poles will be removed, the holes backfilled, and the disturbed areas recontoured and reseeded with native and/or prescribed seed mix as necessary. Environmental monitors will coordinate with ground crews to determine appropriate placement of crossing guard structure poles. Features to be avoided will be flagged. If sensitive areas cannot be avoided, temporary footings may be used to hold the crossing structure poles in place instead of auguring holes.

Several guard structures are expected to be installed per day. These temporary structures will be installed prior to reconductoring and remain in place during reconductoring.

In Contra Costa County, a total of 1.080 acres of temporary disturbance is expected from guard structures within non-exempt areas of the HCP/NCCP planning area; an additional 0.045 acre of disturbance is expected outside of the planning area in the City of Pittsburg.

1.3.7 Pull Sites

Eight (8) pull site locations have been identified in Contra Costa County, and all are within the HCP/NCCP planning area (14.219 acres); 12.465 acres are located within non-exempt habitats, and 1.754 acres are located within exempt areas. These pull site work areas consist of relatively flat areas,

[1] Due to budgeting considerations, PG&E may postpone construction. In this case, the proposed activities would take place approximately one year later than the dates stated in this project description.

200 feet by 300 feet each, and are positioned in-line with the overhead conductors; three of the sites in Contra Costa County will require two work areas each to facilitate line pulling from opposite directions. See maps in **Attachment B – Figure 2: Detailed Project and Land Cover Map** for locations of the pull sites (Twelve [12] pull site locations have been identified for the entire project; the four in Alameda County are not shown on project maps).

Three of the eight pull sites in Contra Costa County (P-1, P-3, and P-8) are located within, or partly within, roads or developed commercial or industrial properties with low potential for environmental impacts. The remaining five [5] pull sites in Contra Costa County occur in low- to moderately-disturbed non-native grassland or similar habitats. One pull site (P-8) is located on lands managed by the East Contra Costa County Habitat Conservancy.

Pull Site 2 and P-8 and associated landing zones/staging areas, and P-6, may require minor grading or a limited amount of crushed-rock fill to achieve sufficiently level work areas (6.909 acres in the ECCC HCP/NCCP planning area). (An additional pull site [P-10] in Alameda County may require minor grading for up to a maximum of approximately 8.409 acres grading total)

Heavy equipment may be placed on plates or construction mats if the ground is damp or if wet conditions are forecast. Portable toilet facilities will be installed at these areas.

The equipment at pull sites will be utilized for up to four conductor “pulls”: two (one on each side of the tower) in one direction, and two in the other. Pulling activity is expected to take approximately two to four weeks at each site.

1.3.8 Line Reconductoring Process

The majority of ground disturbance for line reconductoring activities takes place at the pull sites described above. The old line will be removed while the new line is simultaneously pulled in. The existing line will be placed in a hoist and attached at one end to the steel tower. With the roller in place, the hoist will lower the existing line into the roller. A cable will be attached from the “puller” truck to one end of the line; new line will be attached to the existing line at the opposite end of the “pull” section, and the reconductoring process will begin.

Once the new line is in place, the crews will pull the new line to the proper tension (“sag” the line) with a cable tensioning rig or similar piece of heavy equipment. Helicopter crews will then clip the conductor into the new insulators, and remove the rollers from the section. This work is expected to take approximately one day per eight to ten (8-10) towers with approximately one to two round-trips made by helicopter from the designated staging area/landing zone to each of the 111 towers in Contra Costa County (147 towers total).

To comply with worker safety requirements, personal protection ground rods will be temporarily attached to each tower. Temporary ground rods (5/8 inch diameter copper rods) will be driven into the ground, and all equipment at a work site will be required to attach to the ground rod during operations. The ground rods will be removed when work is completed. All ground rods will be removed before the lines are returned to operational conditions.

A summary of project equipment and its uses is presented in Table 1: Major Construction Equipment and Uses.

1.4 Construction Schedule

The overall construction timeline is expected to take an estimated 19 months, between September 2013 and May 2015[2]. The first phase of construction activity will involve cage extensions, other tower

[2] PG&E may postpone the project for one year

modifications, and guard structure installation. The second phase of construction activity will involve line reconductoring activities. This will result in approximately 10 months of actual construction. Construction will take place during daylight hours.

The project schedule was developed to accommodate environmental considerations, and restrictions imposed by the Independent System Operator (ISO) on the timing of electrical outages. An existing circuit (each side of the transmission line) must be taken out of service for reconductoring; these outages must be coordinated with local demand for power. Outages typically cannot be planned for summer and other times of heavy electricity use, when the demand for electricity is at its peak.

After the completion of construction, the line will be operated and maintained by existing PG&E employees. In the long term, the level of personnel and maintenance activities on the line (e.g., routine inspection and repairs) are expected to be similar to, or less than, current levels.

1.5 Temporary Impacts

The project will result in temporary disturbance resulting from the temporary use of pull sites, landing zones, access roads, and guard and crossing structures. Of the total area of temporary disturbance, 23.563 acres are located within Contra Costa County, and 23.518 acres are located in the ECCC HCP/NCCP planning area. In the HCP/NCCP area, 19.340 acres are located in Fee Zone 2 (including 0.007 acre of wetland). The remaining acreage is either located in 1) exempt habitats (4.178 acres), or in 2) disturbed areas within the City of Pittsburg that are not in the HCP/NCCP planning area (0.045 acre). These impacts are summarized by temporary construction activity and HCP fee zone acreage in Table 2: Project Disturbance.

Table 1: Major Construction Equipment and Uses

Equipment	Use
Helicopter	Install cage extensions and reconductoring equipment.
Line truck (with auger arms)	Auger holes and set poles.
Water truck	Spray water throughout project work areas
50-ton crane and/or boom truck	Set up and pull and/or tension conductor.
Rope truck	Reconductoring
Tracked excavators	Tensioning wire
Backhoe (or skip loader)	Level work areas or landing zones
Flat bed delivery truck	Delivery of work materials
4x4 pick-up trucks	Transport construction personnel
3-reel pullers	Pull conductor
Fuel truck	Refuel vehicles
Reel truck	Haul conductor reels
Conductor reels	Receive old conductor, feed out new conductor
Tensioners	Pull conductor
Truck-mounted rope puller	Tensioner
Boom trucks	Staging and line reconductoring

Table 2: Project Disturbance

Construction Activities	Impact Acreage				
	East Contra Costa County HCP Area				Alameda County
	Fee Zone 1	Fee Zone 2	Wetland	HCP-Exempt Areas	Disturbed and natural areas
Pull Sites	0	12.465	0	1.754	7.99
Landing Zones	0	3.779	0	1.786	
Access Routes	0	2.016	0.007	0.638	0.23
Guard Structures / Crossing Structures	0	1.080	0	0.00 (0.045 outside HCP/NCCP area in City of Pittsburg)	0.72
Total	**0**	**19.340**	**0.007**	**4.178** (4.223 acres including areas outside the HCP/NCCP planning area)	**8.94**

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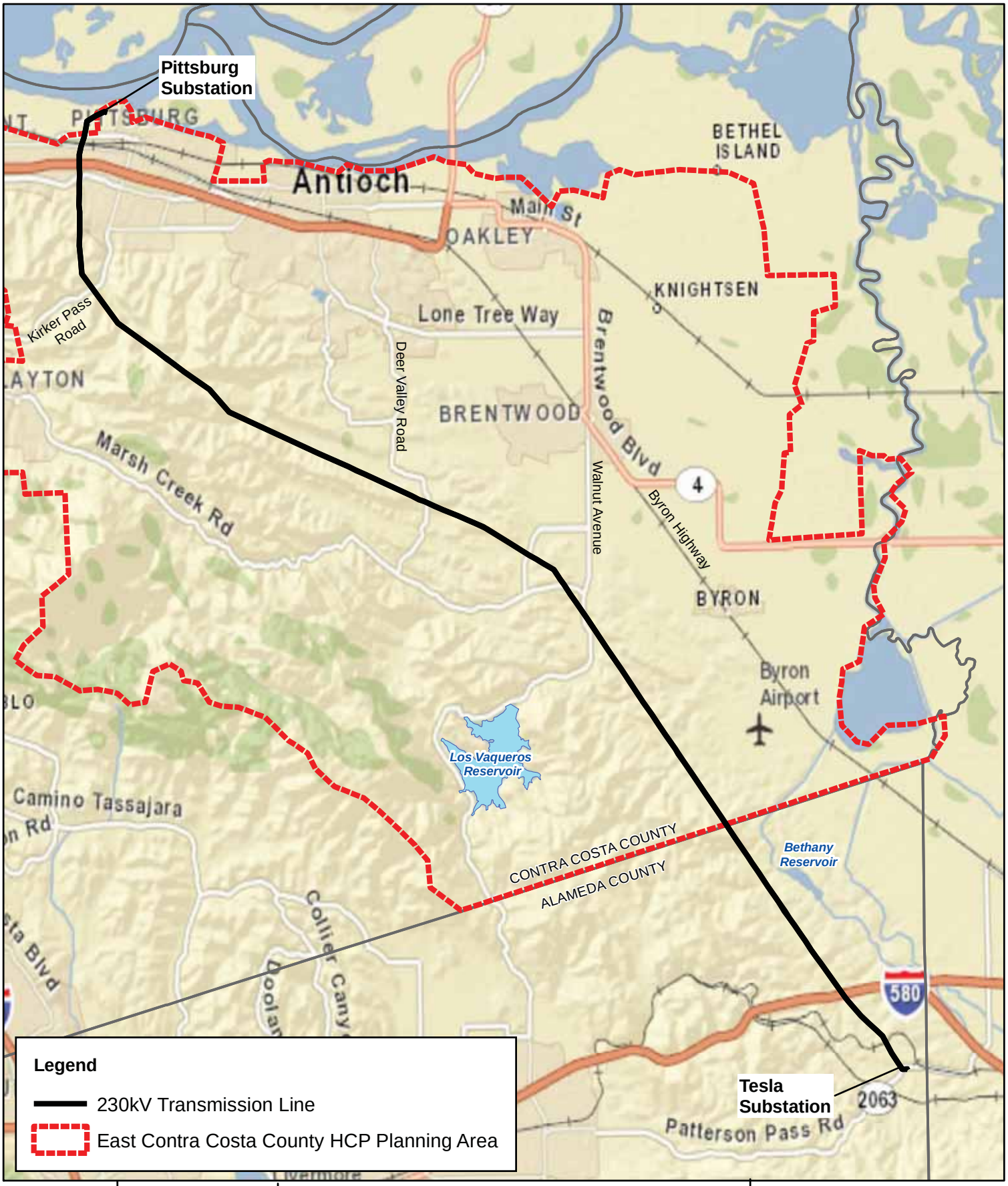
Attachment B – Figures and Maps



GANDA

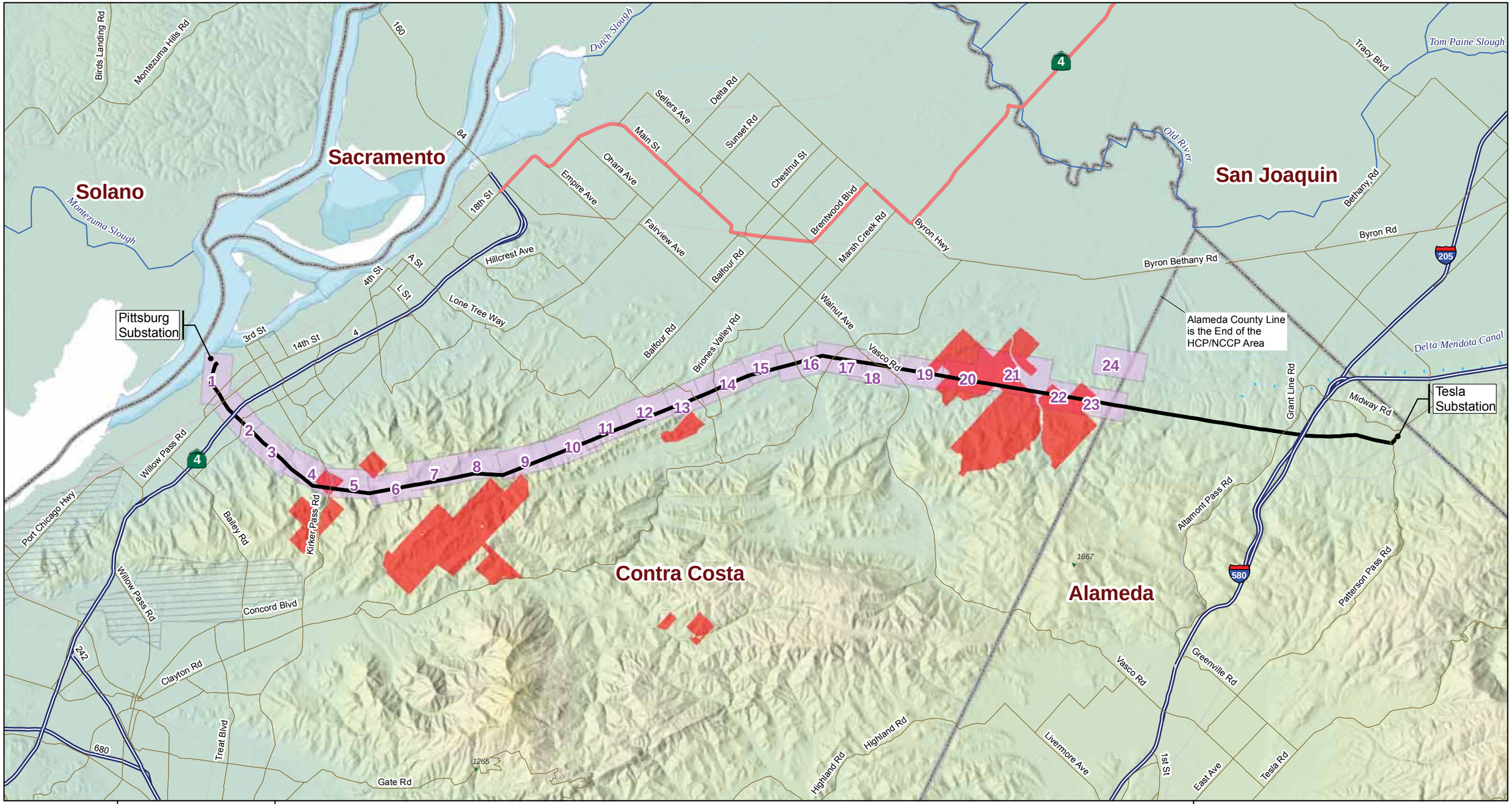
Source: ESRI; GANDA GIS 2012

0 600 Miles

Figure 1: Project Location Map
Pittsburg Tesla 230kV Project

June 2012
Alameda and Contra Costa Counties, CA

Privileged and Confidential - Attorney Work Product



GANDA

Project Location

Project Features

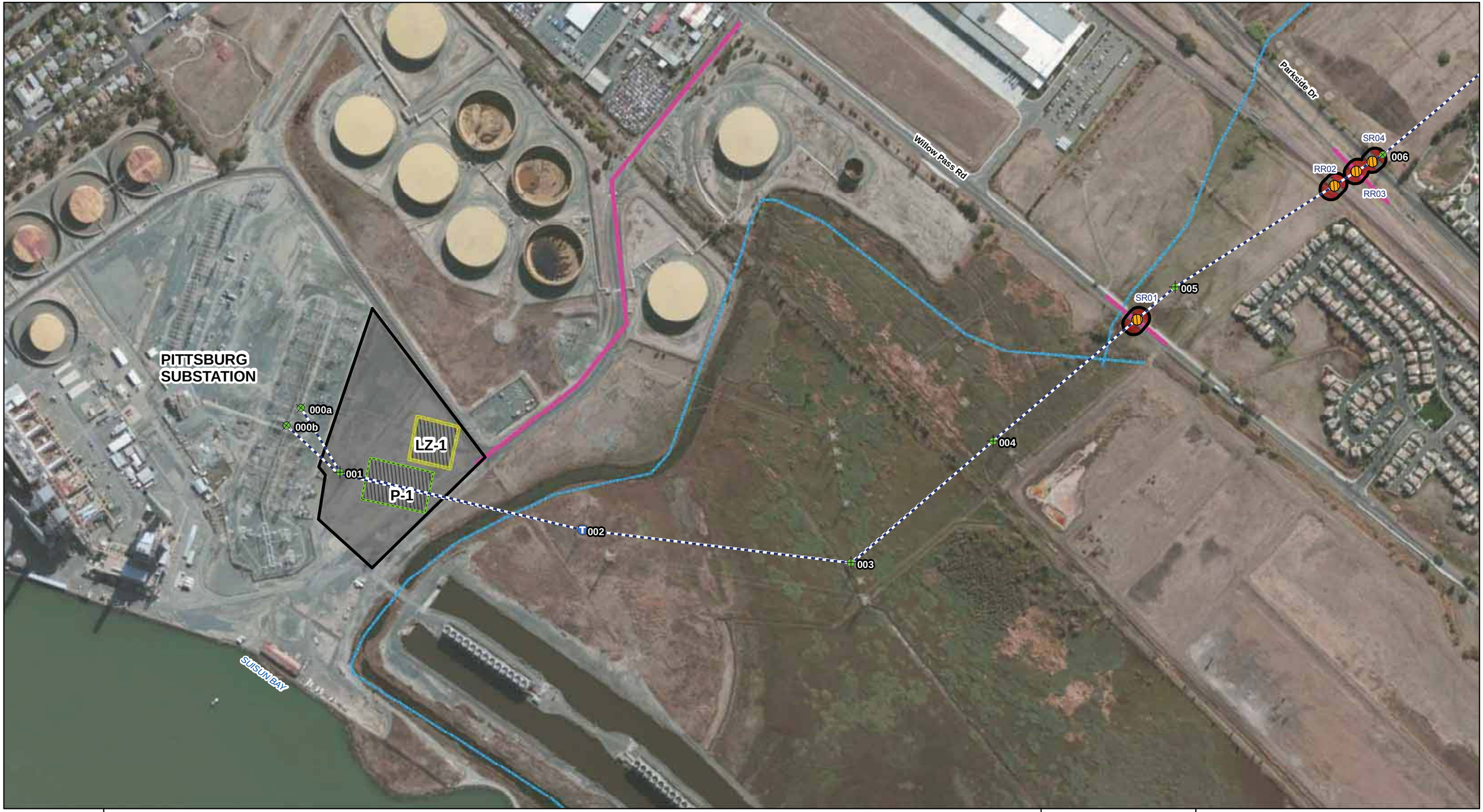
- 230kV Transmission Line
- Stream
- Lake, Reservoir
- County Boundary
- Map Location
- East Contra Costa County Habitat Conservancy System

Source: PG&E GIS; East Contra Costa County Habitat Conservancy GIS; GANDA GIS (2013)

0 2 4 Miles

Attachment B, Index Map for Figures 2 and 3
Pittsburg-Tesla
230kV Transmission Line
Reconductoring Project

January 2013
Alamada and Contra Costa Counties, CA



GANDA

Project Features
- Study Area
- Transmission Line
- Pull Site (200x300)
- Staging Area / LZ (200x200)
- Guard / X-ing Structure

Tower Modifications (Helicopter Work Only)
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

- Creek, Stream
- Temporary Impact Area

Access Roads
- Paved
- Unpaved (Well-established/Gravel)
- Unimproved

Land Cover
- Channel
- Grassland
- Oak Woodland
- Pasture
- Pond
- Ruderal
- Seasonal Wetland
- Purple Needlegrass Grassland
- Turf
- Urban
- Wind Turbines

1: 5,000

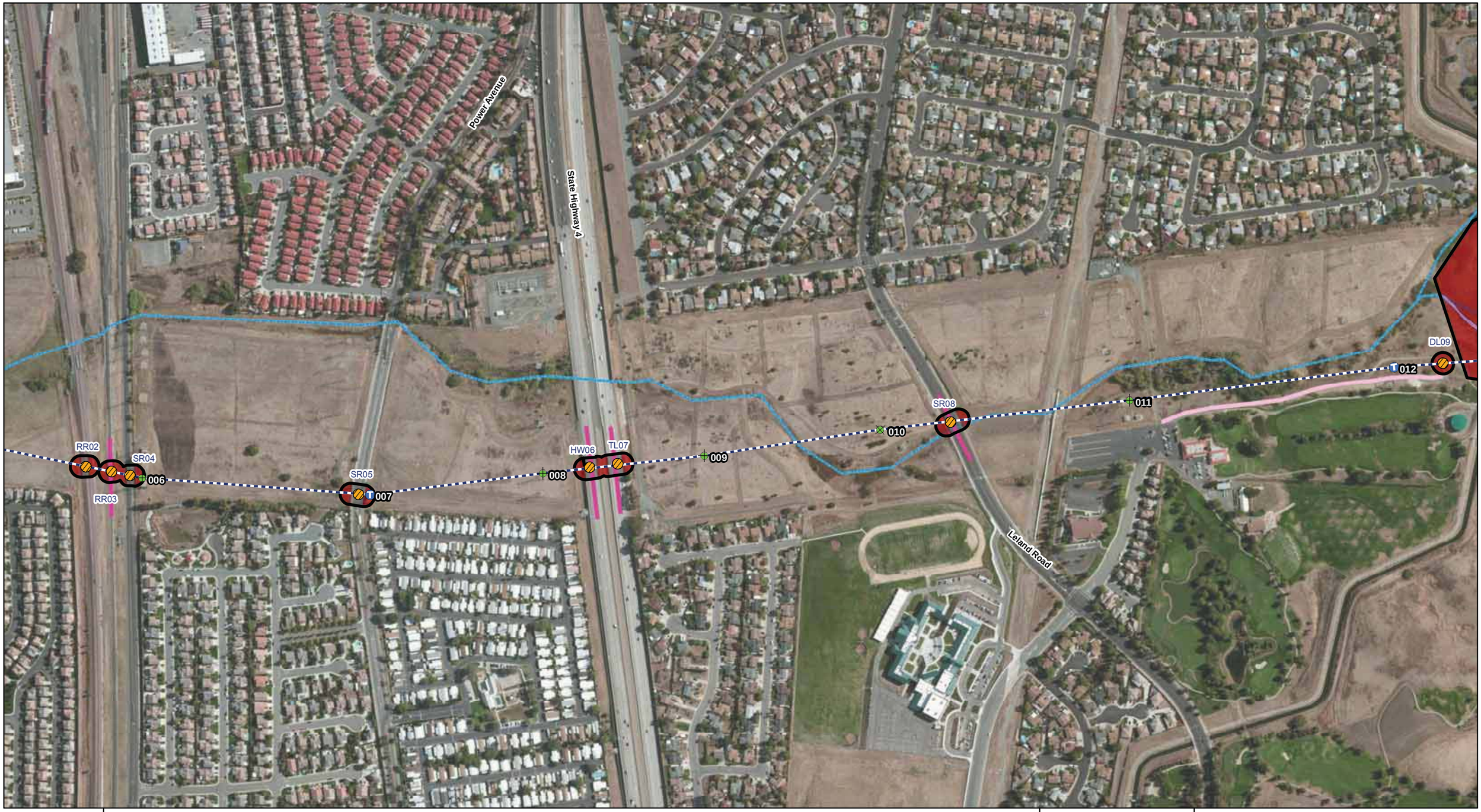
0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 1 of 24

Source: GANDA GIS 2013



GANDA

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- Wind Turbines

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0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 2 of 24

Source: GANDA GIS 2013

GANDA

Project Features
- Study Area
- Transmission Line
- Pull Site (200x300)
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1: 5,000

0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 3 of 24

Source: GANDA GIS 2013

GANDA

Project Features
- Study Area
- Transmission Line
- Pull Site (200x300)
- Staging Area / LZ (200x200)
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Land Cover
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0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 4 of 24

Source: GANDA GIS 2013

GANDA

Project Features
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- Transmission Line
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Tower Modifications (Helicopter Work Only)
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Land Cover
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- Wind Turbines

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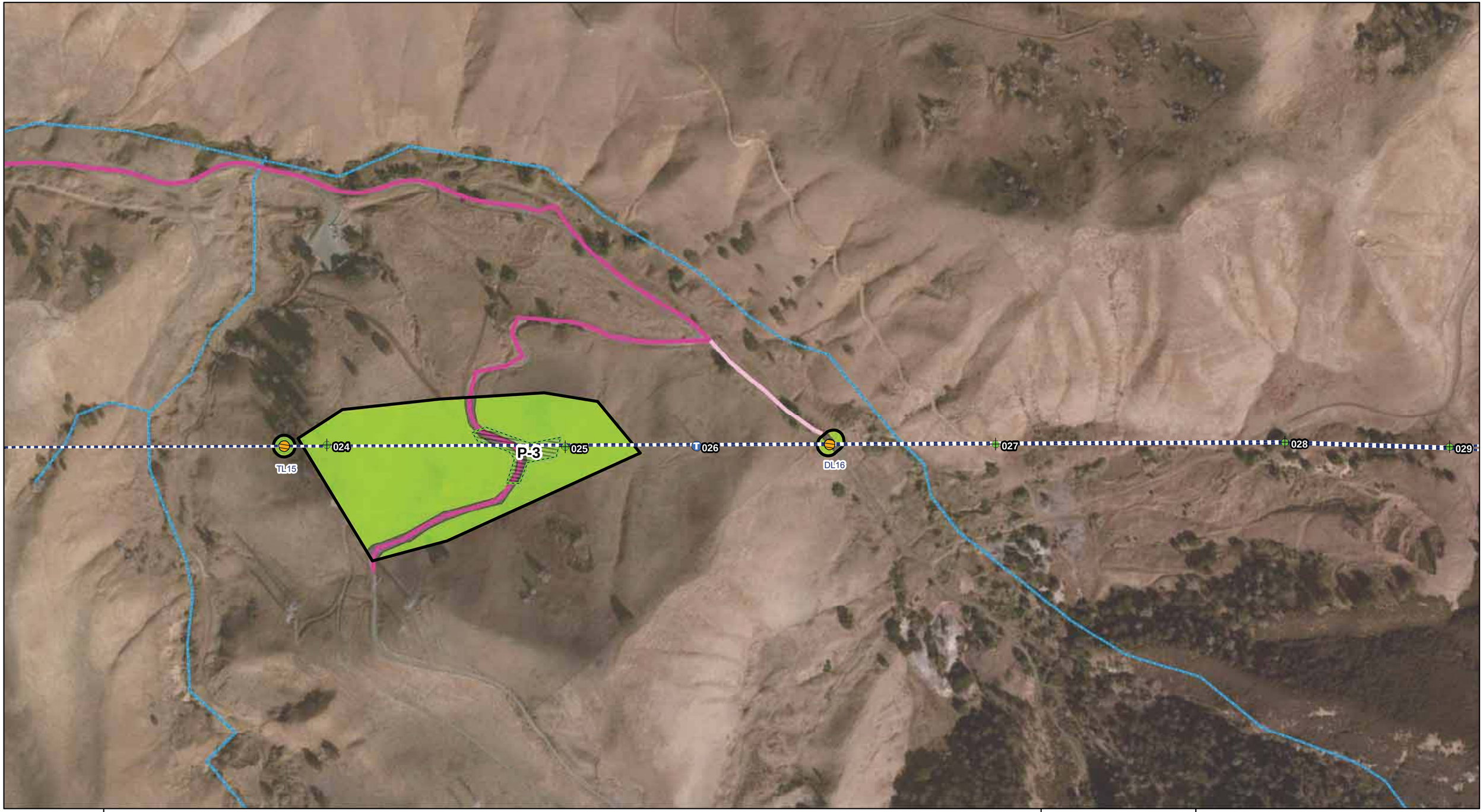
0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 5 of 24

Source: GANDA GIS 2013



GANDA

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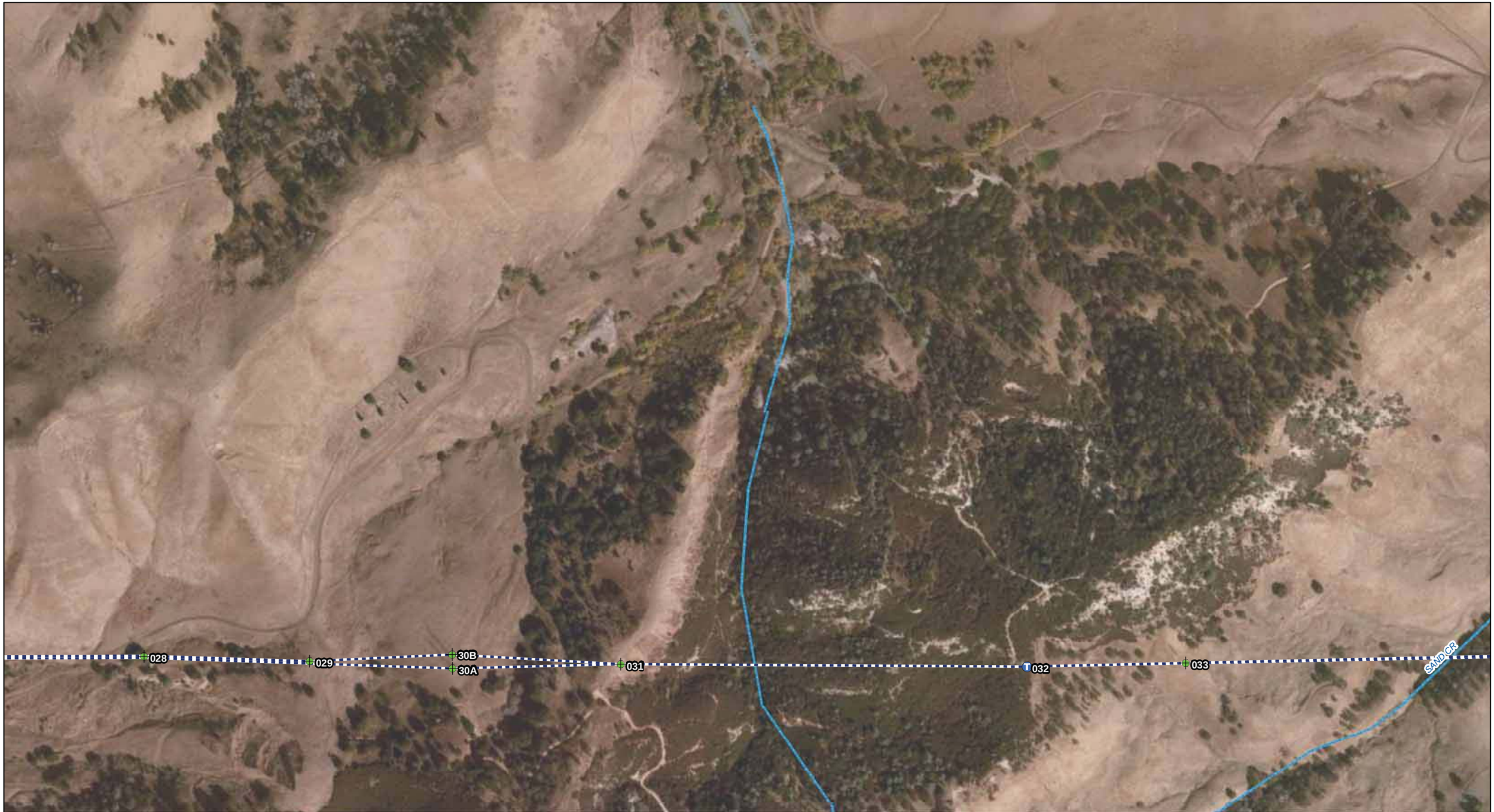
0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 6 of 24

Source: GANDA GIS 2013



GANDA

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1: 5,000

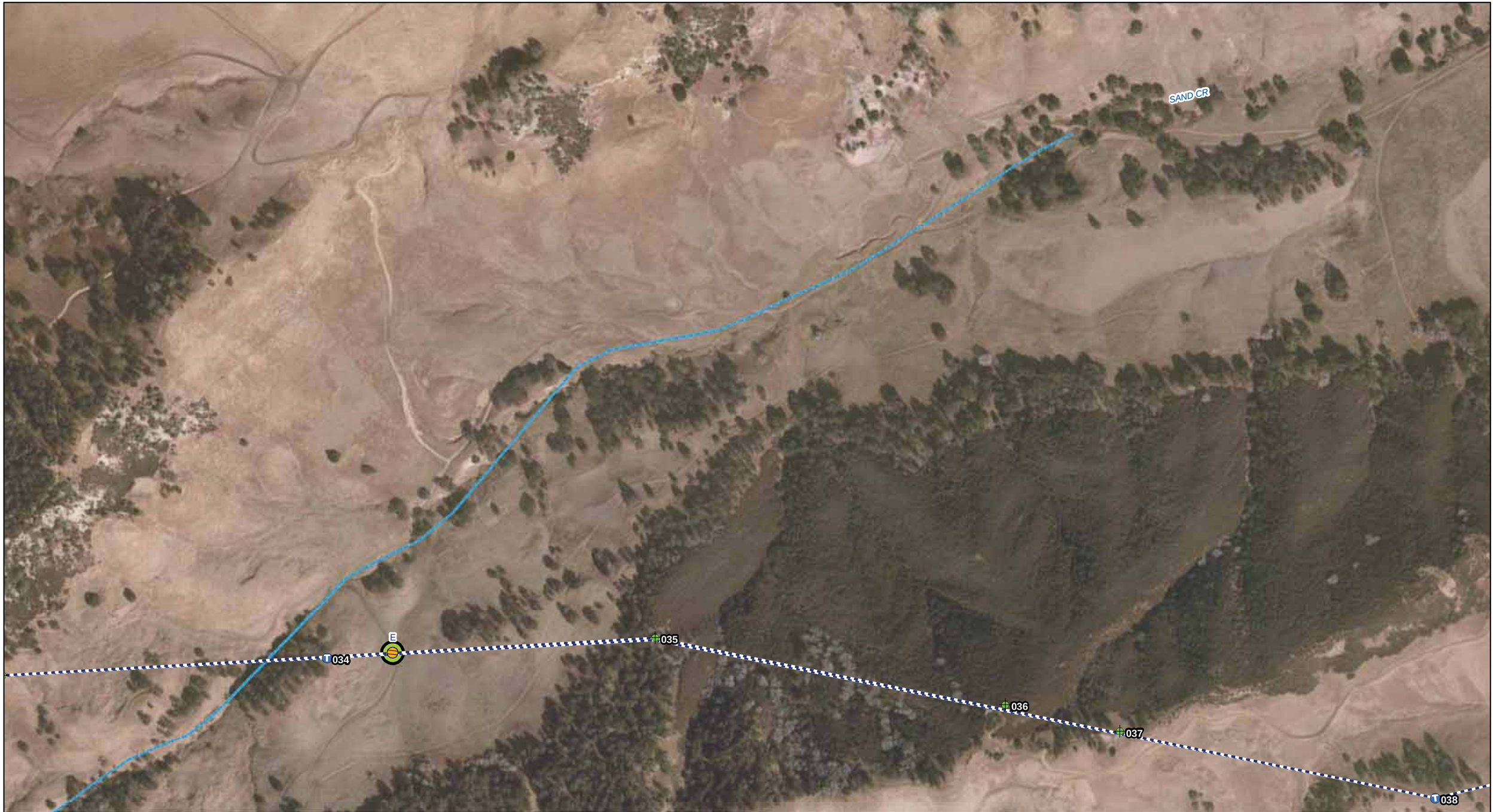
0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 7 of 24

Source: GANDA GIS 2013



GANDA

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0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 8 of 24

Source: GANDA GIS 2013

GANDA

Project Features
- Study Area
- Transmission Line
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- Turf
- Urban
- Wind Turbines

1: 5,000

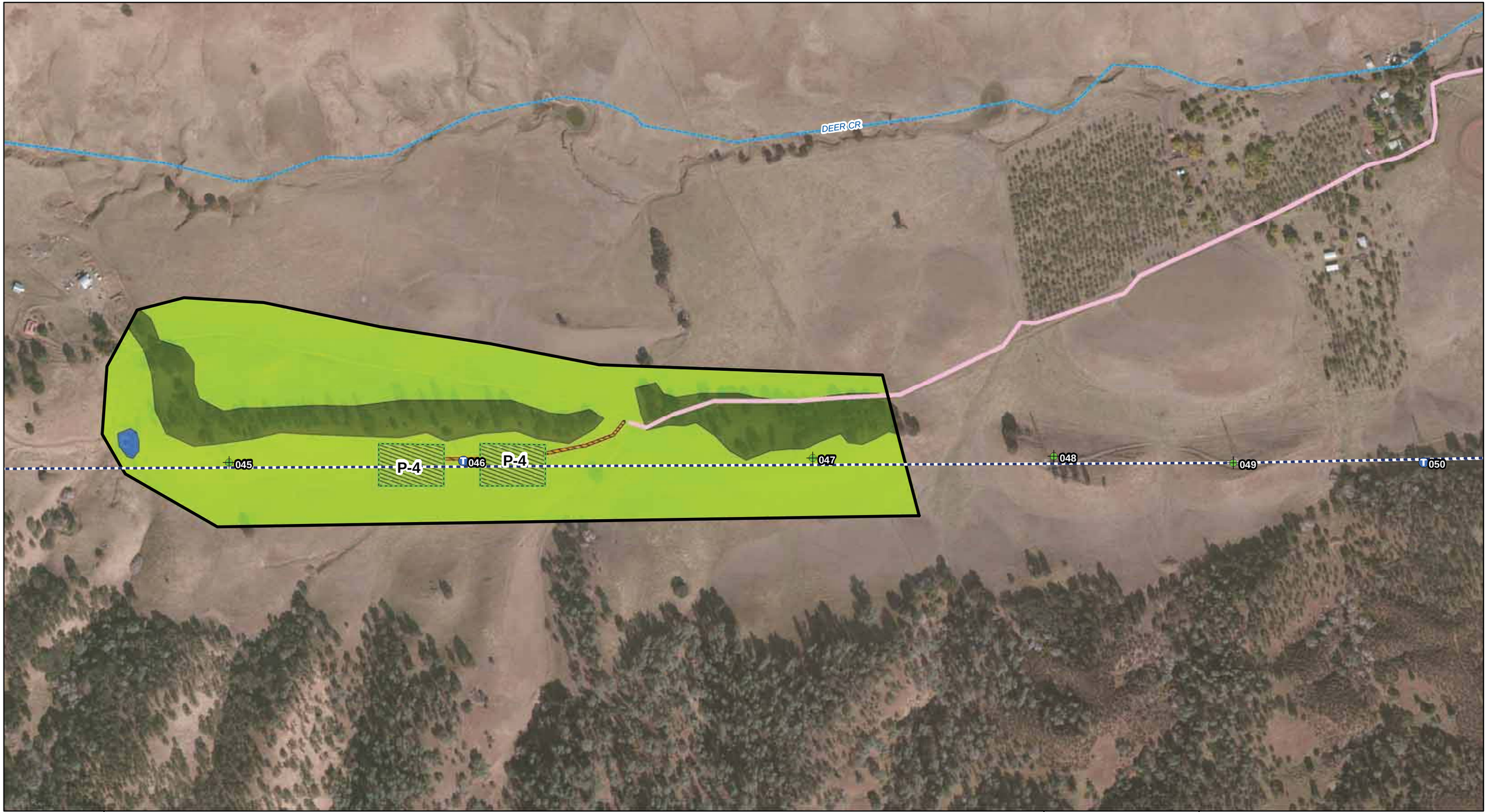
0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 9 of 24

Source: GANDA GIS 2013



GANDA

Project Features
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- Turf
- Urban
- Wind Turbines

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0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 10 of 24

Source: GANDA GIS 2013

GANDA

Project Features
- Study Area
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Tower Modifications (Helicopter Work Only)
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- Urban
- Wind Turbines

1: 5,000

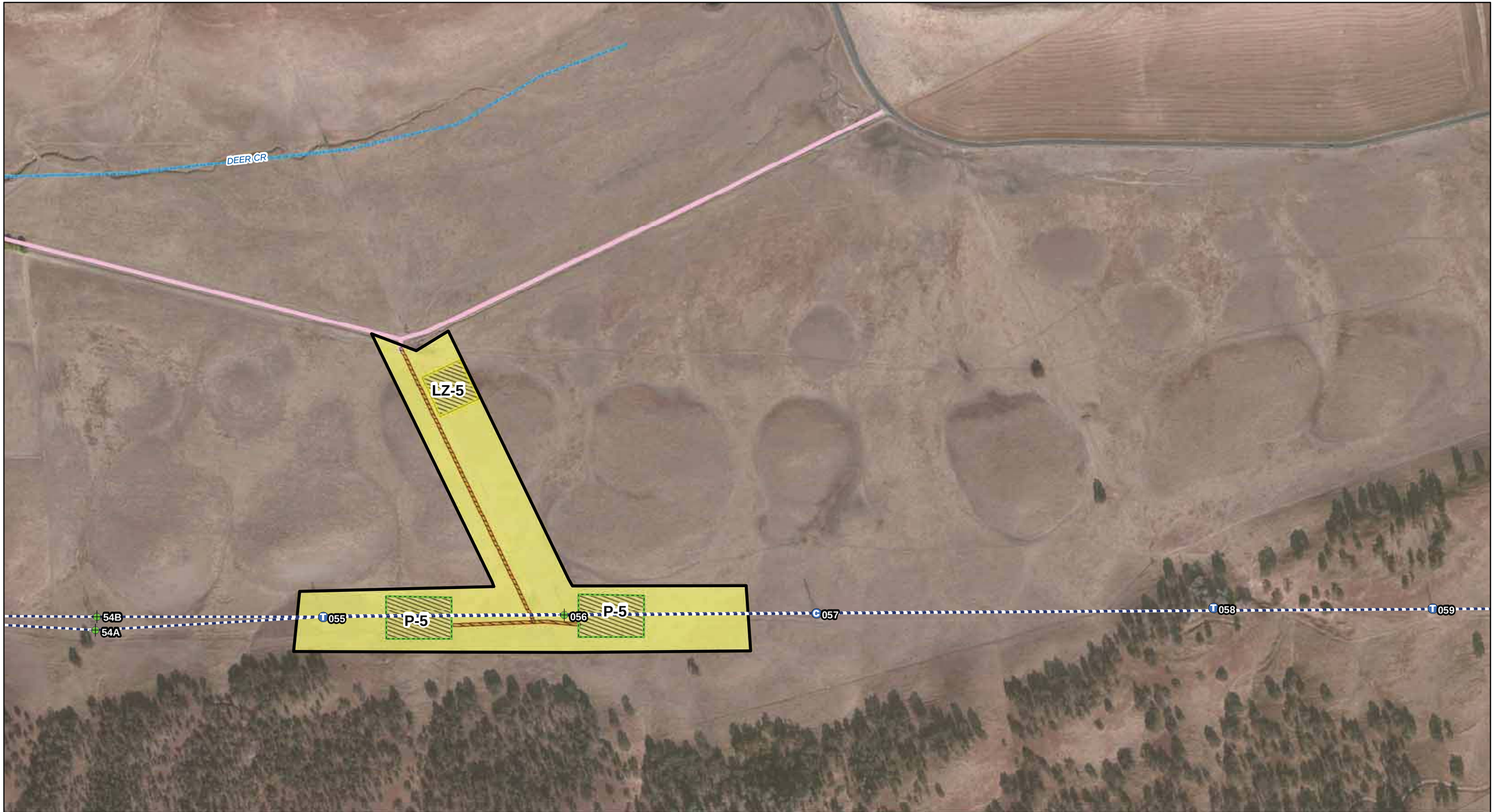
0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 11 of 24

Source: GANDA GIS 2013



GANDA

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- Urban
- Wind Turbines

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0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 12 of 24

Source: GANDA GIS 2013

GANDA

Project Features
- Study Area
- Transmission Line
- Pull Site (200x300)
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- Turf
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- Wind Turbines

1: 5,000

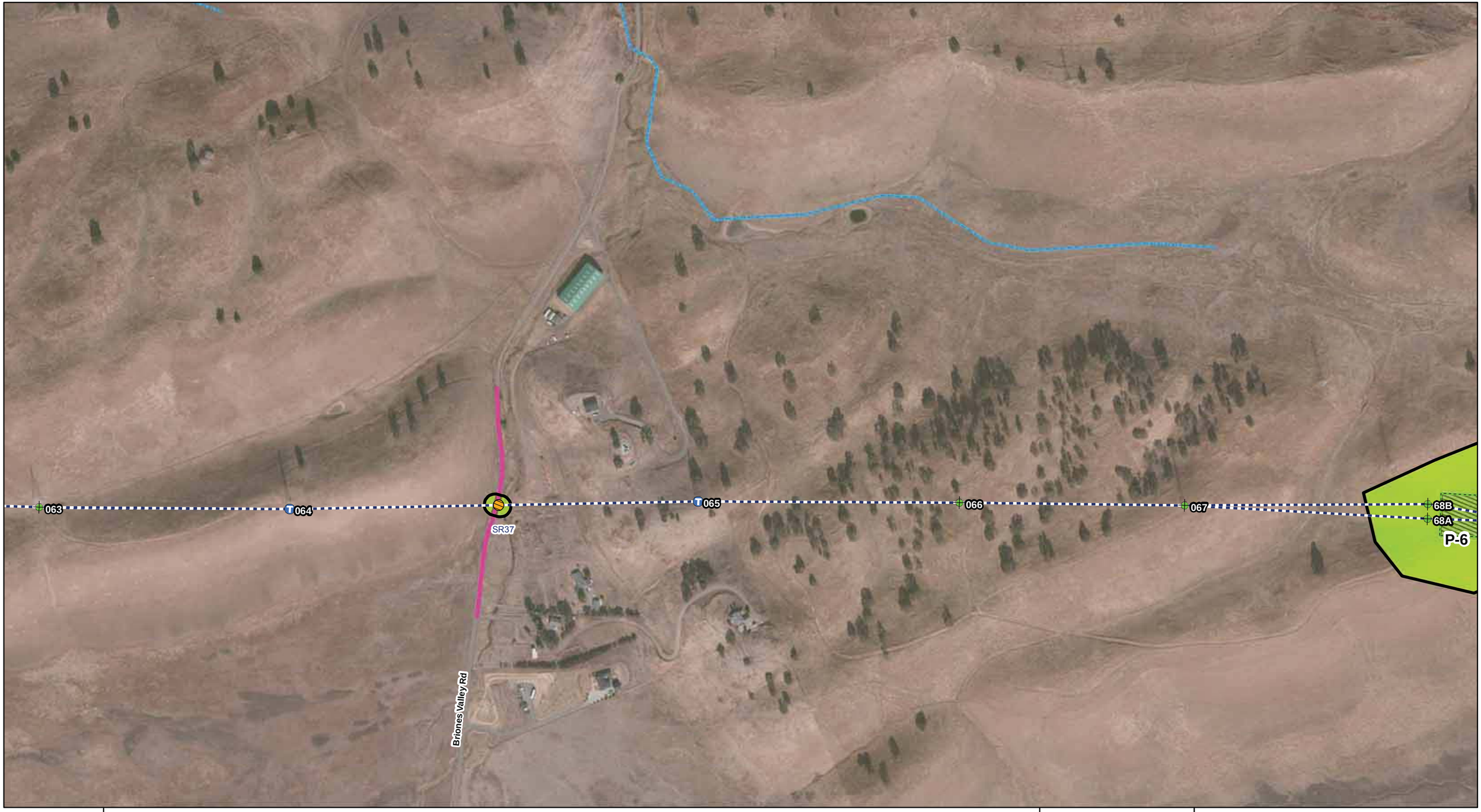
0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 13 of 24

Source: GANDA GIS 2013



GANDA

Project Features
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- Wind Turbines

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0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 14 of 24

Source: GANDA GIS 2013

GANDA

Project Features
- Study Area
- Transmission Line
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Tower Modifications (Helicopter Work Only)
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- Urban
- Wind Turbines

1: 5,000

0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 15 of 24

Source: GANDA GIS 2013

GANDA

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1: 5,000

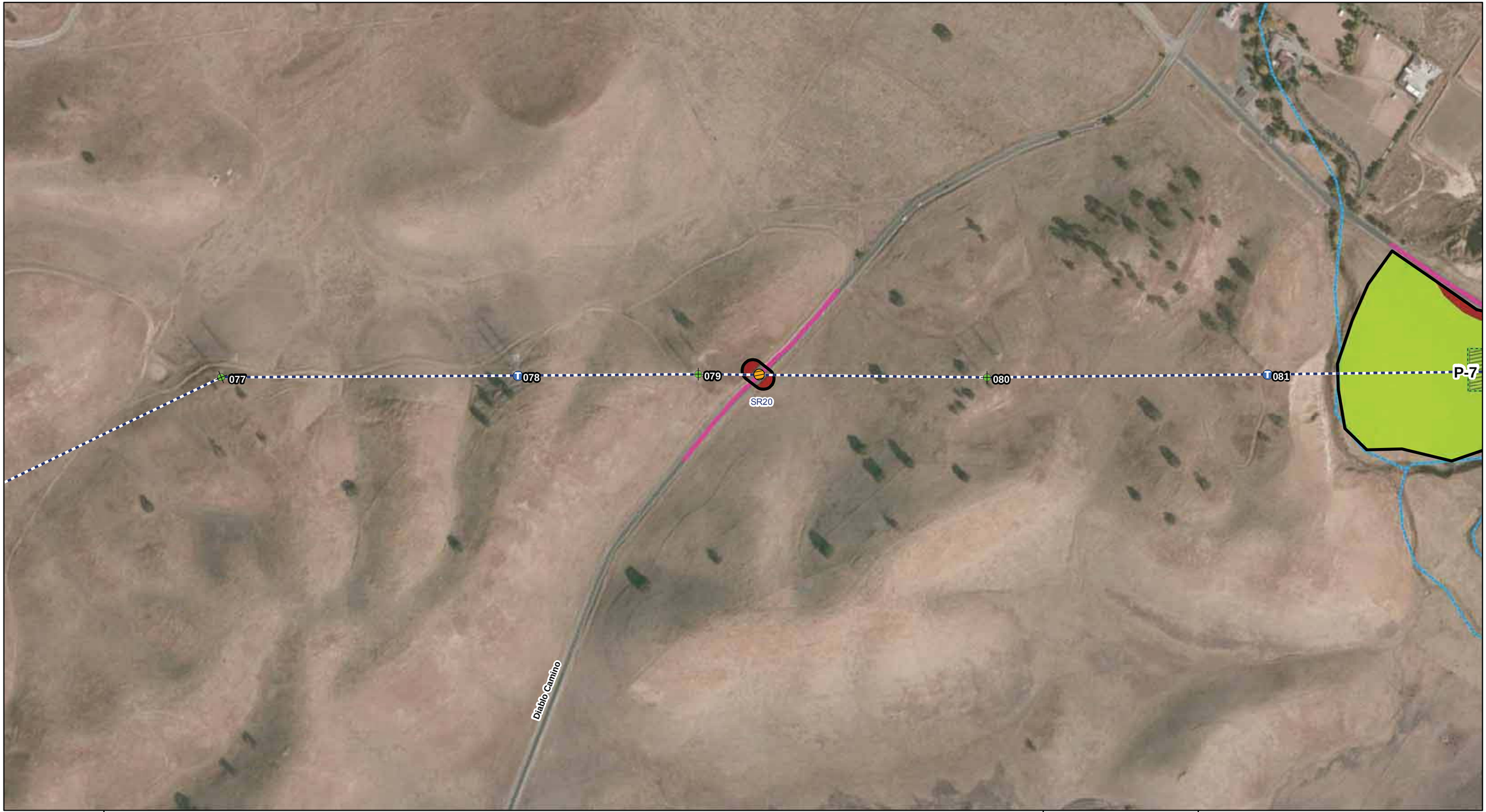
0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 16 of 24

Source: GANDA GIS 2013



GANDA

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- Turf
- Urban
- Wind Turbines

1: 5,000

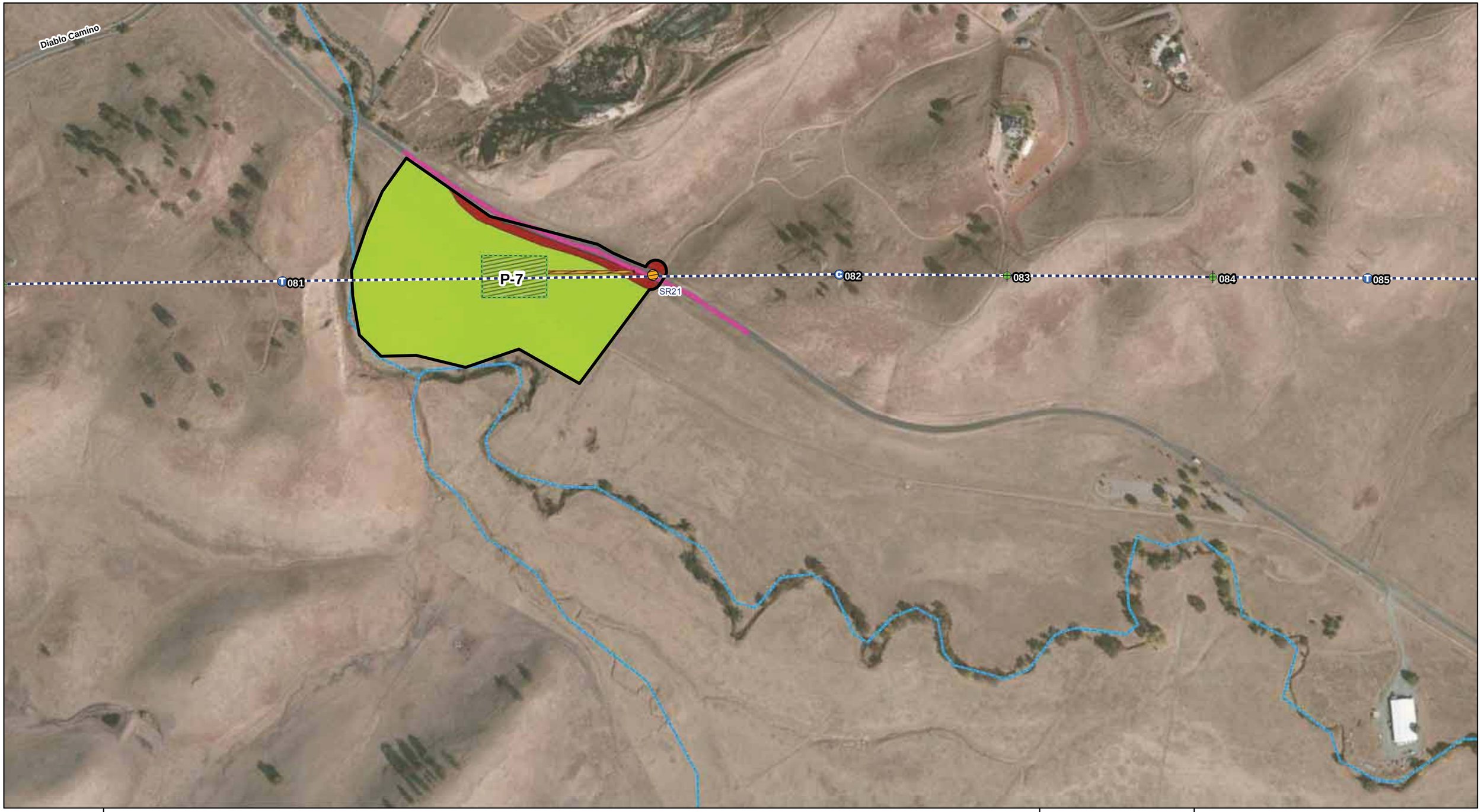
0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 17 of 24

Source: GANDA GIS 2013



GANDA

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1: 5,000

0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 18 of 24

Source: GANDA GIS 2013

GANDA

Project Features
- Study Area
- Transmission Line
- Pull Site (200x300)
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- Urban
- Wind Turbines

1: 5,000

0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 19 of 24

Source: GANDA GIS 2013

GANDA

Project Features
- Study Area
- Transmission Line
- Pull Site (200x300)
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- Wind Turbines

1: 5,000

0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 20 of 24

Source: GANDA GIS 2013

GANDA

Project Features
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- Turf
- Urban
- Wind Turbines

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0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 21 of 24

Source: GANDA GIS 2013

GANDA

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- Study Area
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- Turf
- Urban
- Wind Turbines

1: 5,000

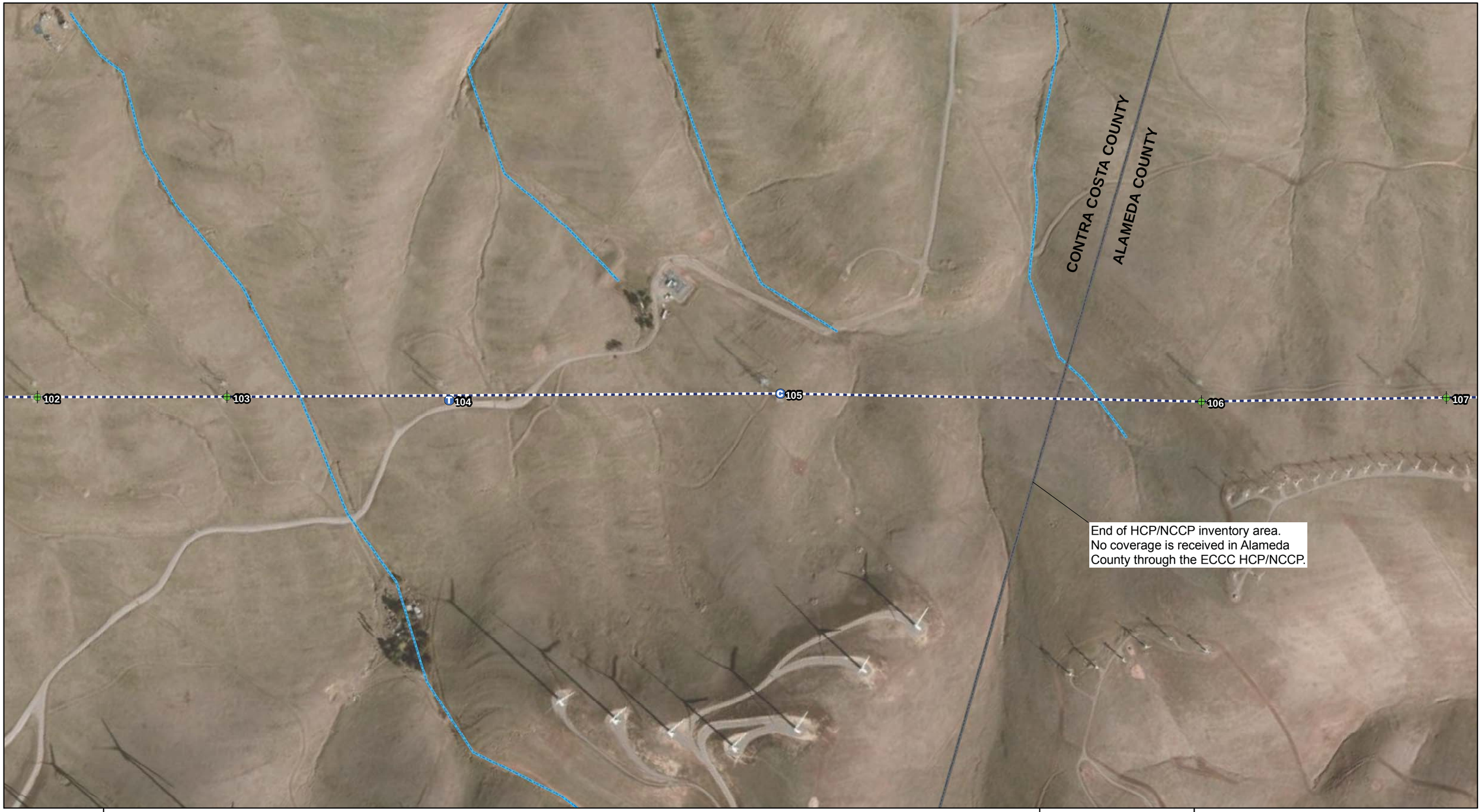
0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 22 of 24

Source: GANDA GIS 2013



GANDA

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- Wind Turbines

1: 5,000

0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 23 of 24

Source: GANDA GIS 2013

GANDA

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- Turf
- Urban
- Wind Turbines

1: 5,000

0 400 Feet

Figure 2: Detailed Project and Land Cover Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 24 of 24

Source: GANDA GIS 2013

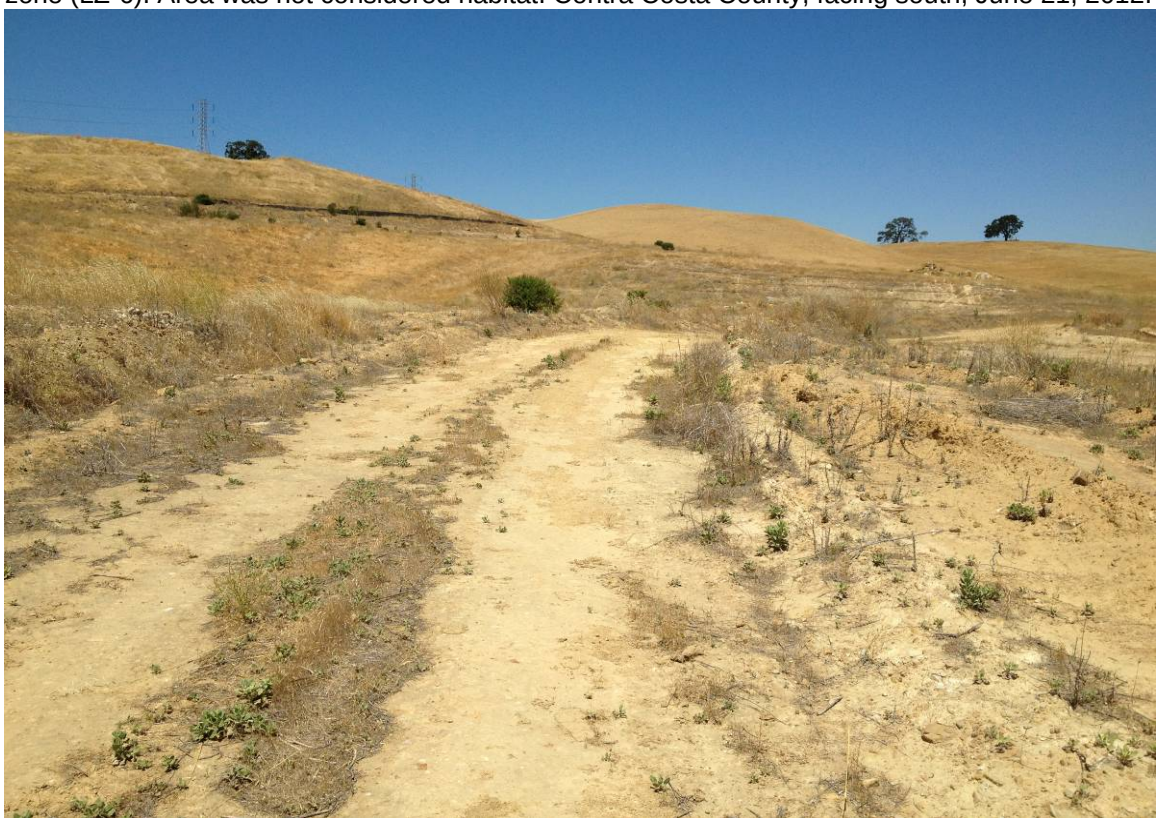
Attachment B - Figure 2b: Representative Photos of Project Site

Seasonal wetland feature on access to pull site 2 (P-2) and surrounding annual grassland. Seasonal wetland feature SW-05 (site A from wetland delineation). Ruler standing in feature is 18 inches tall. Gravel will be temporarily placed in feature for equipment crossing. Facing south, Contra Costa County, March 24, 2010.

Disturbed annual grassland (unused pasture) to be used as a landing zone (LZ-3) near the corner of Kirker Pass Road and Nortonville Road. Facing east, Contra Costa County, April 24, 2012.

Purple needlegrass grassland on hillside above trees. Temporary guard structure TL11 to be installed to protect shorter transmission line. Facing south, Contra Costa County, April 24, 2012.

Ruderal vegetation on overgrown leveled compacted gravel pad. Area to be used for landing zone (LZ-6). Area was not considered habitat. Contra Costa County, facing south, June 21, 2012.

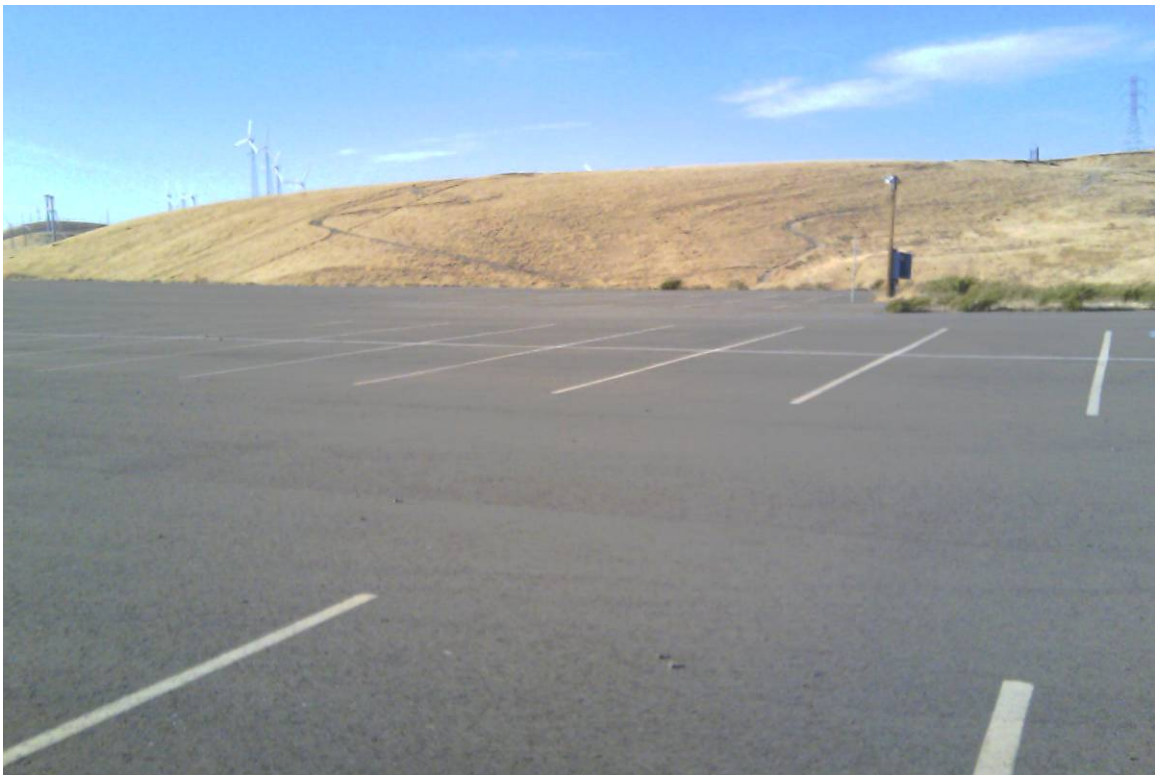


Well-developed portion of access route to pull site 6 (P-6) through ruderal vegetation. Facing west, Contra Costa County, June 21, 2012.

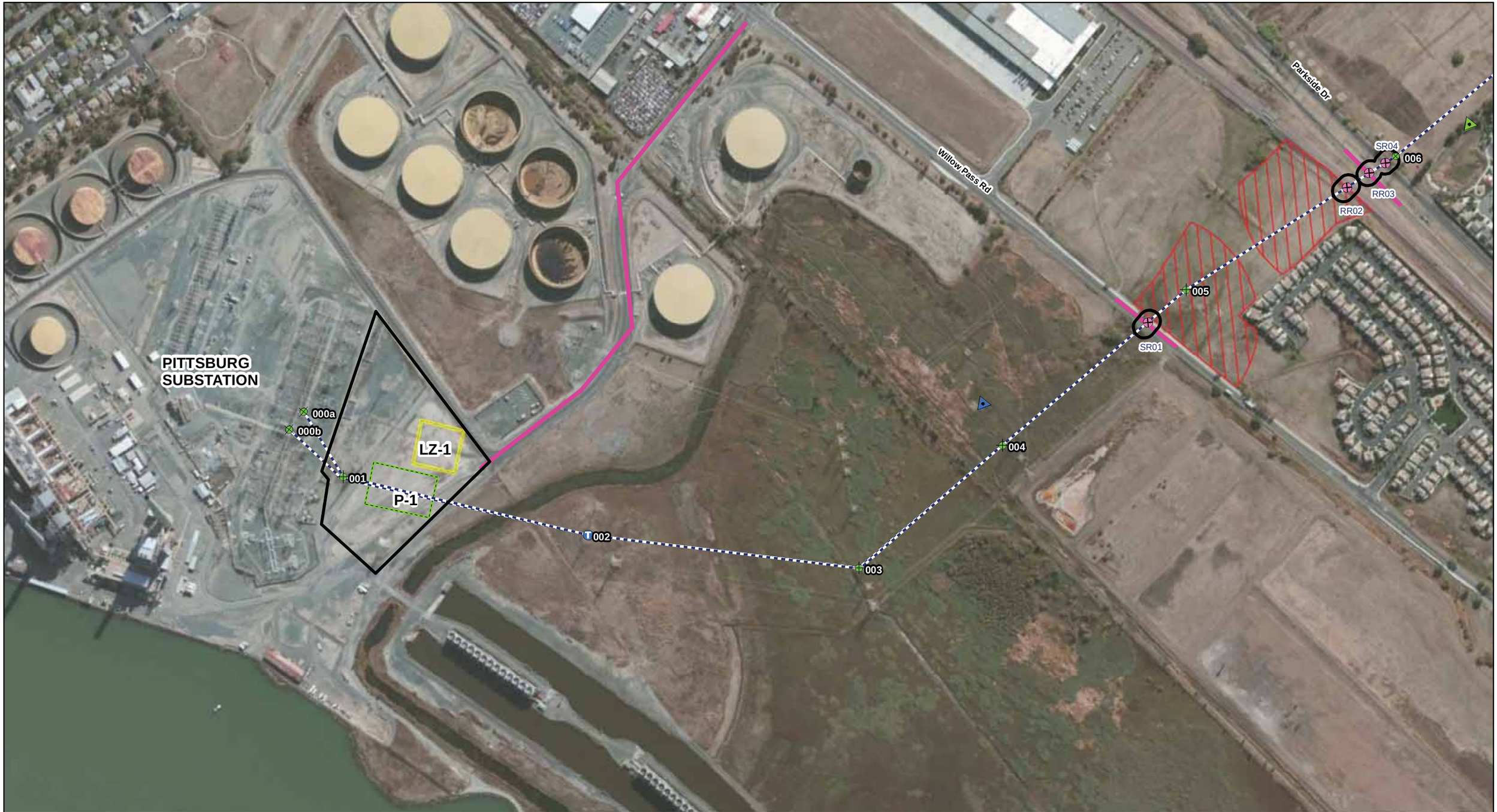
Portion of access route to pull site 6 (P-6) through annual grassland. Facing north, Contra Costa County, June 21, 2012.

Annual grassland area to be used for pull site (P-7) to the east of Walnut Avenue. Many large-sized burrows found at this location. California red-legged frogs known from adjacent Kellogg Creek. Facing east, Contra Costa County, June 20, 2012.

Abandoned golf course area to be used for pull site (P-10). Area is overgrown turf that is becoming ruderal vegetation. Facing north, Alameda County, June 19, 2012.



Old golf course parking lot. Developed area to be used for landing zone (LZ-10). Facing north, Alameda County, October 26, 2011.



GANDA

Project Features
- Study Area
- Transmission Line
- Pull Site (200x300 feet)
- Staging Area / LZ (200x200 feet)
- Guard / X-ing Structure

Tower Modifications (Helicopter Work Only)
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Access Roads
- Paved
- Unpaved (Well-established/Gravel)
- Unimproved

Nest Locations
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- Other Nest

Biological Habitats
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- California macrophylla - Round-leaved filaree

1: 5,000

0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 1 of 24

Source: GANDA GIS 2013

GANDA

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0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 2 of 24

Source: GANDA GIS 2013

GANDA

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Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 3 of 24

Source: GANDA GIS 2013

GANDA

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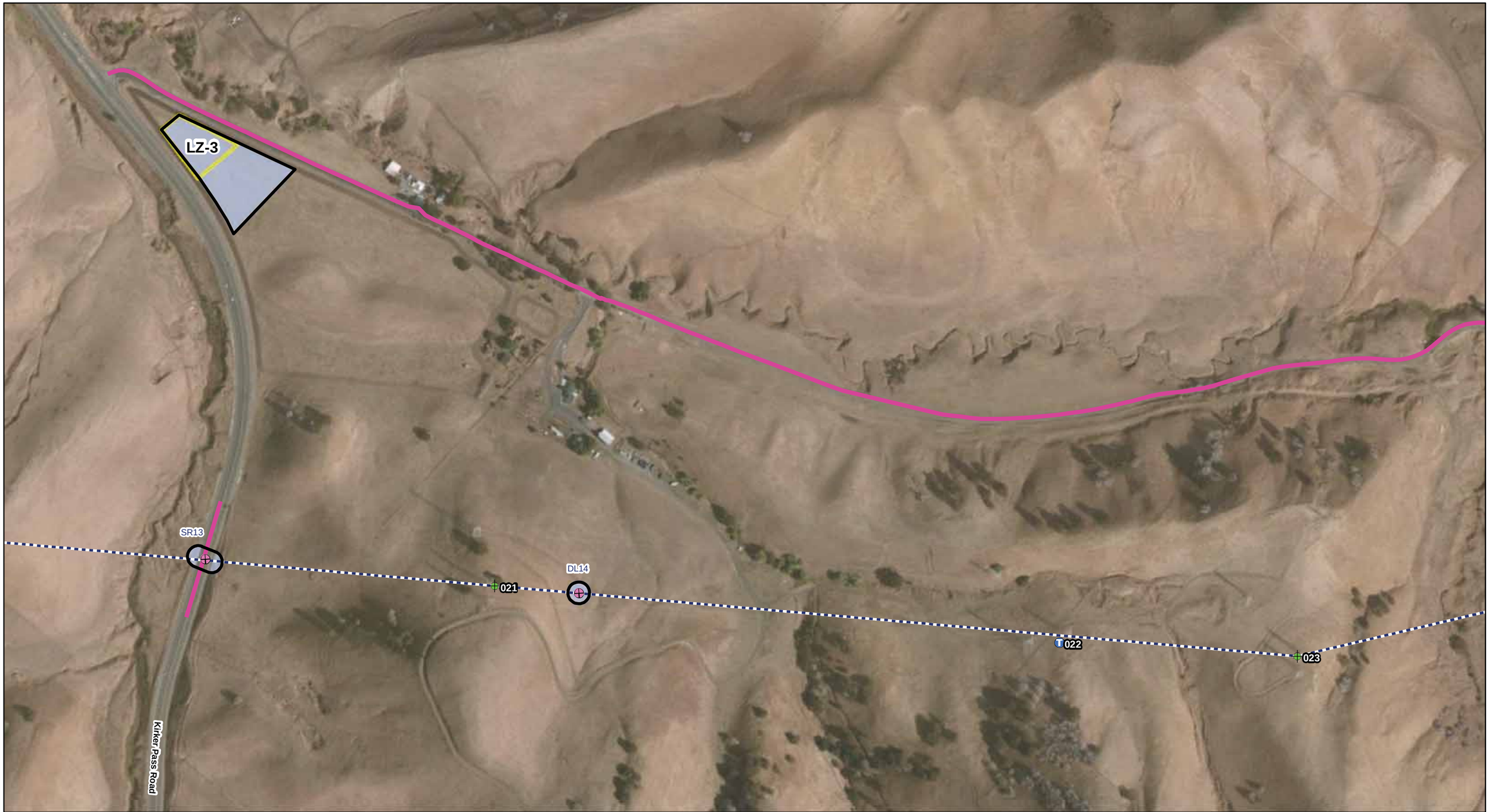
Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 4 of 24

Source: GANDA GIS 2013



GANDA

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Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 5 of 24

Source: GANDA GIS 2013

GANDA

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Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 6 of 24

Source: GANDA GIS 2013

GANDA

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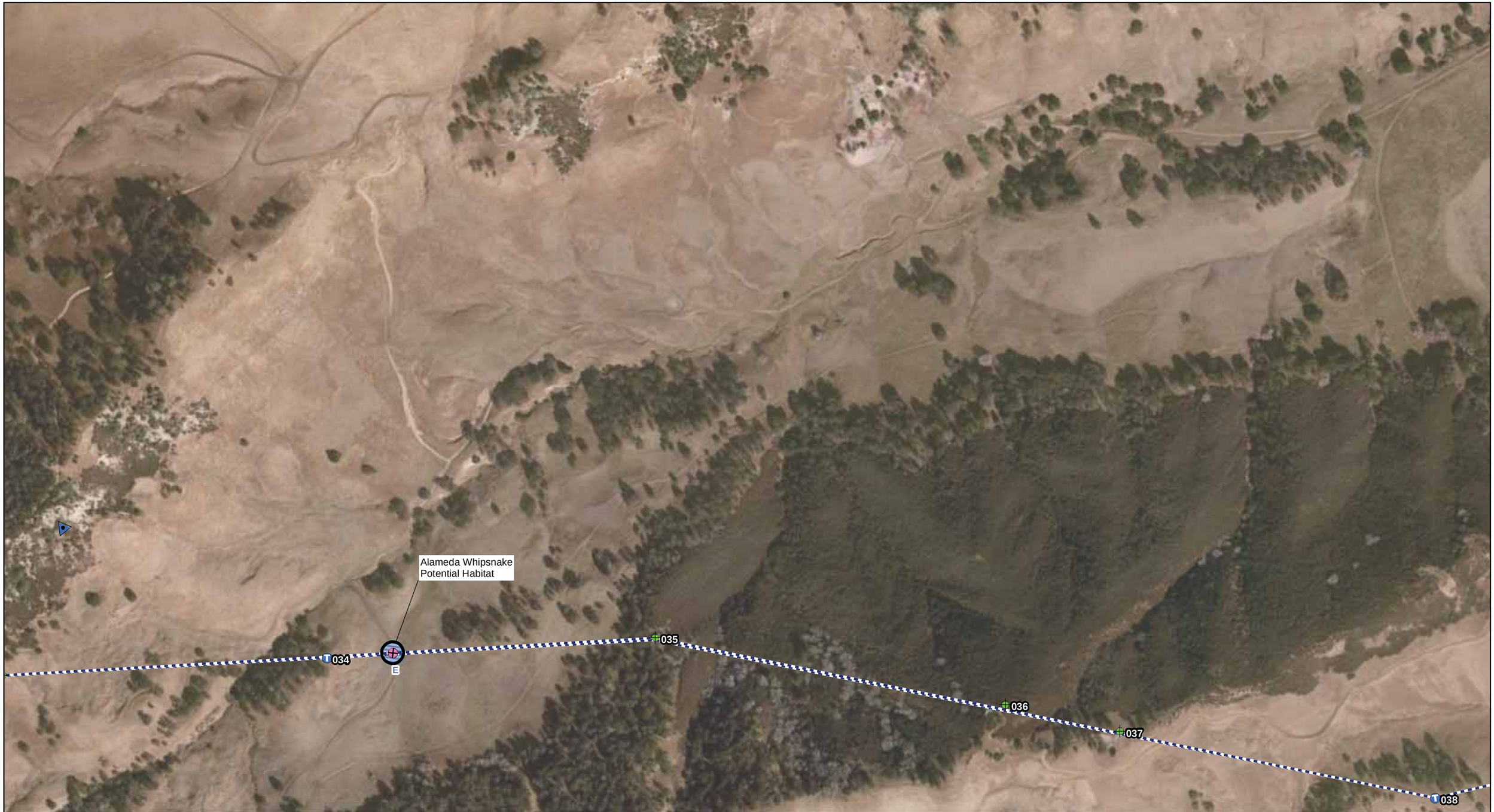
Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 7 of 24

Source: GANDA GIS 2013



GANDA

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Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 8 of 24

Source: GANDA GIS 2013

GANDA

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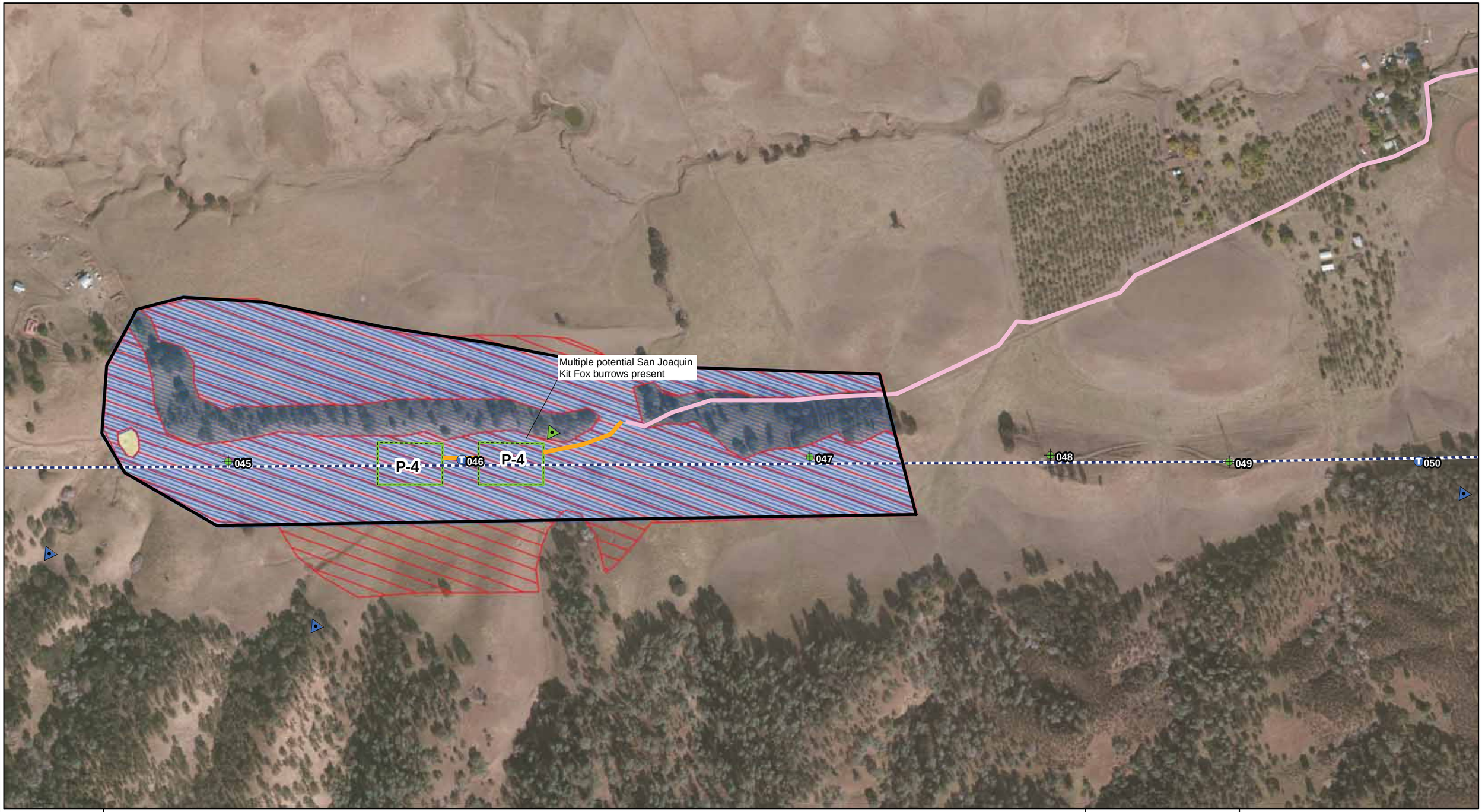
0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 9 of 24

Source: GANDA GIS 2013



GANDA

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Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 10 of 24

Source: GANDA GIS 2013

GANDA

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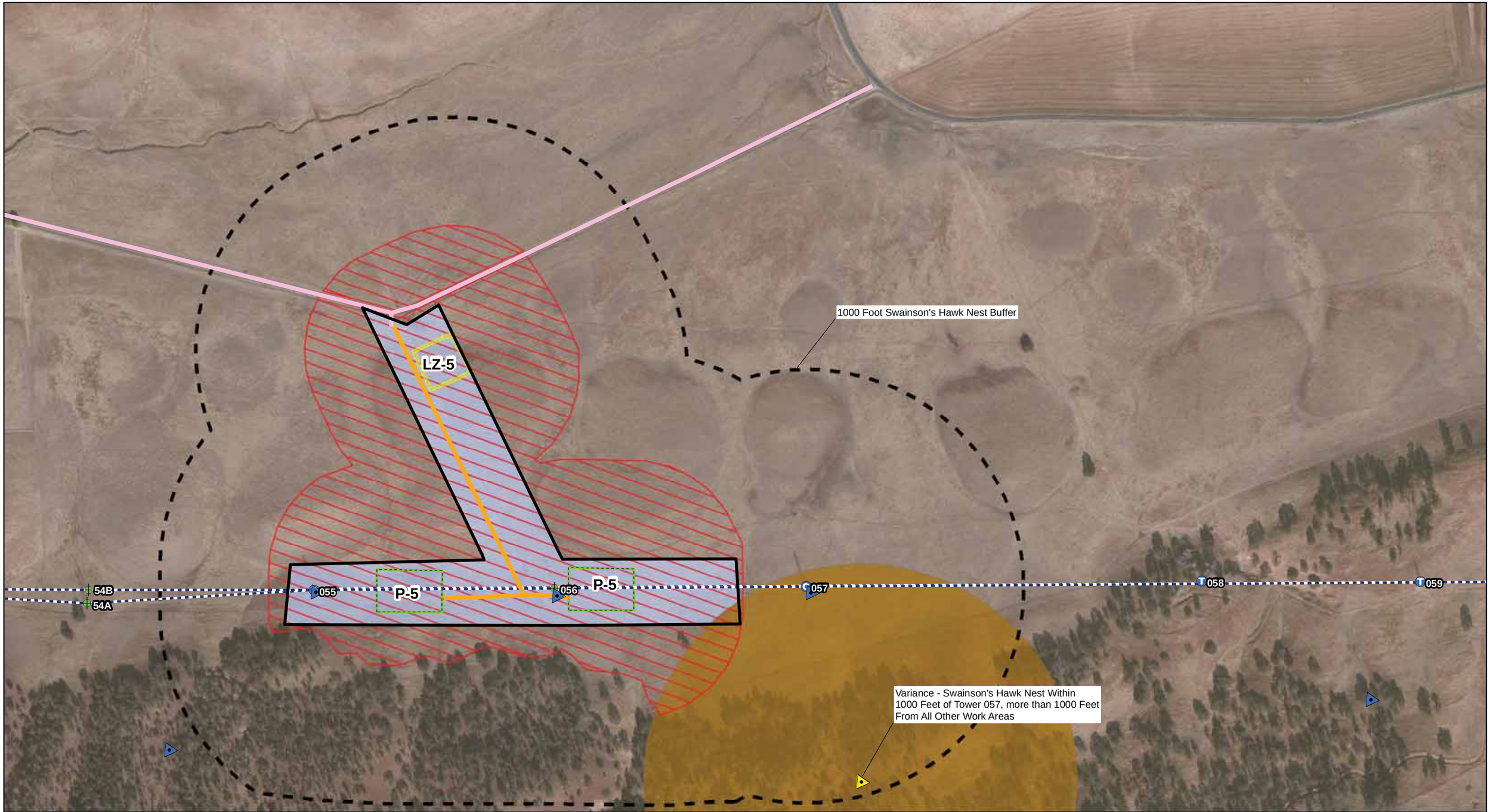
Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 11 of 24

Source: GANDA GIS 2013



GANDA

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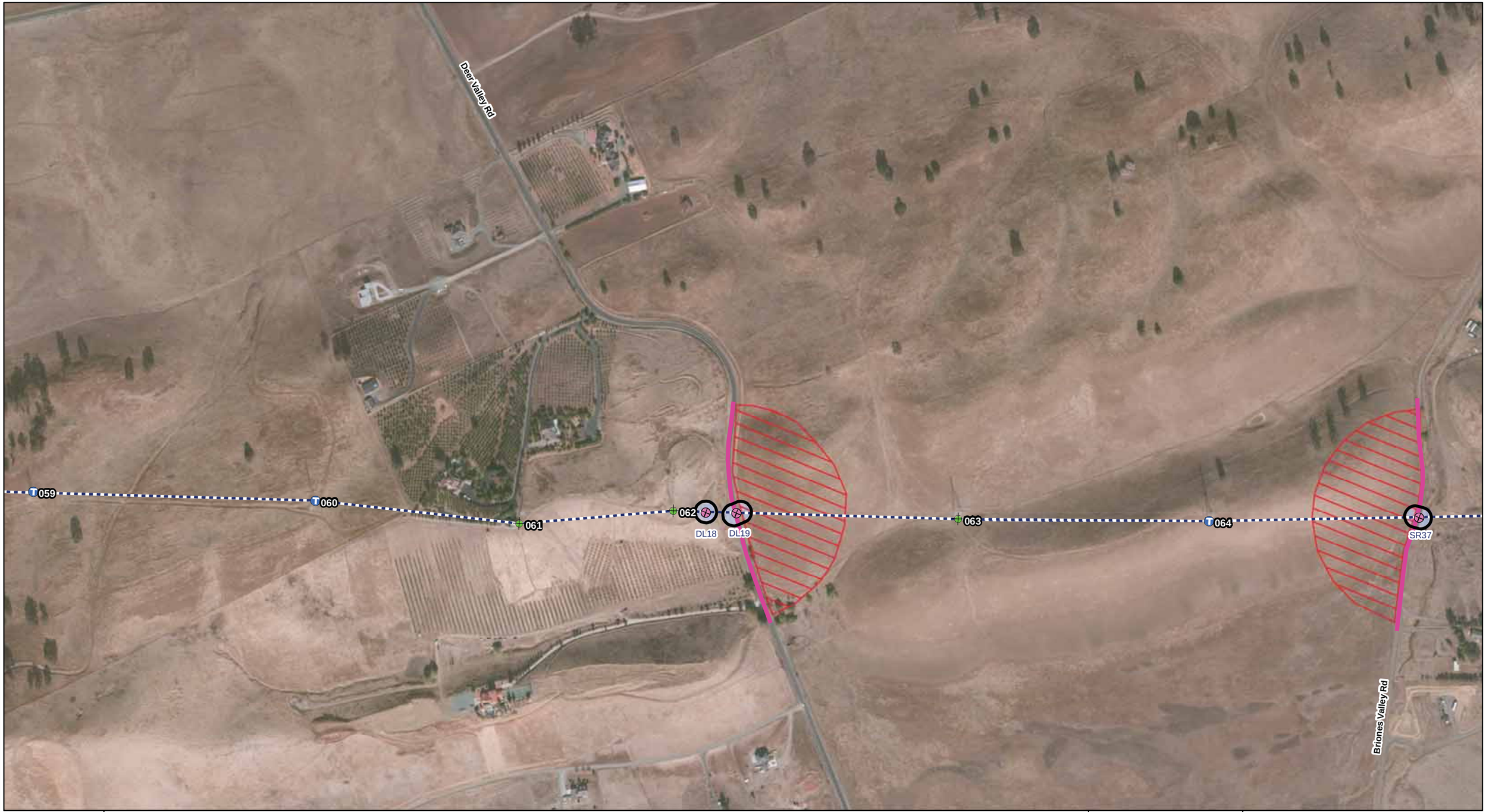
0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 12 of 24

Source: GANDA GIS 2013



GANDA

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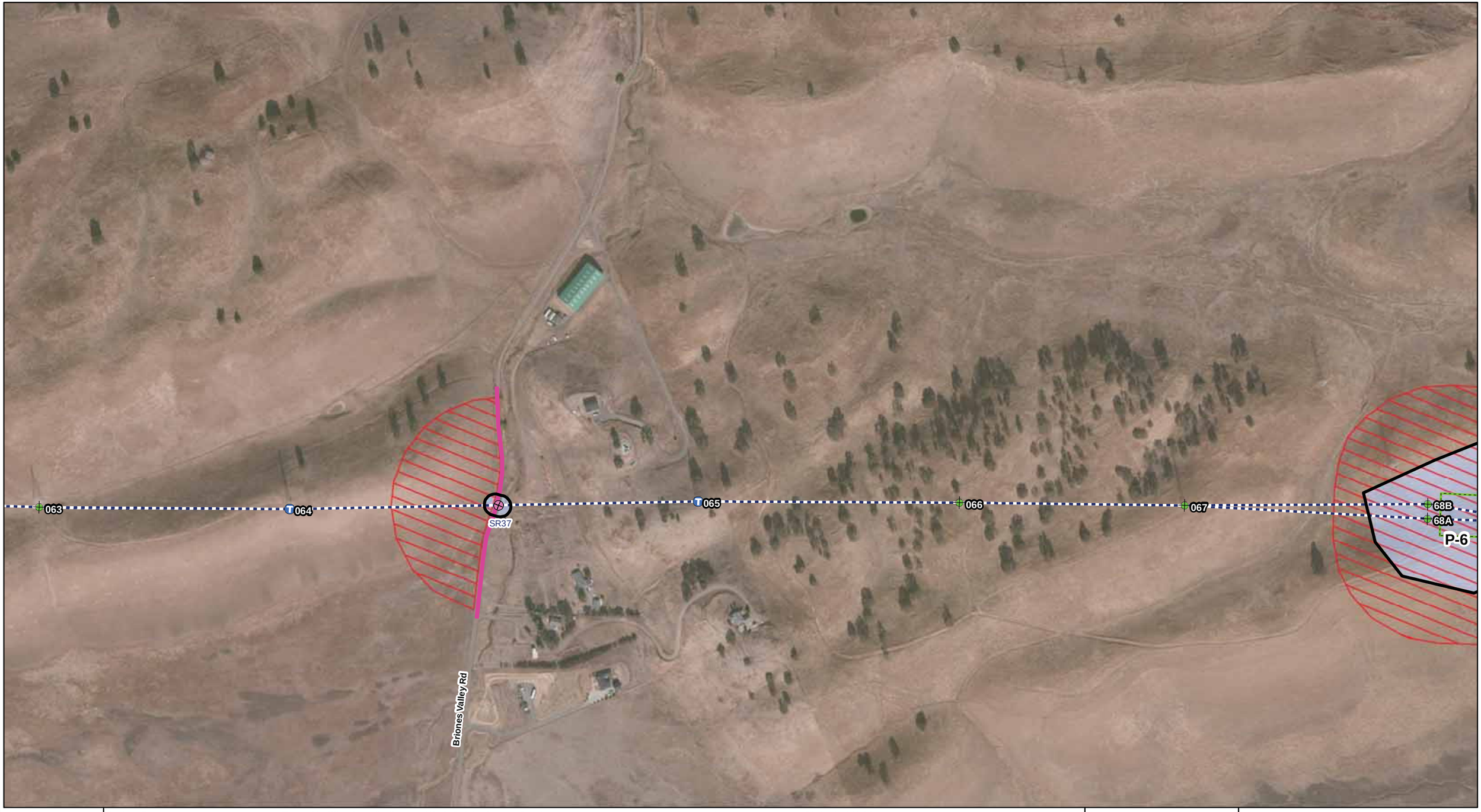
0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 13 of 24

Source: GANDA GIS 2013



GANDA

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1: 5,000

0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 14 of 24

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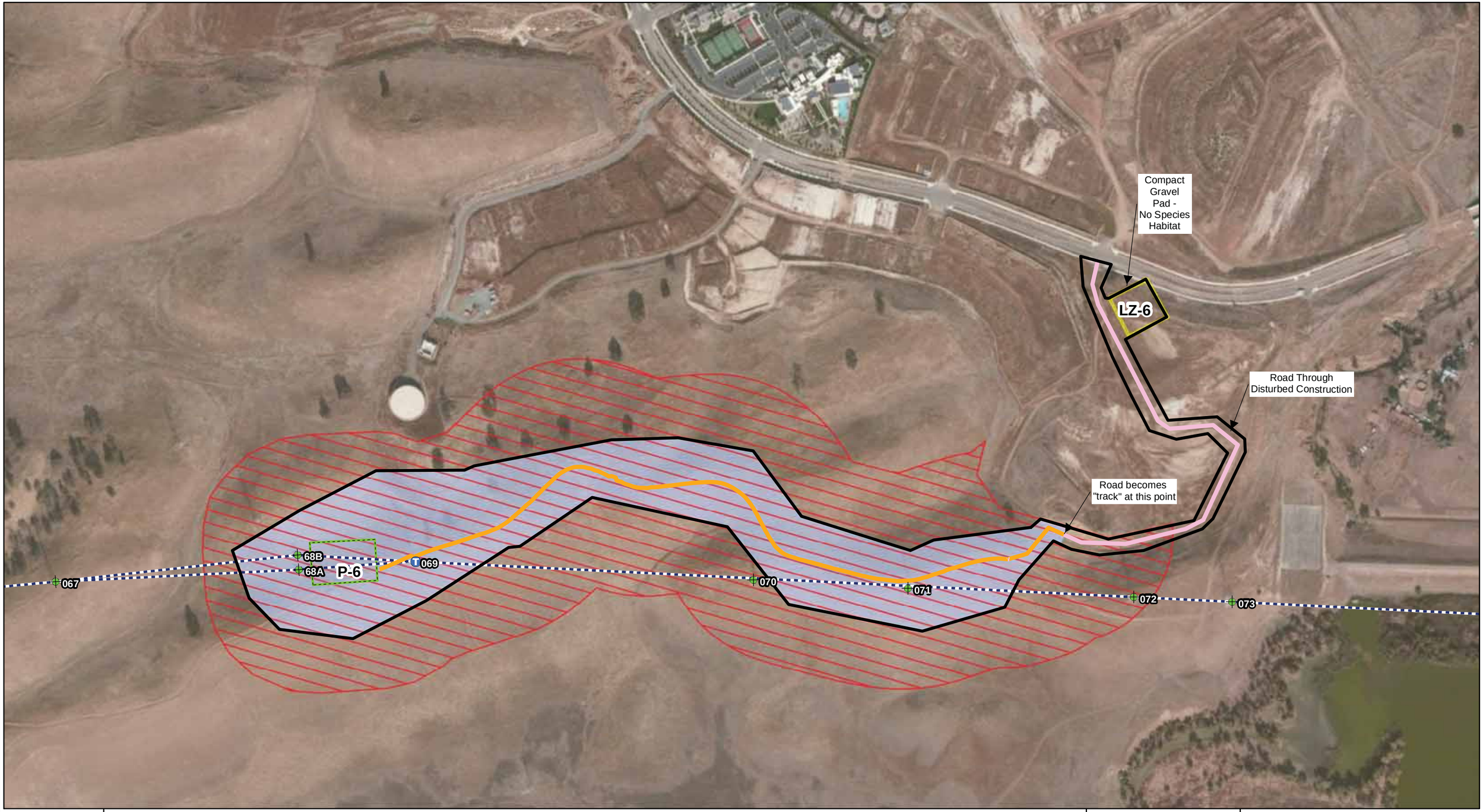

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0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 15 of 24

Source: GANDA GIS 2013

GANDA

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0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
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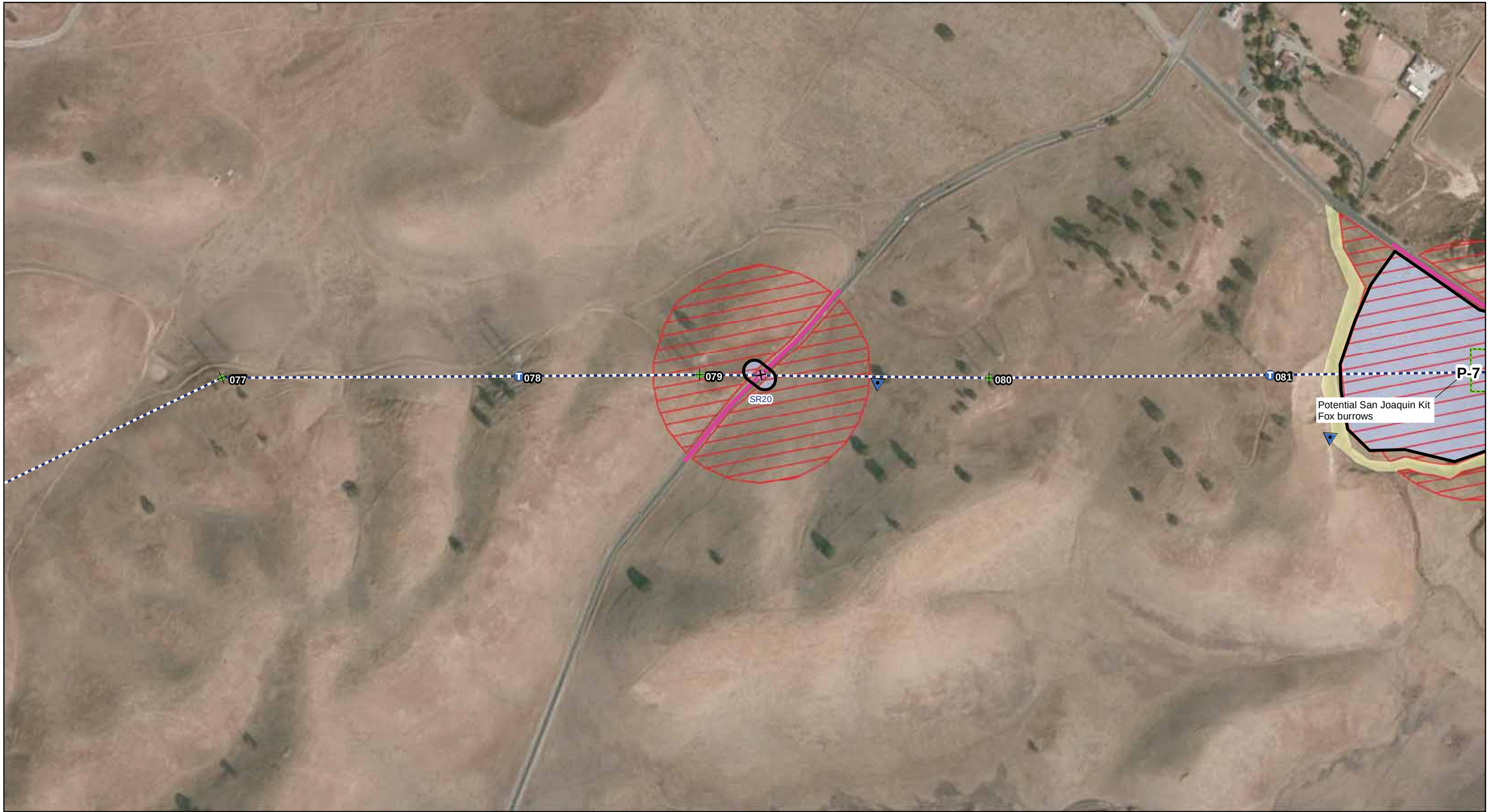
Map 16 of 24

Source: GANDA GIS 2013



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Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 17 of 24

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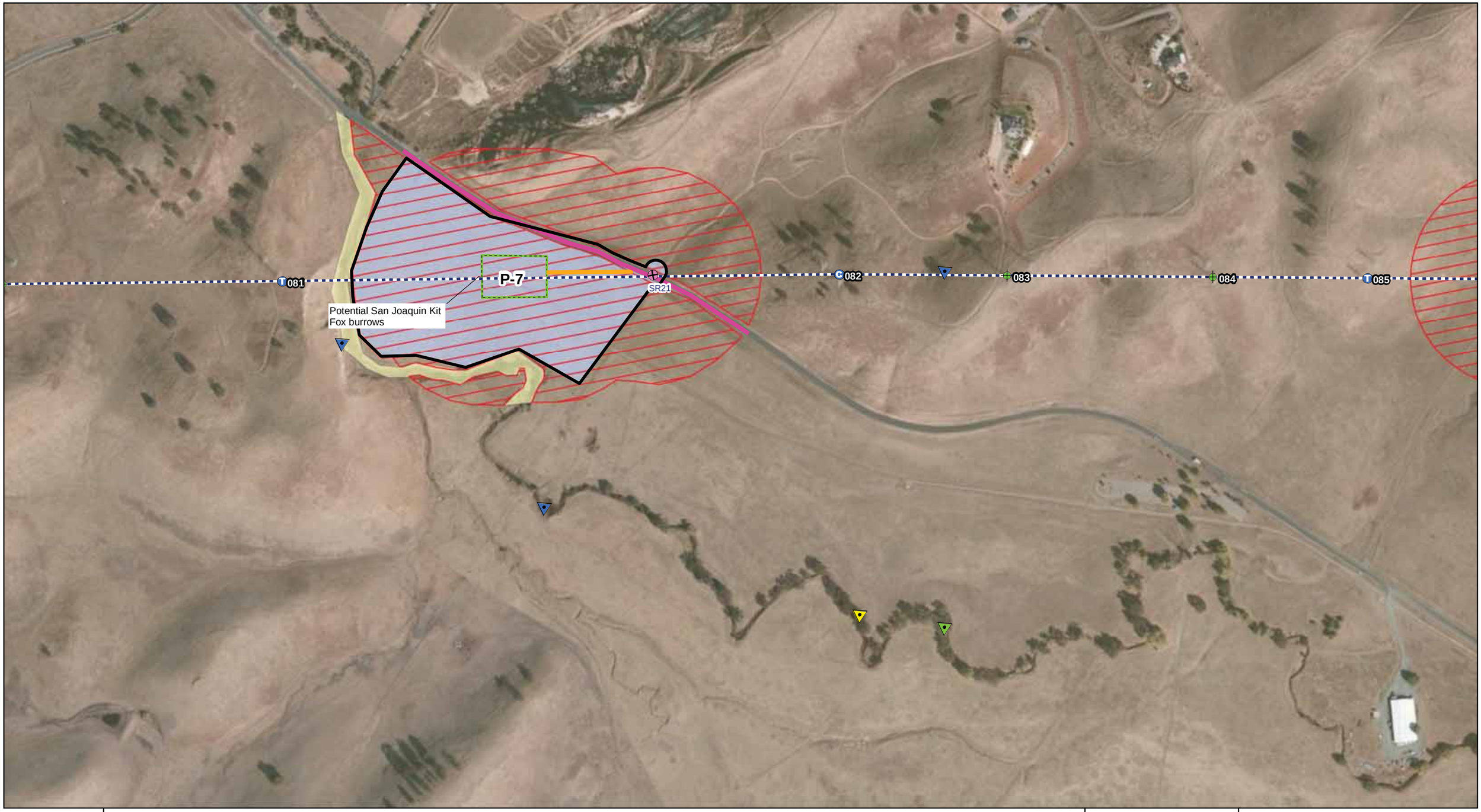

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0 500 Feet

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Map 18 of 24

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- Alameda Whipsnake Potential Habitat
- San Joaquin Kit Fox Potential Habitat
- California Tiger Salamander and/or California Red-legged Frog Potential Breeding Habitat
- Swainson's Hawk 1000 Feet Setback
- California macrophylla - Round-leaved filaree

1: 5,000

0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 19 of 24

Source: GANDA GIS 2013

GANDA

Project Features
- Study Area
- Transmission Line
- Pull Site (200x300 feet)
- Staging Area / LZ (200x200 feet)
- Guard / X-ing Structure

Tower Modifications (Helicopter Work Only)
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Access Roads
- Paved
- Unpaved (Well-established/Gravel)
- Unimproved

Nest Locations
- Golden Eagle Nest
- Swainson's Hawk Nest
- White-tailed Kite Nest
- Other Nest

Biological Habitats
- Western Burrowing Owl Potential Habitat Within 500 Feet
- Alameda Whipsnake Potential Habitat
- San Joaquin Kit Fox Potential Habitat
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- Swainson's Hawk 1000 Feet Setback
- California macrophylla - Round-leaved filaree

1: 5,000

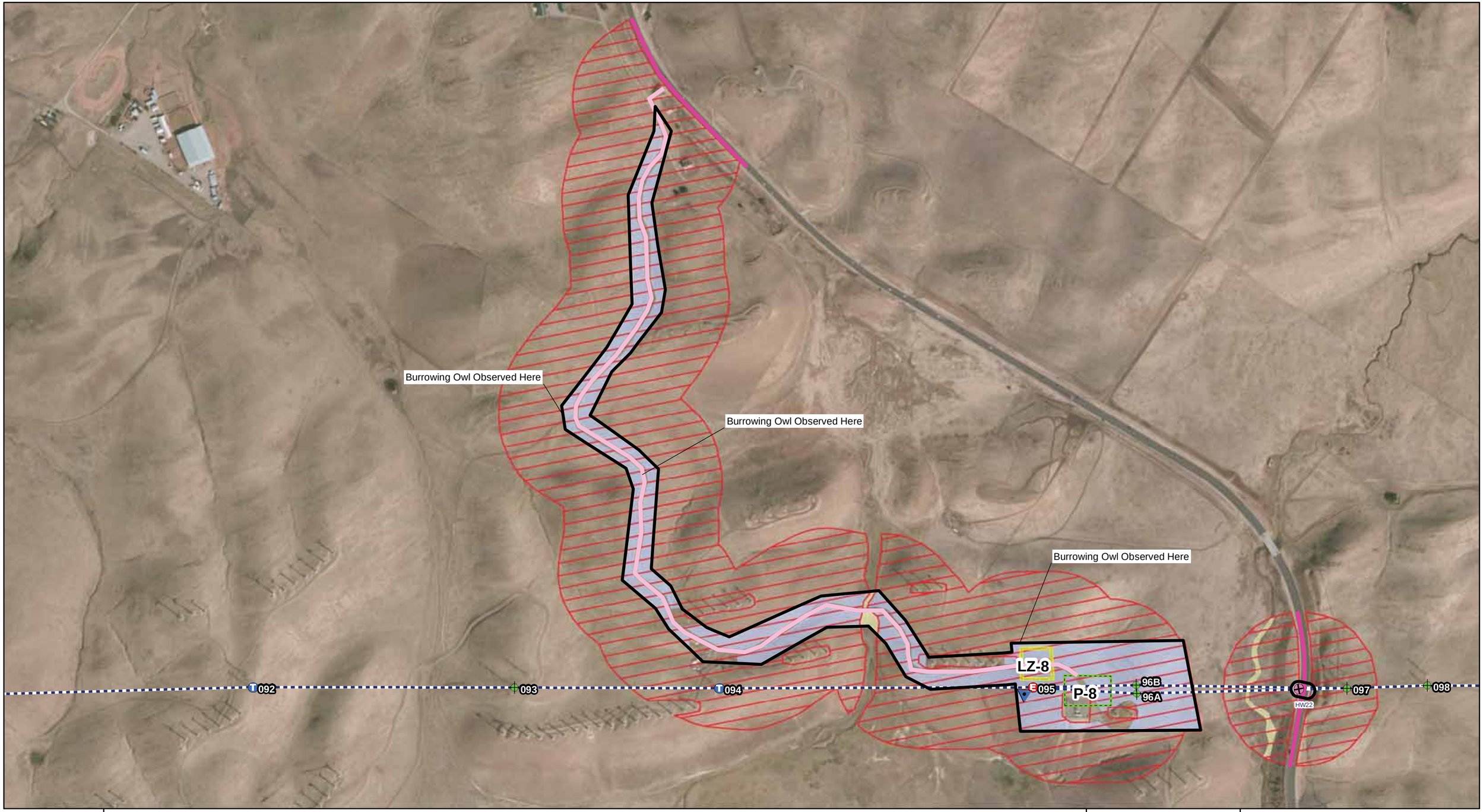
0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 20 of 24

Source: GANDA GIS 2013



GANDA

Project Features
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- San Joaquin Kit Fox Potential Habitat
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- Swainson's Hawk 1000 Feet Setback
- California macrophylla - Round-leaved filaree

1: 7,000

0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 21 of 24

Source: GANDA GIS 2013

GANDA

Project Features
- Study Area
- Transmission Line
- Pull Site (200x300 feet)
- Staging Area / LZ (200x200 feet)
- Guard / X-ing Structure

Tower Modifications (Helicopter Work Only)
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

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- Unimproved

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- San Joaquin Kit Fox Potential Habitat
- California Tiger Salamander and/or California Red-legged Frog Potential Breeding Habitat
- Swainson's Hawk 1000 Feet Setback
- California macrophylla - Round-leaved filaree

1: 5,000

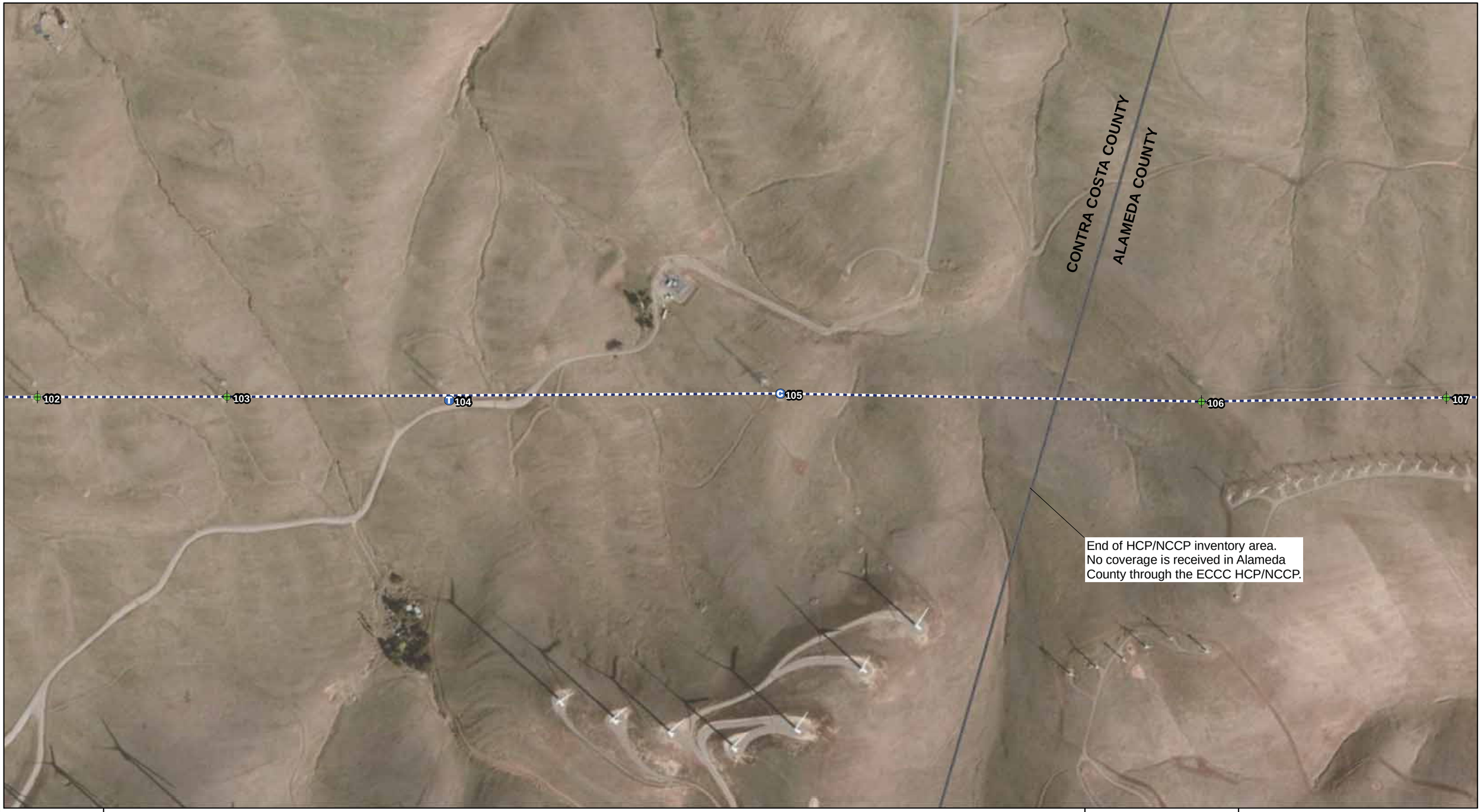
0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 22 of 24

Source: GANDA GIS 2013



GANDA

Project Features
- Study Area
- Transmission Line
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- Staging Area / LZ (200x200 feet)
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- California Tiger Salamander and/or California Red-legged Frog Potential Breeding Habitat
- Swainson's Hawk 1000 Feet Setback
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1: 5,000

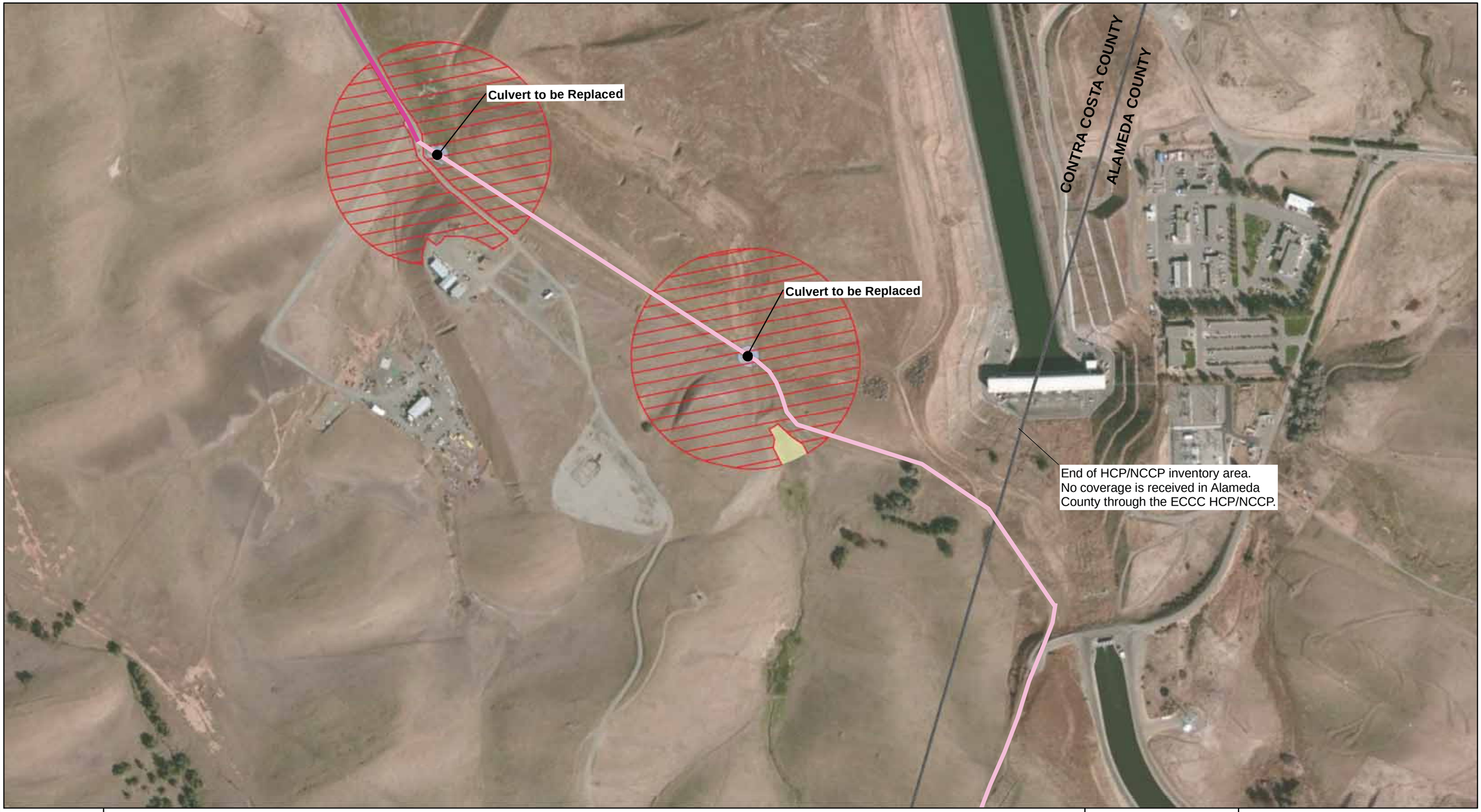
0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 23 of 24

Source: GANDA GIS 2013



GANDA

Project Features
- Study Area
- Transmission Line
- Pull Site (200x300 feet)
- Staging Area / LZ (200x200 feet)
- Guard / X-ing Structure

Tower Modifications (Helicopter Work Only)
- Tower (No Modification)
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- California Tiger Salamander and/or California Red-legged Frog Potential Breeding Habitat
- Swainson's Hawk 1000 Feet Setback
- California macrophylla - Round-leaved filaree

1: 5,000

0 500 Feet

Figure 3: Biological Survey Results Map
Pittsburg Tesla 230kV Project

January 2013
Alameda and Contra Costa Counties, CA

Map 24 of 24

Source: GANDA GIS 2013

Attachment C – CNDDB Field Survey Forms

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only

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

Date of Field Work (mm/dd/yyyy): 03/24/2010

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *California macrophylla*

Common Name: Round-leaved filaree

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 9 Subsequent Visit? ☑ yes ☐ no

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

Collection? If yes: _____ Number not enough to collect Museum / Herbarium

Reporter: Samantha Hillaire
Address: 1280 Arch Way
Chico, CA 95973
E-mail Address: tablemountaingirl@yahoo.com
Phone: (530) 588-3515

Plant Information

Phenology: 80 % vegetative, 20 % flowering, ____ % fruiting

Animal Information

adults ____ # juveniles ____ # larvae ____ # egg masses ____ # unknown ____

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

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

Plants are located on the east bank (faces west) of a small drainage in grassland. Soil appears to be clay. These plants are above the area where the drainage runs.

County: Contra Costa County Landowner / Mgr.: PG&E

Quad Name: Honker Bay Elevation: 109 feet

T 2N R 1E Sec 19, ____ ¼ of NW ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): Google earth

T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: **NAD27** ☐ **NAD83** ☐ **WGS84** ☐ Horizontal Accuracy 3 meters meters/feet

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

Coordinates: 10S 595781m, E 4207191m

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Plants were found in an annual grassland. Plants were separated into two small patches - 4 plants and 5 plants. They are on a dry, west facing slope of a small ephemeral drainage (east side of drainage). Plants in the area are Erodium botrys, Erodium cicutarium, Lupinus bicolor, Lolium multiflorum, Amsinckia intermedia, Triteleia laxa, and Geranium dissectum. There is generally dense grass cover in the area, but these plants are on small micro-patches of bare clay.

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

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

Immediate AND surrounding land use:

Visible disturbances: Cattle grazing. Golf course and power lines nearby. This area is fenced off from most disturbance.

Threats: Nothing particular noted. Maybe cattle grazing.

Comments: At this location, plants are not reliably seen. Plants were not observed in early April 2009, were found in March 2010. Were observed in March 2011, but not observed in 2012. Placed two small plastic stakes in the ground so that plants could be found at later dates.

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

☑ Keyed (cite reference): Jepson Manual 1993
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Went to reference site with Wilde Legere; these plants appear the same.

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 07/12/2012

For Office Use Only

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

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Buteo swainsoni*

Common Name: Swainson's hawk

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 3 Subsequent Visit? ☑ yes ☐ no

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

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Eric Jepsen, Wildlife Ecologist
Address: 2601 Mission Street, Suite 600
San Francisco, CA 94110
E-mail Address: ejepsen@garciaandassociates.com
Phone: (530) 902-9171

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown
2	1			

☐ wintering ☐ breeding ☑ nesting ☐ rookery ☐ burrow site ☐ other

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

Stick nest at the top of a gray pine (P. sabiniana), approximately 1040ft Tower 57 of PG&E Pittsburg-Tesla transmission line, Deer Valley, Brentwood, CA.

County: Contra Costa Landowner / Mgr.: Private

Quad Name: Antioch South Elevation: 600 feet

T 1N R 2E Sec 19, SE ¼ of SE ¼, Meridian: H☐ M☑ S☐ Source of Coordinates (GPS, topo. map & type): GoogleEarth

T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: **NAD27** ☐ **NAD83** ☐ **WGS84** ☑ Horizontal Accuracy _____ meters/feet

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

Coordinates: 37.910181, -121.785383

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Light adult male and dark adult female observed nest building in a gray pine on 4/24/2012. Birds sexed based on size dimorphism. Female observed in incubation posture on 5/9/2012. Dark adult (female) observed flying into the nest while light adult (male) was soaring above nest area on 6/5/2012. Single, light adult (male) observed soaring over the nest area and one, approximately 6-7 week old nestling observed on 7/6/2012. SWHA pair active in flight over area and foraging on 7/12/2012. Nestling/Fledgling not observed. Conclusion: Nesting likely successful with 1 fledgling, though not confirmed.

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

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

Immediate AND surrounding land use: Nest located on NE facing slope of foothill dominated by blue oak woodland. Dryland farming nearby.

Visible disturbances: None

Threats: None

Comments: This location is likely one of the furthest west observations of nesting SWHA in Contra Costa County. It is approximately 1 mile west of the Central Valley, and is connected to the valley by the smaller Deer Valley. Much of Deer valley and surrounding hills are devoted to dryland farming of wheat/barley or cattle ranching.

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

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Attachment D – Wetland Delineation

PRELIMINARY DETERMINATION OF WETLANDS AND WATER FEATURES

FOR THE
PACIFIC GAS & ELECTRIC COMPANY'S
PITTSBURG-TESLA 230 KV
TRANSMISSION LINE RECONDUCTORING PROJECT

CONTRA COSTA AND ALAMEDA COUNTIES, CALIFORNIA

March 2010

PREPARED FOR:
Pacific Gas and Electric Company
Land and Environmental Management
Environmental Planning and Permitting
3401 Crow Canyon Road
San Ramon, CA 94583

Contacts: Michael Fry
David Thomas

PREPARED BY:
Garcia and Associates
435 Lincoln Way
Auburn, California 95603

Contact: David Kelly

TABLE OF CONTENTS

1.0 OVERVIEW 1
2.0 PROJECT LOCATION 3
3.0 REGULATORY FRAMEWORK 4
4.0 APPLIED METHODS 6
4.2 Field Surveys 6
4.2.1 Vegetation 7
4.2.2 Hydrology 7
4.2.3 Soils 7
5.0 RESULTS 9
5.1 Water Features 13
5.1.1 Wetlands 13
5.2 Upland Communities 14
6.0 REFERENCES CITED 15

LIST OF TABLES

Table 4-1 Hydric Soil Mapping Units within the Survey Area 8
Table 5-1 Summary of Water Features Mapped within the Project Area 9

LIST OF FIGURES

Figure 1 Project Location 2
Figure 2 Water Features 9

LIST OF APPENDICES

Appendix A Wetland Determination Data Forms

Appendix B Photos of Survey Area

1.0 OVERVIEW

Pacific Gas and Electric Company (PG&E) owns and operates the Pittsburg-Tesla 230kV transmission line, located in eastern Contra Costa and northern Alameda counties, California. Increasing load demand in the East Bay region requires that PG&E complete line and tower facility upgrades, hence PG&E is proposing to construct the Pittsburg-Tesla 230kV Reconductoring Project (Project) between Pittsburg and Tracy, California. This Project seeks to upgrade 31 miles of existing electrical transmission line between the Pittsburg power plant and Tesla Substation (Figure 1).

The purpose of this report is to document the location and extent of waters of the United States (U.S.), including wetlands, that will be affected by proposed Project activities. This report focuses on a subset of the entire Project Area, at three locations where improvements to access routes had been previously identified as potentially impacting water features. This wetland delineation and report was prepared to assist PG&E with planning efforts within the Project Area (project corridor and access routes) and to identify Army Corps of Engineers (ACOE) jurisdiction over these features pursuant to Section 404 of the Clean Water Act.

These investigations identified 0.647 acre of potential waters of the U.S. within the surveyed areas. Seasonal wetland features comprise the majority of these features (0.645 acre). Adjacent to and connecting these wetland features were three deteriorating culverts (0.002 acre). Based on criteria as described in 33CFR328.3, these water features are likely waters of the U.S. and subject to ACOE jurisdiction.

The investigations utilized direct observations of onsite hydrology based on drainage patterns and ponded or saturated soil conditions during the March and April field delineations.

Investigations took place during the late rainy season (April 2009 and March 2010); therefore investigations utilized observations of both direct and indirect hydrologic indicators. Direct indicators included the presence of standing water in some features. Indirect indicators include evidence of recent inundation and saturation, such as sediment deposits, surface soil cracks, and oxidized rhizospheres on living roots.

Hydric soil indicators were clear in most sampled locations. At one sampling location, the feature was believed to be a recently developed wetland with seasonally saturated or ponded soils; therefore, the soils in this feature may have not yet developed wetland indicators. Hydric soil was assumed to be present in these conditions.

Recommendations

- Determination of the wetland boundaries should be considered preliminary, subject to confirmation by the ACOE, and
- Determination of ACOE jurisdiction of individual features should be confirmed by ACOE.

GANDA

Project Features

1 Map Location

230kV Transmission Line

Source: GANDA GIS 2009

0 2.5 5 Miles

Figure 1 Project Location
Pittsburg-Tesla 230kV Transmission Line Reconductoring Project
March 2010
Alameda and Contra Costa Counties, CA

2.0 PROJECT LOCATION

The Pittsburg-Tesla Project spans between Contra Costa and Amador counties, and is included within the Honker Bay, Clayton, Antioch South, Byron Hot Springs, and Clifton Court Forebay Quads. The Pittsburg-Tesla line runs approximately northwest to southeast and has an elevation range of zero to 500 feet. The subject line is approximately 31 miles long. The start of the line is at the Pittsburg substation in the City of Pittsburg, Contra Costa County, California; south of the confluence of the Sacramento and San Joaquin Rivers. After leaving the substation, the line runs south for approximately four miles, and then turns east-southeast for 13 miles, crossing Black Diamond Mines Regional Park, portions of the John Marsh State Historic Park, and Marsh Creek Reservoir Dam. The line turns southeast for 14 miles to enter Alameda County, then crosses a western branch of Bethany Reservoir and I-580, finally terminating at the Tesla Substation (Figure 1). A total of 147 transmission towers are included in this Project subject line.

Within this Project area, wetlands occur and may be impacted by construction activities at three locations where ACOE jurisdiction may apply. This subset of areas was mapped for the purposes of this report.

The first area (Site A) is located near Pull Site 2 on the northern end of the project within the City of Pittsburg. Access to the Pull Site 2 area is gained by exiting off Highway 4, heading south on Railroad Avenue, then turning west (right) on West Leland Road, then south (left) on Golf Club Road. After following the dirt road along the edge of the golf course, it ends at the gate to the Contra Costa Canal.

The second and third areas (Sites B and C) are located along the access road to Pull Site 9 on the southern end of the project. Access to this area is gained from Highway 160, then exiting east on Main Street/Brentwood Boulevard. Travel southeast on Byron Highway/Highway 4, then keep right onto Byron Highway/County Road J4. Turn west (right) onto Holey Road, then south (left) on Byron Hot Springs Road. At the next junction, stay left, pass through a gate onto the dirt road leading to Pull Site 9. This dirt road has two culvert crossings over seasonal wetlands. These features occur in Contra Costa County, immediately north of the Alameda County line.

3.0 REGULATORY FRAMEWORK

Water features, including wetlands, delineated in this report are potentially subject to a variety of state and federal regulations, including the federal Clean Water Act (CWA), California Fish and Game Code, and California's Porter-Cologne Water Quality and McAteer-Petris Acts.

Water features addressed in this report include Waters of the United States (U.S.) subject to the CWA as defined below. Other governmental jurisdictions are not addressed in this report.

3.1 Definitions of Wetlands and Other Waters of the United States

The Federal government, through Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, has jurisdiction over activities in Waters of the U.S. Waters of the U.S. include a variety of water features, including wetlands, navigable waters, and other features adjacent to navigable waters.

As used in this report, wetlands are defined based on Federal regulations as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (ACOE 1987). Swamps, marshes, and bogs are defined as wetlands, as are seasonally saturated or inundated areas such as seeps, springs, and vernal pools. Wetlands are identified using three parameters: vegetation, soils, and hydrology. In most cases, jurisdictional wetlands are dominated by hydrophytic (i.e., wetland) vegetation, occur on hydric soils, and are supported by wetland hydrology.

For the purposes of this report, the term "water features" includes wetlands, and unvegetated areas that are regularly submerged by open water for a portion of the year.

Any wetland and water features meeting the following criteria as described in 33CFR328.3 were preliminarily determined to be waters of the U.S.:

1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters, which are subject to the ebb and flow of the tide;
2) All interstate waters including interstate wetlands;
3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

    a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

c) Which are used or could be used for industrial purpose by industries in interstate commerce;

4) All impoundments of waters otherwise defined as waters of the United States under the definition;

5) Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;

6) The territorial seas;

7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.

4.0 APPLIED METHODS

This investigation followed the methods described in the *Army Corps of Engineers Wetlands Delineation Manual* (ACOE 1987), supplemented with guidance as directed by the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2006). These methods included a preliminary review of available information, and onsite field inspections of the Project Area to characterize the vegetation, soils, and hydrology of wetlands, and to map wetlands and other water features. The following discussion describes how these methods and related reference material were applied to the onsite features.

4.1 Preliminary Data Gathering

A pre-field review of the Project Area was conducted to identify potential wetland and other waters, as well as information on hydrophytic vegetation, hydric soils, and wetland hydrology. Existing materials reviewed included geospatial wetlands information provided online by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (USFWS 2009), and aerial photography of the Project Area. The *Honker Bay, California* and *Clifton Court Forebay, California* U.S. Geological Survey 7.5 minute topographic quadrangles were also reviewed. Soil types were identified using the Web Soil Survey, an online soil map resource provided by the National Resources Conservation Service (NRCS) (NRCS 2010).

4.2 Field Surveys

Field surveys were conducted to map wetlands and water features on the subject parcel. GANDA Botanists Samantha Hillaire, Theresa Johnson, and Eric Wrubel conducted field surveys on April 6 and 8, 2009 and March 24, 2010. Wetland areas were identified based on the presence of hydrophytic vegetation, and hydric soils and wetland hydrology indicators, as described in the *Interim Supplement to the Arid West*. Throughout the study area, Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986) was used to identify vegetation community types.

Wetlands and datapoint locations were mapped in the field using a Trimble XT GPS survey unit (submeter accuracy). Features were mapped directly in the field by walking around them with the GPS unit. Each datapoint was numbered; each water feature was given a unique two-part code designation. The first part consists of two letters that indicate the type of water feature (SW = seasonal wetland, C = culvert). The second part is an identification number.

Data points were assessed in six locations. Each data point is associated with a point on the resulting wetland map (Figure 2), and a datasheet (Appendix B).

4.2.1 Vegetation

Wetland vegetation was identified in the field based on species composition and corresponding wetland indicator status. The field investigators visually estimated the percent cover for each plant species encountered during field surveys. Dominant species of each stratum were the most abundant plant species (when ranked in descending order of percent cover and cumulatively totaled) that immediately exceed 50 percent of the total cover for the stratum, plus any additional species comprising 20 percent or more of total cover for the stratum. The indicator status of each species was determined based on the *National List of Plant Species that Occur in Wetlands: California* (Reed 1988). Plants were identified according to Hickman (1993). Species nomenclature for the *National List* were confirmed based on the *Plants National Database* (USDA 2009a) and/or *A California Flora and Supplement* (Munz 1959). The wetland vegetation criterion was met where greater than 50 percent of the dominant plant species were assigned wetland indicator categories (FAC, FACW, or OBL).

Plot size was generally 20 feet by 20 feet; if this plot size was too large to represent the feature, the plot size was adjusted to represent the feature.

4.2.2 Hydrology

Surveys were conducted in April 2009 and March 2010, at the end of the wet season. In some features, direct evaluation of hydrologic conditions was possible in some features. Where possible, this investigation relied on primary indicators of wetland hydrology, such as inundation and soil saturation. Secondary indicators, including drainage patterns aerial imagery showing soil saturation patterns, and sediment deposits were also used, particularly in areas where direct observation of wetland hydrology was not possible.

4.2.3 Soils

Soils underlying the study sites were identified by a review of soils data from the NRCS (NRCS 2010). This review identified three different soil mapping units: Capay clay 2 to 9 percent slopes, Solano loam, and Altamont Clay 15 to 30 percent slopes. The soil mapping units within the Survey Area are summarized in the table below (Table 4-1). Soils were characterized in the field using the methods provided in the *Arid West Supplement* (ACOE 2006).

Table 4-1 Hydric Soil Mapping Units within the Survey Area

Map points	Map Unit	Inclusions (landforms)	Hydric Status	Hydric Criteria [1]
001, 002	Capay clay, 2 to 9 percent slopes	--	No	--
003, 004	Solano loam	Solano (Basin Floors)	Yes	2A
005, 006	Altamont clay, 15 to 30 percent slopes	Clear Lake (Basin Floors) Pescadero (Basin Floors)	Yes Yes	2B3 2B3

Notes:

1- Hydric criteria code

2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, or Andic, Cumulic, Pachic, or Vitrandic subgroups that are:

A. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or

B. poorly drained or very poorly drained and have:

3. water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in.

SOURCE: USDA 2010

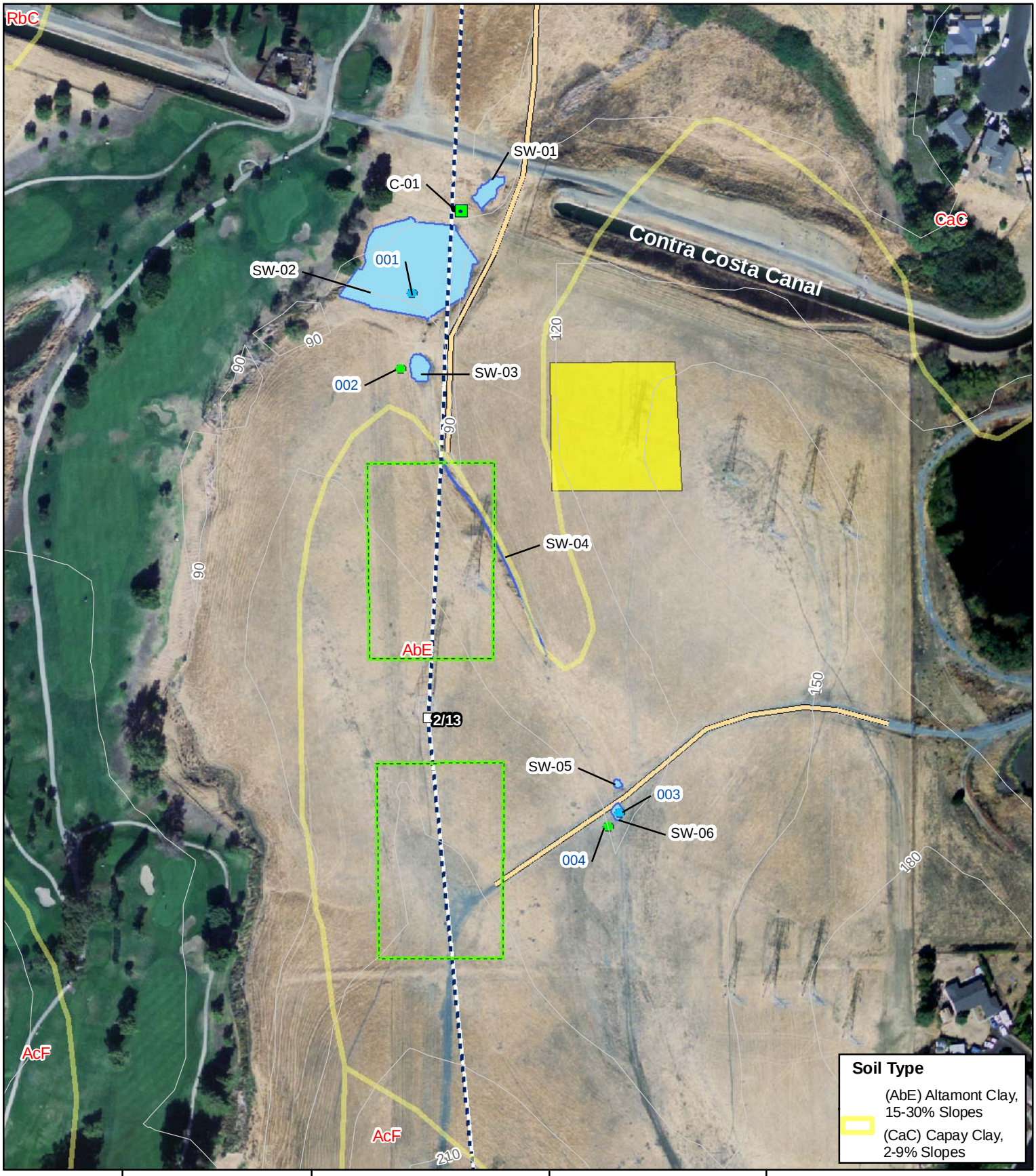
5.0 RESULTS

A total of 0.0647 acre of water features (including wetlands and other waters) occurs within the Project Area (Figure 2). Field investigations identified ten wetlands (totaling 0.645 acre); all of these are seasonal wetlands. Three dilapidated culverts (totaling 0.002 acre) comprise the rest of the acreage.

Table 5-1 summarizes these water features. Datasheets are included as Appendix A. Select photos of the features are included in Appendix B.

Table 5-1 Summary of Water Features Mapped within the Project Area

Map ID	Water Feature Type	Acreage
Wetlands		
SW-01	Seasonal Wetland	0.027
SW-02	Seasonal Wetland	0.504
SW-03	Seasonal Wetland	0.024
SW-04	Seasonal Wetland	0.013
SW-05	Seasonal Wetland	0.003
SW-06	Seasonal Wetland	0.008
SW-07	Seasonal Wetland	0.055
SW-08	Seasonal Wetland	0.007
SW-09	Seasonal Wetland	0.003
SW-10	Seasonal Wetland	0.001
Total Wetlands		**0.645**
Waters		
C-01	Culvert (damaged, ~12 inch)	0.000
C-02	Culvert (24 inch)	0.001
C-03	Culvert (damaged, ~30 inch)	0.001
Total Waters		**0.002**
Total Water Features		**0.647**



GANDA

Data Points
- Upland
- Wetland

Water Features
- Culvert
- Seasonal wetland

Project Features
- Tower
- Possible Access Rd
- Transmission Line
- Pull Site (200x300)
- Staging Area/ LZ (200x200)

Source: GANDA GIS 2010
S. Hillaire

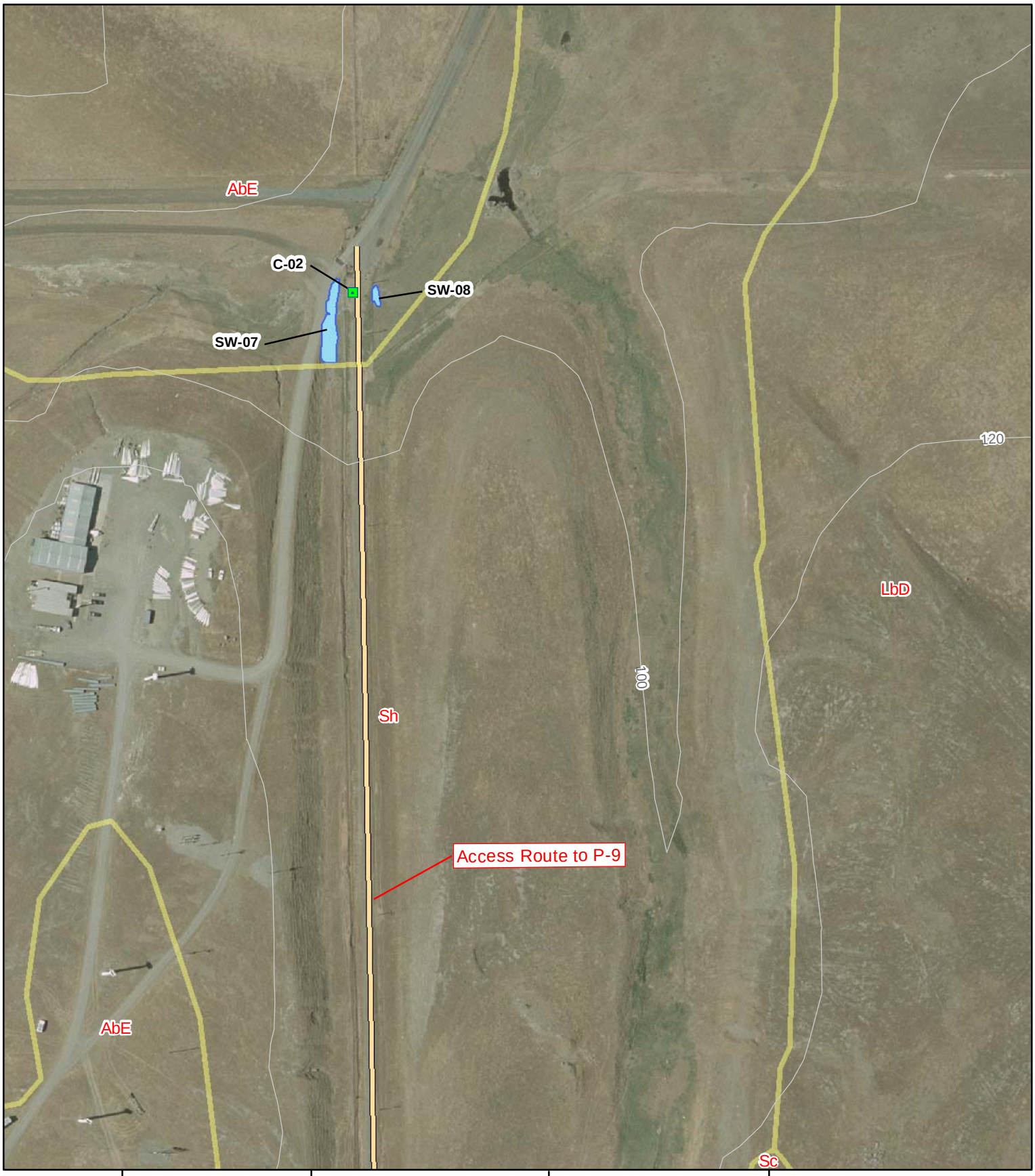
1:2,400
1 inch equals 200 feet

0 135 270 Feet

Figure 2 Water Features
Pittsburg - Tesla 230 kV Project
Site A, Pull Site 2

Map 1 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_ACOEWetland_Map_1.mxd



GANDA

Data Points

- Upland
- Wetland

Water Features

- Culvert
- Seasonal wetland

Project Features

- Possible Access Rd

Soil Type

- (AbE) Altamont Clay, 15-30% Slopes

Source: GANDA GIS 2010
S. Hillaire

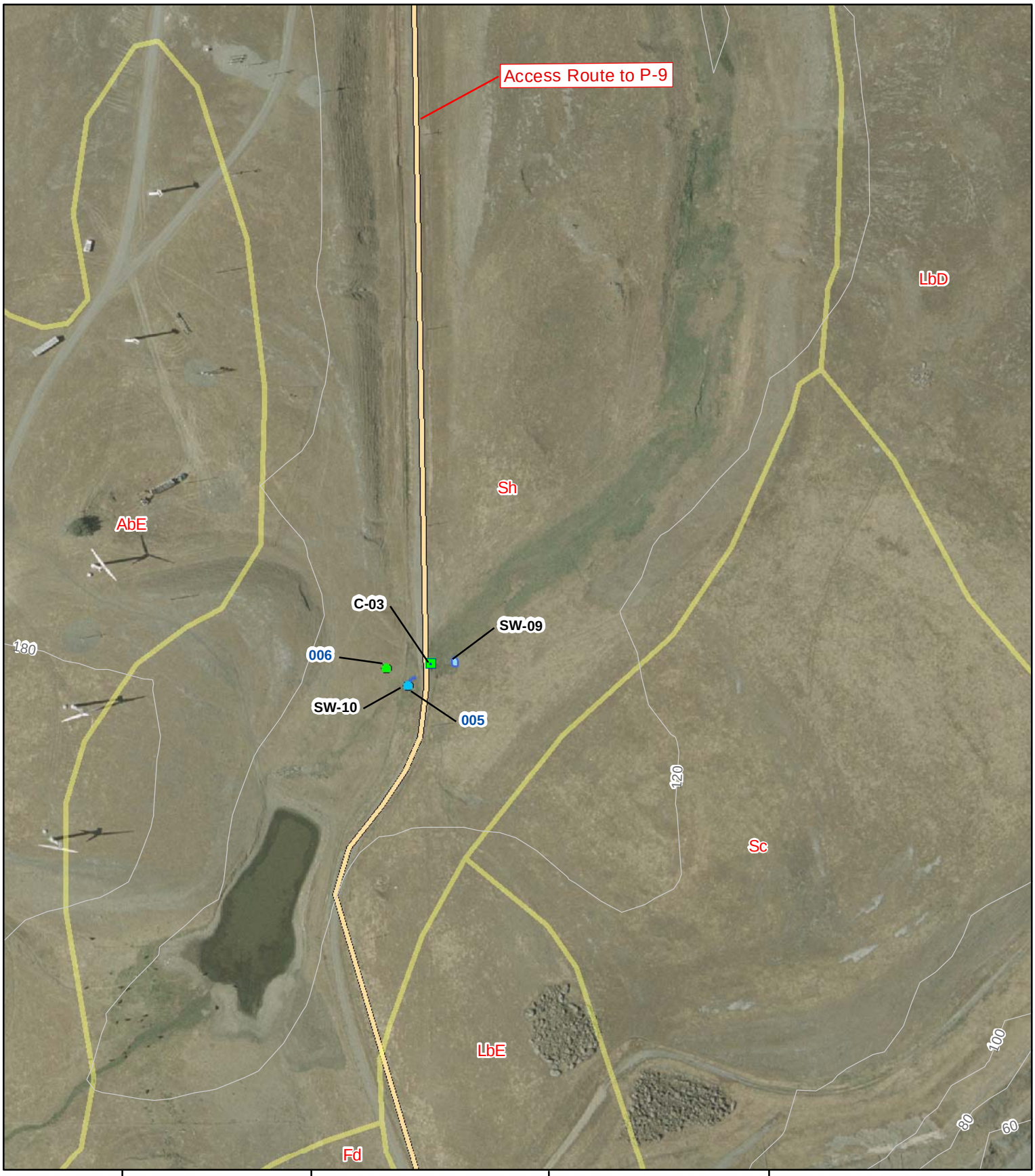
1:2,400
1 inch equals 200 feet

0 125 250 Feet

Figure 2 Water Features
Pittsburg - Tesla 230 kV Project
Site B, Access to Pull Site 9

Map 2 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_ACOEWetland_Map_2.mxd



GANDA

Data Points

- Upland
- Wetland

Water Features

- Culvert
- Seasonal wetland

Project Features

- Possible Access Rd

Soil Type

- (Sh) Solano Loam

Source: GANDA GIS 2010
S. Hillaire

1:2,400
1 inch equals 200 feet

0 125 250 Feet

Figure 2 Water Features
Pittsburg - Tesla 230 kV Project
Site C, Access to Pull Site 9

Map 3 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_ACOEWetland_Map_3.mxd

The following describes water features and upland communities that were observed within the Survey Area. Where possible, the description of these community types generally follow the categorization proposed by Holland (Holland 1986).

5.1 Water Features

The only type of wetland community that occurs with the Project Area is seasonal wetland. The wetland community and culvert features that occur in the Project Area are described below. Potential for ACOE jurisdiction of the water features are also addressed.

5.1.1 Wetlands

Seasonal Wetlands

Ten seasonal wetland features (SW-01 through SW-10 in Table 5-1, totaling 0.645 acre) occur within the surveyed subset of the Project area. Seasonal wetland does not directly correspond to a particular community type in Holland (Holland 1986). The seasonal wetlands within the Survey Area are typically embedded in a larger non-native grassland community (see descriptions in Upland Communities, section 5.2 below). The vegetation in these features is dominated by herbaceous species: Italian ryegrass (*Lolium multiflorum = L. perenne* in Reed 1988), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum = Hordeum hystrix* in Reed 1988), cursed buttercup (*Ranunculus sceleratus*), rabbit's foot grass (*Polypogon monspeliensis*), and salt grass (*Distichlis spicata*) were common.

<u>Pull Site 2 (Figure 2, Map 1)</u>

At Pull Site 2 (Figure 2, Map 1), wetlands occur in low areas and basins between and at the base of two hills; topography in the area generally directs water flow downhill from south to north. Seasonal wetlands occur at the lowest spots in this drainage. Two small seasonal wetlands are located at a low spot in the topography (SW-05 and SW-06), where a created road crossing has blocked the normal drainage path. Seasonal wetlands also occur within an ephemeral channel (SW-04) and basin between the hills (SW-03). The largest seasonal wetland (SW-02) occurs in an apparently man-made depression at the bottom of a hills; a damaged culvert (C-01) drains this feature to another man-made depression (SW-01). The water from these wetlands drains offsite to the north, eventually entering an unnamed creek that feeds into Suisun Bay after flowing approximately 3.5 miles to the north.

During the April 2009 and March 2010 surveys, SW-02 held a few inches of standing water. In March 2010, SW-01 held a small amount of standing water. The four other seasonal wetlands at this site (SW-03, SW-04, SW-05, SW-06) did not have standing water during the March and April surveys; photos taken February 9, 2010 show shallow standing water in feature SW-03.

Access to Pull Site 9 (Figure 2, Maps 2 and 3)

At the access to Pull Site 9 (Figure 2, Maps 2 and 3), four small seasonal wetlands (SW-07, SW-08, SW-09, and SW-10) occur within shallow depressions at each end of two dilapidated culverts (C-02 and C-03). These culverts lie beneath the existing access road.

SW-07 and SW-08 (connected by C-02) are depressions that appear to collect seasonal rainwater run-off from the local relief. SW-09 and SW-10 (connected by C-03) are located within a blocked ephemeral channel. Upstream (south) the channel in which they lie was dammed to create a stockpond, and water no longer appears to flow within the channel. However, low spots within this channel appear to collect local rainwater, and seasonal wetlands persist in these areas.

Aerial photographs indicate that these wetlands are part of a larger seasonal wetland complex, that connects together to the north of the site. These wetlands are adjacent to the California aqueduct, and other canals and drainages that eventually feed into Clifton Court Forebay.

5.2 Upland Communities

Non-native grassland is the only upland community that occurs adjacent to the water features in the Project Area and is described below.

Non-Native Grassland

The areas around Pull Site 2 and the access to Pull Site 9 consist of gently rolling hillsides covered in non-native grassland with a native forb component. Non-native grassland (Holland 1986) is a common community found in the transmission corridor. This habitat type is dominated by non-native grasses and forbs. Typical grass species in this habitat type are foxtail barley (*Hordeum murinum* ssp. *leporinum*), Italian ryegrass, ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and Mediterranean barley. Weedy non-native annual and perennial forbs in this habitat include black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), yellow star-thistle (*Centaurea solstitialis*), California bur-clover (*Medicago polymorpha*), and rose clover (*Trifolium hirtum*). Native species such as fiddleneck (*Amsinckia lycopsoides* and *A. intermedia*), owl's clover (*Castilleja exserta* spp. *exserta*), succulent lupine (*Lupinus succulentus*), and San Joaquin milk vetch (*Astragalus* (*asymmetricus*)) are also present. At Pull Site 2, the only land use, other than the transmission line corridor, appears to be cattle grazing. Accessing Pull Site 9, the grassland is located at the beginning of the entrance of a wind farm.

6.0 REFERENCES CITED

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Appendix A:
Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (Pull Site 2) City/County: Pittsburg, Contra Costa County Sampling Date: 6 April 2009

Applicant/Owner: PG&E State: CA Sampling Point: 001

Investigator(s): Samantha Hillaire, E. Wrubel, T. Johnson Section, Township, Range: Honker Bay Quad T2N, R1E, Sec 19 NW 1/4

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): ~1%

Subregion (LRR): LRR-C Lat: -121.909250 Long: 38.0080830 Datum: NAD83

Soil Map Unit Name: Capay clay, 2 to 9% slopes NWI classification: P-EM-1

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

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

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

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

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

Remarks: This is a seasonal wetland feature within a manmade depression. This is adjacent to a golf course.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 20x20 feet)			
1. Lolium perenne	7	No	FAC
2. Hordeum hystrix	5	No	FAC
3. Ranunculus scleratus	5	No	OBL
4. Polypogon monspeliensis	35	Yes	FACW+
5. Cotula coronopifolia	2	No	FACW+
6. Melilotus indica	<1	No	FAC
7.			
8.			
9.			
10.			
11.			
	54 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 4 % Cover of Biotic Crust 42

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	35	x 1 = 35
FACW species	5	x 2 = 10
FAC species	12	x 3 = 36
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	52 (A)	81 (B)

Prevalence Index = B/A = 1.56

Hydrophytic Vegetation Indicators:

x Dominance Test is >50%

x Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks: Hydrophytic vegetation present.

SOIL

Sampling Point: 001

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 3/1	99	7.5 YR 4/4	1	C	RC	silty clay	
10-12.5	10 YR 3/1	75				M	silty clay	Below 10 in, soil appears to have two
	7.5 YR 4/1	23	5 YR 4/6	2	C	M	silty clay	matrix colors

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Vernal Pools (F9)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
_x_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none noted

Depth (inches): _____

Hydric Soil Present? **Yes** __X__ **No** _____

Remarks: Hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
_X_ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Biotic Crust (B12)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
_X_ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
_X_ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
_X_ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** __X__ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: A few inches of surface water was observed ponding in this feature. Water was photographed February 10, 2010, and March 24, 2010.

Remarks: This is a depressional area, topographically in a low spot, at the base of a drainage. This is likely a man-made feature. Water likely collects into this feature from seasonal rainfall, and runoff from the surrounding hillsides. Wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (Pull Site 2) City/County: Pittsburg, Contra Costa County Sampling Date: 6 April 2009

Applicant/Owner: PG&E State: CA Sampling Point: 002

Investigator(s): Samantha Hillaire, E. Wrubel, T. Johnson Section, Township, Range: Honker Bay Quad T2N, R1E, Sec 19 NW 1/4

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): ~5%

Subregion (LRR): LRR-C Lat: -121.623150 Long: 38.8089520 Datum: NAD83

Soil Map Unit Name: Capay clay, 2 to 9 percent slopes NWI classification: Not applicable

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

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

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

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

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

Remarks: Upland grassland habitat, at the edge of a seasonal wetland feature at the base of a hill.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 20x20 feet)			
1. Lolium perenne	35	Yes	FAC
2. Hordeum leporinum	1	No	NI
3. Hordeum hystrix	30	Yes	FAC
4. Brassica nigra	3	No	UPL
5. Trifolium hirtum	1	No	UPL
6. Centaurea solstitialis	2	No	UPL
7. Amsinckia lycopsiodes	<1	No	UPL
8. Bromus mollis	<1	No	FACU-
9.			
10.			
11.			
	72 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	65	x 3 = 195
FACU species		x 4 =
UPL species	6	x 5 = 30
Column Totals:	71 (A)	225 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

x Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes x No _____**

Remarks: Area is non-native grassland. Hydrophytic vegetation present. Hydrophytic vegetation is dominant but not prevalent.

SOIL

Sampling Point: 002

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5 Y/R 4/2	100					clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Vernal Pools (F9)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** __X__

Remarks: Hydric soil indicators not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** _____ **No** __x__

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

Remarks: No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (Pull Site 2) City/County: Pittsburg, Contra Costa County Sampling Date: 24 March 2010

Applicant/Owner: PG&E State: CA Sampling Point: 003

Investigator(s): Samantha Hillaire Section, Township, Range: Honker Bay Quad T2N, R1E, Sec 19 NW 1/4

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): ~2%

Subregion (LRR): LRR-C Lat: -121.908170 Long: 38.0058750 Datum: NAD83

Soil Map Unit Name: Altamont Clay, 15-30% slopes NWI classification: P-EM-1

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

Are Vegetation no, Soil yes, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

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

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

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

Remarks: Soil in this area is naturally a dark clay, regardless of hydric status. This wetland appears to have been created or enlarged by the placement of a rock road across a low spot in the topography. The rock from the road has blocked water flow and drainage patterns in this low area. This is a recently developed wetland with seasonally saturated or ponded soils, and hydric soil characteristics have not yet formed at this location.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x10 feet)			
1. Lolium perenne	60	Yes	FAC
2. Hordeum hystrix	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	80	x 3 =	240
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	80 (A)		240 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

x Dominance Test is >50%

x Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks: Hydrophytic vegetation present.

SOIL

Sampling Point: 003

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 Y/R 3/1	100					silty clay	90% road base rocks, 0.5-3 in diameter, cemented together with local clay. Digging difficult.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Vernal Pools (F9)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Imported road rock/local clay soil

Depth (inches): 1 to 6 inches

Hydric Soil Present? Yes X No ___

Remarks: Soils were difficult to sample at this location. Rock has been previously placed across the low spot in this drainage to create a small access road. This rock road has blocked the drainage, and over time may have created or shaped this seasonal wetland feature. This imported road rock is embedded in the soil of the feature; digging is difficult. This rock may also be restricting water from percolating through the soil at this location. This is a low-lying area, where there may be a recently developed wetland with seasonally saturated or ponded soils; therefore, the soils may have not yet developed wetland indicators. Hydric soil assumed to be present in these conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
X Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
X Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes X No ___

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

Remarks: This is a depressional area, topographically in a low spot between two hills. Rock has been previously placed across the low spot in this drainage to create a small access road. This rock road has blocked the drainage, and over time may have created or shaped this seasonal wetland feature. Wet thatch and a small amount of dried algae indicate that water seasonally ponds in this feature. Wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (Pull Site 2) City/County: Pittsburg, Contra Costa County Sampling Date: 24 March 2010

Applicant/Owner: PG&E State: CA Sampling Point: 004

Investigator(s): Samantha Hillaire Section, Township, Range: Honker Bay Quad T2N, R1E, Sec 19 NW 1/4

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): ~10%

Subregion (LRR): LRR-C Lat: -121.908230 Long: 38.0058170 Datum: NAD 83

Soil Map Unit Name: Altamont Clay, 15-30% slopes NWI classification: Not applicable

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

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

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

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

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

Remarks: Soil in this area is naturally a dark clay, regardless of hydric status. This point was taken on the non-native grassland hillslope immediately above the depressional feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 20x20 feet)			
1. Lolium perenne	15	Yes	FAC
2. Hordeum leporinum	18	Yes	NI
3. Erodium moshatum	5	No	UPL
4. Medicago polymorpha	15	Yes	UPL
5. Carduus pycnocephalus	10	Yes	UPL
6. Hirschfeldia incana	5	No	UPL
7. Amsinckia intermedia	7	No	UPL
8.			
9.			
10.			
11.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	15	x 3 = 45
FACU species		x 4 =
UPL species	42	x 5 = 210
Column Totals:	57 (A)	255 (B)

Prevalence Index = B/A = 4.47

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes _____ No x**

Remarks: Area is non-native grassland. Hydrophytic vegetation not present.

SOIL

Sampling Point: 004

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 Y/R 4/1	100					silty clay	70% 0.5-1 inch rocks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Vernal Pools (F9)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** __X__

Remarks: Soils were difficult to sample at this location due to dry rocky clay. Hydric soil indicators not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** _____ **No** __x__

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

Remarks: No indicators of wetland hydrology on this dry hillslope.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (access to Pull Site 9) City/County: Contra Costa County Sampling Date: 8 April 2009

Applicant/Owner: PG&E State: CA Sampling Point: 005

Investigator(s): Samantha Hillaire Section, Township, Range: Clifton Court Forebay T1S, R3E, Sec 35 NW 1/4

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 5%

Subregion (LRR): LRR-C Lat: -121623210 Long: 37.8040050 Datum: NAD83

Soil Map Unit Name: Solano Loam NWI classification: P-EM-1

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

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

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

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

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

Remarks: Feature lies in an old channel, that has been damned upstream to create a stock pond. This channel is downstream of the dam, where it no longer receives flows. However, this depressional feature does appear to collect seasonal rainfall and runoff from the local area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x10 feet)			
1. Hordeum hystrix	10	No	FAC
2. Lolium perenne	40	Yes	FAC
3. Distichlis spicata	15	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	15	x 2 = 30
FAC species	50	x 3 = 150
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	65 (A)	180 (B)

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

x Dominance Test is >50%

x Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes x** **No _____**

Remarks: Area is a seasonal wetland. Hydrophytic vegetation present.

SOIL

Sampling Point: 005

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 4/2	100						
5-12	2.5 YR 4/2	95	7.5 YR 4/4	5	C	RC	silty clay	fine redox features

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
x Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none noted

Depth (inches): _____

Hydric Soil Present? **Yes** x **No** _____

Remarks: Had to dig soil pit where there was a little less vegetation than normal in order to dig through the soil with the shovel. Hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
x Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
x Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** x **No** _____

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

Remarks: Wetland hydrology indicators present. In addition, soil in this depression was still damp (not saturated).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (access to Pull Site 9) City/County: Contra Costa County Sampling Date: 8 April 2009

Applicant/Owner: PG&E State: CA Sampling Point: 006

Investigator(s): Samantha Hillaire Section, Township, Range: Clifton Court Forebay T1S, R3E, Sec 35 NW 1/4

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 15%

Subregion (LRR): LRR-C Lat: -121.6233140 Long: 37.804090 Datum: NAD83

Soil Map Unit Name: Solano Loam NWI classification: not applicable

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

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

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

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

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

Remarks: Upland grassland area, adjacent to a small channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 20x20 feet)			
1. Hordeum hystrix	25	Yes	FAC
2. Hordeum leporinum	30	Yes	NI
3. Bromus diandrus	5	No	UPL
4. Trifolium hirtum	1	No	UPL
5. Carduus pycnocephalus	1	No	UPL
6. Bromus mollis	5	No	FACU-
7. Astragalus (asymmetricus)	<1	No	UPL
8. Lolium perenne	3	No	FAC
9.			
10.			
11.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	28	x 3 = 84
FACU species	5	x 4 = 20
UPL species	7	x 5 = 35
Column Totals:	40 (A)	139 (B)

Prevalence Index = B/A = 3.475

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes _____ No x**

Remarks: Area is an upland grassland. Hydrophytic vegetation not present.

SOIL

Sampling Point: 006

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-13	10 YR 4/2	100						silty clay loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ___x___

Remarks: Soft colorful sandstone pieces were present in the soil; these were not considered to be soil indicators. Hydric soil indicators not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** _____ **No** ___x___

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

Remarks: No indications of wetland hydrology. Wetland hydrology not present.

Appendix B:
Photos of Survey Area

Photograph 1. Pull Site 2, facing north, February 9, 2010. Feature SW-02 in background and feature SW-03 in foreground. Both features are inundated on this date.

Photograph 2. Pull Site 2, access road, facing north, March 24, 2010. Feature SW-06, with raised road on north side. Standing ruler in feature is 18 inches tall.

Photograph 3. Access to Pull Site 9, facing northeast, April 8, 2009. Feature SW-10 in foreground. Culvert C-03 in poor condition.

Photograph 4. Access to Pull Site 9, facing north, April 8, 2009. Entrance gate in background. Feature SW-08 in foreground, with culvert C-02 in poor condition.

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT (33 CFR 325)	OMB APPROVAL NO. 0710-003

Public reporting burden for this collection of information is estimated to average 5 hours per response, including the time for reviewing instructions, Searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-003), Washington, DC 20503. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in, or affecting, navigable waters of the United States; the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Routine uses: Information provided on this form will be used in evaluating the application for a permit. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETED
Pages 3 and 4 Contain Instructions for Completing this Application			

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME David Thomas	8. AUTHORIZED AGENT'S NAME & TITLE (an agent is not required)
6. APPLICANT'S ADDRESS 245 Market Street, Room 1054D, Mail Code N10A San Francisco, CA 94105	9. AGENT'S ADDRESS
7. APPLICANT'S PHONE NUMBERS WITH AREA CODE a. Residence b. Business 415 973-5885	10. AGENT'S PHONE NUMBERS WITH AREA CODE a. Residence b. Business

11. STATEMENT OF AUTHORIZATION

I hereby authorize _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

_____ APPLICANT'S SIGNATURE

_____ DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

PG&E Pittsburg-Tesla 230 kV Reconductoring Project

13. NAME OF WATERBODY, IF KNOWN (if applicable) Unnamed seasonal wetlands	14. PROJECT STREET ADDRESS (if applicable) N/A
15. LOCATION OF PROJECT Contra Costa (COUNTY) CA (STATE)	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

Site A Lat 38.005903 Long -121.908227, Site B Lat 37.808903, Long -121.623109, Site C Lat 37.804010, Long -121.623097

17. DIRECTIONS TO THE SITE

Site A Take Hwy 4 to Pittsburg, exist Railroad Ave, south on Railroad Ave, right on W Leland Rd. Then either left on Crestview Dr. right Olympia Drive OR left on Golf Course Drive and follow gravel roads behind clubhouse.
Sites B&C - from Byron Hwy take Byron Hot Springs Exit, south on Byron Hot Springs Rd to Holey Rd, right on Byron Hot Springs

18. NATURE OF ACTIVITY (Description of project, include all features)

Site A - Additional rock will be temporarily placed in seasonal wetland in order to allow access of construction vehicles.
Site B&C - Replacement of existing 30" culverts in order to support weight of construction vehicles.
Culvert at Site B will be replaced with a culvert approx 40' long with a street width of 15'
Culvert at Site C will be replaced with a culvert approx 20' long with a street width of 15'

19. PROJECT PURPOSE (Describe the reason or purpose of the project, see instructions)

In order to provide safe reliable electric service to customers within the Pittsburg service area, PG&E's Pittsburg -Tesla transmission line must be upgraded with a new conductor. In order to replace the conductor, equipment must access work sites under the transmission line. Safe equipment access to these sites requires upgrades to three water crossings.

USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. REASON(S) FOR DISCHARGE

At Site A, rock will be temporarily placed along a road to support the weight of construction vehicles and widen for access. This rock will be removed at the end of construction.
At Sites B and C, existing culverts will be replaced. No further discharge is expected.

21. TYPE(S) OF MATERIAL BEING DISCHARGED AND THE AMOUNT OF EACH TYPE IN CUBIC YARDS

At Site A, clean rock will be temporarily placed in the seasonal wetlands over a fabric liner. The amount is not to exceed 10 cubic yards of rock to be placed in wetlands.
At Sites B and C, existing metal culverts will be replaced with corrigated metal pipe culverts.

22. SURFACE AREA IN ACRES OF WETLANDS OR OTHER WATERS FILLED (see instructions)

A total of 0.007 acre of water features will be disturbed. At Site A, 0.005 acre of seasonal wetlands will be temporarily filled. At Sites B and C, culverts will be permanently replaced (0.002 acre of culverts). Otherwise wetlands will be avoided.

23. IS ANY PORTION OF THE WORK ALREADY COMPLETE? YES ○ NO ◉ IF YES, DESCRIBE THE WORK

24. ADDRESSES OF ADJOINING PROPERTY OWNERS, LESSEES, ETC. WHOSE PROPERTY ADJOINS THE WATERBODY (If more than can be entered here, please attach a supplemental list)

Site A - Pacific Gas & Electric Co.
Site B&C - J Stewart, APN 001-021-022-7, State of California APN 001-031-009-2

25. LIST OF OTHER CERTIFICATIONS OR APPROVALS/DENIALS RECEIVED FROM OTHER FEDERAL, STATE, OR LOCAL AGENCIES FOR WORK DESCRIBED IN THIS APPLICATION

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
Regional Water Quality Control Board	Clean Water Certification	in Process	March 2010		
USFWS	ESA consultation		to be initiated by Army Corps		

* Would include but is not restricted to zoning, building and flood plain permits.

26. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.
18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and will fully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, facticious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Instructions For Preparing A
Department of the Army Permit Application

Blocks 1 thru 4 - To be completed by Corps of Engineers.

Block 5 - APPLICANT'S NAME. Enter the name of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the responsible officer and title. If more than one party is associated with the application, please attach a sheet with the necessary information marked "Block 5".

Block 6 - ADDRESS OF APPLICANT. Please provide the full address of the party or parties responsible for the application. If more space is needed, attach an extra sheet of paper marked "Block 6".

Block 7 - APPLICANT PHONE NUMBERS. Please provide the number where you can usually be reached during normal business hours.

Block 8 - AUTHORIZED AGENT'S NAME AND TITLE. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer or any other person or organization. Note: An agent is not required.

Blocks 9 and 10 - AGENT'S ADDRESS AND TELEPHONE NUMBER. Please provide the complete mailing address of the agent, along with the telephone number where he/she can be reached during normal business hours.

Block 11 - STATEMENT OF AUTHORIZATION. To be completed by applicant if an agent is to be employed.

Block 12 - PROPOSED PROJECT NAME OR TITLE. Please provide name identifying the proposed project (i.e., Landmark Plaza, Burned Hills Subdivision, or Edsall Commercial Center).

Block 13 - NAME OF WATERBODY. Please provide the name of any stream, lake, marsh, or other waterway to be directly impacted by the activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

Block 14 - PROPOSED PROJECT STREET ADDRESS. If the proposed project is located at a site having a street address (not a box number), please enter it here.

Block 15 - LOCATION OF PROPOSED PROJECT. Enter the county and state where the proposed project is located. If more space is required, please attach a sheet with the necessary information marked "Block 15".

Block 16 - OTHER LOCATION DESCRIPTIONS. If available, provide the Section, Township, and Range of the site and/or the latitude and longitude. You may also provide a description of the proposed project location, such as lot numbers or tract numbers. You may choose to locate the proposed project site from a known point (such as the right descending bank of Smith Creek, one mile down from the Highway 14 Bridge). If a large river or stream, include the river mile of the proposed project site, if known.

Block 17 - DIRECTIONS TO THE SITE. Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site.

Block 18 - NATURE OF ACTIVITY. Describe the overall activity or project. Give approximate dimensions of structures such as wingwalls, dikes, (identify the materials to be used in construction, as well as the methods by which the work is to be done), or excavations (length, width, and height). Indicate whether discharge of dredged or fill material is involved. Also, identify any structure to be constructed on a fill, piles, or float-supported platforms.

The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked "Block 18".

Block 19 - PROPOSED PROJECT PURPOSE. Describe the purpose and need for the proposed project. What will it be used for and why? Also include a brief description of any related activities to be developed as the result of the proposed project. Give the approximate dates you plan to both begin and complete all work.

Block 20 - REASONS FOR DISCHARGE. If the activity involves the discharge of dredged and/or fill material into a wetland or other waterbody, including the temporary placement of material, explain the specific purpose of the placement of the material (such as erosion control).

Instructions For Preparing A
Department of the Army Permit Application

Block 21 - TYPES OF MATERIAL BEING DISCHARGED AND THE AMOUNT OF EACH TYPE IN CUBIC YARDS. Describe the material to be discharged and amount of each material to be discharged within Corps jurisdiction. Please be sure this description will agree with your illustrations. Discharge material includes: rock, sand, clay, concrete, etc.

Block 22 - SURFACE AREAS OF WETLANDS OR OTHER WATERS FILLED. Describe the area to be filled at each location. Specifically identify the surface areas, or part thereof, to be filled. Also include the means by which the discharge is to be done (backhoe, dragline, etc.). If dredged material is to be discharged on an upland site, identify the site and the steps to be taken (if necessary) to prevent runoff from the dredged material back into a waterbody. If more space is needed, attach an extra sheet of paper marked "Block 22".

Block 23 - IS ANY PORTION OF THE WORK ALREADY COMPLETE? Provide any background on any part of the proposed project already completed. Describe the area already developed, structures completed, any dredged or fill material already discharged, the type of material, volume in cubic yards, acres filled, if a wetland or other waterbody (in acres or square feet). If the work was done under an existing Corps permit, identify the authorization if possible.

Block 24 - NAMES AND ADDRESSES OF ADJOINING PROPERTY OWNERS, LESSEES, etc., WHOSE PROPERTY ADJOINS THE PROJECT SITE. List complete names and full mailing addresses of the adjacent property owners (public and private) lessees, etc., whose property adjoins the waterbody or aquatic site where the work is being proposed so that they may be notified of the proposed activity (usually by public notice). If more space is needed, attach an extra sheet of paper marked "Block 24".

Block 25 - INFORMATION ABOUT APPROVALS OR DENIALS BY OTHER AGENCIES. You may need the approval of other Federal, State, or Local agencies for your project. Identify any applications you have submitted and the status, if any (approved or denied) of each application. You need not have obtained all other permits before applying for a Corps permit.

Block 26 - SIGNATURE OF APPLICANT OR AGENT. The application must be signed by the owner or other authorized party (agent). This signature shall be an affirmation that the party applying for the permit possesses the requisite property rights to undertake the activity applied for (including compliance with special conditions, mitigation, etc.).

DRAWINGS AND ILLUSTRATIONS - GENERAL INFORMATION

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View, or a Typical Cross-Section Map. Identify each illustration with a figure or attachment number.

Please submit one original, or good quality copy, of all drawings on an 8.5 X 11 inch plain white paper (tracing paper or film may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations.

Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross-section). While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate and contain all necessary information.

GANDA

Project Features

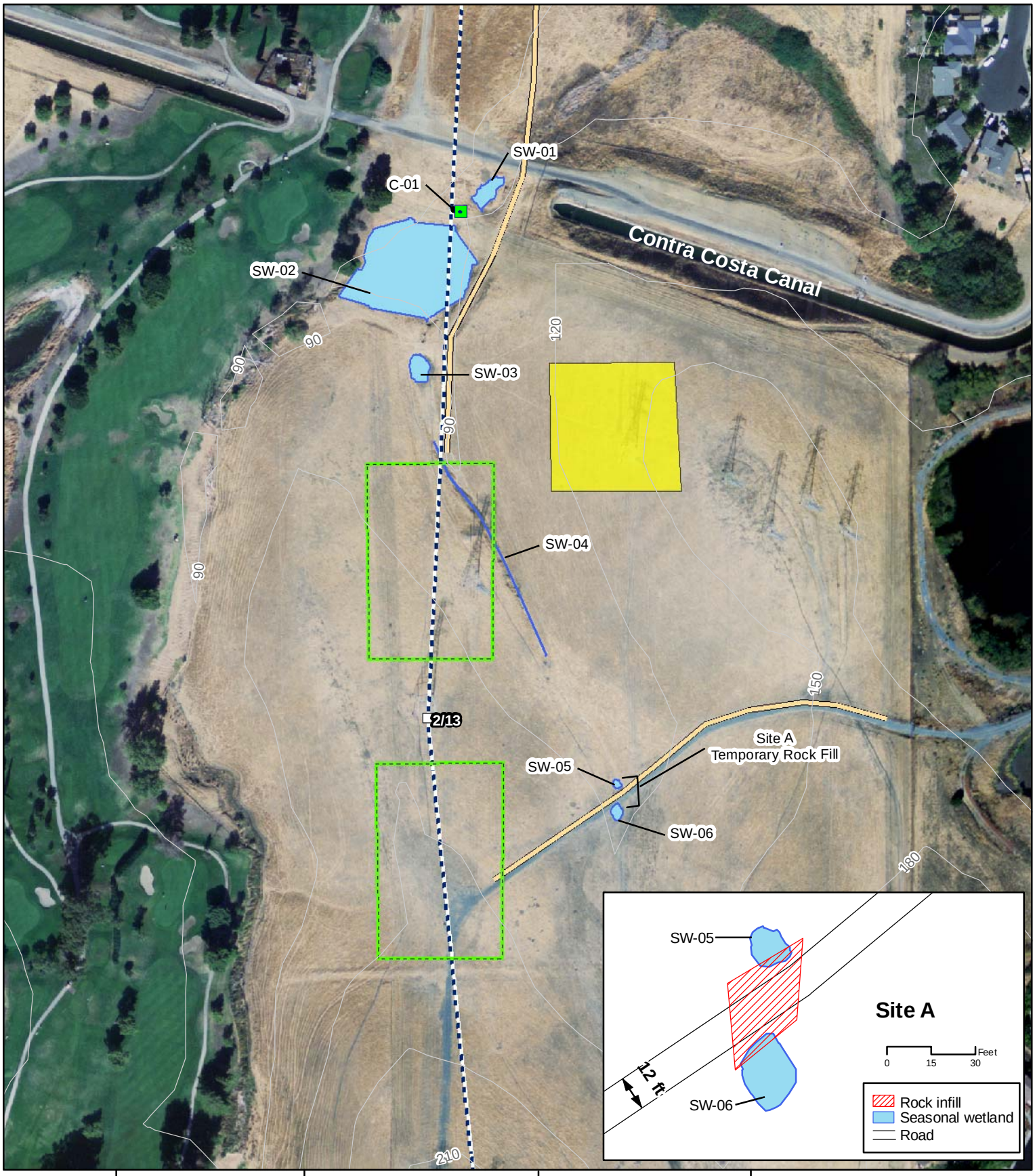
1 Map Location

230kV Transmission Line

Source: GANDA GIS 2009

0 2.5 5 Miles

Figure 1 Project Location
Pittsburg-Tesla 230kV Transmission Line Reconductoring Project
March 2010
Alameda and Contra Costa Counties, CA



GANDA

Water Features

- Culvert
- Seasonal wetland

Project Features

- Tower
- Possible Access Rd
- Transmission Line
- Pull Site (200x300)
- Staging Area/ LZ (200x200)

Source: GANDA GIS 2010
S. Hillaire

1:2,400
1 inch equals 200 feet

0 125 250 Feet

Figure 2 Impacts to Water Features
Pittsburg - Tesla 230 kV Project
Site A, Pull Site 2

Map 1 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_WetlandImpacts_Map1.mxd

GANDA

Water Features

- Culvert
- Seasonal wetland

Project Features

- Possible Access Rd

Source: GANDA GIS 2010
S. Hillaire

1:2,400
1 inch equals 200 feet

0 125 250 Feet

Figure 2 Impacts to Water Features
Pittsburg - Tesla 230 kV Project
Site B, Access to Pull Site 9

Map 2 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_WetlandImpacts_Map2.mxd

GANDA

Water Features

- Culvert
- Seasonal wetland

Project Features

- Possible Access Rd

Source: GANDA GIS 2010
S. Hillaire

1:2,400
1 inch equals 200 feet

0 125 250 Feet

Figure 2 Impacts to Water Features
Pittsburg - Tesla 230 kV Project
Site C, Access to Pull Site 9

Map 3 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_WetlandImpacts_Map3.mxd

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: "Figure 2. Water Features, Pittsburg-Tesla 230 kV Project, Site A", "Figure 2. Water Features, Pittsburg-Tesla 230 kV Project, Site B", and "Figure 2. Water Features, Pittsburg-Tesla 230 kV Project, Site C", dated March 2010, prepared by Garcia and Associates.

☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

- ☐ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps:

☐ Corps navigable waters' study:

☐ U.S. Geological Survey Hydrologic Atlas:

- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Honker Bay, 7.5" USGS quadrangle.

☐ USDA Natural Resources Conservation Service Soil Survey. Citation:.

☐ National wetlands inventory map(s). Cite name:

☐ State/Local wetland inventory map(s):

☐ FEMA/FIRM maps:

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☐ Photographs: ☐ Aerial (Name & Date): or ☐ Other (Name & Date):

☐ Previous determination(s). File no. and date of response letter:

☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Andrea Meier 6/29/2010
Signature and date of
Regulatory Project Manager

Dan Dhu 6/29/10
Signature and date of
person requesting preliminary JD

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):

June 29, 2010

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Dave Thomas
Pacific Gas and Electric Company
245 Market Street
San Francisco, California 94105

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

District: San Francisco District (SPN)
File Name: Pittsburg-Tesla 230kV Reconductoring Project
ID no.: SPN-2010-00231 S

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

The project is located between the Pittsburg Power Plant and Tesla Substation in Contra Costa County and Alameda County, California.

Coordinates of site (lat/long in degree decimal format):

Location 1: Lat. 38.005903°N, Long. -121.908227°W
Location 2: Lat. 37.808903°N, Long. -121.623109°W
Location 3: Lat. 37.804010°N, Long. -121.623097°W

Name of nearest waterbody: Contra Costa Canal

Identify (estimate) amount of waters in the review area:
Wetlands: 0.645 acres.
Cowardin Class: Palustrine emergent non-persistent (PEM2)

SEE **ATTACHMENT 2** FOR A LIST OF WETLANDS IN THE STUDY AREA AND **ATTACMENT 3** FOR THE PRELIMINARY WETLAND DELINEATION MAPS

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: June 29, 2010
☐ Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: "Figure 2. Water Features, Pittsburg-Tesla 230 kV Project, Site A", "Figure 2. Water Features, Pittsburg-Tesla 230 kV Project, Site B", and "Figure 2. Water Features, Pittsburg-Tesla 230 kV Project, Site C", dated March 2010, prepared by Garcia and Associates.

☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

- ☐ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps:

☐ Corps navigable waters' study:

☐ U.S. Geological Survey Hydrologic Atlas:

- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Honker Bay, 7.5" USGS quadrangle.

☐ USDA Natural Resources Conservation Service Soil Survey. Citation:.

☐ National wetlands inventory map(s). Cite name:

☐ State/Local wetland inventory map(s):

☐ FEMA/FIRM maps:

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☐ Photographs: ☐ Aerial (Name & Date): or ☐ Other (Name & Date):

☐ Previous determination(s). File no. and date of response letter:

☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Andrea Mele 6/29/2010

Signature and date of
Regulatory Project Manager

Signature and date of
person requesting preliminary JD

Attachment 1.

Study Area for the Pittsburg-Tesla 230kV Reconductoring Project

The "Preliminary Determination of Wetlands and Water Features for the Pacific Gas and Electric Company's Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project", dated March 2010, prepared by Garcia and Associates, does not provide a written description or depiction of the area evaluated for the presence of wetlands and other waters of the U.S. on the wetland delineation maps. I contacted Dave Thomas at PGE via email to determine whether the same survey area for the biological assessment was used for the wetland delineation. Dave responded saying that the delineated areas are within a 250 foot buffer area on each side of the line's alignment. Worksites outside of the 250 foot buffer including pull sites and staging areas were also included in the wetland delineation.

Andrea Meier 6/29/2010

Andrea Meier, Regulatory Project Manager

Attachment 2.

Aquatic Resources in the Pittsburg-Tesla 230kV Reconductoring Project Study Area:

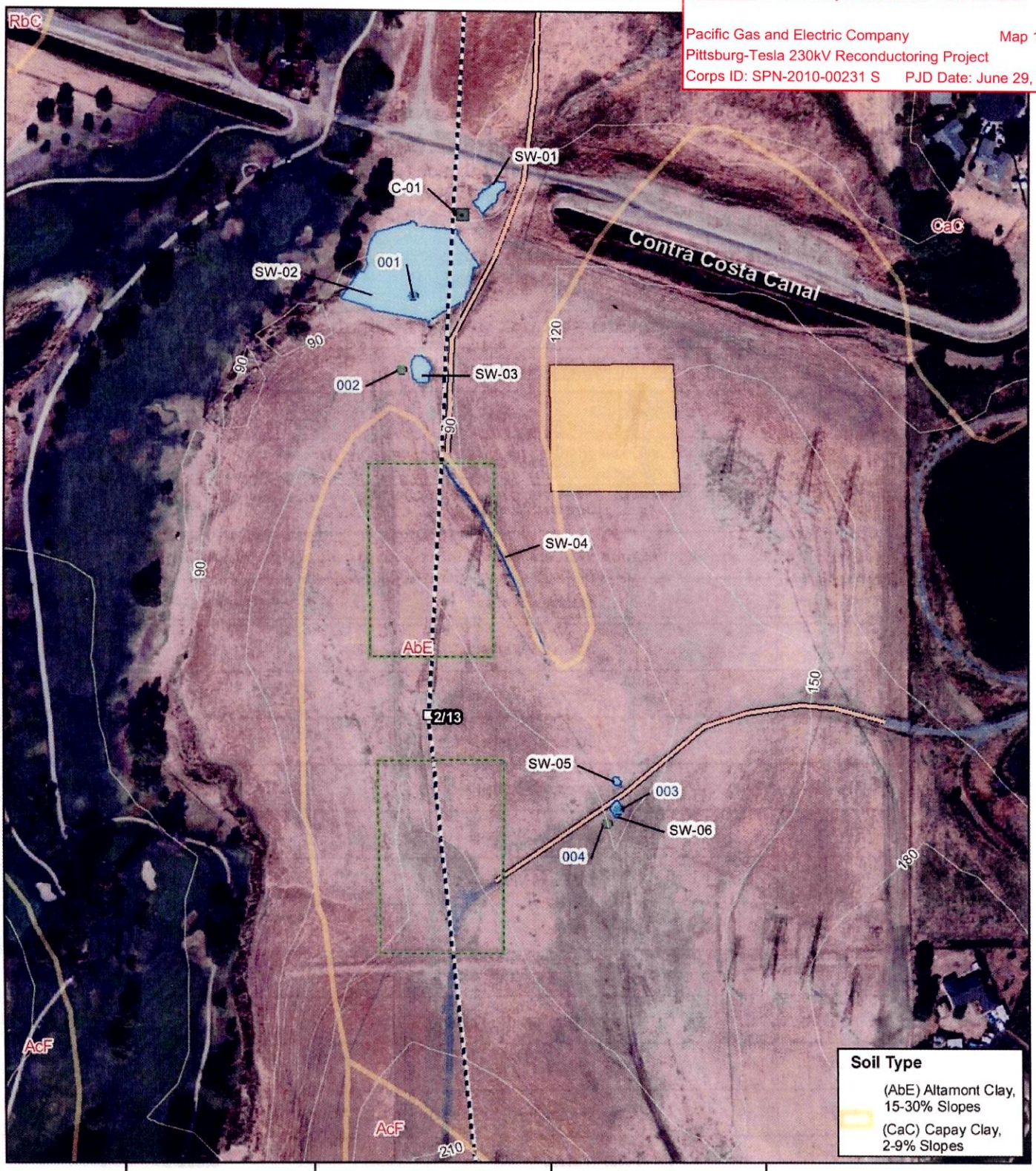
Map ID	Water Feature Type	Acreage
	Wetlands	
SW-01	Seasonal Wetland	0.027
SW-02	Seasonal Wetland	0.504
SW-03	Seasonal Wetland	0.024
SW-04	Seasonal Wetland	0.013
SW-05	Seasonal Wetland	0.003
SW-06	Seasonal Wetland	0.008
SW-07	Seasonal Wetland	0.055
SW-08	Seasonal Wetland	0.007
SW-09	Seasonal Wetland	0.003
SW-10	Seasonal Wetland	0.001
Total Wetlands		**0.645**

Attachment 3.

Preliminary Jurisdictional Determination Delineation Maps

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

Pacific Gas and Electric Company — Map 1 of 3
Pittsburg-Tesla 230kV Reconductoring Project
Corps ID: SPN-2010-00231 S — PJD Date: June 29, 2010



GANDA

Data Points
- Upland
- Wetland

Water Features
- Culvert
- Seasonal wetland

Project Features
- Tower
- Possible Access Rd
- Transmission Line
- Pull Site (200x300)
- Staging Area/ LZ (200x200)

Source: GANDA GIS 2010
S. Hillaire

1:2,400
1 inch equals 200 feet

0 135 270 Feet

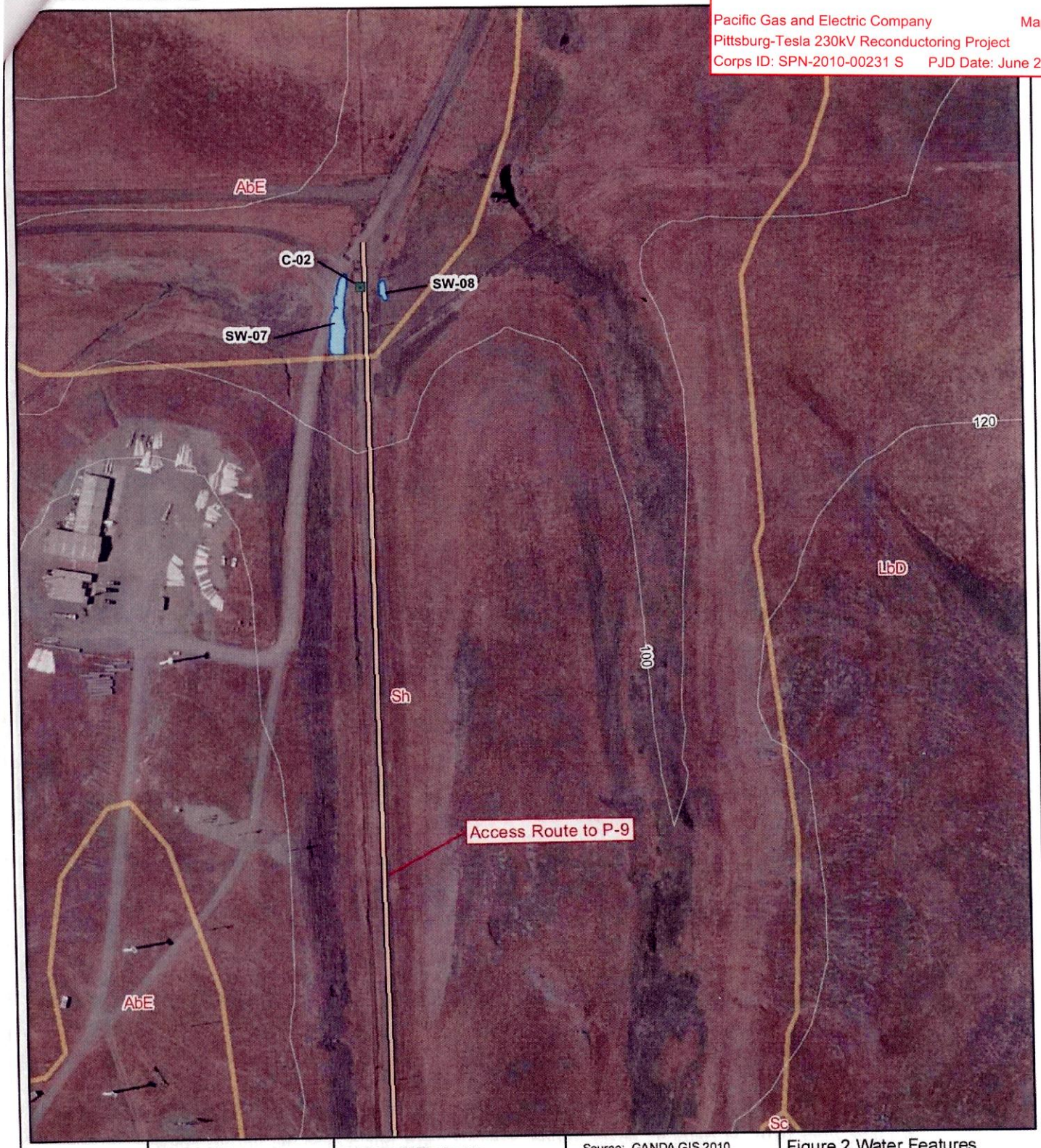
Figure 2 Water Features
Pittsburg - Tesla 230 kV Project
Site A, Pull Site 2

Map 1 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_ACOEWetland_Map_1.mxd

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

Pacific Gas and Electric Company — Map 2 of 3
Pittsburg-Tesla 230kV Reconductoring Project
Corps ID: SPN-2010-00231 S — PJD Date: June 29, 2010



GANDA

Data Points
- Upland
- Wetland

Water Features
- Culvert
- Seasonal wetland

Project Features
- Possible Access Rd

Soil Type
- (AbE) Altamont Clay, 15-30% Slopes

Source: GANDA GIS 2010
S. Hillaire

1:2,400
1 inch equals 200 feet

0 125 250 Feet

Figure 2 Water Features
Pittsburg - Tesla 230 kV Project
Site B, Access to Pull Site 9

Map 2 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_ACOEWetland_Map_2.mxd

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

Pacific Gas and Electric Company — Map 3 of 3
Pittsburg-Tesla 230kV Reconductoring Project
Corps ID: SPN-2010-00231 S — PJD Date: June 29, 2010

GANDA

Data Points
- Upland
- Wetland

Water Features
- Culvert
- Seasonal wetland

Project Features
- Possible Access Rd

Soil Type
- (Sh) Solano Loam

Source: GANDA GIS 2010
S. Hillaire

1:2,400
1 inch equals 200 feet

0 125 250 Feet

Figure 2 Water Features
Pittsburg - Tesla 230 kV Project
Site C, Access to Pull Site 9

Map 3 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_ACOEWetland_Map_3.mxd

Attachment E – California Tiger Salamander Assessment

Attachment E – California Tiger Salamander Assessment

Garcia and Associates
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San Francisco, CA 94110
Phone: (415) 642-8969
Fax: (415) 642-8967

To: Laura Burkholder, PG&E

From: Kevin Wiseman

Date: March 27, 2012

RE: Pittsburg-Tesla Reconductoring Project Pull Site Assessment for California Tiger Salamander

Garcia and Associates (GANDA) was contracted to conduct an assessment for federal and State threatened California tiger salamander (*Ambystoma californiense*; CTS) upland habitat within proposed pull sites (PS) for Pacific Gas and Electric Company's Pittsburg-Tesla 230 kV Reconductoring Project in Contra Costa and Alameda Counties, California. This memorandum summarizes the methods and results of this assessment and includes aerial figures of the proposed pull sites in relation to known CTS occurrences and habitat photos (Figures 1-21).

Methods

This assessment was conducted initially with a desktop review, followed by site visits to pull sites 2-12, and associated landing zones [LZ] and undeveloped access routes, on February 27-28, 2012. Kmz files for the proposed pull site locations were assessed in conjunction with kmz files obtained from the California Natural Diversity Database (CNDDB) for records of CTS and California red-legged frog (*Rana draytonii*; CRLF) using GoogleEarth®. California red-legged frog records were included in the assessment because the two amphibian species often utilize the same aquatic habitats for breeding. Linear measurements were approximated using the measurement tool in GoogleEarth®, taken from the outside of the pull site boundary to the nearest portion of habitat for that particular CNDDB record. Records were reviewed in order to determine if they were observations of CTS breeding (larvae) or upland observations (juveniles or adults). The nearest potential breeding habitat to each particular pull site was identified using aerial imagery from GoogleEarth® and distance measured using the measurement tool; potential breeding habitats were not verified on the ground. During site visits, pull sites were inspected for the presence of mammal burrows (*Thomomys* or *Spermophilus*), which are used by CTS during the non-breeding season for underground refugia (Shaffer and

Trenham 2005). Pull sites that were located in preferred CTS habitat (i.e., grasslands) and contained suitable mammal burrows were considered to be located within suitable upland habitat for CTS.

Recorded dispersal distances for adult and juvenile CTS moving to and from breeding habitats vary between studies—Trenham and Shaffer (2005) reported that subadults dispersed up to 620 m (0.38 mi) and adults up to 630 m (0.39 mi) from breeding habitat; Shaffer and Fisher (1991) reported that adult CTS migrations may exceed 1 km (0.62 mi), while Orloff (2011) reported that the majority of CTS from a pitfall trapping study had migrated up to 840 m (0.52 mi) and several individuals were estimated to have moved up to 2.2 km (1.4 mi). For this assessment, we considered pull sites within 2.0 km (1.2 mi) of known CTS breeding habitats (based upon CNDDB records) within suitable habitat to be within dispersal distance for the species. This 2.0 km distance is based on the United States Fish and Wildlife Service's *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (2003).

Results

Based upon the desktop review and site visits, the following pull sites (PS) were identified as occurring in suitable upland habitat within dispersal distance of known CTS breeding habitats: PS-2, PS-4, PS-6, PS-7, PS-9, and PS-10 (Table 1).

Pull sites PS-5 and PS-11 are located within suitable upland habitat for CTS, but are located greater than 2.0 km from the nearest known breeding habitat (Table 1).

Pull sites PS-3, PS-8, and PS-12 were not considered suitable upland habitat for CTS, assuming that work crews remain on existing paved or well-maintained gravel roads and do not utilize any areas outside (i.e., shoulders of roads) of these established areas (Table 1). Pull site 1 is located within the existing Pittsburg Substation, in disturbed habitat that was historically tidal salt marsh, which is not considered suitable CTS habitat.

Table 1. Proposed pull sites (1-12) for the Pittsburg-Tesla Reconductoring Project in Relation to CTS and CRLF Breeding Habitat and CNDDB Records. (Occurrence numbers for CNDDB records are listed in parentheses.)

Pull Site (PS)	Pull Site in Upland CTS Habitat?	Distance to nearest known CTS breeding habitat	Distance to nearest potential CTS and/or CRLF breeding habitat	Distance to nearest CNDDB CRLF record	Comments
PS-1 and LZ	No	5,056 m = 3.1 mi (EO 48752)	2,132 m= 1.3 mi	4,472 m= 2.8 mi (EO 33689)	Located in disturbed area that historically was tidal salt marsh (not CTS or CRLF habitat)
PS-2, LZ, and access	Yes	1,435 m = 0.9 mi (EO 48752)	80 m = 262 ft	1,429 m = 0.9 mi (EO 33869)	Within known dispersal distance for CTS from breeding pond; however, general lack of burrows within pull sites except for small patch of gopher burrows at northern end of northern PS
PS-3 and LZ	No	2,498 m = 1.5 mi (EO 4061)	350 m = 0.2 mi	1,680 m = 1.0 mi (EO 1571)	Pull crews will remain within paved road as practicable; LZ in compact gravel yard. Pull Site not within dispersal distance of nearest known CTS breeding pond; shoulders of paved road contain suitable upland habitat
PS-4 and access	Yes	940 m = 0.6 mi (EO 47773)	460 m = 0.3 mi	1,930 m 1.2 mi (EO 75682)	Abundant ground squirrel burrows here; three additional known CTS breeding ponds within 1.8 km (1.1 mi)

Pull Site (PS)	Pull Site in Upland CTS Habitat?	Distance to nearest known CTS breeding habitat	Distance to nearest potential CTS and/or CRLF breeding habitat	Distance to nearest CNDDB CRLF record	Comments
PS-5, LZ and access	Yes	2,155 m = 1.3 mi (EO 47773) 2,480 (EO 63053)	840 m = 0.5 mi	1,576 m = 1.0 mi (EO 75682)	Not within dispersal distance for CTS from nearest known breeding site; however, suitable upland habitat is present and is within dispersal distance of potential breeding habitat
PS-6, LZ, and access	PS-6 and adjacent "track" access = Yes LZ and "road" access = No	540 m = 0.3 mi (EO 41850)	540 m = 0.3 mi	3,100 m = 1.9 mi (EO 48703)	Within 1.4 km (0.9 mi) of the pull site, five known breeding ponds for CTS occur; the pull site is within the known dispersal distance. Developed portion of road and LZ do not have suitable habitat
PS-7	Yes	1,640 m = 1.0 mi (EO 41857)	100 m = 328 ft Kellogg Creek	100 m = 328 ft (EO 6956)	Within dispersal distance for CTS from nearest known breeding site; suitable upland habitat present
PS-8	PS- 8 = No (see comments) LZ = yes (adjacent grassland)	390 m = 0.2 mi (EO 59123)	265 m = 0.2 mi	390 m = 0.2 mi (EO 75009)	If pull crews remain on well-maintained gravel road and disturbed flat area associated with transformer station, the pull site is not within suitable upland habitat; outside of this area suitable upland habitat is present (LZ)

Pull Site (PS)	Pull Site in Upland CTS Habitat?	Distance to nearest known CTS breeding habitat	Distance to nearest potential CTS and/or CRLF breeding habitat	Distance to nearest CNDDB CRLF record	Comments
PS-9	Yes	2,051 m = 1.3 mi (EO 26498)	578 m = 0.3 mi	700 m = 0.4 mi (EO 35064)	Although this pull site is farther than 2 km (1.2 mi) from nearest known breeding habitat, there are numerous adult observations near the pull site; an adult CTS observed approx. 155 m (508 ft) from pull site #9 in 1982 (EO 21936). Another adult CTS observed 1200 m (0.7 mi) to the west of pull site (EO 68320)
PS-10 and LZ	PS-10 = Yes LZ = no (asphalt lot)	375 m = 0.2 mi (EO 53683)	375 m = 0.2 mi	60 m = (197 ft) (EO 74008)	PS-10 within dispersal distance for CTS from nearest known breeding site; suitable upland habitat present. LZ located on asphalt parking lot; not suitable habitat
PS-11	Yes	3,800 m = 2.4 mi (EO 19237)	640 m = 0.4 mi	2,814 m = 1.7 mi (EO 61562)	Not within dispersal distance of nearest known CTS breeding pond, however the pull site contains suitable upland habitat and there is potential CTS breeding habitat (seasonal swale) located 640 m to the southeast.

Pull Site (PS)	Pull Site in Upland CTS Habitat?	Distance to nearest known CTS breeding habitat	Distance to nearest potential CTS and/or CRLF breeding habitat	Distance to nearest CNDDB CRLF record	Comments
PS-12 and LZ	No (see comments)	4,060 m = 2.5 mi (EO 19237)	20 m = 66 ft	2,440 m = 1.5 mi (EO 61562)	Assume pull site crew and equipment will remain on paved areas and in substation; suitable CTS upland habitat is present on shoulders of County Road 2063

References

Orloff, S.G. 2011. Movement patterns and migration distances in an upland population of California tiger salamander (*Ambystoma californiense*). Herpetological Conservation and Biology 6(2):266–276.

Shaffer, H.B., and P.C. Trenham. 2005. Species account for *Ambystoma californiense* from: *Amphibian Declines: The Conservation Status of United States Species*. Edited by Michael Lannoo. U.C. Press, Berkeley, California.

Trenham, P.C., and H.B. Shaffer. 2005. Amphibian upland habitat use and its consequences for population viability. Ecological Applications 15:1158–1168.

United States Fish and Wildlife Service (USFWS) 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (October 2003).

Figure 1. Pull site 2 in relation to nearest CTS known breeding habitat (1.4 km south).

Figure 2. Southern-most area pull site 2, view north; tower 13 is at left.

Figure 3. Pull site 3 in relation to nearest CTS (2.5 km east) and CRLF records (1.7 km south).

Figure 4. Pull site 3, located on paved road.

Figure 5. Pull site 4 in relation to nearest CTS (940 m southeast) and CRLF records (1.9 km north).

Figure 6. Southern end of pull site 4, view north towards tower 46.

Figure 7. Pull site 5 in relation to nearest CTS (2.2 km west) and CRLF records (1.6 km north). Pull site 4 is located in the upper left hand corner.

Figure 8. Pull site 5, view west from access road. Tower 56 is visible at left.

Figure 9. Pull site 6 in relation to nearest CTS (540 m) and CRLF records (3.1 km).

Figure 10. Pull site 6, east end of pull site, view west showing dirt access road.

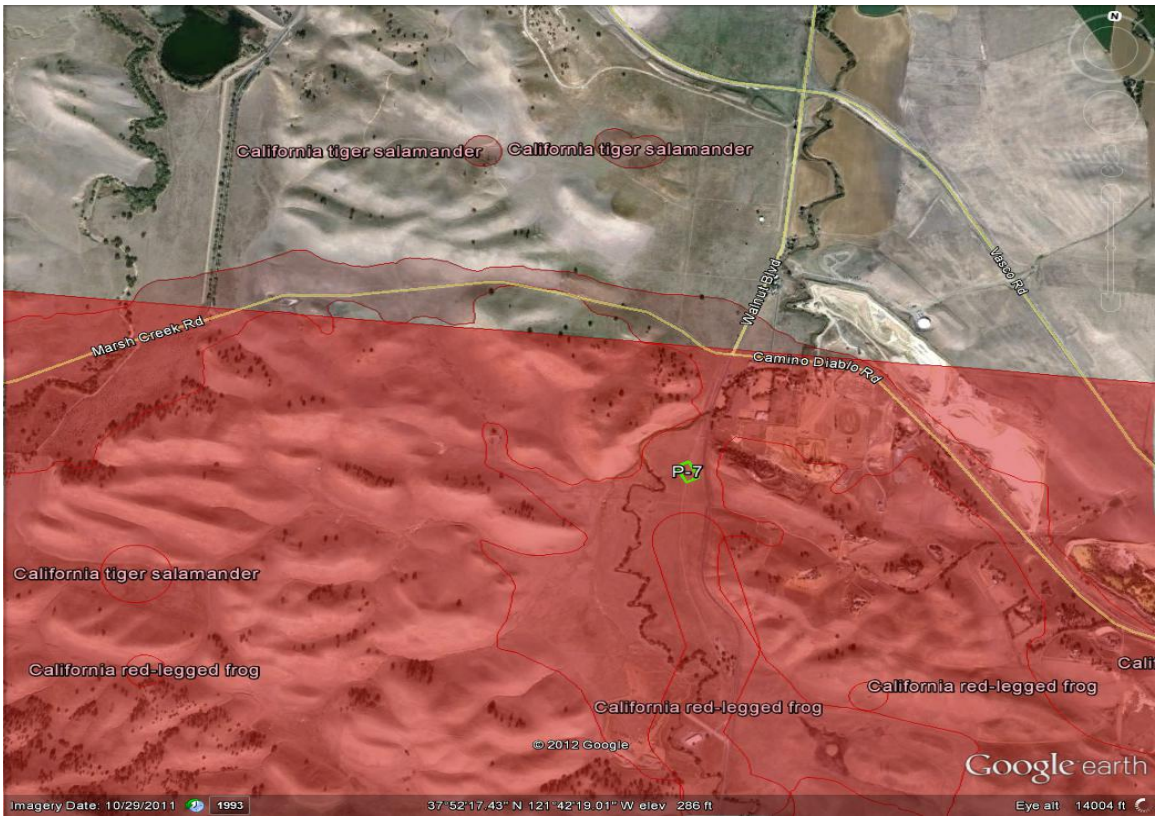


Figure 11. Pull site 7 in relation to nearest CTS (1.6 km) and CRLF records (100 m). Red background indicates a quad where specific species locations are suppressed.

Figure 12. Pull site 7, view south.

Figure 13. Pull site 8 in relation to nearest CTS and CRLF records (both located 390 m north). Red background indicates a quad where specific species locations are suppressed.

Figure 14. Pull site 8, view from access road facing east.

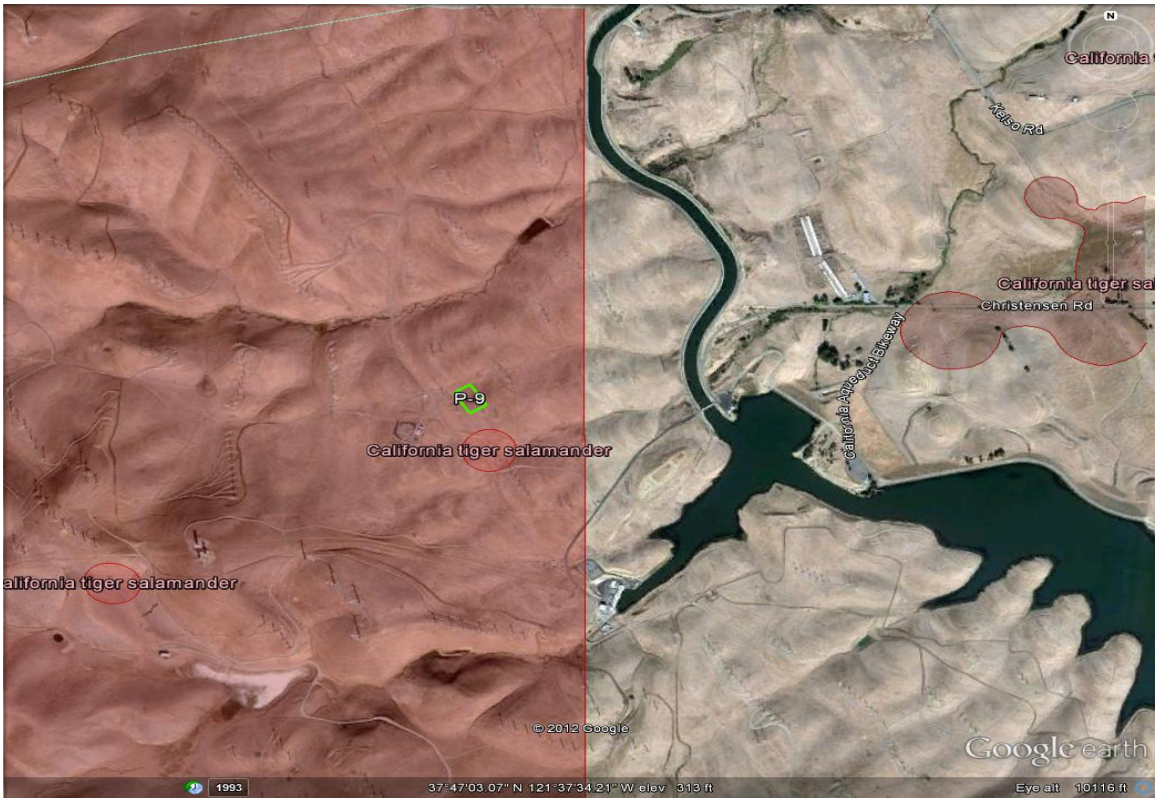


Figure 15. Pull site 9 in relation to nearest CTS (155 m south) and CRLF records (700 m east). Red background indicates a quad where specific species locations are suppressed.

Figure 16. Pull site 9, view south towards tower 110.

Figure 17. Pull site 10 in relation to nearest CTS (375 m north) and CRLF records (60 m south).

Figure 18. Pull site 10, view south towards Altamont Pass Road.

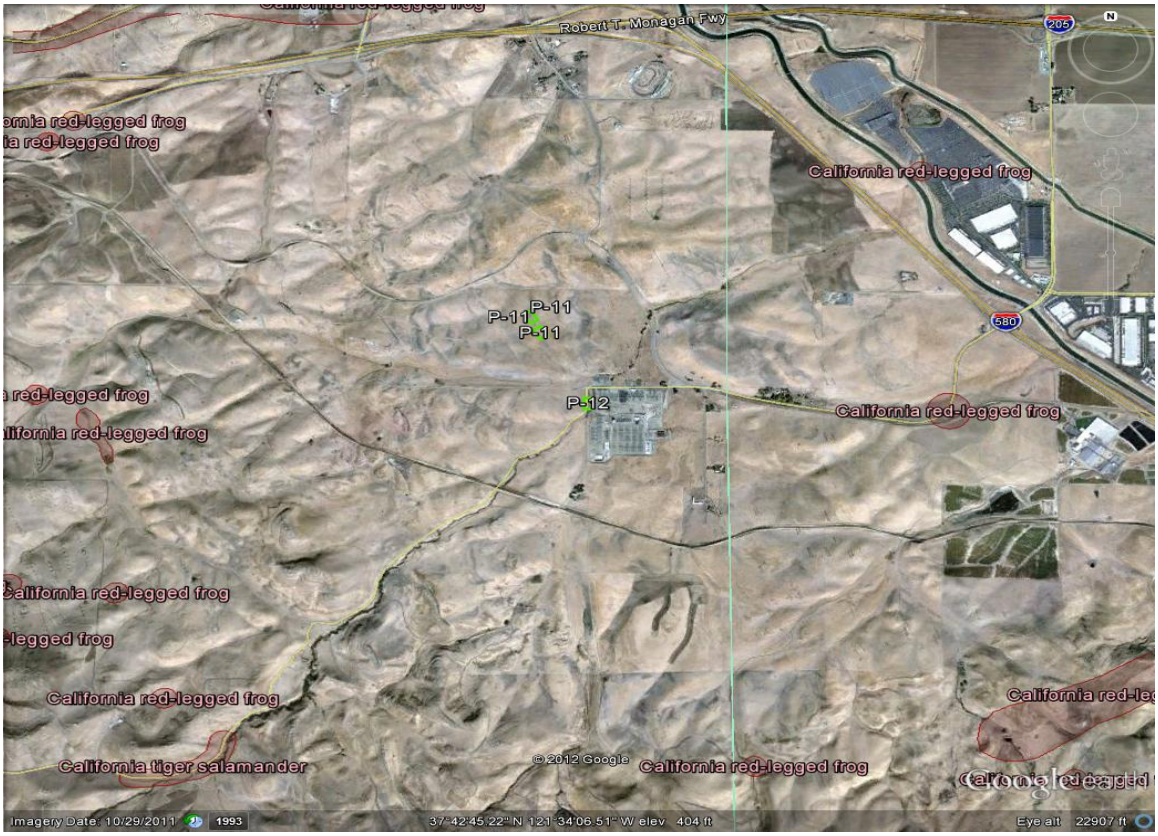


Figure 19. Pull sites 11 and 12 in relation to nearest CTS and CRLF records.

Figure 20. Southeastern portion of pull site 11, view towards the Tesla Substation.

Figure 21. Pull site 12, adjacent to the Tesla Substation, view north.

Attachment F – Initial Study/Mitigated Negative Declaration

Print Form

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☐ County Clerk
County of: _____
Address: _____

From:
Public Agency: State Water Resources Control Board
Address: DWQ, 1001 I Street, PO Box 100
Sacramento, CA 95814
Contact: Cliff Harvey
Phone: 916-558-1709

Lead Agency (if different from above):
_____
Address: _____
Contact: _____
Phone: _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2011102034

Project Title: Pittsburg-Tesla Reconductoring Project

Project Applicant: Pacific Gas and Electric Company (PG&E)

Project Location (include county): Pittsburg, Contra Costa Co. to Tesla Substation in rural northern Alameda Co.

Project Description:
Project will remove and replace the conductors (wires) on a 31 mile-long 230kV electric transmission line. Most work will be done with helicopters, but eleven ground level work sites will be used. Approx. 16.5 foot-tall "cage extensions " will be added to 39 towers to accommodate placement of cellular phone transmitters. All modifications are above ground and no foundation improvements will be required. The work performed at the towers will be conducted by helicopter. Ground access to replace wires will take place at 12 areas along the existing rights-of-way. (This notice also submitted to State Clearinghouse on 10/18/2012 and to Alameda County.)

This is to advise that the State Water Resources Control Board (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on October 17, 2012 (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
State Water Board, Division of Water Quality, 401 Unit, 1001 I Street, Sacramento, CA 95814

Signature (Public Agency): Cliffard Harvey Title: Cliff Harvey, Environmental Scientist

Date: October 31, 2012 Date Received for filing at OPR: November 9, 2012

RECEIVED
NOV 09 2012
STATE CLEARING HOUSE

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011

Karas, Joanna

From: Cantieri, Sara
Sent: Thursday, November 08, 2012 3:49 PM
To: Karas, Joanna
Subject: FW: Pittsburg-Tesla NOD filing fee - Check Request

RECEIVED
NOV 09 2012
DIVISION OF WATER QUALITY

From: Thomas, David L
Sent: Wednesday, October 31, 2012 2:25 PM
To: Cantieri, Sara
Subject: Pittsburg-Tesla NOD filing fee - Check Request

⑈0003528 7⑈ ⑆011302920⑆ 05997⑈

WARNING: THIS DOCUMENT CONTAINS A VOID AND UNCLAIMED CHECK CHECKING BACK GROUND AND MAPPED WATERMARK ON THE BACK

Pacific Gas and Electric Company
77 Beale Street, San Francisco, CA

BNY Mellon WCS
Everett, MA 02149

53-292
113

Date: 11/08/2012

Check No. 3352817

Pay $**********2,101.50*

*TWO THOUSAND ONE HUNDRED ONE********** AND 50/100 DOLLARS

To The Order Of

DEPARTMENT OF FISH & GAME
601 LOCUST STREET
REDDING CA 96001

ACCOUNTS PAYABLE

Dinyar B. Mistry
VP, CONTROLLER, and CFO

Nicole Bryan
VP and TREASURER

⑆011302920⑆ 05997⑈

C9AVUS

Please supply me the check. I will mail once received.

7. Documentation stating what the $$ is for... (i.e. fee schedule, et cetera...)

See attached

David L. Thomas, AICP
Senior Land Planner, Environmental Management – Electric Transmission
Pacific Gas & Electric Company
245 Market St, Room 1054D, San Francisco, CA 94105
O: 415.973.5885 M: 415.238.0027

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

CHK # 3352817

2012 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 424229

STATE CLEARING HOUSE # (If applicable) 2011102034

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: SWRCB

DATE: 11/9/12

COUNTY/STATE AGENCY OF FILING: SACRAMENTO

DOCUMENT NUMBER:

PROJECT TITLE: PITTSBURG-TESLA RECONDUCTORING PROJECT

PROJECT APPLICANT NAME: Cliff Harvey

PHONE NUMBER: (916) 558-1700

PROJECT APPLICANT ADDRESS: 1101 I STREET

CITY: SACRAMENTO

STATE: CA

ZIP CODE: 95814

PROJECT APPLICANT *(Check appropriate box)*:

- ☐ Local Public Agency
- ☐ School District
- ☐ Other Special District
- ☑ State Agency
- ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,919.00	$
☑ Mitigated/Negative Declaration (ND)(MND)	$2,101.50	$ 2101.50
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$
☐ Projects Subject to Certified Regulatory Programs (CRP)	$992.50	$
☐ County Administrative Fee	$50.00	$
☐ Project that is exempt from fees		
☐ Notice of Exemption		
☐ DFG No Effect Determination (Form Attached)		
☐ Other		$

PAYMENT METHOD:

☐ Cash ☐ Credit ☑ Check ☐ Other

TOTAL RECEIVED $ 2101.50

SIGNATURE: X

TITLE: student

WHITE - PROJECT APPLICANT YELLOW - DFG/ASB PINK - LEAD AGENCY GOLDEN ROD - COUNTY CLERK

DFG 753.5a (Rev. 11/11)

Pacific Gas and Electric Company's Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

Revised Initial Study/Proposed Mitigated Negative Declaration

Contra Costa and Alameda Counties, California

REVISED V2 – April 2012

Prepared For:

The State Water Resources Control Board

Division of Water Quality – 401 Certification and Wetlands Program
P.O. Box 100
Sacramento, CA 95812-0100

Prepared By:

Garcia and Associates
435 Lincoln Way
Auburn, CA 95603-4916

The original version of this Revised Initial Study was presented for public review from October 21 to November 21, 2011. The document was subsequently revised and updated. Material that has been added, reworded, or otherwise altered from the original version is highlighted with gray.

Table of Contents

1.0 Proposed Mitigated Negative Declaration 1-1
2.0 Introduction 2-1
2.1. Lead Agency 2-1
2.2. Document Organization 2-1
3.0 Project Description 3-1
3.1. Purpose and Need 3-1
3.2. Project Location 3-1
3.3. Proposed Construction 3-1
3.3.1. Project Equipment 3-2
3.3.2. Project Access 3-2
3.3.3. Project Staging and Landing Zones 3-3
3.3.4. Cage extensions 3-4
3.3.5. Roller and Insulator Installation 3-4
3.3.6. Guard Structures 3-5
3.2.7 Pull Sites 3-5
3.2.8 Line Reconductoring Process 3-5
3.4. Project Schedule 3-7
3.5. Permits and Authorizations 3-6
3.6. Applicant Proposed and Mitigation Measures 3-8
4.0 Initial Study 4-1
4.1. Existing Conditions 4-1
4.1.1. Existing Electrical System 4-1
4.1.2. Local Setting 4-1
4.1.3. Local Land Use 4-1
4.1.4. Natural Resources 4-1
4.2. Aesthetics 4-7
4.3. Agriculture Resources 4-8
4.4. Air Quality 4-9
4.5. Biological Resources 4-13
4.6. Cultural Resources 4-47
4.7. Geology and Soils 4-49
4.8. Hazards and Hazardous Materials 4-52
4.9. Hydrology and Water Quality 4-55
4.10. Land Use and Planning 4-58
4.11. Mineral Resources 4-59
4.12. Noise 4-59
4.13. Population and Housing 4-61
4.14. Public Services 4-63
4.15. Recreation 4-64
4.16. Transportation and Traffic 4-65
4.17. Utilities and Service Systems 4-67
4.18. Mandatory Findings of Significance 4-69
5.0 Initial Study Preparers 5-1
6.0 References 6-1

List of Figures

Figure 2-1 Project Location Map 2-3
Figure 4-1A CNDDB Plant Occurrences within Five Miles 4-15
Figure 4-1B CNDDB Wildlife Occurrences within Five Miles 4-16

List of Tables

Table 3-1 Summary of Project Activities and Equipment 3-7
Table 3-2 Authorizations That May Be Required 3-8
Table 4-1 Communities and Land Cover Present in the Transmission Corridor 4-3
Table 4-2. Impacts to Land Cover at Work Areas 4-4
Table 4-3 Summary of Greenhouse Gas Construction Emissions 4-12
Table 4-4 Special status Plant Species from Background Research 4-18
Table 4-5 Special status Animal Species from Background Research 4-26
Table 4-6 Special status Plants Located during Floristic Surveys 4-36
Table 4-7 Summary of Impacts to Select Special Status Wildlife 4-37

List of Appendices[1]

Appendix A Project Maps
Appendix B Visual Impact Technical Memo
Appendix C Air Quality Analysis Draft Report
Appendix D Biological Assessment
Appendix E Rare Plant Technical Memo
Appendix F Constraints Analysis
Appendix G Wetland Delineation
Appendix H Mitigation Monitoring and Reporting Plan
Appendix I Revegetation Plan
Appendix J Invasive Vegetation Management Plan
Appendix K California Tiger Salamander Habitat Assessment
Appendix L California Black Rail Habitat Assessment

[1] Appendices refer to those attached to the IS/MND unless otherwise stated. Some appendices attached to the IS/MND are complete documents with their own appendices; references to these "embedded" appendices will be stated specifically.

1.0 Proposed Mitigated Negative Declaration

Project Name: Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

Project Proponent: Pacific Gas and Electric Company (PG&E)
Contact: David Thomas
245 Market Street, 1054D
San Francisco, CA 94105

Project Location: The Pittsburg-Tesla Transmission Line is approximately 31 miles long. The line begins at Pittsburg Substation in the City of Pittsburg, Contra Costa County, California, which is located just south of the confluence of the Sacramento and San Joaquin Rivers. After leaving the substation, the line runs south for approximately four miles, and then turns east-southeast for 13 miles, crossing Black Diamond Mines Regional Park, portions of the John Marsh State Historic Park, and Marsh Creek Reservoir and Dam. From there, the line turns southeast for 14 miles through Alameda County, where it crosses the western shore of Bethany Reservoir and Interstate 580 (I-580), and terminates at Tesla Substation in northern Alameda County.

Project Description: In order to maintain service reliability and meet increasing electric load demands in the City of Pittsburg and surrounding areas in Contra Costa and Alameda Counties, PG&E proposes to replace approximately 31 miles of 230 kilovolt (kV) transmission line between Pittsburg and Tesla Substations. This project will minimize the potential for future power demand overloads and ensure service reliability to the East San Francisco Bay area. As part of this project, PG&E proposes to modify approximately 43 of 147 existing steel lattice towers. Of the 43 towers to be modified, approximately 4 towers will receive dead end conversions and approximately 39 towers will receive approximately 16.5 foot cage extensions. All modifications are above ground and no foundation improvements will be required. The work performed at the towers will be conducted by helicopter. Ground access to replace wire will take place at limited areas along the existing rights-of-way. The project is located within or alongside areas with land uses which include industrial, residential, agricultural, recreational, and natural resource protection. The project is scheduled to begin construction in September 2012, with an estimated duration of approximately 19 months, completing in May 2014.

Finding: The Initial Study describes potential environmental impacts and their significance. In keeping with the CEQA Guidelines (Cal. Code Regs. section 21080(C)(2).), this Initial Study provides evidence that, with incorporation of the applicant-proposed measures (APM's) included in the project description, and the specified mitigation measures (MMs), the proposed project will not result in significant impacts to the environment.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The project design incorporates applicant proposed measures and mitigation measures to minimize impacts to environmental resources. Consequently, as indicated by the checklist on the following pages, only the environmental factors checked below will be potentially affected by this project to an extent involving at least one impact that is "less-than-significant with mitigation incorporated."

☐	Aesthetics	☐	Agriculture Resources	☐	Air Quality
☒	Biological Resources	☒	Cultural Resources	☒	Geology/Soils
☒	Hazards/Hazardous Materials	☒	Hydrology/Water Quality	☐	Land Use/Planning
☐	Mineral Resources	☒	Noise	☐	Population/Housing
☐	Public Services	☐	Recreation	☒	Transportation/Traffic
☐	Utilities/ Service Systems	☐	Mandatory Findings of Significance		

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that, although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature _____ Date _____

2.0 Introduction

This Revised Initial Study (IS) addresses the potential environmental impacts associated with reconductoring approximately 31 miles of transmission line and associated tower modifications between PG&E's Pittsburg and Tesla Substations (Figure 2-1).

This IS has been prepared in accordance with CEQA, (Public Res. Code §21000 et seq.) and the CEQA Guidelines, (Cal. Code Regs. § 15000 et seq). An IS is prepared by a lead agency to determine if a project may have a significant effect on the environment. This IS relies on expert opinion based on facts, technical studies, and other substantial evidence to document its findings.

The original version of this Initial Study was presented for public review from October 21 to November 21, 2011. This document was subsequently revised and updated primarily to address comments received from the California Department of Fish and Game (CDFG). Additional comments from the Department of Water Resources (DWR), and SAIC Consulting (SAIC) representing Chevron Corporation were also received.

The comments received from CDFG led to more detailed analysis of threatened and endangered species and their habitats, and the addition of several new mitigation measures.

The comment received from DWR pertained to the need for an encroachment permit for one point in the project area. Although concerns raised in this comment would have been adequately addressed by the general mitigation measures in the original Initial Study, a more specific mitigation measure has been provided,

The comment from SAIC revealed the potential presence of abandoned pipelines at one site in the project area that could be affected by the placement of guard structure poles. It was made known that these abandoned pipelines would probably not be identified in the course of a routine Underground Service Alert (USA) notification. A specific mitigation measure to coordinate activities at that site with SAIC and USA has been added.

This Revised Initial Study is being circulated to allow for comment only on the new information listed above.

Supplemental material that has been added, reworded, or otherwise altered from the original version is highlighted with gray.

2.1 Lead Agency

The lead agency for CEQA review of the proposed project is the State Water Resources Control Board (State Water Board).

2.2 Document Organization

This document has been organized to address all of the required content for a negative declaration and initial study, in keeping with Sections 15063 and 15071 of the CEQA Guidelines. This document is organized as follows:

1.0 Proposed Mitigated Negative Declaration
2.0 Introduction
3.0 Project Description
4.0 Initial Study

5.0 Document Preparers
6.0 References

These sections are followed by a number of supporting documents attached as appendices.

Source: ESRI; GANDA GIS 2011

GANDA

Project Features

230kV Transmission Line

0 2 4 Miles

PG&E Pittsburg-Tesla
230kV Reconductor
Project Location
February 2011
Alameda and Contra Costa
Counties, CA

3.0 Project Description

PG&E proposes to reconductor (replace existing conductors with new conductors) the existing Pittsburg-Tesla 230 kV Transmission Line between Pittsburg Substation, in the City of Pittsburg, and Tesla Substation, in northern Alameda County—a distance of approximately 31 miles. PG&E owns and operates the existing line, which is located in the City of Pittsburg and unincorporated portions of Contra Costa and Alameda counties, California. The Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project consists of raising (adding height to the top of) 43 of 147 existing steel lattice structures, and replacing conductor (wire) along the entire 31-mile section. The project will be engineered and constructed pursuant to applicable engineering guidelines and standards (e.g., California Public Utilities Commission General Order Number 95).

Reconductoring the existing Pittsburg-Tesla 230 kV Transmission Line will avoid impacts that would be expected to occur with construction of a new transmission line route. In coordination with reviewing agencies, PG&E has incorporated numerous project modifications to avoid and minimize potential impacts to vernal pool species, other sensitive wildlife, wetlands, and aesthetic resources. PG&E has also incorporated a series of APMs to address potential project-related impacts; these are described in Section 3.6 below.

3.1. Purpose and Need and Project Objectives

The Pittsburg-Tesla 230 kV Transmission Line is a critical supply line for Contra Costa and Alameda counties. The line will accommodate the current load demand in the East Bay region once PG&E completes the proposed line and tower facility upgrades.

PG&E's electric transmission system serving the City of Pittsburg and eastern Contra Costa and Alameda communities has been strained by recent population growth. PG&E predicts that it will not be able to sustain reliable electric service in the area if the capacity improvements proposed by the Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project are not made to the system. The purpose of the project is to increase electric capacity to the existing transmission line and provide safe and reliable service to PG&E customers.

3.2. Project Location

The proposed project is located in eastern Contra Costa and Alameda counties (Honker Bay, Clayton, Antioch South, Brentwood, Byron Hot Springs, Clifton Court Forebay, and Midway U. S. Geological Survey 7.5 Minute Quadrangles; USGS 1980a, 1994, 1980b, 1978, 1968, 1978 and 1980c). The Pittsburg-Tesla line runs approximately northwest to southeast for approximately 31 miles in the project area. The line originates at Pittsburg Substation in the City of Pittsburg, Contra Costa County, south of the confluence of the Sacramento and San Joaquin Rivers. The line runs south for approximately four miles, and then turns east-southeast for 13 miles, crossing Black Diamond Mines Regional Park, portions of the John Marsh State Historic Park, and Marsh Creek Reservoir Dam. The line turns southeast for 14 miles to enter Alameda County, then crosses a western branch of Bethany Reservoir and I-580, and then ends at Tesla Substation.

3.3. Proposed Construction

This reconductoring project involves two basic components:

1. **Transmission tower work** – These activities involve modifications to existing towers to allow the towers to support new, heavier conductor while maintaining required ground clearances (distance between the wire and the ground). The new conductor will be approximately the same size as the existing conductor.

2. **Transmission line work** – These activities require installing new conductor, and adjusting the conductor tension so that it hangs properly between the towers. Old hardware, such as insulators, is also replaced during line work.

These two basic components will be carried out as a series of multi-stage activities, including the installation of reconductoring equipment at all towers; installation of top cage extensions, new insulators, arm extensions, and/or other modifications at select towers; use of guard structures to protect road, utility line, and railway crossings; and the establishment of pull sites on which to set up and pull the conductor. Work is fairly site-specific, taking place mainly at the towers (accessed by helicopter) and at twelve designated sites between spans (accessed by ground). All applicable regulations and restrictions will be determined and complied with prior to and during construction. The proposed construction activities are depicted on maps included in Appendix A of this IS/MND.

3.3.1 Project Equipment

Equipment that may be used during project construction includes the following: a line truck (sometimes with auger arms), water truck, 50-ton crane and/or boom truck, rope truck for reconductoring, truck-mounted rope puller and conductor tensioner, backhoe or other tracked equipment for tensioning wire, reels of conductor to receive the old conductor as it is removed, reels of new conductor to “feed out,” and trucks or other equipment to handle the weight of the conductor reels and to move them on and off site. In addition, four-wheel drive pick-up trucks, passenger vehicles, and hand tools will be used. Helicopters will be used to install and remove reconductoring equipment at all 147 towers and will also be used to install cage extensions at 43 towers. See attached maps in Appendix A of this IS/MND.

3.3.2 Project Access

3.3.2.1. Ground Access

The primary roads that will be used for construction access include Willow Pass Road, State Route 4 (SR 4), Leland Road, Deer Valley Road, Diablo Camino, Altamont Pass Road, Midway, and Patterson Pass Road. Existing private paved, gravel, or native surface roads will be used to access work areas within the existing rights-of-way. At all times during construction, vehicles and equipment will stay within designated routes, and biological monitors will assist ground crews in locating appropriate access routes during work activities in sensitive resource areas.

At one location, four non-native pepper trees (*Schinus molle*) overhang the paved access road to Pull Site 3 (Nortonville Road). These trees may be trimmed to accommodate equipment passage to Pull Site 3.

At two locations, the existing access roads require small repairs or alterations to be suitable for construction equipment. At the first location, along the access road to Pull Site 2, PG&E plans to temporarily lay rock in a seasonal wetland feature in order to widen the road for construction equipment; this measure will result in the temporary fill of 0.005 acre of

wetland[2]. In addition, along the access road to Pull Site 9, a 24-inch and a 30-inch culvert are in disrepair. PG&E plans to replace both of these culverts with new 30-inch culverts in order to support the weight of equipment; these repairs will result in the temporary disturbance of 0.002 acre of wetland. PG&E will obtain permits for these temporary fill activities (0.007 acre total temporary impact) from the appropriate agencies.

At six locations, access will require the use of short segments of overland travel in areas not previously used for vehicle access. These temporary access routes are in the vicinity of Pull Site 2 (690 feet), Pull Site 4 (564 feet), Pull Site 5 (1,928 feet), Pull Site 6 (3,596 feet), Pull Site 7 (401 feet), and Pull Site 11 (830 feet) (total 2.223 acres). At Pull Site 2, the temporary access route is located behind a locked water treatment plant gate, and is not open to the public. At Pull Sites 4 and 5, temporary access routes are located through private property and rangeland are not open to the public. The access route to Site 6 is located behind a subdivision currently under construction; some newly-installed landscaping will be removed to use this access. The access routes to Pull Sites 7 and 11 are located behind locked gates. All of these access routes will be 12 feet wide. All six of these short temporary road segments are located in or near the existing transmission line right of way easement, and will be used for approximately three to four weeks. None of these route segments will require grading, and each segment is located on flat to gently sloping, pre-disturbed ground with non-native grassland vegetation. These routes are not intended to be permanent access roads.

Depending on road and weather conditions during construction, rock or gravel may be placed on any native surface access route, existing or temporary. A maximum of 2.860 acres of access route may be modified in this fashion. Upon project completion, any rock or gravel will be removed, and the temporary access routes will be re-vegetated (see Revegetation Plan in Appendix I of this IS/MND).

3.3.2.2. Helicopter Access

Construction activities at individual towers will be carried out by helicopter to minimize ground disturbance. Helicopter models expected to be used on this project may include the following: Bell 214-B1, Bell Super 204 or 205, Bell 206 L-3, and Bell 206 B-3, although other similar aircraft may be used. Helicopters will use seven designated staging areas/landing zones as described in section 3.3.3 (see maps in Appendix A of this IS/MND). These landing zones are located within 0.5 mile of the transmission line right of way.

Generally one helicopter will be used on the project at a time. In a few cases, two helicopters may be used concurrently, but their use would be separated by several miles along the project corridor and only one helicopter would be used at a landing zone at a time. Workers and materials will be transported to and from tower locations. Materials to be transported include rollers, insulators, and metal tower parts. Helicopters will generally hover at or above the tops of towers at heights of 80 to 120 feet, and workers will access towers directly from the helicopter. Helicopters will travel to the towers within five or six miles or less of a landing site. No materials will be carried by helicopter over major highways.

Helicopters will be used for two types of project activities 1) installation of cage extensions (see section 3.3.4), and 2) roller/insulator installation and removal (sections 3.3.5 and

[2] This acreage includes all waters that are expected to be impacted. These impacts include both waters of the U.S. and state waters.

3.3.8). Cage extensions/modifications will occur at 43 towers. Each of these 43 repairs is expected to take approximately one day, and will require approximately six round-trips from the landing site to the tower. Helicopters will be used to fly steel lattice segments, insulators, and workers to the tower sites. In order to install and remove rollers and insulators, all 147 towers will be visited by helicopter. Each tower is expected to be visited twice: once prior to line replacement, and once after line replacement, although additional visits may occur for some sites. Approximately eight to ten towers can be visited in a single day for roller and insulator work.

Helicopters will be fueled on site during the day with a fuel truck. Overnight storage and any required servicing will occur at Byron Airport, which is located 1.7 miles northeast of the transmission line.

3.3.3 Project Staging and Landing Zones

A total of seven staging areas/landing zones will be used for helicopter landing, temporary equipment storage, and tower cage assembly. Three of the seven staging areas are located in areas with an aggregate or asphalt base with no native surface. The remaining four staging areas are located on native surface and will be rocked and/or misted with water from an on-site water truck during construction. The staging areas were selected within flat areas with existing disturbance from agricultural or commercial/industrial uses. These sites were selected because they are already disturbed, and because no wetlands or other sensitive resources are nearby. To minimize potential safety hazards, moreover, the staging areas are well-removed from dense population areas and are not accessible to the public.

A fuel truck will be present at the staging areas to refuel the helicopter. A water truck will be present for dust abatement. Portable toilet facilities will be provided at these sites. All staging areas are located within 0.5 mile of the ROW for the transmission line. See maps in Appendix A of this IS/MND. Project activities at each staging area/landing zone are expected to take approximately two weeks during the cage tower extension work to occur between September 2012 through March 2013. From March 2013 through May 2014, during the line reconductoring process, each staging area/landing zone will be used for a duration of approximately three to four weeks.

3.3.4 Cage extensions/Modifications

As part of the Reconductoring work, 43 towers will be modified by adding structures known as cage extensions to the top of the towers. The cage top extensions are expected to raise towers by approximately 16.5 feet in height. Cage extensions will be assembled at staging areas and lifted into position on the towers using a helicopter. No ground access is required, and no foundation work or modifications to the base of any towers is expected at any tower location. This work is expected to take approximately one day per tower, and will require approximately six round-trips made by helicopter from the seven designated staging area/landing zones to each of the 43 towers. Cage extension work will take place between September 2012 and March 2013. See Appendix A of this IS/MND for maps of cage extension locations.

3.3.5 Roller and Insulator Installation

Rollers and insulators will be flown to each of the 147 towers by helicopter. A crew on the tower will remove the old insulators and install new insulators along with conductor rollers. It is estimated eight to ten towers can be completed in a single day. An estimated 15 to 16 helicopter trips will take place every day in order to access these towers.

3.3.6 Guard Structures

Crossing guard structures will be installed at all roads, railroad, and aerial utility crossings along the project alignment to prevent injury or damage if the conductor were to inadvertently fall (41 locations). These structures typically consist of paired, single Y-configured pole structures, or paired wood poles with cross bracing designed to catch falling conductors; a network of cables and netting may also be tied into these poles. A line truck will be used to auger and set the required number of wooden poles on each side of a crossing. These structures will be installed along roadsides in disturbed areas and will cause relatively little disturbance. Crossing guard structures will be installed along paved roads whenever possible. In some instances, boom vehicles/equipment may be used instead of utility poles to catch any conductor that may potentially fall. Following reconductoring activities, crossing structure poles will be removed, the holes backfilled, and the disturbed areas recontoured and reseeded with native and/or prescribed seed mix as necessary. Near sensitive areas (Guard Structures SR01, TL15, DL16, DL17, SR37, SR21, DL23, TL24, TL31, TL32, and TL33), environmental monitors will coordinate with ground crews to determine appropriate placement of crossing guard structure poles. Features to be avoided will be flagged. If sensitive areas cannot be avoided, temporary footings may be used to hold the crossing structure poles in place instead of auguring holes.

Several guard structures are expected to be installed per day. These temporary structures will be installed prior to reconductoring and remain in place during reconductoring.

3.3.7 Pull Sites

Twelve pull site locations have been identified and mapped. Four of these sites will require two work areas each to facilitate line pulling from opposite directions. These work areas consist of relatively flat areas, 200 feet by 300 feet each, and are positioned in-line with the overhead conductors. See maps in Appendix A of this IS/MND for locations of the pull sites.

Four of the twelve pull sites (P-1, P-3, P-8, and P-12) are located within, or are partly located within, roads or developed commercial or industrial properties with low potential for environmental impacts. The remaining eight pull sites occur in low- to moderately-disturbed non-native grassland habitat.

Pull Sites 2 and 8 and associated landing zones/staging areas, and Pull Sites 6 and 10 may require minor grading or a limited amount of crushed-rock fill to achieve sufficiently level work areas (up to a maximum of 8.409 acres grading total).

Heavy equipment may be placed on plates or construction mats if the ground is damp or if wet conditions are forecast. Portable toilet facilities will be installed at these areas.

The equipment at pull sites will be utilized for up to four conductor “pulls”: two (one on each side of the tower) in one direction, and two in the other. Pulling activity is expected to take approximately two to four weeks at each site.

3.3.8 Line Reconductoring Process

The majority of ground disturbance for line reconductoring activities takes place at the pull sites described above. The old line will be removed while the new line is simultaneously pulled in. The existing line will be placed in a hoist and attached at one end to the steel tower. With the roller in place, the hoist will lower the existing line into the roller. A cable will be attached from the “puller” truck to one end of the line; new line will be attached to the

existing line at the opposite end of the "pull" section, and the reconductoring process will begin.

Once the new line is in place, the crews will pull the new line to the proper tension ("sag" the line) with a cable tensioning rig or similar piece of heavy equipment. Helicopter crews are then used to clip the conductor into the new insulators, and remove the rollers from the section. This work is expected to take approximately one day per 8-10 towers with approximately one to two round-trips made by helicopter from the designated staging area/landing zone to each of the 147 towers.

To comply with worker safety requirements, personal protection ground rods will be temporarily attached to each tower. Temporary ground rods (5/8 inch diameter copper rods) will be driven into the ground, and all equipment at a work site will be required to attach to the ground rod during operations. The ground rods will be removed when work is completed. All ground rods will be removed before the lines are returned to operational conditions.

A summary of project activities and equipment is presented in Table 3-1.

3.4. Project Schedule

The overall construction timeline is expected to take an estimated 19 months, between September 2012 and May 2014. The first phase of construction activity will involve cage extensions, other tower modifications, and guard structure installation. The second phase of construction activity will involve line reconductoring activities. This will result in approximately 10 months of actual construction.

The project schedule was developed to accommodate environmental considerations, and restrictions imposed by the Independent System Operator (ISO) on the timing of electrical outages. An existing circuit (each side of the transmission line) must be taken out of service for reconductoring; these outages must be coordinated with local demand for power. Outages typically cannot be planned for summer and other times of heavy electricity use, when the demand for electricity is at its peak.

3.5. Permits and Authorizations

The project will require a Clean Water Act (CWA) Section 401 Water Quality Cerification (401 Certification) from the State Water Board (the State Water Board is also acting as CEQA Lead Agency). The 401 Certification is a discretionary permit, and compliance with CEQA is required. This project is under the jurisdiction of the California Public Utilities Commission (CPUC) and subject to the CPUC's General Order (GO) 131-D. This project may qualify for an exemption from the CPUC's formal permitting requirements.

The project qualifies for CWA Section 404 Nationwide Permit 12, subject to verification from the U.S. Army Corps of Engineers (Corps). An Endangered Species Act section 7 consultation with the US Fish and Wildlife Service (USFWS) is also required. In addition, PG&E will obtain an incidental take permit (Fish and Game Code §2081) from CDFG for state listed species, and a Lake and Streambed Alteration Agreement (Fish and Game Code §1600 et seq.) for the temporary fill of a seasonal wetlands. In addition, ministerial permits may be required from other agencies. A summary of permits required is shown in Table 3-2.

Table 3-1 Summary of Project Activities and Equipment

Work Area or Activity	Equipment	Project Activities Expected
Cage Extensions	Helicopter	Cage tops to be brought in by helicopter and placed on top of tower. Approximately one day of work at each of 43 tower modifications.
Staging Areas/Landing Zones ***(6.458 acres)***	Helicopter, fuel truck, delivery trucks, 4x4 pick-up trucks	Staging and delivery of work materials, helicopter landing and refueling, portable toilet facilities.
Roller and Insulator Installation / Roller Removal	Helicopter	Install pulleys and replace insulators on towers. Two visits per tower required to install. Two visits per tower to remove pulleys after pulling completed. Several towers can be visited in one day.
Guard Structure Installation / Removal ***(1.845 acres)***	Line truck with an auger arm, 4x4 pick-up truck, flat bed delivery truck	Poles delivered with a flatbed truck. Then the line truck augers holes and sets poles. Several guard structures can be set in a day. A second visit will be required to remove the poles after pulling completed.
Pull Sites and Line Reconductoring ***(20.399 acres)*** **Associated off-road access routes** ***(2.860 acres)***	Line truck with boom, 4x4 pick-up trucks, rope truck, reel truck with conductor reels, 3-reel pullers, tensioners, backhoe or skip loader, delivery trucks.	Set up and pull and/or tension conductor. Some staging. Portable toilet facilities. Backhoes may be used as needed to level work areas or landing zones (Pull Sites 2,6,8 and 10, maximum 8.409 acres) and/or place rock on fabric (that can be removed after construction).
Fire and Dust Control	Water truck	Spray water throughout project work areas as needed. Each PG&E work vehicle will carry a chemical fire extinguisher, a filled five gallon manual water pump, and shovel(s).
Project Area in Natural Habitats = 25.459 acres Project Area in Developed/Paved Areas = 6.957 acres **Total Project Area = 32.456 acres**		

Table 3-2 Authorizations That May Be Required

Agency Name	Type of Review
U.S. Army Corps of Engineers	CWA Section 404 Nationwide Permit 12
State Water Board	CWA Section 401 Water Quality Certification, Stormwater Construction General Permit enrollment
USFWS	Endangered Species Act Section 7 Consultation
CPUC	Notice of Construction (NOC) under GO 131-D
CDFG	Incidental take permit (2081) – Alameda County Lake and Streambed Alteration Agreement (LSAA)
East Contra Costa County Habitat Conservancy	Incidental take permit for state-listed species (HCP/NCCP) – Contra Costa County
California Department of Transportation (Caltrans)	Encroachment permit
Contra Costa County	Encroachment permit
Alameda County	Encroachment permit
California Department of Water Resources and Alameda County Water District	Encroachment permit for Bethany Reservoir

3.6 Applicant Proposed Measures and Mitigation Measures

Section 21080(C)(2) of the California Public Resources Code provides for the adoption of a mitigated negative declaration when (A) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review will avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment will occur, and (B) there is no substantial evidence, in light of the whole record before the lead agency, that the project, as revised, may have a significant effect on the environment.

In keeping with Section 21080(C)(2) of the California Public Resources Code, PG&E has adopted the following applicant proposed measures (APMs) as part of the project. These measures include PG&E standard construction practices as well as those measures that are proposed to comply with applicable regulations. These measures are incorporated into the proposed project and will be implemented with the project elements described above. In addition, thirteen mitigation measures (MMs) are specified below. With incorporation of these APMs and MMs, project impacts from construction and operation of this project will be less than significant. To the extent any of the following measures conflict with requirements in subsequently-issued resource agency permits, the resource agency permit requirements shall supercede these measures. These measures are summarized in the attached Mitigation Monitoring and Reporting Plan (MMRP, see Appendix H of this IS/MND).

APM-AQ-01 Fugitive Dust Controls. The intent of the following measures is to ensure adequate dust control during project construction. Fugitive dust controls will minimize the potential for visible emissions and nuisance. The following measures will be employed to prevent and control dust emissions:

1. On-site vehicles will be limited to 15 miles per hour to minimize dust emissions on unpaved roads.
2. All temporary access routes to be rocked shall be completed as soon as possible during the use of the road and rock will be removed upon project completion. Up to four of the 12 pull sites will be graded to provide a level work area. These sites will be stabilized by soil binding and seeding to prevent erosion and minimize dust emissions.
3. Dust control measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) will be implemented during construction to address dust on unpaved roads, covering stock piles and truck loads, and tracking soil onto public roadways.

APM-AQ-02 Construction Equipment Exhaust Reductions. During construction, PG&E will comply with the California Air Resources Control Board's (CARB) rule on idling, (Cal. Code Regs. §2485) (CARB 2009). This rule prohibits, with some exceptions, the idling of diesel-fueled commercial motor vehicles for more than five minutes, and applies to both trucks and buses greater than 10,000 lbs. gross vehicle weight. In addition, PG&E will minimize unnecessary idling time through application of a "common sense" approach to vehicle use. If a vehicle is not required immediately or continuously for construction activities, its engine will be shut off. Equipment will be maintained in accordance to manufacturer's specifications. Construction foremen will include briefings to crews on vehicle use as part of pre-construction conferences.

PG&E will also minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel-fueled construction equipment with engines 50 horse power (hp) or larger, and manufactured in 2000 or later, will be registered under the CARB Statewide Portable Equipment Registration Program (PERP) (CARB 2010), or will meet a minimum United States Environmental Protection Agency (USEPA) /CARB Tier 1 engine standards.

APM-AQ-03 Carpooling. PG&E will encourage construction workers to carpool to the job site to the extent practicable.

APM-AQ-04 Recycling. PG&E will encourage the recycling of construction waste where feasible.

MM-BIO-01 Federally & State Listed Species: Delta Smelt Critical Habitat. Federally-designated critical habitat for Delta smelt occurs between towers 1 and 13. Suitable river habitat for Delta smelt does not occur at any of these towers. Tower 1 is located in Pittsburg Substation. Towers 2 through 4 are located in a drained coastal salt marsh habitat adjacent to the Suisun Bay. Towers 5 through 13 lie in the City of Pittsburg and surrounding grasslands.

The USFWS and CDFG will review this project. After consultation, the USFWS will issue a Biological Opinion for the Delta smelt or USFWS-designated critical habitat for this species. PG&E will comply with the terms and conditions of the USFWS Biological Opinion and those required by CDFG, and will incorporate the mitigation measures listed below into the project. These measures will be implemented between towers 1 and 13.

1. A specialist will flag appropriate access routes and project work areas located in the Delta Smelt Critical Habitat Area (between towers 1 and 5) prior to start of work activities; no groundwork will take place in salt marsh habitat (helicopter work only).

A qualified monitor will be present during project activities. Construction fencing will be installed to protect habitat where appropriate, and the qualified monitor will ensure that no impacts to habitat will occur during construction.

2. Construction constraints maps will be provided to monitors and construction crews to identify features that require protection, and the MM's and APM's applicable to project work areas before construction. The maps will be available on site during all construction activities.

3. The vehicle travel to each construction site will be limited to the minimum number of trips and vehicles necessary to perform work safely.

4. All grading or digging, in and near wetland features will be avoided. Such activities will be limited to designated upland areas.

5. When working in proximity to a wetland or other waters of the United States (US), spoil from auger holes will be placed in a secondary container (truck, cart, etc.) to prevent introducing fill to wetlands and waters.

6. The top 10 inches of soil from any augered holes will be separated and saved. This soil will be used to backfill the tops of holes at the end of activities.

MM-BIO-02 Federally Listed Species: Valley Elderberry Longhorn Beetle (VELB). According to a 30-year programmatic agreement with the USFWS, PG&E has specific guidelines for maintenance work around elderberry shrubs within the range of the VELB (USFWS 2003, Biological Opinion 1-1-01-F-0114). These guidelines aim to identify, avoid and minimize impacts to elderberry shrubs and VELB. Project activities will follow the requirements of this programmatic agreement, by incorporating the following mitigation measures:

1. A VELB environmental tailboard will be required for work crews.

2. For all blue elderberry (*Sambucus mexicana*) shrubs within 20 feet of ground disturbance, a qualified individual will flag or fence a buffer of at least 20 feet from the drip line prior to start of project activities.

3. Construction activities within the 20-foot buffer will be avoided including the driving of heavy machinery and vegetation removal/disturbance. Note: blue elderberry shrubs adjacent to existing Chadbourne Road near Pull Site 4 will be flagged, but through-traffic will be permitted.

4. A qualified monitor will be utilized during work near elderberries. The monitor will provide crews with environmental awareness training about VELB and describe avoidance measures.

5. Should Valley elderberry longhorn beetles be observed in the project area, the Sacramento USFWS Office will be immediately notified. Any observations of beetles in any life stage will be recorded on California Natural Diversity Database (CNDDB) field sheets and sent to the CDFG.

MM-BIO-03 Federally & State Listed Species: California Tiger Salamander (CTS). The USFWS and CDFG have reviewed this project, and believe that the project may cause harm of CTS. PG&E will comply with the terms and conditions of the

Service's biological opinion and requirements of the Incidental Take Permit from CDFG, and will provide appropriate mitigation. The mitigation measures below have been incorporated into the project. These measures will be implemented during all project activities in unpaved and undeveloped areas.

1. Work will commence no earlier than one-half hour after sunrise and end no later than one half-hour before sunset to ensure detection of CTS if present.

2. To the extent feasible, all grading or digging within suitable habitat will be avoided during the adult breeding and dispersal season (November to May), as well as during the peak metamorphic dispersal season (June 15 to July 15). Operation of off-pavement work will be minimized during rain events and 24 hours following a rain event.

3. Small mammal (i.e. ground squirrel and gopher size) burrows will be avoided whenever possible.

4. A qualified monitor will perform preconstruction surveys at current work areas each day that construction activities are planned or ongoing, prior to commencing work activities, to ensure CTS have not entered the site.

5. A qualified monitor will be on site during all work near breeding and dispersal habitats. The monitor will provide crews with environmental awareness training about the CTS and recommend avoidance measures.

6. Crews will visually check under vehicles and equipment before moving them.

7. The following measure will be used at Pull Sites 4 and 7: Before beginning construction activities a temporary barrier will be constructed along the edges of these areas. The qualified monitor shall inspect these areas prior to the installation of the barrier, and if any special status wildlife are observed, they will be allowed to leave the area. The barrier shall be designed to allow the special status species to leave the fenced area using a one-way funnel, ramp or other method approved by DFG. The barrier shall remain in place until all construction activities at that location have been completed. The qualified monitor will inspect the barrier daily and PG&E will maintain and repair it as necessary to ensure that it is functional. Any special status wildlife found along the fence line will be allowed to leave on their own, or will only be moved by the qualified monitor in accordance with the Incidental Take Permit and Biological Opinion from DFG and USFWS. Design of the barrier shall be approved by DFG prior to installation and prior to beginning construction activities.

8. CTS will not be handled or moved by construction crews. CTS will only be handled by a Service- and CDFG- approved biologist, after take authorization is obtained through a CESA permit (Fish and Game Code § 2081) from the CDFG Bay Delta Region. If a CTS be observed during construction, the Sacramento USFWS Office and the CDFG Bay Delta Region will be immediately notified. Any observations of CTS in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.

MM-BIO-04 Federally Listed Species: California Red-legged Frog (CRLF). The USFWS has reviewed this project, and believes that the project has the possibility to harm CRLF, and will have minor effects on USFWS-designated critical habitat for CRLF. PG&E will comply with the terms and conditions of the biological opinion and has incorporated the mitigation measures below into the project. These measures will be implemented where

surveys have identified CRLF or suitable habitat (Pull Sites 2, 3, 4, 7, 8, 9, 10, and 12 and Guard Structures SR21, TL34, and SR37).

1. Construction activities will commence no earlier than one-half hour after sunrise and no later than one half-hour before sunset to ensure detection of CRLF if present.

2. To the extent feasible, all grading or digging in and near water features will be limited to such outside of the breeding and juvenile rearing season (avoid late November to August). Culvert replacement will be performed outside of the wet season.

3. A qualified monitor will perform preconstruction surveys at work areas each day project activities are planned or ongoing, prior to commencing work activities, to ensure CRLF has not entered the site.

4. A qualified monitor will be on site during all work near potential breeding and juvenile rearing sites. The monitor will provide crews with environmental awareness training about the CRLF and recommend avoidance measures.

5. Crews will visually check under vehicles and equipment before moving them.

6. Only a permitted, USFWS-approved biologist may handle CRLF. Should a California red-legged frog be observed during project activities, the Sacramento USFWS Office will be notified immediately. Any observations of CRLF in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.

MM-BIO-05 Federally & State Listed Species: Alameda Whipsnake. The USFWS and CDFG have reviewed this project, and believe that the project may cause harm to Alameda whipsnake. PG&E will comply with the terms and conditions of the Service's biological opinion and requirements of the Incidental Take Permit from CDFG, and will provide appropriate mitigation. The mitigation measures below have been incorporated into the project. These measures will be implemented for all project activities in areas near suitable habitat for Alameda whipsnake (Pull Site 4 and Guard Structures DL16 and DL17).

1. Work will commence no earlier than one-half hour after sunrise and end no later than one half-hour before sunset to ensure detection of Alameda whipsnake if present.

2. All grading or digging within Pull Site 4 will be avoided during the snake's dormancy period (between November 1 and March 31).

3. A qualified monitor will perform preconstruction surveys prior to commencing work activities each day that project activities are planned or ongoing at Pull Site 4, to ensure Alameda whipsnakes have not entered the site.

4. A qualified monitor will be on site during all work at Pull Site 4. The monitor will provide crews with environmental awareness training about the Alameda whipsnake and recommend avoidance measures.

5. Crews will visually check under vehicles and equipment before moving them.

6. Construction materials, soil, construction debris, or other material shall be deposited only where vegetation has been mowed, grazed or is otherwise sufficiently sparse to that any snakes present will be readily visible.

7. Alameda whipsnake will not be handled or moved by construction crews. Alameda whipsnake will only be handled by a Service- and CDFG- approved biologist, after take authorization is obtained through a CESA permit (Fish and Game Code §2081) from the CDFG Bay Delta Region. Should an Alameda whipsnake be observed during construction, the Sacramento USFWS Office and the CDFG Bay Delta Region will be immediately notified. Any observations of Alameda whipsnake in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.

MM-BIO-06 Federally & State Listed Species: San Joaquin Kit Fox. PG&E is consulting with USFWS, and will comply with the terms and conditions of the consultation. PG&E has has incorporated additional mitigation measures below into the project to minimize the potential for impact to San Joaquin kit fox. These measures will be implemented in areas of suitable habitat for this fox (Pull Sites 2-12 and associated undeveloped access routes and landing zones, and all Guard Structures in natural areas [all structures except SR01, RR02, RR03, SR04, SR05, HW06, TL07, SR08, HW28, DL35]).

1. Work will commence no earlier than one-half hour after sunrise and end no later than one half-hour before sunset to ensure detection of San Joaquin kit fox if present.

2. A qualified monitor will perform preconstruction surveys prior to commencing work each day that work is planned or ongoing to ensure kit fox have not entered the sites.

3. Project activities will be avoided in pupping season: mid-February to April 1 (this timeline includes birth, weaning, and emergence of pups). If work cannot be avoided within this window, perform pre-construction surveys to determine den use. Minimum avoidance distance of grading and digging from dens will be 50 feet for a potential den and 100 feet for a known den. If a natal/pupping den is located, a suitable buffer (may be 200 feet or more) will be developed in consultation with USFWS.

4. A qualified monitor will be on site during all work near potential breeding sites. The monitor will provide crews with environmental awareness training about the San Joaquin kit fox and recommend avoidance measures.

5. During daily preconstruction surveys, the qualified monitor will visually check under vehicles and equipment for San Joaquin kit fox. Crews will check under vehicles and equipment before moving them to avoid running over kit foxes.

6. Should a San Joaquin kit fox be observed during project activities, the Sacramento USFWS Office and the CDFG Bay Delta Region will be immediately notified. Any observations of kit fox in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.

MM-BIO-07 State Listed Species: Swainson's Hawk

PG&E will adopt the following standard measures to address potential impacts to Swainson's hawk.

Project activities in areas that could disrupt Swainson's Hawk nests will be avoided to the extent feasible between the dates of March 1 and September 15; this date maybe moved to August 15 with concurrence from CDFG.

If this date range cannot be avoided, a preconstruction raptor nest survey shall be conducted during the appropriate time period in the season prior to construction, generally following the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). Follow up surveys will be timed to occur in advance of scheduled construction activities and locations. The results of these surveys shall be submitted to CDFG.

If active nests are found, a half-mile (2,640 feet) initial temporary nest disturbance buffer around each nest site shall be established. A qualified biologist/monitor, experienced with raptor behavior, shall be retained to monitor the nest, and shall, together with the PG&E staff biologist, consult with CDFG to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed to proceed within the nest disturbance buffer in consultation with CDFG.

MM-BIO-08 Wetland and Water Features

Implementation of the proposed project will entail culvert replacements and temporary fill of wetlands on access roads. All impacts will be temporary and will occur in seasonal wetlands. Restoration will occur on site, and no net loss of wetlands will occur. The following measures will be used.

1. Erosion, sediment, material stockpile, and dust control Best Management Practices (BMPs) will be employed on site. A storm water pollution prevention plan (SWPPP) will be developed, and construction crews will adhere to all additional requirements of the project SWPPP.

2. To the extent possible, whenever holes are excavated or augured, the top 10 inches of soil will be stored separately from the rest of the spoil. If possible, this seed source will be used to refill the top of the excavation.

3. When work is completed, the area will be evaluated and necessary restoration work (including re-vegetation/re-seeding and soil stabilization) will be performed as needed (see Restoration Plan, attached as Appendix I of the IS/MND). Work areas will be returned to pre-existing conditions to the extent possible.

4. No refueling, mixing, or transfer of hazardous materials fron one container to another shall occur in any surface waters, including streams and wetlands. Extreme caution will be used handling and/ or storing chemicals (such as fuel and hydraulic fluid) near surface waters, streams, and wetlands, and construction personnel will abide by all applicable laws and regulations. All applicable hazardous waste BMPs will be followed. Appropriate materials will be kept on site to prevent and manage spills (spill kits).

5. Where seasonally wet features including wetlands occur within or adjacent to a work area, the seasonally wet areas will be clearly marked with fencing, flagging, signage or similar avoidance measures. Driving or other construction activities will be avoided within these features.

6. No grading or digging will take place in any waters of the state except for specified road crossings and culvert replacement sites.

7. When in proximity to a wetland or other waters of the state, including waters of the U.S., spoils will be placed into a secondary container (truck, cart, etc.) to prevent introducing fill to wetlands and waters.

MM-BIO-09 Western Pond Turtle. Potential for western pond turtle occurs at Pull Site 7 and the associated access route. The following measures will be used at this site.

1. A qualified monitor will complete surveys in and near Pull Site 7 prior to construction activities, on each day that construction activities are planned or ongoing, to ensure that western pond turtles have not entered the site. The surveys will include aquatic habitat, and upland surveys for nest sites.

2. Any observations of western pond turtle in any life stage will be recorded on CNDDB forms and sent to CDFG.

MM-BIO-10 Other Species of Special Concern - Amphibians and Reptiles. Suitable habitat is present at Pull Sites 2-12 and the associated native surface landing zones and access routes for the following species: silvery legless lizard (*Anniella pulchra pulchra*), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), coast horned lizard (*Phrynosoma coronatum*), and western spadefoot toad (*Spea hammondii*). The following measures will be used at these sites.

1. The qualified monitor will complete walking surveys of each construction area to be impacted prior to construction activities, on each day that construction activities are planned or ongoing, to ensure that the aforementioned special status reptile and amphibian species have not entered the site.

2. Any observations of any of the aforementioned special status reptiles and amphibians will be recorded on CNDDB forms and sent to CDFG.

MM-BIO-11 American Badger. Suitable habitat is present at Pull Sites 2-12 and the associated native surface landing zones and access routes for American badger (*Taxidea taxus*). The following measures will be used at these sites.

1. Work will commence no earlier than one-half hour after sunrise and end no later than one half-hour before sunset to ensure detection of American badger if present.

2. A qualified monitor will perform preconstruction surveys prior to commencing work each day that work is planned or ongoing to ensure American badgers have not entered the sites.

3. Pre-construction surveys will be performed to determine den use. If dens are located, minimum avoidance distance of grading and digging from dens will be 50 feet.

4. Crews will check under vehicles and equipment before moving them to avoid running over American badgers.

5. Any observations of American badger in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.

MM-BIO-12 Western Burrowing Owl. PG&E has determined that suitable habitat for western burrowing owl is present at pull sites 2 through 12. Project construction activities could result in mortality, harm, or disturbance to western burrowing owl. The following measures will be used at these sites.

1. Burrowing owl surveys, generally following CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) and shall occur in both the breeding and non-breeding seasons. These surveys will be conducted by a qualified biologist in suitable burrowing owl habitat within 500 feet (approximately 150 meters) of areas of planned construction activity. These surveys will occur in the season(s) prior to construction to identify potential nesting/burrow areas.

   Pre-construction burrowing owl surveys will be conducted no more than 30 days prior to the start of construction activities. Results of these surveys shall be submitted to CDFG. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction surveys, the site should be resurveyed.

2. Disturbance of active burrows/nests will be avoided during both the non-breeding season and the breeding season. In the event that construction is located within 250 feet of active burrows or nests, appropriate buffer distances shall be established by a qualified biologist. In general, this buffer distance will be 160 feet (50 meters) of active burrows or nests during the non-breeding season (September 1-January 31), and 250 feet of active burrows or nests during the breeding season (February 1-August 31). The limits of the buffer or exclusion zone in the project area should be clearly marked (with signs, flagging, fencing, or similar measures). Work will not take place within this buffer to the extent feasible.

   If active burrow is closer than the appropriate buffer distance, and work is unavoidable, coordination with CDFG shall occur to determine additional appropriate avoidance, minimization, or protection measures. Work will only take place in the presence of a qualified monitor, who will monitor active burrows and determine if owls show signs of disturbance. If birds are disturbed by construction activities, the qualified monitor will have the authority to cease project activities until the birds return to normal behavior.

   If owls are consistently undisturbed by the construction activities after extended periods of monitoring, constant monitoring may cease after consultation and written approval by CDFG.

3. **As a contingency**, passive relocation effort (displacing the owls from the work area) may be conducted in limited cases in consultation with CDFG.

4. If accidental take (disturbance, injury, or death) of owls occurs, PG&E will notify CDFG immediately. If an active burrow is damaged or collapsed, PG&E will notify CDFG immediately; after consultation with CDFG, PG&E may be required provide artificial burrows in adjacent habitat, or similar compensatory measures, to be negotiated with CDFG on a case by case basis.

APM-BIO-01 Wildlife Habitat Protection. PG&E proposes the following measures to protect special status species, wildlife, and habitat during project construction.

1. A qualified monitor will provide environmental awareness training to all construction personnel before construction begins, and any time new personnel are brought onto the project. Workers will be given instruction on avoiding sensitive habitats and special status species, and the nature and purpose of protection measures. A record of environmental awareness training will be maintained for the life of the project.

2. To be considered a qualified monitor (the designated biologist), the following procedure must take place. PG&E will submit to CDFG in writing the name, qualifications, business address, and contact information of a biological monitor at least 30 days before starting construction activities. PG&E will ensure that the qualified monitor is knowledgeable and experienced in the biology, natural history, collecting, and handling of the special status species. The qualified monitor shall be responsible for monitoring construction activities to help minimize and fully mitigate or avoid the incidental take of individual special status species and to minimize disturbance of special status species' habitat. PG&E will obtain CDFG approval of the qualified monitor in writing before starting construction activities, and will also obtain approval in advance, in writing, if the qualified monitor must be changed.

3. Qualified monitors will provide guidance for access and construction work in a manner that minimizes potential impacts to wetlands and other sensitive habitats.

4. The qualified monitor will complete walking surveys of each construction area to be impacted prior to construction activities, on each day that construction activities are planned or ongoing, to ensure that special status species have not entered the site. The qualified monitor shall walk with any earthmoving equipment (e.g., grading, digging or auguring, laying rock) to look for special status species. Any special status species found within the construction area will be allowed to leave on its own, or will only be moved by the qualified monitor. The movement of any federal- and/or state-listed species will only take place in accordance with approval from USFWS and/or measures in an incidental take permit from the CDFG.

5. To the extent feasible, all activities associated with the construction of the project will be conducted on previously constructed access roads and similarly disturbed and compacted areas. Heavy equipment and vehicles will be confined to designated routes and work areas. No equipment will be staged in any waters of the state including wetlands.

6. Confine earthwork within natural habitats in the project area to the period of July 15 to October 31 to the extent feasible. This time restriction will not be applicable to the developed habitats in the City of Pittsburg (activites north of Leland Road).

7. Any vegetation clearing or other disturbances to vegetation will be kept to the minimum area necessary to safely facilitate construction activities and will maintain compliance with all applicable state and federal regulations.

8. Construction crews will properly fence and/or cover unattended, open excavations to prevent wildlife entrapment. Augered holes will not be left unfilled overnight whenever feasible. If unavoidable circumstances cause an unfilled hole to remain at the end of operating hours, a tight fitting cover will be placed over the hole. Drilling of new holes will be avoided when the lateness of the hour would prevent completion

of the pole-setting operation in prescribed work hours. Any open excavation left open overnight will be equipped with wildlife escape ramps if it cannot be fully covered.

9. All food wrappers and construction-related garbage or waste of any kind will be placed in covered garbage cans and removed from the site daily.

10. Plastic monofilament netting, or any other materials that pose a hazard to wildlife will not be used for erosion control. PG&E will use tightly woven fiber netting or other materials that are wildlife-safe. Only fully biodegradable erosion control materials will be used for permanent installations. Photo-degradable synthetic materials will not be utilized for permanent installations.

11. No pets, campfires, or firearms will be permitted.

12. To ensure that construction does not impact biological resources identified along the transmission corridor, project work area boundaries, off-road access routes, and sensitive habitat areas will be delineated in the field. Flagging, stakes, or fencing, or similar measures will be used to mark sensitive areas and/or off-road routes.

13. Construction crews will immediately report all observations of any listed species to the biological monitor and take care not to move, touch, harm, or harass the species. If a listed species is discovered in a work area, all work shall cease in that area when it is safe to do so; construction may not resume until the individual(s) of the species has moved away on its own. In accordance with federal and California endangered species acts, PG&E will inform appropriate federal and state resource agency personnel of any such sighting.

14. All construction equipment will be maintained to prevent leaks of fuels, lubricants, or other fluids into wetlands or streams. Service and refueling procedures will not be conducted where there is potential for fuel spills to seep or wash into wetlands or streams. Pull Sites 2 and 12 are closer than 100 feet to drainages; impervious-lined spill containment systems will be used for fueling at these two pull sites.

15. Extreme caution will be used when handling and/ or storing chemicals (such as fuel and hydraulic fluid) near waterways, and abide by all applicable laws and regulations. All applicable hazardous waste BMPs will be followed. Appropriate materials will be kept at currently used pull sites, staging areas, or in trucks to prevent and manage spills (spill kits).

16. A spill control and response plan will be developed for potentially hazardous materials, including fuels, solvents, and grease.

17. PG&E will manage stormwater runoff with the implementation of a SWPPP, including returning disturbed soils to pre-project conditions and contours following construction. Erosion, sediment, material stockpile, and dust control BMPs will be employed during construction within the project area. All additional requirements of the project SWPPP will be adhered to. PG&E will not permit any fill or runoff from work areas to enter wetland areas or streams.

18. If a special status wildlife species, or native/migratory bird, is injured as a result of project-related activities, the qualified monitor will immediately arrange for transport of the injured animal to a CDFG-approved facility that's identified before the start of construction. PG&E will report the injury to the appropriate agencies. PG&E will

bear the costs associated with the care or treatment of such injured special status species.

19. A driving speed limit of 20 miles per hour will be utilized for vehicles and equipment, except where this low speed would cause a safety hazard (e.g., county roads, highways, other large paved roads).

APM-BIO-02 Special status Plants. PG&E performed floristic surveys for special status plants in natural areas that could be impacted by project activities in 2008 and 2009. PG&E proposes the following measures to protect special status plant species.

1. PG&E will perform floristic spring pre-construction surveys in areas that have re-vegetated since the 2008-2009 surveys (Pull Sites 6, 7, and 10 and associated access routes), or have been identified since 2008-2009 (guard structures TL10, TL11, TL12, SR37, DL14, DL25, TL15, DL29, TL26, TL31, TL32, TL33, TL34 and associated access routes).

2. PG&E will implement five measures during and after ground disturbing activities near populations of round-leaved filaree (*California macrophylla*, California Rare Plant Rank 1B.1) at Pull Site 2, and any other special status species located during pre-construction surveys, to avoid and minimize potential impacts on these special status plant populations, as recommended by CDFG. These measures will include the following:
   a) installation of protective fencing or flagging (including a buffer of approximately 20 feet) around the population and limiting nearby ground disturbance;
   b) on-site biological monitoring;
   c) environmental awareness training for construction personnel, including information on the locations, habitat requirements and distribution of special status plants;
   d) returning the construction site to pre-project conditions; and
   e) managing stormwater runoff with the implementation of a SWPPP.

APM-BIO-03 Nesting Birds. Activities that result in the loss of an active nest of a designated native bird are a violation of the Migratory Bird Treaty Act. Nests and eggs are also protected by Section 3503 of the California Fish and Game Code. The disruption of any nest is a violation of Section 3503.5 of the California Fish and Game Code. The implementation of the proposed protection measures listed below will address potential impacts to nesting birds. In addition to burrowing owl and Swainson's hawk discussed previously, special status nesting birds that may be encountered on this project include:

golden eagle (*Aquila chrysaetos*),
short-eared owl (*Asio flammeus*),
ferruginous hawk (*Buteo regalis*),
northern harrier (*Circus cyaneus*),
California horned lark (*Ereophila alpestris actia*),
prairie falcon (*Falco mexicanus*),
loggerhead shrike (*Lanius ludovicianus*), and
white-tailed kite (*Elanus leucurus*).

Groundwork is NOT expected to take place in suitable nesting habitat for the following special status species:

tricolored blackbird (*Agelaius tricolor*),
salt marsh common yellowthroat (*Geothlypis trichas sinuosa*),

California black rail (*Laterallus jamaicensis coturniculus*),
Suisun song sparrow (*Melospiza melodia maxilaris*),
double-crested cormorant (*Phalacrocorax auritus*)
California clapper rail (*Rallus longirostris obsoletus*)

1. PG&E will avoid construction activities that could result in disturbance to breeding/nesting birds during the breeding season (February 1 – September 1) to the extent feasible; this measure includes avoidance of helicopter activity around raptor nests (within appropriate buffers).

2. If work occurs during the breeding season, a qualified biological monitor will identify native bird nests within 200 feet of the project area, and raptor (owl, hawk, and eagle) nests within at least 0.5 mile of the project. These surveys will be timed to occur in advance of scheduled construction activites. The results of these surveys shall be provided to DFG. The project will also comply with PG&E's *Avian Protection Plan*, Utility Standard S2321, approved by the USFWS, and outlined in Work Procedure (WP) 2321-01.

3. Surveys will take place at the appropriate time of day, and will occur no more than one week in advance of scheduled activities at locations where construction will occur. In consultation with CDFG and USFWS, inactive nests on towers (other than those of eagles and special status species) may be removed proactively to prevent their being utilized.

4. If nesting birds are found, an approximately 50-foot radius buffer will be estabished around the nest, approximately 300-foot radius buffer in the case of most raptors, and at least a 1,000-foot radius buffer in the case of eagles (may be larger on a site-specific basis). Appropriate buffer distances will depend on site-specific conditions. Activity within the buffer with the potential to cause nest failure will be delayed or moved to another location, to the extent feasible. The area will generally be marked off and avoided until the young have fledged, or the nest has failed, as determined by a qualified monitor (see below).

   A qualified monitor with experience in raptor behavior will monitor the behavior of any raptor in the buffer zone when project activities are occurring at that location. The qualified monitor shall have the authority to order the cessation of all project activities in the vicinity of any nest (regardless of distance) if the birds exhibit abnormal nesting behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to: defensive flights or vocalizations directed towards Project personnel, standing up from a brooding position, and flying away from the nest.

   If the risk of nest failure appears to be low for a particular nest, CDFG and USFWS will be consulted regarding if work activity may proceed, or if buffer distances can be reduced. Risk will depend on many factors, including the nature of the activity, the type of bird, the stage of the nest and its distance from the work site, the intervening topography and vegetation, and the acclimatization of the birds to human activity.

   Project activities disturbing a protected bird nest shall not resume until the qualified monitor has confirmed that the bird's behavior has normalized, the young have left the nest, and/or the nest has failed. CDFG will be consulted for special status bird species.

APM-CR-01 Procedures for Protection of Known Cultural Resources. An archeological monitor will be available during activities at work areas where cultural resources have been identified during pre-construction surveys (Pull Sites 2, 4, 5, 8, 9, 11, and 12). The cultural resources identified at these locations will be flagged or fenced for avoidance. Equipment will stay within the existing road alignment in the current road perimeters of the access road to Pull Site 4. Due to the location of cultural resources, and the placement of project work areas, PG&E will avoid impacts to all cultural resources during project implementation.

APM-CR-02 Awareness Training for Cultural and Paleontological Resources. Prior to commencing construction activities, field crews will receive instruction on cultural and paleontological resources protection and reporting protocols. Instruction will cover the potential for unanticipated discoveries during ground-disturbing activities associated with the project, and the actions to take in the event of a discovery (see APM-CR-03, below).

APM-CR-03 Protocols for Cultural or Paleontological Resources Discovery. When previously unknown cultural or paleontological resources are encountered during project-related subsurface disturbances, work will be stopped within 100 feet of the find; pending consultation with a PG&E Cultural Resource Specialist or his/her designated representative. The specialist will determine the potential significance of the find and recommend appropriate treatment measures. Such measures may include, but are not limited to, avoidance, photo and documentary recording, subsurface testing, excavation, and creation of materials with an appropriate repository. Any fossils discovered during project excavations will be identified and, if significant, donated to a local repository. The PG&E Cultural Resources Specialist will also consult with the State Historic Preservation Officer (SHPO) as appropriate, under the National Historic Preservation Act. The duration of work stoppages will depend on the extent, integrity, and potential significance of the encountered resource and the outcome of any consultations initiated with the SHPO.

APM-CR-04 Procedures for Discovery of Human Remains. If human remains are discovered within the project area during construction, work within 100 feet of the remains will be suspended immediately, and PG&E and/or its representative will immediately notify the county coroner. If the remains are determined by the coroner to be Native American, the Native American Heritage Commission (NAHC) will be notified within 24 hours, and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. PG&E and/or its representative will conduct a field investigation of the specific site and consult with the Most Likely Descendant identified by the NAHC. PG&E, or its appointed representative, will implement any measures as needed prior to the resumption of activities at the site where the remains were discovered.

MM-HH-01 Measures for Abandoned Pipes between Towers 1/4 and 1/5. PG&E will notify Chevron's consultant SAIC and coordinate excavation of auger holes for guard structure towers in the area near known or suspected abandoned pipelines with SAIC staff (30 days prior to installation of guard structures between towers 4 and 5).

APM-HH-01 Hazardous Materials Management. To minimize the potential for release of hazardous materials and risk of upset, PG&E will use standard operating procedures for storage, refueling, and maintenance of helicopters, construction vehicles and equipment during project implementation. PG&E will review these measures at the start of the project with on-site personnel, and when any new personnel are brought onto the project. The briefing will cover the availability of spill kits, procedures for reporting and cleaning up the release of hazardous materials, and protocols for handling hazardous materials on the site.

PG&E will also meet all California Division of Occupational Safety and Health (Cal/OSHA) workplace safety standards to assure worker safety in the handling and use of hazardous materials.

APM-HH-02 Hazardous Materials Storage. Fuels, solvents, lubricants and other potentially hazardous materials will be stored offsite at an existing, nearby PG&E Service Center. If hazardous materials are used on site for maintaining or repairing vehicles, spill kits will be available on site for immediate use.

APM-HH-03 Spill Prevention and Control. As specified in the SWPPP, all motorized equipment will be inspected for leaking oil, fuels, or fluids, and repaired prior to on-site use, fueling BMPs will be specified (i.e., "housekeeping rules" as specified in the Stormwater Construction General Permit), and fueling locations will be specified in advance. At most pull sites, refueling will not take place within 100 feet of a wetland. Some pull sites could be located within 100 feet of water features (i.e., Pull Sites 2 and 12 may fall within 100 feet of water features); at these locations an impervious spill-control system and additional risk reduction BMPs will be utilized for refueling. Spill control kits will be kept on site in all PG&E construction vehicles. If a spill occurs on site, measures will be enacted immediately to contain the material, and the designated PG&E Environmental Field Specialist will be notified. As directed by the Field Specialist, the site will be cleaned, and contaminated materials will be disposed of properly.

APM-HH-04 Air Transit Coordination. PG&E will follow these protocols in regard to air traffic.

1. PG&E will comply with all Federal Aviation Administration (FAA) regulations regarding air traffic.

2. A Lift Plan will be prepared for review by the FAA prior to all helicopter construction operations if required. The Lift Plan will address coordination of take offs and landings with Byron Airport as well as with residents, and local land owners. The plan will include protocols for communications with landing sites and coordination with other aircraft uses in the vicinity of the worksites.

APM-HH-05 Evacuation Route Planning. Emergency preparedness and an evacuation route to be used during emergency situations will be described in a Health and Safety Plan prepared by PG&E. In addition, PG&E will follow the protocols below to ensure proper response to any emergency response or evacuation plan.

Vehicles used for this project will be positioned to avoid blocking any roadways that might impair the emergency response or the implementation of any evacuation plans. If a PG&E vehicle must be parked on a roadway, a clear path will be maintained to facilitate traffic movement around the vehicle, as specified in encroachment and transportation permits for work on state and local roadways.

APM-HH-06 Risk of Wildfire. During the fire season, PG&E crew chief(s), before the start of work each day, will check fire hazard levels at work sites and will take proper precautions to minimize the chance of accidental fires. At times of "moderate" or higher fire hazard, PG&E will implement the following measures in areas of potential fire hazard:

1. Water supplies and fire-fighting equipment will be sited in the proposed project area, or in vehicles present at the project site, and will be available for fire protection during the fire season.

2. PG&E will ensure that vehicles and equipment primarily use existing roads to access work sites, and park away from dry vegetation.

3. PG&E will prohibit trash burning and smoking on the project site at all times.

4. PG&E will, as part of the emergency response plan, ensure that work crews are trained in accurate reporting of locations when reporting any wild fire.

5. All welding, metal cutting, or other activities that may generate sources of ignition will be conducted in a manner that prevents ignition of surrounding vegetation. In addition to fire suppression equipment on site, adequate fire extinguishers will be immediately at hand during such activities.

APM-HWQ-01 Storm Water Pollution Prevention Plan (SWPPP). Prior to the start of project construction, PG&E shall file with the State Water Board notice of intention to use the General Permit for Storm Water Discharges Associated with Construction Activity. As required by this permit, PG&E will prepare and implement a SWPPP. The SWPPP will address site-specific controls for addressing storm water pollution. The SWPPP will address erosion and transport of sediments, stabilization of disturbed soils, dust suppression, spill prevention and containment of hazardous materials, and groundwater management with BMPs summarized below.

1. Erosion from project-disturbed areas will be controlled by appropriate installation/application of BMPs to trap and stabilize sediment, including installation and maintenance of silt fences, wattles, straw bales, berms, fiber filtration tubes, sand/gravel bags, gravel, and other structures or materials. Additionally, tracking controls will be implemented to control soil movement onto public roadways.

2. Areas of disturbed soils will be stabilized following construction with the reestablishment of vegetation similar to pre-project conditions. Vegetation will be established as appropriate for on-site conditions with hydro-seeding, application of straw mulch and/or hand seeding (Revegetation Plan attached as Appendix I of the IS/MND).

3. Dust will be abated on site with applications of water (via water truck), stockpile covers, and management of soil tracked on to project roadways. Dirt that is tracked out onto a paved roadway will be removed.

4. Vehicle maintenance will as much as is practicable be conducted off site at appropriate maintenance facilities. When equipment cannot be moved off site for maintenance, the use of hazardous materials will occur only in areas designated for such materials use (away from sensitive resources), and be performed only when materials for spill cleanup are on site. Procedures to ensure that accidental spills are contained and removed from the site will be followed if any such events occur.

5. PG&E will specify self-contained washout for all concrete trucks delivering concrete to the site. Wash water will be removed from the project area and recycled by the concrete provider in concrete mixing. If self-contained washout is not possible, PG&E will establish washout stations in areas that are well removed from sensitive resources.

APM-NOI-01 Limited Operations. Noise-generating project activities will be restricted to the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except as necessary for health

and safety purposes to reestablish electrical service, to address emergency situations, or accommodate outage schedules.

APM-NOI-02 Idling Restrictions. Commercial vehicles over 26,000 pounds and all off road equipment rated over 70 horsepower will be limited to idling for five minutes (Cal. Code of Regs. §2485) . Moreover, in accordance with APM-AQ-02, attempts will be made to further reduce idling times through application of a “common sense” approach to use of these vehicles.

APM-NOI-03 Equipment. All internal combustion engine-driven equipment will be equipped with intake and exhaust mufflers, which are in good condition and appropriate for the equipment.

- All stationary noise-generating construction equipment, such as air compressors and portable power generators, will be located as far as practical from existing noise-sensitive receptors.
- Where feasible, "quiet" air compressors and other stationary noise sources will be used.

APM-NOI-04 Temporary Barriers. Temporary barriers will be used where feasible to screen stationary noise-generating equipment when located in areas adjoining noise-sensitive land uses. Temporary barriers can include vehicles or temporary structures placed between the noise-generating equipment and the sensitive land use.

APM-NOI-05 Construction Traffic. To avoid and reduce construction traffic in residential areas, all construction traffic to and from project sites will be routed via existing designated truck routes. Project construction-related heavy truck traffic will be limited in residential areas where practicable. Project construction truck traffic will be prohibited in designated areas (e.g., residential neighborhoods) during non-allowed hours.

APM-NOI-06 Noise Disturbance. PG&E will comply with local noise limit standards.

APM-UPS-01 Underground Service Alert (USA). PG&E will ensure that the Underground Service Alert (USA) is notified at least 14 days prior to initiation of ground disturbing construction activities. Underground Service Alert verifies the location of all existing underground facilities and alerts other utilities to mark their facilities in the area of anticipated construction activities. Underground utilities will be avoided during construction. Prior to construction, other PG&E facilities (e.g., gas lines) will be identified to ensure there is no construction conflict with the facilities.

APM-TRA-01 Temporary Traffic Controls. Caltrans’ Construction Manual requires temporary traffic control planning “any time the normal function of a roadway is suspended” (Caltrans 2001). To prevent excessive congestion or traffic hazards during lane closures, PG&E will develop traffic diversion plans in compliance with Caltrans’ guidelines and city and county policies for all locations of potential lane closures or width reductions prior to project construction. Construction activities in, along, and crossing local roadways will follow Caltrans’ Best Management Practices to minimize impacts to traffic and transportation in the project area, as detailed in Caltrans manuals for traffic control (Caltrans 2003, 2004, 2006, and 2007). Prior to construction, PG&E will obtain all necessary transportation and/or encroachment permits from local jurisdictions and Caltrans, including those for the SR 4 and I-580 crossings and transport of oversized loads and certain materials.

APM-TRA-02 Traffic and Parking Coordination. PG&E will post signs about lane closures as directed by Caltrans permits, and any county permits.

APM-TRA-03 Traffic Management Plan. PG&E, or its designated representative, will prepare a construction Traffic Management Plan (TMP) that addresses timing of heavy equipment and building material deliveries, signing, lighting, traffic control device placement, guard structures, on-site and off-site parking and staging, construction worker pedestrian public roadway crossing, and establishing work hours outside of peak traffic periods where feasible. Emergency service providers will be notified of the timing, location, and duration of construction activities.

4.0 Initial Study

4.1. Existing Conditions

4.1.1. Existing Electrical System

PG&E owns and operates the existing line, which is located in the City of Pittsburg and unincorporated portions of Contra Costa and Alameda counties. The existing Pittsburg-Tesla 230 kV transmission line is located between Pittsburg Substation, in the City of Pittsburg, and Tesla Substation, in northern Alameda County—a distance of approximately 31 miles. PG&E relies on distribution substations to serve its electric customers. The Pittsburg-Tesla 230 kV line begins at Pittsburg substation located in the City of Pittsburg, Contra Costa County. After leaving the substation, the line runs south for approximately four miles, and then turns east-southeast for 13 miles, crossing Black Diamond Mines Regional Park, portions of the John Marsh State Historic Park, and Marsh Creek Reservoir Dam. The line turns southeast for 14 miles to enter Alameda County, then crosses a western branch of Bethany Reservoir and I-580, to end at Tesla Substation south of Patterson Pass Road. Current demand overloads on this line create difficulties for providing reliable service to the East Bay area.

The proposed project will require replacing the existing conductors with new conductors, and raising 43 of 147 steel lattice towers along approximately 31 miles of the existing 230 kV transmission line between Pittsburg Substation and Tesla Substation.

4.1.2. Local Setting

The project is situated in eastern Contra Costa and Alameda counties near the juncture of three major geographic regions: the San Francisco Bay Area, the Delta, and the Central Valley.

The overall transmission corridor is characterized by steep hillsides, rolling hills, ridgelines, riparian corridors and valleys. The area's hillsides and ridgelines are recognizable landscape features seen from many locations, thus contributing to a strong sense of place and orientation. Elevations along the transmission corridor range from zero to 500 feet.

The local roadway network in the project area includes Deer Valley Road, Kirker Pass Road, Vasco Road, Marsh Creek Road, Altamont Pass Road, and Patterson Pass Road. State Route 4 and I-580 are major highways that provide regional access to local communities (Alameda and Contra Costa County 2010).

4.1.3. Local Land Use

The northernmost two miles of the transmission corridor pass through industrial and residential areas of the City of Pittsburg; a small amount of northern coastal salt marsh is embedded in this otherwise developed landscape. The remainder of the transmission corridor crosses more natural land that is managed for open space and agriculture. Toward the west, most of the hillsides are characterized by a mosaic of natural appearing oak woodlands and grasslands. To the east, hillsides are open grasslands used for cattle ranching.

4.1.4. Natural Resources

The transmission corridor crosses several creeks and other waterways. Creeks include Marsh Creek, Sand Creek, and Brushy Creek meander northeastward, eventually emptying

into the Sacramento Delta. The transmission corridor passes near two reservoirs: Marsh Creek Reservoir in Contra Costa County and Bethany Reservoir in Alameda County.

A number of natural upland and wetland vegetation communities, and man-made developed areas, are present within the transmission corridor. The most dominant community is non-native grassland (Holland 1986). Table 4-1 below summarizes the communities present within the transmission corridor, and habitats that will be impacted by project activities. Table 4-2 presents a detailed breakdown of habitats impacted within the project area.

The sections below provide a discussion of the proposed project's potential impacts to environmental resources.

Table 4-1. Communities and Land Cover Present in the Transmission Corridor

Community or Cover Type	Location	Area
Upland Vegetation Communities		
Non-native grassland	Much of the transmission corridor except spans between towers 1-5, 29-33, 35-44, and 50-53. The majority of pull sites, laydown areas, and guard structures in this habitat.	24.234 acres (Includes 0.007 acre seasonal wetland)
Foothill oak woodland	Present between towers 50-53, and 65-67	--
Chaparral/scrub	Present between towers 29-33, and 35-44	--
Ruderal	Scattered areas beside roads and railroads. Also, landing zone near Pull Site 6 contains ruderal vegetation in a vacant lot.	1.658 acres
Wetland and Riparian Vegetation Communities		
Riparian woodland	Limited distribution, outside the northern boundary of Pull Site 2	--
Cismontane alkaline marsh	Mapped in CNDDB between towers 79 - 87; only observed south of tower 81, outside of project work area boundaries.	--
Claypan vernal pools	Limited distribution and scattered, outside all project work area boundaries.	--
Northern coastal salt marsh	Between towers 2-5, outside project work area boundaries.	--
Man-made wetland	A total of 77 man-made ponds mapped within 0.5 mile of transmission line corridor; one man-made wetland near the northwest corner of Pull Site 2 where feature can be easily avoided.	--
Man-made Development		
Golf Courses	Near Pull Site 2. Also portions of Pull Site 10 in an abandoned golf course.	1.332 acres
Other Development (Industrial, commercial, residential, transportation, etc.)	Common in the northernmost 2 miles of the transmission corridor. Small amounts of development scattered throughout. Pull Sites 1 and 12, and the associated landing zones are in developed areas. Pull Site 3 is partly located on a paved road, and the associated staging area is a gravel lot. Pull Site 8 is partly located in a gravel substation lot, and the landing zone near Pull Site 10 is located in an abandoned asphalt parking lot.	5.232 acres

Table 4-2. Impacts to Land Cover at Work Areas

Contra Costa Co. Work Area (Map in Appendix A)	Area (acres)	"Natural" Area (acres)	Community or Cover Type
Pull Site 1 (1)	1.332	0	Developed - in Pittsburg Substation
Landing Zone 1 (1)	0.893	0	Developed - in Pittsburg Substation
Pull Site 2 (3)	2.665	2.665	Non-native grassland
Landing Zone 2 (3)	0.893	0.893	Non-native grassland
Access Route Pull Site 2 (3)	0.1925	0.1925	Non-native grassland. Seasonal wetland acreage (0.005 acre) included here.
Pull Site 3 (6)	0.8754	0.6901	Non-native grassland and developed (paved road)
Landing Zone Pull Site 3 (6)	1.1000	1.1000	Non-native grassland
Pull Site 4 (10)	2.660	2.660	Non-native grassland (near rocky areas and chaparral)
Access Route Pull Site 4 (10)	0.1607	0.1607	Non-native grassland (near rocky areas and chaparral)
Pull Site 5 (12)	2.660	2.660	Pasture (overgrazed non-native grassland)
Landing Zone 5 (12)	0.893	0.893	Pasture (overgrazed non-native grassland)
Access Route 5 (12)	0.5338	0.5338	Pasture (overgrazed non-native grassland)
Access Route 6 (15)	1.631	0.993	Developed and non-native grassland (0.6379 acre is well-developed native surface road, 0.9929 acre is grassy "track")
Pull Site 6 (15)	1.332	1.332	Non-native rassland
Landing Zone 6 (15)	0.893	0	Ruderal - suburban construction, partly abandoned. Area has been gravelled/compacted.
Pull Site 7 (18)	1.332	1.332	Non-native grassland (previously disturbed)
Access Pull Site 7 (18)	0.1137	0.1137	Non-native grassland (previously disturbed)
Pull Site 8 (21)	1.3398	1.1035	Non-native rassland and developed (0.2363 acre disturbed gravel habitat, 1.1035 acre grassland).
Landing Zone 8 (21)	0.893	0.893	Non-native grassland (edges of gravel road).
SR01 (1)	0.045	0	Ruderal (Willow Pass Road in Pittsburg)
RR02 (1,2)	0.045	0	Ruderal (industrial railroad crossing in Pittsburg)
RR03 (1,2)	0.045	0	Ruderal (industrial Railroad crossing in Pittsburg)

Contra Costa Co. Work Area (Map in Appendix A)	Area (acres)	"Natural" Area (acres)	Community or Cover Type
SR04 (1,2)	0.045	0	Ruderal (Parkside Drive in Pittsburg)
SR05 (2)	0.045	0	Ruderal (Power Avenue in Pittsburg)
HW06 (2)	0.045	0	Ruderal (SR 4 in Pittsburg)
TL07 (2)	0.045	0	Ruderal (Powerline adjacent SR 4 in Pittsburg)
SR08 (2)	0.045	0	Ruderal (Leland Road in Pittsburg)
DL09 (2,3)	0.045	0.045	Ruderal (disturbed grassland near golfcourse)
TL10 (3)	0.045	0.045	Non-native grassland
TL11 (4)	0.045	0.045	Non-native grassland
TL12 (4)	0.045	0.045	Non-native grassland
SR13 (4,5)	0.045	0.045	Ruderal (disturbed edge of Kirker Pass Road)
DL14 (5)	0.045	0.045	Non-native grassland
DL16 (6)	0.045	0.045	Non-native grassland (edge of small park road)
TL15 (6)	0.045	0.045	Non-native grassland
E (8)	0.045	0.045	Non-native grassland
DL18 (13)	0.045	0.045	Non-native grassland
DL19 (13)	0.045	0.045	Ruderal (disturbed edge of Deer Valley Road)
SR37 (13, 14)	0.045	0.045	Non-native grassland
SR38 (16)	0.045	0.045	Ruderal (disturbed edge of Marsh Creek Road)
SR20 (17)	0.045	0.045	Ruderal (disturbed edge of Diablo Camino)
SR21 (18)	0.045	0.045	Ruderal (disturbed edge of Walnut Avenue)
F (19)	0.045	0.045	Non-native grassland
HW22 (23)	0.045	0.045	Ruderal (disturbed edge of Vasco Road)
Contra Costa Co. TOTALS	**23.518**	**18.980**	

Alameda Co. Work Area (Map in Appendix A)	Area (acres)	"Natural" Area (acres)	Community or Cover Type
Pull Site 9 (25)	1.334	1.334	Non-native grassland (0.002 acre seasonal wetland on access included)
Pull Site 10 (28)	1.330	1.330	Abandoned golf course
Landing Zone 10 (28)	0.893	0	Developed (abandoned asphalt parking lot)
Pull Site 11 (30)	2.664	2.664	Non-native grassland
Access Route 11 (30, 31)	0.229	0.229	Non-native grassland (overland travel after end of existing road).

Alameda Co. Work Area (Map in Appendix A)	Area (acres)	"Natural" Area (acres)	Community or Cover Type
Pull Site 12 (30)	0.875	0.292	Non-native grassland and developed (pavement driveway)
Landing Zone 12 (30)	0.893	0	Developed (Tesla Substation)
DL23 (25)	0.045	0.045	Non-native grassland
D (25)	0.045	0.045	Non-native grassland
DL25 (26)	0.045	0.045	Non-native grassland
TL26 (26)	0.045	0.045	Non-native grassland
SR27 (28)	0.045	0.045	Non-native grassland (edge of roadside)
HW28 (28)	0.045	0	Ruderal (Edge of I-580)
DL29 (28,29)	0.045	0.045	Non-native grassland (slightly alkaline)
RR30 (30)	0.045	0.045	Non-native grassland (edge of large railroad)
TL31 (30)	0.045	0.045	Non-native grassland
TL32 (30)	0.045	0.045	Non-native grassland
TL33 (30)	0.045	0.045	Non-native grassland
TL34 (30)	0.045	0.045	Non-native grassland
DL35 (30)	0.045	0	Ruderal/Developed (Patterson Pass Gravel Roadside)
B (25)	0.045	0.045	Non-native grassland
TL24 (25)	0.045	0.045	Non-native grassland
C (25)	0.045	0.045	Non-native grassland (edge of large roadside)
Alameda County TOTALS	**8.938**	**6.479**	

TOTALS	**32.456**	**25.459**	

4.2. Aesthetics

A visual assessment (see Appendix B of this IS/MND) involving analysis of the viewshed surrounding the transmission corridor, and visual simulations of modified towers, was performed in order to inform the four (a-d) IS checklist questions regarding aesthetics below.

Would the project:	**Potentially Significant Impact**	**Less-than-significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

Responses:

(a) Scenic Vistas. The project proposes minor changes to an existing transmission route. The project proposes modifying 43 of 147 of the existing structures on the Pittsburgh-Tesla 230 kV transmission line; several other large transmission lines parallel this line. Although the project route crosses several large roads, simulations conducted demonstrate that the proposed changes will not significantly impact views from these roadways (see Visual Impact Technical Memo, Appendix B of this IS/MND). Towers near most existing scenic route crossings will not be changed; visual simulations of tower modifications in scenic routes and viewsheds indicate only minor impacts that will not be particularly noticeable to the public. Much of the project activities will take place at temporary pull sites, and the locations of these pull sites are generally located outside of areas visible to the general public. Aesthetic mitigation measures are not needed. The project will have **less-than-significant impacts** on scenic vistas.

(b) Scenic Resources. The transmission corridor crosses through Contra Costa County and Alameda County within view of two highways that are eligible for state scenic highways, but not officially designated: SR 4 and I-580 (Caltrans 2010). However, changes will only be made to an existing transmission line with most modifications to towers occurring outside of those scenic routes. Tower modifications will constitute incremental changes that will not be readily noticeable to the public. In addition, proposed temporary project work areas are

located in disturbed or grassland areas that are already cleared of trees, rock outcroppings, and structures.

Only four non-native pepper trees (*Schinus molle*) will be trimmed along the paved access road to Pull Site 3, to allow equipment access. This is a gated road with a small amount of traffic only and no public access.

Therefore, **less-than-significant impacts** to scenic resources including rock outcroppings, trees, and historical buildings will occur.

(c) Visual Character. As discussed above, the proposed project will only modify 43 of the 147 existing towers; in addition, at least one other large transmission line parallels the project along most of its route. The proposed project will have **less-than-significant impacts** on the visual character or quality of the site and its surroundings.

(d) Light and Glare. The addition of 43 tower modifications will result in a less-than-significant impact on the amount of light or glare affecting day or nighttime views in the area. The tower extensions will add a small amount of additional surface area from which the amount of light or glare could increase. In addition, the new metal cage top extensions will temporarily be slightly shinier than the older metal in the remainder of the tower; this difference is expected to last for one to two rainy seasons until the cage top metal weathers. This difference is not expected to be readily noticeable in relation to the existing tower structures. Impacts will be **less-than-significant.**

4.3. Agriculture Resources

Would the project:	**Potentially Significant Impact**	**Less-than-significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X

Responses:

(a) Farmland. The proposed project will only conduct work on an existing transmission route and will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland). Portions of the proposed project are directly adjacent to agricultural land; however, none of the agricultural land will be converted to non-agricultural use due to the temporary proposed work. Therefore, no land use changes will occur as the result of this project. **No impact** is expected as a result of this project.

(b) Ag Zoning and Williamson Act. The proposed project will have no impact on existing zoning for agricultural use, or a Williamson Act contract, as no land will be converted or manipulated in the agriculturally zoned areas of the proposed project or within the areas subject to Williamson Act contract. **No impact** is expected as a result of this project.

(c) Conversion to Non-Agricultural Use. The proposed project will modify towers and replace conductor in an already existing transmission route. This project will not involve other changes to the existing environment or result in the conversion of farmland, to non-agricultural use. Temporary pull sites and landing areas will be used in order to land helicopters, add the tower extensions to towers, and to reconductor the existing line. However, this will only be temporary and will not change any agricultural land to non-agricultural use. Since the project will not involve other changes in the existing environment, which, due to their location or nature, could result in conversion of agricultural land to non-agricultural use, this project will have **no impact** to agricultural lands.

4.4. Air Quality

The Bay Area Air Quality Management District (BAAQMD) CEQA guidelines (BAAQMD 2010) provide a set of screening criteria to assist in the preliminary evaluation of the impacts to air quality as a result of project activities. A screening health risk assessment for toxic air contaminants (TAC's) from the project construction was also conducted. If all the screening criteria are met, the construction of the proposed project is expected to result in a less-than-significant impact from criteria air pollutants and precursor emissions, and no further analysis is required. A quantitative analysis is only required if these screening criteria are exceeded; mitigation is only required if the quantitative thresholds of significance are exceeded. An air quality analysis for this project was conducted by using this screening process. Details of the regulatory framework and the analysis are available in the *PG&E Tesla Reconductoring Project Air Quality Analysis Draft Report,* which is included as Appendix C of this IS/MND.

This air quality analysis found that all potential air quality impacts were less than significant. Although these results do not lead to a requirement for mitigation measures, the applicant has voluntarily proposed implementation of several mitigation measures that would result in minimization of project emissions that, if they had been greater, could have required mitigation. These voluntary APMs are described in sections (a) through (g) below. Therefore, APMs for air quality are listed in this initial study, even though "no impact" and "less than significant impact" findings were reached; they are not included in the MMRP.

The results of that study were used to inform the discussion of the seven (a-g) IS checklist questions regarding air quality below.

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?				X
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?				X
Greenhouse Gas Emissions:				
f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
g) Conflict with any applicable plan, policy or regulation of an agency for the purpose of reducing the emissions of greenhouse gases?			X	

Responses:

(a) Air Quality Plans. The proposed project involves modifying transmission towers and replacing conductors, and will not include any new stationary sources of air pollution. Therefore, this project will not conflict with or obstruct implementation of any applicable air quality plans. This project is expected to have **no impact** on any applicable air quality plan.

(b) Air Quality Standards. Construction of the proposed project may result in the generation of criteria air pollutants, including CO, SO2, PM10, and PM2.5; precursor emissions such as reactive organic gases (ROG), NOx, and greenhouse gasses (GHGs). Sources of these pollutants include emissions from equipment used during construction, commute vehicles, and helicopters.

Emission estimates for the proposed project are based on each construction phase and use the highest projected emission levels for each given pollutant to determine projected daily levels. The highest projected total daily emissions for each pollutant during any of the phase of project construction estimated in 2012 are: CO – 27.9 pounds per day; NO_X -52.5 pounds per day; PM_{10} -2.3 pound per day; $PM_{2.5}$ – 2.1 pound per day; and ROG – 20.1 pounds per day. The highest projected total daily emissions for each pollutant during any of the phase of project construction estimated in 2012 are: CO – 27.5 pounds per day; NO_X -50 pounds per day; PM_{10} -2.2 pound per day; $PM_{2.5}$ – 2 pound per day; and ROG – 11 pounds per day. These emission estimates are below the thresholds established by the BAAQMD CEQA thresholds of significance.

Because the highest projected daily emissions will not exceed emission thresholds set by the BAAQMD, the project will not violate any air quality standard. Nor would it be expected to contribute substantially to an existing or projected air quality violation.

In addition, the application of **APM-AQ-01 Fugitive Dust Controls**, **APM-AQ-03 Carpooling,** and **APM-AQ-02 Construction Equipment Exhaust Reductions** will further minimize the potential for violations from nuisance caused by fugitive dust and exhaust from construction worker vehicles and equipment. Therefore, the project will have a **less-than-significant impact** on air quality.

(c) Non-Attainment Pollutants. Alameda and Contra Costa counties are designated nonattainment for the state and federal ozone standards, the state P_{M10} standard, and the federal $P_{M2.5}$ standard. Construction of the project will result in emissions of ozone precursors (NOx and ROG), P_{M10}, and $P_{M2.5}$. The proposed construction activities are temporary in nature, with negligible emissions that will not exceed locally-adopted significance thresholds. Increases in these emissions will be temporary and will not be expected to result in a cumulatively considerable net increase in ozone, P_{M10}, or $P_{M2.5}$ concentrations. Therefore, the cumulative impact to air quality as a result of this project will be **less-than-significant**.

(d) Sensitive Receptors. For purposes of this evaluation, a “sensitive receptor” is an area where human populations, especially children, seniors, and sick persons, are located, and where there is reasonable expectation of continuous human exposure within air quality standard averaging periods (i.e., 24-hour, eight-hour, and one-hour). Sensitive receptors typically include residences, hospitals, and schools.

The project is not expected to result in substantial emission concentrations as shown in the discussion of construction emissions above. However, diesel particulate matter (DPM) and other TACs can be emitted from construction equipment. Pull Site 2 is within the screening distance of 100 meters of a residential area. Although during construction TAC and $PM_{2.5}$ emissions will be generated from diesel equipment, the proposed project will not expose residential sensitive receptors to continuous or substantial concentrations of TAC or $PM_{2.5,}$ and will not generate any new receptors. Construction activities associated with the proposed project will be relatively short in duration and are not a new source as defined in the BAAQMD CEQA Guidelines.

Construction impacts will be temporary, and with the application of **APM-AQ-01 Fugitive Dust Controls**, **APM-AQ-03 Carpooling,** and **APM-AQ-02 Construction Equipment Exhaust Reductions** (Section 3.6) will further minimize the potential for visible emissions, and nuisance, and minimize exhaust from construction worker vehicles and equipment. Therefore, the project will have a **less-than-significant impact.**

(e) Odors. The types of facilities that could potentially generate odors during operation will be facilities such as industrial plants, refineries, factories or neighborhood businesses; gas station nozzles; idling trucks, transit buses or school buses; or excessive smoke from agricultural fires or other controlled burns (BAAQMD 2011). The proposed project will not create objectionable odors affecting a substantial number of people. Exhaust emissions from construction equipment may result in temporary odors but will not impact the general public due to the relatively remote location of the project. Therefore, there will be no air quality impact. Operation of the project has no potential for generating odors; therefore, no air quality impacts will occur and subsequently no mitigation is required. The project will have **no impact.**

(f,g) Greenhouse Gases. For potential regulatory action, greenhouse gases (GHGs) are generally defined as: carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6). GHG emissions are generally expressed in units of carbon dioxide equivalent (CO_2e). Concentrations of the gases are converted into CO_2e according to their global warming potential (CO_2 = 1.) The most common GHG is CO_2, which constitutes approximately 90 percent of the State GHG emissions (ARB, 2010). For industrial projects like this project, the ARB has developed state-wide interim thresholds of significance for GHG and proposes a quantitative threshold of 7,000 metric tons of CO_2 equivalent ($MTCO_2e$/yr) per year. There are no BAAQMD thresholds of significance for GHG construction emissions.

The principal source of GHG emissions from the proposed project will result from temporary construction activities, namely the burning of fuel required to operate construction equipment and vehicles used for transporting workers, equipment, and supplies. Because the main source of emissions will be internal combustion, the principal GHG produced will be CO_2.

Construction GHG emissions of CO_2 without implementation of APMs were estimated to be 1,359 $MTCO_2e$/yr. This is well below ARBs proposed threshold of 7,000 $MTCO_2e$/yr, as identified in the following table (Table 4-3). However, with implementation of APMs, construction GHG emissions would be reduced to 1,337 $MTCO_2e$/yr.

Table 4-3 Summary of Greenhouse Gas Construction Emissions

	Estimated Emissions (MT/year)	
Construction Phase and Year(s)	**Uncontrolled CO_2**	**Controlled CO_2**
Tower Raising Phase - 2012-13	354	353
Reconductoring Phase – 2012-13	1,005	984
Maximum Annual Emissions – 2012-13	**1,359**	**1,337**
Reconductoring Phase – 2013-14	1,005	984
Maximum Annual Emissions – 2013-14	**1,005**	**984**
Project Maximum Annual Emissions	**1,359**	**1,337**

Note: Maximum daily emissions occur in 2012-13.

APM GHG-1 actions quantified include: using 1 compressed natural gas-fueled pickup truck for each construction phase and assuming a 1 percent reduction in worker commute emissions due to carpooling initiatives.

Source: Air Quality Report (March 2011). Year data has been updated to reflect current proposed schedule.

GHG emissions resulting from project construction are short term. The estimated GHG emissions from project construction are below CARB's proposed threshold and in addition

will be an inconsequentially small fraction of California's annual GHG emissions during the brief construction period. The project impacts relative to GHG emissions and contribution to climate change are considered **less-than-significant** and there will be **no impact** associated with applicable plan, policy or regulations.

Nevertheless, PG&E will further reduce CO2 emissions by implementing **APM-AQ-01** fugitive dust control measures, **APM-AQ-02** provides construction equipment operation hours are expected to be reduced by 1 hour per day, by minimizing the idling limit to less than 5 consecutive minutes, and **APM-AQ-03** (Section 3.6) encouraging PG&E employees and construction workers to carpool.

4.5. Biological Resources

Background research and biological field surveys were conducted to determine the potential for impacts to special status wildlife and plant species, including federally- and state-listed species, and USFWS-designated critical habitat. The results of these efforts are included in a biological assessment (included as Appendix D of this IS/MND), technical memos regarding rare plants (included as Appendix E), and a constraints analysis (included as Appendix F). Methods included records searches, habitat-level wildlife surveys, and seasonally-timed floristic plant surveys performed in spring and summer of 2008, and early summer of 2009. A wetland delineation (included as Appendix G) was also conducted in specific areas where modifications to potential access roads would require impacts to wetlands (temporary fill of 0.007 acre of seasonal wetland). Habitat assessments for California tiger salamander (*Ambystoma californiese*) and California black rail (*Laterallus jamaicensis cortuniculus*) were performed in February and March 2012 (included as Appendices K and L of this IS/MND).

The results from these studies were used to inform the six (a-f) IS checklist questions regarding biology below. With the additional avoidance and protection measures incorporated, impacts to biological resources will be minimal.

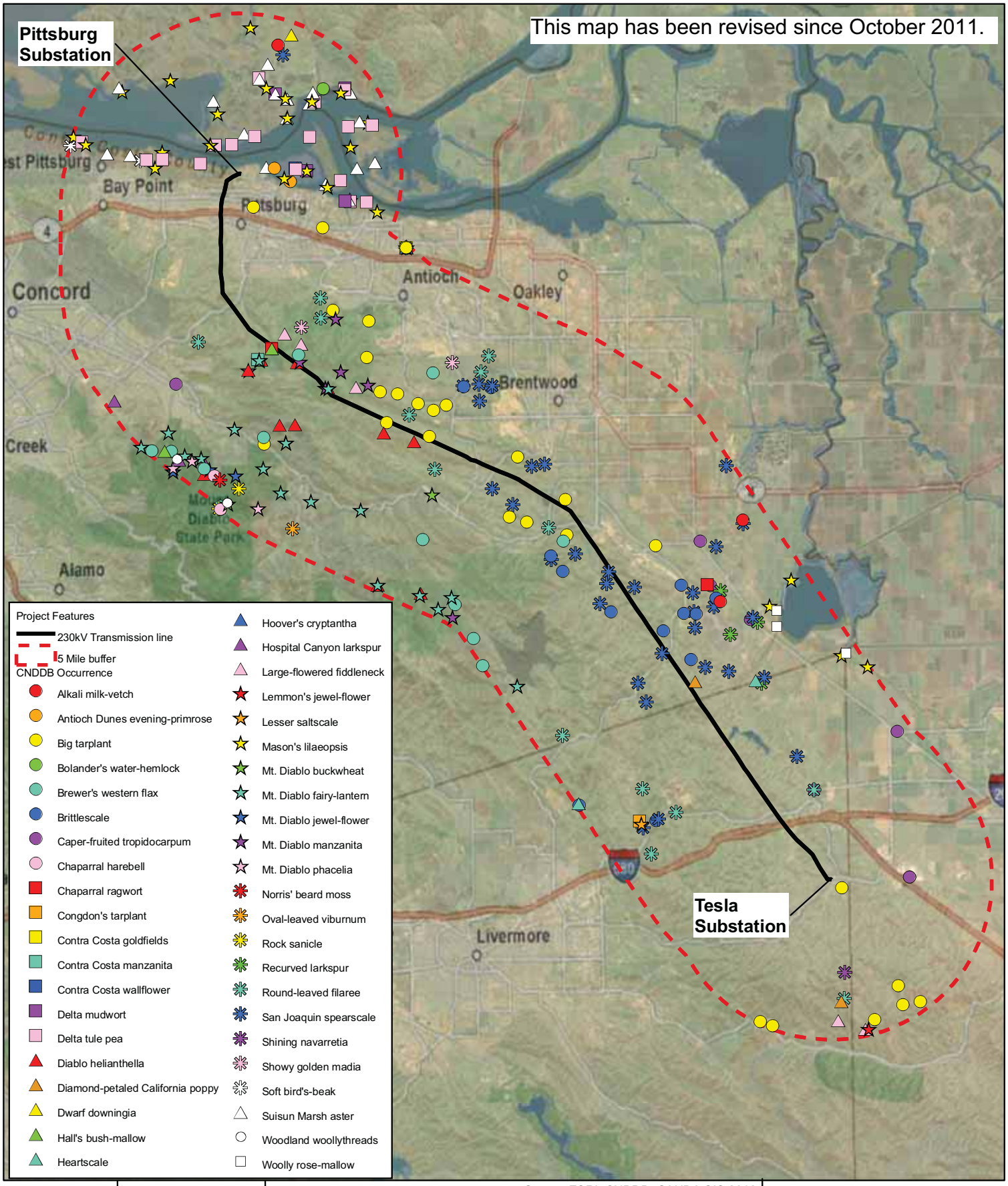
Would the project:	**Potentially Significant Impact**	**Less-than-significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?				X
c) Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filling, hydrological interruption, or other means?		X		
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Responses:

(a) Special status Species

A review of background information identified a total of 126 special status species (71 plants and 55 animals, see Tables 4-4 and 4-5) known from the quads in which the project lies, and the adjacent quads. Focused surveys were performed in late spring and early summer of 2008, the spring of 2009, and early 2012, which identified that the project corridor has the potential to support 22 federally and/or state listed species (refer to Appendices D, E, F, K and L of this IS/MND for these studies). Nine of these species are plants, and the remaining 13 are animals. Figures 4-1A and 4-1B depict CNDDB records of special status



Source: ESRI; CNDDB; GANDA GIS 2012

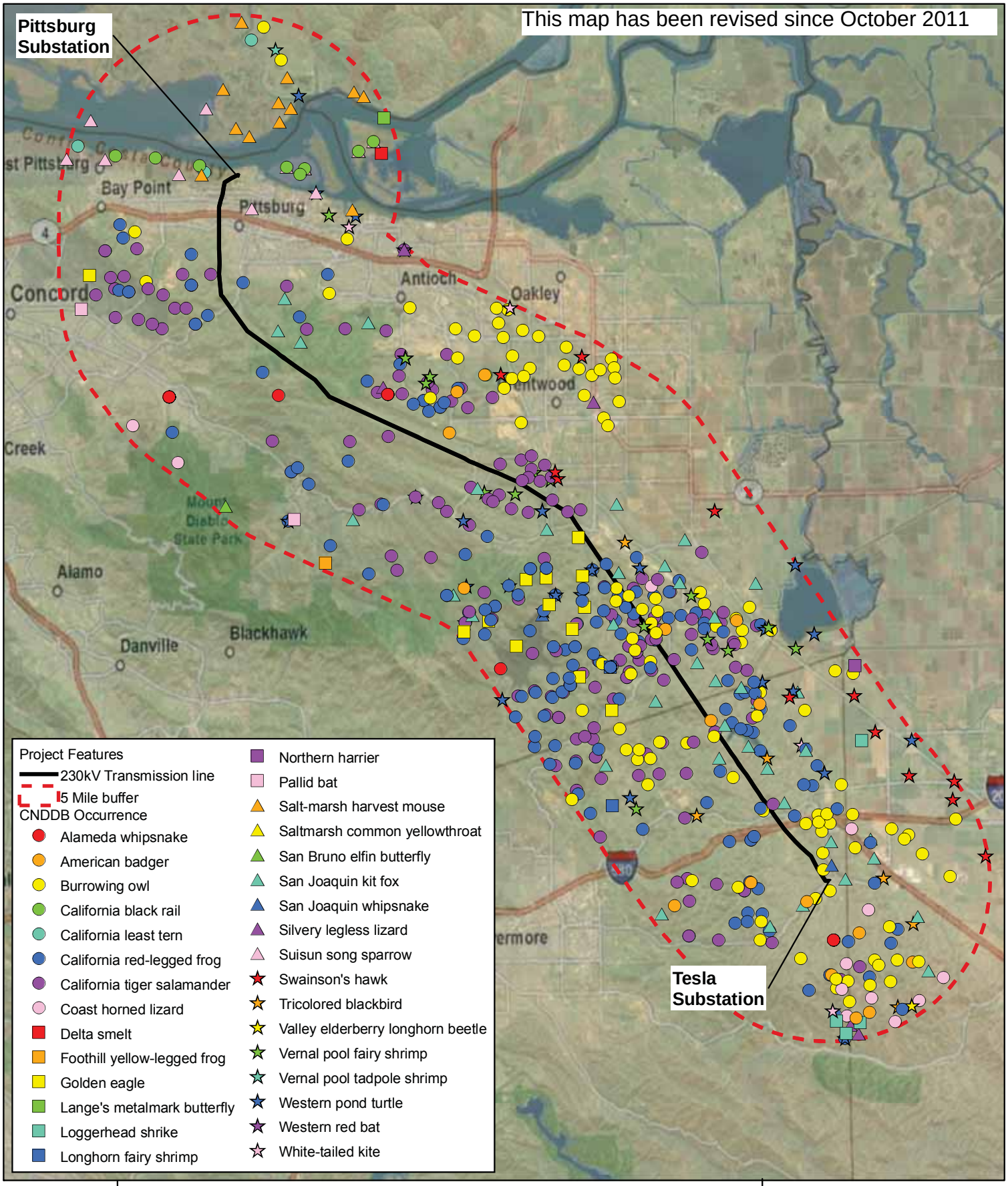
GANDA

0 4 Miles

Figure 4-1A
CNDDB Plant Occurrences

March 2012
Alameda and Contra Costa Counties, CA

Privileged and Confidential - Attorney Work Product



GANDA

Source: ESRI; CNDDB; GANDA GIS 2012

0 4 Miles

Figure 4-1B
CNDDB Animal Occurrences

March 2012
Alameda and Contra Costa Counties, CA

Privileged and Confidential - Attorney Work Product

plant and animal species known from within five miles of the Pittsburg-Tesla transmission line.

Special status plant and animal species are discussed in the following paragraphs. The proposed project is under review with the USFWS for impacts to federally listed species, as specified by the federal Endangered Species Act, and CDFG as specified by the California Endangered Species Act.

SPECIAL STATUS[3] PLANTS

Listed Plants. Based on the 2008 and 2009 floristic surveys, the project corridor has the potential to support nine federally and/or state listed plant species (see Table 4-4): large-flowered fiddleneck (*Amsinckia grandiflora,* federally and state endangered), Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*, federally endangered), soft bird's-beak (*Cordylanthus mollis* ssp. *mollis*, federally endangered and state rare), palmate-bracted bird's-beak (*Cordylanthus palmatus*, federally and state endangered), Contra Costa goldfields (*Lasthenia conjugens*, federally endangered), Delta button-celery (*Eryngium racemosum*, state endangered), Mason's lilaeopsis (*Lilaeopsis masonii*, state rare), Colusa grass (*Neostapfia colusana,* federally threatened and state endangered), and rock sanicle (*Sanicula saxatilis*, state rare). None of these listed plant species were observed during seasonally-timed[4] floristic surveys of areas with planned ground disturbance (Appendices D and E of this IS/MND).

In 2006, the USFWS designated critical habitat for Contra Costa goldfields in Contra Costa County between Byron Highway and Vasco Road (USFWS 2006a). A small sliver of the edge of the study area (approximately 0.250 acres) around the access route to Pull Site 8 is included in this designated critical habitat; neither the access route or pull site are located in critical habitat. Equipment will temporarily (for approximately one month) drive within 50 feet of this habitat on an existing heavy-duty gravel road.

Other Special Status Plants. Non-listed special status plant species are addressed in Table 4-4. During floristic surveys, one special status plant species was located near an area of ground disturbance during project surveys: round-leaved filaree (*California macrophylla*, California Rare Plant Rank 1B.1). Nine flowering plants were observed in a drainage at Pull Site 2 (see Appendix A, Map 3, Table 4-6). Prior to construction, this population will be marked for avoidance. Construction personnel will be required to avoid this occurrence.

[3] "Special status plants" refers to species that are listed in the federal and California state endangered species acts (ESA and CESA), state rare species, and those with California Rare Plant Ranks (same as California Native Plant Society Lists) of 1 or 2.

[4] Surveys took place May 13-16 and 20, July 22-23, and August 25, 2008. These late season surveys were followed by early spring surveys April 6,7,8 2009. An additional repeat survey took place at Pull Site 2 on March 26, 2010, in conjunction with a wetland delineation.

Table 4-4 Special status Plant Species from Background Research

Common Name/ *Scientific Name* Bloom period	**Status (Federal / State /CRPR)**	**Habitat Requirements and Potential**
large-flowered fiddleneck *Amsinckia grandiflora* April-May	FE / CE / 1B.1	•Cismontane woodland •Valley and foothill grassland Occurrences from under line and within 1/2 mile buffer. Suitable habitat in work areas.
bent-flowered fiddleneck *Amsinckia lunaris* March-June	-- / -- / 1B.2	•Coastal bluff scrub •Cismontane woodland •Valley and foothill grassland Suitable habitat in work areas.
slender silver-moss *Anomobryum julaceum*	-- / -- / 2.2	•Broadleafed upland forest •Lower montane coniferous forest •North Coast coniferous forest /damp rock and soil on outcrops, usually on roadcuts Occurrences within 1/2 mile buffer. No suitable habitat in work areas.
Mt. Diablo manzanita *Arctostaphylos auriculata* January-March	-- / -- / 1B.3	•Chaparral (sandstone) •Cismontane woodland Occurrences from adjacent to line and 1/2 mile buffer. No suitable habitat in work areas.
Contra Costa manzanita *Arctostaphylos manzanita* ssp. *laevigata* January-March (April)	-- / -- / 1B.2	•Chaparral (rocky) Occurrences from project quads. No suitable habitat in work areas.
alkali milk-vetch *Astragalus tener* var. *tener* March-June	-- / -- / 1B.2	•Playas •Valley and foothill grassland (adobe clay) •Vernal pools /alkaline Occurrences from project quads. Minimally suitable habitat in work areas (clay grassland).
Heartscale *Atriplex cordulata* April-October	-- / -- / 1B.2	•Chenopod scrub •Meadows and seeps •Valley and foothill grassland (sandy)/saline or alkaline No alkaline grassland in work areas.
brittlescale *Atriplex depressa* May-October	-- / -- / 1B.2	•Chenopod scrub •Meadows and seeps •Playas •Valley and foothill grassland •Vernal pools /alkaline, clay Occurrences from within ½ mile buffer of line. No alkaline grassland in work areas.
San Joaquin spearscale *Atriplex joaquiniana* April-October	-- / -- / 1B.2	•Chenopod scrub •Meadows and seeps •Playas •Valley and foothill grassland/alkaline Occurrences from under line and within ½ mile buffer of line. No alkaline grassland in work areas.

Common Name/ *Scientific Name* Bloom period	**Status (Federal / State /CRPR)**	**Habitat Requirements and Potential**
vernal pool smallscale *Atriplex persistens* June-October	-- / -- / 1B.2	•Vernal pools (alkaline) No suitable habitat in work areas.
big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis* March-June	-- / -- / 1B.2	•Chaparral •Cismontane woodland •Valley and foothill grassland /sometimes serpentinite Minimally suitable habitat in work areas (grassland).
big tarplant *Blepharizonia plumosa* July-October	-- / -- / 1B.1	•Valley and foothill grassland Occurrences along line and in 1 mile line buffer. Extensive suitable habitat in work areas.
round-leaved filaree *California macrophylla* March-May	-- / -- / 1B.1	•Cismontane woodland •Valley and foothill grassland /clay Occurrences within 1/2 mile buffer. Suitable habitat in work areas. Located near Pull Site 2.
Mt. Diablo fairy-lantern *Calochortus pulchellus* April-June	-- / -- / 1B.2	•Chaparral •Cismontane woodland •Riparian woodland •Valley and foothill grassland Occurrences from project quads. Suitable habitat in work areas.
Butte County morning-glory *Calystegia atriplicifolia* ssp. *buttensis* May-July	-- / -- / 1B.2	•Chaparral •Lower montane coniferous forest /rocky, sometimes roadside Occurrences from project quads. No suitable habitat in work areas.
chaparral harebell *Campanula exigua* May-June	-- / -- / 1B.2	•Chaparral (rocky, usually serpentinite) Occurrences from project quads. No suitable habitat in work areas.
fox sedge *Carex vulpinoidea* May-June	-- / -- / delisted from 2.2	•Marshes and swamps (freshwater) •Riparian woodland No suitable habitat in work areas.
Lemmon's jewelflower *Caulanthus coulteri* var. *lemmonii* March-May	-- / -- / 1B.2	•Pinyon and juniper woodland •Valley and foothill grassland Occurrences from project quads; thought to be extirpated from both counties. Suitable habitat in work areas.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii* May-October (November)	-- / -- / 1B.2	•Valley and foothill grassland (alkaline) Occurrences from project quads. Grassland in area not alkaline.

Common Name/ *Scientific Name* Bloom period	**Status (Federal / State /CRPR)**	**Habitat Requirements and Potential**
pappose tarplant *Centromadia parryi* ssp. *parryi* May-November	-- / -- / 1B.2	•Chaparral •Coastal prairie •Meadows and seeps •Marshes and swamps (coastal salt) •Valley and foothill grassland (vernally mesic)/often alkaline No mesic alkaline grassland in work areas.
Bolander's marsh-hemlock* *Cicuta maculata* var. *bolanderi* July-September	-- / -- / 1B.2	•Marshes and swamps (coastal) with fresh or brackish water. No suitable habitat in work areas.
Suisun thistle *Cirsium hydrophilum* var. *hydrophilum* July-September	FE / -- / 1B.1	•Marshes and swamps (salt) No suitable habitat in work areas.
hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus* June-September	-- / -- / 1B.1	•Meadows and seeps •Playas •Valley and foothill grassland /alkaline No mesic/alkaline grassland in work areas.
soft bird's-beak *Cordylanthus mollis* ssp. *mollis* July-November	FE / CR / 1B.2	•Marshes and swamps (coastal salt) Occurrences from project quads. No suitable habitat in work areas.
Mt. Diablo bird's-beak *Cordylanthus nidularius* July-August	-- / CR / 1B.1	•Chaparral (serpentinite) Occurrences from project quads. No suitable habitat in work areas.
palmate-bracted bird's-beak *Cordylanthus palmatus* May-October	FE / CE / 1B.1	•Chenopod scrub •Valley and foothill grassland /alkaline No alkaline habitats in work areas.
Hoover's cryptantha *Cryptantha hooveri* April-May	-- / -- / 1A	•Inland dunes •Valley and foothill grassland (sandy) •9 - 150 meters Assumed extirpated, not seen since 1983. Suitable habitat present at Pull Site 4.
Livermore tarplant *Deinandra bacigalupi* June-October	-- / -- / 1B.2	•Meadows and seeps (alkaline) No alkaline meadows and seeps presen in work areas.
Hospital Canyon larkspur *Delphinium californicum* ssp. *interius* April-June	-- / -- / 1B.2	•Chaparral (openings) •Cismontane woodland (mesic) Occurrences from project quads. No suitable habitat in work areas.

Common Name/ *Scientific Name* Bloom period	**Status (Federal / State /CRPR)**	**Habitat Requirements and Potential**
recurved larkspur *Delphinium recurvatum* March-June	-- / -- / 1B.2	•Chenopod scrub •Cismontane woodland •Valley and foothill grassland /alkaline Occurrences from project quads. Only minimally suitable habitat in work areas.
Norris' beard-moss *Didymodon norrisii*	-- / -- / 2.2	•Cismontane woodland •Lower montane coniferous forest /intermittently mesic, rock No suitable habitat in work areas. Occurrences from project quads
dwarf downingia *Downingia pusilla* March-May	-- / -- / 2.2	•Valley and foothill grassland (mesic) •Vernal pools Only small amount of minimally suitable habitat at Pull Site 2 access route (0.0005 acre).
Brandegee's eriastrum *Eriastrum brandegeeae* April-August	-- / -- / 1B.2	•Chaparral •Cismontane woodland /volcanic, sandy Occurrences from project quads. No suitable habitat in work areas.
Mt. Diablo buckwheat *Eriogonum truncatum* April-September (November to December)	-- / -- / 1B.1	•Chaparral •Coastal scrub •Valley and foothill grassland /sandy Occurrences from project quads. Somewhat suitable habitat present at Pull Site 4.
Delta button-celery *Eryngium racemosum* June-September	-- / CE / 1B.1	•Riparian scrub (vernally mesic clay depressions) No suitable habitat present in work areas.
Contra Costa wallflower *Erysimum capitatum* ssp. *angustatum* March-July	FE / CE / 1B.1	•Inland dunes No suitable habitat present in work areas.
diamond-petaled California poppy *Eschscholzia rhombipetala* March-April	-- / -- / 1B.1	•Valley and foothill grassland (alkaline, clay) Occurrences from under line and within 1/2 mile buffer. Somewhat suitable habitat present in work areas (clay grassland).
fragrant fritillary *Fritillaria liliacea* February-April	-- / -- / 1B.2	•Cismontane woodland •Coastal prairie •Coastal scrub •Valley and foothill grassland /often serpentinite Occurrences from project quads. Grassland habitat abundant in work areas, but no serpentinite. Somewhat suitable habitat present.

Common Name/ *Scientific Name* Bloom period	**Status (Federal / State /CRPR)**	**Habitat Requirements and Potential**
Diablo helianthella *Helianthella castanea* March-June	-- / -- / 1B.2	•Broadleafed upland forest •Chaparral •Cismontane woodland •Coastal scrub •Riparian woodland •Valley and foothill grassland Occurrences under line and within 1/2 mile buffer. Suitable habitat present in work areas.
Brewer's western flax *Hesperolinon breweri* May-July	-- / -- / 1B.2	•Chaparral •Cismontane woodland •Valley and foothill grassland /usually serpentinite Occurrences from within ½ mile buffer of line. Somewhat suitable habitat present (no serpentinite).
Napa western flax *Hesperolinon serpentinum* May-July	-- / -- / 1B.1	•Chaparral/ serpentinite Known from the Los Vasqueros area. No suitable habitat present in work areas.
rose-mallow *Hibiscus lasiocarpus (*now var. *occidentalis*) June-September	-- / -- / uplisted from 2.2 to 1B.2	•Marshes and swamps (freshwater) Occurrences from project quads. No suitable habitat present in work areas.
Carquinez goldenbush *Isocoma arguta* August-December	-- / -- / 1B.1	•Valley and foothill grassland (alkaline) Occurrences from project quads; species thought to be extirpated from both counties. No alkaline grassland present in work areas.
Northern California black walnut *Juglans hindsii* April-May	-- / -- / 1B.1	•Riparian forest and woodland Protections only to native occurrences. Native occurrences known from Marsh Creek Area. Not present in work areas.
Contra Costa goldfields *Lasthenia conjugens* March-June	FE / -- / 1B.1	•Cismontane woodland •Playas (alkaline) •Valley and foothill grassland •Vernal pools /mesic Known from project quads. Somewhat suitable habitat in grassland (although mesic area only at Pull Site 2 access route – 0.0005 acre).
Delta tule pea *Lathyrus jepsonii* var. *jepsonii* May-July (September)	-- / -- / 1B.2	•Marshes and swamps (freshwater and brackish) Known from project quads. No suitable habitat present in work areas.
Legenere *Legenere limosa* April-June	-- / -- / 1B.1	•Vernal pools No suitable habitat present in work areas.

Common Name/ *Scientific Name* Bloom period	**Status (Federal / State /CRPR)**	**Habitat Requirements and Potential**
Mason's lilaeopsis *Lilaeopsis masonii* April-November	-- / CR / 1B.1	•Marshes and swamps (brackish or freshwater) •Riparian scrub Known from project quads. No suitable habitat present in work areas.
Delta mudwort *Limosella subulata* May-August	-- / -- / 2.1	•Marshes and swamps Known from project quads. No suitable habitat present in work areas.
showy madia *Madia radiata* March-May	-- / -- / 1B.1	•Cismontane woodland •Valley and foothill grassland Known from project quads; thought to be extirpated from both counties. Abundant suitable habitat present in work areas.
Hall's bush mallow *Malacothamnus hallii* May-September (October)	-- / -- / 1B.2	•Chaparral •Coastal scrub Known from project quads. No suitable habitat present in work areas.
robust monardella *Monardella villosa* ssp. *globosa* June-July (August)	-- / -- / 1B.2	•Broadleafed upland forest (openings) •Chaparral (openings) •Cismontane woodland •Coastal scrub •Valley and foothill grassland Suitable habitat (grassland) present in work areas.
Woodland woollythreads* *Monolopia gracilens* February-July	-- / -- / 1B.2	•Serpentine endemic •Broadleafed upland forest (openings) •Chaparral (openings) •Cismontane woodland •North coast coniferous forest (openings) •Valley and foothill grassland No suitable serpentine habitat present in work areas.
Shining navarettia* *Navarettia nigelliformis* ssp. *radians* April-July	-- / -- / 1B.2	•Cismontane woodland •Valley and foothill grassland •Vernal pools Known from within five miles. Suitable habitat present (grassland) but no vernal pools in work areas.
Colusa grass *Neostapfia colusana* May-August	FT / CE / 1B.1	•Vernal pools (adobe, large) No suitable habitat present in work areas.
Antioch Dunes evening-primrose *Oenothera deltoides* ssp. *howellii* March-September	FE / CE / 1B.1	•Inland dunes Known from project quads. No suitable habitat present in work areas.
Mt. Diablo phacelia *Phacelia phacelioides* April-May	-- / -- / 1B.2	•Chaparral •Cismontane woodland /rocky Known from project quads. No suitable habitat present in work areas.

Common Name/ *Scientific Name* Bloom period	**Status (Federal / State /CRPR)**	**Habitat Requirements and Potential**
hairless popcorn-flower *Plagiobothrys glaber* March-May	-- / -- / 1A	•Meadows and seeps (alkaline) •Marshes and swamps (coastal salt) Thought to be extirpated. No suitable habitat present in work areas.
bearded popcorn-flower *Plagiobothrys hystriculus* April-May	-- / -- / 1B.1	•Valley and foothill grassland (mesic) •Vernal pools margins/often vernal swales Suitable habitat present at Pull Site 2 access.
eel-grass pondweed *Potamogeton zosteriformis* June-July	-- / -- / 2.2	•Marshes and swamps (assorted freshwater) No suitable habitat present in work areas.
rock sanicle *Sanicula saxatilis* April-May	-- / CR / 1B.2	•Broadleafed upland forest •Chaparral •Valley and foothill grassland /rocky Known from project quads. Somewhat suitable habitat present (grassland).
marsh skullcap *Scutellaria galericulata* June-September	-- / -- / 2.2	•Lower montane coniferous forest •Meadows and seeps (mesic) •Marshes and swamps No suitable habitat in work areas.
rayless ragwort *Senecio aphanactis* January-April	-- / -- / 2.2	•Chaparral •Cismontane woodland •Coastal scrub/sometimes alkaline Known from under line and 1/2 mile buffer. No suitable habitat present in work areas.
most beautiful jewel-flower *Streptanthus albidus* ssp. *peramoenus* (March) April-September (October)	-- / -- / 1B.2	•Chaparral •Cismontane woodland •Valley and foothill grassland /serpentinite Known from project quads. No serpentinite grassland present in work areas.
Mt. Diablo jewel-flower *Streptanthus hispidus* March-June	-- / -- / 1B.3	•Chaparral •Valley and foothill grassland /rocky Known from project quads. Somewhat suitable habitat in work areas (grassland, not rocky).
Lemmon's jewel-flower* *Streptanthus lemmonii* March-May	-- / -- / 1B.2	•Pinyon and juniper woodland •Valley and foothill grassland Known from within five miles. Suitable habitat in work areas.
Suisun Marsh aster *Aster lentus* May-November	-- / -- / 1B.2	•Marshes and swamps (brackish and freshwater) Known from project quads. No suitable habitat in work areas.
saline clover *Trifolium depauperatum* var. *hydrophilum* April-June	-- / -- / 1B.2	•Marshes and swamps •Valley and foothill grassland (mesic, alkaline) •Vernal pools No suitable habitat in work areas.
coastal triquetrella *Triquetrella californica*	-- / -- / 1B.2	•Coastal bluff scrub •Coastal scrub /soil No suitable habitat in work areas.

Common Name/ *Scientific Name* Bloom period	**Status (Federal / State /CRPR)**	**Habitat Requirements and Potential**
caper-fruited tropidocarpum *Tropidocarpum capparideum* March-April	-- / -- / 1B.1	•Valley and foothill grassland (alkaline hills) Known from within 1/2 mile buffer of line. Thought to be extirpated from both counties. Somewhat suitable habitat in grassland, but no particular alkaline soils.
oval-leaved viburnum *Viburnum ellipticum* May-June	-- / -- / 2.3	•Chaparral •Cismontane woodland •Lower montane coniferous forest Known from project quads. No suitable habitat in work areas.

Information for this table was obtained from CNPS 2007, 2012 and Lake 2004. Months in (parentheses) are uncommon. Plants with * are those reported in CNPS or CNDDB after the 2008-2009 surveys.

Federal

FE = Listed as Endangered under the federal Endangered Species Act
FT = Listed as Threatened under the federal Endangered Species Act

State

CE = Listed as endangered under the California Endangered Species Act
CT = Listed as threatened under the California Endangered Species Act
CR = Listed as Rare in California

CRPR (California Rare Plant Rank, formerly CNPS rank)

List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere

Extension codes:

.3 = Not very endangered in California
.2 = Fairly endangered in California
.1 = Seriously endangered in California

Table 4-5 Special status Animal Species from Background Research

Common name/ Scientific name	Status (Federal/ State)	Habitat Requirements and Potential
Green sturgeon *Acipenser medirostris*	FT	• Spawns in the Sacramento River and Klamath River • Spawning substrate is typically large cobble, but can change from clean sand to large bedrock. Occurrences from project quads. No suitable habitat in work areas.
western pond turtle *Actinemys marmorata*	SC	• Thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. • Need basking sites and suitable upland habitat (sandy banks or grassy open fields) for egg-laying. Occurrences within ½ mile of line. Suitable upland habitat at Pull Site 7 and access (adjacent perennial stream) 1.4457 acres.
tricolored blackbird *Agelaius tricolor*	SC	• Highly colonial species. • Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony. Occurrences within ½ mile. No suitable habitat in work areas.
California tiger salamander *Ambystoma californiense*	FT/CT	• Needs underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding. • Critical habitat proposed for listing Occurrences under line and within ½ mile. 25.459 acres suitable upland habitat within work areas; no suitable breeding habitat within work areas.
silvery legless lizard *Anniella pulchra pulchra*	SC	• Habitat is sandy or loose loamy soils under sparse vegetation. • Prefers soils with a high moisture content. Occurrences from project quads. Suitable habitat present in work areas, particularly Pull Site 4.
pallid bat *Antrozous pallidus*	SC	• Deserts, grasslands, shrublands, woodlands, and forests. • Most common in open, dry habitats with rocky areas for roosting. Occurrences from project quads. May fly through work areas to forage. Suitable roosting habitat not present in work areas, and no roosting habitat will be removed.
Lange's metalmark butterfly *Apodemia mormo langei*	FE	• Inhabits stabilized dunes along the San Joaquin River. • Endemic to the Antioch Dunes in Contra Costa County. • Primary host plant is *Eriogonum nudum* var. *auriculatum.* Suitable habitat not present in work areas.

Common name/ Scientific name	Status (Federal/ State)	Habitat Requirements and Potential
golden eagle *Aquila chrysaetos*	SC	• Inhabits rolling foothills, mountain areas, sage-juniper flats, and desert. • Uses large trees in open areas, or cliff walled canyons. Occurrences from project quads. Several records within five miles work areas. Records of six current golden eagle territories and/or nests from within 1 mile of the Pittsburg Tesla Line. Species observed during habitat level surveys.
Sacramento perch *Archoplites interruptus*	SC	• Historically found in the sloughs, slow-moving rivers, and lakes of the central valley. • Prefer warm water. • Young require aquatic vegetation. • Species tolerates a wide range of physico-chemical water conditions. No suitable habitat present in work areas.
short-eared owl *Asio flammeus*	SC	• Found in both fresh- and salt swamplands, lowland meadows, and irrigated alfalfa fields. • Requires tule patches or tall grass for nesting and daytime seclusion. • Nests on dry ground in depressions that are concealed in vegetation. Occurrences from project quads. Work areas have generally low grassland with little cover. Low potential in work areas.
burrowing owl *Athene cunicularia*	SC	• Requires open, low-growing vegetation such as dry annual or perennial grasslands, deserts and scrublands. Occurrences from under line and within ½ mile. Suitable habitat (short grassland) present at Pull Sites 2, 4, 5, 6, 7, 8, 9, 10, 11, and staging areas near Pull Sites 2, 3, 5, and 8. Approximately 25.459 acres suitable habitat in work areas.
Conservancy fairy shrimp *Branchinecta conservatio*	FE	• Species is endemic to the grassland of the northern two-thirds of the central valley • Typically found in large, turbid pools. • Inhabit astatic pools located in swales formed by old, braided alluvium and filled by winter/spring rains, that typically last until June. • Critical habitat proposed Occurrences known from project quads. No suitable habitat within, or within 250 feet of work areas.
longhorn fairy shrimp *Branchinecta longiantenna*	FE	• Inhabit astatic grassland vernal pools. • Typically require small, clear-water depression in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales. • Critical habitat proposed Occurrences from project quads. No suitable habitat within, or within 250 feet of work areas.

Common name/ Scientific name	Status (Federal/ State)	Habitat Requirements and Potential
vernal pool fairy shrimp *Branchinecta lynchi*	FT	• Inhabit astatic rain-filled pools. • Typically require small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools. • Critical habitat designated Occurrences from under line and within ½ mile. Pull Site 6, access route, and landing zone within critical habitat (approximately 4.419 acres total, and 2.370 acres "natural" habitats). Access road to Pull Site 8 crosses critical habitat (0.250 acre). However, no suitable habitat within or within 250 feet of work areas.
ferruginous hawk *Buteo regalis*	SC	• Open grasslands, sagebrush flats, desert scrub, how foothills and fringes of pinyon-juniper habitats. • Occurrences from project quads Suitable foraging habitat within work areas. Birds may nest within 1,000 feet of work areas.
Swainson's hawk *Buteo swainsoni*	CT	• Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural/ranch habitats. • Requires adjacent suitable foraging areas such as grasslands or alfalfa or grain fields supporting rodent populations. Occurrences from line and within ½ mile. Species observed during project surveys and visits. Potential for nesting within 1,000 feet of work areas.
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE	• Inhabits coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain in San Mateo County. • Colonies are located on steep, north-facing slopes within the fog belt. • Larval host plant is *Sedum spathulifolium.* Occurrences in project quads. No suitable foraging plants observed in project work areas. Somewhat out of range. Not expected.
northern harrier *Circus cyaneus*	SC	• Inhabits coastal salt and freshwater marsh. • Nests and forages in grasslands, from slat grass in desert sink to mountain cienagas. • Nests on the ground in shrubby vegetation, usually at marsh edges; nests built of a large mound of sticks in wet areas. Occurrences from under line and within ½ mile. Harriers may forage within work areas, but suitable nesting habitat not present within them. May nest in other suitable places under line.

Common name/ Scientific name	Status (Federal/ State)	Habitat Requirements and Potential
Townsend's big-eared bat *Corynorhinus townsendii*	SC	• Throughout California in a wide variety of habitats. Most common in mesic sites. • Roosts in the open, hanging from walls and ceilings. Roosting sites are limiting. • Extremely sensitive to human disturbance. May fly through work areas to forage. Suitable roosting habitat not present in work areas, and no roosting habitat will be removed
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	• Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*) below 3,000 feet. Occurrences within project quads. Shrub adjacent Chadbourne Road on way to Pull Site 4, and 70 feet north of guard structure SR37.
white-tailed kite *Elanus leucurus*	no take	• Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. • Inhabits open grasslands, meadows, or marshes for foraging, close to isolated, dense-topped trees for nesting and perching. Occurrences from project quads and within five miles. Observed during surveys. Potential for foraging in work areas. Potential for nesting within 1,000 feet.
Delta green ground beetle *Elaphrus viridis*	FT	• Critical habitat proposed • Occurrences within project quads.
California horned lark *Eremophila alpestris actia*	SC	• Known from coastal regions. • Inhabits short-grass prairie, “bald” hills, mountain meadows, open coastal plains, fallow grain fields, and alkali flats. Occurrences from within ½ mile of line. Suitable habitat present in work areas.
western mastiff bat *Eumops perotis californicus*	SC	• Inhabits many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. • Roosts in crevices in cliff faces, high buildings, trees and tunnels. May fly through work areas to forage. Suitable roosting habitat not present in work areas, and no roosting habitat will be removed
prairie falcon *Falco mexicanus*	SC	• Inhabits dry, open terrain, either level or hilly. • Breeding sites located on cliffs. • Forages far afield, even to marshlands and ocean shores. Occurrences from line and within ½ mile. May pass through work areas and forage, but no suitable nesting habitat observed.

Common name/ Scientific name	Status (Federal/ State)	Habitat Requirements and Potential
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	SC	• Resident of the San Francisco Bay Region, in fresh and salt water marshes.. • Requires thick, continuous vegetation cover down to water surface for foraging, and tall grasses, tule patches, and willows for nesting. Occurrences from project quads. No suitable habitat nesting or foraging habitat within work areas. Some suitable habitat present at three towers with helicopter work only.
Delta Smelt *Hypomesus transpacificus*	FT/CT	• Inhabits the Sacramento-San Joaquin Delta; seasonally known from Suisun Bay, Carquinez Strait, and San Pablo Bay. • Critical habitat designated No suitable habitat present in work areas. Designated critical habitat at Pull Site 1 and associated landing zone, Pull Site 2 and associated access, and eight guard structures (6.336 acres total, 3.796 acres "natural" habitats). All of these are upland sites.
loggerhead shrike *Lanius ludovicianus*	SC	• Known from broken woodlands, savannah, pinyon-juniper, Joshua tree woodlands, riparian woodlands, and desert oases, scrub, and washes. • Requires fairly dense shrubs and brush for nesting. • Occurrences from project quads Shrikes may past through or forage in work areas, but suitable nesting habitat not present.
western red bat *Lasiurus blossevillii*	SC	• Roosts primarily in trees, 2-40 feet above ground. • Found at elevations from sea-level up through mixed conifer forests. • Prefers habitat edges and mosaics with trees that are protected from above and open below, with open areas for foraging. • Occurrences from project quads
hoary bat *Lasiurus cinereus*	SC	• Prefers open habitats or habitat mosaics, with access to trees for cover, and open areas or habitat edges for feeding. • Roosts in dense foliage of medium to large trees. • Feeds primarily on moths. • Requires water. May fly through work areas to forage. Suitable roosting habitat not present in work areas, and no roosting habitat will be removed

Common name/ Scientific name	Status (Federal/ State)	Habitat Requirements and Potential
California black rail *Laterallus jamaicensis coturniculus*	CT	• Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. • Needs water depths of about 1 inch that do not fluctuate during the year, and dense vegetation for nesting habitat. • Occurrences from project quads No suitable nesting or foraging habitat within work areas. Marsh habitats near project work areas are poor habitat for California black rail, and this species is not expected to nest there (see Appendix L of this IS/MND)
vernal pool tadpole shrimp *Lepidurus packardi*	FE	• Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. • Typically found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid. • Critical habitat proposed Occurrences from project quads. No suitable habitat for tadpole shrimp observed within, or within 250 feet of work areas.
San Joaquin whipsnake *Masticophis flagellum ruddocki*	SC	• Inhabits open, dry habitats with little or no tree cover. Found in valley grassland and saltbrush scrub in the San Joaquin Valley. • Needs mammal burrows for refuge and oviposition sites. Occurrences from under line and within ½ mile. Suitable grassland habitat with rodent burrows present in work areas.
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT/CT	• Restricted to valley foothill hardwood habitat of the Coast Range between Monterey and north San Francisco Bay. • Inhabits south-facing slopes and ravines where shrubs form a vegetative mosaic with oak trees and grasses. Occurrences from under line and within ½ mile. Suitable habitat present at Pull Site 4 and associated access route, and two guard structures (DL16, E) (2.9107 acres)
Suisun song sparrow *Melospiza melodia maxillaris*	SC	• Resident of brackish-water marshes surrounding Suisun Bay. • Inhabits cattails, tules and other sedges, and pickleweed. • Also known to frequent tangles bordering sloughs. Occurrences from under line and within ½ mile. No suitable habitat nesting or foraging habitat within work areas. Some suitable habitat present at three towers with helicopter work only.

Common name/ Scientific name	Status (Federal/ State)	Habitat Requirements and Potential
big free -tailed bat *Nyctinomops macrotis*	SC	• Inhabits low-lying arid areas in southern California. • Needs high cliffs or rocky outcrops for roosting sites. • Feeds principally on large moths. May fly through work areas to forage. Suitable roosting habitat not present in work areas, and no roosting habitat will be removed
Central California Coastal steelhead *Oncorhynchus mykiss irideus*	FT	• Populations in the Sacramento and San Joaquin rivers and their tributaries. • Critical habitat proposed Occurrences from project quads. No suitable habitat within work areas.
Central Valley spring/winter-run Chinook salmon *Oncorhynchus tshawytscha*	Spring-FT/CT Winter-FE/CE	• Spring-Pops Spawn in Sacramento River and tributaries. • Winter- Inhabits the Sacramento River below the Keswick Dam. Spawns in the Sacramento River but not in tributary streams. • Critical habitat proposed Occurrences from project quads. No suitable habitat within work areas.
California brown pelican *Pelecanus occidentalis californicus*	FE	• Colonial nester on coastal islands just outside the surf line. • Nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. No suitable nesting or foraging habitat in work areas.
double-crested cormorant *Phalacrocorax auritus*	SC	• Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. • Nests along coast on sequestered islets, or in tall trees along lake margins. No suitable nesting or foraging habitat in work areas. May nest within 1,000 feet of line.
Coast (California) horned lizard *Phrynosoma coronatum* (frontale population)	SC	• Frequents a wide variety of habitats. Most common in lowlands along sandy washes with scattered low bushes. • Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects. Occurrences from project quads. Suitable grassy habitats present in work areas.
Sacramento splittail *Pogonichthys macrolepidotus*	SC	• Endemic to the lakes and rivers of the Central Valley, but now confined to the Delts, Suisun Bay, and associated marshes. • Inhabits Slow-moving river sections, dead end sloughs. • Require flooded vegetation for spawning and foraging. No suitable habitat present in work areas.

Common name/ Scientific name	Status (Federal/ State)	Habitat Requirements and Potential
California clapper rail *Rallus longirostris obsoletus*	FE/CE	• Inhabits saltwater and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. • Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs. Occurrences from project quads. No suitable nesting or foraging habitat within work areas. Marsh habitats near project work areas are poor habitat for California black rail, and this species is not expected to nest there (see Appendix L of this IS/MND).
California red-legged frog *Rana aurora draytonii*	FT/SC	• Inhabits lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. • Requires 11-20 weeks of permanent water for larval development. Must have access to aestivation habitat. • Critical habitat designated. Occurrences from under line and within ½ mile. A total of 14.001 acres of suitable upland habitat present in work areas.
Foothill yellow-legged frog* *Rana boylii*	SC	• Frequents rocky streams and rivers with rocky substrate and open, sunny banks, in forests, chaparral, and woodlands. Sometimes found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools. • Known from sea level to 6,700 feet (2,040 meters). Suitable habitat not present in work areas.
salt-marsh harvest mouse *Reithrodontomys raviventris*	FE/CE	• Inhabits only the saline emergent wetlands of the San Francisco Bay and its tributaries. • Pickleweed is the primary habitat. • Does not burrow; builds loosely organized nests. • Requires higher areas nearby to escape flooding. Occurrences from project quads. No suitable habitat within work areas. Some suitable habitat present at three towers with helicopter work only.
bank swallow *Riparia riparia*	CT	• Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. • Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or ocean in which to dig nesting holes. May fly through work areas, but no suitable habitat observed.
Suisun shrew *Sorex ornatus sinuosus*	SC	• Tidal marshes of the northern shores of San Pablo and Suisun bays. • Requires dense low-lying cover and driftweed and other litter above the mean hightide line for nesting and foraging. No suitable habitat within work areas. Some suitable habitat present at three towers with helicopter work only.

Common name/ Scientific name	Status (Federal/ State)	Habitat Requirements and Potential
western spadefoot *Spea hammondii*	SC	• Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. • Vernal pools are essential for breeding and egg-laying. Occurrences from project quads. Grassland extensive in work areas, but no vernal pools observed within 250 feet of work areas.
Callippe silverspot butterfly *Speyeria callippe callippe*	FE	• Restricted to the northern coastal scrub of the San Francisco Peninsula. • Hostplant is *Viola pedunculata.* May fly through work areas, but no suitable scrub habitat in work areas. No *Viola* observed during plant surveys.
California least tern *Sternula antillarum browni*	FE/CE	• Nests along the coast from San Francisco Bay south to northern Baja California. • Colonial breeder on bare or sparsely vegetated flat substrates, sand beaches, alkali flats, land fills, or paved areas. Occurrences from project quads. May fly through work areas.
California freshwater shrimp *Syncaris pacifica*	FE/CE	• Endemic to Marin, Napa, and Sonoma Counties. • Found in low elevation, low gradient streams, where riparian cover is moderate to heavy. No suitable habitat in work areas.
American badger *Taxidea taxus*	SC	• Most abundant in drier, open stages of most shrub, forest and herbaceous habitats with friable soils. • Need sufficient food, friable soils, and open uncultivated ground to dig burrows. • Prey on burrowing rodents. Occurrences from within ½ mile. Suitable habitat present in grassland work areas (approximately 24.234 acres).
Giant garter snake *Thamnophis gigas*	FT/CT	• Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. • Critical habitat proposed. Species likely out of range.

Common name/ Scientific name	Status (Federal/ State)	Habitat Requirements and Potential
San Joaquin kit fox *Vulpes macrotis mutica*	FE/CT	• Inhabits annual grasslands or grassy open stages with scattered shrubby vegetation. • Need loose-textured sandy soils for burrowing, and a suitable prey base. Occurrences from under line and within ½ mile. Suitable habitat in natural habitats in work areas (approximately 25.459 acres).

Animals with * are those reported in CNDDB after the 2008-2009 surveys.

Federal

FE = Listed as Endangered under the federal Endangered Species Act
FT = Listed as Threatened under the federal Endangered Species Act

State

CE = Listed as endangered under the California Endangered Species Act
CT = Listed as threatened under the California Endangered Species Act
CR = Listed as Rare in California
SC = Species of Concern

Table 4-6 Special status Plants Located during Floristic Surveys

Species	Location	Number of Plants	Habitat	Protection Measures
Round-leaved Filaree (*California macrophylla)* Rare plant rank 1B.2	Pull Site 2	9	Non-native grassland	Per APM-BIO-02 -Mark/fence and avoid -Monitor -Environmental awareness training

At Pull Site 2 where round-leaved filaree occurs, the location of direct ground disturbance will take place on an upland ridge above the plants. The round-leaved filaree plants are located below the work area, on the opposite side of a drainage from the proposed work (i.e., not downslope of the work area).

PG&E will implement five measures (see **APM-BIO-02 Special Status Plants,** Section 3.6) during and after ground-disturbing activities near known populations to avoid potential impacts on these special status plant populations:

a) installation of protective fencing or flagging (including a buffer of approximately 20 feet) around the population and limiting nearby ground disturbance;
b) on-site biological monitoring;
c) environmental awareness training for construction personnel, including information on the locations, habitat requirements and distribution of special status plants;
d) returning the construction site to pre-project conditions; and
e) managing stormwater runoff with the implementation of a SWPPP.

During the time of the 2008-2009 floristic surveys, three pull sites (Pull Sites 6, 7, and 10), one landing zone (near Pull Site 6), and portions of the access routes (to Pull Sites 6 and 7), were disturbed and unvegetated, or otherwise highly managed. These areas have revegetated with "natural" vegetation. In addition, 13 guard structures (TL10, TL11, TL12, TL15, SR37, DL14, DL25, DL29, TL26, TL31, TL32, TL33, and TL34) were not identified or surveyed during floristic surveys. These areas will be resurveyed/ surveyed for special status plants in Spring 2012, prior to construction.

With implementation of the proposed environmental protection measures included in **APM-BIO-01 Wildlife Habitat Protection, APM-BIO-02 Special status Plants** (which will delineate occurrences of special status plants, providing protection from harm), and **APM-HWQ-01 Storm Water Pollution Prevention Plan** (Section 3.6)**,** project construction is expected to result **less-than-significant affects with mitigation incorporated** to special status plants, including state and federally-listed plants.

SPECIAL STATUS WILDLIFE

Listed Animals. Surveys performed in 2008 and again in 2009 identified that the transmission corridor contains potential habitat for 13 federally and/or state listed wildlife species: Conservancy fairy shrimp *(Branchinecta conservatio,* federally endangered), longhorn fairy shrimp (*Branchinecta longiantenna,* federally endangered), vernal pool

fairy shrimp *(Branchinecta lynchi,* federally threatened*)*, vernal pool tadpole shrimp *(Lepidurus packardi,* federally endangered*)*, Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus,* federally threatened), Delta smelt (*Hypomesus transpacificus,* federally threatened and state endangered), California tiger salamander (*Ambystoma californiense,* federally and state threatened), California red-legged frog (*Rana aurora draytonii*, federally threatened), Alameda whipsnake (*Masticophis lateralis euryxanthus*, federally and state threatened), salt marsh harvest mouse (*Reithrodontomys raviventris,* federally and state endangered), San Joaquin kit fox (*Vulpes macrotis mutica,* federally endangered and state threatened), Swainson's hawk (*Buteo swainsonii*, state threatened), and California black rail (*Laterallus jamaicensis coturniculus*, state threatened). These species are discussed further below and in Table 4-5. A summary of select special status wildlife acreage within project work areas is provided in Table 4-7.

Table 4-7 Summary of Impacts to Select Special Status Wildlife

Species	Federal Status	State Status	Contra Costa County Area (acres)	Alameda County Area (acres)	Total area (acres)
California tiger salamander	threatened	threatened	18.980 (upland)	6.479 (upland)	25.459 (upland)
California red-legged frog	threatened	species of concern	11.000 (upland)	3.001 (upland)	14.001 (upland)
Alameda whipsnake	threatened	threatened	2.911	None	2.911
San Joaquin kit fox	endangered	threatened	18.980	6.479	25.459
Burrowing owl	none	species of concern	18.980	6.479	25.459

Vernal Pool Crustaceans. Vernal pools and swales within the proposed project corridor provide potential habitat for listed vernal pool crustacean species (Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp). Critical habitat for these crustaceans was designated by the USFWS on February 10, 2006 (USFWS 2006a). Portions of the project corridor and access routes lie within areas designated as critical habitat for vernal pool fairy shrimp.

Most of the work within the project corridor will take place by helicopter. Ground-disturbing activities are planned within three areas that lie within designated critical habitat for vernal pool fairy shrimp (total 4.419 acres total area, including 2.370 acres of undeveloped "natural" habitat). First, a guard structure (number SR37) will be installed temporarily at Briones Valley Road. Second, Pull Site 6 and the associated existing access route (north of Marsh Creek Reservoir) and landing zone will be temporarily used. Thirdly, the access route (an existing large gravel road) to Pull Site 8 will be temporarily used. No ground-disturbing project activities will occur within 250 feet of vernal pools.

Additionally, PG&E will implement the project with avoidance and minimization measures as included in Section 3.6. These include measures **APM-BIO-01 Wildlife Protection Measures**, and **APM-HWQ-01 Storm Water Pollution Prevention Plan.** No aquatic habitat for these species will be disturbed, impacts to upland habitat will be

temporary, and no individuals are expected to be harmed. Therefore, with implementation of APMs the project impacts on vernal pool crustaceans and designated critical habitat will be **less-than-significant.**

Delta Smelt. In 1994, the USFWS designated critical habitat for the Delta smelt in Suisun Bay and the surrounding upland areas and watershed. The northern two miles of the project corridor (Towers 1 to 13) lie within this critical habitat area (as does the majority of the City of Pittsburg). Within this critical habitat area, nine guard structures (SR01, RR02, RR03, SR04, SR05, HW06, TL07, SR08, and DL09) will be installed on railroad, power line, and major road crossings (e.g., SR 4, Parkside Drive, Willow Pass Road, and Leland Road). Pull Site 1 will be located within the fenced boundary of Pittsburg Substation, which is adjacent to this critical habitat. Pull Site 2 and the associated access route will be located in an upland grassland critical habitat area; truck and equipment movement and work overland is expected at this pull site and its access route. Work will not be performed within the waterways; Therefore, no direct impacts will occur to Delta smelt or Delta smelt habitat. Indirect impacts may include dust abatement or minor sedimentation from auger holes.

Project work areas include a total of 6.336 acres of designated critical habitat, including 3.796 acres of undeveloped "natural" habitat. None of these locations has suitable river habitat for Delta smelt. Tower 1 is located in Pittsburg Substation. Towers 2 through 4 are located in drained coastal salt marsh adjacent to the Suisun Bay. Towers 5 through 13 are located in the City of Pittsburg and adjacent grasslands. To eliminate indirect impacts any augered soils will be removed off-site and **APM-HWQ-01 Stormwater Pollution Prevention Plan** (Section 3.6) BMPs will ensure suitable Delta smelt habitat will not be impacted.

PG&E will implement avoidance and minimization measures as required by the USFWS, and included in **MM-BIO-01 Federally Listed Species: Delta Smelt** (Section 3.6). These measures include placing spoils in secondary containers, limiting number of trips with vehicles, and grading or digging in uplands only. Further, as described in **APM-HWQ-01 Storm Water Pollution Prevention Plan** (Section 3.6), the SWPPP will specify BMP's to ensure that water quality in the watershed remains substantially unaffected by project activities. Because the proposed activities associated with the pull sites and guard structures only affect a small amount of vegetation, and measures will be implemented to manage water quality and stabilize the sites as describe in the SWPPP, project construction will have minimal impacts on the primary constituent elements for Delta smelt. For these reasons, the project will have **less-than-significant impacts with mitigation incorporated** on Delta smelt.

Valley Elderberry Longhorn Beetle (VELB). Critical habitat for VELB was designated in 1980 (USFWS 1980), but does not occur within the project corridor. Elderberry shrubs within the project corridor may provide suitable habitat for the Valley elderberry longhorn beetle. Elderberry shrubs were observed at two locations: adjacent to the access route to Pull Site 4, and approximately 70 feet north of a guard structure (SR37).

Equipment and vehicles will drive by the shrub adjacent to the access route on an existing road. Excavation will occur within 100 feet of the elderberry shrub north of SR37, in order to install temporary guard structure poles. PG&E will implement the avoidance and minimization measures required by the USFWS in its 30-year programmatic agreement with PG&E, as described in **MM-BIO-02 Federally Listed Species: Valley Elderberry Longhorn Beetle** in Section 3.6. These measures were developed in consultation with the USFWS and include creating an exclusion buffer at

20 feet from the drip line of elderberry shrubs and avoiding work in this buffer. As a result, impacts to Valley elderberry longhorn beetle will be **less-than-significant with mitigation incorporated.**

California Tiger Salamander (CTS). CTS is listed as federally threatened, and critical habitat for CTS was designated in 2005 (USFWS 2005). In 2010 CTS was listed as threatened by the CDFG. No designated critical habitat occurs in the project corridor. Suitable habitat for CTS exists in much of the southern portion of the corridor. Suitable upland dispersal habitat occurs in portions of Pull Sites 1 through 12, and associated landing zones and access routes with "natural" habitat (see Appendix K of this IS/MND). Suitable habitat also exists at 31 guard structures. At towers, helicopters will be used to perform all work. Work areas include a total of 25.459 acres of suitable upland habitat, and no acres of breeding habitat.

Equipment and vehicles will be used temporarily at the pull sites to install and remove conductor. Small amounts of digging will be needed to install the temporary guard structure poles. PG&E will implement project activities in suitable habitat areas with the avoidance and mitigation measures included in **MM-BIO-03 Federally Listed Species: California Tiger Salamander** in Section 3.6, which were developed in consultation with the USFWS and CDFG. These measures include the following: working in daylight hours, avoiding grading and digging during breeding season, preconstruction surveys, monitoring and environmental education, and checking under vehicles prior to moving. Further, as described in **APM-HWQ-01 Storm Water Pollution Prevention Plan** (Section 3.6), the SWPPP will specify BMPs to ensure that water quality in nearby ponds remains substantially unaffected by project activities. In addition, **APM-BIO-01 Wildlife Habitat Protection** (Section 3.6) includes an additional 19 environmental protocols that will be implemented during construction. APMs will assure that the likelihood of mortality is reduced. In addition to these measures, PG&E will purchase mitigation credits for impacts to 25.459 acres of CTS credits from (an) approved mitigation source(s) (18.980 acres in Contra Costa County, and 6.479 acres in Alameda County). Project impacts on CTS are expected to be **less-than-significant with mitigation incorporated.**

California Red-Legged Frog (CRLF). Suitable habitat for CRLF occurs in much of the project corridor. Ground-disturbing work that will take place within suitable habitat for CRLF includes installing and removing temporary guard structures (SR21, TL34, and SR37), minor leveling of work areas (potentially Pull Sites 2 and 8 and associated landing zones/staging areas), and installing new conductor with heavy equipment (Pull Sites 2, 3, 4, 7, 8, 9, 10, and 12) (14.001 acres, 11.000 acres in Contra Costa County and 3.001 acres in Alameda County). Tower work within this area will be performed by helicopter.

Critical habitat for CRLF was designated in 2006, and then revised in 2010 (USFWS 2006b and 2010). Portions of the project corridor south of Pull Site 8 lie within critical habitat, including Pull Sites 9 (and access road), 10, 11, and 12; and 15 guard structures (B, DL23, TL24, C, DL25, TL26, SR27, HW28, DL29, RR30, TL31, TL32, TL33, TL34, and DL 35) (8.893 work area acres lie within designated critical habitat, all in uplands).

PG&E will implement project activities in suitable habitat and critical habitat areas with the avoidance and minimization measures included in **MM-BIO-04 Federally Listed Species: California Red-Legged Frog** in Section 3.6, which were developed in consultation with the USFWS. These measures include the following: working in daylight hours, avoiding grading and digging during breeding and rearing season, preconstruction surveys, monitoring and environmental education, and checking under

vehicles prior to moving. No suitable habitat for this species is expected to be converted. Further, as described in **APM-HWQ-01 Storm Water Pollution Prevention Plan** (Section 3.6), the SWPPP will specify BMPs to ensure that water quality in nearby ponds remains substantially unaffected by project activities. **APM-BIO-01 Wildlife Habitat Protection** (Section 3.6) includes an additional 19 environmental protocols that will be implemented during construction. No suitable habitat for this species is expected to be permanently converted. In addition to these measures, PG&E will purchase mitigation credits for impacts to 14.001 acres of CRLF habitat from (an) approved mitigation source(s) (11.000 acres in Contra Costa County and 3.001 acres in Alameda County). Project impacts on CRLF and its critical habitat are expected to be **less-than-significant with mitigation incorporated.**

Alameda Whipsnake. Suitable habitat for Alameda whipsnake occurs near Pull Site 4 and guard structures DL16 and DL17 (2.911 acres). Ground-disturbing work that will take place within suitable habitat for the whipsnake includes installing and removing temporary guard structures and installing new conductor with heavy equipment. Tower work within suitable habitat will be performed by helicopter. Critical habitat for Alameda whipsnake was designated in 2006 (USFWS 2006c), but does not occur in the project corridor.

PG&E will implement project activities in suitable habitat areas with the avoidance and minimization measures included in **MM-BIO-05 Federally Listed Species: Alameda Whipsnake** in Section 3.6, which were developed in consultation with the USFWS. These measures include the following: working in daylight, avoiding grading or digging during dormancy periods, preconstruction surveys, monitoring and environmental training, checking under vehicles prior to moving, and placing construction debris on cleared areas only. **APM-BIO-01 Wildlife Habitat Protection** (Section 3.6) includes an additional 19 environmental protocols that will be implemented during construction. No suitable habitat for this species is expected to be converted. In addition, PG&E will purchase mitigation credits for impacts to 2.911 acres of Alameda whipsnake habitat from an approved mitigation source (all acreage in Contra Costa County). Project impacts on Alameda whipsnake are expected to be **less-than-significant with mitigation incorporated.**

San Joaquin Kit Fox. Suitable habitat for San Joaquin kit fox occurs in much of the project corridor, at most work areas (natural areas at Pull Sites 2-12, associated off-road access routes and landing zones, and all guard structures except SR01, RR02, RR03, SR04, SR05, HW06, TL07, SR08, HW28, DL35). Ground-disturbing work that will take place within suitable habitat for San Joaquin kit fox includes installing and removing temporary guard structures, minor leveling of pull sites, and installing new conductor with heavy equipment. Tower work within suitable habitat will be performed by helicopter. No critical habitat has been designated for this species.

PG&E will implement project activities in suitable habitat with the avoidance and minimization measures included in **MM-BIO-06 Federal and State Listed Species: San Joaquin Kit Fox** (Section 3.6), which was developed in consultation with the USFWS. These measures include the following: working in daylight, preconstruction surveys, avoiding work in pupping season (or using den use surveys if pupping season cannot be avoided), monitoring and environmental training, and checking under vehicles. **APM-BIO-01 Wildlife Habitat Protection** (Section 3.6) includes an additional 19 environmental protocols that will be implemented during construction. No suitable habitat for this species is expected to be converted, and PG&E does not expect to harm

any individuals. PG&E will purchase mitigation credits for impacts to 25.459 acres of San Joaquin kit fox habitat from (an) approved mitigation source(s) (18.980 acres in Contra Costa County and 6.479 acres in Alameda County). Project impacts on San Joaquin Kit Fox are expected to be **less-than-significant with mitigation incorporated.**

Salt Marsh Harvest Mouse. Portions of the transmission corridor contain marginal and poor habitat for the salt marsh harvest mouse; this habitat occurs between Pull Site 1 and Guard Structure SR01. The hydrology of the area appeared to be cut-off from tidal flow and is now used as a floodplain, creating less saline conditions which are unfavorable to the mouse. Salt marsh harvest mouse presence is not expected in any areas of project ground disturbance. Project activities will not cause any ground disturbance within this tidal marsh habitat. Work within the tidal marsh involves adding one cage top to a single existing tower already located in the tidal marsh habitat, and changing insulators on three existing towers. This tower work will take place by helicopter; no ground disturbing work will take place. Work at Pull Site 1 (located north of the tidal marsh habitat) will take place within existing disturbed areas in Pittsburg Substation. Work at Guard Structure SR01 (located south of the tidal marsh habitat) involves temporarily installing two pairs of wooden poles on the ruderal road shoulder of Willow Pass Road. Project activities are expected to have **no impact** on salt marsh harvest mouse.

California Black Rail and California Clapper Rail. Portions of the transmission corridor contain coastal emergent wetland communities. These wetlands occur around towers 002, 003, and 004 (see Appendix A, Map 1 of this IS/MND), and guard structure SR38 near Marsh Creek Reservoir (see Appendix A, Map 16 of this IS/MND).

While California black rail and California clapper rail nest in coastal wetlands, these marshlands have been assessed by rail expert Jules Evens (see Appendix L of this IS/MND). The habitats within and near the project areas are not particularly suitable for rail nesting, and these species are not expected to nest within these habitats.

PG&E will implement measures **APM-BIO-03 Nesting Birds** (Section 3.6)**;** the measures for avoiding native nesting birds will also avoid the California black rail and California clapper rail. This project is expected to have **less-than-significant impact with mitigation incorporated** on California black rail or California clapper rail.

Swainson's Hawk. Uplands and riparian forest provide habitat for Swainson's hawk within the project corridor. Swainson's hawks nest in large, scattered trees adjacent to the open areas they use for foraging, such as grasslands, wetlands, oak savannahs, and agricultural lands (CDFG 2005). CNDDB occurrences for Swainson's hawk have been recorded within five miles of the project corridor (CDFG 2010), and several Swainson's hawks were observed during project surveys. No Swainson's hawk nests were observed.

The risk of project impact on Swainson's hawk is limited to the nesting season, which typically extends from February to late August. Nests may be abandoned due to increased noise levels and human activity nearby. The risk of abandonment is highest early in the nest cycle, before the adult birds have much invested. Disturbances also may cause reproductive failure at the end of the nest cycle by causing nestlings to fledge prematurely, making them more susceptible to predation and starvation.

During project activities, PG&E proposes to avoid working in the nesting season to the extent possible. If this scheduling cannot be accomodated, PG&E will implement measures to avoid and reduce nest disturbance on Swainson's hawks, including pre-construction nest surveys, nest protection zones should any nests be located, coordination with CDFG to determine nest-specific protection measures, and biological monitors to determine disturbance levels to nests and stop work should hawks exhibit agitated behavior. These avoidance measures will lessen the potential for impact. Implementation of the proposed project as described with **MM-BIO-07 State Listed Species: Nesting Swainson's Hawk** and **APM-BIO-03 Nesting Birds** (Section 3.6) will have **less-than-significant impacts with mitigation incorporated** on the Swainson's hawk.

Other Special Status Wildlife. The diversity of cover types and terrain within the project corridor provides a wide range of habitat conditions for special status wildlife. Habitats within the project corridor are expected to support the additional non-listed special status wildlife species discussed below. Special status wildlife can be affected by direct construction disturbance that results in injury or mortality, and habitat degradation or removal. Special status nesting birds and other wildlife can also be indirectly impacted by noise and human activity associated with construction activities. These impacts are further addressed under the "nesting birds" section below. The text below describes the potential for construction-related impacts to non-listed special status wildlife species potentially present within the project corridor.

Vernal Pool Associates. Midvalley fairy shrimp *(Brachinecta mesovallensis*, California species of special concern) may inhabit vernal pools and swales within the project corridor, similar to the listed vernal pool crustaceans discussed above. The **vernal pool andrenid bee** (*Andrena blennospermatis*, California species of special concern) feeds only on a plant found within vernal pools, and nests in the uplands adjacent to these pools. No ground-disturbing project activities are expected to take place within 250 feet of vernal pools and swales. PG&E will implement the project with avoidance and minimization measures as included in Section 3.6. These include measures **APM-BIO-01 Wildlife Protection Measures**, and **APM-HWQ-01 Storm Water Pollution Prevention Plan.** No suitable habitat for this species is expected to be converted, and no individuals are expected to be harmed.

Amphibians. Western spadefoot toad (*Spea hammondii*, California species of special concern) may be present in or near seasonal wetlands and vernal pool habitat. Ground-disturbing activities will avoid wetlands, except as noted in the wetlands section below. However, ground-disturbing activities could cause indirect effects by modifying upland habitat. Upland vegetation could be affected by vehicular traffic, but such effects will be temporary. PG&E will implement the avoidance and minimization measures as included in Section 3.6. These include measures **APM-BIO-01 Wildlife Protection Measures**, **MM-BIO-10 Other Species of Special Concern - Amphibians and Reptiles,** and **APM-HWQ-01 Storm Water Pollution Prevention Plan.** No suitable habitat for this species is expected to be converted, and no individuals are expected to be harmed.

Reptiles. Western pond turtle (*Actinemys marmorata marmorata*, California species of special concern) could be present at, or near, ponds, waterways, and freshwater marsh vegetation. Pull Site 7 and the associated access route are located near this type of habitat. While wetland areas will be avoided (except as described in the wetland section below), ground disturbance and vehicle traffic along access roads in the vicinity of wetlands have a risk of adult mortality, nest destruction, and temporary dispersal of

individuals. This risk is greatest in the summer when nesting females are in upland habitat to lay eggs. Potential indirect effects that could harm breeding habitat include pollution from vehicles/equipment related activities, a temporary increase in human-related garbage, and a temporary increase in sedimentation due to dust from construction traffic or increased erosion. Such disturbance will only take place for a temporary period. In addition, application of **APM-BIO-01 Wildlife Habitat Protection** and **MM-BIO-09 Western Pond Turtle** (Section 3.6) will minimize the potential for such indirect effects to occur.

The project corridor also contains suitable habitat for **silvery legless lizard** (*Anniella pulchra pulchra,* California species of special concern), **San Joaquin whipsnake** (*Masticophis flagellum ruddocki*, California species of special concern), and **Coast horned lizard** (*Phrynosoma coronatum* [frontale population], California species of special concern). These species could be present at the grassland habitats where ground-disturbing activities are typically taking place. Ground disturbance and vehicle traffic on access roads have a risk of temporary dispersal of individuals, burrow disruption, and mortality. Application of **APM-BIO-01 Wildlife Habitat Protection** and **MM-BIO-10 Other Species of Special Concern - Amphibians and Reptiles** (Section 3.6) will minimize the potential for impacts to these species.

Birds. Wetland habitats within the project corridor provide suitable nesting and/or foraging habitat for some California species of special concern. These species are **tricolored blackbird** (*Agelaius tricolor*), **northern harrier** (*Circus cyaneus*), **white-tailed kite** (*Elanus leucurus*, fully-protected species), **saltmarsh common yellowthroat** (*Geothlypis trichas sinuosa*), **suisun song sparrow** (*Melospiza melodia maxillaris*), and **double-crested cormorant** (*Phalacrocorax auritus*). These birds nest in and near wetland and riparian habitats, including cattails, rushes, shrub-willow, and blackberries. Some species (saltmarsh common yellowthroat and suisun song sparrow) may utilize coastal marsh areas, such as the ones found between Pull Site 1 and guard structure SR01 (see **California Black Rail** section above). Other species are more flexible and may utilize marshes found between Pull Site 1 and Pull Site 2, and areas near Marsh Creek Reservoir. Ground-disturbing activities are not planned in these wetland areas; tower work in these areas will take place by helicopter. Implementing measures **APM-BIO-01 Wildlife Habitat Protection** and **APM-BIO-03 Nesting Birds** (Section 3.6) will minimize and avoid impacts to these species.

Several other California species of special concern can be found nesting and feeding in more general habitats. These habitats are present throughout the project corridor. **Golden eagle** (*Aquila chrysaetos*) and **prairie falcon** (*Falco mexicanus*) have been observed feeding in the project corridor and may nest in the area. **Loggerhead shrike** (*Lanius ludovicianus*) nest in shrubs in open areas. Potential habitat for this species is located in Black Diamond Mines Park. Also of concern are ground-nesting birds such as and **California horned lark** (*Eremophila alpestris actia*). Implementing measures **APM-BIO-01 Wildlife Habitat Protection** and **APM-BIO-03 Nesting Birds** (Section 3.6) will minimize and avoid impacts to these species.

Suitable habitat for **Burrowing owl** (*Athene cunicularia,* California species of special concern) also occurs in the work areas (25.459 acres). PG&E will further protect the burrowing owl by performing protocol burrowing owl surveys, and adhering to the CDFG mitigation measures (CDFG 1995, CDFG 2012). These include providing buffers around burrows, and preconstruction surveys both in the wintering and nesting seasons. If burrowing owls are found, a site-specific plan for avoiding owls will be developed in

coordination with CDFG. See **MM-BIO-12 Western Burrowing Owl** (Section 3.6) for a full list of mitigation measures for this species.

Mammals. Suisun shrew (*Sorex ornatus sinuosus,* California species of special concern) inhabits shoreline areas of coastal marsh in San Pablo and Suisun Bay. A small amount of suitable coastal marsh habitat occurs in the project corridor, at towers 002, 003, and 004 between Pull Site 1 and guard structure SR01 (Appendix A, Map 1 of this IS/MND). This habitat is the same as that described for salt marsh harvest mouse above. Suisun shrew presence is not expected in any areas of project ground disturbance. Work at the existing towers in the salt marsh habitat will take place by helicopter. Project activities are expected to have **no impact** on suisun shrew.

American badger (*Taxidea taxus*, California species of special concern) is known from within 0.5 mile of the project corridor. This species may create burrows, and hunt rodents and similar prey in the general open grassland habitats within the project corridor (Pull Sites 2-12, associated undeveloped landing zones/staging areas and access routes, and most guard structures). Ground disturbance and vehicle traffic on access roads has a risk of temporary dispersal of individuals, burrow disruption, and mortality. Application of **APM-BIO-01 Wildlife Habitat Protection** (Section 3.6) and **MM-BIO-11 American badger** will minimize the potential for effects to this species.

Several species of **bats** may utilize the project corridor for roosting and foraging. Six of these bat species are California species of special concern: **pallid bat** (*Antrozous pallidus*), **Townsend's big-eared bat** (*Corynorhinus townsendii*), **western mastiff bat** (*Eumops perotis californicus*), **western red bat** (*Lasiurus blossevillii*), **hoary bat** (*Lasiurus cinereus*), and **big free-tailed bat** (*Nyctinomops macrotis*). These species may roost in various buildings, bridges, tunnels, trees, and rocky areas within the project corridor. Risk to bats is generally limited to disrupting a roosting area, or removing roosting habitat. Ground-disturbing project activities will be taking place within open grassland areas that are not used for roosting. Only a minimal amount of vegetation will be trimmed; four non-native pepper trees (*Schnus molle*) may be trimmed to permit equipment access on the paved access road to Pull Site 3. Some disturbance may occur by moving equipment on existing access routes, but this disturbance is expected to be minimal and temporary. Application of **APM-BIO-01 Wildlife Habitat Protection** (Section 3.6) will also minimize the potential for effects to these species.

To ensure that potential impacts on listed and non-listed special status species are less than significant, **APM-BIO-01 Wildlife Habitat Protection** will implement 19 environmental protocols during project construction in consultation with the USFWS and CDFG. These include: 1) providing environmental awareness training on special status wildlife for construction personnel; 2) obtaining CDFG approval of monitor qualifications; 3) providing on-site biological monitors to provide guidance construction activities in a manner to minimize potential impacts; 4) providing walking surveys of work areas prior to each day's construction activities; 5) limiting access-related site disturbance; 6) confining digging and grading to July 15-October 31; 7) minimizing disturbance to vegetation; 8) taking measures to prevent wildlife entrapment in unattended excavations; 9) containment and daily removal of all waste; 10) prohibiting use of microfilament netting as part of erosion control materials; 11) prohibiting pets, campfires, or firearms during project work; 12) delineating the edges of work areas and off-road access routes in the field; 13) reporting observances of listed species, and preventing harrassment of them; 14/15/16) managing for the potential release of hazardous materials; 17) managing stormwater runoff with the implementation of a SWPPP; 18) providing care for any injured wildlife; and 19) utilizing speed limits for vehicles

and equipment. Details of this APM can be found in Section 3.6 (Applicant Proposed Measures and Mitigation Measures). Implementation of the proposed construction activities in concert with the proposed environmental protection measures included in **APM-BIO-01 Wildlife Habitat Protection** and **APM-BIO-03 Nesting Birds** (discussed in section "b" below) will result in **less-than-significant** impacts on listed and non-listed special status wildlife; some species have **mitigation incorporated**.

(b) Natural Communities. Sensitive natural communities within the transmission corridor include northern coastal salt marsh, claypan vernal pools, cismontane alkali marsh, and riparian woodland. No sensitive natural communities are expected to be affected by project activities. No new permanent tower structures will be erected as the result of this project; the project only involves modifying the tops of existing towers via helicopter, and replacing conductor on an existing transmission line. The temporary project work areas (e.g., pull sites, staging sites, and guard structures) are all located in developed or previously disturbed non-native annual grassland; these sites were chosen to avoid sensitive habitat types. No permanent removal of habitat is expected from project activities. Therefore, **no impacts** are expected to riparian or other sensitive natural community types.

(c) Waters of the State including Waters of the U.S. The proposed project is located within the watersheds of the Suisun Bay, Kirker Creek, Sand Creek, Deer Creek, Marsh Creek/Marsh Creek Reservoir, Brushy Creek, Bethany Reservoir, and Patterson Run.

Wetlands will be impacted in three locations along project access routes, for a total of 0.007 acre. Along the access road to Pull Site 2, PG&E plans to temporarily lay no more than 10 cubic yards of clean rock in a seasonal wetland feature in order to widen the road for construction equipment; this measure will result in the temporary fill of 0.005 acre of wetland for approximately one to two months. Along the access road to Pull Site 9, a 24-inch culvert and a 30-inch culvert are in disrepair. PG&E plans to replace both of these culverts with new 30-inch culverts in order to support the weight of equipment; these culvert repairs will result in the temporary disturbance of 0.002 acre of wetland.

Pursuant to Section 404 of the CWA, PG&E has filed for, and will receive, an authorization to use Army Corps of Engineers (ACOE) Nationwide Permit 12 for work within waters of the U.S. In addition, PG&E has requested water quality certification under Section 401 of the CWA from the State Water Board, and is applying for a Lake and Streambed Alteration Agreement with CDFG. These impacts to wetlands are minor and temporary. Restoration will occur on site. With the implementation of **MM-BIO-03 Wetland and Water Features** (Section 3.6), project-related impacts to wetland resources will be **less-than-significant with mitigation incorporated.**

(d) Migratory Corridors. The project corridor includes a variety of habitats that could support nesting birds that are protected under the Migratory Bird Treaty Act. These include transmission structures, and grassland habitats for ground nesting birds, and adjacent trees. Work within these habitats has the potential to disturb a variety of native and migratory bird species in any season. The potential for impacts to reproduction are greatest in spring and summer (February to August).

Auditory and visual disturbances from nearby construction could disturb nesting birds. Raptors may be disturbed from greater distances (up to 1.0 mile), depending on the presence of visual barriers.

The project is upgrading and replacing an existing transmission line within the existing project corridor. No new buildings or structures will be created that would impede migratory

wildlife. The project will have short-term temporary impacts on migratory wildlife during construction.

The risk to nesting birds is limited to the nesting season, which varies by species and year but typically extends from February through August in the region. Nests may be abandoned due to increased noise levels and human activity nearby; the distance from the work activity at which this can occur varies depending on species and topography. The risk of abandonment is highest early in the nest cycle, before the adult birds have much invested. The above disturbances also may cause reproductive failure at the end of the nest cycle by causing nestlings to fledge prematurely, making them more susceptible to predation and starvation. Construction and maintenance activities that result in a loss of an active nest of nearly any native bird are a violation of the Migratory Bird Treaty Act and/or Section 3503 of the CFGC. Therefore, the loss of an active nest is considered a significant impact. Nest searches and avoidance measures will lessen the potential for impacts. Maintenance and construction disturbance to nests cannot be wholly avoided, but is not expected to reach the level where loss of an active nest occurs. Implementation of the protection measures listed in **APM-BIO-03 Nesting Birds** (Section 3.6) will ensure that PG&E will: implement measures to identify active nests prior to conducting project activities in nesting bird habitats during nesting season; take precautions to avoid nest failure; and will consult appropriately with state and federal agencies regarding potential nesting bird impacts. Implementation of the proposed project with **APM-BIO-03 Nesting Birds** will ensure that potential nesting bird impacts are **less-than-significant with mitigation incorporated**.

(e) Local Policies and Ordinances. PG&E's utility project activities are subject to local tree ordinances. However, no oak woodlands, riparian forests, or other habitats supporting native trees occur in the project work areas. Four non-native pepper trees (*Schinus molle*) overhang a paved access road to Pull Site 3; these trees will have limbs trimmed to permit passage of equipment. Otherwise trees will be avoided. Therefore, this project will have **less than significant impacts** due to tree removal.

(f) Conservation Planning. The project corridor passes through lands included in the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) (Contra Costa County 2007). The HCP allows the permittees (Contra Costa County, the Contra Costa County Flood Control and Water Conservation District, the East Bay Regional Park District and the Cities of Brentwood, Clayton, Oakley, and Pittsburg) to control listed species permitting for activities and projects within the HCP/NCCP. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary land-use regulations. However, in order to receive mitigation acreage for species impacts in Contra Costa County, PG&E will be applying to the East Contra Costa County Habitat Conservancy and paying mitigation under the Conservancy's established fee scale; as a result, PG&E will receive state-listed species take coverage under the HCP. For impact acreages in Alameda County, mitigation coverage will take place separately and take permit coverage will occur directly with CDFG. PG&E expects the entire project to undergo consultation with the USFWS and receive a BO (in order to be included in ACOE NWP #12). This process meets the intent of the HCP to protect sensitive habitats and species.Therefore proposed project will not conflict with any applicable government-adopted HCP or NCCP. The project be included in and will have a **less than significant impact** to an established HCP or NCCP.

4.6. Cultural Resources

PG&E conducted a cultural resources investigation in order to 1) identify and record archaeological resources within the Area of Potential Affects (APE), 2) evaluate archaeological and built environment resources within the APE for their potential eligibility for listing in the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR); and to make recommendations for avoiding impacts to all resources within the APE.

The following activities were performed: 1) a records search and historic map research at the Northwest Information Center (NWIC) of the California Historic Resource Inventory System (CHRIS) at California State University, Sonoma; 2) a consultation with the Native American Heritage Commission and Native American groups and individuals; 3) archival research at the PG&E archives in Brisbane and San Francisco, and the Contra Costa and Alameda County Historical Societies; 4) a review of existing documentation regarding the proposed project; 4) a field survey of the project location; and 5) site recordation of all newly identified archaeological resources on Department of Parks and Recreation (DPRs) 523 forms as well as updates to DPR forms for previously recorded sites within the APE and transmission corridor.

This investigation identified one architectural resource (Pittsburg-Tesla Transmission Line) and one archaeological resource within the APE. An additional 27 cultural resources were identified within the project corridor. These resources included historical road alignments, fence lines, artifact scatter, and features relating to prior farming activities (e.g. orchard, windmill, corral, stock ponds, etc.). These resources were not found eligible for listing in the NRHP or CRHR. Due to the sensitive nature of cultural sites, this study is not included as an Appendix to this report; however, this study is available upon request from a qualified cultural resource specialist.

The results from this study were used to inform the four (a-d) IS checklist questions regarding cultural resources below.

Would the project:	**Potentially Significant Impact**	**Less-than-significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a historical resource, as defined in § 15064.5?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource, or site, or unique geologic feature?			X	
d) Disturb any human remains, including those interred outside of formal cemeteries?		X		

Responses:

(a) Historic Resources. Record searches and field surveys of the project corridor were conducted to identify historic resources, which are broadly considered to be resources listed on local, state, or national registers; or an object, building, structure, site, area, place record, or manuscript determined to be historically significant.

Twenty-nine historic resources were identified in the project corridor. Of these, eight resources are potentially eligible for NRHP listing: a cemetery, a retaining wall, a windmill, a wood frame box/roller, a corral, and three areas of artifact scatter. While these resources are located in the transmission line corridor, no resources were actually located within the footprint where project activities will take place. PG&E has incorporated **APM-CR-01 Procedures for Protection of Known Cultural Resources, APM-CR-02 Awareness Training, APM-CR-03 Protocols for Cultural or Paleontological Resources Discovery,** and **APM-CR-04 Procedures for Discovery of Human Remains** into the project as described in Section 3.6. As PG&E will completely avoid all cultural resources, impacts to historic resources will be **less-than-significant with mitigation**.

(b) Archeological Resources. This analysis considers the potential for project construction and operation activities to affect archeological (or subsurface artifacts, objects, or remains) as specified in Section 15064.5 of the CEQA Guidelines. A review of existing literature and pedestrian field surveys identified no archeological deposits within the project corridor. However, based on the historic and prehistoric context of the project area, subsurface archeological resources associated with the Native American occupation of the area, and/or Euro-American settlement of the area, are potentially present and could be unearthed during excavations for guard structure placement or minor grading at pull sites. One prehistoric bedrock milling feature was located during surveys. This feature is potentially eligible for NRHP listing. This resource, however, is not located within any areas to be disturbed by project activities.

Construction activities that do not include excavation or ground disturbance are not expected to affect archeological resources. However, project activities that include excavation and ground disturbance could cause destruction, damage, alteration, or neglect to contributing elements of an eligible, or potentially eligible (unevaluated), archeological resource, if present, resulting in damage too cultural deposits. However, PG&E has incorporated **APM-CR-01 Procedures for Protection of Known Cultural Resources, APM-CR-02 Awareness Training, APM-CR-03 Protocols for Cultural or Paleontological Resources Discovery,** and **APM-CR-04 Procedures for Discovery of Human Remains** into its project as described in Section 3.6. Consequently, the potential for impacts associated with substantial adverse change in the significance of an archaeological resource is **less-than-significant with mitigation**.

(c) Paleontological Resources and Unique Geological Features. Since ground disturbance for the proposed project will be very limited (i.e., augering holes for temporary guard crossing structure placement, and a small amount of grading at pull sites), impacts on any paleontological resources that may be present in the project corridor are unlikely. There is no exposed bedrock to be avoided at Pole site locations 1, 2, 7, and 12; therefore no further actions are required. According to the Paleontological Resources Technical Report (2008) pull sites sites 3, 4, 5, 6, 8, 9, and 11 have sensitive geologic units and therefore PG&E will provide a qualified paleontologist to flag areas of exposed bedrock that require avoidance prior to project implementation. If avoidance is not feasible, a qualified paleontologist will monitor project activities. In either case, the paleontologist will remove the

markers and assess the site after project activities are complete. In addition PG&E will implement **APM-CR-03 Protocols for Cultural or Paleontological Resources Discovery** (Section 3.6). Any fossils discovered during project excavations will be identified and, if significant, donated to a local repository. Consequently, project-related impacts on paleontological resources will be **less-than-significant with mitigation**.

(d) Human Remains. One cemetery was located during surveys. This cemetery was located in the vicinity of Pull Site 12, but not within the work footprint. This feature will be staked or flagged and avoided. PG&E will avoid impacts to this resource, and no impact will occur.

Due to prehistoric occupation of the general vicinity, and previous finds within 800 feet of the project area, the possibility exists of encountering prehistoric human remains during project activities. This could possibly occur during minor grading activities to level pull sites. APM's require that if any human remains are encountered during project activities, work within 100 feet of the remains shall be suspended immediately. PG&E and/or its representative will immediately notify the respective county coroner. If the remains are determined by the coroner to be Native American, the NAHC will be notified within 24 hours, and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. By the nature of grading, the initial discovery of any remains may also slightly disturb them. In accordance with **APM-CR-04 Procedures for Discovery of Human Remains** (Section 3.6), PG&E will implement assessment, protection, and proper County Coroner notification measures (pursuant to the California Health and Safety Code), should any such resources be discovered. With these measures implemented as part of the project, the potential for significant impact to human remains is **less-than-significant with mitigation**.

4.7. Geology and Soils

Would the project:	**Potentially Significant Impact**	**Less-than-significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Expose people or structures to potential substantial, adverse effects, including the risk of loss, injury, or death involving:				X
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area, or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?		X		
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X

Responses:

(a) Earthquake Faults/Ground Shaking/Liquefaction/Landslides. While the Pittsburgh-Tesla transmission line is not situated on an earthquake fault, the project lies within Alameda and Contra Costa counties, portions of which are located within the Alquist-Priolo Earthquake Fault Zone (California Department of Conservation 2011). The project involves modifying existing transmission structures, within the existing transmission corridor. Because the transmission line's established location is already located within the Earthquake Fault Zone, the project is exposed to seismic hazards, including fault rupture and ground shaking. In addition, some of the existing towers are already located on hills, which may be subject to landslide risk. However, these risks will not change from the existing baseline condition. **No impact** will occur.

No new permanent structures will be created by project activities. Forty-three of the 147 existing transmission towers will be modified; new conductor is being placed on the lines. These changes will result in only an incremental increase in the number of structures that could be affected by a seismic event. A significant portion of the project is located along remote hillsides and away from populated areas and will therefore not pose a risk to people

or structures. The risk caused by potential landslides or ground shaking is **less-than-significant**.

The temporary construction disturbance caused by project activities is not expected to trigger any seismic events or landslide activity. Project activities involve minimal ground disturbance. No modifications to the bases of towers will occur. Temporary guard structures (pairs of temporary wooden poles) will be installed in 37 locations, typically on road shoulders. Minor grading may occur in areas that are already stable (e.g., flat places on valleys or at the tops of stable ridges). The impacts to seismic stability will be **less-than-significant**.

(b) Soil Erosion. Construction of the project involves minimal ground disturbance. The tower work at 43 towers will be accomplished by helicopter, and involves no ground disturbance. Temporary installation of 41 guard structures (pairs of wooden poles) will temporarily displace small amounts of soil. Staging areas/landing zones have been selected on previously-disturbed flat areas with existing disturbance from agricultural or commercial uses. At pull sites, in approximately three locations, a small amount of grading may be needed to level the sites. Most ground access will occur on existing roads; in three locations short distances of overland travel are required.

The project is not expected to result in substantial erosion or loss of topsoil. Only a small amount of soil is expected to be moved on relatively flat areas with little slope. Erosion control at disturbed locations will be accomplished with typical methods and materials, collectively referred to as "best management practices" (BMPs). BMP specifications will be provided in the project SWPPP. Following reconductoring activities, disturbed areas will be restored and/or re-contoured, and reseeded as necessary (see Revegetation Plan in Appendix I of this IS/MND). With implementation of these measures, the project's impacts on soil erosion and loss of topsoil will be **less-than-significant with mitigation**.

(c) Soil Subsidence. As discussed in (a) above, given the temporary nature of the project and the relatively low impact that the project will have on the surrounding geological soil unit, the proposed project will not result in unstable soil or cause soil subsidence. The project is expected to have a **less-than-significant** impact on the soil condition with regard to instability.

(d) Expansive Soils. Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil can change significantly. As a consequence of such volume changes, structural damage to building and infrastructure may occur. However, this project will not include the building of new structures, therefore **no impacts** will occur.

(e) Soil Capability for Wastewater. The project does not propose to construct any buildings or structures that will require the use of a septic tank or alternative waste water disposal system. Therefore the project will have no impact on the soils ability to adequately support a septic system.

4.8. Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		X		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X	
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?			X	

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?			X	
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?		X		

Responses:

Prior to beginning any work activity, PG&E will prepare a Job Hazards Analysis as part of its Health and Safety Plan. Additionally, PG&E will develop and implement both a SWPPP and Hazardous Substance Control and Emergency Response Plan. PG&E crewmembers and licensed contractors employed on the project will have been trained and certified on the topics contained in these plans. These plans and training are incorporated by reference in the following responses.

(a) Hazardous Materials Handling. The construction activities associated with this project in general do not pose a hazardous materials risk; however, construction equipment will require refueling and maintenance. These activities will typically be done at the beginning or end of a work day when equipment is located in the staging area, where any accidental spills or releases can be more readily contained and addressed through implementation of standard construction BMPs. The hazardous materials that will be transported, used, or disposed of on the project are 1) fuel and 2) small amounts of general mechanical lubricants and solvents. PG&E will implement **APM-HH-01 Hazardous Materials Management, APM-HH-02 Hazardous Materials Storage,** and **APM-HH-03 Spill Prevention and Control** (Section 3.6). With these measures, the project will have an impact that is **less-than-significant with mitigation** on the public or the environment through the routine transport, use, or disposal of hazardous materials.

(b) Hazardous Materials Release. As discussed above, the project construction in general does not pose a hazardous materials risk and all required refueling and maintenance will be conducted at staging areas. Any accidental spills or releases will be contained and addressed through implementation of standard construction BMPs. PG&E will implement **APM-HH-01 Hazardous Materials Management, APM-HH-02 Hazardous Materials Storage,** and **APM-HH-03 Spill Prevention and Control** (Section 3.6)**.**

PG&E has been contacted by Chevron, via SAIC, who have notified PG&E that it is possible that a number of decommisioned pipes are present underground between towers 4 and 5. These pipes may hold an unknown quantity of liquid petroleum products. Auger holes for guard structures may impact these pipes. Therefore, PG&E will implement measure **MM-HH-01 Measures for Abandoned Pipes between Towers 1/4 and 1/5** (Section 3.6).

PG&E will notify Chevron's consultant SAIC and coordinate excavation of auger holes for guard structure towers in the area near known or suspected abandoned pipelines with SAIC staff.

With these measures in place, project activities will have an impact that is **less-than-significant with mitigation** on the public and the environment.

(c) Emissions Release. As discussed in the Air Quality section of this IS (Section 4.4), the amount of emitted hazardous emissions will be less than the BAAQMD CEQA thresholds (Appendix C of this IS/MND). In addition, any hazardous emissions will be temporary in nature. Best management practices will be implemented throughout the project construction phases. The impact due to hazardous emissions from the proposed project is **less-than-significant**.

(d) Hazardous Site. The northernmost pull site (Pull Site 1) is located at Pittsburg Substation in Pittsburg, California. This substation lies immediately adjacent to the PG&E Pittsburg Power Plant. This power plant is currently an evaluation site, but is not included on the list of Hazardous Waste and Substances (California Department of Toxic Substances Control 2010). The transmission corridor does not cross any designated hazardous materials sites, and therefore will have **no impact**.

(e) Airport Land Use Plan. The Contra Costa County Byron Airport is located within the project vicinity and will be used to stage helicopters. The Contra Costa County Airport Land Use Compatibility Plan (2000) describes all airport polices and procedures for that land use plan area. All project activities in the airport land use plan area will be conducted in compliance with that plan. No specific mitigation measures will be necessary to comply with this plan.

(f) Emergency Plan Coordination. The proposed project will not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. All project work areas (including pull sites, guard structures, and staging areas/landing zones) will be out of the way of all access for emergency vehicles and this access will be maintained at all times. The project is expected to have **no impact**.

(g) Emergency Planning. Construction of the proposed project will require the transport and staging of heavy equipment on project area roadways. These activities can be conducted without road closures, but lane closures up to 2-4 hours in length could be required. During lane closures, PG&E will utilize appropriate traffic controls as designated by Caltrans procedures for traffic control, including flagging traffic and posting signs (Caltrans 2006 and 2007). Because roadway closures will be limited to one lane at a time, and roads will be opened in the event of an emergency, the project will not impair implementation of, or physically interfere with, an adopted emergency response or evacuation plan. With the implementation of **APM-HH-05 Evacuation Route Planning**, impacts to emergency action planning will be **less-than-significant.**

(h) Wildland Fire. The majority of wildland fires are caused by human activity and are a particular concern where heat or sparks from vehicles or equipment have the potential to ignite dry vegetation in or adjacent to wildlands. Within the region, the fire season typically extends from June through October during the hot, dry months.

Operations and maintenance work, which includes regular vegetation clearing to minimize the potential for fire, will continue in the same manner as it did prior to construction of the project. As a result, completion of the project will not result in a change in the fire potential in the area.

Some construction activities will take place during the fire season, and could increase the risk of fire. During the fire season, prior to start of construction each day in areas of potential fire danger, PG&E crew chief(s) will check fire hazard levels for areas where project construction activities are planned to occur and will take the proper precautions to minimize the chance of accidental fires. At times of "moderate" or higher fire hazard, PG&E proposes the following measures below and as described in **APM-HH-06 Risk of Wildfire** to address the potential risk of fire.

- Water supplies and fire-fighting equipment will be sited in the proposed project area or in vehicles present at the project site and be available for fire protection during the fire season.
- PG&E will ensure that vehicles and equipment primarily use existing roads to access work sites, and park away from dry vegetation.
- PG&E will prohibit trash burning and smoking on the project site.
- PG&E will, as part of the emergency response plan, ensure that work crews are trained in accurate reporting of locations when reporting any wild fire.
- All welding, metal cutting, or other activities that may generate sources of ignition will be conducted in a manner that prevents ignition of surrounding vegetation. In addition to fire suppression equipment on site, adequate fire extinguishers will be immediately at hand during such activities.

With the inclusion of APMs noted above, the potential to expose people or structures to risks of wild land fires will be **less-than-significant with mitigation incorporated**.

4.9. Hydrology and Water Quality

Would the project:	**Potentially Significant Impact**	**Less-than-significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements?		X		
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			X	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow?				X

Responses:

(a) Water Quality Standards. PG&E has submitted an application for water quality certification pursuant to Section 401 of the federal CWA. The proposed project's potential impacts to water quality will be regulated, and any additional actions required by the State Water Board will be incorporated into the project.

Potential water pollutants associated with project construction could include soil sediment and petroleum-based fluids and lubricants. Ground disturbing activities, although limited, may cause small releases of sediment and/or soil erosion within the project area. Areas accessed during the wet season, or during unpredicted storms, could also cause rutting or erosion, and may require temporary placement of rock to improve stability. If construction workers or equipment inadvertently release hydraulic fluids, lubricants, or fuel, these materials could be entrained by stormwater and discharged into surface waters.

Potential impacts to water quality will be avoided by implementing construction BMP's. The BMP's have been incorporated into project design as APM's. The SWPPP for this project, and erosion control BMP's will be used to minimize any wind- or water-related erosion.

The proposed project will not violate any water quality standards or waste discharge requirements. With implementation **APM-HWQ-01 Storm Water Pollution Prevention Plan**, water quality impacts will be **less-than-significant with mitigation**.

(b) Groundwater. The project does not require the use of groundwater, nor does it propose the construction of infrastructure or facilities that will increase impervious surfaces leading to a substantial depletion of groundwater supplies or interference with groundwater recharge. The project will have **no impact**.

(c,d) Drainage Patterns. The project does not propose to substantially alter existing drainage patterns within the transmission corridor, including the project work area. Although small amounts of grading are necessary at some pull sites, no alteration of stream courses or rivers will occur. The grading will occur in upland areas that are well-removed from waterways. This grading is not expected to alter the overall drainage pattern of an area; changes will be temporary. By employing BMP's and post-construction restoration (recontouring or reseeding), substantial erosion or siltation will not occur on- or off-site. With implementation of **APM-HWQ-01 Storm Water Pollution Prevention Plan**, water quality will not be substantially altered and therefore, the project will have a **less-than-significant** impact.

(e,f) Erosion and Water Quality. The project will not create an increased volume of run-off water. No additional permanent paved or impervious surfaces will be required, and appropriate BMP's will be used during construction activities to control runoff.

In addition, all areas of ground disturbance will be revegetated following construction. Temporary impacts to water quality will be avoided by implementation of a SWPPP and BMP's during construction as described in (a) above. Therefore, the project will not create a substantial additional source of polluted runoff or substantially degrade water quality. With the implementation of **APM-HWQ-01 Storm Water Pollution Prevention Plan,** the project is expected to have a **less-than-significant** impact.

(g,h,i) Flooding. The project will modify an existing transmission line in an existing transmission corridor. The project does not include new housing, buildings, or similar structures. The project will not expose people to risk related to the failure of dams or levees, or to seiche, tsunami, or mudflow. The project will have **no impact**.

4.10. Land Use and Planning

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?			X	

Responses:

(a) Community Division. The proposed project will not divide an established community as the scope of the project is simply to upgrade already existing transmission line structures. No additional structures will be constructed that will create a division within the established community. Therefore, the project is expected to have **no impact** to established communities.

(b) and (c) Land Use Planning and Conservation Planning. The project corridor passes through lands included in the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) (Contra Costa Counties 2007). The HCP allows the permittees (Contra Costa County, the Contra Costa County Flood Control and Water Conservation District, the East Bay Regional Park District and the Cities of Brentwood, Clayton, Oakley, and Pittsburg) to control listed species permitting for activities and projects within the HCP/NCCP. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary land-use regulations. However, in order to receive mitigation acreage for species impacts in Contra Costa County, PG&E will be applying to the East Contra Costa County Habitat Conservancy and paying mitigation under the Conservancy's established fee scale; as a result, PG&E will receive state-listed species take coverage under the HCP. For impact acreages in Alameda County, mitigation coverage will take place separately and take permit coverage will occur directly with CDFG. PG&E expects the entire project to undergo consultation with the USFWS and receive a BO (in order to be included in ACOE NWP #12). This process meets the intent of the HCP to protect sensitive habitats and species.Therefore proposed project will not conflict with any applicable government-adopted HCP or NCCP.

The project be included in, and have a **less than significant impact** to an established HCP or NCCP.

4.11. Mineral Resources

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Responses:

(a,b) Minerals. The project involves modification to an existing transmission line, including existing transmission towers, within an existing transmission corridor. This project activity will not permanently or temporarily change the use of the project area or surroundings with regard to mineral resources. No known mineral resources are being extracted or otherwise used within the project. Therefore, **no impacts** will occur to mineral resources from implementation of the project.

4.12. Noise

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			X	
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?			X	

Responses:

(a,d) Noise Standards and Temporary Ambient Noise. In general, the transmission corridor crosses rural, natural, and agricultural areas where ambient noise levels are low and sensitive receptors are scarce. Along SR 4 and other heavily-travelled roads in the City of Pittsburg, however, noise near these roadways can regularly range from 60 to 90 decibels (City of Pittsburg 2001). For this project, the sensitive noise receptors include recreationists in Black Diamond Mines Regional Park (Contra Costa County), John Marsh State Historic Park (Contra Costa County), and a residential area in the City of Pittsburg near pole site 2 that is situated within 328 feet (100 meters) of project work areas including a staging area/landing zone. The use of helicopters and construction equipment will generate temporary noise that will add to the existing noise levels in the vicinity of the project work areas. Typical noise emission levels for heavy duty equipment used for project activities (e.g., backhoes, large trucks, etc.) range from 80 to 85 decibels measured at 50 feet from the noise source. Helicopter noise is expected to be 95 decibels measured at a distance of 150 feet.

The City of Pittsburg General Plan (adopted 2001) outlines the “normally acceptable” and “conditionally acceptable” ranges for day and night noise levels near various land use categories for construction-related activities (pers. comm., Adam Foster, City Planner 2011). Residential areas are considered the most sensitive land use categories to noise with normally acceptable ranges not to exceed 60 decibels and conditionally acceptable ranges not to exceed 70 decibels.

The County of Contra Costa General Plan (adopted 2005, Figure 11-6) outlines the community noise exposure limits for normally acceptable and conditionally acceptable within certain land use designations. In lands designated “recreation”, including State and Regional Parks, the normally acceptable limits are 75 decibels with conditionally acceptable limits to be determined.

The increase in noise levels from the project is expected to take place during regular working hours, and will be short term. Therefore, with implementation of **APM-NOI-01** through **APM-NOI-06**, impacts are expected to be **less-than-significant with mitigation**.

(b) Ground Vibration. Construction activities will require heavy equipment, trucks, helicopters, and other equipment that could result in vibration. Most impacts will be short term, as large trucks and other equipment drive by sensitive receptors, or as helicopters perform work. Due to the temporary and small-scale nature of these impacts, and considering the applicant-proposed APMs described in **APM-NOI-01** through **APM-NOI-06**, impacts will be **less-than-significant**.

(c) Permanent Ambient Noise. The project will not permanently increase ambient noise levels. Construction-related noise impacts will be temporary. The noise level after project implementation will be similar to current levels generated by the transmission line. The project will have **no impact**.

(e, f) Public and Private Airport Noise. Noise impacts from the project will be temporary, associated with the construction of the project. The Contra Costa County Byron Airport is located within the project vicinity and will be used to stage helicopters. The Contra Costa County Airport Land Use Compatibility Plan (2000) describes all airport polices. All project activities in the vicinity of the airport will be conducted in compliance with airport policies and procedures. Therefore, noise impacts related to airport noise due to will be **less-than-significant**.

4.13. Population and Housing

Would the project:	**Potentially Significant Impact**	**Less-than-significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the				X

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
construction of replacement housing elsewhere?				
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Responses:

(a) Population Growth. The proposed project does not include new housing or businesses or land use changes that will induce population growth in the area. The proposed project accommodates existing and planned growth within the service area and will not alter the location, distribution, density or growth rate of the population. The project will have **no impact** on the population growth in the area.

(b) Housing. Project-related construction will only occur within existing PG&E transmission line corridors. The construction activities associated with this project will not displace housing in the area or necessitate the construction of replacement housing; therefore, the project will have **no impact**.

(c) Potential Population Displacement. The proposed project will require a small number of workers (approximately 12 workers on a crew). The majority of construction workers are expected to come from the local area or commute from the neighboring counties and cities. Because the construction duration is short and the local workforce is anticipated to be sufficient, it is not expected that the construction workforce will relocate to the area causing a displacement of housing or people. The operation of the project will not require any additional workers. The project is not expected to cause a displacement of housing or people and therefore the will result in **no impacts.**

4.14. Public Services

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?				X
b) Police protection?				X
c) Schools?				X
d) Parks?				X
e) Other public facilities?				X

Responses:

Due to the temporary nature of construction, and availability of a regional workforce, construction of the proposed project is not expected to result in direct population increases. For this reason, construction of the proposed project will not increase demands on parks, schools, utilities, or other government services. Furthermore, as a result of construction practices and precautions, construction of the proposed project is not expected to place undue demands on fire protection or law enforcement services. A review of potential impacts to public services is discussed below.

(a, b, c, d, e) Public Services During construction of the project, activities and equipment could temporarily cause a minor increase in traffic on the surrounding local road network. However, the number and type of equipment will not cause noticeable impacts to public services. As the majority of the construction crew (approximately 12 people) will be from the local population, existing fire, police, and medical services will be sufficient to respond to potential emergencies. The project will have **no impact** on public services.

Once constructed, the project will rely upon existing fire, police, and medical services. The project is proposed to provide additional electricity to accommodate existing and planned growth within the PG&E service area and will not alter the location, distribution, density, or growth rate of the population. Therefore, the project will not impact service ratios, response

times, or other performance objectives for any of the public services. Therefore **no impacts** to public services will occur.

4.15. Recreation

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X
c) Would the project prevent access to an established recreation area during its peak use periods or for more than one year?				X

Responses:

(a) Parks Facilities Deterioration. The proposed project will accommodate existing and planned growth within the PG&E service area and will not alter the location, distribution, density or growth rate of the population. The project will not create any new demand for existing public parks or recreational facilities or create new recreation facilities. Therefore **no impacts** will occur.

(b) Recreational Facilities. The project does not include recreational facilities and will have **no impact** on need for construction or expansion of recreational facilities.

(c) Access to an Established Recreation Area. Portions of the project corridor lies adjacent to several recreational facilities and include: Delta View Golf Course; Delta de Anza Trail; East Bay Regional Parks District Trail; Black Diamond Mine Regional Preserve and a 6,000 acres regional park managed by the East Bay Regional Parks District (East Bay Regional Park District 1997); Roddy Ranch Golf Course; Bethany Reservoir State Recreation Area; and Mountain House Golf Course. However, the project will not prevent access to these established recreational areas during peak use periods, or prevent access for more than one year, so project effects on recreation are found to be of **no impact**.

Access to Existing Recreational Facilities. Project construction activities will require vehicle access to existing poles within the project corridor. The recreational areas will be not

be affected by the project and will not prevent access to the parks, nor be expected to substantially affect park use. The proposed construction operations will follow a regular work schedule during daylight hours, and no work is proposed during the weekends. For these reasons, and because the construction is temporary in nature, project construction will have **no impact** on access to recreational facilities.

4.16. Transportation and Traffic

Would the project:	**Potentially Significant Impact**	**Less-than-significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?		X		
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?		X		
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, which results in substantial safety risks?			X	
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		X		
e) Result in inadequate emergency access?		X		
f) Result in inadequate parking capacity?			X	
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X

Responses:

(a) Traffic Levels. Traffic associated with project operations is considered to be minimal, as state routes and local roadways have adequate capacity to accommodate anticipated traffic. However the potential exists for conflicts to develop between construction equipment and vehicles on roadways. The incorporation of avoidance and minimization measures into the project design will insure that impacts to traffic and transportation will be **less-than-significant with mitigation**.

(b) Level of Service Standards. The main travel routes that will be used for construction access include Willow Pass Road, SR 4, Leland Road, Deer Valley Road, Diablo Camino, Altamont Pass Road, Midway, and Patterson Pass Road. Construction activities will generate temporary and periodic increases in traffic on local roads. However, as described in **APM-TRA-01 Temporary Traffic Controls** (Section 3.6), traffic control measures and lane closures will take place as directed by the procedures described in Caltrans' *California Manual on Uniform Traffic Control Devices*, *Flagging Instruction Handbook*, *Manual of Traffic Controls for Maintenance and Work Zones*, and *Traffic Manual* (Caltrans 2006, 2007, 2003, and 2004, respectively). Because of the temporary nature of the project, and the limited increase in traffic, LOS thresholds will not be exceeded, and impacts will be **less-than-significant with mitigation**.

(c) Air Traffic. The proposed project is not within the vicinity of a public or private airstrip. Construction activities at individual towers will be carried out by helicopter to minimize ground disturbance. Workers and materials will be flown from Byran Airport and staging areas to and from tower locations. Air Traffic will be executed as described in **APM-HH-04 Air Transit Coordination.** While the project does propose the use of a helicopter to perform construction activities, all safety precautions will be addressed prior to the commencement of the project, including coordination with the FAA. In addition, the majority of construction activities that involve the use of a helicopter will be in relatively remote locations that have little or no residences in the vicinity and therefore could easily be avoided with an alteration of the flight path. Helicopters carrying equipment will not pass over large highways, or through residential areas. With the implementation of **APM-HH-04 Air Transit Coordination**, this impact will be **less-than-significant**.

(d) Traffic Hazards. The proposed project design will not substantially increase hazards due to any design features or incompatible uses. The replacement and modification of poles and the use of pull sites will be constructed under the existing power line. Lane closures and traffic controls will occur as needed, but will only be periodic and temporary in nature. Caltrans' Construction Manual requires temporary traffic control planning "any time the normal function of a roadway is suspended" (Caltrans 2009). To prevent excessive congestion or traffic hazards during lane closures, PG&E will develop traffic diversion plans compliant with Caltrans' guidelines and city and county policies for all locations of potential lane closures or width reductions prior to project construction. Additionally, as described in **APM-TRA-01 Temporary Traffic Controls**, **APM-TRA-02 Traffic and Parking Coordination,** and **APM-TRA-03 Traffic Management Plan** (Section 3.6), PG&E will obtain all necessary transportation and/or encroachment permits from Caltrans, in accordance with the Caltrans Transportation Permit and Encroachment Permit manuals, prior to project construction, including those for transport of oversized loads and certain materials. Construction activities in, along, and crossing roadways will follow Caltrans BMPs to minimize impacts to traffic and transportation in the project area, as detailed in Caltrans' *California Manual on Uniform Traffic Control Devices*, *Flagging Instruction Handbook;*

Manual of Traffic Controls for Maintenance and Work Zones; and *Traffic Manual* (Caltrans 2006, 2007, 2003, and 2004).

Because closures will be consistent with city and county policies and State regulations, and will be temporary in nature, impacts associated with traffic hazards will be **less-than-significant with mitigation.**

(e) Emergency Access. Emergency access could be negatively affected by short-term traffic disruption caused by occasional temporary lane closures and slower driving speeds as a consequence of construction activities. Lane closures will occur as needed for the replacement and modification of poles and the use of pull sites. Traffic control will be provided where necessary, and PG&E will follow Caltrans BMPs to minimize impacts to traffic and transportation. Further emergency access will be addressed as described in **APM-HH-05 Evacuation Route Planning.** In the event of an emergency, PG&E will halt activities and remove equipment from affected roads as needed. With these measures, impacts to emergency access will be **less-than-significant with mitigation**.

(f) Parking. Project-related parking will be located at staging areas/landing zones, and pull sites. To the extent feasible, workers will carpool to project work areas from established substation and developed PG&E facilities. Given the rural location of most of the project, and the small number of workers and equipment, impacts to parking capacity are expected to be **less-than-significant**.

(g) Alternative Transportation. The project will not conflict with any policies, plans, or programs supporting alternative transportation (e.g., bus turnouts or bicycle racks). The project will have **no impact** on alternative transportation.

4.17. Utilities and Service Systems

Would the project:	**Potentially Significant Impact**	**Less-than-significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require, or result in the construction of, new water or wastewater treatment facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?				X

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Require, or result in the construction of, new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			X	
e) Result in a determination by the wastewater treatment provider that serves, or may serve, the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g) Comply with federal, state, and local statutes and regulations related to solid waste?			X	

Responses:

(a) Wastewater Treatment. Wastewater disposal will not be required, because the water used during dust suppression activities will be minimal. Further, this water will evaporate or be absorbed into the ground. In addition, construction crews will use portable toilets located at staging areas. The material in the portable toilets will be disposed of via septic tank or appropriate wastewater treatment plant off site, in compliance with the requirements of the San Francisco Bay Regional Water Quality Control Board. Concrete truck washout water will be contained and reused in mixing additional concrete. No other sources of wastewater are anticipated during the proposed project. Given the limited amount of water that will be used during construction or operation, impacts on wastewater treatment facilities are not anticipated. The project will not exceed wastewater treatment requirements and will have **no impact** on these requirements.

(b) Wastewater Facilities. The small amount of water used and wastewater generated by the proposed project can be easily serviced from various existing sources within the project

area. The proposed project will not trigger a need to add capacity to the existing municipal wastewater treatment system, and will therefore have **no impact** on these systems.

(c) Storm Water Facilities. The proposed project will not require, or result in the construction of, new or expanded storm drain facilities. The proposed use of pole installation sites, work areas, pull and tension sites, staging areas, and access roads required for the proposed project is not anticipated to result in a net increase in impervious surfaces. No new temporary access roads will be constructed. Operations and maintenance conditions of the facilities post-construction will be very similar to the existing conditions. For these reasons, the proposed project will have **less than significant impact** on storm water drainage facilities.

(d) Water Supply. The primary use of water during construction of the proposed project will be for dust suppression measures on access roads. The water that will be required for construction activities will be trucked in from off-site. PG&E will obtain permits from the appropriate county/city agency and water district to fill water trucks by hooking them up to fire hydrants within the specific local jurisdiction. Working crews will bring in bottled drinking water from off-site. A small amount of water will also be maintained on site for fire suppression. Because water use will primarily be limited to use as necessary to control dust on access roads, the amount of water used for construction will be minimal: water use for dust and fire suppression is not expected to exceed 2,000 gallons per day, but may increase in the event of fire. For these reasons, the proposed project will have **less than significant impact** on existing water supplies, and new or expended entitlements will not be needed.

(e) Wastewater Capacity. Water use and wastewater generated by the proposed project will be minimal, and can be easily supplied and serviced from various sources within the project area, without construction of additional facilities. During project-related construction, water use for dust and fire suppression is not expected to exceed 600 gallons per day. For these reasons, the proposed project will have **no impact** on wastewater services.

(f) Solid Waste. Waste material generated by the project will primarily consist of replaced conductor wire. This wire will be assessed and determined to be reused, recycled or disposed of off-site in a properly classed landfill. Wooden pallets used during construction will be recycled as described in **APM-AQ-04 Recycling**. . For these reasons, the impacts of the proposed project on solid waste disposal needs will be **less-than-significant**.

(g) Solid Waste Regulatory Compliance. Because the proposed project will generate only a small volume of waste material on a short-term basis with most being stored and reused by PG&E, and will comply with federal, State, and local statutes, the proposed project will have a **less-than-significant** impact on solid waste disposal.

4.18. Mandatory Findings of Significance

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish		X		

	Potentially Significant Impact	Less-than-significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?				
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?			X	

Responses:

(a) Environmental Quality. The construction of the proposed project will include construction-related disturbances during the construction period at discrete locations along the project corridor. Application of the proposed APMs and MMs will manage these disturbances and the potential project-related impacts to a level that is **less-than-significant with mitigation incorporated**. Therefore, the project will not significantly degrade the quality of the environment.

As a result of the project, some habitat along the project corridor will be temporarily disturbed during construction. Temporary disturbances to habitat will be addressed with measures to return disturbed sites to pre-project conditions. The project also includes a variety of measures to address water quality, nesting birds, and protection of wildlife habitat. For these reasons, the project will not substantially reduce the habitat fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten and threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. A small amount of wetland will be removed by the project. In keeping with the regulatory requirements of the CWA, PG&E has reviewed the proposed project with the ACOE, and based on this consultation will compensate for the permanent loss of wetlands as a part of the project (see **MM-BIO-03**, Section 3.6).

Consequently, project impacts on these resources will be **less-than-significant with mitigation incorporated**.

Surveys of the project area identified one architectural resource and 27 additional cultural resources related to California history or prehistory. These resources can be avoided by project activities. However, subsurface archeological resources associated with the Native American occupation of the area and/or Euro-American settlement of the area are potentially present and could be unearthed during excavations for new installation. Consequently, the project includes measures to address the discovery of cultural materials during project excavations, including evaluation and agency consultation on these finds. Therefore, the project is unlikely to eliminate periods of important California history or prehistory and will have a **less-than-significant** impact on cultural resources.

(b) Cumulative Impacts. Future operation and maintenance (O&M) activities for the proposed project will not differ substantially from those O&M activities associated with operation of the currently existing power line. No cumulative impacts will be expected to result from operation of the new power line.

Impacts associated with the proposed project include short-term disturbances associated with construction activities and changes to the project area that are permanent alterations of the existing project setting. During construction, temporary disturbance of habitat will occur, along with minor visual changes on the landscape. The project includes compensation for loss of wetlands. Project construction is expected to generate short-term emissions of greenhouse gases and pollutants regulated by local air quality management districts. However, with implementation of the APMs, net emissions will pose a negligible increase over existing conditions and are not expected to contribute substantially to an existing or projected air quality violation or the non-attainment for a monitored criteria pollutant. The modification of existing towers and replacement of conductors represent relatively minor incremental changes to the existing landscape setting.

The incremental impact of the project, when added to other closely related past, present, and reasonably foreseeable, probable future projects, will not contribute to cumulative impacts on project-related resources. Most of the other projects identified as potentially occurring within the same timeframe are at least 0.5 miles away. Further, these projects will be expected to implement minimization measures similar to those incorporated into the proposed project (see Applicant Proposed Measures, Section 3.6), including meeting air quality requirements, coordinating work activities with the responsible agencies, and implementing applicable BMPs and mitigation measures. Consequently, the project's potential to result in cumulatively considerable impacts is **less-than-significant**.

(c) Human Beings. During project construction, APMs will be implemented to manage air emissions, hazardous materials, hazards, noise, recreation, traffic, visual changes, and water quality. These measures will ensure worker and public safety and minimize construction-related disturbances. PG&E will also comply with federal, State, and local regulations and abide by permit conditions issued for this project. Therefore, project impacts on human beings are expected to be limited to short-term, minor construction disturbances, which are within the range of conditions allowed by federal, State, and local regulations. Consequently, project impacts on human beings are expected to be **less-than-significant**.

5.0 Initial Study Preparers

This Initial Study was prepared for the State Water Board by Garcia and Associates (GANDA) with supporting materials provided by Environmental Vision, CH2MHill, and Avocet Research Associates.

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Utilities and Service Systems

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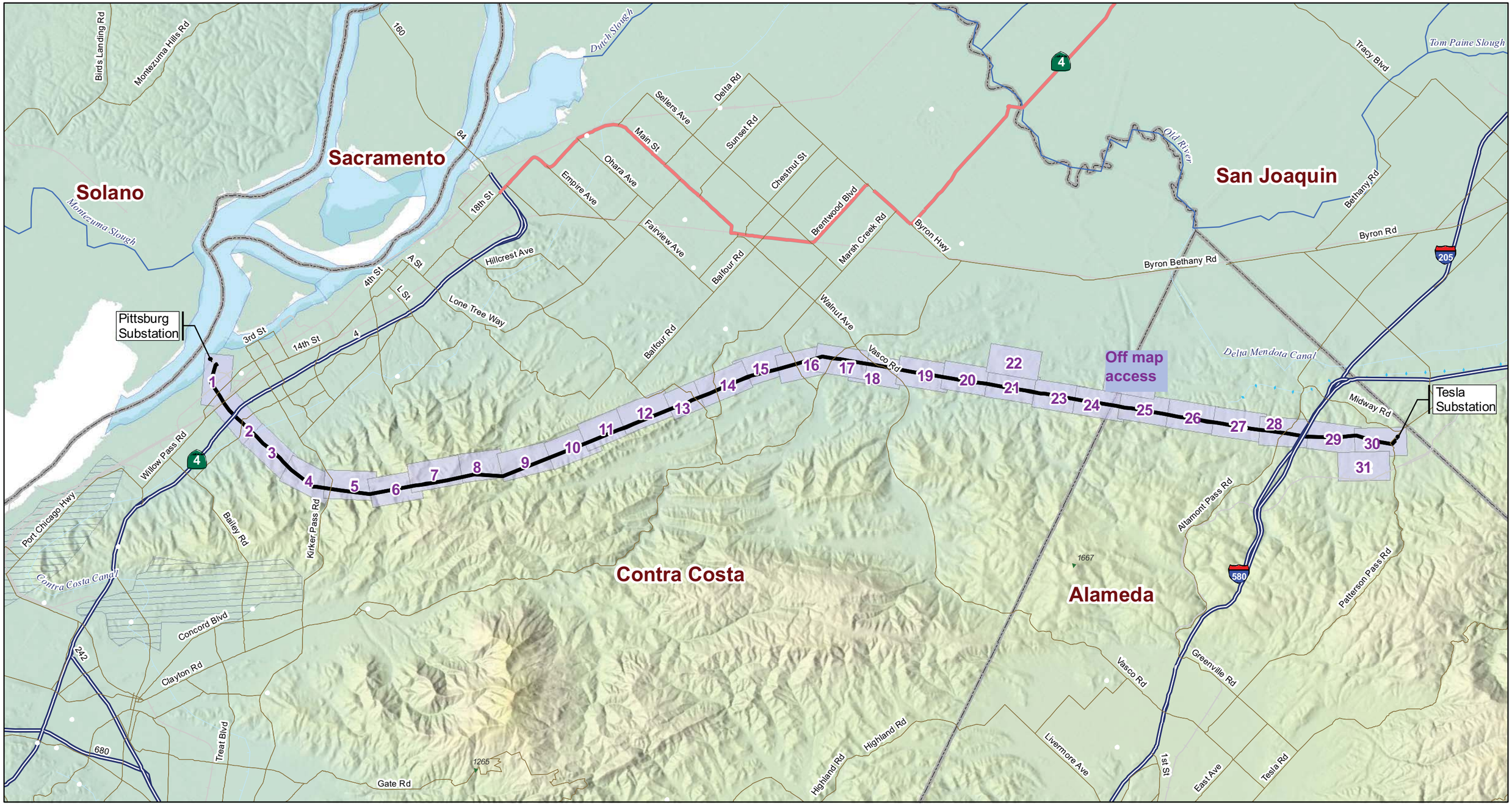
Appendix A
Project Maps



GANDA

Project Features

- 230kV Transmission Line
- Stream
- Lake, Reservoir
- County Boundary
- 1 Map Location

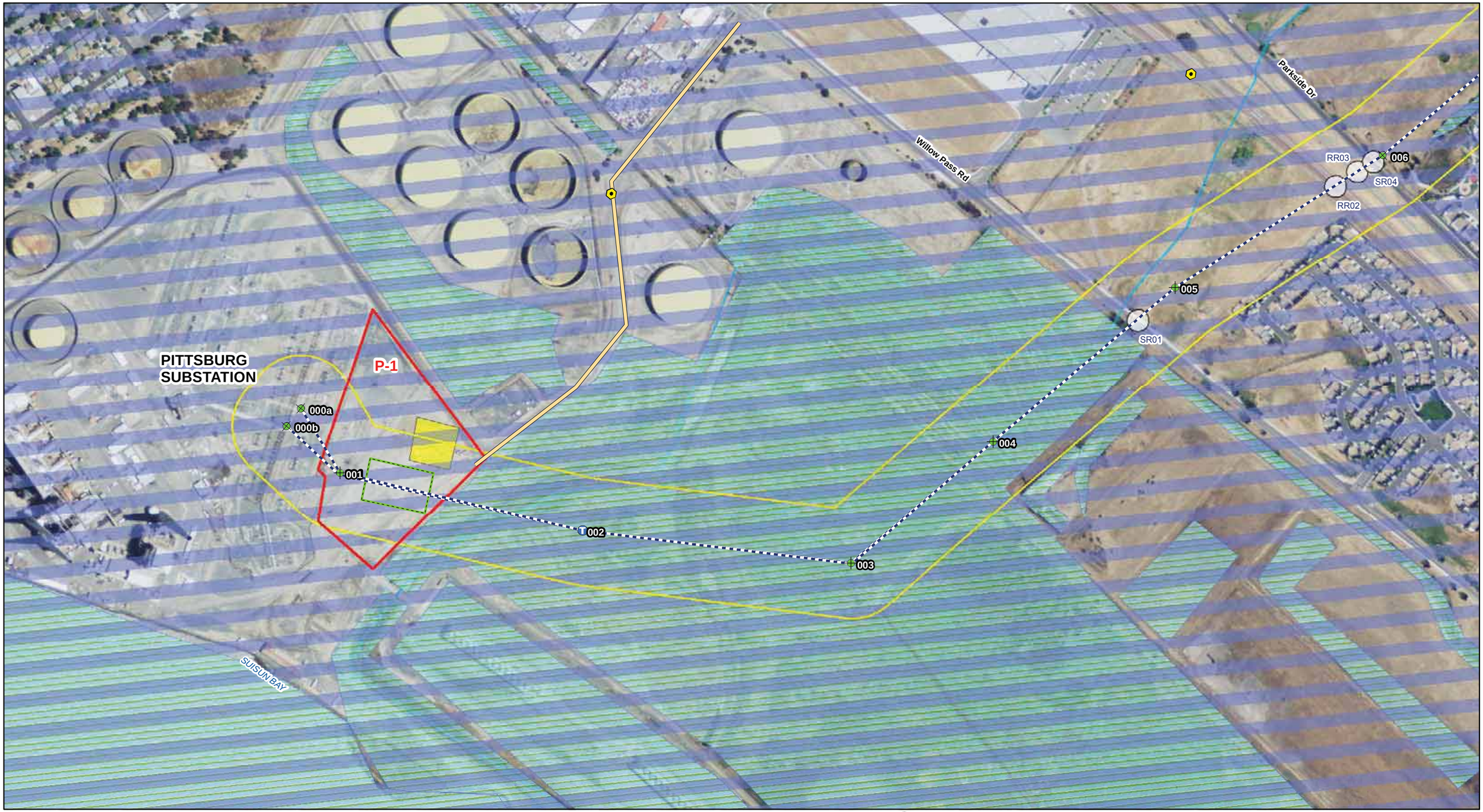
Project Location

Source: PG&E GIS / GANDA GIS 2009

0 2 4 Miles

Map Index - Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

January 2012
Alamada and Contra Costa Counties, CA



Federally Listed Species (CNDDB Occurrences)

Mammals
- San Joaquin kit fox (SJKF)

Plants
- large-flowered fiddleneck (AMGR)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

USFWS Critical Habitat Areas
- Contra Costa goldfields
- California Red-legged Frog
- Delta Smelt
- Vernal pool fairy shrimp

Special-status species observations (2008-2010)
- Calif.Red-legged Frog
- Vulpes sp.
- Elderberry
- Round leaved filaree

Hydrology
- Delineated Seasonal Wetland Feature
- Wetland Feature
- Creek, Stream

Project Features
- Gate
- Lock Gate
- PGE Lock
- Possible Access Rd
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- Pull Site (200x300)
- 500 ft Project Corridor
- Study Area
- Pull Site Access Corridor
- Staging Area/ LZ (200x200)

Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 1 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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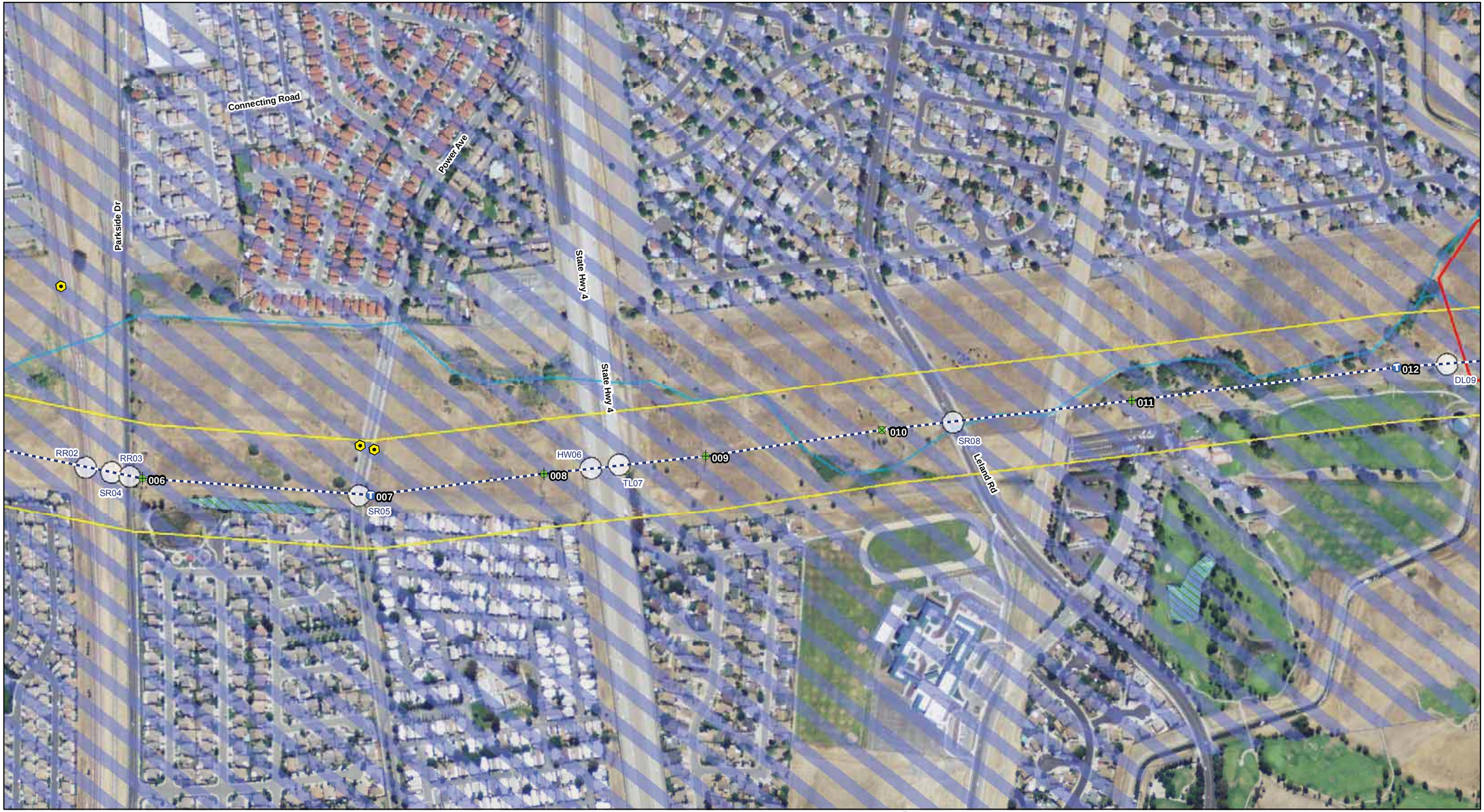

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 2 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

Privileged and Confidential - Attorney Work Product

This map has been revised since October 2011.

P-2

DL09

012

013

014

015

016

TL10

Kilkel Ck

Federally Listed Species (CNDDB Occurrences)

Mammals
- San Joaquin kit fox (SJKF)

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 3 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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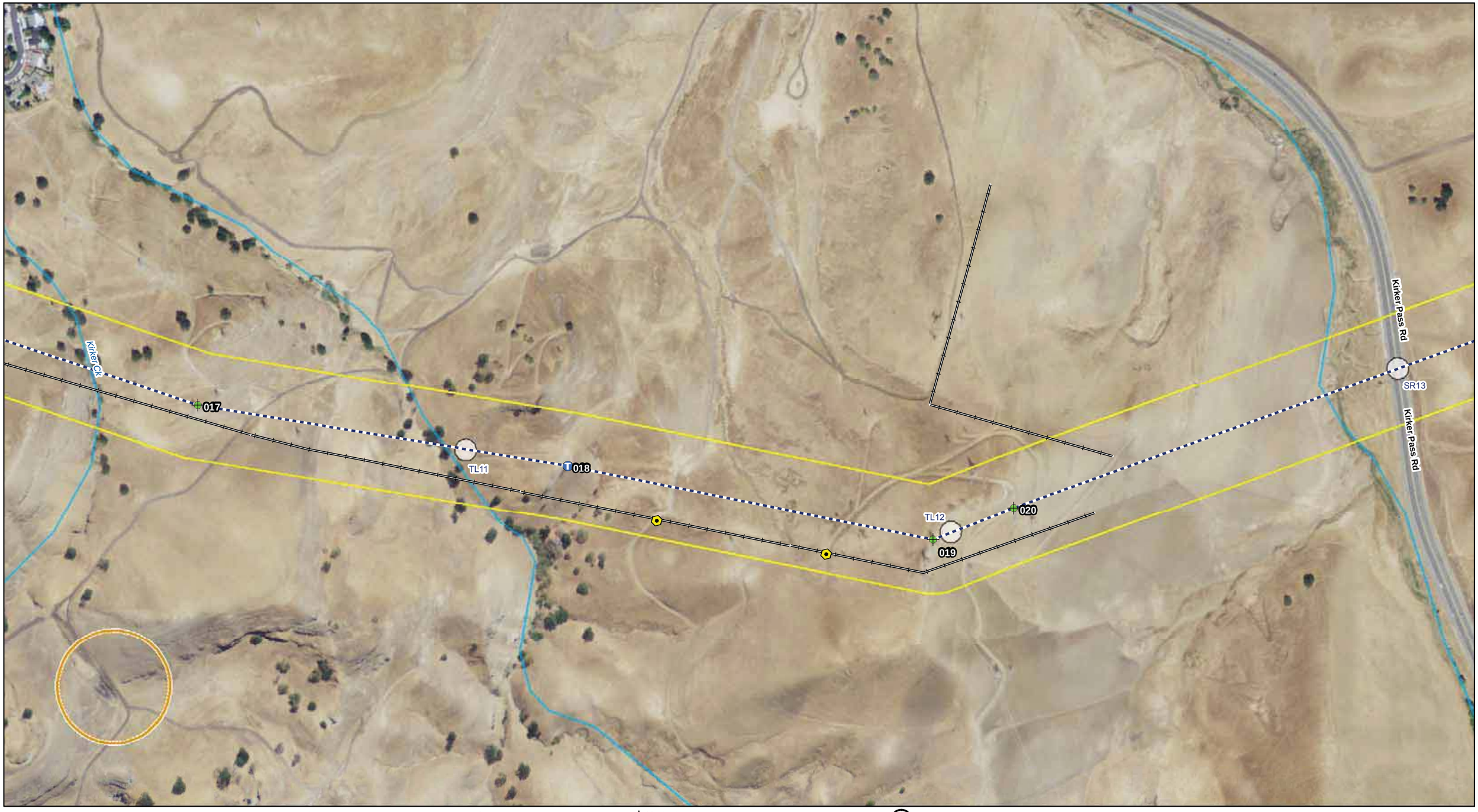

Federally Listed Species (CNDDB Occurrences)

Mammals
- San Joaquin kit fox (SJKF)

Plants
- large-flowered fiddleneck (AMGR)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

USFWS Critical Habitat Areas
- Contra Costa goldfields
- California Red-legged Frog
- Delta Smelt
- Vernal pool fairy shrimp

Special-status species observations (2008-2010)
- Calif.Red-legged Frog
- Vulpes sp.
- Elderberry
- Round leaved filaree

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Tower Modifications
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- Dead End with Tap
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- FLO Wind Tap

Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 4 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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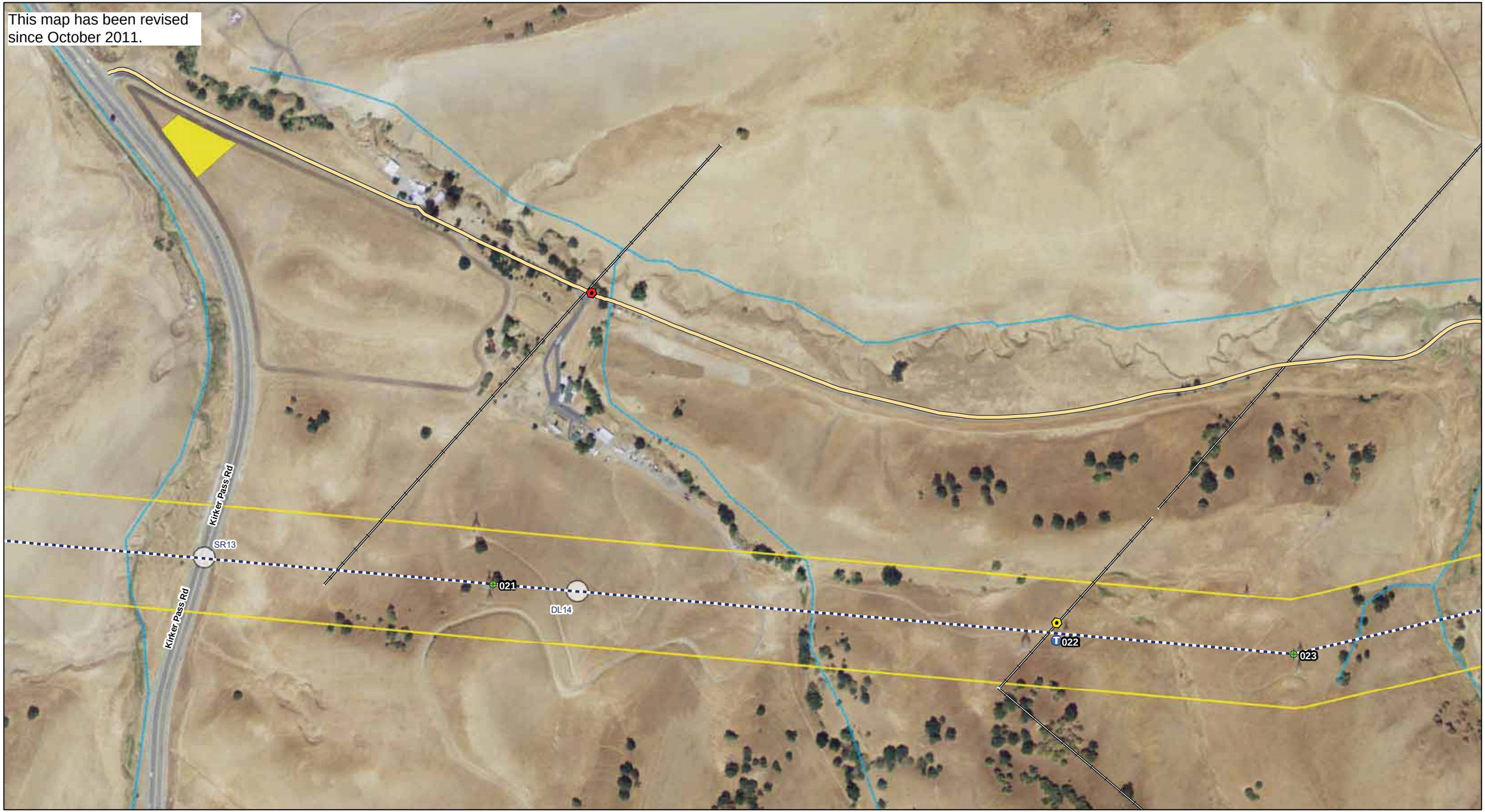

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 5 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2012

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P-3

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Federally Listed Species (CNDDB Occurrences)

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 6 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2012

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 7 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

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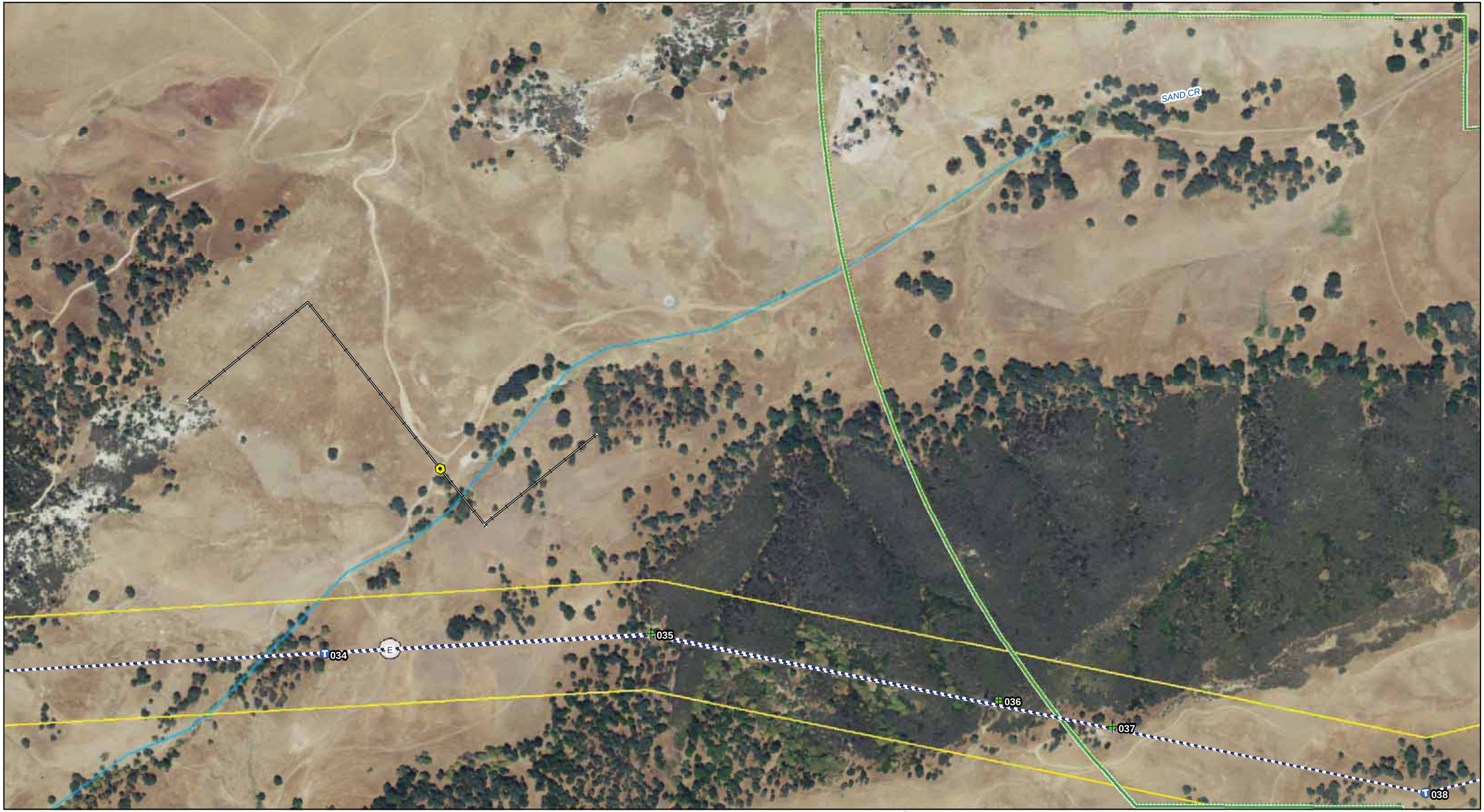

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 8 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 9 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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DEER CR

P-4

045 046 047 048 049 050

Federally Listed Species (CNDDB Occurrences)

Mammals
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Plants
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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 10 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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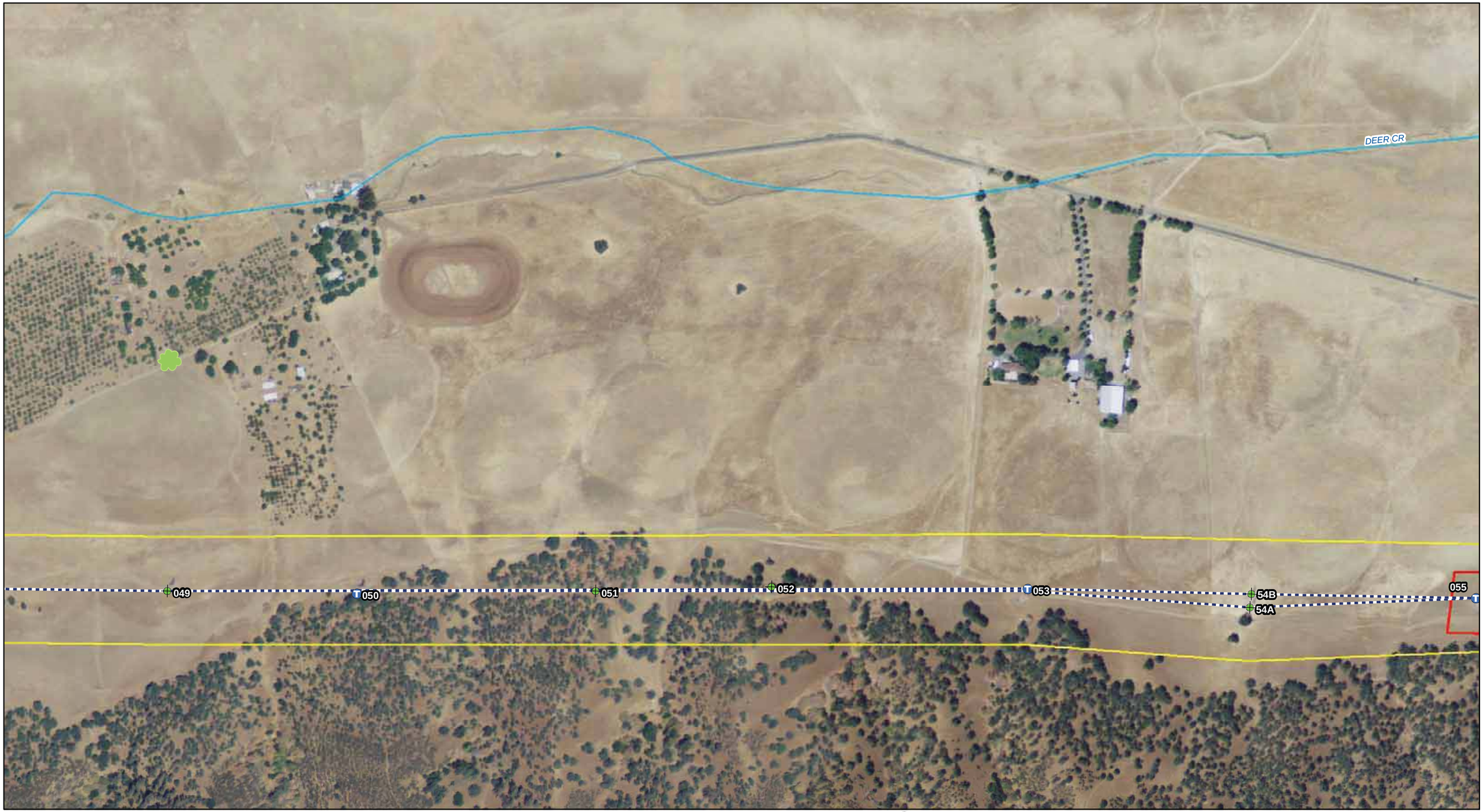

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 11 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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DEER CR

Deer Valley Rd

P-5

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Federally Listed Species (CNDDB Occurrences)

Mammals
- San Joaquin kit fox (SJKF)

Plants
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Invertebrates
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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 12 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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Federally Listed Species (CNDDB Occurrences)

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 13 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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Mammals
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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 14 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

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P-6

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Road becomes "track" at this point

MARSH CR

MARSH CR

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Federally Listed Species (CNDDB Occurrences)

Mammals
- San Joaquin kit fox (SJKF)

Plants
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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 15 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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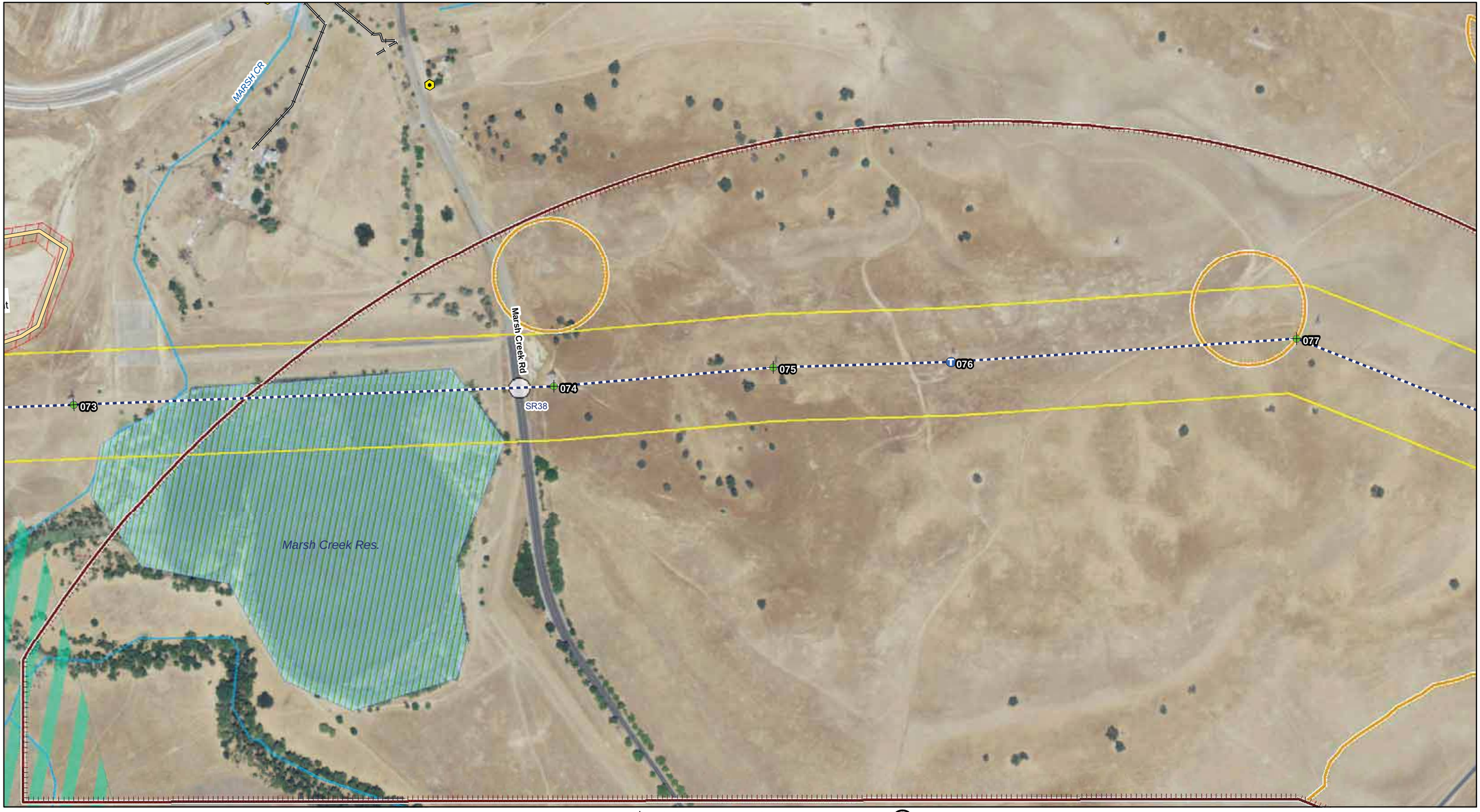

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 16 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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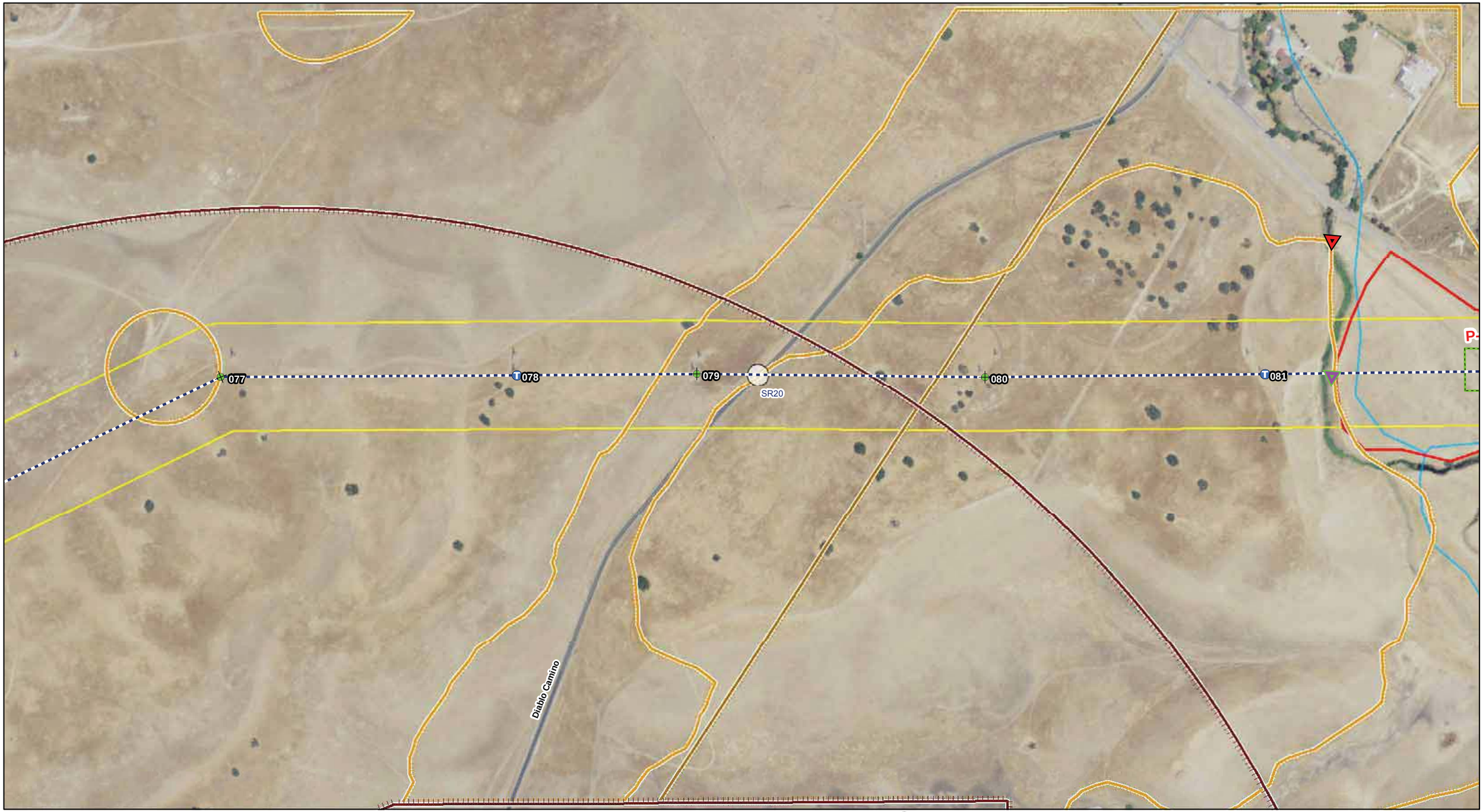

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 17 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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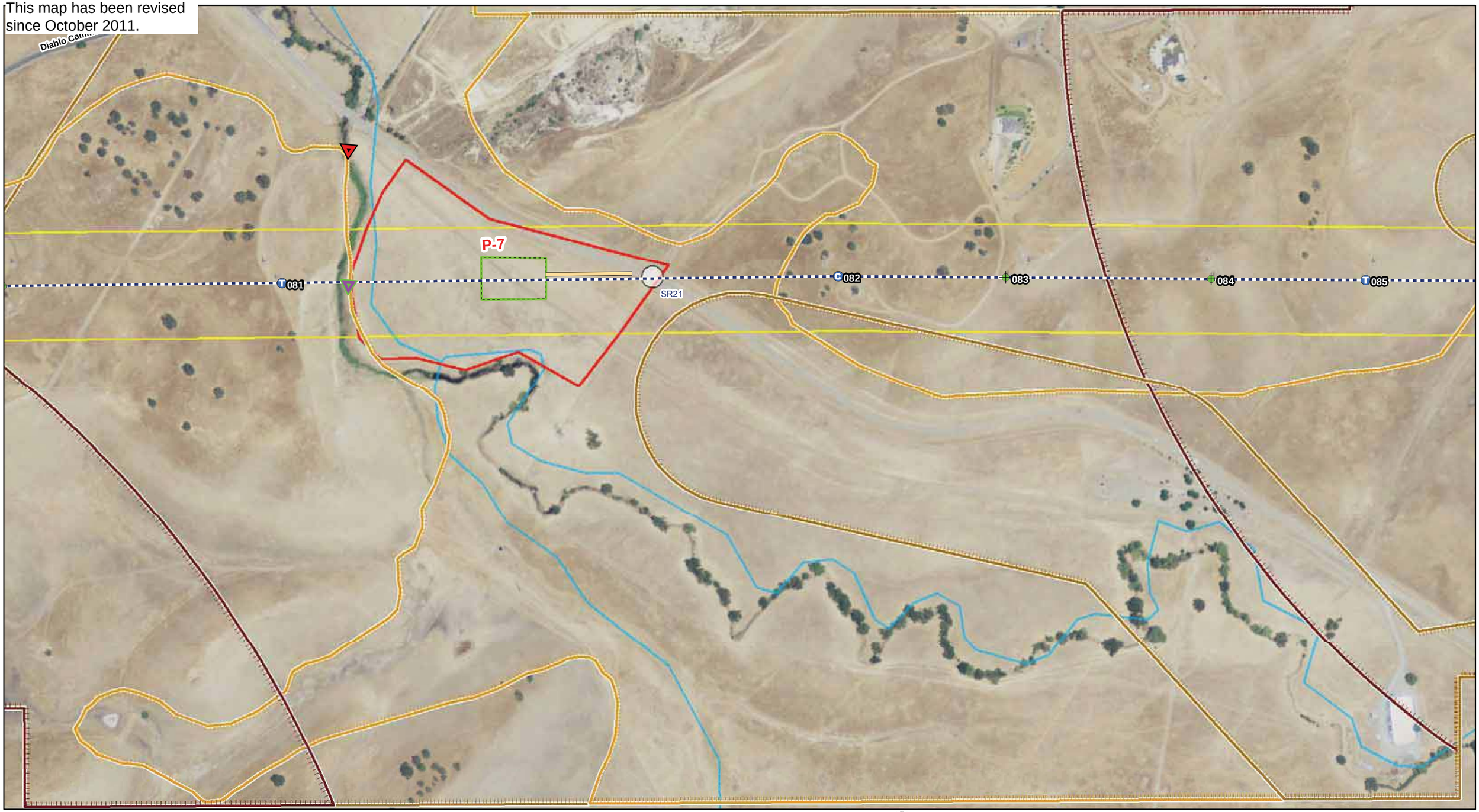

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 18 of 31

March 2012
Alameda and Contra Costa Counties, CA

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GANDA

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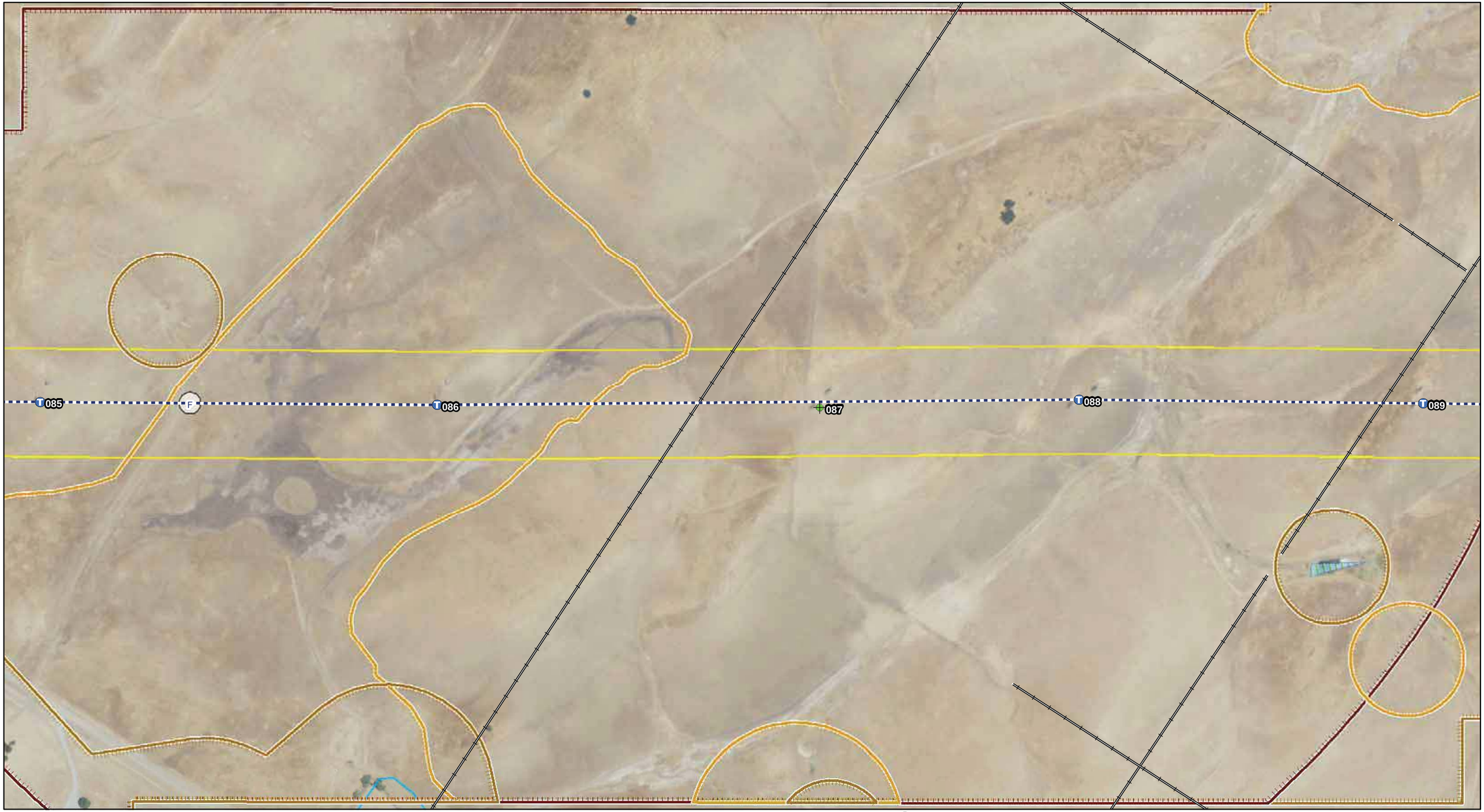

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 19 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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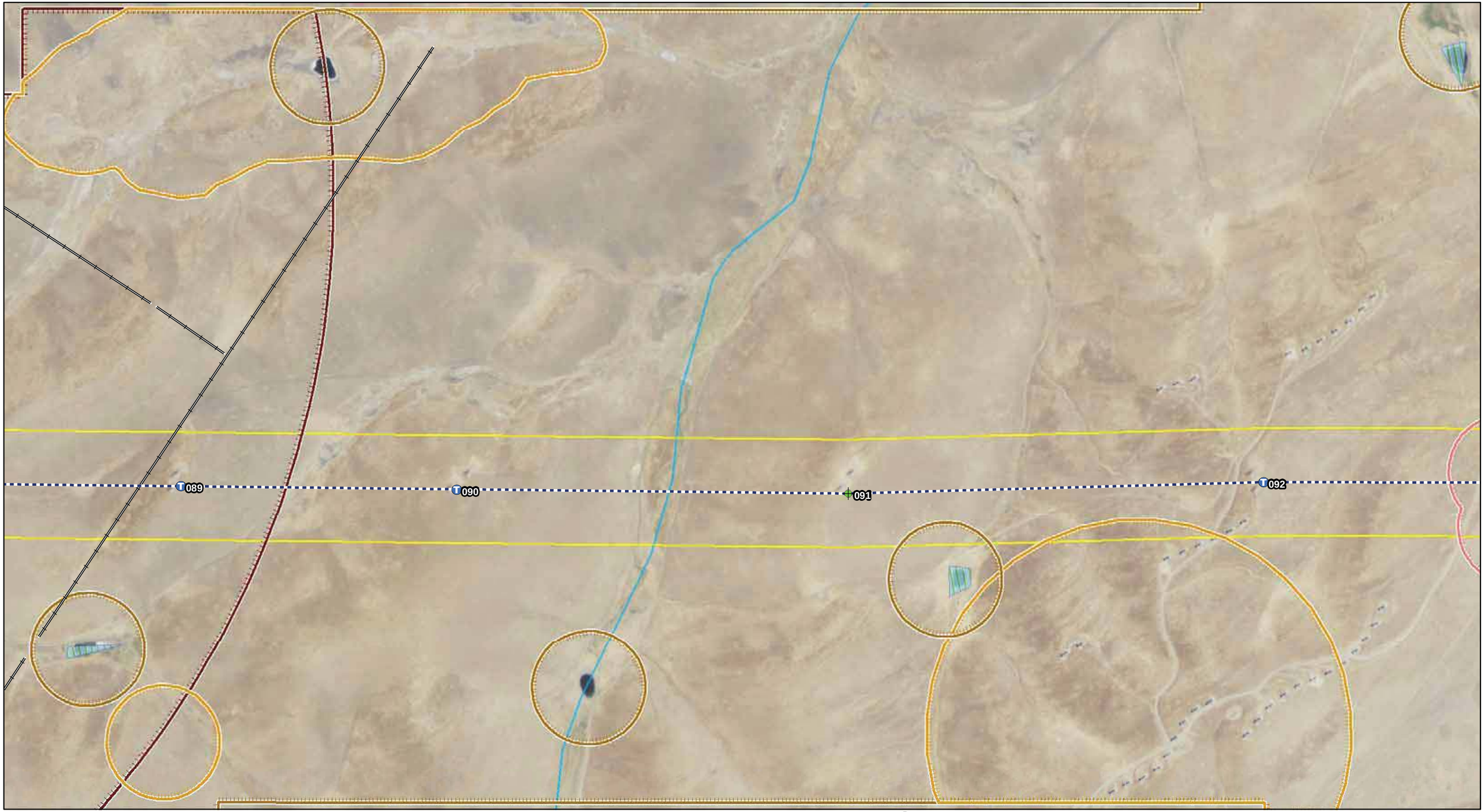

Federally Listed Species (CNDDB Occurrences)

Mammals
- San Joaquin kit fox (SJKF)

Plants
- large-flowered fiddleneck (AMGR)

Invertebrates
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Amphibians
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- California tiger salamander (CTS)

USFWS Critical Habitat Areas
- Contra Costa goldfields
- California Red-legged Frog
- Delta Smelt
- Vernal pool fairy shrimp

Special-status species observations (2008-2010)
- Calif.Red-legged Frog
- Vulpes sp.
- Elderberry
- Round leaved filaree

Hydrology
- Delineated Seasonal Wetland Feature
- Wetland Feature
- Creek, Stream

Project Features
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- Staging Area/ LZ (200x200)

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- Top Cage Extension/DE
- FLO Wind Tap

Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 20 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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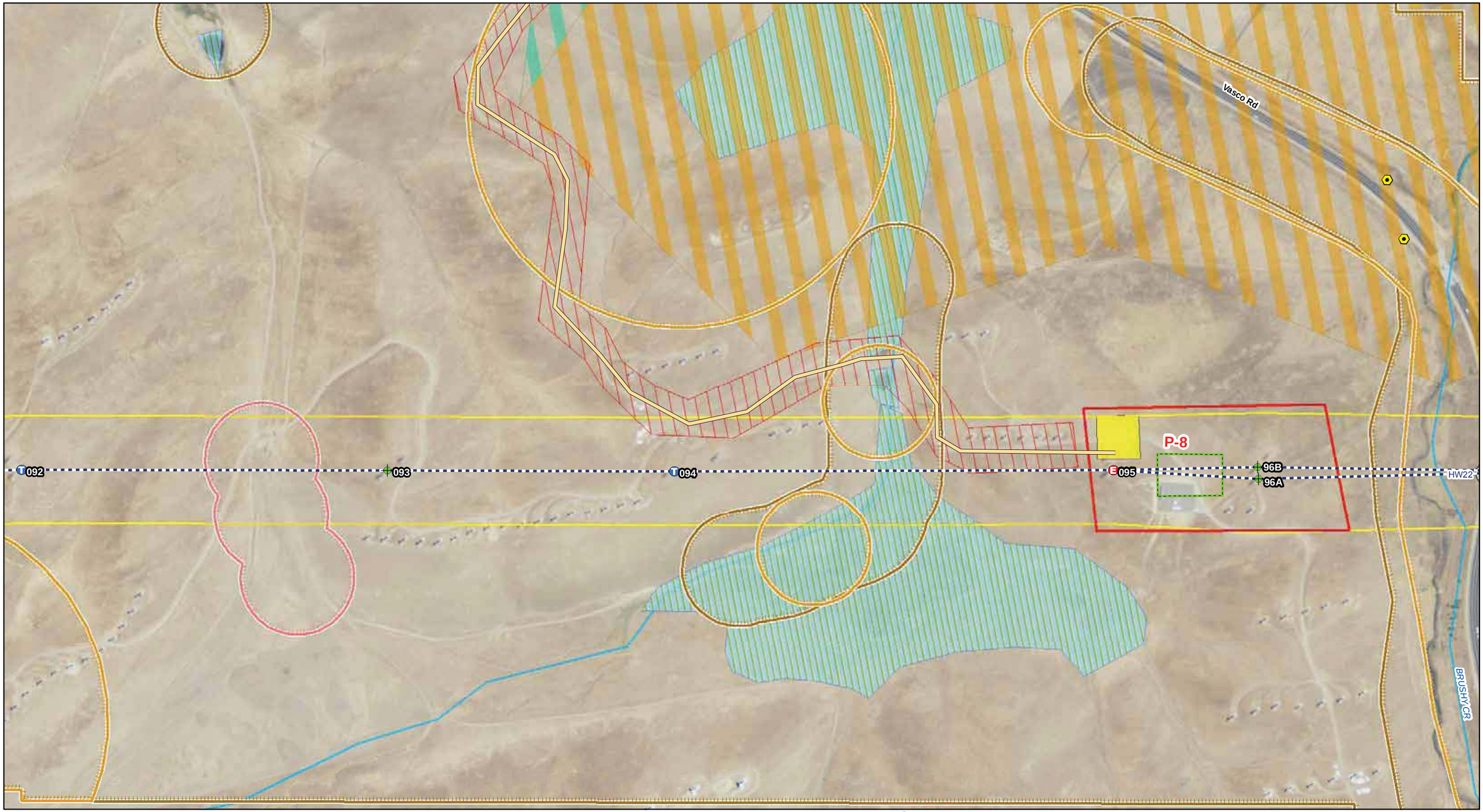

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Appendix A
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Map 21 of 31

March 2012
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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 22 of 31

March 2012
Alameda and Contra Costa Counties, CA

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GANDA

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 23 of 31

March 2012
Alameda and Contra Costa Counties, CA

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Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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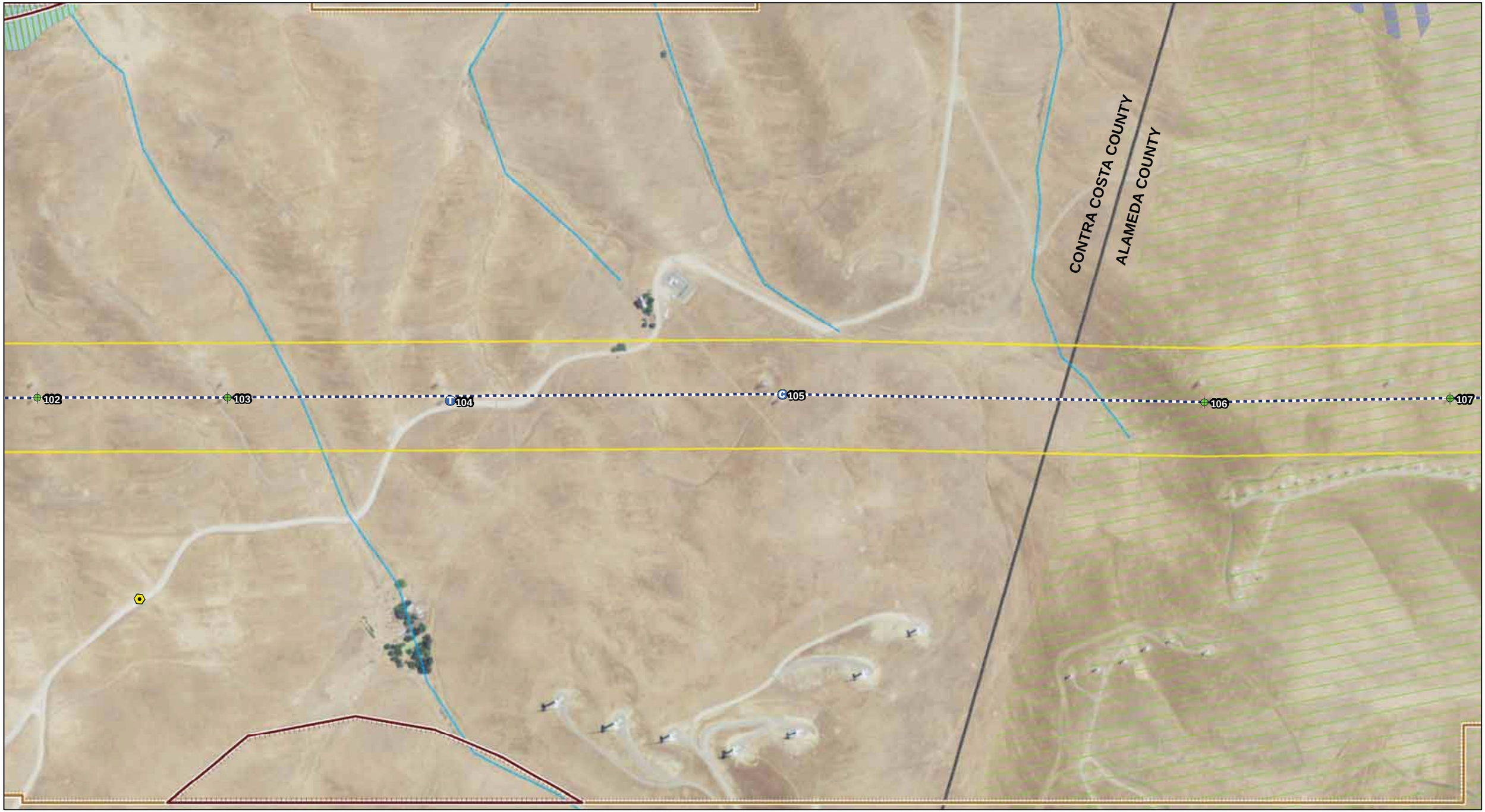

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 24 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2012

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This map has been revised since October 2011.

Replace two culverts off map along this existing gravel road

Bethany Res.

P-9

107 108 D 109 B 110 DL23 TL24 111 C

Federally Listed Species (CNDDB Occurrences)

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 25 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2012

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 26 of 31

March 2012
Alameda and Contra Costa Counties, CA

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GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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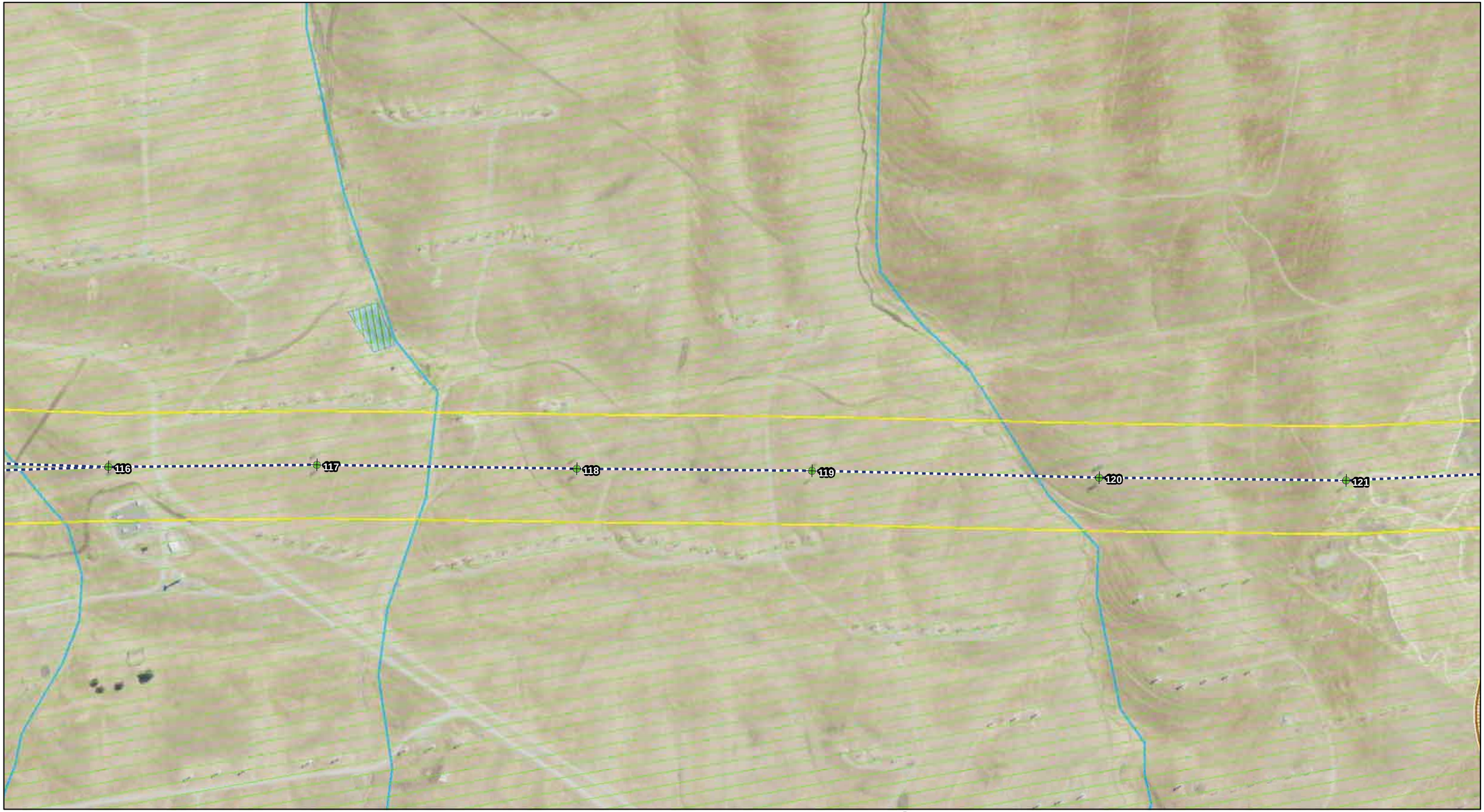

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 27 of 31

March 2012
Alameda and Contra Costa Counties, CA

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GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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This map has been revised since October 2011.

P-10

121 122 123 124 125 126 127 128 129

SR27

HW28

DL29

Grant Line Rd

Altamont Pass Rd

I 580

I 580

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 28 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

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Appendix A
Pittsburg Tesla 230kV Project, Sensitive Biological Resources

Map 29 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

GANDA

Source: CNDDB; USFWS Critical Habitat; GANDA GIS 2011

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This map has been revised since October 2011.

Midway Rd

Midway Rd

County Hwy 2063

134

RR30

135

P-11

136

TESLA SUBSTATION

137C

138

139

137A

TL31

TL32

TL33

TL34

DL35

137

P-12

Patterson Run

Federally Listed Species (CNDDB Occurrences)

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Map 30 of 31

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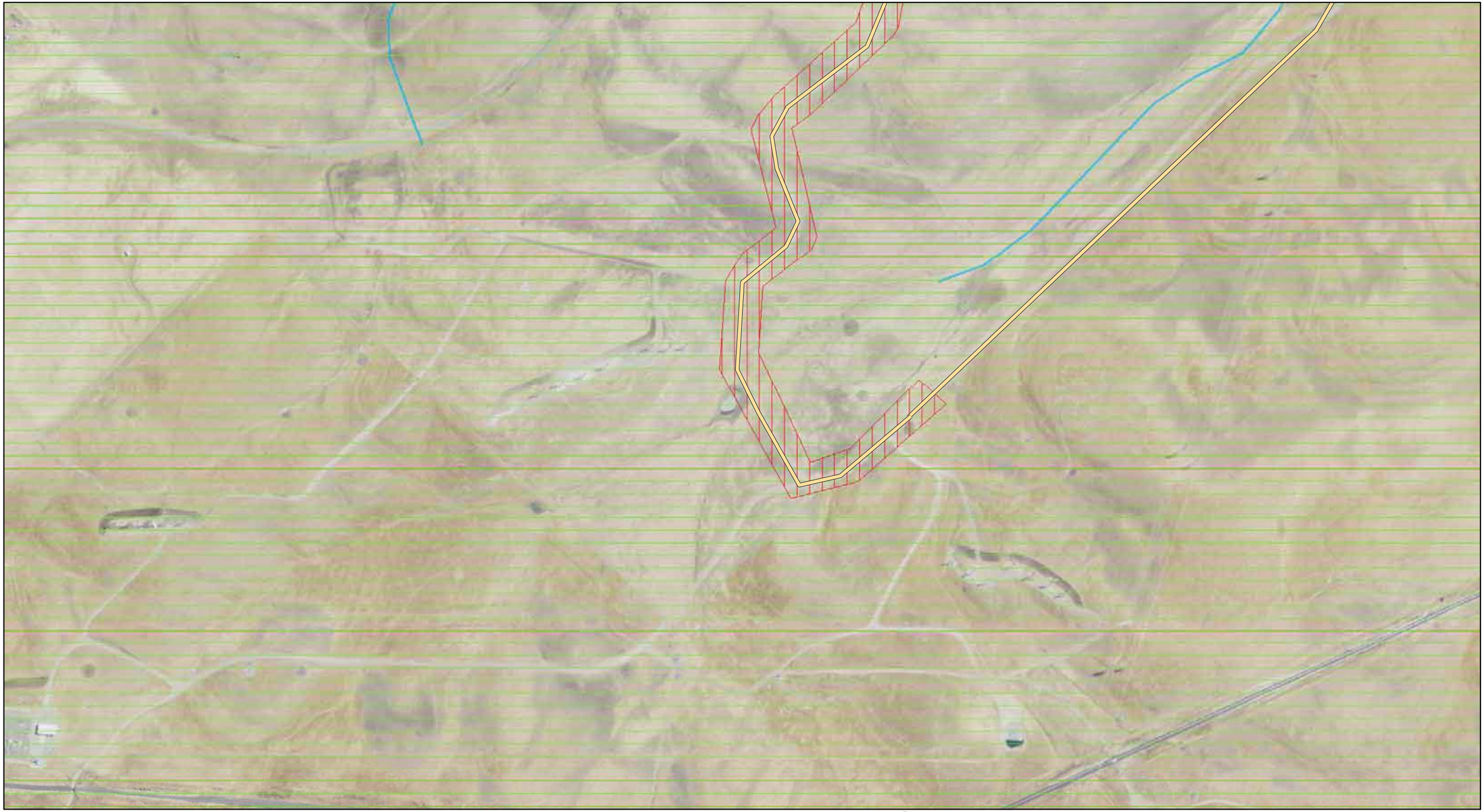

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Appendix A
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Map 31 of 31

March 2012
Alameda and Contra Costa Counties, CA

0 500 1,000 Feet

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Appendix B
Visual Assessment

Visual Resources Technical Memo

Pittsburg-Tesla 230 kV Project

Contra Costa and Alameda Counties, California

April 2009

Prepared for
Garcia and Associates
and
Pacific Gas and Electric Company
by
Environmental Vision

Contents

1.0 Introduction

2.0. Setting
- 2.1 Landscape Setting
- 2.2 Project Viewshed
- 2.3 Overview - Public Policy and Regulatory Framework

3.0 Evaluation
- 3.1 Visual Simulations
- 3.2 Potential Visual and Aesthetic Impacts
- 3.3 Conclusions

4.0 References

Appendix A: Public Policy and Regulatory Framework

Figures

1 Elevation Drawing - Typical Tower Modifications
2 Landscape Context and Photo Viewpoint Locations
3a-3f Photographs of Project Route and Surrounding Area
4 Highway 4 - Existing View and Simulation
5 Interstate 580 - Existing View and Simulation

1.0 INTRODUCTION

Environmental Vision prepared this visual resources technical memo to address the Pacific Gas & Electric Company's Pittsburg-Tesla Project (hereinafter referred to as the Project). The visual evaluation is based upon field observations and site photography conducted in January 2009 and review of technical data including Project maps, aerial and ground level photographs, topographic maps and pertinent public planning documents. Computer-generated visual simulations are presented to illustrate the location, scale and conceptual appearance of the proposed facilities as seen from two representative viewpoints. A set of figures including photographs and visual simulations are presented at the end of this memo.

For purposes of this study, visual or aesthetic resources are generally defined as both the natural and built features of the landscape that are seen and that contribute to the public's appreciation of the environment. Visual resource or aesthetic impacts are generally defined in terms of a project's physical characteristics and potential visibility and the extent to which its presence will alter the perceived visual character and quality of the environment. This evaluation focuses on the project's potential impacts on public views.

The Project proposes reconductoring of approximately 31 miles of existing transmission line that connects the Pittsburg Substation in Pittsburg to the Tesla Substation in unincorporated Alameda County. Approximately 140 existing transmission towers are located within the project route; the project proposes modifications to approximately 43 of these existing structures. Cage-top extensions on approximately 39 towers will be either 15'-0" or 16'-6" tall, raising the height of the cross arms accordingly. Figure 1 depicts typical elevation drawings that show the transmission structures with proposed modifications. Replacement of conductors and insulators is also proposed; however their appearance will not be noticeably different than the existing components.

The changes in the appearance of the Project area that will result from these proposed minor modifications will not substantially alter the existing visual character or quality of the Project route and surrounding area. Therefore impacts to visual resources resulting from the Project will be less than significant.

2.0 SETTING

2.1 Landscape Setting

The Project is situated in eastern Contra Costa and Alameda Counties near the juncture of three major geographic regions: the San Francisco Bay Area, the Delta and the Central Valley.

The overall project area is characterized by steep hillsides, rolling hills, ridgelines, grassland, riparian corridors and valleys. Figure 2 shows the project's regional location and landscape context. The area's hillsides and ridgelines are recognizable landscape features seen from many locations, thus contributing to a strong sense of place and orientation within the vicinity. Ridgelines generally reach elevations of 400 to 500 feet above sea level. Rising over 3,800 feet and located about 5.5 miles to the southwest, Mount Diablo is a major landscape feature in the project area. Creeks including Marsh Creek, Sand Creek, and Brushy Creek meander northeastward, eventually emptying into the Sacramento Delta. The project route passes near two reservoirs, Marsh Creek Reservoir in Contra Costa County and Bethany Reservoir in Alameda County. It also passes within 2.5 miles of Los Vaqueros Reservoir in Contra Costa County.

A mix of oak savannah, oak woodland, grassland and brush land characterizes the vegetation pattern found in this landscape region. During winter and spring months, the green hillsides include displays of scattered, seasonal wildflowers. Beginning in late spring through the fall, the hills turn gold and brown. The dark green foliage of the oaks appears in higher contrast to the golden hillsides throughout this arid season.

The first two miles of the project route pass through residential areas of the City of Pittsburg. However the overall project area is largely open space and agriculture. For the most part, the hillsides surrounding the valleys have a natural appearance. Toward the west, most of the hillsides are characterized by a mosaic of natural appearing oak woodlands and grasslands. To the east, hillsides are open grasslands used for cattle ranching. The area to the north, near the project origin, includes a mix of recent suburban residential and industrial development. State Route 4 and Highway 580 are major highways that provide regional access to local communities. The local roadway network in the project area includes Deer Valley Road, Kirker Pass Road, Vasco Road, and Marsh Creek Road. The presence of highly visible development and infrastructure features such as roads, buildings, and major transmission lines, as well as areas of mostly open, undeveloped lands, contributes to a mixture of both rural and built elements within the project's overall visual setting.

2.2 Project Viewshed

The project viewshed is defined as the general area from which the project will be visible.

For reference it may be noted that visual details become apparent to the viewer when they are seen in the foreground, at distances of 0.25 to 0.5 mile or less (Smardon et al. 1986 and U.S. Department of Transportation 1988). The primary focus considered for purposes of the visual evaluation is this foreground viewshed area, where visual details are apparent, and up to approximately one mile from the proposed project area, where change could be noticeable.

As noted previously, with the exception of its initial 2 miles, the project route generally passes through sparsely settled grazing lands and open

space. Photographs presented as Figures 3a through 3f, depict representative viewing conditions along the route. Photo viewpoint

locations are shown on Figure 2. For descriptive purposes, this evaluation divides the landscape setting of the route into three distinct subareas: the City of Pittsburg; the Black Hills in Contra Costa County; and the Altamont Hills. As seen from many places along the route, intervening topography screens views toward the Project. Within this area, several existing overhead transmission lines, including the Project, are established landscape features.

City of Pittsburg (Figure 3a and 3b)

The Project route originates at the Pittsburg Substation located near Suisun Bay in northern Pittsburg. The landscape character in this portion of the project includes industrial features such as the existing substation and the Pittsburg Power Plant. Photo 1 depicts the substation and a stack of the adjacent power plant. From this location the project route travels south through the city along an existing 800-foot-wide utility corridor which includes at least seven other existing transmission lines. Towers of these existing transmission lines appear prominently on the skyline from many vantage points in this area. This portion of the project corridor lies adjacent to residential development, as well as the Delta View Golf Course. Photo 3 shows a typical view from a residential street located adjacent to the utility corridor. Photo 7 is a view looking toward the project from the golf course. Photo 8 depicts a more distant residential view toward the utility corridor as it heads south into the hills above Pittsburg. The route crosses several major east-west roadways including Highway 4 (Photo 4), Willow Pass Road, West Leland Road (Photo 5), Polaris Drive, and North Parkside Drive. It also crosses two railroad corridors, the Contra Costa Canal and the Delta de Anza Trail (Photo 6), an East Bay Regional Parks District trail.

Black Hills, Contra Costa County (Figure 3c and 3d)

The project route travels southward into a range of hills above Pittsburg known as the Black Hills. The project line continues to run parallel to other existing transmission lines. The landscape in this portion of the route is sparsely settled. It is characterized by steep northwest to southeast ridges with grassy southern slopes and northern slopes interspersed with scattered areas of trees and chaparral. Near Kirker Pass Road (Photo 9) the route turns southeast and roughly parallels Nortonville Road. Here, the project passes through the Black Diamond Mine Regional Preserve (Photo 10), an approximately 6,000 acre regional park managed by the East Bay Regional Parks District.

The route travels parallel to ridge lines outside of the city of Antioch alongside Deer Valley Road (Photos 12, 13, and 14) passing approximately a half mile from the Roddy Ranch Golf Course. As shown in Photo 15, a view from Marsh Creek Road, Mount Diablo appears prominently from many places in this area. Further south, the route lies within the sphere of influence of the City of Brentwood. In this area, the route passes within a half a mile of residential developments and within 1000 feet of a residential

area under construction off of Marsh Creek Road. Between Marsh Creek Road and Camino Diablo the route turns slightly southwards and continues through the rolling hills to the west of the Sacramento Valley. Photo 16 depicts a view of the existing transmission route from Camino Diablo. Existing towers of the project route as well as those of adjacent transmission routes appear on the skyline from many locations in this area.

Altamont Range, Contra Costa and Alameda County (Figure 3e and 3f)

The southernmost portion of the route passes through the Altamont Range in southeastern Contra Costa County and eastern Alameda County. At the western edge of the Sacramento Valley, these hills are almost completely devoid of tree cover and typified by dry, rolling grassy hills with rock outrcroppings. Vegetation found within the occasional riparian corridors in the area includes scrub and small trees. This area is used primarily for range land and wind energy production. Strings of wind turbines appear prominently on ridgelines visible from public roadways throughout the area. Elevations along this portion of the project route range from 100 to 300 feet above sea level while peaks in the Altamont Range rise as high as 1,700 feet. In this area, the route crosses Walnut Boulevard and Vasco Road (Photo 17 and 18), a county scenic route. The project route also passes the western edge of the Bethany Reservoir State Recreation Area (Photos 19 and 20) and crosses the public Mountain House Golf Course on Altamont Pass Road. It then crosses Alameda County scenic routes, Altamont Pass Road and Highway 580 near West Grant Line Road before reaching the Tesla Substation on Patterson Pass Road a quarter mile from the edge of San Joaquin County. Through this portion of the route, the line parallels another existing transmission line (Photos 17 and 22). Existing wind turbines and transmission towers are among the vertical elements that appear prominently against the sky as seen from many locations in this landscape setting. Occasional agricultural structures also punctuate this landscape (Photo 23). Photo 24 shows the projects terminus at the Tesla Substation.

2.3 Overview - Public Policy and Regulatory Framework

The project route travels through unincorporated areas of Contra Costa County as well as portions of the cities of Pittsburgh, Antioch and Brentwood. Local governments have no discretionary authority over utility power transmission line or substation projects. (*See, e.g.,* CPUC D.95-08-038 (1995), p. 13). Nevertheless, a summary of public policies pertinent to visual quality is provided in Appendix A for informational purposes. No federal laws, ordinances, or regulations affect visual resources for the proposed Project. As noted in the evaluation discussion presented in Appendix A, the construction and operation of this Project does not conflict with any locally-adopted environmental plans, policies, or regulations pertaining to aesthetics.

Applicable plans, policies, and regulations, which pertain to visual quality for these areas are presented in the appendix.

3.0 EVALUATION

3.1 Visual Simulations

As part of this visual resources evaluation, computer-generated visual simulations were prepared to illustrate representative "before" and "after" visual conditions along the Project route. The simulations were produced using digital photography and computer-modeling and rendering techniques. The images are based on Project data provided by PG&E Project engineers.

Figure 4 portrays a "before" and "after" view of the Project as seen from a location along Highway 4 west of Railroad Avenue. This view was chosen for evaluation because in the Pittsburg General Plan, Highway 4 is a designated Key Transportation Corridor underscoring its importance as a public view corridor. In addition, the view represents the type change that might be visible to Pittsburg residents. This existing view looking toward the project corridor includes lattice towers associated with existing transmission lines that cross the roadway. The second tower from the left is located within the project route. The simulation image shows a 15'-0" tall extension on the top of this tower. The simulation demonstrates that the scale and form of the modified tower are similar to that of the existing towers. Given the relatively small scale of the proposed tower modification and the presence of multiple existing towers, the visual change is minor and will not be particularly noticeable from Highway 4 or other nearby locations.

Figure 5 is a "before" and "after" view of the project as seen from westbound Interstate 580 near the Grant Line Road on-ramp. This view was selected for simulation because it represents a heavily traveled corridor and an Alameda County scenic route where a modified tower would be visible. At most locations where the project crosses a scenic route, proposed tower modifications would not be visible. This view shows two existing transmission lines crossing over Interstate 580. The project line is further away with the project tower on the left of the other existing lattice tower. The simulation depicts the modified lattice tower with a 16'-6" tall cage-top extension. A comparison of the Figure 5 before and after views demonstrates that the scale and form of the modified tower are similar to that of the existing towers. This change represents a minor visual change to the landscape setting. Given the presence of existing transmission towers at this location, the visual change associated with the relatively small-scale proposed tower modification is a minor incremental effect that will not be particularly noticeable to the public.

3.2 Potential Visual and Aesthetic Impacts

The Project proposes minor changes to an existing transmission route. Approximately 140 existing transmission towers are located within the project route. The project proposes modifying approximately 43 of these structures. Although the project route crosses several Contra Costa County and Alameda County scenic routes, the Figure 4 and 5 simulations demonstrate that the proposed changes will not significantly affect views

from these roadways. Towers near most existing scenic route crossings will not be changed. In addition, as indicated by the Figure 4 simulation, when seen from nearby locations including existing residential areas, the proposed change will not be particularly noticeable and will not significantly affect views in the Project area.

3.3 Conclusions

Overall, minor incremental changes are proposed within an existing transmission route located in a landscape setting that includes various existing transmission lines and vertical structures. As described previously and illustrated by the visual simulations, changes will not be particularly noticeable to the public. Therefore visual impacts will be less than significant and aesthetic mitigation measures are not needed.

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APPENDIX A: PUBLIC POLICY AND REGULATORY FRAMEWORK

This appendix includes local plans, policies, and regulations that pertain to visual quality for the project area. Although this utility line project is not subject to these plans, policies and regulations, comments regarding project conformance are provided for information purposes and appear in italics.

Pittsburg General Plan

Chapter 4, the Urban Design Element of the Pittsburg General Plan contains provisions to preserve views, ridges, edges, and key transportation corridors within the county. This primarily deals with new residential development as development in the City rapidly extended into the foothills during the 1990s and early part of this century. Goals from the General Plan include retaining views of major and minor ridgelines to the south of the City and preserving them for open space.

The General Plan also recommends designing entry features at "gateways" to the City. These gateways include Railroad Avenue/Kirker Pass Road which the project route crosses.

- *Policy 4-P-5:* Design and install entry features at the entrances to the City, implemented through the City's Capital Improvement Program. Use landscaping, signs, lighting, and other visual features to announce the gateway along regional roadways.

  Street trees, welcome signs, decorative lighting (similar to Railroad Avenue), banners, archways, and other streetscape design elements can be used in gateway design (p. 4-8).

Pittsburg's General Plan also lists State Route 4 as a Key Transportation Corridor and recommends design improvements for the roadway. The plan supports improving views of the southern hills from the State Route 4 and contains a policy to encourage the undergrounding of utility lines as they cross the roadway.

- *Policy 4-P-62:* Support local utility providers—such as PG&E—in the undergrounding of utility wires. Views of the southern hills are interrupted by numerous utility wires crossings over State Route 4. The undergrounding of local utility wires would help reduce this distraction and create a more attractive, identifiable view of Pittsburg (p. 4-32).

The project does not propose the addition of a new transmission line to the existing corridor and proposes only minor changes to a transmission structure near State Route 4.

Antioch General Plan

The route does not pass through the City limits of Antioch, but briefly travels through its sphere of influence (City of Antioch 2003, Figure 1-1, p. 1-7). The project route is subject to the 2003 Antioch General Plan including the Community Image and Design Element (Section 5). The Element contains the following policies which pertain to the PG&E Pittsburg Tesla project:

5.4.2 General Design Policies

c. Maintain view corridors to natural ridgelines and landmarks, such as Mount Diablo and distant hills, local ridgelines, the San Joaquin River, and other water bodies.

- Recognizing that new development will inevitably result in some loss of existing views, prohibit the siting of structures or landscaping that would completely block views from adjacent properties.
- • Important view corridors to be protected include Somersville Road, Lone Tree Way, Hillcrest Avenue, SR 4, SR 160, James Donlon Blvd., Deer Valley Road, and Empire Mine Road (p. 5-9).

The project involves minor modifications to an existing utility corridor. It will not obstruct or substantially alter views of local ridgelines or distant hills including Mount Diablo which are currently available to the public. Consequently, the project does not conflict with this policy.

City of Brentwood General Plan

A portion of the project route pass within the sphere of influence of the City of Brentwood in an area zoned for agricultural conservation. The City of Brentwood General Plan contains several provisions regarding visual resources (Brentwood 2001):

- *Goal 2:* View of Natural Features – Preserve and enhance the views of dominant natural features (i.e. Mt. Diablo, the Foothills, and local open space).
- *Policy 2.1:* Preserve Views – Preserve views of the surrounding countryside, landmarks, and significant natural features such as Mount Diablo, nearby hills and ridgelines, and view shed corridors within developments.
- *Program 2.1.3:* Ridgeline Development – The City should not approve any land use change that will place development upon a major ridgeline.
- *Program 2.1.4:* Hillside Development – Development of the hillside areas shall balance the retention of open space areas with areas for new construction.
- *Program 2.1.5:* Height Restrictions - Each development application or Planned Development Zone District shall include consideration of building height limitations and view corridors to preserve views of significant natural features.

- *Program 2.1.6:* Revegetation - The city shall require revegetation of graded slopes with indigenous plant materials, where feasible, to maintain scenic views and assist in slope stabilization (p. II.3-5).

The project proposes minor modifications to an existing transmission route and will not substantially alter views in the Brentwood area. Additionally it will not involve grading or require slope stabilization.

Contra Costa County General Plan

The Contra Costa County General Plan (2005) contains provisions regarding visual/scenic resources. Specifically, the Contra Costa County General Plan includes a Scenic Routes section in its Transportation and Circulation Element that contains a description of "scenic routes" and "scenic corridors". The project crosses five county scenic routes: Kirker Pass Road, Deer Valley Road, Marsh Creek Road, Camino Diablo, Vasco Road. It also passes along side Nortonville Road another county scenic route. Route 4 from the Antioch Bridge south is considered a county scenic highway; however the project is not visible from this portion of the roadway (Figure 5-4, p. 5-22).

Given that the project involves minor modifications to transmission structures within an existing utility corridor, the project will not substantially affect the character or quality of views from these scenic routes.

County of Alameda, General Plan, Scenic Route Element

The Scenic Route Element of the Alameda County General Plan designates a number of roadways in the Project vicinity as scenic (Alameda County 1966). Highway 580 and Altamont Pass Road are considered scenic roadways in Alameda County.

The project route crosses Highway 580 and Altamont Pass Road. As shown in the simulation on Figure 5, proposed changes are not particularly noticeable from Highway 580. Structures adjacent to Altamont Pass Road are not changed.

County of Alameda, General Plan, East County Area Plan

Alameda County's General Plan includes the East County Area Plan (2000) which applies to southernmost portion of the route. This plan has provisions in the Scenic Viewsheds Section and the Scenic Highway Section that pertain to scenic resources.

Sensitive Viewsheds

The Sensitive Viewsheds section has a goal of preserving unique visual resources and protecting sensitive viewsheds, in particular ridgelines. Policy 105 lists ridgelines in the project area including those near Collier Canyon and Vasco Road, the ridgelines surrounding Brushy Peak north of Livermore, and the ridgelines above the vineyards south of Livermore.

- *Policy 106:* Structures may not be located on ridgelines or hilltops or where they will project above a ridgeline or hilltop as viewed from public roads, trails, parks and other public viewpoints unless there is no other site on the parcel for the structure or on a contiguous parcel in common ownership on or subsequent to the date this ordinance becomes effective. New parcels may not be created that have no building site other than a ridgeline or hilltop, or that would cause a structure to protrude above a ridgeline or hilltop, unless there is no other possible configuration (pp. 30-31).
- *Policy 115:* In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent practicable, all exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located (p. 32).

The project involves minor modifications to an existing utility corridor. It will not obstruct or substantially alter views of local ridgelines or hilltops which are currently available to the public. Consequently, the project does not conflict with this policy.

Scenic Highways

The Scenic Highway section includes a goal to preserve and enhance views within scenic corridors and calls for the updating of the county's scenic route element. However it does not contain specific provisions regarding scenic highways (p. 55).

East Bay Regional Park District (EBRPD) Master Plan

The EBRPD Master Plan 1997 contains general provisions to preserve aesthetic resources in the 85,000 acres of parklands the district manages. Among these is a provision to limit transmission lines in order to retain the optimal visual qualities of the parks. The EBRPD encourages utility companies to underground utility lines and will seek to avoid the construction of high voltage power lines within the parklands (EBRPD 1996, p. 65).

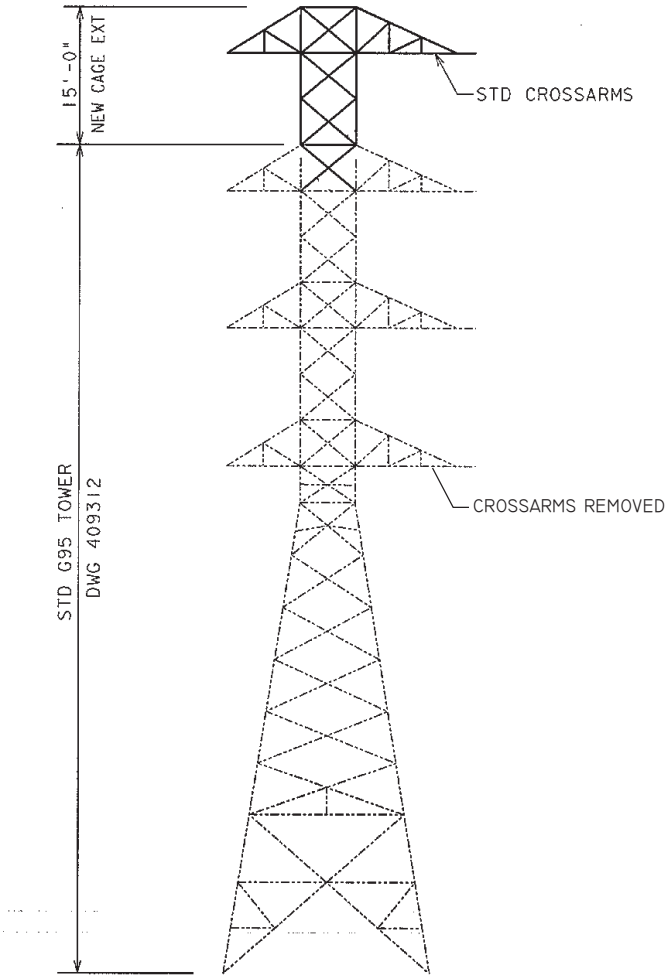
Although the project route passes through Black Diamond Mine Regional Park, the project modifies structures along an existing transmission line and does not propose a new line.

California Department of Transportation Scenic Highways Program

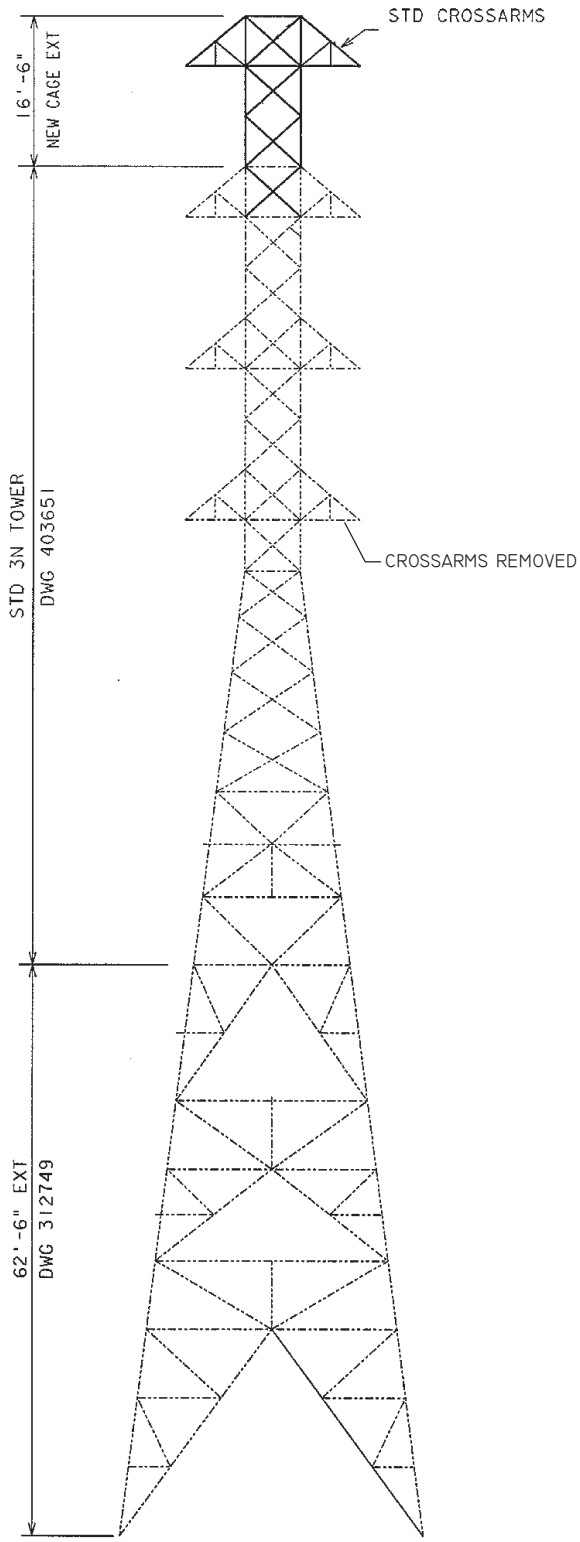
The state Scenic Highways Program, a provision of the Streets and Highways code, was established by the Legislature in 1963 to preserve and enhance the natural beauty of California. The State Scenic Highway System includes highways that are either eligible for designation as scenic highways or have been designated as such. The status of a state scenic highway

changes from "eligible" to "officially designated" when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives from Caltrans the designation. A city or county may propose adding routes with outstanding scenic elements to the list of eligible highways. However, state legislation is required.

In Contra Costa County State Highway 4 north of Balfour Road in Brentwood is an eligible Scenic Highway. This is as close as 2 miles to the project route; however, because of intervening topography, the project is not visible from this route. The project crosses Interstate 580 in Alameda County, which is considered an eligible scenic highway. There are no Designated State Scenic Highways within the project viewshed. As the simulation in Figure 5 demonstrates, changes seen from I-580 would be minimal.

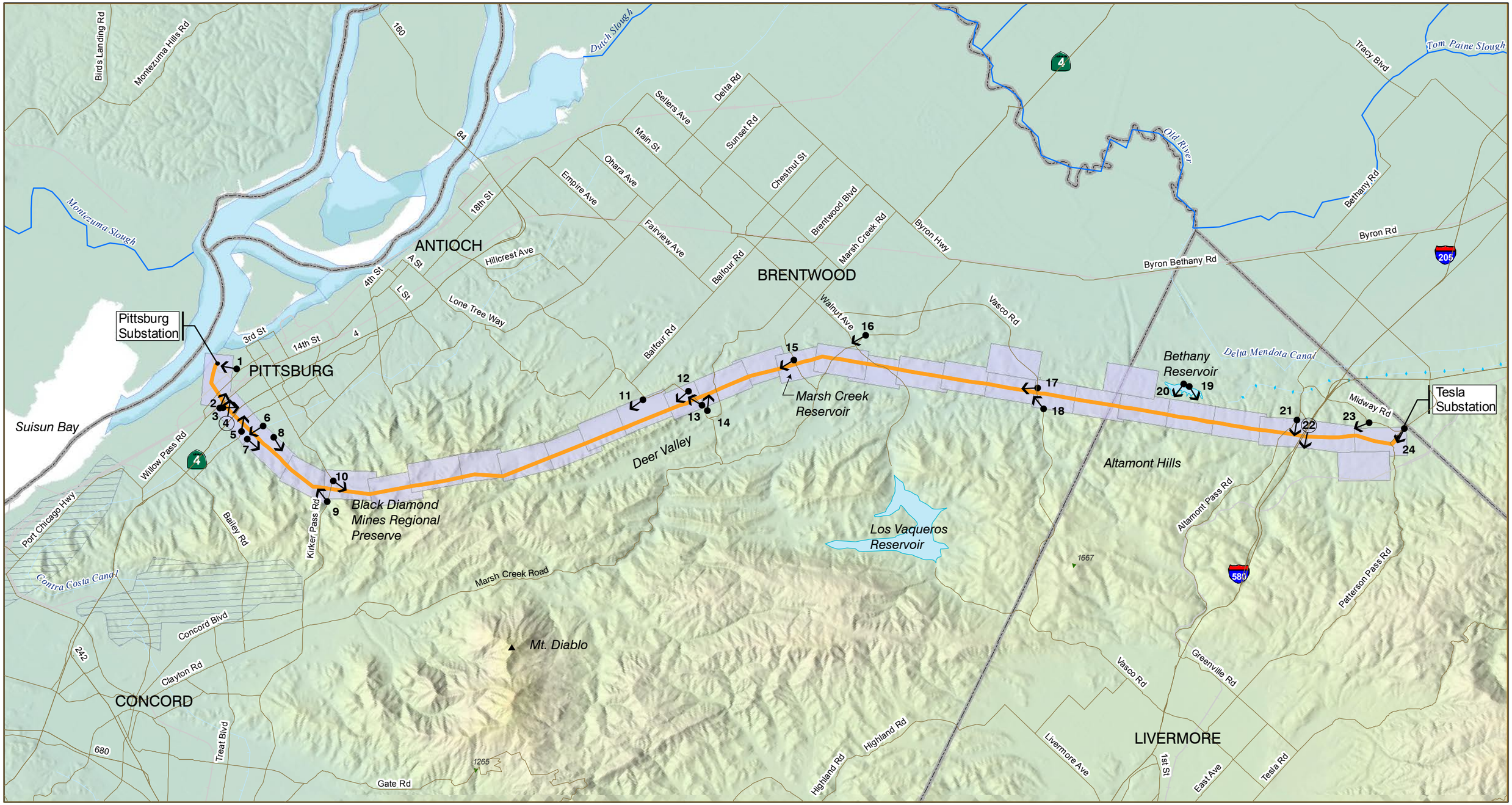


TRANSVERSE ELEVATION
(G95 TOWER)



TRANSVERSE ELEVATION
(3N TOWER)

Figure 1
Elevation Drawing - Typical Tower Modifications
Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project



Project Features

- 230kV Transmission Line
- Stream
- Lake, Reservoir
- County Boundary

Project Location

1 ● → **Photo Viewpoint**

(4) → **Simulation Viewpoint**

Source: PG&E GIS / GANDA GIS 2008

0 2 4 Miles

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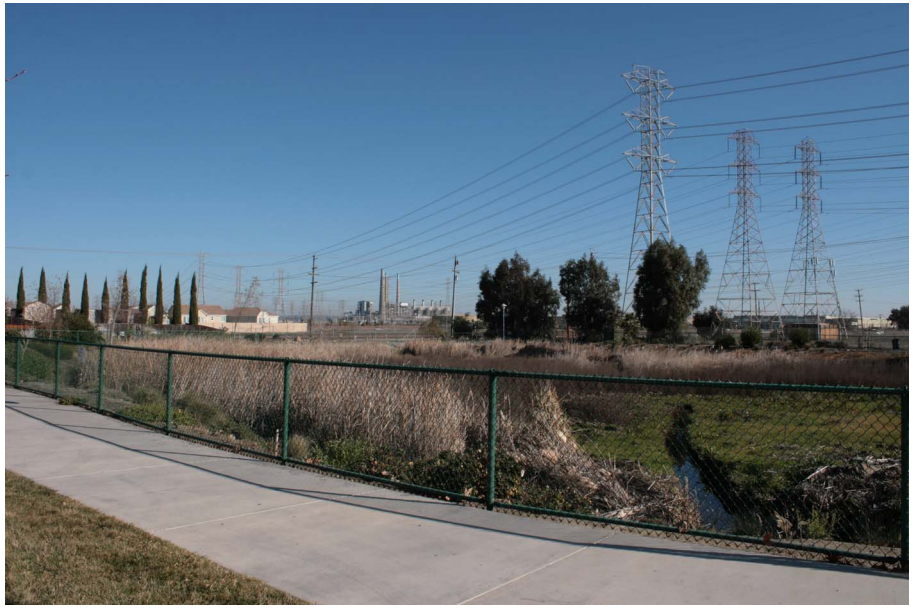
Figure 2
Landscape Context and Photo Viewpoint Locations
Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

1. Marina Park looking northwest toward Pittsburg Substation



2. Americana Park near Parkside Drive looking northeast

3. Martin Eden Court near Jack London Drive looking southeast

4. Highway 4 west of Railroad Avenue looking northeast*

*Simulation view

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Figure 3a
Photographs of the Project Route and the Surrounding Area
Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

5. West Leland Road at Range Road looking northeast

6. Delta de Anza Trail near Atherton Avenue looking west

7. Delta View Golf Course looking south

8. Crestview Drive near Olympia Drive looking south

Figure 3b
Photographs of the Project Route and the Surrounding Area
Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

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9. Kirker Pass Road near Nortonville Road looking north

10. Nortonville Road at Kirker Pass Road looking south

11. Chadbourne Road at Deer Valley Road looking west

12. Deer Valley Road near Wetzel Road looking west

Figure 3c
Photographs of the Project Route and the Surrounding Area
Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

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13. Deer Valley Road near Briones Valley Road looking north

14. Deer Valley Road near Briones Valley Road looking northeast

15. Marsh Creek Road looking west

16. Camino Diablo east of Longwell Avenue looking west

Figure 3d
Photographs of the Project Route and the Surrounding Area
Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

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17. Vasco Road south of Camino Diablo looking northwest

18. Vasco Road looking north

19. Bethany Reservoir looking southwest

20. Bethany Reservoir looking west

Figure 3e
Photographs of the Project Route and the Surrounding Area
Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

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21. Altamont Pass Road near Grant Line Road looking southwest

22. Interstate 580 at Grant Line Road on-ramp looking southwest*

23. Midway Road looking northwest

24. Patterson Pass Road at Midway Road looking west near Tesla Substation

*Simulation view

Figure 3f
Photographs of the Project Route and the Surrounding Area
Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

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Highway 4 west of Railroad Avenue looking northeast (VP 4)

Visual simulation of proposed project

Refer to Figure 2 for viewpoint location

Figure 4
Visual Simulation - Highway 4
Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

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Interstate 580 at Grant Line Road on-ramp looking southwest (VP 22)

Visual simulation of proposed project

Refer to Figure 2 for viewpoint location

Figure 5
Visual Simulation - Interstate 580
Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project

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Appendix C
Air Quality Analysis Draft Report

3.3 AIR QUALITY

3.3.1 INTRODUCTION

This section describes the existing air quality within Pacific Gas and Electric's (PG&E) Power Line Reconductoring Project area and evaluates the potential impacts to air quality associated with project construction and operation. A summary of public regulations and policies pertaining to air quality in the project vicinity is also provided.

Although short-term emissions from project construction would result in some temporary impacts, the project would result in a less than significant impact to air quality and greenhouse gas (GHG) emissions. The project would not cause any objectionable odors, expose sensitive receptors to increased pollutant concentrations, or otherwise significantly affect air quality and would not substantially alter the existing air quality. With implementation of the Applicant Proposed Measures (APMs), outlined in Section 3.3.4.2, impacts to air quality resulting from project construction would be less than significant. Operational emissions would not be associated with the reconductoring; therefore, only the construction impacts were evaluated in this analysis.

The following checklist (excerpted from the California Environmental Quality Act [CEQA] Guidelines and the Office of Planning and Research's [OPR] amendments to the CEQA Guidelines) summarizes the potential impacts of the project on air quality and GHG emissions (California Office of Planning and Research, 2010).

Table 3.3-1
CEQA Checklist for Air Quality
Power Line Reconductoring Project

Would the project:	**Potentially Significant Impact**	**Less Than Significant Impact with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☑	☐

Table 3.3-1
CEQA Checklist for Air Quality
Power Line Reconductoring Project

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☑	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☑
GREENHOUSE GAS EMISSIONS:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☑	☐
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

3.3.2 METHODOLOGY

3.3.2.1 Construction Schedule

Reconductoring work on the Pittsburg-Tesla Project would include the following general types of activities: vehicle access to some towers, helicopter and/or crane access for tower modifications, work at selected tower sites to assemble cage extensions, work at pull sites to remove old conductor and string new conductor, and installation of electrical lines.

The overall construction timeline is expected to take 12 months, between April 2011 and April 2012. The first phase of construction activity would take place between April and July 2011, which would involve installation of 12 towers. The second phase of construction

activity would take place between August 2011 and April 2012, which would involve minor grading of the pull sites, and line reconductoring activities.

The majority of ground disturbance for line reconductoring activities takes place at the pull sites. The old line would be removed while the new line is simultaneously installed. Once the new line is in place, the crews would pull the new line to the proper tension ("sag" the line), clip it into the new insulators, and remove the rollers from the section. Helicopters would be used to deliver materials and perform work at towers along the route.

Detailed construction emission calculations are presented in Attachment A. A summary of the construction equipment and construction schedule used for the emission calculations is in Table 3.3-2.

Table 3.3-2
Construction Phases and Equipment Usage
Power Line Reconductoring Project

	Tower Construction		**Line Reconductoring [a]**	
Start Date	4/1/2011		8/1/2011	
End Date	7/15/2011		4/1/2012	
Number of Construction Workers	12		12	
Equipment/Vehicle Type	**No. of Vehicles**	**Daily Hours of Operation**	**No. of Vehicles**	**Daily Hours of Operation**
Line Truck	-	-	3	3
Material Delivery Truck	2	4	2	4
Grader	-	-	2	1
Crane Truck	2	4	4	2
Cable Rig Truck	-	-	4	2
Pickup [b]	4	4	4	4
Forklift	1	1	2	1
Other: Crew Cabs 4x4	3	4	4	2
Large Crew Cab	1	4	-	-
Workers commute	12	-	12	-
Helicopter Type / Model	**No. of Helicopters**	**Daily Hours of Operation [c]**	**No. of Helicopters**	**Daily Hours of Operation [d]**
Bell 204	1	6	-	-
Bell 206	-	-	1	5
MD520N NOTAR	-	-	1	5

Notes:
[a] Only 4 pull sites would require grading.
[b] During the tower construction phase, this includes two diesel pickups and two gasoline pickups; for the reconductoring phase, all pickups were gasoline.
[c] Hours of operation include 2 hours of idling time.
[d] Hours of operation include 1 hour of idling time.
Data provided by PG&E
"-" Indicates that equipment were not used for that construction phase.

3.3.2.2 Air Quality

Air quality impacts were evaluated following the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines (BAAQMD, 2010b). Short-term construction emissions of carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) were evaluated. Since ozone (O_3) is formed through the atmospheric reaction of precursors, such as oxides of nitrogen (NO_x) and reactive organic gases (ROG)[1], these were evaluated to estimate the potential for impacts from O_3 during construction.

Construction emissions from off-road construction equipment were estimated using the latest version of URBEMIS2007 (version 9.2.4). Emissions from on-road vehicles including the delivery trucks, crew trucks, and workers commute were calculated using the emission factors from EMFAC2007 (version 2.3), modeled for the year 2011 in the BAAQMD. The defaults in the URBEMIS2007 program were used to determine the horsepower rating and load factors of the construction equipment (JSA, 2007). Helicopter exhaust emissions were estimated using emission factors from the Civil Aviation Authority *ICAO Engine Emissions Databank* (Civil Aviation Authority, 2010).

3.3.2.3 Greenhouse Gas

Short-term construction emissions of carbon dioxide (CO_2) were evaluated. The project is not expected to result in significant emissions of methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF_6). Construction emissions were estimated using emission factors from URBEMIS2007 (version 9.2.4) and truck emission factors from EMFAC2007 (version 2.3).

3.3.2.4 Air Toxics

Diesel particulate matter (DPM) and several other toxic air contaminants (TACs) can be emitted from construction activity that uses traditional diesel-powered equipment such as graders, generators, and cranes. Current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities (BAAQMD, 2010b). This results in difficulties with producing accurate estimates of health risk (BAAQMD, 2010b). To assist with initial evaluations of health risk from construction, the BAAQMD developed a screening approach for construction. A screening health risk assessment for the TACs emissions from the project construction was conducted using the BAAQMD's *Screening Tables for Air Toxic Emissions Evaluation during Construction* (BAAQMD, 2010d). The screening table lists the minimum distance required between the fence line of a construction site and a nearby sensitive receptor to determine that cancer and non-cancer risks associated with the project are less than significant per the BAAQMD thresholds of significance. By definition, if the distance between the project site and the receptor is greater than what is listed in the screening table for its size, the health risks are expected to be less than the BAAQMD thresholds of significance.

[1] Reactive organic gases and volatile organic compounds may be used interchangeably.

The BAAQMD risk and hazard thresholds of significance are used to determine if exposure of receptors to substantial concentrations of TACs and $PM_{2.5}$ could occur from the following situations (BAAQMD, 2010d):

- Siting a new TAC and/or $PM_{2.5}$ source (e.g. diesel generator, truck distribution center, freeway) near existing or planned receptors, and
- Siting a new receptor near an existing source of TAC and/or $PM_{2.5}$ emissions.

Operation of the project would not expose a receptor to a substantial concentration of TAC or $PM_{2.5}$ and would not create any new receptors. However, during construction, TAC and $PM_{2.5}$ emissions would be generated from diesel equipment. Construction activities associated with the project would be relatively short in duration and are not likely to be considered a new source such as those provided as example sources in the BAAQMD CEQA Air Quality Guidelines. Therefore, the screening criteria were applied to the construction phase of the project as a conservative assessment.

3.3.3 EXISTING CONDITIONS

3.3.3.1 Regulatory Background

A number of laws and regulations, as well as plans and policies, have been adopted to address air quality and global climate change issues. Key regulations that are most relevant to the project are summarized below.

Federal

Air Quality

Federal air quality policies are regulated through the federal Clean Air Act (CAA). The United States Environmental Protection Agency (EPA) adopted the CAA in 1970 and its amendments in 1977 and 1990. Pursuant to the CAA, the EPA has established nationwide air quality standards to protect public health and welfare with an adequate margin of safety. These federal standards, known as the national ambient air quality standards (NAAQS), represent the maximum allowable atmospheric concentrations and were developed for seven pollutants: O_3, nitrogen dioxide (NO_2), CO, PM_{10}, $PM_{2.5}$, SO_2, and lead (Pb). These pollutants are commonly referred to as criteria pollutants, because they are considered the most prevalent air pollutants known to be hazardous to human health. The State of California has also established maximum allowable concentrations for these pollutants. The federal and California ambient air quality standards (CAAQS) represent safe levels of each pollutant to avoid specific adverse effects to human health and the environment.

The CAA required states exceeding the standards to prepare air quality plans, referred to as State Implementation Plans (SIP), showing how the standards were to be met by December 1987. The CAA Amendments of 1990 directed the EPA to set standards for TACs and required facilities to sharply reduce emissions.

The CAA also required the EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions. Performance criteria were established to limit mobile-source emissions of toxics (BAAQMD, 2010b).

Greenhouse Gas

Climate change and GHG emission reductions are a concern at the federal level. In Massachusetts v. U.S. Environmental Protection Agency, et al., 549 U.S. 497 (2007), the U.S. Supreme court ruled that GHG does fit within the CAA's definition of a pollutant, and that the EPA does have the authority to regulate GHGs.

On September 22, 2009, the EPA published the final rule that requires mandatory reporting of GHG emissions from large sources in the U.S. The final rule requires facilities that emit 25,000 metric tons (MT) or more per year of GHG emissions to submit annual reports to the EPA. The gases covered by the final rule are CO_2, CH_4, N_2O, HFC, PFC, SF_6, and other fluorinated gases including nitrogen trifluoride (NF_3) and hydrofluorinated ethers (HFE).

On December 7, 2009, the EPA issued a Final Rule for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the CAA. The rule finds that six GHGs taken in combination endanger both the public health and the public welfare of current and future generations. The combined emissions of these gases, (i.e. CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) from new motor vehicles and new motor vehicle engines contribute to GHG air pollution that endangers public health and welfare under CAA Section 202(a).

State

Air Quality

The California Air Resources Board (ARB) oversees California air quality policies. CAAQS were first established in 1969 pursuant to the Mulford-Carrell Act. These standards are generally more stringent than the NAAQS and include four additional pollutants: sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulates.

The California Clean Air Act requires each local air district in the state to prepare an air quality plan (part of the SIP) to achieve compliance with the CAAQS. The ARB has ultimate responsibility for the SIP for nonattainment pollutants but relies on each local air district to adopt mandatory statewide programs and provide tailored additional strategies for sources under their local jurisdiction. The ARB combines its data with local district data and submits the completed SIP to the EPA. The SIP consists of the emissions standards for vehicular sources and consumer products set by the ARB, as well as attainment plans adopted by the air districts and approved by the ARB.

The most recent BAAQMD SIP is the San Francisco Bay Area 2001 Ozone Attainment Plan (2001 Plan) for the 1-Hour National Ozone Standard (ARB, 2010c). BAAQMD and its co-lead agencies, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG), adopted the 2001 Plan on October 26, 2001. The 2001 Plan was approved by the ARB on November 1, 2001. On November 30, 2001, the ARB submitted the 2001 Plan to the EPA for approval as a revision to the California SIP. The 2001 Plan contains a control strategy with seven new stationary source measures, twelve new mobile source control measures, five new transportation control measures (TCMs), and eleven further-study measures. In the 2001 Plan, the BAAQMD also commits to strengthen the Smog Check program by requesting the State Bureau of Automotive Repair to implement two volatile organic compounds (VOC)-reducing program elements.

On September 15, 2010, the BAAQMD adopted the final Bay Area 2010 Clean Air Plan (BAAQMD, 2010a). The Bay Area 2010 Clean Air Plan is not a SIP document; however, it serves to meet the requirements of the California Clean Air Act to implement "all feasible measures" to reduce O_3, particulate matter (PM), air toxics, and GHGs, and establish emission control measures to be adopted or implemented in BAAQMD in the 2010 to 2012 timeframe.

ARB regulates TACs primarily through the Tanner Air Toxics Act and the Air Toxics Hot Spots Information and Assessment Act of 1987 (Assembly Bill [AB] 2588). The Tanner Act sets forth a formal procedure for the ARB to designate substances as TACs. AB 2588 requires that existing facilities with stationary sources that emit toxic substances above a specified level:

- Prepare a toxic emission inventory,
- Prepare a risk assessment if emissions are significant,
- Notify the public of significant risk levels, and
- Prepare and implement risk reduction measures.

In addition, the ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (BAAQMD, 2010b).

Greenhouse Gas

Executive Order S-3-05 establishes GHG reduction targets for the State of California. The targets call for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050. The California Environmental Protection Agency will coordinate development and implementation of strategies to achieve the GHG reduction targets.

In 2006, the California State Legislature signed the Global Warming Solutions Act of 2006 (AB 32) which provides the framework for regulating GHG emissions in California. This law requires the ARB to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020. The statewide 2020 emissions limit is 427 million MT of carbon dioxide equivalent (CO_2e) (ARB, 2010b). CO_2 emissions account for approximately 90 percent of the statewide GHG emissions (ARB, 2010b).

On December 2, 2007, the ARB approved a Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, which came into effect in January 2009. This reporting rule was one of the ARB's responsibilities under AB 32. The reporting rule specifies that cement plants, oil refineries, hydrogen plants, electric generating facilities, cogeneration facilities, electric retail providers, and other facilities emitting more than 25,000 MT per year of CO_2e must submit annual reports to the ARB (ARB, 2009). On December 16, 2010, the ARB approved revisions to the reporting rule to support a GHG cap-and-trade program and harmonize with the EPA reporting requirements. The ARB is finalizing the rulemaking during 2011; the revised regulation is expected to be effective for reporting in 2012.

As directed by Senate Bill 97, the OPR developed recommended amendments to the CEQA Guidelines for addressing GHG emissions. The amendments to the CEQA Guidelines provide guidance regarding the analysis and mitigation of GHG emissions and the effects of GHG emissions in draft CEQA documents. The recommended amendments were approved by the Natural Resource Agency and became effective on March 18, 2010.

Local

In California, the California Clean Air Act is administered by the ARB at the state level and by the air quality management district or air pollution control district at the regional and local levels. California is divided into thirty-five local air districts. These agencies are county or regional governing authorities that have primary responsibility for controlling air pollution from stationary sources. Within the project area, the BAAQMD is responsible for establishing and enforcing air quality rules and regulations that address the requirements of federal and state air quality laws.

Air Quality

The BAAQMD rules and regulations apply to the 9-county Bay Area region, including Contra Costa and Alameda counties where the project would be located. The BAAQMD is responsible for implementing air quality regulations, including developing plans and developing control measures for stationary sources of air pollution to meet the NAAQS and CAAQS; implementing permit programs for the construction, modification, and operation of sources of air pollution; and enforcing air pollution statutes and regulations governing stationary sources.

The local regulations that may be relevant to the project, as administered by the BAAQMD with ARB oversight, include:

- Regulation 1 - General Provisions & Definitions
- Regulation 6 - Rule 1, Particulate Matter General Requirements

Additionally, the BAAQMD released the district's CEQA guidance for determining a project's significance, the Bay Area Air Quality Management District CEQA Air Quality Guidelines (BAAQMD, 2010b). The BAAQMD CEQA Air Quality Guidelines were adopted in June 2010. The updated BAAQMD CEQA Air Quality Guidelines address recent changes to the State and federal air quality standards for O_3 and PM, incorporate GHG thresholds, and address exposure to TACs.

Determination of significance with respect to construction and operation emissions are based on a set of thresholds for criteria and GHG pollutant emission rates, toxic air emissions, and health risks. The thresholds and methodology presented in the BAAQMD's CEQA Air Quality Guidelines were used in this analysis to determine the potential project impacts.

Greenhouse Gas

The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin (SFBAAB). The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of

which assist in reducing emissions of GHGs and in reducing air pollutants that affect the health of residents. Additionally, as mentioned above, the BAAQMD CEQA Air Quality Guidelines, adopted in June 2010, incorporate GHG thresholds.

Air Toxics

The BAAQMD has regulated TACs since the 1980s. At the local level, air pollution control or management districts may adopt and enforce ARB's control measures. The BAAQMD limits emissions and public exposure to TACs through a number of programs, mostly directed at the operation of stationary sources (BAAQMD, 2010b). The project does not include stationary sources that would be subject to these programs.

3.3.3.2 Environmental Setting

Climate and Meteorology

The project is located in the SFBAAB, which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma, and the southwestern portion of Solano County. The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits resulting in a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB and the Central Valley.

The climate in the SFBAAB is dominated by the strength and location of a semi-permanent, subtropical high pressure cell. During the summer, the Pacific high pressure cell is centered over the northeastern Pacific Ocean resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

The climatological subregion the project is located in stretches from Richmond to San Leandro. Its western boundary is defined by the Bay and its eastern boundary by the Oakland-Berkeley Hills. The Oakland- Berkeley Hills have a ridge line height of approximately 1,500 feet, a significant barrier to air flow. The most densely populated area of the subregion lies in a strip of land between the Bay and the lower hills. In this area, marine air traveling through the Golden Gate, as well as across San Francisco and through the San Bruno Gap, is a dominant weather factor. The Oakland-Berkeley Hills cause the westerly flow of air to split off to the north and south of Oakland, which causes diminished wind speeds. The prevailing winds for most of this subregion are from the west. At the northern end, near Richmond, prevailing winds are from the south-southwest (BAAQMD, 2010b).

Temperatures in this subregion have a narrow range due to the proximity of the moderating marine air. Maximum temperatures during summer average in the mid-70's, with minimums

in the mid-50's. Winter highs are in the mid- to high-50's, with lows in the low- to mid-40's (BAAQMD, 2010b).

This subregion is characterized by moderately wet winters and dry summers. Winter rains account for about 75 percent of the average annual rainfall, which can total 40 inches in the mountains and less than 16 inches in the sheltered valleys. During precipitation events, ventilation and vertical mixing are usually high and thus pollution levels tend to be low. However, frequent dry periods do occur during the winter where mixing and ventilation are low and pollutant levels build up (BAAQMD, 2010b).

The air pollution potential is lowest for the parts of the subregion that are closest to the Bay, due largely to good ventilation and less influx of pollutants from upwind sources. The occurrence of light winds in the evenings and early mornings occasionally causes elevated pollutant levels.

The air pollution potential at the northern (Richmond) and southern (Oakland, San Leandro) parts of this subregion is marginally higher than communities directly east of the Golden Gate, because of the lower frequency of strong winds (BAAQMD, 2010b).

Ambient Air Quality

The EPA has designated counties in California as either in “attainment” or “nonattainment” for each NAAQS. A region that is meeting the air quality standard for a given pollutant is designated as being in attainment for that pollutant. If the region is not meeting the air quality standard, then it is designated as being in nonattainment for that pollutant. If a region is designated as nonattainment for a NAAQS, the CAA requires the state to develop a SIP to demonstrate how the standard will be attained, including the establishment of specific requirements for review and approval of new or modified stationary sources of air pollution. Table 3.3-3 presents the attainment status for Contra Costa and Alameda counties.

Table 3.3-3
BAAQMD Attainment Status as of February 2011 and the CAAQS and NAAQS
Power Line Reconductoring Project

Pollutant	Averaging Time	California Standards		Federal Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8 Hour 1 Hour	0.07 ppm 0.09 ppm	N	0.075 ppm ---	N (Marginal)
Carbon Monoxide	8 Hour 1 Hour	9.0 ppm 20.0 ppm	A	9 ppm 35 ppm	M
Nitrogen Dioxide	Annual Arithmetic Mean 1 Hour	0.030 ppm 0.18 ppm	A	0.053 ppm 0.100 ppm	U
Particulate Matter (PM_{10})	Annual Arithmetic Mean 24 Hour	20.0 $\mu g/m^3$ 50.0 $\mu g/m^3$	N	--- 150 $\mu g/m^3$	U

Table 3.3-3
BAAQMD Attainment Status as of February 2011 and the CAAQS and NAAQS
Power Line Reconductoring Project

Pollutant	Averaging Time	California Standards		Federal Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Sulfur Dioxide	24 Hour 1 Hour	0.04 ppm 0.25 ppm	A	--- 0.075 ppm	U
Lead	30 Day Average Calendar Quarter	1.5 µg/m^3 ---	A	--- 1.5 µg/m^3	---
Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean 24 Hour	12 µg/m^3 ---	N	15 µg/m^3 35 µg/m^3	N
Visibility Reducing Particles	8 hour	Extinction Coefficient of 0.23 per km	---	No Federal Standard	---
Sulfates	24 hour	25 µg/m^3	---	No Federal Standard	---
Hydrogen Sulfide	1 hour	0.03 ppm (42 µg/m^3)	---	No Federal Standard	---
Vinyl Chloride	24 hour	0.01 ppm (26 µg/m^3)	---	No Federal Standard	---

Source: ARB, 2010b; EPA, 2010b.

Units:

Ppm	Parts per million
µg/m^3	Micrograms per cubic meter of air
N	Non-attainment
A	Attainment
M	Maintenance
U	Unclassified
---	Not Applicable / No Attainment Information

The BAAQMD operates a network of ambient air quality monitoring stations that measure concentrations of many of the regulated criteria pollutants. To determine the existing ambient air quality for the project, the nearest air quality stations were identified. The nearest monitoring stations are located in the City of Concord on Treat Boulevard. Table 3.3-4 presents concentrations of the air pollutants measured at the Concord monitoring stations. Concentrations of O_3 and PM_{10} measured at these stations exceeded the CAAQS and NAAQS between 2006 and 2008. Concentrations of the other regulated criteria pollutants did not exceed the NAAQS or CAAQS between the years 2006 and 2008. Monitoring values from 2009 were not included as they are not yet available for all pollutant averaging times.

Table 3.3-4
Summary of Ambient Air Monitoring Data in the Project Area
Power Line Reconductoring Project

Pollutant	Averaging Time	Units	2006	2007	2008
O_3 [a]	8 Hour	ppm	0.092	0.081	0.088
	1 Hour		0.117	0.105	0.119
CO	8 Hour [a]	ppm	1.30	1.41	1.13
	1 Hour [b]		1.7	2.2	1.5
NO_2 [a]	Annual	ppm	0.011	0.011	0.010
	1 Hour		0.047	0.049	0.050
SO_2 [b]	24 Hour	ppm	0.007	0.005	0.004
	1 Hour		0.025	0.021	0.019
PM_{10} [a]	Annual Arithmetic Mean	$\mu g/m^3$	18.5	16.7	17.5
	24 Hour		83.6	52.4	50.5
$PM_{2.5}$	Annual Arithmetic Mean [a]	$\mu g/m^3$	10.0	8.7	9.5
	24 Hour [b, c]		38.8	45.0	38.0

Notes:
[a] Monitoring data from the monitoring station located at 2975 Treat Blvd, Concord, CA. Source: ARB, 2010a.
[b] Monitoring data from the monitoring station located at 2956 A Treat Blvd, Concord, CA. Source: EPA, 2010a.
[c] Listed values are the3-year average of the 98th percentile.
ppm = parts per million
$\mu g/m^3$ = Micrograms per cubic meter of air

Greenhouse Gas

GHG emissions are not currently regulated in the BAAQMD. The BAAQMD CEQA Air Quality Guidelines do, however, encourage local governments to adopt a qualified GHG Reduction Strategy that is consistent with AB 32 goals. For potential regulatory action, GHGs are generally defined as: CO_2, N_2O, CH_4, HFCs, PFCs, and SF_6. GHG emissions are generally expressed in units of CO_2e. Concentrations of the gases are converted into CO_2e according to their global warming potential; CO_2 has a global warming potential of one. Table 3.3-5 presents the 2007 GHG emission inventory for the Bay Area, which is the most recently available inventory (BAAQMD, 2010e).

Table 3.3-5
Bay Area 2007 GHG Emissions Inventory
Power Line Reconductoring Project

End-Use Sector	% of Total Emissions	CO_2e (Million Metric Tonnes/Year)
Industrial / Commercial	36.40%	34.86
Residential Fuel Usage	7.12%	6.82
Electricity / Co-Generation *	15.87%	15.20
Off-Road Equipment	3.05%	2.92
Transportation	36.41%	34.87
Agriculture / Farming	1.16%	1.11
Total	**100%**	**95.8**

Source: BAAQMD, 2007.
* Includes imported electricity emissions of 7.1 million MT/year CO_2e.

Toxic Air Contaminants

The ARB toxics monitoring program, authorized in 1987 by AB 2588 (the Air Toxics "Hot Spots" Information and Assessment Act), was designed to determine the location, type, and quantity of various TACs emitted by local businesses. The EPA has defined TACs as those that may reasonably be anticipated to result in increased deaths or serious illness and which are not already regulated. The ARB identifies the most important toxic pollutants by considering risk of harm to public health. The project is not a stationary source subject to AB 2588 requirements, nor would it emit TACs at levels that could be considered significant under the AB 2588 program

Sensitive Receptors

Sensitive receptors for air emissions are people (children, adults, and seniors) occupying or residing in residential dwellings, schools, daycares, hospitals, and senior-care facilities (BAAQMD, 2010c). A discussion of potential health risk from construction of the project and the sensitive receptors located nearest to each pull site are presented in Section 3.3.4.3.

Odors

The project would involve the temporary use of vehicles and construction equipment that do not generate significant odors; therefore, no odor impacts are expected and are not discussed in additional detail.

3.3.4 POTENTIAL IMPACTS AND APPLICANT PROPOSED MEASURES

3.3.4.1 Significance Criteria

Air Quality

Generally, according to Appendix G of the CEQA Guidelines[2], impacts to air quality may be considered significant if the project:

- conflicts with or obstructs implementation of any applicable air quality plan,
- violates any air quality standard or contributes substantially to an existing or projected air quality violation,
- results in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for O_3 precursors),
- exposes sensitive receptors to a substantial pollutant concentration, and/or
- creates objectionable odors affecting a substantial number of people.

BAAQMD's CEQA Air Quality Guidelines allow a project to use a set of screening criteria for a preliminary evaluation of the impacts. If all of the screening criteria are met, the construction of the project is expected to result in a less-than-significant impact from criteria air pollutant and precursor emissions, and no further analysis is required. If the screening criteria are exceeded, a quantitative analysis is required. If the quantitative thresholds of significance are exceeded, mitigation is required.

The project land use type does not correspond to one of the land use categories listed in the BAAQMD CEQA screening tables for criteria pollutants and GHGs. Therefore, the construction emissions were quantified and compared to the quantitative thresholds. For the TACs and DPM, however, the industrial land use category was used to perform an initial evaluation of construction using the BAAQMD Screening Criteria.

For construction impacts, the BAAQMD's Board of Directors adopted the thresholds of significance on June 2, 2010. The quantitative thresholds of significance are included in the updated BAAQMD CEQA Air Quality Guidelines and are summarized below in Table 3.3-6.

[2] The CEQA Guidelines are codified at Title 14 California Code of Regulations section 15000 et seq.

Table 3.3-6
BAAQMD CEQA Thresholds of Significance for Construction Emissions
Power Line Reconductoring Project

Project-Level Impact	Construction Related Threshold
Criteria Air Pollutants and Precursors (Regional)	Average Daily Emissions (lbs/day)
ROG	*54*
NO_X	*54*
PM_{10}	*82*
$PM_{2.5}$	*54*
Local CO	*None*
GHG Projects other than Stationary Sources	No Threshold
Risk and Hazards [a]	1) Meet Screening Criteria; or 2) Compliance with Qualified Community Risk Reduction Plan; or 3) Increased cancer risk of <10.0 in a million or increased non-cancer risk of < 1.0; and 4) Ambient $PM_{2.5}$ increase: < 0.3 µg/m^3
Accidental Release of Acutely Hazardous Air Pollutants	No Threshold
Odors	No Threshold

Notes:
[a] Risk and Hazards thresholds are for the TAC and $PM_{2.5}$ emissions.
lbs/day = pounds per day
Ambient $PM_{2.5}$ increase: < 0.3 µg/m^3 on an annual average over the zone of Influence of 1,000-foot radius from fence line of source or receptor.
Source: BAAQMD, 2010b.

Greenhouse Gas

According to recent amendments to Appendix G of the CEQA Guidelines, GHG emissions may be considered significant if the project:

- generates GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or
- conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs.

In addition, the ARB has developed state-wide interim thresholds of significance for GHGs. For industrial projects, the ARB proposed a quantitative threshold of 7,000 MT of CO_2e per year. There are no BAAQMD thresholds of significance for GHG construction emissions, as summarized above in Table 3.3-6.

Toxic Air Contaminants

While the CEQA Guidelines do not define significance criteria for TACs, the BAAQMD thresholds of significance for TACs and DPM emitted from construction activities, categorized as 'Risks and Hazards', are summarized in Table 3.3-6. TAC emissions from

construction are evaluated for significance if they do not pass the screening criteria and may be considered significant if TAC emissions exceed any of the thresholds of significance. The BAAQMD screening tables present minimum distances required between the fence line of a construction site and a nearby sensitive receptor that would result in less than significant cancer and non-cancer risks.

3.3.4.2 Applicant Proposed Measures

APM Air Quality (AQ)-1. Fugitive Dust Minimization. The following fugitive dust control measures would be implemented during construction:

- Reduce the amount of the disturbed area where possible.
- Use of water trucks or sprinkler systems in sufficient quantity to prevent airborne dust from leaving the site. Increased water frequency would be required whenever wind speeds exceed 15 miles per hour (mph). Reclaimed (non-potable) water should be used whenever possible. Non-potable water will not be used in or around crops used for human consumption.
- Permanent dust control measures identified in the approved project revegetation and landscape plans should be implemented as soon as possible following completion of any soil disturbing activities. Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading should be sown with a fast germinating, non-invasive grass seed and watered until vegetation is established. All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved by the BAAQMD.
- Vehicle speed for construction vehicles shall not exceed 15 mph on any unpaved surface.
- Install wheel washers (or equivalent) at access points, or if appropriate at designated landing zones and laydown areas, to prevent tracking of mud on to public roads. Other specific measures to prevent mud tracking will be provided in the Storm Water Pollution Prevention Plan (SWPPP) which is discussed in APM Water Quality (WQ)-1 SWPPP development and implementation. Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible.
- These fugitive dust measures shall be shown on grading and building plans.

APM GHG-1. GHG Emissions Minimization. The following measures would be implemented during construction to minimize GHG emissions.

- 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 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.

- 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 horsepower (hp) or larger and manufactured in 2000 or later will be registered under the ARB Statewide Portable Equipment Registration Program, or shall meet at a minimum the EPA/ARB Tier 1 engine standards.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas powered vehicles for passenger cars and light duty trucks where feasible and available.
- Encourage the recycling of construction waste where feasible.

In addition to these APMs, PG&E is implementing the following voluntary company-wide actions to further reduce GHG emissions:

- PG&E is an active member of the SF_6 Emission Reduction partnership for Electrical Power Systems, a voluntary program between the EPA and electric power companies that focuses on reducing emissions of SF_6 from transmission and distribution operations. Since 1998, PG&E has reduced the SF_6 leak rate by 89 percent and absolute SF_6 emissions by 83 percent.
- PG&E supports the Natural Gas STAR, a program promoting the reduction of CH_4 from natural gas pipeline operations. Since 1998, PG&E has avoided the release of thousands of tons of CH_4.
- In June 2007, PG&E launched the ClimateSmart program, a voluntary GHG emissions reduction program that allows its customers to balance out the GHG emissions produced by the energy they use, making their energy use “climate neutral”. For ClimateSmart customers, PG&E calculates the amount needed to fund sufficient GHG emissions reduction projects in California to make their energy use “climate neutral”. This is added to the customer’s monthly energy bill and is tax deductible.

- PG&E is offsetting all of the GHG emissions associated with energy used in PG&E's buildings by participating in its ClimateSmart program. In 2007, this amounted to over 50,000 tons of CO_2 reductions.

As discussed in Section 3.3.4.3, the criteria pollutant emissions evaluated would be below the BAAQMD CEQA thresholds of significance. However, the project construction would implement the previously discussed APMs and, as required by the BAAQMD, the following control measures, some of which are already incorporated into the APMs, throughout the construction period (BAAQMD, 2010b):

- Exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- Haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- Visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- Vehicle speeds on unpaved roads shall be limited to 15 mph.
- Roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of the California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at access points.
- Construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. Equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

3.3.4.3 Construction

Temporary impacts from construction were evaluated for the nonattainment pollutants PM_{10}, $PM_{2.5}$, and O_3 precursors (NO_x and ROG) and the attainment pollutants CO and SO_2. The following discussion evaluates potential project construction impacts against the significance criteria.

Air Quality

Impact AQ-1. Conflict with or obstruct implementation of the applicable air quality plan. As discussed in Section 3.3.3.1, the most recent BAAQMD SIP is the 2001 Plan. The 2001 Plan contains a control strategy with seven new stationary source measures, twelve new

mobile source measures, five new TCMs, and eleven further-study measures. Additionally, the Bay Area 2010 Clean Air Plan, a local regional plan meeting the California Clean Air Act requirements, establishes control measures to reduce O_3, PM, air toxics, and GHGs.

Since the project would not include any new stationary sources, the stationary control measures identified in the 2001 Plan are not applicable. However, the mobile source control measures pertaining to heavy-duty off-road equipment are applicable. The project would be consistent with the 2001 Plan because APM GHG-1 contains measures targeting off-road equipment, including the use of equipment meeting the ARB-approved engine standards.

Similarly, the project would be consistent with the Bay Area 2010 Clean Air Plan in that APM GHG-1 encourages the use of low-emission or electric construction equipment where feasible. APM GHG-1 also encourages carpooling to reduce traffic in the project vicinity, which is consistent with the TCMs identified in the Bay Area 2010 Clean Air Plan. Therefore, no impact to the applicable air quality plans is expected as a result of this project.

Impact AQ-2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation. Exhaust emissions from construction equipment result in short-term emissions of ROG, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$. As shown in Table 3.3-7, the emissions for all pollutants evaluated would be less than the BAAQMD CEQA thresholds of significance without the use of the APMs. The BAAQMD has not established significance thresholds for CO or SO_2 emissions from construction. However, the area is in attainment for CO and emissions of SO_2 are relatively low due to the use of ultra low sulfur fuel, as required by the ARB. Therefore, construction emissions would not violate an air quality standard or contribute substantially to an existing or projected air quality violation and the impact would be less than significant.

Table 3.3-7
Summary of Uncontrolled Construction Emissions
Power Line Reconductoring Project

Construction Component	Estimated Emissions (lbs/day)					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
2011 GC Tower Phase	20.10	26.08	32.64	0.19	1.64	1.56
2011 GC Line Electric Phase	10.93	27.57	51.34	0.15	22.23	6.24
2011 Maximum Daily Emissions	**20.10**	**27.57**	**51.34**	**0.19**	**22.23**	**6.24**
2012 GC Line Electric Phase	10.84	27.22	48.94	0.15	22.15	6.17
2012 Maximum Daily Emissions	**10.84**	**27.22**	**48.94**	**0.15**	**22.15**	**6.17**
Project Maximum Daily Emissions	**20.10**	**27.57**	**51.34**	**0.19**	**22.23**	**6.24**
BAAQMD Thresholds	54	N/A	54	N/A	82	54
Threshold Exceedance	No	N/A	No	N/A	No	No

Note:
Maximum daily emissions occur in 2011.

The construction emissions with implementation of APM AQ-1 and the BAAQMD required control measures are presented in Table 3.3-8. The reduction activities quantified include watering exposed surfaces twice daily, covering unpaved surfaces, watering unpaved roads twice daily, and reducing vehicle speeds on unpaved roads to 15 mph. Note that implementation of watering activities requires the addition of a water truck which would increase the off-road vehicle exhaust emissions. The other control measures do not have industry recognized reduction efficiencies and, therefore, were not quantified; however, they would reduce the emissions presented in Table 3.3-8 even further.

Table 3.3-8
Summary of Construction Emissions with APM AQ-1
Power Line Reconductoring Project

Construction Component	Estimated Emissions (lbs/day)					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
2011 GC Tower Phase	20.10	26.08	32.64	0.19	1.64	1.56
2011 GC Line Electric Phase	11.05	27.90	52.54	0.15	10.09	3.74
2011 Maximum Daily Emissions	**20.10**	**27.90**	**52.54**	**0.19**	**10.09**	**3.74**
2012 GC Line Electric Phase	10.96	27.54	50.03	0.15	10.00	3.66
2012 Maximum Daily Emissions	**10.96**	**27.54**	**50.03**	**0.15**	**10.00**	**3.66**
Project Maximum Daily Emissions	**20.10**	**27.90**	**52.54**	**0.19**	**10.09**	**3.74**
BAAQMD Thresholds	54	N/A	54	N/A	82	54
Threshold Exceedance	No	N/A	No	N/A	No	No

Note:
Maximum daily emissions occur in 2011.
APM AQ-1 actions quantified include: watering exposed surfaces twice daily, covering unpaved surfaces, watering unpaved roads twice daily, and reducing vehicle speeds on unpaved roads to 15 mph.

Impact AQ-3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). As shown in Table 3.3-7, project construction emissions would be lower than the BAAQMD significance thresholds. Additionally, the construction emissions would be temporary and the maximum daily emissions would occur for only a portion of the construction period. Therefore, since the project would emit pollutants below the BAAQMD CEQA thresholds of significance for an individual project, it would not result in a cumulative considerable net increase of non-attainment pollutants (PM_{10}, $PM_{2.5}$, and the O_3 precursors [NO_x and ROG]) and the air quality impact on non-attainment criteria pollutants would be less than significant.

Impact AQ-4. Expose sensitive receptors to a substantial pollutant concentration. The sensitive receptors located nearest each pull site are provided in Table 3.3-9. As described above, with or without implementation of APM AQ-1 and the BAAQMD required control measures, project construction emissions are not expected to result in substantial pollutant concentrations. For example, on-site ground diesel-fueled construction equipment and vehicles would result in 5.36 lbs of $PM_{2.5}$ per day without implementation of APM AQ-1 and

2.86 lbs per day with APM AQ-1[3]. Therefore, the air quality impact on sensitive receptors would be less than significant.

BAAQMD's *Screening Tables for Air Toxics Evaluation During Construction* lists risk screening criteria based on the type of construction project: residential, commercial, or industrial. The screening tables were developed based on conservative assumptions such as exposure of a sensitive receptor to construction DPM emissions for a 70-year period and construction emissions would occur within a small area of activity at the fence line (0.25 acre). If a sensitive receptor is located at a distance greater than the screening distance, a less than significant risk would occur.

The project was assumed to have similar construction activities and equipment use as an industrial construction site; therefore, the industrial site scenario in the screening table was used. The industrial site project size of 1.4 acres in the screening table was used since each pull site has the same size of approximately 1.4 acres. Based on the size of the construction area (1.4 acres), sensitive receptor distances were evaluated against the following screening criteria (BAAQMD, 2010d):

- 100 meters for cancer risk with age sensitivity factors (ASFs)
- 10 meters for DPM chronic hazard
- 90 meters for $PM_{2.5}$
- 55 meters for acrolein[4] acute hazard

As shown in Table 3.3-9, only Pull Site #2 is adjacent to a residential area that may have schools or other sensitive receptors located within the above screening distances.

[3] These numbers are less than those presented in the tables because they only account for on-site diesel construction equipment and do not include emissions from equipment using other fuels.
[4] Acrolein was chosen because it has the greatest non-cancer health risks for TACs contained in diesel exhaust (BAAQMD, 2010d).

Table 3.3-9
Pull Site Screening Risk Assessment
Power Line Reconductoring Project

Pull Site	Distance To Closest Sensitive Receptor (meters)	Does the Distance to Receptor Exceed the Screening Distances? [a]
Pull Site #1	300	No
Pull Site #2	< 5	Yes, for all
Pull Site #3	> 2,500	No
Pull Site #4	600	No
Pull Site #5	850	No
Pull Site #6	200	No
Pull Site #7	250	No
Pull Site #8	140	No
Pull Site #9	> 2,500	No
Pull Site #10	600	No
Pull Site #11	1,000	No
Pull Site #12	750	No

Notes:
[a] Screening distances are: 100 meters for cancer risk with ASFs, 10 meters for DPM chronic hazard, 90 meters for $PM_{2.5}$, and 55 meters for acrolein acute hazard (BAAQMD, 2010d).

As indicated in Table 3.3-9, Pull Site # 2 exceeds the screening distance. Therefore, an additional qualitative analysis was done using the criteria below to determine that the potential impacts would be less than significant.

- Compliance with a qualified community risk reduction plan, or
- Increased cancer risk less than 10.0 in one million or increased non-cancer risk less than 1.0, and
- Increase in ambient $PM_{2.5}$ concentration less than 0.3 $\mu g/m^3$.

This project is not located within an impacted area, as defined by the BAAQMD CEQA Air Quality Guidelines, nor is there a community risk reduction plan for the project area. Therefore, compliance with a community risk reduction plan is not applicable to this project.

While quantitative cancer and non-cancer risks were not determined, the short construction period and minimal equipment usage (both equipment counts and daily hours of use) would significantly limit TAC emissions at the project site. The BAAQMD screening tables were based on long-term exposure for cancer risk (70-years) and assume emissions would occur within a 0.25 acre area next to the fence line. Project construction would occur within a 12-month period and would be spread out over the 1.4 acre area. Therefore, it is unlikely that the project would increase cancer and non-cancer risks above the thresholds of significance.

As stated above, the project particulate emissions would be much lower than the particulate significance thresholds. Therefore, it is unlikely that the project would contribute to an increase in ambient $PM_{2.5}$ or PM_{10} concentrations.

Based on the above, TAC and DPM emissions due to project construction would have a less than significant impact on sensitive receptors.

Impact AQ-5. Create objectionable odors affecting a substantial number of people. As described in Section 3.3.3.2, the project would involve the temporary use of vehicles and construction equipment that do not generate significant odors; therefore, no odor impacts would be expected.

Greenhouse Gas

Impact GHG-1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. GHG emissions would result from equipment usage and vehicular emissions from transporting workers, equipment, and supplies during construction activities. The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, these emissions would be short-term. As presented in Table 3.3-10, construction-phase emissions of CO_2 without the implementation of APM GHG-1 were estimated to be 1,359 MT CO_2 per year. These emissions are well below ARB's proposed threshold of 7,000 MT CO_2e per year; therefore, potential GHG impacts would be less then significant.

Table 3.3-10
Summary of Greenhouse Gas Construction Emissions

	Estimated Emissions (MT/year)	
Construction Component	**Uncontrolled CO_2**	**Controlled CO_2**
2011 GC Tower Phase	354	353
2011 GC Line Electric Phase	1,005	984
2011 Maximum Annual Emissions	**1,359**	**1,337**
2012 GC Line Electric Phase	1,005	984
2012 Maximum Annual Emissions	**1,005**	**984**
Project Maximum Annual Emissions	**1,359**	**1,337**

Note:
Maximum daily emissions occur in 2011.
APM GHG-1 actions quantified include: using 1 compressed natural gas-fueled pickup truck for each construction phase and assuming a 1 percent reduction in worker commute emissions due to carpooling initiatives.

With implementation of APM GHG-1, construction-phase GHG emissions would be reduced to 1,337 MT CO_2 per year. The APM GHG-1 measures quantified for estimating the reduction in GHG emissions included using one compressed natural gas-fueled pickup truck per construction phase (in place of a gasoline-fueled pickup truck) and assuming a 1 percent reduction in worker commute emissions due to carpooling initiatives. The carpooling effectiveness was a conservative estimate and could range from 1 to 6.2 percent depending on the extent of the program (CAPCOA, 2010). Note also that the estimated reductions do not include reductions due to the implementation of APM AQ-1, as that initiative did not

reduce CO_2 emissions. The other control measures do not have industry recognized reduction efficiencies and therefore were not quantified; however, they would reduce the controlled emissions presented in Table 3.3-10 even further.

The estimated GHG emissions of 1,337 MT CO_2 per year are not only below ARB's threshold, but are minimal when compared to AB 32's 2020 emission limit of 427 million MT CO_2e. Therefore, construction-phase GHG emissions would not interfere with ARB's long term goal to reduce GHG emissions to 1990 levels by 2020, and GHG emissions from the project would be less than significant.

While not quantified, the application of APM GHG-1, particularly the carpooling initiative, would have the co-benefit of reducing criteria air pollutant emissions by 1 percent (and ROG emissions by 0.6 percent).

Impact GHG-2. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. As per the discussion under Impact GHG-1, the project would not interfere with ARB's long term goal to reduce GHG emissions to 1990 levels by 2020. Additionally, APM GHG-1 incorporates the use of carpooling programs and alternative fuels, which are control measures identified in the Bay Area 2010 Clean Air Plan. Consequently, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

3.3.4.4 Operations and Maintenance

Ongoing operation and maintenance activities are not expected to change due to reconductoring activities; therefore, the project would not result in impacts to air quality. PG&E would continue to periodically monitor and inspect this power line segment at the same or reduced level of frequency.

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Appendix D
Biological Assessment

REVISED BIOLOGICAL ASSESSMENT

FOR THE
PACIFIC GAS & ELECTRIC COMPANY'S

PITTSBURG-TESLA 230 KV
TRANSMISSION LINE RECONDUCTORING PROJECT

CONTRA COSTA AND ALAMEDA COUNTIES, CALIFORNIA

November 2010

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TABLE OF CONTENTS

1.0 Summary 1
1.1 Project Summary 1
2.0 Introduction 3
2.1 Project Summary 3
2.2 Background and Objectives 3
2.3 Project Location 4
2.4 Project Description 6
2.5 Avoidance and Minimization Measures 8
Avoidance Recommendations for Delta Smelt Critical Habitat 10
Avoidance Recommendations for Valley elderberry longhorn beetle (VELB) 10
Avoidance Recommendations for California Red-legged Frog 11
Avoidance Recommendations for Alameda Striped Racer 12
Avoidance Recommendations for San Joaquin Kit Fox 13
2.6 Anticipated Level of Disturbance 13
3.0 Methods 14
3.1 Pre-field Research 14
3.2 Field Surveys 14
4.0 Results 23
4.1 Communities 23
4.2 Federally-listed Plants 27
4.3 Wildlife Resources 33
4.3 Critical Habitat 47
5.0 Summary of Potential Effects 52
5.1 Listed Plants 52
5.2 Listed Wildlife 52
5.3 Critical Habitat 52
6.0 References Cited 54

TABLES AND FIGURES

Table 1. Federally-listed plant species with potential to occur in the Project area..... 16
Table 2. Federally listed wildlife species with potential to occur in the Project area..... 18
Table 3. Elderberry Shrubs Observed Incidentally to Surveys..... 38

Figure 1. Project Area 5

APPENDICES

Appendix A Project Maps
Appendix B Guard Structure Table
Appendix C Representative Project Construction Equipment Photographs
Appendix D Representative Photographs of Project Habitats
Appendix E USFWS List of Federally-Listed Species

1.0 Summary

1.1 Project Summary

Pacific Gas and Electric Company (PG&E) is proposing to construct the Pittsburg-Tesla 230kV Reconductoring Project between Pittsburg and Midway, California (the "Project"). Background research and biological surveys were conducted to determine the potential for impacts to federally-listed species and designated critical habitat.

Eight federally-listed plant species were identified during the background research for the Project. Of those eight, six have potential habitat within the transmission corridor. These six species are large-flowered fiddleneck (*Amsinckia grandiflora*), Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*), soft bird's-beak (*Cordylanthus mollis* ssp. *mollis*), palmate-bracted bird's-beak (*Cordylanthus palmatus*), Contra Costa goldfields (*Lasthenia conjugens*), and Colusa grass (*Neostapfia colusana*). Focused surveys were performed in late spring and summer 2008, and early spring 2009; none of the species listed above were observed. The Project is expected to have no effect on any of these federally-listed plant species.

Twenty-five federally-listed wildlife species were identified during the background research. Of those 25, 12 have potential habitat within the transmission corridor. These twelve are Conservancy fairy shrimp *(Branchinecta conservatio)*, longhorn fairy shrimp (*Branchinecta longiantenn*), vernal pool fairy shrimp *(Branchinecta lynchi)*, vernal pool tadpole shrimp *(Lepidurus packardi)*, Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Delta smelt (*Hypomesus transpacificus*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana aurora draytonii*), Alameda striped racer (*Masticophis lateralis euryxanthus*), California clapper rail (*Rallus longirostris obsoletus*), salt marsh harvest mouse (*Reithrodontomys raviventris*), and San Joaquin kit fox (*Vulpes macrotis mutica*). This Project is not expected to affect Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, Delta smelt, California clapper rail, and salt marsh harvest mouse. This Project is not likely to adversely affect Valley elderberry longhorn beetle, California tiger salamander, California red-legged frog, Alameda striped racer, and San Joaquin kit fox.

Three of these federally-listed wildlife species, the California red-legged frog, Valley elderberry longhorn beetle, and San Joaquin kit fox, were located and/or had evidence of presence during surveys, and measures have been incorporated into the Project to ensure that impacts to these species will be minimized and mitigated. As stated above, the Project is not likely to adversely affect the California red-legged frog, Valley elderberry longhorn beetle, and San Joaquin kit fox.

Federally-designated critical habitat exists for four federally-listed species within the transmission corridor: Contra Costa goldfields, vernal pool fairy shrimp, Delta smelt, and California red-legged frog. The Project is not expected to impact, nor have negligible

impacts, on primary constituent elements (PCE's) of critical habitat for the Contra Costa goldfields, vernal pool fairy shrimp, and Delta smelt. Furthermore, although critical habitat for the California red-legged frog will be minimally temporarily influenced by construction activities, impacts to this habitat are expected to be minor and temporary, with no permanent impacts.

2.0 Introduction

2.1 Project Summary

Pacific Gas and Electric Company proposes the Pittsburg-Tesla 230kV Reconductoring Project (hereinafter referred to as the "Project"). This Project seeks to upgrade 31 miles of existing electrical transmission line between the Pittsburg Power Plant and Tesla Substation, in Contra Costa and Alameda counties, California. This biological assessment evaluates the potential for impacts to federally-listed and candidate species, and designated critical habitat, from Project activities. It concludes that, as designed, the Project is expected to 1) have no effect on large-flowered fiddleneck, Suisun thistle, soft bird's-beak, palmate-bracted bird's-beak, Contra Costa goldfields, Colusa grass, Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, Delta smelt, California clapper rail, and salt marsh harvest mouse; 2) not likely to adversely affect Valley elderberry longhorn beetle, California tiger salamander, California red-legged frog, Alameda striped racer, and San Joaquin kit fox; 3) have no impact on critical habitat for the Contra Costa goldfields, vernal pool fairy shrimp, and Delta smelt; and 4) have only minimal and temporary impacts to critical habitat for California red-legged frog.

2.2 Background and Objectives

PG&E owns and operates the Pittsburg-Tesla 230kV transmission line, located in eastern Contra Costa and northern Alameda counties, California. Increasing load demand in the East Bay region requires that PG&E complete line and tower facility upgrades.

This reconductoring Project involves multi-stage activities, including the installation of reconductoring equipment at all towers; installation of top cage extensions, new insulators, arm extensions, and/or other modifications at select towers; use of guard structures to protect road, utility line, and railway crossings; and the establishment of pull sites on which to set up and pull the wire (conductor). Access to the existing easement at nearly all work sites is by existing roads. These Project activities are described in detail in Section 2.4 below.

Garcia and Associates (GANDA) performed a pre-field review and initial walkdown in October 2007, and field surveys between May 2008 and April 2009 as part of the preparation of this report. Habitat-level wildlife surveys for federally-listed species were conducted; no protocol-level wildlife surveys were conducted. Protocol-level plant surveys for plant species were conducted in late spring and summer 2008, and early spring 2009. Details of review and surveys are further described in Section 3.0.

Biologists worked with PG&E Project managers to avoid or minimize impacts to biological resources; measures to avoid impacts to federally-listed species and critical habitat are included as part of Project activities (see Section 2.5). Although sensitive species were located during surveys and could otherwise occur based on presence of

suitable habitat, the Project's effects on these species will be minimized if the proposed avoidance measures are followed.

2.3 Project Location

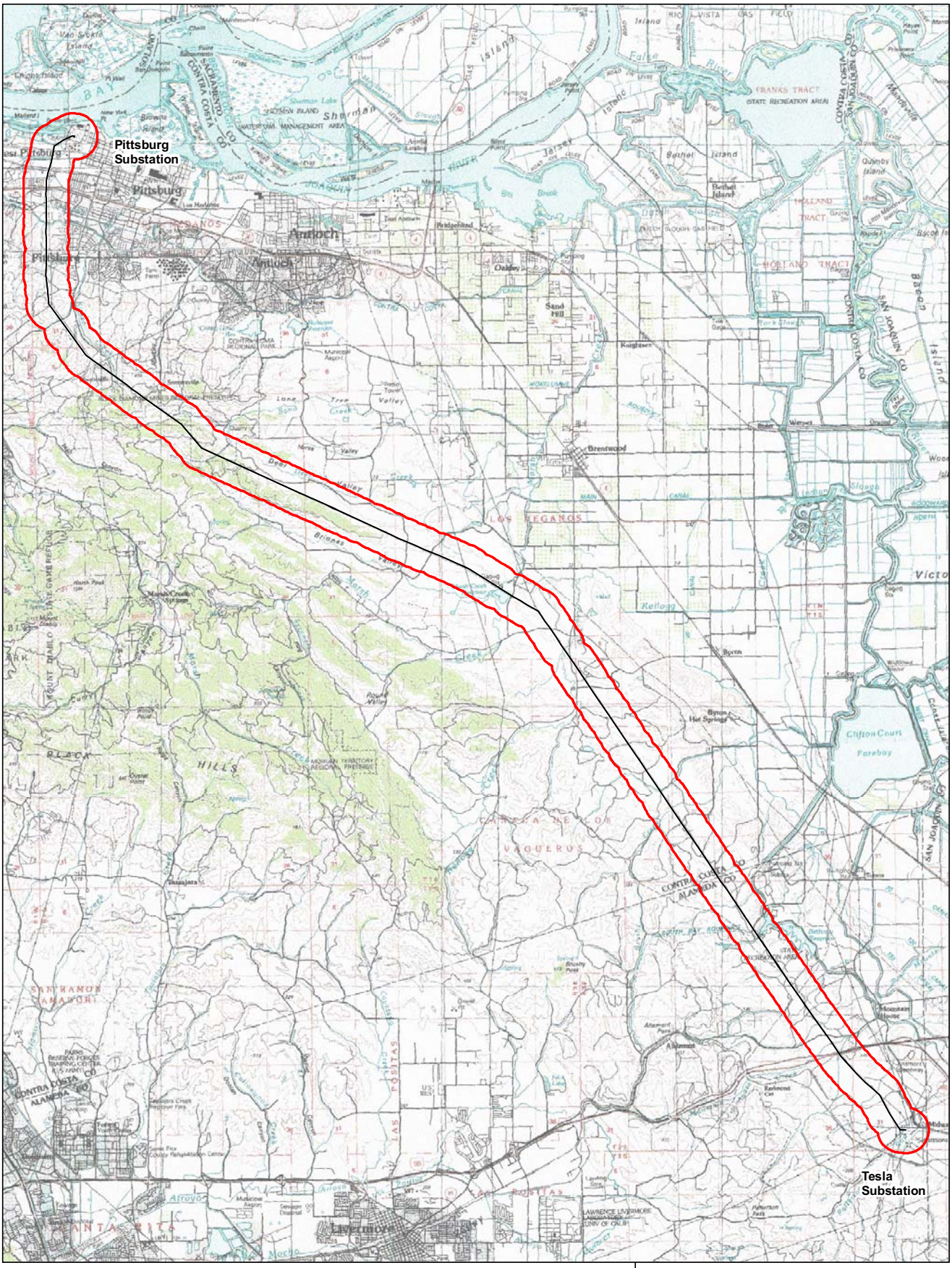
The Pittsburg-Tesla line runs approximately northwest to southeast and has an elevation range of zero to 500 feet (Figure 1). The subject line is approximately 31 miles long. The start of the line is at the Pittsburg substation in the City of Pittsburg, Contra Costa County, California; south of the confluence of the Sacramento and San Joaquin Rivers. After leaving the substation, the line runs south for approximately four miles, and then turns east-southeast for 13 miles, crossing Black Diamond Mines Regional Park, portions of the John Marsh State Historic Park, and Marsh Creek Reservoir Dam. The line turns southeast for 14 miles to enter Alameda County, then crosses a western branch of Bethany Reservoir and I-580, and then ends at the Tesla Substation. A total of 147 transmission towers are included in this Project.

As used in this document, the term "subject line" refers to the 147 steel lattice transmission towers connected by approximately 31 miles of conductor. Project activities will take place on the ground at 12 individual pull sites, approximately 37 guard structure locations, and seven staging areas for laydown and helicopter use. Throughout the remainder of this document, these individual areas will be referred to as "Project work areas", or collectively as the "Project area." The subject line and a 250 foot buffer, and all Project work areas are collectively referred to as the "transmission corridor."

Action Area

The Action Area for this Project is based upon locations of Project work areas. This Action Area encompasses the seven staging areas; the 37 guard structure locations with a surrounding buffer of approximately 50 feet; and unpaved access routes with a surrounding buffer of 250 feet. The Action Area also encompasses 12 pull site areas as presented on the maps in Appendix A. The pull sites as presented on these maps include the actual work footprint (one or two areas of approximately 200 feet by 300 feet) with a surrounding buffer. This buffer around staging areas and pull sites is often 200 to 250 feet or more, but varies depending on the topography and situation (e.g., little buffer was considered around fenced substation yards and other disturbed facilities).

No construction activities will be conducted within the transmission corridor, except within the designated locations in the Action Area.



Legend

Transmission Line

1 mile Project T-Line Buffer

Figure 1

Pittsburg - Tesla Project Location
November 2010
Alameda and Contra Costa County, CA

N

0 2 4 Miles

GANDA

2.4 Project Description

Overall Description
Reconductoring work on the Pittsburg-Tesla Project will include the following general types of activities: vehicle access to some towers, helicopter and/or crane access for tower modifications (cage extensions), work at selected tower sites to assemble cage extensions, work at pull sites to remove old conductor and string new conductor, helicopter landing sites, laydown sites to stage equipment, and installation of guard structures to protect roads and utility lines that intersect the subject line.

The overall construction timeline is expected to take 10 months, between June 2011 and December 2012. The first phase of construction activity will take place between June and December 2011, which will involve tower modifications and guard structure installation. The second phase of construction activity will take place between June and December 2012, which will involve line reconductoring activities. Staging areas will be used throughout construction activity for laydown and helicopter use.

Access
The Project work areas will be accessed by existing paved and previously established non-paved roads. Access on non-paved roads will be conducted during the dry season (April-October) when driving over existing roads and around the towers will not create rutting, erosion, or siltation problems. Access routes to towers are shown on Project maps (Appendix A). Equipment that may be used on access routes include a line truck, water truck, four wheel drive pick-ups, 50-ton crane and/or boom truck, helicopter, rope truck for reconductoring, truck-mounted rope puller and conductor tensioner, and hand tools (see Appendix C for representative photographs of large equipment).

In three locations, access will also involve short segments of overland travel. These are routes to Pull Sites 5 (1,350 feet), 6 (205 feet), and 11 (830 feet). None of these route segments will require new grading and each is located on flat to gently sloping ground with non-native grassland vegetation.

When off-road access is necessary, vehicles and equipment will stay within designated routes and biological monitors will assist ground crews in locating appropriate access routes during work activities.

Cage extensions
Reconductoring will require 43 towers to be increased in height by adding structures called cage extensions to the top of each tower. These towers are shown on Project Maps (Appendix A). Cage extensions will be assembled at staging areas and lifted into position on the towers using a helicopter. No ground vehicles will be needed at these work areas. This work is expected to take approximately one day per tower, with approximately six trips made by helicopter. Cage extension work will take place between June and September 2011.

Roller and Insulator Installation
Rollers and insulators will be flown to each tower by helicopter. A crew on the tower will remove the old insulators and install new insulators, along with conductor rollers. Several towers can be completed in a single day.

Staging Areas
A total of seven staging areas will be used for helicopter landing, temporary equipment storage, and tower cage assembly.

Staging areas were selected within flat areas with existing disturbance from agricultural or commercial / industrial uses. All staging areas are located near the subject line.

Project activity at each staging area is expected to take approximately two weeks during tower modifications between June and September 2011. In June through December 2012, during the line reconductoring process, staging areas will be used for approximately two to three weeks.

Guard Structures
Temporary guard structures (often wooden poles often with netting attached) will be placed where the subject line crosses railroads, public road crossings, or other overhead utility lines (Appendix B). This activity is expected to take place at 37 mapped locations. At each location, a line truck will be used to auger and set the required number of wooden poles. Work will be performed from within the Project easement, from the shoulder of existing access roads or other existing rights-of-way.

Following reconductor activities, guard structures will be removed, the holes backfilled, and the disturbed areas recontoured and reseeded as necessary. Near sensitive areas, such as wetlands, monitors will coordinate with ground crews to determine appropriate placement of poles (Guard Structures SR01, TL15, DL16, DL17, SR37, SR21, DL23, TL24, TL31, TL32, and TL33).

Several guard structures are expected to be installed per day. These temporary structures will be installed in the summer of 2011 and remain in place for approximately the duration of the line reconductoring process (approximately June 2011-December 2012).

Pull Sites
Twelve pull site locations have been identified and mapped. Four of these sites will require two work areas each to facilitate line pulling from opposite directions. These work areas consist of relatively flat 200 feet by 300 feet each, and are positioned in-line with the overhead conductors (see Maps, Appendix A; the pull sites shown on the maps include the actual work area and a buffer).

Four of the twelve pull sites (P-1, P-8, P-10, and P-12) are located within developed commercial or industrial properties with low potential for environmental impacts. The remaining eight pull sites occur in low- to moderately-disturbed non-native grassland habitat.

A few of these sites could require minor grading or a limited amount of crushed-rock fill to achieve sufficiently level work areas. Vehicles to be used at these areas will include pick-up trucks, tensioner and cable pullers mounted on a line truck, and a rubber-tired crane truck (see Appendix C for equipment photos). Heavy equipment may be placed on plates or construction mats if the ground is damp or if wet conditions are forecast.

The equipment at pull sites will be utilized for up to four "pulls"; two in one direction, and two in the other. This activity is expected to take two to three weeks at each pull site. Equipment includes "rope" trucks or tensioners, reels of conductor to receive the old conductor as it is removed, reels of new conductor to "feed out," and trucks or other equipment to handle the weight of the conductor reels and to move them on and off site.

Due to the presence of federally-designated critical habitat throughout portions of the transmission corridor, including the Action Area efforts will be made to avoid and minimize any construction impact (see Section 2.5 Avoidance and Minimization Measures below).

Work in the Action Area is expected to take approximately two to four weeks at each site throughout the June 2011 to December 2012 period.

Line Reconductoring Process

The majority of ground disturbance for line reconductoring activities takes place at the pull sites described above. The old line will be removed while the new line is simultaneously pulled in. The existing line will be placed in a hoist and attached at one end to the steel tower. With the roller in place, the hoist will lower the existing line into the roller. A cable will be attached from the "puller" truck to one end of the line; new line will be attached to the existing line at the opposite end of the "pull" section, and the reconductoring process will begin.

Once the new line is in place, the crews will pull the new line to the proper tension ("sag" the line), clip it into the new insulators, and remove the rollers from the section.

Work is required at "dead end" towers which hold horizontal tension in the line. Helicopters will be used to deliver materials and perform work at "dead end" towers along the route.

To comply with worker safety requirements, personal protection ground rods will be temporarily attached to each tower. Temporary ground rods (5/8 inch diameter copper rods) will be driven into the ground and all equipment at a work site will be required to attach to the ground rod during operations. The ground rods will be removed when work is completed. All grounds will be removed before the lines are returned to operational conditions.

2.5 Avoidance and Minimization Measures

Recognizing the ecological significance of portions of the transmission corridor that lie within critical habitat, PG&E is incorporating a number of avoidance and minimization

measures (AMM's) into the Project design. These AMM's have been designed to eliminate avoidable impacts to federally-listed species and critical habitat, and minimize unavoidable impacts.

For federally-listed species, the definition of "take" includes not only direct harm but also harassment and disturbance.

General Avoidance Recommendations

To minimize potential Project-related impacts, the following measures are proposed for this Project:

- To ensure that construction does not impact biological resources identified along the transmission corridor, Project work area boundaries and access routes within sensitive habitat areas or in the immediate vicinity of sensitive biological resources will be flagged.
- All heavy equipment, vehicles, and construction activities will be confined within designated Project work areas (e.g., access roads, pull sites, staging areas, and guard structure locations).
- For Project work areas located outside of sensitive habitats or away from biological resources, conduct all activities associated with the construction of the Project within the existing alignment right of way or within the authorized limits of temporary construction easements attained for the Project. Confine all heavy equipment, vehicles, and construction work to existing access roads, road shoulders, and developed areas.
- For Project work areas and access roads, speed limits will be established and enforced throughout the duration of Project activities, except on county roads and state and federal highways.
- Ensure that a biological monitor is present at all times during construction within the Action Area.
- Store equipment in upland areas well away from designated wetland habitats.
- Maintain all construction equipment to prevent leaks of fuels, lubricants, or other fluids into wetlands or streams.
- Do not conduct service and refueling procedures where there is potential for fuel spills to seep or wash into wetlands or streams.
- Employ erosion, sediment, material stockpile, and dust control Best Management Practices (BMPs) during construction within the Action Area. Adhere to all additional requirements of the Project's Storm Water Pollution Prevention Plan. Do not permit any fill or runoff from work areas to enter wetland areas or waterways.
- Return Project work areas to pre-existing contours and conditions upon completion of work. When work is completed, evaluate and perform necessary restoration work (including re-vegetation and soil stabilization).
- A qualified biologist will provide environmental awareness training to all construction personnel before construction begins. The training will include species descriptions and a discussion of protective measures.

- Provide crew members with site-specific maps that detail the locations of sensitive resources within the Action Area.
- In accordance with the federal Endangered Species Act, immediately report all observations of listed species to PG&E and take care not to take or harass the species. A PG&E representative will inform appropriate federal resource agency personnel of the sighting.
- Use extreme caution when handling and/ or storing chemicals (such as fuel and hydraulic fluid) near waterways, and abide by all applicable laws and regulations. Follow all applicable hazardous waste BMPs. Keep appropriate materials at currently used pull sites, staging areas, or in trucks to prevent and manage spills.
- Properly contain and remove from the work area all trash and waste items generated by construction or crew activities.
- Permit no pets, campfires, or firearms in the Action Area during Project activities.

Avoidance Recommendations for Delta Smelt Critical Habitat

In addition to the general recommendations above:

- A specialist will flag appropriate access routes and Project work areas located near salt marsh habitat between tower 0/1 and 1/5 (Delta Smelt Critical Habitat Area) prior to start of work activities, and an onsite monitor will be present during Project activities.
- Provide construction constraints maps to monitors and construction crews to identify features that require protection and the AMM's applicable to Project work areas.
- Limit vehicle travel to each site to the minimum number of trips and vehicles necessary to perform work safely. For vehicles larger than light duty, drive in one time and leave the vehicle set up. When work is complete, drive out one time.
- Avoid all grading or digging in and near wetland features. Limit such activities to designated upland areas.
- When in proximity to a wetland or other waters of the U.S., place spoil from auger holes in a secondary container (truck, cart, etc.) to prevent introducing fill to wetlands and waters.
- Separate and save the top 10 inches of soil from any augered holes. Use this soil to backfill the top of holes at the end of activities.

Avoidance Recommendations for Valley elderberry longhorn beetle (VELB)

According to a 30-year programmatic agreement with the U.S. Fish and Wildlife Service (USFWS, or "Service"), PG&E has specific guidelines for maintenance work around elderberries. These guidelines and additional recommendations are as follows:

- Perform a Valley elderberry longhorn beetle environmental tailboard for work crews.

- For all blue elderberry (*Sambucus mexicana*) shrubs within 20 feet of the Action Area, a qualified individual will flag or fence a buffer of at least 20 feet from the dripline prior to start of work.
- Avoid work within the 20-foot buffer, where possible. This includes driving heavy machinery. (Note: blue elderberry shrubs adjacent to existing Chadbourne Road near Pull Site 4 will be flagged, but through-traffic will be permitted.)
- A qualified monitor may be utilized during work near elderberries. The monitor will provide crews with environmental awareness training about VELB and describe avoidance measures.
- Should Valley elderberry longhorn beetle be observed in the Action Area, the Sacramento USFWS Office will be immediately notified. Any observations of beetles in any life stage will be recorded on California Natural Diversity Database (CNDDB) field sheets and sent to the California Department of Fish and Game (CDFG).
- Vegetation within 20 feet of blue elderberry shrubs will be avoided.

Avoidance Recommendations for California Tiger Salamander

In addition to the general recommendations:

- Start work within the Action Area no earlier than one-half hour after sunrise and no later than one half-hour before sunset to ensure detection of California tiger salamanders if present.
- Avoid all grading or digging within suitable habitat within the Action Area during the adult breeding and dispersal season (November to May), as well as during the peak metamorphic dispersal season (June 15 to July 15). Minimize operation of off-pavement work during rain events and 24 hours following a rain event.
- Avoid small mammal (i.e. ground squirrel and gopher size) burrows if possible.
- A qualified monitor will perform preconstruction surveys at current Project work areas each day Project activities are planned or ongoing, prior to commencing work activities to ensure California tiger salamanders have not entered the site.
- A qualified monitor should be on-site during all work near breeding and dispersal habitats. The monitor will provide crews with environmental awareness training about the California tiger salamander and recommend avoidance measures.
- Require crews to visually check under vehicles and equipment before moving them to avoid running over California tiger salamanders.
- Only a permitted, Service-approved biologist may handle California tiger salamanders. Should a California tiger salamander be observed in the Action Area, the Sacramento USFWS Office will be immediately notified. Any observations of California tiger salamanders in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.

Avoidance Recommendations for California Red-legged Frog

In addition to the general recommendations:

- Start work within the Action Area no earlier than one-half hour after sunrise and no later than one half-hour before sunset to ensure detection of California red-legged frogs if present.
- Avoid all grading or digging in and near water features. Limit such activities outside of the breeding and juvenile rearing season (late November to August) in suitable habitat areas.
- Where Project surveys have identified California red-legged frogs or suitable habitat (Pull Sites 2, 3, 4, 7, 8, 9, 10, and 12 and Guard Structures SR21, TL34, and SR37), a qualified monitor will perform preconstruction surveys at Project work areas each day Project activities are planned or ongoing, prior to commencing work activities, to ensure California red-legged frogs have not entered the site.
- A qualified monitor should be on-site during all work near potential breeding and juvenile rearing sites. The monitor will provide crews with environmental awareness training about the California red-legged frog and recommend avoidance measures.
- Require crews to visually check under vehicles and equipment before moving them to avoid running over California red-legged frogs.
- Only a permitted, Service-approved biologist may handle California red-legged frogs. Should a California red-legged frog be observed in the Action Area, the Sacramento USFWS Office will be notified immediately. Any observations of California red-legged frogs in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.

Avoidance Recommendations for Alameda Striped Racer

In addition to the general recommendations:

- At Project work areas near Alameda striped racer habitat (Pull Site 4 and Guard Structures DL16 and DL17), start work no earlier than one-half hour after sunrise and no later than one half-hour before sunset to ensure detection of Alameda striped racers if present.
- Avoid all grading or digging within Pull Site 4 during the snakes dormancy period between November and March.
- A qualified monitor will perform preconstruction surveys prior to commencing work activities, each day that Project activities are planned or ongoing at Pull Site 4, to ensure Alameda striped racers have not entered the site.
- A qualified monitor should be on-site during all work at Pull Site 4. The monitor will provide crews with environmental awareness training about the Alameda striped racer and recommend avoidance measures.
- Require crews to visually check under vehicles and equipment before moving them to avoid running over snakes.
- Within areas near Alameda striped racer habitat (Pull Site 4 and Guard Structures DL16 and DL17), construction materials, soil, construction debris, or other material shall be deposited only where vegetation has been mowed or grazed and any snakes present would be readily visible.

- Only a permitted, Service-approved biologist may handle Alameda striped racers. Should an Alameda striped racer be observed in the Project area, the Sacramento USFWS Office will be immediately notified. Any observations of Alameda striped racers in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.

Avoidance Recommendations for San Joaquin Kit Fox

In addition to the general recommendations:

- Start work within the Action Area no earlier than one-half hour after sunrise and no later than one half-hour before sunset to ensure detection of San Joaquin kit fox if present.
- A qualified monitor will perform preconstruction surveys prior to commencing work each day that work is planned or ongoing at Project work areas with suitable habitat (Pull Sites 2-12 and Guard Structures SR21, TL31, TL32, and TL33) to ensure kit fox have not entered the sites.
- At areas within suitable habitat, avoid Project activities in pupping season: mid-February to April 1 (this timeline includes birth, weaning, and emergence of pups). If work cannot be avoided within this window, perform pre-construction surveys to determine den use. Minimum avoidance distance of grading and digging from dens will be 50 feet for a potential den, 100 feet for a known den, and 200 feet for a natal/pupping den.
- A qualified monitor should be on-site during all work near potential breeding sites. The monitor will provide crews with environmental awareness training about the San Joaquin kit fox and recommend avoidance measures.
- Have crews visually check under vehicles and equipment before moving them to avoid running over kit foxes.
- Should a San Joaquin kit fox be observed in the Project area, the Sacramento USFWS Office will be immediately notified. Any observations of kit fox in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.

2.6 Anticipated Level of Disturbance

Power line reconductoring is, in general, a low-impact maintenance activity involving maintenance to existing transmission structures in an existing right-of-way. The proposed Project activities within the Action Area are expected to be temporary. No new permanent structures are proposed with this Project; existing structures are being maintained and modified.

After Project activities take place, the level of maintenance activity (e.g., tower inspections, tower repairs) on the subject line is expected to be similar to, or less than, current levels. The existing modified towers will continue to be inspected on the same regular schedule. However, repairing the existing towers and conductor will likely mean more infrequent emergency repairs on the subject line for the next several years.

3.0 Methods

3.1 Pre-field Research

Prior to conducting surveys, target lists of federally-listed plants and animals with potential to occur in the transmission corridor were prepared (Tables 2 and 3). An initial potential list of federally-listed species was compiled by conducting a background search of 27 United States Geological Survey (USGS) 7.5 minute quadrangles; the search area included the seven quads in which the Project is located (Honker Bay, Clayton, Antioch South, Brentwood, Bryon Hot Springs, Clifton Court Forebay, and Midway) and all 20 adjacent quads (Antioch North, Birds Landing, Denverton, Fairfield South, Vine Hill, Walnut Creek, Las Trampas Reservoir, Diablo, Tassajara, Jersey Island, Bouldin Island, Woodward Island, Livermore, Altamont, Tracy, Union Island, Holt, Mendenhall Springs, Cedar Mountain, and Lone Tree Creek). Because some animals, particularly birds, have long ranges, the county lists (Alameda and Contra Costa counties) were also consulted for species that might have habitat in the Action Area. Sources of information included California Native Plant Society's (CNPS) *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2008), the CNDDB maintained by the CDFG (CDFG 2008a), and the USFWS website (USFWS 2008b, Appendix E). Critical habitat maps from the USFWS website were also reviewed, as was the Federal Register description of listed species and primary constituent elements (PCE's) for the critical habitat units in question (USFWS 1980, 1994, 2005b, 2005c, 2006a, 2006b, 2008a, 2010). USFWS recovery plans were reviewed for vernal pool habitats (USFWS 2005d), large-flowered fiddleneck (USFWS 1997), Valley elderberry longhorn beetle (USFWS 1984b), Sacramento-San Joaquin Delta fishes (USFWS 1996), California red-legged frog (USFWS 2002), Alameda striped racer (USFWS 2003), California clapper rail and salt marsh harvest mouse (USFWS 1984d), and San Joaquin kit fox (USFWS 1998c).

Federally-listed species are those designated as federally-endangered or threatened. Federal candidates and proposed species were also considered for this assessment, but no candidates or proposed species were identified from background research.

Background research identified eight federally-listed plant and 25 federally-listed animal species with potential to occur along the length of the transmission line. Details of these species are listed in Tables 2 and 3. Details of populations close to the transmission corridor are presented in Project maps (Appendix A).

3.2 Field Surveys

GANDA biologists conducted habitat-level wildlife surveys, and habitat and protocol-level plant surveys of the Action Area between October 2007 and April 2009. Habitat potential for federally-listed species in the Action Area was assessed. Teams of two biologists, typically two wildlife biologists and two botanists, conducted the surveys. Special attention was given to identification of habitat attributes associated with

federally-listed species, such as unique soil types, and vernal pools. Potentially sensitive resources occurring outside each Project work area were documented but not inspected in detail.

Surveys were typically conducted by driving to each individual Project work area on existing paved or dirt access roads. In some cases, the Project work area had no vehicle access and was approached on foot. The component of the Project work area was then thoroughly inspected for the presence of wildlife and suitable habitat for federally-listed wildlife.

Service-approved California red-legged frog habitat assessments were conducted where potential aquatic habitat was located within 200 feet of the Project area. Assessments were conducted from Pull Sites 2 to 12.

Surveys in October 2007 assessed the potential for occurrence of federally-listed plant species based on the presence of suitable habitat and known range of these species. In some areas, protocol-level rare plant surveys were also conducted; this occurred at all pull sites and guard structures, except Pull Site 1 (inside of a power plant facility), and six guard structures which were identified after surveys took place (TL10, TL11, TL12, SR37, DL25, and TL26 - refer to Project maps in Appendix A). These surveys were performed on May 13-16 and 20th, July 22-23, and August 25, 2008, by GANDA biologists Ann Howald and Eliza Shepard; early spring surveys were performed April 6, 7, and 8, 2009, by GANDA biologists Samantha Hillaire, Theresa Johnson, and Eric Wrubel.

For each Project work area, the teams mapped habitat attributes and potentially sensitive resources using the GEO XT handheld GPS with ArcPad 7.0.1 Mobile GIS Software and the Panasonic Tough Book field laptop with Google Earth software. Mapping was supplemented using aerial photographs. Digital photographs were taken of Project habitats (Appendix D).

Table 1. Federally-listed Plant Species Identified from Background Research

Species[1]	Status[2]	Habitat Requirements[3] and Action Area Occurrence Potential	Potential Effects[2]
large-flowered fiddleneck *Amsinckia grandiflora*	FE / CE / 1B.1	•Cismontane woodland •Valley and foothill grassland •275 - 550 meters Occurrences from the transmission corridor and within 1/2 mile. Suitable habitat within the Action Area.	NA
Suisun thistle *Cirsium hydrophilum* var. *hydrophilum*	FE / -- / 1B.1	•Marshes and swamps (salt) •0 - 1 meters Minimally suitable habitat present within the Action Area.	NA
soft bird's-beak *Cordylanthus mollis* ssp. *mollis*	FE / CR / 1B.2	•Marshes and swamps (coastal salt) •0 - 3 meters Occurrences from Project quads, some suitable habitat within the Action Area.	NA
palmate-bracted bird's-beak *Cordylanthus palmatus*	FE / CE / 1B.1	•Chenopod scrub •Valley and foothill grassland /alkaline •5 - 155 meters Minimally suitable habitat in the Action Area.	NA
Contra Costa wallflower *Erysimum capitatum* ssp. *angustatum*	FE / CE / 1B.1	•Inland dunes •3 - 20 meters No habitat present in the Action Area.	NA
Contra Costa goldfields *Lasthenia conjugens*	FE / -- / 1B.1	•Cismontane woodland •Playas (alkaline) •Valley and foothill grassland •Vernal pools /mesic •0 - 470 meters Occurrences from Project quads, minimally suitable habitat within the Action Area.	NA
Colusa grass *Neostapfia colusana*	FT / CE / 1B.1	•Vernal pools (adobe, large) •5 - 200 meters No habitat present in the Action Area.	NA
Antioch Dunes evening-primrose *Oenothera deltoides* ssp. *howellii*	FE / CE / 1B.1	•Inland dunes •0 - 30 meters Known from project quads No habitat present in the Action Area.	NA

1 - Scientific names consistent with Hickman 1993. Common names from CNPS 2008 and CDFG 2008.
2 - U.S. Fish and Wildlife Service designations are based on the Endangered Species Act (50 CFR 17:12):
FT Federally-threatened
FE Federally-endangered
State-listed designations are based on the California Endangered Species Act:
CR California State rare
CE California State threatened
California Native Plant Society [CNPS 2007]
List 1B 'Plants rare, threatened, or endangered in California and elsewhere.'
List 2 'Plants rare, threatened, or endangered in California but more common elsewhere.'
Extensions
.3 Not very endangered in California
.2 Fairly endangered in California
.1 Seriously endangered in California

2 -- Potential affects language in accordance with ESA law. Abbreviations are as follows:

NA	No effect
NLAA	May affect, not likely to adversely affect
LAA	May affect, likely to adversely affect

Table 2. Federally-Listed Wildlife Species identified from Background Research

Common Name *Scientific Name*	Federal Status[1]	Habitat	Potential Presence in the Action Area	Potential Effects[2]
Invertebrates				
Lange's metalmark butterfly *Apodemia mormo langei*	FE	Inhabits stabilized dunes along the San Joaquin River. Endemic to the Antioch Dunes in Contra Costa County. Primary host plant is *Eriogonum nudum* var. *auriculatum.*	The Project is outside the known range of this species. No suitable habitat in Action Area.	NA
Conservancy fairy shrimp *Branchinecta conservatio*	FE	Vernal pools in the Central Valley. Typically found in large, turbid pools that last until June.	Not expected. No suitable habitat within Action Area. No CNDDB occurrences within five miles of Project.	NA
longhorn fairy shrimp *Branchinecta longiantenna*	FE	Inhabit astatic grassland vernal pools. Typically require small, clear-water depression in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales.	Not expected. No suitable habitat within Action Area. No CNDDB occurrences within one mile, but within five miles of Project.	NA
vernal pool fairy shrimp *Branchinecta lynchi*	FT	Vernal pools and ditches in the Central Valley; pools can be shallow and short-lived.	Not expected. No suitable habitat within Action Area.	NA
San Bruno elfin butterfly *Callophrys mossii ebayensis*	FE	Inhabits coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain in San Mateo County. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is *Sedum spathulifolium.*	The Project is outside the known range of this species. No suitable habitat in Action Area.	NA
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT (FPD)	Occurs only in the Central Valley of California in association with blue elderberry (*Sambucus nigra canadensis*).	Present. Two elderberry plants with exit holes were observed; the access road to Pull Site 4 and near Guard Structure SR37.	NLAA
Delta green ground beetle *Elaphrus viridis*	FT	Occupies vernal pool habitat. Known to occur only in Solano County.	The Project is outside of the known range of this species. No suitable habitat in Action Area.	NA
bay checkerspot	FT	Populations known	The Project is outside the	NA

Common Name ***Scientific Name***	**Federal Status[1]**	**Habitat**	**Potential Presence in the Action Area**	**Potential Effects[2]**
butterfly *Euphydryas editha bayensis*		only from San Mateo to Santa Clara Counties. Host plants *Plantago erecta*, *Castilleja densiflorus*, or *Castilleja exserta*.	known range of this species. No suitable habitat in Action Area.	
vernal pool tadpole shrimp *Lepidurus packardi*	FE	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Typically found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Not expected. No suitable habitat within Action Area.	NA
Callippe silverspot butterfly *Speyeria callippe callippe*	FE	Restricted to the northern coastal scrub of the San Francisco Peninsula. Hostplant is *Viola pedunculata*.	The Project is outside the known range of this species. No suitable habitat in Action Area.	NA
California freshwater shrimp *Syncaris pacifica*	FE	Endemic to Marin, Napa, and Sonoma Counties. Found in low elevation, low gradient streams, where riparian cover is moderate to heavy.	The Project is outside the known range of this species. No suitable habitat in Action Area.	NA
Fishes				
Green sturgeon *Acipenser medirostris*	FT	Spawns in the Sacramento River and Klamath River. Spawning substrate is typically large cobble, but can change from clean sand to large bedrock.	Not expected. No suitable habitat exists within the Action Area.	NA
Delta smelt *Hypomesus transpacificus*	FT	Populations occur in the Suisun Bay upstream through the Sacramento-San Joaquin delta.	Not expected. No suitable habitat exists within the Action Area.	NA
Central Valley steelhead *Oncorhynchus mykiss*	FT	Populations occur in the Sacramento and San Joaquin rivers and their tributaries.	Not expected. No suitable habitat exists within the Action Area.	NA

Common Name ***Scientific Name***	**Federal Status[1]**	**Habitat**	**Potential Presence in the Action Area**	**Potential Effects[2]**
Central California Coastal steelhead *Oncorhynchus mykiss irideus*	FT	Populations in the Sacramento and San Joaquin rivers and their tributaries.	Not expected. No suitable habitat exists within the Action Area.	NA
Central Valley spring- and winter- run Chinook salmon *Oncorhynchus tshawytscha*	FT FE	Inhabits Central Valley rivers and streams.	Not expected. No suitable habitat exists within the Action Area.	NA
Amphibians				
California tiger salamander *Ambystoma californiense*	FT	Found in the Central Valley. This species spends most of the time underground in animal burrows, especially those of ground squirrels and pocket gophers. Breeds in ponds during the fall.	Presence assumed. CNDDB occurrences at or within 0.62 mile are Pull Sites 4, 6, 7, 8, 9, and 10. Suitable habitat at or within 0.62 mile of Pull Sites 4, 6, 7, 8, 9, and 10, and Guard Structures DL23 and TL24.	NLAA
California red-legged frog *Rana aurora draytonii*	FT	Inhabits lowlands and foothills in or near permanent sources of deep water. This species has been found in ephemeral creeks and drainages and in ponds that may or may not have vegetation.	Present. Observations at Pull Site 7 in Vaqueros Creek. CNDDB occurrences at or within 1-mile are Pull Sites 2, 3, 4, and 7-10. Suitable habitat at or within 1-mile of pull sites are Pull Sites 2, 3, 4, 7, 8, 9, 10, and 12. Suitable habitat within 50-foot radius of guard structures are Guard Structures SR21, TL34, and SR37.	NLAA
Reptiles				
Alameda striped racer *Masticophis lateralis euryxanthus*	FT	Inhabits south-facing slopes and ravines where shrubs form a vegetative mosaic with oak trees and grasses.	Presence assumed. One CNDDB occurrence one mile southwest of Pull Site 7. Suitable habitat at Pull Site 4, and Guard Structures DL16 and DL17.	NLAA
Giant garter snake *Thamnophis gigas*	FT	Endemic to the Central Valley of California and inhabits natural and artificial wetlands such as rice fields, agricultural ditches, ponds, freshwater marshes and sloughs.	The Project is outside the known range of this species. No suitable habitat within the Action Area.	NA
Birds				

Common Name ***Scientific Name***	**Federal Status**[1]	**Habitat**	**Potential Presence in the Action Area**	**Potential Effects**[2]
California brown pelican *Pelecanus occidentalis californicus*	FE	Colonial nester on coastal islands just outside the surf line. Nests on coastal islands of small to moderate sixe which afford immunity from attack by ground-dwelling predators.	The Project is outside the known range of this species. No suitable habitat within the Action Area.	NA
California clapper rail *Rallus longirostris obsoletus*	FE	Inhabits saltwater and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	Not expected. Suitable habitat present under the transmission corridor, but outside the Action Area. No CNDDB occurrences within five miles of the subject line.	NA
California least tern *Sternula antillarum browni*	FE	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated flat substrates, sand beaches, alkali flats, land fills, or paved areas.	The Project is outside the known range of this species. No suitable habitat within the Action Area.	NA
Mammals				
salt-marsh harvest mouse *Reithrodontomys raviventris*	FE	Inhabits only the saline emergent wetlands of the San Francisco Bay and its tributaries. Pickleweed is the primary habitat. Builds loosely organized nests. Requires higher areas nearby to escape flooding.	Not expected. Suitable habitat present under the transmission corridor, but outside the Action Area. One CNDDB occurrence approximately 0.5-mile west of Pull Site 1.	NA
San Joaquin kit fox *Vulpes macrotis mutica*	FE	Inhabits annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and a suitable prey base.	Presence assumed; potential sighting at Pull Site 7 along with scat. The entire Project has CNDDB occurrences at or within 10-miles of Project areas. Pull Sites 2-12 and Guard Structures SR21, TL31, TL32, and TL33 assumed suitable habitat.	NLAA

1 -- Status from CDFG 2006. Abbreviations are as follows:

FE	Federally listed as Endangered
FPD	Federally proposed for delisting
FT	Federally listed as Threatened

2 -- Potential affects language in accordance with ESA law. Abbreviations are as follows:

NA	No effect
NLAA	May affect, not likely to adversely affect
LAA	May affect, likely to adversely affect

4.0 Results

4.1 Communities

The following describes communities that were observed during Project surveys of the Action Area, or are otherwise known from the transmission corridor. Natural communities are categorized into upland and wetland communities. The description of these community types below generally follow the categorization proposed by Holland (Holland 1986). Some of the land within the transmission corridor has been substantially altered by human activity and management. These areas are described below as developed communities.

Upland Communities

Non-Native Grassland

Non-native grassland (Holland 1986) is the most common community found in the transmission corridor. This habitat type is dominated by non-native grasses and forbs. Typical grass species in this habitat type are slender wild oat (*Avena barbata*), Italian ryegrass (*Lolium multiflorum*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), hare barley (*Hordeum murinum* ssp. *leporinum*), and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*). Weedy non-native annual and perennial forbs in this habitat include summer mustard (*Hirshfeldia incana*), yellow star-thistle (*Centaurea solstitialis*), black mustard (*Brassica nigra*), rapeseed mustard (*Brassica napus*), rose clover (*Trifolium hirtum*), wild fennel (*Foeniculum vulgare*), curly dock (*Rumex crispus*), milk thistle (*Silybum marianum*), broadleaf filaree (*Erodium botrys*), and bur-clover (*Medicago polymorpha*). The composition of the grassland varies greatly. While many sites are almost entirely dominated by these non-native and/or weedy species, some sites contain high concentrations of native herbaceous plant species such as Heermann's tarplant (*Holocarpha heermannii*), gumplant (*Grindelia* sp.), and fiddleneck (*Amsinckia* sp.).

Non-native grassland is the dominant vegetation type throughout the Action Area, including all pull sites except Pull Site 1. Most of the non-native grassland at Project work areas is currently grazed by livestock or has been grazed at some point in the past.

Throughout the transmission corridor, only a few spans are dominated by other communities; these spans are Tower 0/1 to 1/5, Tower 6/29 to 7/33, Tower 8/35 to 10/44, and Tower 10/50 to 11/53.

Foothill Oak Woodland

This vegetation community is loosely based on Holland's black oak, valley oak, and blue oak woodland communities (Holland 1986). Foothill oak woodland is dominated by medium-sized deciduous trees of blue oak (*Quercus douglasii*) and California buckeye

(*Aesculus californicus*), with a few valley oak (*Quercus lobata*), black oak (*Quercus kelloggii*), and grey pine (*Pinus sabiniana*). The understory of foothill oak woodland is composed of native and non-native grasses and forbs.

Foothill oak woodland was observed within a small portion of Pull Site 4, and is found in other portions the transmission corridor outside of the Action Area. Foothill oak woodland communities were identified using aerial imagery under Towers 10/50 to 11/53 and Towers 14/65 to 15/67.

Chaparral/Scrub

Chaparral and scrub is an informal designation for areas dominated by low-growing woody vegetation. The dominant species include chamise (*Adenostoma fasciculatum*), manzanita (*Arctostaphylos* spp.), and ceanothus (*Ceanothus* spp.) (Jones and Stokes 2006). Associates in this community include California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), and bush monkeyflower (*Mimulus aurantiacus*) as described in the East Contra Costa Habitat Conservation Plan and Natural Community Conservation Plan (Jones and Stokes 2006).

This community is present in the Black Diamond Mines Regional Preserve, outside of the Action Area. The transmission corridor crosses chaparral and scrub communities from Towers 6/29 to 7/33 and again from Towers 8/35 to 10/44. Chaparral and scrub communities were identified within the transmission corridor using aerial imagery, and information provided in the Jones and Stokes 2006 report.

Ruderal

Ruderal vegetation is an informal designation given to areas dominated by weedy non-native forbs, usually brought about by high levels of ground disturbance. Within the transmission corridor, including the Action Area, this habitat is dominated by many different species and the composition varies greatly. Some dominants observed include, yellow star-thistle, summer mustard, vinegar weed (*Trichostemma lanceolatum*), milk thistle, black mustard, goat head (*Tribulus terrestris*), spiny cocklebur (*Xanthium spinosum*), alfalfa (*Medicago sativa*), prostrate pigweed (*Amaranthus blitoides*) and common mallow (*Malva neglecta*); and weedy native annuals and perennials, such as Heermann's tarweed, and telegraph weed (*Heterotheca grandiflora*).

This habitat was found in disturbed portions of the Action Area, such as roadsides and dry edges of agricultural fields. Ruderal vegetation was commonly found at sites selected for guard structures and along Project access roads within the transmission corridor. This community type was also found within Pull Site 6.

Wetland and Riparian Communities[1]

[1] CNDDB mapped a non-specific one-mile radius of alkaline seep (Occurrence Number 3 (CDFG 2008a)) within the transmission corridor between Towers 17/79 and 19/87, which includes Pull Site 7. Alkaline seep was not observed during the surveys. Alkaline seep is a permanently moist or wet seep, that is often associated with alkaline meadows (Holland 1986). This community is characterized by the following species: salt grass, spiny naiad (*Najas marina*), boraxweed (*Nitrophila occidentalis*), broadleaf pondweed

Riparian Woodland
Riparian woodland is an informal designation given to areas dominated by a mixture of tress and shrubs adapted to saturated and/or flooded soil conditions. When present, trees include Fremont cottonwood (*Populus fremontii*), western sycamore (*Platanus racemosa*), and red willow (*Salix laevigata*). The understory may also include woody shrubs such as arroyo willow (*Salix lasiolepis*) and mule fat (*Baccharis salicifolia*). These understory shrubs are also found along streams where riparian woodland is extremely limited or nonexistent, and they are the dominant species in riparian scrub (Jones and Stokes 2006).

This community had limited distribution in the transmission corridor. It was observed within the Action Area on the banks of the intermittent drainage along the northern boundary of Pull Site 2.

Cismontane Alkaline Marsh
Cismontane alkaline marsh (Holland 1986) contains standing water or saturated soil during most if not all of the year; high evaporation rates and low input of fresh water leads to high salinity in these marshes (Holland 1986). Species commonly found in cismontane alkaline marsh include yerba mansa (*Anemopsis californica*), beardless wildrye (*Leymus triticoides*), salt grass, alkali heath, Sedge (*Carex* spp.), Mexican rush (*Juncus mexicanus*), narrowleaf cattail (*Typha angustifolia*), and southern cattail (*Typha domingensis*) (Holland 1986).

Alkaline marsh was observed during Project surveys; this community was observed within the transmission corridor, outside of the Action Area. CNDDB mapped a non-specific one-mile radius of alkaline marsh (Occurrence Number 3 (CDFG 2008a)) within the transmission corridor between Towers 17/79 and 19/87, which includes Pull Site 7. However, this community type was not observed in Pull Site 7 or its access road. This community was observed in the transmission corridor south of Tower 18/81.

Claypan Vernal Pools
Claypan vernal pools (Holland 1986) tend to be circum-neutral to alkaline, silicon cemented hardpan soils, and are usually saline (Holland 1986). Typical species found in these vernal pools include alkali plagiobothrys (*Plagiobothrys leptocladus*), stalked popcornflower (*Plagiobothrys stipitatus*), smooth spike primrose (*Epilobium pygmaeum*), spreading alkaliweed (*Cressa truxillensis*), harlequin calicoflower (*Downingia insignis*), Hoover's calicoflower (*Downingia bella*), California eryngo (*Eryngium aristulatum*), Ferris' goldfields (*Lasthenia ferrisiae*), smooth goldfields (*Lasthenia glaberrima*), coastal goldfields (*Lasthenia minor*), tiny mousetail (*Myosurus minimus*), Douglas' mesamint (*Pogogyne douglasii*), salt sandspurry (*Spergularia salina*), and hairy purslane speedwell (*Veronica peregrina* ssp. *xalapensis*) (Holland 1986).

(*Stuckenia striata*), widgeongrass (*Ruppia maritima*), and horned pondweed (*Zannichellia palustris*) (Holland 1986). This community was not observed in Pull Site 7 or its access road.

These vernal pool features are seasonally wet. Typically, these features fill with rainwater and run-off from local hydrology during the winter rainy season (approximately October-May); a restrictive layer such as volcanic hardpan or claypan prevents water from draining through the soil under these features. In the dry summers, these features dry and the soils harden.

Vernal pools and swales provide habitat for the federally-listed plant species and a number of federally-listed invertebrate species that have potential to occur within the transmission corridor. No claypan vernal pools were observed in the Action Area.

A small portion of the Action Area (a tiny portion of the buffer on the access route to Pull Site 8) is located within designated critical habitat for vernal pool fairy shrimp. This is Altamont Core Area of the Livermore vernal pool region (USFWS 2005d); see Section 4.3 for further detail. However, no vernal pool features or similar habitat were observed within the Action Area.

Northern Coastal Salt Marsh

Northern coastal salt marsh (Holland 1986) is found on hydric soils that are subject to tidal inundation by salt water for at least part of the year; these marshes are located along sheltered inland margins of bays, lagoons, and estuaries (Holland 1986). Common species found in northern coastal salt marsh are dodder (*Cuscuta salina*), salt grass, alkali heath, spike rush (*Eleocharis* ssp.), Great Valley gumweed (*Grindelia camporum*), marsh Jaumea (*Jaumea carnosa*), rush (*Juncus* ssp.), marsh rosemary *(Limonium californicum)*, goose tongue *(Plantago maritima*), pickleweed (*Salicornia depressa*), California cordgrass *(Spartina foliosa*), and seaside arrowgrass (*Triglochin maritima*) (Holland 1986).

Northern coast salt marsh was observed in the transmission corridor between Towers 0/2 and 1/5. This community was identified using aerial imagery and ground reconnaissance near Tower 1/5. Very disturbed, semi-ruderal patches of marsh are present within the Action Area at crossing structures between Tower 1/4 and 1/5.

Man-made Wetland

Within the Action Area, man-made wetland communities are represented primarily by stock ponds and catchments designed to provide seasonal drinking water for livestock. This wetland type is dominated by a non-native weedy annual grass, rabbit's-foot grass (*Polypogon monspeliensis*), and non-native weedy forbs, mainly spiny cocklebur, cursed crowfoot (*Ranunculus scleratus*), and brass buttons (*Cotula coronopifolia*), with a few clumps of a native perennial cat-tail (*Typha* sp.).

A small created wetland is located in the Action Area, in the northwest corner of Pull Site 2, adjacent to the Delta View Golf Course. A total of 77 man-made ponds were identified and mapped within 0.5 miles of the transmission line.

Developed Communities

Golf Courses
The project line crosses over the Mountain House public golf course located off Altamont Pass Road, north of I-580. This business recently closed, and the landscaped fairways and greens (dominated by non-native perennial grass species) subsequently died for lack of irrigation. Portions of Pull Site 10 and an associated helicopter landing zone are located on this property.

Other Developed Areas
A variety of developed areas occur along the transmission corridor including residential, commercial, industrial, transportation, landfill, landscaping, and recreational developments (e.g., sites with structures, paved surfaces, horticultural plantings, golf courses, and irrigated lawns). Developed were identified on the basis of their distinct signatures on aerial photographs, supplemented with field observations. Developed areas are often characterized by geometric or regular shapes, and are readily distinguished from naturally occurring signatures in any terrain.

4.2 Federally-listed Plants

Background research identified eight federally-listed plant species whose ranges overlap the Action Area. These plant species requirements and potential effects of Project activities are described below.

Large-flowered fiddleneck (*Amsinckia grandiflora)*

Status, Distribution, and Habitat Requirements

Large-flowered fiddleneck is a federally-endangered herb in the borage family. This annual species blooms April though May. This fiddleneck is found in Alameda, Contra Costa, and San Joaquin counties (CNPS 2008). This species is known from two natural populations (USFWS 1997): one population is at Lawrence-Livermore National Lab (known as site 300), and the other is in Carnegie Canyon, southeast of the site 300 colonies (USFWS 1997). Large-flowered fiddleneck's habitat is cismontane woodland, valley and foothill grassland, generally in annual grasslands ranging in elevation from 275 to 550 meters (CNPS 2008).

Large-flowered fiddleneck is threatened by many factors, most notably the loss of its native perennial bunchgrass habitat. This loss of habitat is due to agriculture, livestock grazing, and urban development (USFWS 1997). As a result, large-flowered fiddleneck now has intense competition with non native annual grasses (USFWS 1997).

Reintroductions have been attempted. In 1990, large-flowered fiddleneck was reintroduced experimentally to a ridge top area of Lougher Ridge (Pavlik 1990), which is the next ridge east from Pull Site 3 (approximately 1 mile). Three CNDDB occurrences have been recorded approximately 0.75-mile from the transmission corridor; occurrence Number 3 and Number 9 (CDFG 2008a) by Pull Site 3. These two occurrences are related to the reintroduction attempt at Lougher Ridge. During the 1990s, hundreds to

thousands of individuals of large-flowered fiddleneck were documented at the Lougher Ridge site (Pavlik 1994); in 2009 only a few plants were observed during a reference site visit. Another CNDDB occurrence, Number 2, is located near Pull site 3 in the Black Diamond Mines Regional Preserve. This record is an extirpated population originally from found in 1887. This occurrence is mapped as a one mile radius non-specific point (CDFG 2008a). It covers the area from Tower 8/36 to Tower 10/45. The portion from Tower 10/44 to 10/45 is currently within Pull Site 4.

Potential Occurrence

Potential habitat for large-flowered fiddleneck occurs within the Action Area in grassland habitats, particularly Pull Site 3 and a portion of Pull Site 4. However, this species was not observed during seasonally-timed surveys (GANDA 2010).

Potential Project-Related Impacts

Large-flowered fiddleneck has not been detected within the Action Area. Therefore, Project activities are not expected to affect large-flowered fiddleneck.

Suisun thistle *(Cirsium hydrophilum* var. *hydrophilum)*

Status, Distribution, and Habitat Requirements

Suisun thistle is a federally-endangered taxon. Suisun thistle is a perennial herb in the aster family. Suisun thistle grows 3.0 to 4.5 feet tall, with lavender to rose colored flowers (USFWS 2008c). Suisun thistle is known from an elevation range from sea level to one meter, and blooms July to September (CNPS 2008).

Suisun thistle grows in salt water tide marshes and swamps. This variety is known from only one location, the Suisun Marsh in Solano County (USFWS 2008c). Scattered colonies occur through out Suisun marsh. Suisun thistle was thought to be extirpated from Suisun bay in 1975 because this variety had not been seen in 15 years; it was rediscovered in 1989 in Suisun Marsh (USFWS 2008c).

Specific threats to Suisun thistle are altered hydrology in the marsh, which can change salinity and tidal regimes (CNPS 2007). Other threats include urban, industrial and agricultural encroachment, livestock overgrazing, feral pigs, and unauthorized foot and off-road vehicle traffic (USFWS 2008c). A Tidal Marsh Ecosystem recovery plan which addresses this taxon is under development (USFWS 2008c). USFWS has designated critical habitat for Suisun thistle in Solano County. None of the critical habitat is in the transmission corridor (USFWS 2008c).

Potential Occurrence

Potential habitat for Suisun thistle occurs in tidal marsh habitat between 0/2-1/5. However, this habitat is approximately 10 miles away from known occurrences. The transmission corridor is outside the known range of this taxon.

No suitable habitat occurs within pull sites. The only portion of the Action Area located within marginally suitable tidal marsh habitat is Guard Structure SR01. Project surveys were conducted at appropriate times of year to detect Suisun thistle, and this taxon was

not observed.

Potential Project-Related Impacts
Suisun thistle has not been detected within the Action Area, and only a tiny amount of minimally suitable marsh habitat will be temporarily impacted by Project activities. Project activities are not expected to affect Suisun thistle.

Soft bird's-beak *(Cordylanthus mollis* ssp. *mollis)*

Status, Distribution, and Habitat Requirements
Soft bird's-beak is a federally-endangered herb in the figwort family. Soft bird's-beak is an annual hemi-parasitic herbaceous plant. This taxon has a known elevation range from sea level to 3 meters, and blooms June through September. This sub-species is found in Contra Costa, Marin, Napa, Sacramento, Solano, and Sonoma counties (CNPS 2008). Soft bird's-beak is endemic to the San Pablo Bay and Suisun Bay area.

This taxon is found in coastal saltwater tidal marshes and swamps in widely scattered populations from Point Pinole and Fagan Slough marsh through the Carquinez Strait to Suisun Bay (USFWS 2008c). A Tidal Marsh Ecosystem recovery plan which addresses soft bird's-beak is under development (USFWS 2008c).

USFWS has designated critical habitat for soft bird's-beak in Contra Costa, Napa, and Solano Counties. None of the critical habitat is located either within the Action Area, or anywhere within the transmission corridor (USFWS 2008c).

Threats to soft bird's-beak include competition by non-native plants, erosion and trampling (CNPS 2008). Other threats consist of altered hydrology in the tidal marshes, increased salinity due to removal of fresh water, and habitat fragmentation (USFWS 2008c).

Potential Occurrence
Potential habitat for soft bird's-beak occurs in the transmission corridor, in tidal marsh habitat between 0/2-1/5. This habitat is approximately three miles away from known occurrences.

No suitable habitat occurs within pull sites. The only portion of the Action Area located within marginally suitable tidal marsh habitat is Guard Structure SR01. Project surveys were conducted at appropriate times of year to detect soft bird's-beak, and this species was not observed.

Potential Project-Related Impacts
Soft bird's-beak has not been detected within the Action Area, and only a tiny amount of minimally suitable marsh habitat will be temporarily impacted by Project activities. Project activities are not expected to affect soft bird's-beak.

Palmate-bracted bird's-beak *(Cordylanthus palmatus)*

Status, Distribution, and Habitat Requirements

Palmate-bracted bird's-beak is listed as federally-endangered and California endangered; CNPS lists this species as 1B.1. Palmate-bracted bird's-beak is a herbaceous annual hemi-parasite in the figwort family. This species blooms May through October and is known from elevations between 5 and 155 meters. Palmate-bracted bird's-beak has been found in Alameda, Colusa, Fresno, Glenn, Madera, San Joaquin, and Yolo counties.

Habitat for palmate-bracted bird's-beak is lowland plains and basins that seasonally flood, and have saline-alkali soils. This species is also known to grow in valley sink-scrub and alkali meadow communities (USFWS 2008c).

At present, 21 occurrences of this taxon are known, distributed throughout the Sacramento, Livermore and San Joaquin Valleys (USFWS 2008c). Palmate-bracted bird's-beak is addressed in the recovery plan for upland species of the San Joaquin Valley (USFW 1998c). No critical habitat is designated for this species at this time.

Palmate-bracted bird's-beak's habitat has always been rare in central California, and those small areas of habitat have been further reduced by conversion of land to agricultural use, urbanization, and draining of seasonal wetlands (USFWS 2008c). Other threats to this species include off-road vehicle use, and livestock grazing (USFWS 2008c).

Potential Occurrence in Project Area

No suitable alkaline wetland habitat for palmate-bracted bird's-beak was observed within the Action Area during surveys. Project surveys were conducted at appropriate times of year to detect palmate-bracted bird's-beak, and this species was not observed.

Potential Project-Related Impacts

Project activities will not impact any suitable alkaline habitat for palmate-bracted bird's-beak; this species is not expected in the Action Area, and was not detected during seasonally-timed surveys. Therefore, this Project will not affect palmate-bracted bird's-beak.

Contra Costa wallflower *(Erysimum capitatum* ssp. *angustatum)*

Status, Distribution, and Habitat Requirements

Contra Costa wallflower is a federally-endangered species. Contra Costa wallflower is a perennial herb in the mustard family. It has orange/yellow flowers and blooms March through July. This species occurs only in the inland sand dune habitat along the San Joaquin River east of Antioch (USFWS 2008c).

Historically the threat to Contra Costa wallflower was the mining of sand along the delta to make bricks; this left only a small portion of the original dune habitat (USFWS 2008c). The creation of the Antioch Dunes National Wildlife Refuge has improved habitat for the dunes, including hand-clearing of non-natives, and restricting public access to avoid trampling (USFWS 2008c). USFWS has designated critical habitat for Contra Costa wallflower in Contra Costa County. None of the designated critical habitat occurs in the transmission corridor (USFWS 2008c).

Potential Occurrence
Contra Costa wallflower has no potential to occur in the transmission corridor, including the Action Area, because field surveys determined that the transmission corridor does not contain suitable dune habitat.

Furthermore, Project surveys were conducted at appropriate times of year to detect Contra Costa wallflower and this species was not observed.

Potential Project-Related Impacts
Project activities are not expected to impact suitable habitat for Contra Costa wallflower because suitable dune habitat is not present within the Action Area, or anywhere within the transmission corridor. Contra Costa wallflower has not been detected in the Action Area. Therefore, Project activities are not expected to affect Contra Costa wallflower.

Contra Costa goldfields *(Lasthenia conjugens)*

Status, Distribution, and Habitat Requirements
Contra Costa goldfields are listed as federally-endangered. Contra Costa goldfield is an annual herb in the aster family. It has yellow flowers and blooms March though June (CNPS 2008). This species is known from 22 populations in Alameda, Contra Costa, Marin, Mendocino, Monterey, Napa, and Solano counties. Contra Costa goldfields is included in the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005d).

Habitat for this species includes vernal pools found in open grassy areas within cismontane woodland, valley and foothill grasslands (USFWS 2008c). The known elevation range is from sea level to 470 meters (CNPS 2008). USFWS critical habitat has been designated for this for this species; one location is within one-mile of the transmission corridor, near Vasco Road between Towers 21/93 and 23/102.

Contra Costa goldfields is threatened by many of the factors that also threaten vernal pools in general. Since the 1800's, approximately 95 percent of vernal pool habitats have been destroyed. Conversion of the landscape through agriculture and development has removed the majority of vernal pools from the landscape (USFWS 2005d). In addition to direct habitat removal, secondary effects such as habitat fragmentation, invasion by non-native species, removal of pollinators, and alteration of vernal pool hydrology may have also impacted Contra Costa goldfields (USFWS 2005d).

Potential Occurrence
Although suitable vernal pool habitat for Contra Costa goldfields may exist within the transmission corridor, this habitat is not located in the Action Area. Furthermore, Project surveys were conducted at appropriate times of year to detect Contra Costa goldfields, and this species was not observed.

A tiny amount of federally-designated critical habitat occurs in the Action Area; this critical habitat is located in the buffer of the access road to Pull Site 8. This road is a well

maintained gravel road, and disturbance to the critical habitat is not expected as a result of Project activities (see further discussion of critical habitat in Section 4.3).

Potential Project-Related Impacts
Suitable vernal pool habitat for Contra Costa goldfields is not present within the Action Area. This species has not been detected in the Action Area. Project activities are not expected to affect Contra Costa goldfields.

Colusa grass *(Neostapfia colusana)*

Status, Distribution, and Habitat Requirements
Colusa grass is federally-endangered and California state-threatened; his species is listed by CNPS 1B.1. Colusa grass is an annual herb in the grass family. This grass blooms from May until August and is found at elevations between 5 and 200 meters. This species is known from no more than 45 occurrences; most are in the southern Sierra Foothills (USFWS 2008c). In the Solano-Colusa region there are four extant occurrences (USFWS 2008c). Colusa grass is included in the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005d).

Habitat for Colusa grass is large or deep vernal pools that range from 0.002 acres to 617.5 acres, with a median size of 0.5 acres (USFWS 2005d). It is sparingly restricted to the Sacramento and San Joaquin Valleys (USFWS 2008c). Critical habitat has been designated for this species in conjunction with other plant and animal species (USFWS 2008c); no federally-designated critical habitat occurs in the transmission corridor.

Colusa grass is threatened by many of the factors that also threaten vernal pools in general. Since the 1800's, approximately 95 percent of vernal pool habitats have been destroyed. Conversion of the landscape through agriculture and development has removed the majority of vernal pools from the landscape (USFWS 2005d).

Specifically, this species is threatened by agriculture, development, overgrazing, flood control, and non-native plants (CNPS 2008). Other threats specific to this species include inundation by poultry manure, and in Yolo County damage by herbicide applications (USFWS 2005d).

Potential Occurrence
Although suitable vernal pool habitat for Colusa grass may exist within the transmission corridor, this habitat was not located in the Action Area. Furthermore, Project surveys were conducted at appropriate times of year to detect Colusa grass, and this species was not observed.

Potential Project-Related Impacts
Suitable vernal pool habitat for Colusa grass is not present within the Action Area. This species has not been detected in the Action Area. Project activities are not expected to affect Colusa grass.

Antioch Dunes evening-primrose *(Oenothera deltoides* ssp. *howellii)*

Status, Distribution, and Habitat Requirements

Antioch Dunes evening-primrose is a federally-endangered species; this taxon is a perennial herb in the evening-primrose family. Antioch Dunes evening-primrose blooms March through September. This taxon occurs in Contra Costa and Sacramento counties (CNPS 2008). The only natural colonies exist with in the sand dune habitat near Antioch in Contra Costa County (USFWS 2008c). Several occurrences are known near the confluence of the Sacramento and San Joaquin Rivers (USFWS 2008c). Successful transplant efforts of Antioch Dunes evening-primrose have occurred into two areas: the Brannan Island State Recreation Area, and two small colonies on Brown's Island in Contra Costa County (USFWS 2008c).

Historically the threat to Antioch Dunes evening-primrose was the mining of sand along the delta to make bricks; this activity left only a small portion of the original dune habitat (USFWS 2008c). The creation of the Antioch Dunes National Wildlife Refuge has improved habitat for the dunes, including hand-clearing of non-natives, and restricting public access to avoid trampling (USFWS 2008c). USFWS has designated critical habitat for Antioch Dunes evening-primrose in Contra Costa County. None of the critical habitat is located in the transmission corridor (USFWS 2008c).

Potential Occurrence

Antioch Dunes evening-primrose has no potential to occur in the transmission corridor, including the Action Area. The transmission corridor does not contain suitable dune habitat.

Furthermore, Project surveys were conducted at appropriate times of year to detect Antioch Dunes evening-primrose, and none was located in the Action Area.

Potential Project-Related Impacts

Project activities are not expected to impact Antioch Dunes evening-primrose or any suitable habitat for this species. Therefore, Project activities are not expected to affect Antioch Dunes evening-primrose.

4.3 Wildlife Resources

Background research identified twenty-five federally-listed animal species which may occur in the Project vicinity (Table 3). Previously known occurrences are listed in Table 3 and are presented on Project maps (Appendix A).

Nine species appeared in the CNDDB or USFWS background research results but are out of range (CDFG 2008b, USFWS 1983, 1984a, 1984c, 1985, 1998a, 1998b, 1999b, 2005a, 2005d, and 2008c) and lack suitable habitat in the Action Area: California freshwater shrimp (*Syncaris pacifica*), Delta green ground beetle (*Elaphrus viridis*), Lange's metalmark butterfly (*Apodemia mormor langei*), San Bruno elfin butterfly (*Callophrys mossii bayensis*), bay checkerspot butterfly (*Euphydryas editha bayensis*), Callippe silverspot butterfly (*Speyeria callippe callippe*), giant garter snake (*Thamnophis gigas*), California brown pelican (*Pelecanus occidentalis californicus*), and California least tern

(*Sternula antillarum browni*). Therefore, these nine taxa are not addressed further in this report. In addition, four species of fish appeared in the CNDDB or USFWS search results: green sturgeon (*Acipenser medirostris*), Central Valley steelhead (*Onchorhynchus mykiss*), Central California Coastal steelhead (*Oncorhynchus mykiss irideus*), and Central Valley spring- and winter-run chinook salmon (*Onchorhyncus tshawytscha*). However, Project activities in the Action Area will not affect suitable waterways (USFWS 1996, 2005c, and 2008c), and these species are not addressed further in this report.

Overall, twelve federally-listed wildlife species have potential, based on range and habitat, to occur within the transmission corridor. Distribution, habitat, status, and potential impacts to these twelve species are addressed below.

Conservancy fairy shrimp *(Branchinecta conservatio)*

Status, Distribution, and Habitat Requirements

This federally-endangered species is endemic to grasslands of the northern two-thirds of the Central Valley (CDFG 2008a). It is most often found in large, clay-bottomed vernal pools with high turbidity, though it has been found in small, less turbid pools (USFWS 2005d). The USFWS knows of eight disjunct populations from Tehama County to Merced County, and Ventura County (USFWS 2005d). The two nearest known populations occur north of the transmission corridor at Jepson Prairie, Solano County (approximately 17.5 miles), and south of the transmission corridor at Mapes Ranch, Stanislaus County (approximately 20 miles) (CDFG 2008a). Critical habitat for this species was designated in 2006 (USFWS 2006a), but does not occur within the transmission corridor, including the Action Area.

The life cycle of Conservancy fairy shrimp is tied to vernal pools and swales, which are formed by rains and a rising water table in winter and spring. Once pools contain standing water, shrimp mature from eggs, or cysts, in an average of 49 days (USFWS 2008c). Rates of shrimp growth and sexual maturation vary greatly with water temperature (USFWS 2008c). Following reproduction, the shrimp's cysts become embedded in soil as the pools dry out. The cysts can withstand heat, cold, and desiccation, and most will hatch with the next year's rains (USFWS 2008c). Conservancy fairy shrimp have been collected from pools from early November to early April (USFWS 2008c).

The biggest threats to Conservancy fairy shrimp and other vernal pool species are habitat loss and fragmentation, mostly due to urbanization, agricultural conversion, and mining (USFWS 2008c). Besides direct impacts to vernal pools, Conservancy fairy shrimp are threatened by changes in hydrology, invasive plant species, contaminants, and off-road vehicle use. Small, separated populations are more vulnerable to environmental changes.

Potential Occurrence in Project Area

No occurrences of the species are known within five miles of the Project (CDFG 2008a). Suitable vernal pool habitat for Conservancy fairy shrimp is not present within the Action Area. Due to lack of suitable vernal pool habitat, this species is not expected within the

Action Area.

Potential Project-Related Impacts

No suitable habitat for Conservancy fairy shrimp is present, and this species is not expected to occur within the Action Area. No Project activities are expected to take place within 250 feet of suitable vernal pool habitat. Therefore, the Project is expected to have no effect on Conservancy fairy shrimp

Longhorn fairy shrimp (*Branchinecta longiantenn*)

Status, Distribution, and Habitat Requirements

This federally-endangered species inhabits clear to rather turbid vernal pools. These include clear-water depressions in sandstone outcroppings near Tracy (San Joaquin County), grass-bottomed pools in Merced County, and claypan pools around Soda Lake in San Luis Obispo County (USFWS 2008c). The four known populations of longhorn fairy shrimp include: (1) areas within and adjacent to the Carrizo Plain National Monument, San Luis Obispo County; (2) areas within the San Luis National Wildlife Refuge Complex, Merced County; (3) areas within the Brushy Peak Preserve, Alameda County and (4) areas within the Vasco Caves Preserve, near the town of Byron in Contra Costa County (USFWS 2008c). The closest known populations of longhorn fairy shrimp are in Alameda and Contra Costa Counties; both populations located 1.5 miles to 2.5 miles west of the transmission corridor (CDFG 2008a). Critical habitat was designated in 2006 (USFWS 2006a), but does not occur in the transmission corridor.

Female fairy shrimp carry their eggs in a ventral brood sac. The eggs either are dropped to the pool bottom or remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs. They remain in the dry pool bed as cysts. The cysts are capable of withstanding heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Hatching can begin within the same week that a pool starts to fill. Average time to maturity is forty-three days (Eriksen and Belk 1999).

Potential Occurrence in Action Area

Suitable vernal pool habitat for longhorn fairy shrimp is not present within the Action Area. Due to lack of suitable vernal pool habitat, this species is not expected within the Action Area.

Potential Project-Related Impacts

No suitable habitat for longhorn fairy shrimp is present, and this species is not expected to occur within the Action Area. No Project activities are expected to take place within 250 feet of suitable vernal pool habitat. Therefore, the Project is expected to have no effect on longhorn fairy shrimp.

Vernal pool fairy shrimp *(Branchinecta lynchi)*

Status, Distribution, and Habitat Requirements

Vernal pool fairy shrimp is a federally-threatened species known to occur in a wide range of vernal pool habitats in the southern and Central Valley areas of California. The range

of the species extends from disjunct locations in Riverside County and the Coast Ranges, north through Central Valley grasslands to Tehama County, and then to a disjunct area of remnant vernal pool habitat in the Agate Desert of Oregon (2008c). The nearest vernal pool fairy shrimp occurrence is 0.3-mile southwest of Pull Site 6. Designated critical habitat for vernal pool fairy shrimp is located in Pull Sites 6 and 8 (between Towers 14/63 and 16/72) (USFWS 2006a).

Vernal pool fairy shrimp have an ephemeral life cycle and exist only in vernal pools or vernal pool-like habitats (USFWS 2008c). Fairy shrimp embryos are protected throughout the dry, hot summer by a tough outer covering around each cyst. Soon after being immersed in waters that are below 10° Celsius, the cysts hatch, releasing hundreds of little fairy shrimp who eat, grow, reproduce, and lay cysts before their ephemeral pools disappear--often in as little as two weeks (Helm 1998; Eriksen and Belk 1999). Cysts are transported from pool to pool, or dry depression to dry depression, by 'hitching a ride' on wading animals. The fairy shrimp may also be dispersed by animals that ingest the cysts, since the tough cyst-coats protect the embryos from being digested. Fairy shrimp swim on their backs, feeding on small particles of detritus, algal cells and bacteria by scraping vegetation or other surfaces with their legs, or filtering the surrounding waters. Many types of insects, amphibians, waterfowl and crustaceans prey on vernal pool fairy shrimp, making this particular species an extremely important link in the food web, particularly as a supply of energy for migratory birds.

Vernal pool fairy shrimp are threatened by continued human efforts to drain and fill vernal pool watersheds for agriculture and development purposes. Stormwater run-off containing pesticides, chemical residues and other contaminants are heavily impacting remaining shrimp populations as well.

Potential Occurrence in Action Area

Suitable vernal pool habitat for vernal pool fairy shrimp is not present within the Action Area. Vernal pool fairy shrimp presence is not expected in the Action Area.

Pull Sites 6 and 8 lie within designated critical habitat for vernal pool fairy shrimp. Much of Pull Site 6 and the associated access route lies within designated critical habitat, but only the access route for Pull Site 8 crosses through a very small amount of critical habitat. One guard structure (SR 37) also occurs on the edge of Briones Valley Road, partially within designated critical habitat for this species. .However, no vernal pool habitat was observed within the Action Area, and vernal pool fairy shrimp are not expected (see further discussion of critical habitat in Section 2.3)..

Potential Project-Related Impacts

No suitable habitat for vernal pool fairy shrimp occurs, and this species is not expected to occur within the Action Area. No Project activities are expected to take place within 250 feet of suitable vernal pool habitat. Therefore, the Project is expected to have no effect on vernal pool fairy shrimp.

Vernal pool tadpole shrimp *(Lepidurus packardi)*

Status, Distribution, and Habitat Requirements

Vernal pool tadpole shrimp are federally-endangered and exist only in vernal pools and swales in grasslands. These shrimp are restricted to the Central Valley and the San Francisco Bay area (CDFG 2008a). The nearest vernal pool tadpole shrimp occurrence is 2 miles north of the Project near Pull Site 4. Critical habitat was designated in 2006 (USFWS 2006a), but does not occur on in the transmission corridor.

The cysts of vernal pool tadpole shrimp are drought-tolerant. When winter rains fill vernal pools and swales, some of the cysts will hatch. Others may not hatch for many years. As a vernal pool tadpole shrimp grows, it sheds its carapace whenever it gets too small. This species takes weeks to mature, so they tend to live in deeper vernal pools which last several weeks into the dry season. Female tadpole shrimp produce hundreds of cysts which are deposited in the mud of the pool bottom. The cysts will rest there as the vernal pool evaporates and the bottom becomes hot and dry. The cysts can last for more than 10 years, until conditions are right to hatch.

The biggest threats to vernal pool tadpole shrimp are due to its very limited range and the continuing loss of vernal pools due to new development.

Potential Occurrence in Action Area

Suitable vernal pool habitat for vernal pool tadpole shrimp is not present within the Action Area. Due to lack of suitable vernal pool habitat, this species is not expected within the Action Area.

Potential Project-Related Impacts

No suitable habitat for vernal pool tadpole shrimp is present, and this species is not expected to occur within the Action Area. No Project activities are expected to take place within 250 feet of suitable vernal pool habitat. Therefore, the Project is expected to have no effect on vernal pool tadpole shrimp.

Valley elderberry longhorn beetle *(Desmocerus californicus dimorphus)*

Status, Distribution, and Habitat Requirements

Valley elderberry longhorn beetle is exclusively associated with blue elderberry (*Sambucus nigra* ssp. *canadensis* = *Sambucus mexicana*) bushes, and is found only in riparian areas of California's Central Valley (USFWS 1984b). Since the beetles themselves are rarely seen, regulations protect the elderberry bushes, their sole host. While proposed for delisting on October 2, 2006, the beetle is still federally listed as threatened (USFWS 2008c). Critical habitat was designated in 1980 (USFWS 1980), but does not occur within the transmission corridor.

Though the specific life history of the beetle is unknown, it is presumed that eggs are laid on the bark of blue elderberry bushes, and that the hatched larvae burrow into the larger stems to pupate (USFWS 1984b). It appears that in order to serve as habitat, the shrubs must have stems that are 1.0-inch or greater in diameter at ground level. Use of the plants by the beetle is rarely apparent. Frequently, the only exterior evidence of the shrub's use by the beetle is an exit hole created by the larva just before the pupal stage. The larval stage may last two years, after which the larvae enter the pupal stage and

transform into adults. Beetles emerge as adults when the elderberry shrubs flower in late March through June (USFWS 2008c). The exit holes they create are used as an indicator of beetle presence. Adult beetles likely feed on elderberry flowers or foliage (USFWS 2008c).

The biggest threat to the Valley elderberry longhorn beetle is habitat loss, mostly due to urbanization and agricultural conversion.

Potential Occurrence in Action Area

GANDA biologists mapped two blue elderberry shrubs. Both were incidentally observed outside of the Action Area. One shrub occurred along a road near Pull Site 4, and a second blue elderberry shrub was observed approximately 70 feet north of guard structure 37 (SR 37) (see maps in Appendix A); this shrub is located adjacent to paved Briones Valley Road. Biologists examined these shrubs and noted exit holes in stems larger than one-inch (Table 3).

Table 3. Elderberry Shrubs Observed Incidentally to Surveys.

Pull Site/ Guard Structure	Activity	Stem Diameter (inches)			Exit holes (Yes/No)	Within 20 feet of disturbance (Yes/No)
		1≥x<3	3≥x<5	≥5		
Pull Site 4	Access road	1	3	0	Yes	No
Guard Structure SR37	Access road	9	4	3	Yes	No

Potential Project-Related Impacts

According to a 30-year programmatic agreement with USFWS, PG&E has specific guidelines for maintenance work around elderberries (PG&E and USFWS 2003); this Project has been engineered to avoid and minimize impacts to valley elderberry beetle habitat using measures in this agreement. The Service-approved AMM's for Valley elderberry longhorn beetle (see Section 2.5 Avoidance and Minimization Measures), such as flagging shrubs at 20 feet from the dripline and avoiding disturbance within this buffer, will avoid and minimize damage to beetles and associated shrubs.

Specifically, the elderberry shrubs in the vicinity of Pull Site 4 and SR 37 will not experience additional impacts, because PG&E will conduct all travel to the work areas using existing roads. No digging, ground disturbance, or adjacent vegetation removal will occur within 20 feet of these shrubs.

In order to install guard structure poles, excavation will occur within 100 feet of the shrub at SR 37. This activity has the potential to slightly damage the root system of the shrub, but should not damage the overall health of the shrub or any Valley elderberry longhorn beetles that may inhabit it. Therefore, the Project is not likely to adversely affect the Valley elderberry longhorn beetle.

Delta smelt (*Hypomesus transpacificus*)

Status, Distribution, and Habitat Requirements

Federally-threatened Delta smelt are found only in the Sacramento-San Joaquin Estuary (the area where the Sacramento and San Joaquin Rivers flow into San Francisco Bay). They have been found as far upstream as the mouth of the American River on the Sacramento River, and Mossdale on the San Joaquin River, and extend downstream as far as San Pablo Bay. Critical habitat was designated in 1994 (USFWS 1994); this habitat occurs in the Project between Towers 0/1 to 2/14, and portions of access roads for Pull Sites 8 and 9.

Delta smelt need fresh water and brackish habitat in order to survive and reproduce. They are confined to a thin margin of low salinity habitat in the estuary.

Factors thought to have contributed to the decline of the species include reductions in freshwater outflow, entrainment losses to water diversions, entrainment at power plant intakes, changes abundance and composition of food organisms, environmental contaminants, and competition and predation from exotic invasive aquatic species.

Potential Occurrence in Action Area

Suitable habitat for Delta smelt is not present within the Action Area. No Project activities are taking place within open water, or in areas adjacent to water, that Delta smelt may inhabit. Delta smelt presence is not expected within the Action Area.

Federally-designated critical habitat for Delta smelt occurs within the Action Area. This includes Pull Sites 1 and 2, nine guard structures (SR01-DL09), and portions of access roads to Pull Sites 8 and 9. No suitable open water habitat for Delta smelt was observed within the Action Area. Critical habitat is discussed in further detail in Section 4.3 below.

Potential Project-Related Impacts

The closest ground-disturbing activity to suitable habitat for Delta smelt is installing a temporary guard structure (auguring holes and installing wooden poles) within 250 feet of a water body suitable for Delta smelt. This auguring is taking place in the road shoulder of paved West 10th Street, in previously developed land. AMM's, such as using erosion control measures, placing temporary spoils in containers, and replacing the top 10 inches of soil to promote native revegetation will be used in this area. With these measures in place, affects to Delta smelt and its suitable habitat will be avoided.

Other activities near suitable Delta smelt habitat are taking place in a developed area inside the Pittsburg Substation. These activities involve pulling/replacing wire from a previously-disturbed gravel area. This temporary activity is not expected to affect Delta smelt or any suitable habitat.

The Project is expected to have no effect on the Delta smelt.

California tiger salamander (*Ambystoma californiense*)

Status, Distribution, and Habitat Requirements

California tiger salamanders are divided into three distinct population segments (DPS):

Central Valley DPS, Santa Barbara DPS, and Sonoma DPS. Each segment is listed separately. The Central Valley DPS, the population within range of the Project, is federally-threatened. The California tiger salamander exists only in California and does not overlap with any other species of tiger salamander. California tiger salamanders are restricted to vernal pools and seasonal ponds. Critical habitat was designated in 2005 (USFWS 2005b), but does not occur in the transmission corridor.

California tiger salamanders need both aquatic and upland (dispersal and burrow) habitat. California tiger salamanders breed in fish-free ephemeral ponds that form during winter and may dry out in summer, but may also breed in slow streams and in some permanent waters. California tiger salamanders may also inhabit constructed stock ponds, in grassland and oak savannah plant communities, predominantly from sea level to 2,000 feet, in central California.

Adult migration to and from breeding ponds occur during the rainy season (November to May), with the greatest activity from December through February. Adults engage in mass migration during a few rainy nights and leave the breeding ponds shortly after breeding. Males arrive at breeding ponds a week or two before the females. Females lay eggs and attach them singly or in small groups to underwater vegetation. Adults then retreat back to rodent burrows where they actively spend the rest of the year in or near these burrows which are usually greater than 1-foot deep. Eggs hatch in two to four weeks. Larvae metamorphose during the summer and migrate from the ponds at night during dry weather. After metamorphosis, California tiger salamanders are almost always underground in upland habitat, occupying mainly ground squirrel and gopher burrows. They emerge to move to a pond or another burrow, and only at night.

Potential Occurrence in Action Area

Project areas which had an occurrence for California tiger salamander at or within 1 km (0.62 mile) are Pull Sites 4 and 6-10. Suitable breeding and dispersal habitat for California tiger salamander exists at or within 1 km (0.62 mile) of Pull Sites 4 and 6-10. Suitable dispersal habitat exists at Guard Structures DL23 and TL24. However, no suitable breeding habitat exists within a 50-foot buffer of a guard structure. Without further sampling, California tiger salamander presence is assumed within the Action Area.

Potential Project-Related Impacts

This Project has been engineered to avoid and minimize impacts to California tiger salamanders and habitat (see also Section 2.5 Avoidance and Minimization Measures). Ground-disturbing work that will take place within suitable habitat for California tiger salamanders includes installing new conductor with heavy equipment (Pull Sites 4, 6-10), minor leveling of pull sites (potentially Pull Sites 4, 6, 7, and 9), and installing temporary guard structures (DL23 and TL24). All impacts of this Project will be temporary.

No work will be conducted within aquatic breeding habitat. In addition, all grading, digging, or other off pavement work will be avoided in upland habitat during the adult breeding and dispersal season (November to May) and metamorphic dispersal season

(June 15 to July 15). These measures should avoid impacts to California tiger salamanders as they disperse between ponds and burrows. Work will be conducted in upland areas between July 15 and October, when adults have retreated to underground burrows and metamorphic individuals have emerged from aquatic habitat to shelter in upland habitat.

Qualified monitors will perform preconstruction surveys each day, ground disturbing work will take place during daylight hours, and vehicles will be checked before moving, to ensure detection of California tiger salamanders if present. Work crews will be monitored, and will be provided with environmental awareness training regarding California tiger salamanders. Monitors will also coordinate with ground crews to determine appropriate placement of Guard Structures DL23 and TL24 (implementation of guard structures with no sub-surface ground disturbance) so as not to create sub-surface ground disturbance if small mammal burrows or soil cracks are present.

With the proposed AMM's in place, the Project may slightly alter the California tiger salamander habitat on a temporary basis, but is not expected to harm individuals. Therefore, this Project is not likely to adversely affect the California tiger salamander.

California red-legged frog *(Rana aurora draytonii)*

Status, Distribution, and Habitat Requirements

The California red-legged frog is federally-threatened. Formerly much more widespread in California, the California red-legged frog is now restricted to portions of the San Francisco Bay area and the central coast, with isolated populations in the Sierra Nevada, northern California coast, the northern Transverse ranges, and Baja California in Mexico (USFWS 2002). California red-legged frogs typically occur where dense shrubby or emergent riparian vegetation borders permanent and semi-permanent ponds, streams, marshes, and springs (USFWS 2002). Frogs have been found up to 100 feet from water in dense riparian scrub (USFWS 2002), and in more disturbed habitats like roadside ditches and stock ponds.

Critical habitat was designated in 2006 (USFWS 2006b); however, additional critical habitat was proposed in 2008 (USFWS 2008), then finally designated in 2010 (USFWS 2010). The currently designated critical habitat occurs throughout most of the southern end of the transmission corridor (Appendix A).

Breeding occurs during the wet season from November through April (USFWS 2002). At this time, the frogs are more active in upland areas, with most movement occurring at night. At any time of year, California red-legged frogs may take refuge in burrows up to several dozen yards from water (USFWS 2002). They can be difficult to detect, particularly in uplands, and should be assumed present within five miles of a known occurrence.

Red-legged frogs have been extirpated from 70 percent of their former range (USFWS 2002). Principal threats entail habitat loss, degradation, and colonization by non-native species like bullfrogs, crayfish, and predatory fish.

Potential Occurrence in Action Area

During surveys, GANDA biologists observed California red-legged frog tadpoles and an adult adjacent to Pull Site 7 in Vaqueros Creek. The area around Pull Site 8 is used for "California red-legged frog handling classes" due to strong frog presence.

The following Project work areas had an occurrence for California red-legged frog at or within one-mile: Pull Sites 2, 3, 4, 7, 8, 9, and 10. Suitable breeding habitat for California red-legged frog exists at or within one-mile of proposed Pull Sites 2, 3, 4, 7, 8, 9, 10, and 12. However, no suitable breeding habitat exists within Pull Sites 3, 8, 9, and 10. Suitable upland habitat occurs within a 50-foot radius of the following Guard Structures: SR21, TL34, and SR37. No breeding habitat exists at any guard structure.

The following Project areas are within designated critical habitat: Pull Sites 9, 10, 11, and 12, and eleven guard structures (DL23, TL24, DL25, TL26, DL29, RR30, TL31, TL32, TL33, TL34, and TL35). See Section 4.3 below for further discussion of critical habitat.

Because of nearby suitable habitat, California red-legged frog is presumed present at Pull Sites 2, 3, 4, 7, 8, 9, 10, and 12, as well as Guard Structures SR21, TL34, and SR37.

Potential Project-Related Impacts

This Project has been engineered to avoid and minimize impacts to California red-legged frogs and suitable habitat (see also Section 2.5 Avoidance and Minimization Measures). Ground-disturbing work that will take place within suitable habitat for California red-legged frog includes installing and removing temporary guard structures (SR21, TL34, and SR37), and minor leveling of pull sites (potentially Pull Sites 2, 4, 7, and 9), and installing new conductor with heavy equipment (Pull Sites 2, 3, 4, 7, 8, 9, 10, and 12). All impacts of this Project will be temporary.

Avoidance measures will be enacted to avoid direct impacts to frogs. In suitable portions of the Action Area (Pull Sites 2, 3, 4, 7, 8, 9, 10, and 12, and Guard Structures SR21, TL34, and SR37), qualified monitors will perform preconstruction surveys each day, ground disturbing work will take place during daylight hours, and vehicles will be checked before moving, to ensure detection of California red-legged frogs if present. Grading and digging near water features will be avoided during the breeding and juvenile rearing season (late November to August). Monitors will also coordinate with ground crews to determine appropriate placement of Guard Structures SR21, TL34, and SR37 (implementation of guard structures with no sub-surface ground disturbance) so as not to create sub-surface ground disturbance if small mammal burrows are present. Temporary Project impacts will not create habitat fragmentation, which is detrimental for adequate frog dispersal, nor remove vegetation which is important for shelter.

With the proposed AMM's in place, the Project may slightly alter California red-legged frog habitat on a temporary basis, but is not expected to harm individuals. Therefore, this Project is not likely to adversely affect the California red-legged frog.

Alameda striped racer (*Masticophis lateralis euryxanthus*)

Status, Distribution, and Habitat Requirements

This federally-threatened species currently inhabits the inner coast range mostly in Contra Costa and Alameda counties, with additional occurrence records in San Joaquin and Santa Clara counties (USFWS 2008c). This species is typically found in chaparral, such as northern coastal sage scrub and coastal sage. The recovery plan for Alameda striped racer designated five recovery units (USFWS 2003); portions of the transmission corridor intersect Recovery Unit 4. The nearest known striped racer occurrence is approximately one mile west-southwest of Pull Site 7 (Jones and Stokes 2006). Critical habitat was designated in 2006 (USFWS 2006c) and occurs 2.5 miles south of the subject line from Pull Sites 3 and 4; no federally designated critical habitat occurs in the transmission corridor.

Rock outcrops are an important feature of Alameda striped racer habitat. These features provide retreat opportunities for striped racers, and also promote lizard (prey) populations. Lizards, especially the western fence lizard, appear to be the most important prey item of striped racers, although other prey items are taken, including skinks, frogs, snakes and birds. Adult snakes appear to have a bimodal seasonal activity pattern, with a large peak during the spring mating season and a smaller peak during late summer and early fall. Although short above-ground movements may occur during the winter, Alameda striped racers generally retreat in November into hibernacula (shelter used during the snake's dormancy period) and emerge in March (USFWS 2008c).

Potential Occurrence in Action Area

Marginally suitable habitat for Alameda striped racer exists within Pull Site 4 (south facing slope with a few shrubs and rock outcrops); the habitat within 500 feet south of Pull Site 4 is also suitable, as is habitat at Guard Structures DL16 and DL17.

The transmission corridor intersects Recovery Unit 4 core habitat between Towers 6/29 and 9/40; this core habitat is outside of the Action Area. The transmission corridor intersects Recovery Unit 4 movement habitat between Pull Sites 3 and 6 (USFWS 2003, Jones and Stokes 2006). Without further sampling, the Alameda striped racer is assumed present within the Action Area in the associated Project work areas: Pull Site 4 and guard structures DL16 and DL17. Recovery concerns in movement habitat focus on maintaining habitat connectivity between core areas (USFWS 2003).

Potential Project-Related Impacts

This Project has been engineered to avoid and minimize impacts to Alameda striped racer habitat (see Section 2.5 Avoidance and Minimization Measures). Ground-disturbing work that will take place within suitable habitat for Alameda striped racer includes installing and removing temporary guard structures (DL16 and DL17), minor leveling of pull sites (potentially Pull Site 4), and installing new conductor with heavy equipment (Pull Site 4). All impacts of this Project will be temporary.

Qualified monitors will be present during Project activities within suitable habitat (Pull

Site 4, and Guard Structures DL16 and DL17). At these Project work areas, qualified monitors will perform preconstruction surveys each day, ground disturbing work will take place during daylight hours, and vehicles will be checked before moving, to ensure detection of Alameda striped racers if present. All grading or digging within these three Project work areas will avoid the snakes dormancy period (avoid November through March) and egg laying season (March to June) in order to avoid digging into underground hibernacula and eggs. In addition, in these three areas, construction materials and spoils will only be placed where vegetation is mowed or grazed, so that any snakes present will be readily visible. Direct impacts to striped racers will be avoided by timing construction during snakes active period (July to October), when snakes can actively avoid construction and seek alternative shelter.

These impacts will not change the habitat type, or create habitat fragmentation which is detrimental for adequate striped racer dispersal.

With the proposed AMM's in place, the Project may slightly alter Alameda striped racer habitat on a temporary basis, but is not expected to harm individuals. Therefore, this Project is expected to not likely to adversely affect the Alameda striped racer.

California clapper rail (*Rallus longirostris obsoletus*)

Status, Distribution, and Habitat Requirements

The federally-endangered California clapper rail is now restricted almost entirely to the marshes of the San Francisco estuary (USFWS 1984d). These birds inhabit low portions of coastal wetlands dominated by cordgrass (*Spartina* sp.), pickleweed (*Salicornia* spp.), or mangroves. No known occurrences for the California clapper rail are present within five miles of the Project (CDFG 2008a). No critical habitat has been designated for this species (USFWS 2008c).

In south San Francisco Bay, populations of California clapper rail inhabit all of the larger tidal marshes. Distribution in the North Bay is patchy and discontinuous, primarily in small, isolated habitat fragments. Small populations are widely distributed throughout San Pablo Bay. They are also present sporadically and in low numbers at various locations throughout the Suisun Marsh.

Potential Occurrence in Action Area

Suitable habitat for California clapper rail is not present within the transmission corridor, including the Action Area. California clapper rail is not expected in the Action Area.

Potential Project-Related Impacts

No suitable habitat for California clapper rail occurs in the Action Area, and this species is not expected to occur within the Action Area. No Project activities are expected to take place in suitable California clapper rail habitat. Therefore, the Project is expected to have no effect on California clapper rail.

Salt marsh harvest mouse (*Reithrodontomys raviventris*)

Status, Distribution, and Habitat Requirements

The Salt marsh harvest mouse is a federally-endangered species. This small, primarily nocturnal rodent is found in coastal salt marshes of San Francisco, San Pablo, and Suisun Bays and tributaries (USFWS 1984d). Some isolated populations occur in Marin and Contra Costa counties. A known occurrence for salt marsh harvest mouse is approximately 0.5-mile west of Pull Site 1 (CDFG 2008a). No critical habitat has been designated for this species (USFWS 2008c).

Salt marsh harvest mice are critically dependent on dense cover and their preferred habitat is pickleweed (*Salicornia virginica*) (USFWS 1984d). Harvest mice are seldom found in cordgrass or alkali bulrush. In marshes with an upper zone of peripheral halophytes (salt-tolerant plants), mice use this vegetation to escape the higher tides, and may even spend a considerable portion of their lives there. Mice also move into the adjoining grasslands during the highest winter tides. Salt marsh harvest mice probably live on leaves, seeds and stems of plants. In winter, they seem to prefer fresh green grasses. The rest of the year, they subsist on pickleweed and saltgrass.

Potential Occurrence in Action Area

Suitable habitat for salt marsh harvest mouse is not present at or within 250 feet of any proposed Project area. Portions of the transmission corridor, outside of the Action Area, contain degraded tidal marsh, poor habitat for the salt marsh harvest mouse (USFWS 1984d); this habitat occurs between Pull Site 1 and Guard Structure SR01. Salt marsh harvest mouse presence is not expected in the Action Area.

Potential Occurrence in Action Area

Suitable habitat for salt marsh harvest mouse is not present within the Action Area (marginally suitable habitat is present within the transmission corridor, but outside of the Action Area). Salt marsh harvest mouse is not expected in the Action Area.

Potential Project-Related Impacts

No suitable habitat for salt marsh harvest mouse occurs in the Action Area, and this species is not expected to occur within the Action Area. No Project activities are expected to take place in suitable salt marsh harvest mouse habitat. Therefore, the Project is expected to have no effect on salt marsh harvest mouse.

San Joaquin kit fox (*Vulpes macrotis mutica*)

Status, Distribution, and Habitat Requirements

San Joaquin kit fox is a federally-endangered species known to occur on scattered islands of natural land on the valley floor in Kern, Tulare, Kings, Fresno, Madera, San Benito, Merced, Stanislaus, San Joaquin, Alameda, and Contra Costa counties (USFWS 2008c). Prior to 1930, kit foxes inhabited most of the San Joaquin Valley from southern Kern County north to eastern Contra Costa County and eastern Stanislaus County (USFWS 1998c). Although no extensive survey has been conducted of the historical range, kit foxes are thought to inhabit suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains (USFWS 1998c). The transmission corridor is located within 10 miles (USFWS 1999a) of recorded San Joaquin kit fox occurrences. San Joaquin kit foxes have been observed

within three miles of the transmission corridor within the last 10 years (USFWS 1999a). The transmission corridor is within known satellite populations for kit fox, and within suitable core habitat (Jones and Stokes 2006, USFWS 2004). No critical habitat has been designated for this species (USFWS 2008c).

These foxes inhabit primarily grasslands and scrublands; much of what was historically suitable habitat has been extensively modified by man. Types of modified habitats include those with oil exploration and extraction equipment and wind turbines, and agricultural mosaics of row crops, irrigated pastures, orchards, vineyards, and grazed annual grasslands. Oak woodland, alkali sink scrubland, and vernal pool and alkali meadow communities also provide habitat for kit foxes.

In September, vixens return to the pupping dens to clean and enlarge them. Males join the vixens in October or November and most breeding occurs in early January (USFWS 2008c). After a gestation period of 49 to 55 days, litters of three to five are born in late February or early March (USFWS 2008c). Vixens bear one litter per year. Pups emerge from the dens after they are weaned at about one month. Both parents provide food and care for pups until they are four to five months old; when pups begin to forage for themselves, they disperse, and adults move to smaller dens within the range.

Potential Occurrence in Action Area

GANDA biologists observed one *Vulpes* species at Pull Site 7 along Vaqueros Creek; the observed species looked like San Joaquin kit fox. Kit fox scat was also found outside the entrance of burrows at Pull Site 7. All Project areas contain suitable habitat for San Joaquin kit fox except for Pull Sites 1 and 2, and nine guard structures between SR01 and DL09. No San Joaquin kit fox burrows were found at or within 50 feet of guard structures; however, potential kit fox burrows were present within 200 feet of Guard Structures SR21, TL31, TL32, and TL33.

Without further sampling, San Joaquin kit fox is assumed to occur within the Action Area.

Potential Project-Related Impacts

This Project has been engineered to avoid and minimize impacts to San Joaquin kit fox and suitable habitat (see also Section 2.5 Avoidance and Minimization Measures). Ground-disturbing work that will take place within suitable habitat for San Joaquin kit fox includes installing and removing temporary guard structures (Guard Structures SR21, TL31, TL32, and TL33); and minor leveling of pull sites (potentially Pull Sites 2-7, 9, and 11) and installing new conductor with heavy equipment (Pull Sites 2-12). All impacts of this Project will be temporary.

Avoidance measures will be enacted to avoid direct impacts to San Joaquin kit fox In suitable portions of the Action Area (Pull Sites 2-12 and Guard Structures SR21, TL31, TL32, and TL33), work will be avoided during pupping season: mid-February to April 1 (this timeline includes birth, weaning, and emergence of pups). If work cannot be avoided within this window, pre-construction surveys will be performed to determine den

use. Minimum avoidance distance of grading and digging from dens will be 50 feet for a potential den, 100 feet for a known den, and 200 feet for a natal/pupping den.

Regardless of work timing, in areas of suitable habitat, qualified monitors will be utilized to direct crew activities, and provide environmental awareness training. At these sites, qualified monitors will perform preconstruction surveys each day, ground disturbing work will take place during daylight hours, and vehicles will be checked before moving, to ensure detection of San Joaquin kit fox if present.

With the proposed AMM's in place, the Project may slightly alter San Joaquin kit fox habitat on a temporary basis, but is not expected to harm individuals; the temporary impacts will not create habitat fragmentation, change the habitat type, or destroy dens. Direct impacts will be avoided by timing construction outside of kit fox nocturnal activity periods. Therefore, this Project is not likely to adversely affect the San Joaquin kit fox.

4.3 Critical Habitat

The Endangered Species Act (ESA) of 1973 requires the federal government to designate critical habitat for any species it lists under the ESA. Critical habitat is designated to describe areas that are both essential to the management of the species, and may require special management considerations. Often large geographical areas are designated as critical habitat; however, only areas within that geographical area that contain the primary constituent elements (PCEs) required by the species are considered critical habitat. PCEs are those physical and biological features of a landscape that a species needs to survive and reproduce.

Designated critical habitat areas for four federally-listed species are located within the transmission corridor. The following discussion addresses the presence of PCEs in the Action Area, and any impacts to these PCEs due to proposed Project activities.

Contra Costa Goldfields

Contra Costa goldfields critical habitat is located in the Action Area, around the access road to Pull Site 8, near Vasco Road. This critical habitat is part of the Altamont Core Area of the Livermore vernal pool region (USFWS 2005d and 2006a). The primary constituent elements (PCEs) of Contra Costa goldfields critical habitat are twofold (USFWS 2006a):

1. "Vernal pools, swales, moist flats, and other ephemeral wetlands and depressions of appropriate sizes and depths and the adjacent upland margins of these depressions that sustain *Lasthenia conjugens* germination, growth, and reproduction, including, but not limited to, vernal pools on clay soils from a variety of soils series, rock outcrop pools on basalt flows, and vernal pools in saline alkaline transition zones with tidal marsh habitats. All of these habitats typically become inundated during winter rains, but are dry during the summer and do not necessarily fill with water every year".

2. "The associated watershed(s) and hydrologic features, including the pool basin, swales, and surrounding uplands (which may vary in extent depending on pool size and depth, soil type and depth, hardpan or claypan type and extent, topography, and climate) that contribute to the filling and drying of the vernal pool or ephemeral wetland, and that maintain suitable periods of pool inundation, water quality, and soil moisture for *Lasthenia conjugens* germination, growth and reproduction, and dispersal, but not necessarily every year."

The critical habitat within the Action Area is a small sliver of habitat within 250 feet from an existing well-maintained access road. This is a well-used access road into a wind generated power facility. This well-used road is currently open to the public.

No vernal pools or similar features (PCE #1 above) are present in this critical habitat area; therefore, this PCE will not be affected. The associated watershed (PCE #2) is not expected to be affected either. Because all Project activities in this Project work area are limited to through-traffic on this existing gravel road, no ground-disturbing activities are expected in the critical habitat. The increase in traffic due to Project activity will be temporary; the only impact expected may be a minimal temporary increase in dust levels. This temporary traffic increase is not expected to adversely impact either PCE in this location.

Vernal pool fairy shrimp

Vernal pool fairy shrimp critical habitat occurs within the Action Area in two locations: Pull Site 6, and along the access road of Pull Site 8. This critical habitat is part of the Altamont Core Area of the Livermore vernal pool region (USFWS 2005d and 2006a).

Designation of critical habitat is based on habitat areas that provide essential life cycle needs of the species, which are areas containing the following PCEs (USFWS 2006a):

1. Topographic features: features characterized by mounds and swales, and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools.

2. Depressional features: isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 18 days, in all but the driest years; thereby providing adequate water for incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

3. Sources of food: detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding.

4. Structure within pool: consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

At Pull Site 6, Project activities include access on an existing unpaved road, and pulling activities (replacing/installing conductor with heavy equipment) from that road and the adjacent roadsides. On the access road to Pull Site 8, Project activities are limited to travel on existing well-maintained gravel roads that are currently open to the public.

Depressional features (PCE #2), and the corresponding pool structure (PCE #4) were not observed within the Action Area; no vernal pools or similar features were found within Pull Site 6 and the access road to Pull Site 8 within the designated critical habitat. Therefore, Project activities are not expected to impact these PCEs.

The surrounding topography connected to pools (PCE #1), and the corresponding food sources and other inputs into pools (PCE #3) should have negligible affects due to Project activities. At Pull Site 6, temporary increase in traffic and the adjacent roadwork may temporarily and minimally increase dust levels; in addition, the roadside pulling work may temporarily compact the local soil, thus minimally affecting the runoff patterns in the area. On the access to Pull Site 8, Project activities are limited to through-traffic on this existing gravel road, no additional ground-disturbing activities are expected. At both sites, the increase in traffic due to Project activity will be temporary; the temporary traffic increase may minimally temporarily increase local dust levels. The topographical features in this area are upslope, but well-removed (greater than 250 feet) from any depressional features. These small impacts are not expected to have measurable effects on either PCE #1 or #3 in this location.

The effects to vernal pool fairy shrimp critical habitat due to Project activities are expected to be negligible to non-existent.

Delta smelt

Delta smelt critical habitat is located within the Action Area in several locations. Pull Sites 1 and 2, a portion of the access route to Pull Site 9, and nine guard structures (SR01 to DL09) are located within designated Delta Smelt critical habitat.

The PCEs are the physical habitat, water, river flow, and salinity concentrations required to maintain delta smelt habitat for the following (USFWS 1994):

1) Spawning habitat: Delta smelt adults seek shallow, fresh, or slightly brackish backwater sloughs and edge-waters for spawning. To ensure egg hatching and larval viability, spawning areas also must provide suitable water quality (i.e., low concentrations of pollutants) and substrates for egg attachment (e.g., submerged tree roots and branches and emergent vegetation).

2) Larval and juvenile transport: ensure that delta smelt larvae are transported from the area where they are hatched to shallow, productive rearing or nursery habitat. The Sacramento and San Joaquin Rivers and their tributary channels must be protected from physical disturbance (e.g., sand and gravel mining, diking, dredging, and levee or bank protection and maintenance) and flow disruption (e.g., water diversions that result in entrainment and in-channel barriers or tidal gates). Adequate river flow is necessary to transport larvae from upstream spawning areas to rearing habitat in Suisun Bay. Additionally, river flow must be adequate to prevent interception of larval transport by the State and Federal water projects and smaller agricultural diversions in the Delta.

3) Rearing habitat: Maintenance of the historical salinity conditions and suitable water quality (low concentrations of pollutants) within the Estuary is necessary to provide delta smelt larvae and juveniles a shallow, protective, food-rich environment in which to mature to adulthood.

4) Adult migration: Adult delta smelt must be provided unrestricted access to suitable spawning habitat in a period that may extend from December to July. Adequate flow and suitable water quality may need to be maintained to attract migrating adults in the Sacramento and San Joaquin River channels and their associated tributaries. These areas also should be protected from physical disturbance and flow disruption during migratory periods.

The four PCE's above are all associated with areas that are inundated with water, and maintaining aquatic habitat quality, suitable water flows, and access to aquatic habitat. PCE's in Delta smelt habitat will not be affected by Project activities, because Project activities will not affect aquatic habitats.

Project activities within these designated areas will all take place in uplands. These activities include driving equipment on paved and unpaved roads, installing temporary guard structures (auguring holes and placing temporary wooden poles), limited leveling of pull sites, and reconductoring (installing/replacing conductor with heavy equipment. The AMM's used for this Project are designed to protect wetlands. These include avoiding grading and digging in wetlands, using a secondary container to hold spoils when near wetlands, using erosion and sedimentation BMPs, and checking and repairing equipment regularly for leaks.

With these AMM's in place, this Project is expected to have no effect on Delta smelt critical habitat.

California red-legged frog

California red-legged frog critical habitat (USFWS 2010) is located throughout the southern portion of the transmission corridor; this habitat occurs from Pull Sites 9, 10, 11, and 12, and eleven guard structures (DL23, TL24, DL25, TL26, DL29, RR30, TL31, TL32, TL33, TL34, and TL35). Critical habitat is designated within the South and East San Francisco Bay Recovery Unit (USFWS 2006b, 2008a, and 2010).

Designation of critical habitat is based on habitat areas that provide essential life cycle needs of the species or areas contain the following PCEs (USFWS 2010):

1. Aquatic breeding habitat: standing bodies of fresh water (salinity < 4.5 parts per thousand) including natural and manmade (stock) ponds, slow moving streams or pools within streams, other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in all but the driest years.

2. Non-breeding aquatic habitat: Freshwater pond and stream habitats , as described above, that may not hold water long enough for the frog to complete its lifecycle but provide for shelter, foraging, predator avoidance, and aquatic dispersal of juvenile and adult California red-legged frogs. Other wetland habitats considered to meet these criteria include, but are not limited to: plunge pools within intermittent creeks, seeps, quiet water refugia within streams during high flows, and springs of sufficient flow to withstand short-term dry periods.

3. Upland habitat: upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to a distance of 1 mile in most cases (i.e., depending on surrounding landscape and dispersal barriers) including various vegetational types such as grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance for the California red-legged frog. Upland features are also essential in that they are needed to maintain the hydrologic, geographic, topographic, ecological, and edaphic features that support and surround the aquatic, wetland, or riparian habitat. These upland features contribute to : (1) Filling of aquatic, wetland, or riparian habitats; (2) maintaining suitable periods of pool inundation for larval frogs and their food sources; and (3) providing non-breeding, feeding, and sheltering habitat for juvenile and adult frogs (e.g., shelter, prey base, foraging opportunities, and areas for predator avoidance). Upland habitat should include structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), small mammal burrows, or moist leaf litter.

4. Dispersal habitat: accessible upland or riparian habitat within and between occupied or previously occupied sites that are located within l mile of each other, and that support movement between such sites. Dispersal habitat includes various natural habitats, and altered habitats such as agricultural fields, that do not contain barriers (e.g., heavily traveled roads without bridges or culverts) to dispersal. Dispersal habitat does not include moderate- to high-density urban or industrial developments with large expanses of asphalt or concrete, nor does it include large lakes and reservoirs over 50 acres in size, or other areas that do not contain those features identified in PCE 1, 2, or 2 as essential for the conservation of the species.

This Project has been engineered to avoid and minimize impacts to California red-legged frog habitat to the extent feasible (see Section 2.5 Avoidance and Minimization

Measures). Access to Project areas will have to be obtained through critical habitat. Construction activities will avoid permanent and temporary impacts to aquatic breeding and non-aquatic breeding habitats. Construction activities will avoid permanent impacts to upland and dispersal habitats. Temporary, low impacts to upland and dispersal habitats in critical habitat may be affected, but is not likely to be adversely affected. Temporary, low impacts will consist of driving on established roads, overland travel (Pull Sites 9 and 11), and guard structure installation (DL23, TL24, DL25, TL26, DL29, RR30, TL31, TL32, TL33, TL34, and TL35). Temporary Project impacts will not create habitat fragmentation within critical habitat nor remove vegetation which is important for shelter.

5.0 Summary of Potential Effects

Impacts to listed species and critical habitat are summarized below.

5.1 Listed Plants

No federally-listed plant species were observed during seasonally-timed Project surveys. These species are likely not present in Action Area. Therefore, this Project is expected to have no effect on large-flowered fiddleneck, Suisun thistle, soft bird's-beak, palmate-bracted bird's-beak, Contra Costa wallflower, Contra Costa goldfields, Colusa grass, or Antioch Dunes evening-primrose.

5.2 Listed Wildlife

This Project is not expected to affect Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, Delta smelt, California clapper rail, and salt marsh harvest mouse. Suitable habitat for these species does not occur in the Action Area, and therefore Project activities are not expected to impact these species.

Evidence of three federally-listed species was observed during Project surveys: California red-legged adult frogs and tadpoles at Pull Site 7, Valley elderberry longhorn beetle exit holes in elderberry shrubs at two locations, and San Joaquin kit fox scat at Pull Site 7. Potential habitat exists for two more species: California tiger salamander and Alameda striped racer. With AMM's in place, such as spatial avoidance, suitable timing and monitoring, this Project is not likely to adversely affect Valley elderberry longhorn beetle, California tiger salamander, California red-legged frog, Alameda striped racer, and San Joaquin kit fox.

5.3 Critical Habitat

Four federally-listed species contain critical habitat within the transmission corridor: Contra Costa goldfields, vernal pool fairy shrimp, Delta smelt, and California red-legged frog.

This Project is expected to have no effect on critical habitat for Contra Costa goldfields and vernal pool fairy shrimp, and Delta smelt. The PCE's for these species either are not present in the Action Area, or will be negligibly and temporarily impacted by Project activities.

Although the Project may have temporary construction impacts on PCE's in California red-legged frog critical habitat, those impacts will be minimal and temporary, and the Project is not likely to adversely affect critical habitat for California red-legged frog.

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Appendix A
Project Maps

Solano
Sacramento
San Joaquin
Contra Costa
Alameda
Pittsburg Substation
Tesla Substation
Montezuma Slough
Dutch Slough
Old River
Tom Paine Slough
Delta Mendota Canal
Contra Costa Canal
Birds Landing Rd
Montezuma Hills Rd
Tracy Blvd
Bethany Rd
Byron Rd
Byron Bethany Rd
Byron Hwy
Marsh Creek Rd
Brentwood Blvd
Chestnut St
Sunset Rd
Delta Rd
Sellers Ave
Main St
Ohara Ave
Empire Ave
Fairview Ave
Balfour Rd
Walnut Ave
Vasco Rd
Hillcrest Ave
Lone Tree Way
18th St
A St
L St
4th St
3rd St
14th St
Willow Pass Rd
Port Chicago Hwy
Bailey Rd
Kirker Pass Rd
Concord Blvd
Clayton Rd
Treat Blvd
Gate Rd
Highland Rd
Livermore Ave
1st St
East Ave
Tesla Rd
Greenville Rd
Patterson Pass Rd
Altamont Pass Rd
Grant Line Rd
Midway Rd
1667
1265
160
84
4
205
580
242
680

USFWS Critical Habitat Areas

- Alameda whipsnake
- Contra Costa goldfields
- California Red-legged frog
- Delta smelt
- Vernal pool fairy shrimp

Project Features

- 230kV Transmission Line
- Stream
- Lake, Reservoir
- County Boundary
- 1 Map Location

Project Location

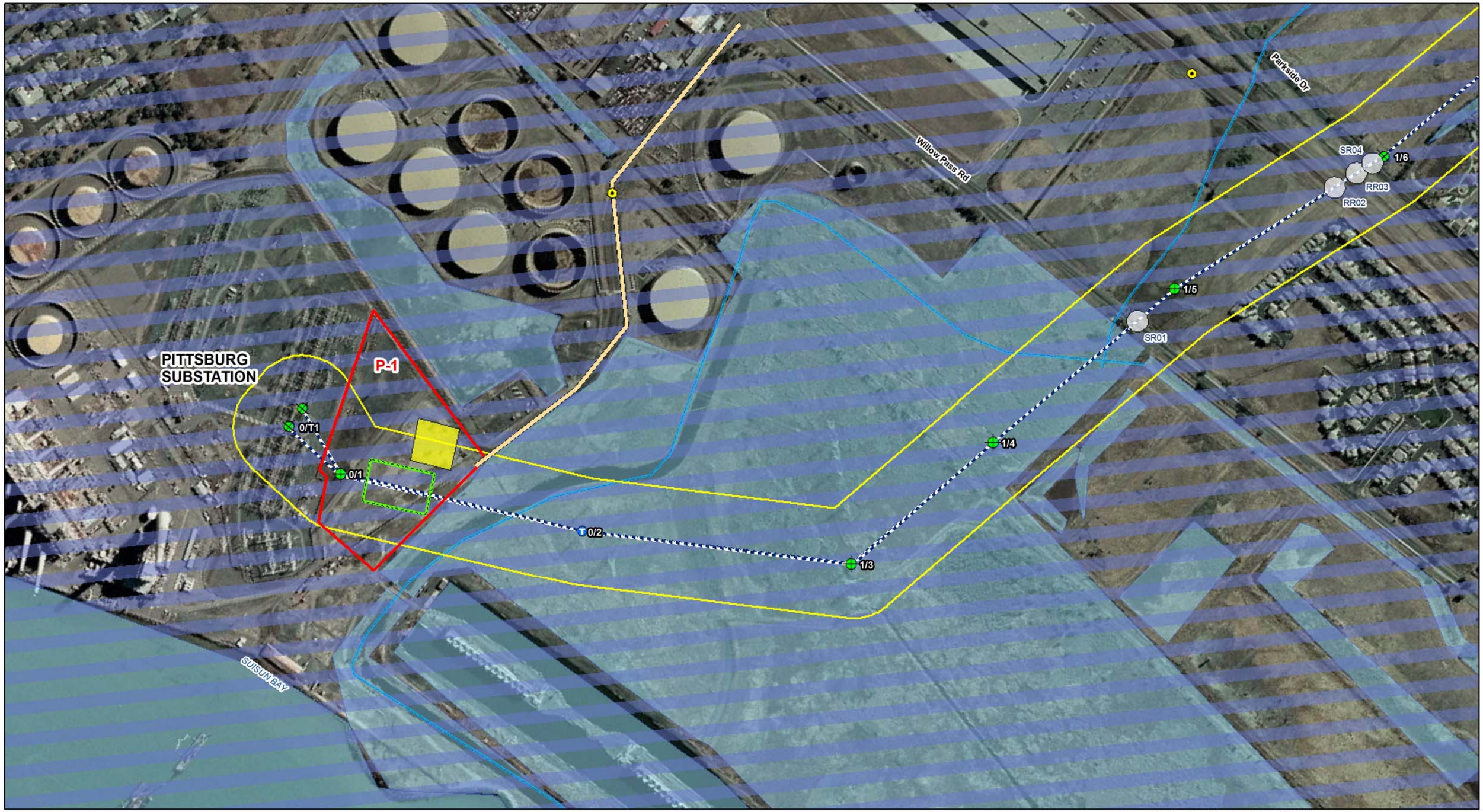
Source: PG&E GIS; USFWS Critical Habitat; GANDA GIS 2010

0 2 4 Miles

GANDA

USFWS Critical Habitat
Pittsburg-Tesla 230kV TLine
Reconductoring Project

November 2010
Alamada and Contra Costa
Counties, CA



USFWS Critical Habitat Areas
- Contra Costa goldfields
- California Red-legged Frog
- Delta Smelt
- Vernal pool fairy shrimp

Federally Listed Species (CNDDB Occurrences)

Mammals
- San Joaquin kit fox (SJKF)

Plants
- large-flowered fiddleneck (AMGR)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

Federally Listed Species (Survey Observations 2008)
- Calif.Red-legged Frog
- Vulpes sp.
- Elderberry

Hydrology
- Wetland Feature
- Creek, Stream

Project Features
- Gate
- Lock Gate
- PGE Lock
- Possible Access Rd
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- Pull Site (200x300)
- 500 ft Project Corridor
- Study Area
- Pull Site Access Corridor
- Staging Area/ LZ (200x200)

Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

Miles: 0 0.1 0.2

Feet: 0 500 1,000

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 1 of 32

November 2010
Alameda and Contra Costa Counties, CA

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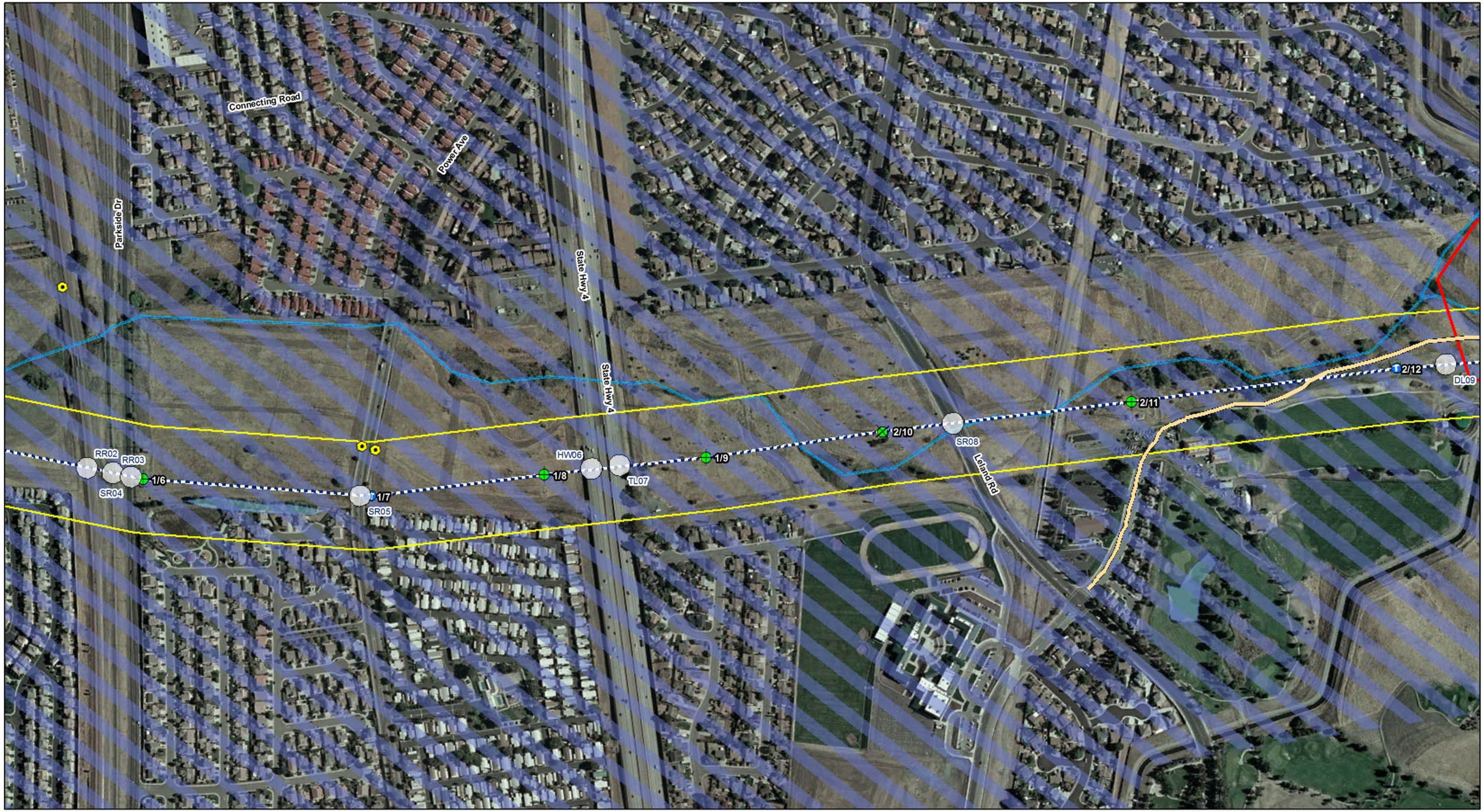

USFWS Critical Habitat Areas

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- Vernal pool fairy shrimp

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Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 2 of 32

November 2010
Alameda and Contra Costa Counties, CA

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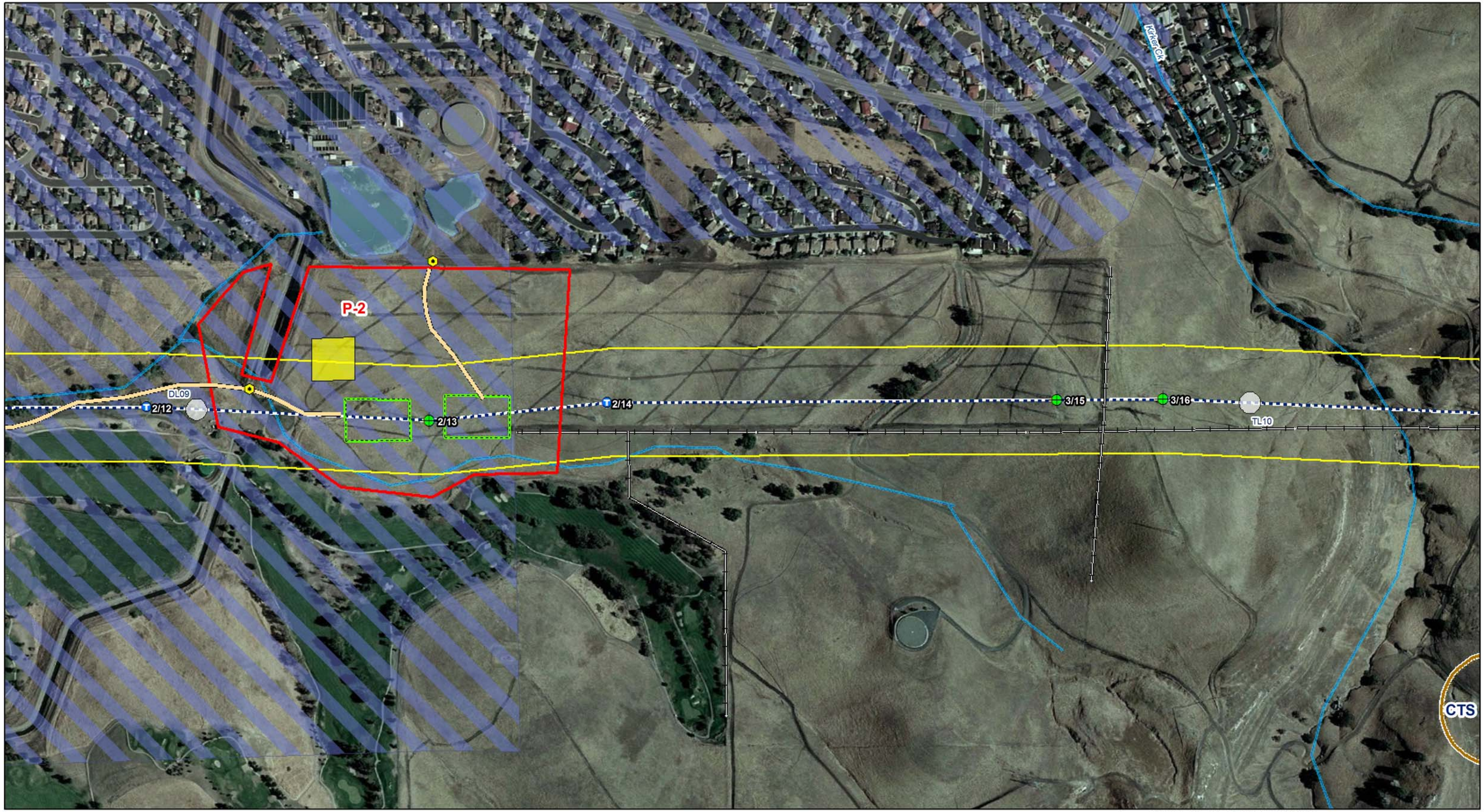

USFWS Critical Habitat Areas
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- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 3 of 32

November 2010
Alameda and Contra Costa Counties, CA

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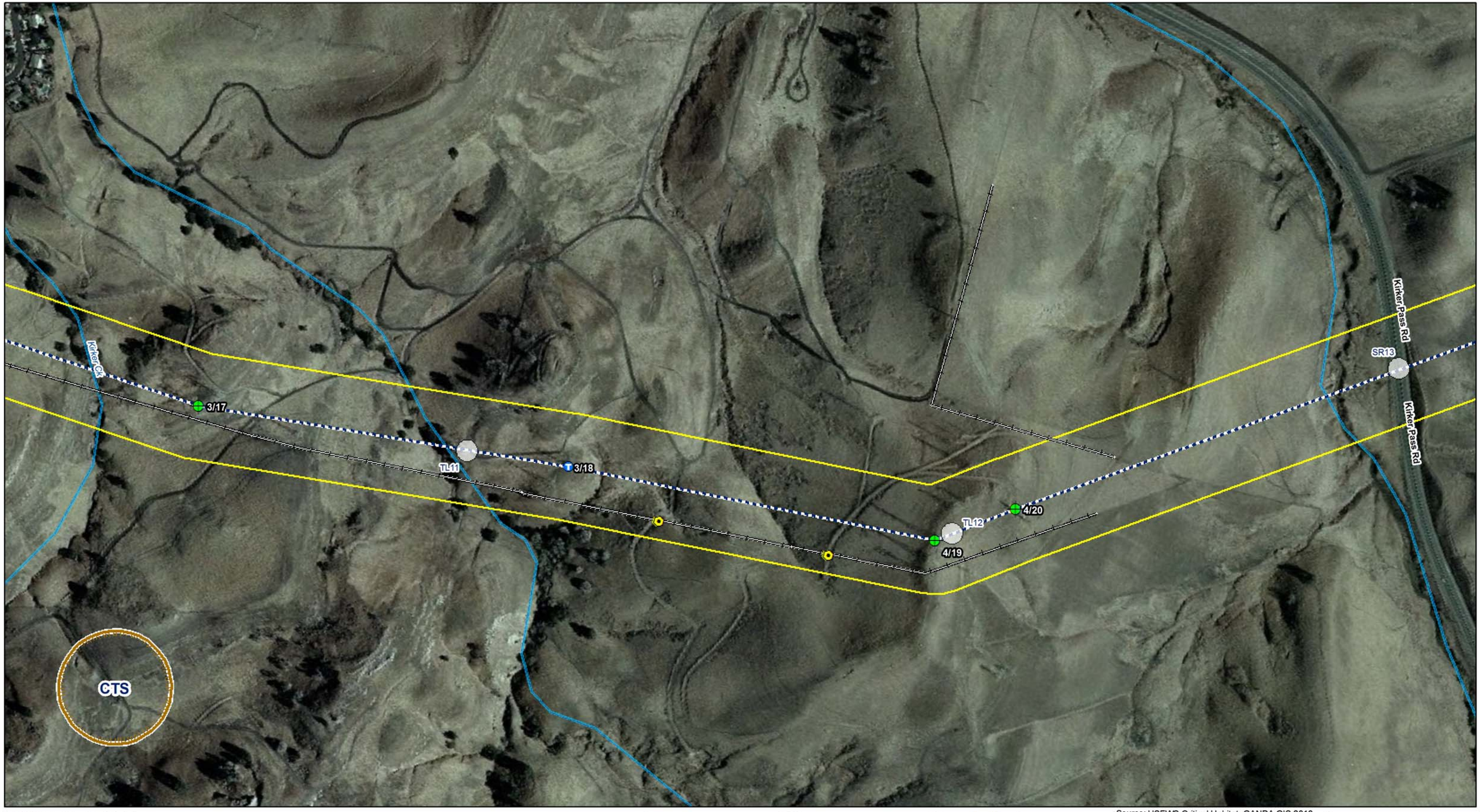

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- Gate
- Lock Gate
- PGE Lock
- Possible Access Rd
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- Pull Site (200x300)
- 500 ft Project Corridor
- Study Area
- Pull Site Access Corridor
- Staging Area/ LZ (200x200)

Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 4 of 32

November 2010
Alameda and Contra Costa Counties, CA

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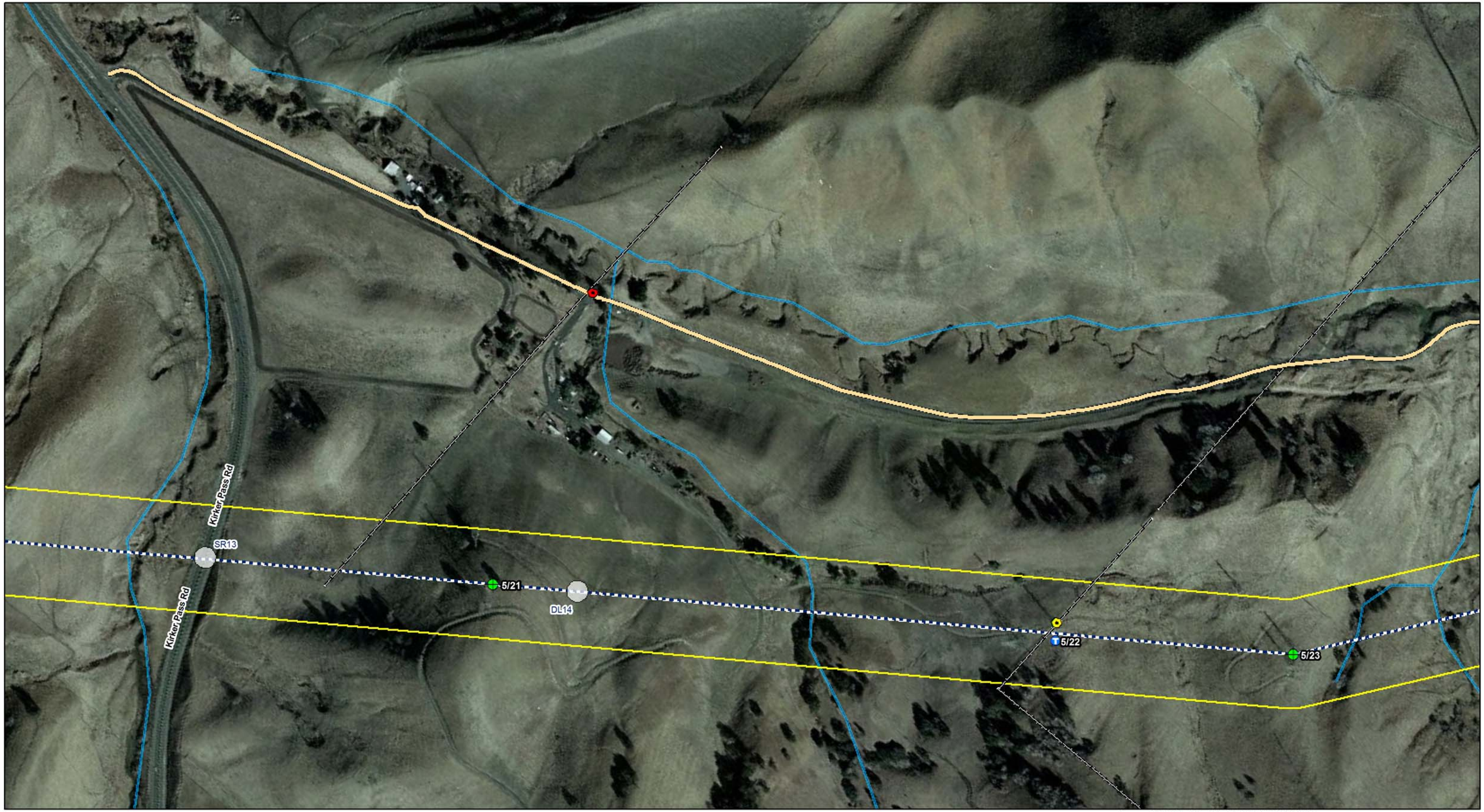

USFWS Critical Habitat Areas
- Contra Costa goldfields
- California Red-legged Frog
- Delta Smelt
- Vernal pool fairy shrimp

Federally Listed Species (CNDDB Occurrences)

Mammals
- San Joaquin kit fox (SJKF)

Plants
- large-flowered fiddleneck (AMGR)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

Federally Listed Species (Survey Observations 2008)
- Calif.Red-legged Frog
- Vulpes sp.
- Elderberry

Hydrology
- Wetland Feature
- Creek, Stream

Project Features
- Gate
- Lock Gate
- PGE Lock
- Possible Access Rd
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
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Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

Miles: 0, 0.1, 0.2

Feet: 0, 500, 1,000

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 5 of 32

November 2010
Alameda and Contra Costa Counties, CA

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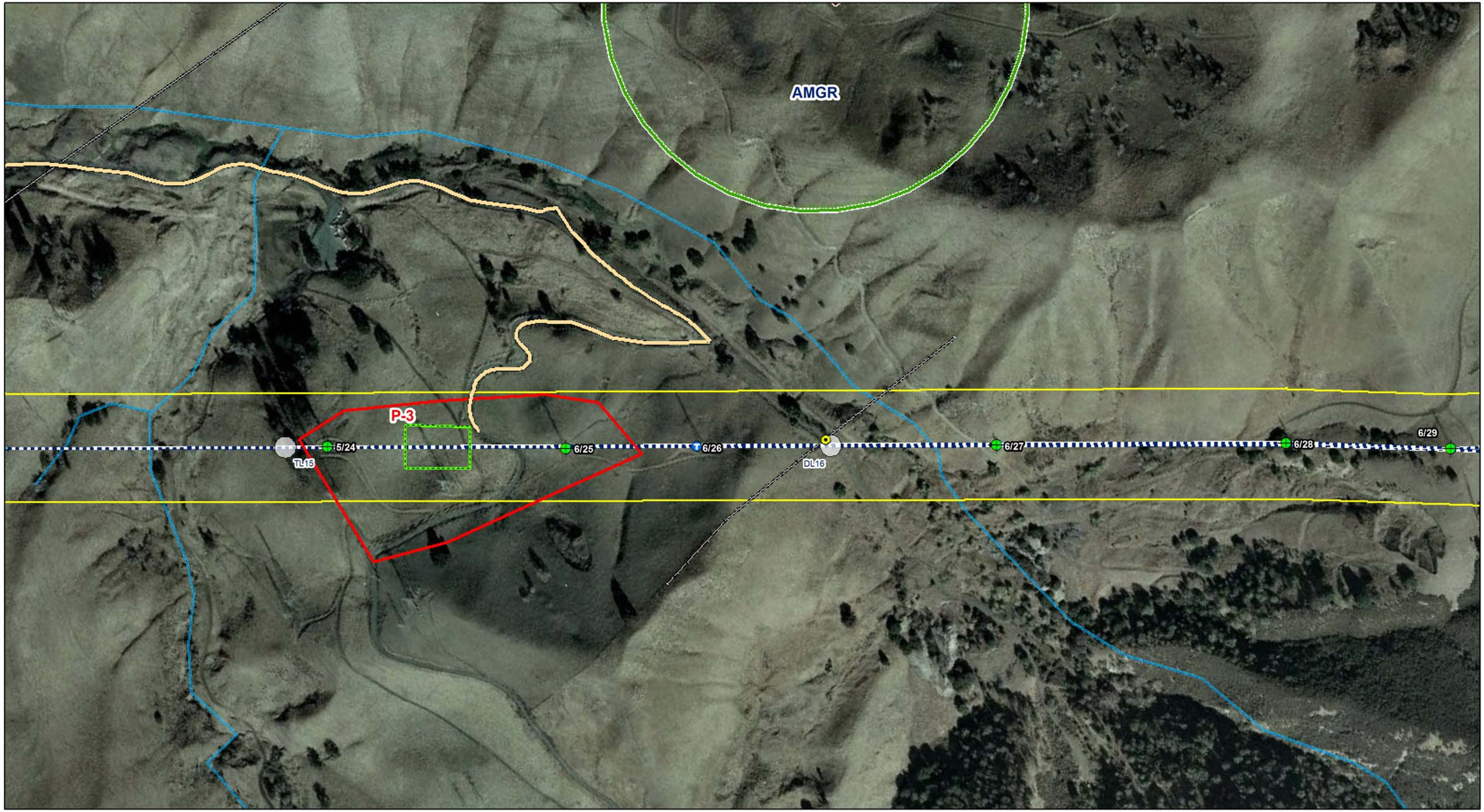

USFWS Critical Habitat Areas
- Contra Costa goldfields
- California Red-legged Frog
- Delta Smelt
- Vernal pool fairy shrimp

Federally Listed Species (CNDDB Occurrences)

Mammals
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Federally Listed Species (Survey Observations 2008)
- Calif.Red-legged Frog
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- Elderberry

Hydrology
- Wetland Feature
- Creek, Stream

Project Features
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Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

Miles: 0 0.1 0.2

Feet: 0 500 1,000

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 6 of 32

November 2010
Alameda and Contra Costa Counties, CA

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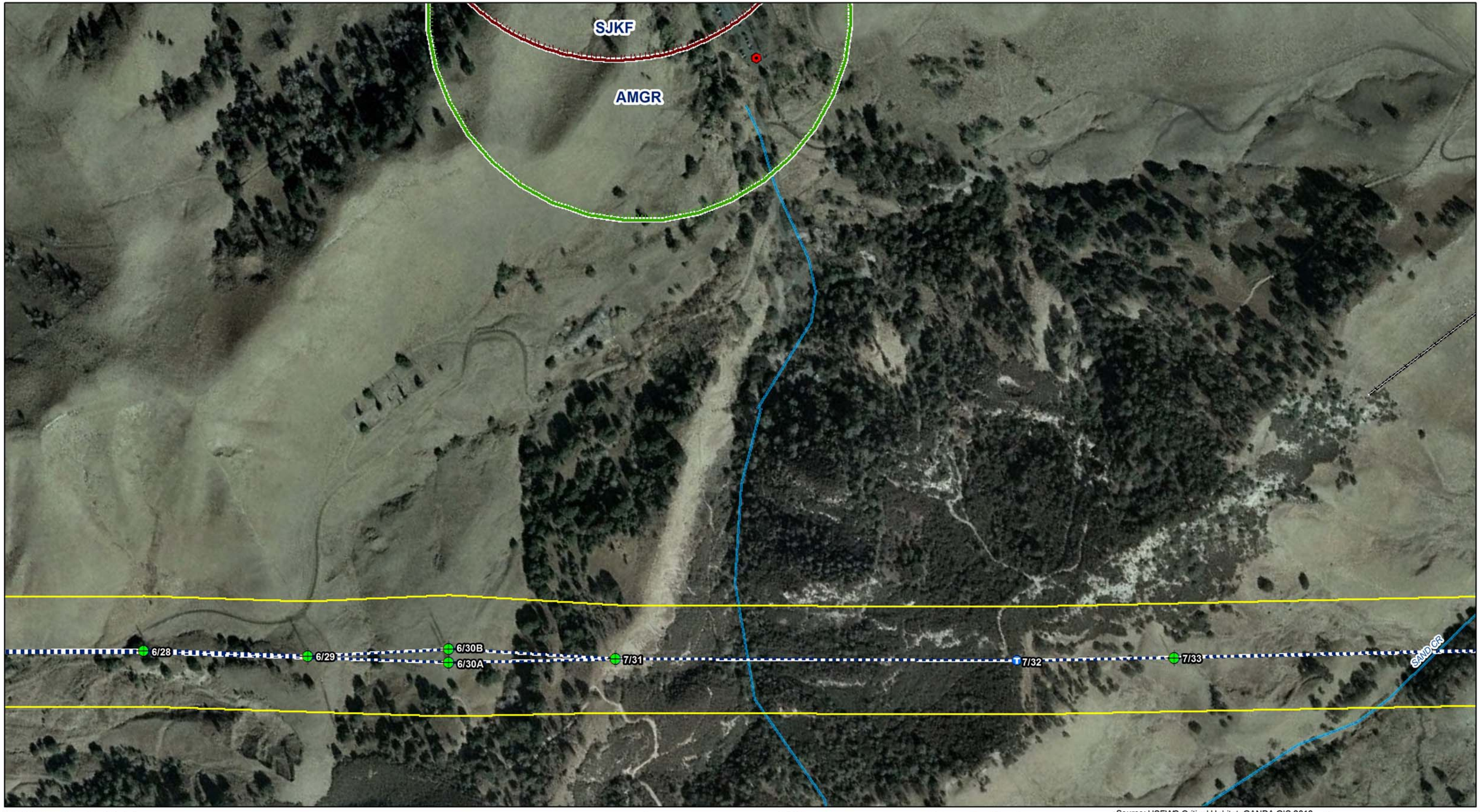

USFWS Critical Habitat Areas
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- Vernal pool fairy shrimp

Federally Listed Species (CNDDB Occurrences)

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Federally Listed Species (Survey Observations 2008)
- Calif.Red-legged Frog
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Hydrology
- Wetland Feature
- Creek, Stream

Project Features
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Tower Modifications
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- Dead End with Tap
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- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 7 of 32

November 2010
Alameda and Contra Costa Counties, CA

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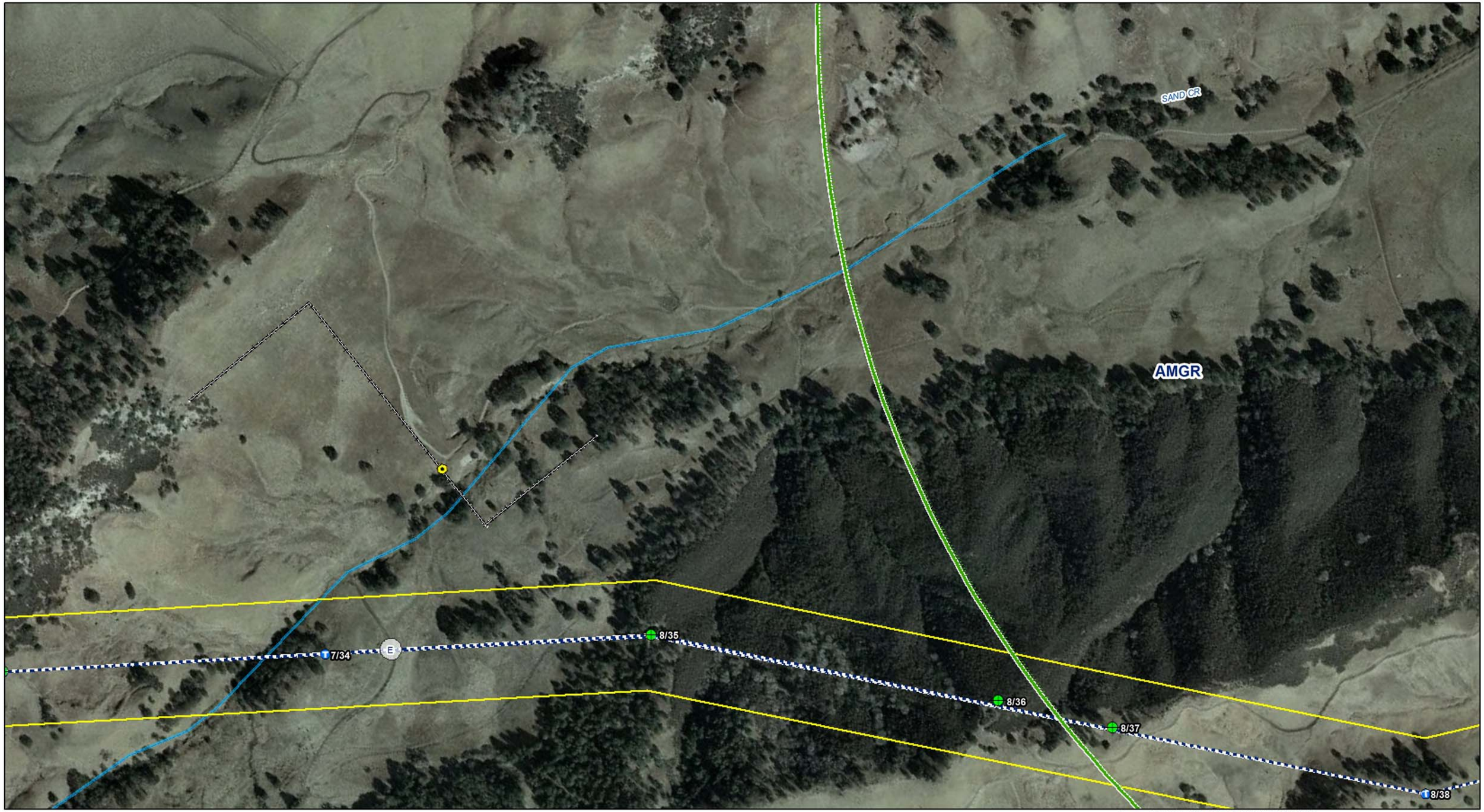

USFWS Critical Habitat Areas

- Contra Costa goldfields
- California Red-legged Frog
- Delta Smelt
- Vernal pool fairy shrimp

Federally Listed Species (CNDDB Occurrences)

Mammals
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Federally Listed Species (Survey Observations 2008)

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Hydrology
- Wetland Feature
- Creek, Stream

Project Features
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Tower Modifications
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- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 8 of 32

November 2010
Alameda and Contra Costa Counties, CA

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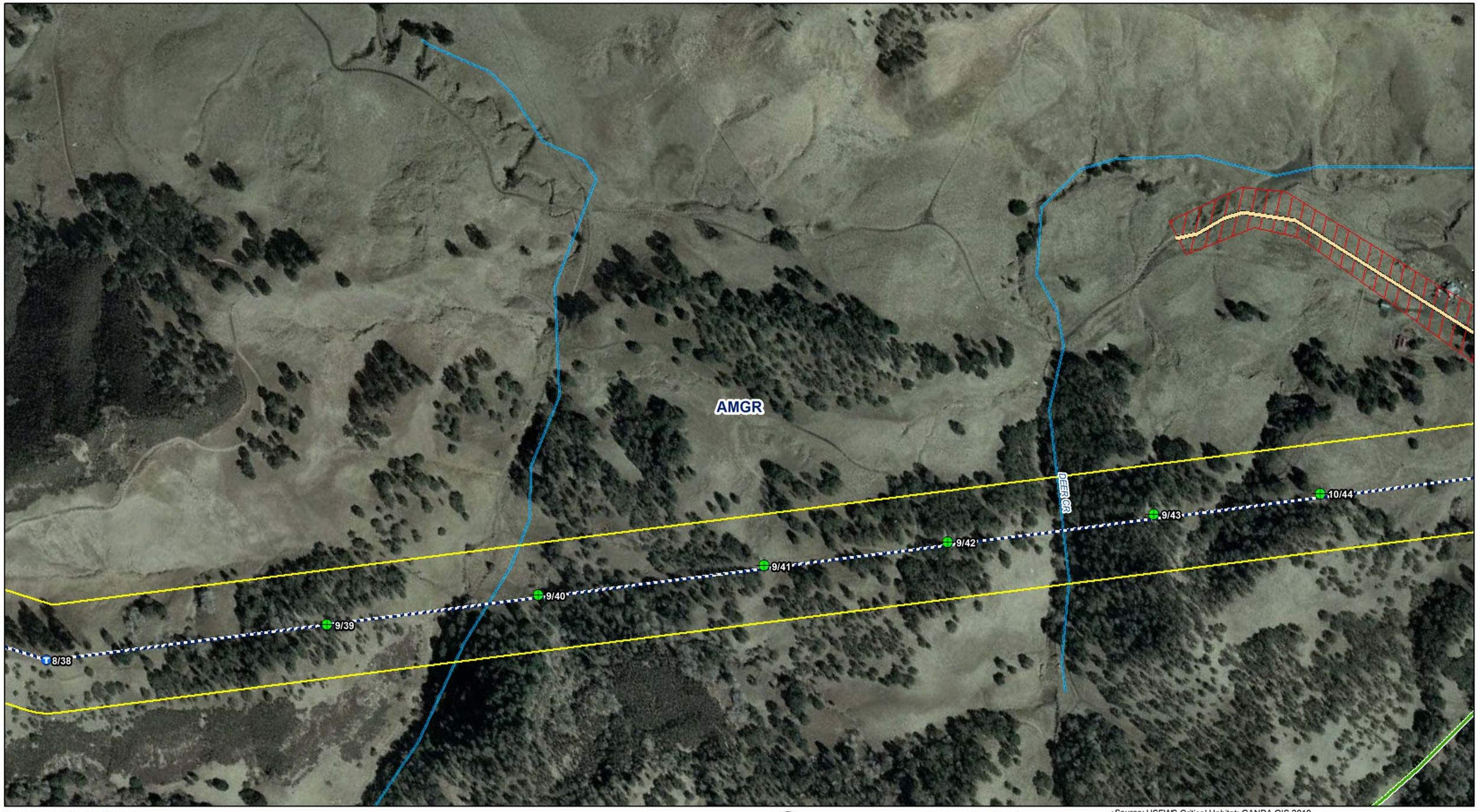

USFWS Critical Habitat Areas
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Hydrology
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- Creek, Stream

Project Features
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Tower Modifications
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- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 9 of 32

November 2010
Alameda and Contra Costa Counties, CA

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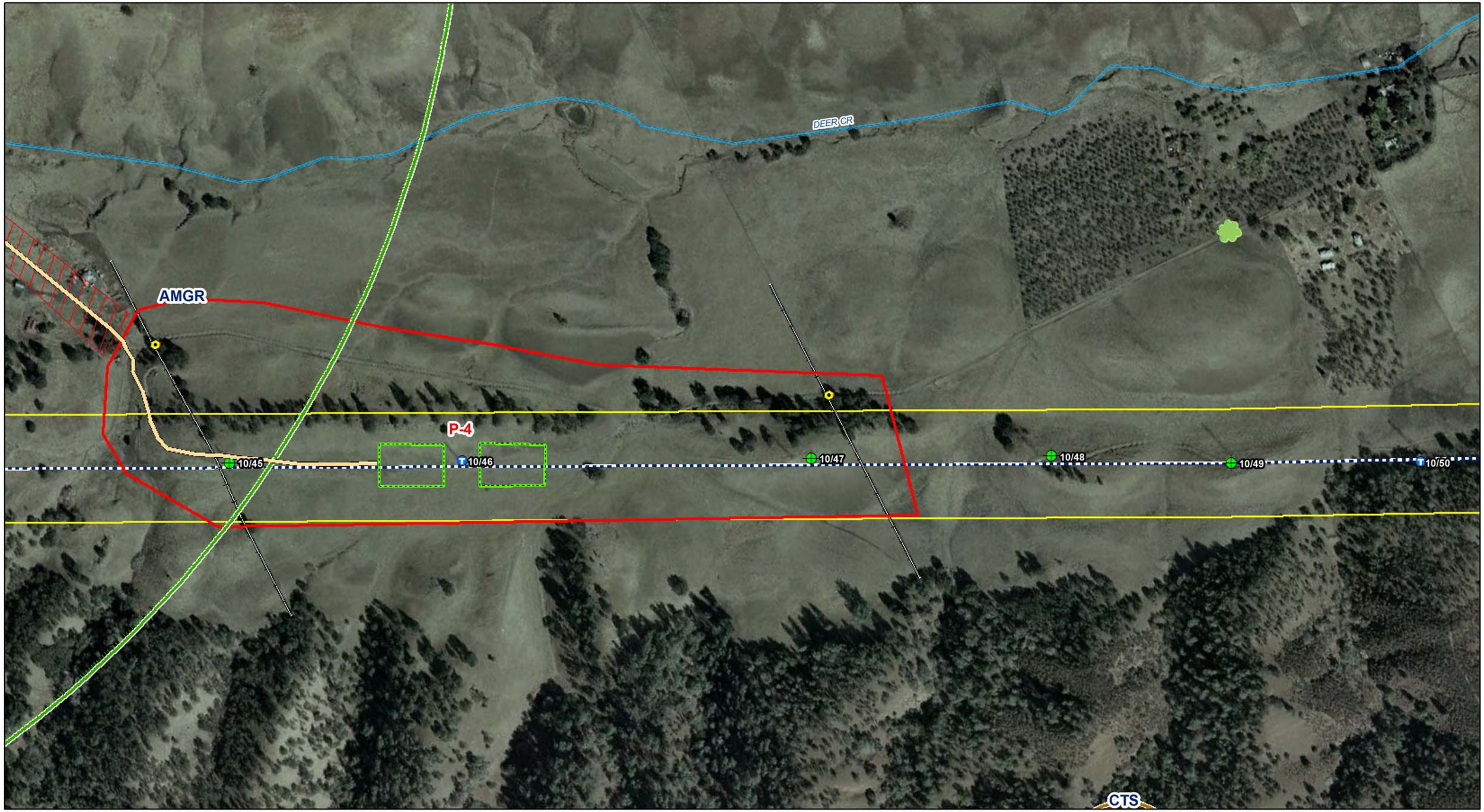

USFWS Critical Habitat Areas
- Contra Costa goldfields
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- Delta Smelt
- Vernal pool fairy shrimp

Federally Listed Species (CNDDB Occurrences)

Mammals
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Hydrology
- Wetland Feature
- Creek, Stream

Project Features
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Tower Modifications
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- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 10 of 32

November 2010
Alameda and Contra Costa Counties, CA

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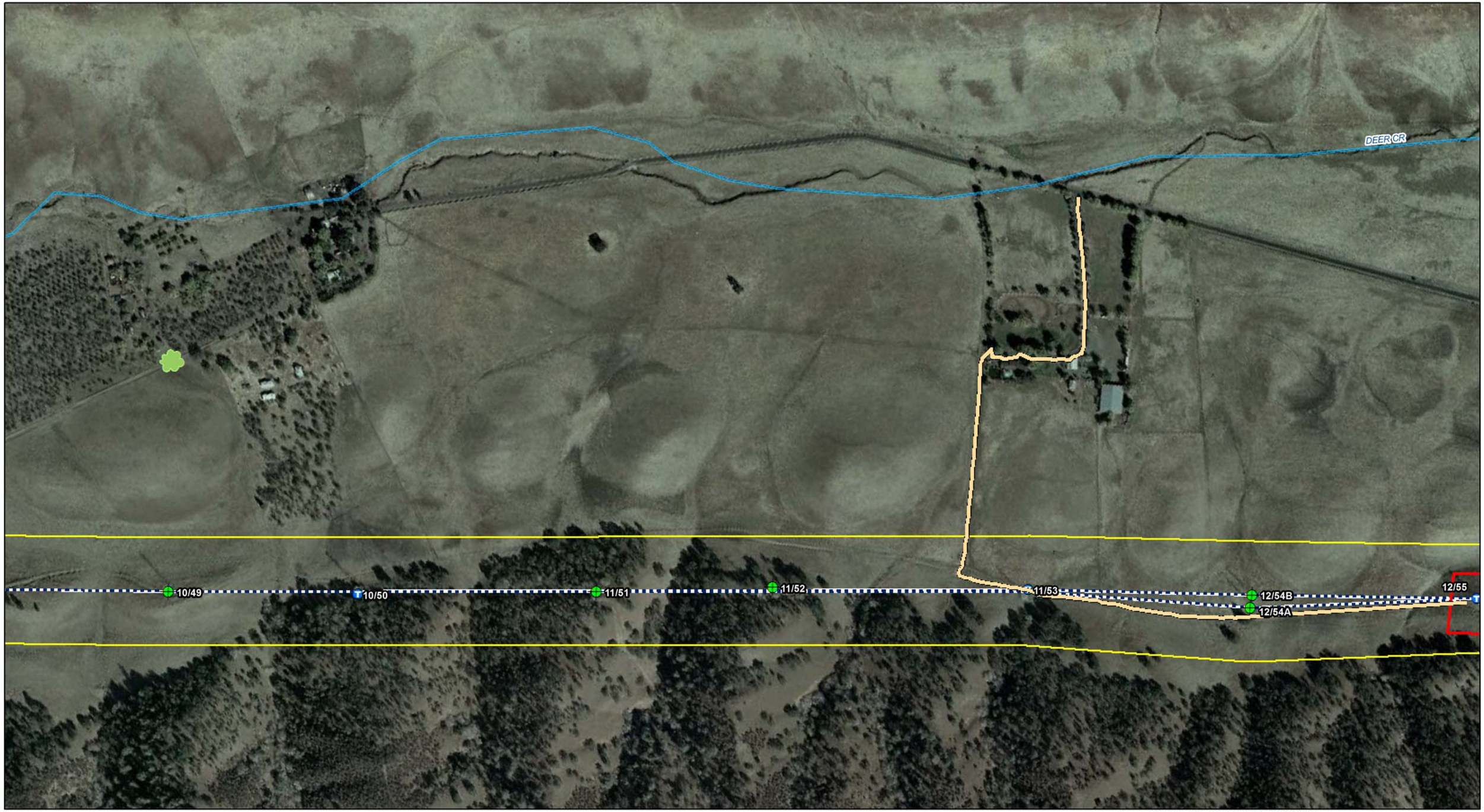

USFWS Critical Habitat Areas
- Contra Costa goldfields
- California Red-legged Frog
- Delta Smelt
- Vernal pool fairy shrimp

Federally Listed Species (CNDDB Occurrences)

Mammals
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Hydrology
- Wetland Feature
- Creek, Stream

Project Features
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Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

Miles: 0, 0.1, 0.2

Feet: 0, 500, 1,000

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 11 of 32

November 2010
Alameda and Contra Costa Counties, CA

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USFWS Critical Habitat Areas
- Contra Costa goldfields
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Federally Listed Species (CNDDB Occurrences)

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Hydrology
- Wetland Feature
- Creek, Stream

Project Features
- Gate
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Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

Miles: 0, 0.1, 0.2

Feet: 0, 500, 1,000

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 12 of 32

November 2010
Alameda and Contra Costa Counties, CA

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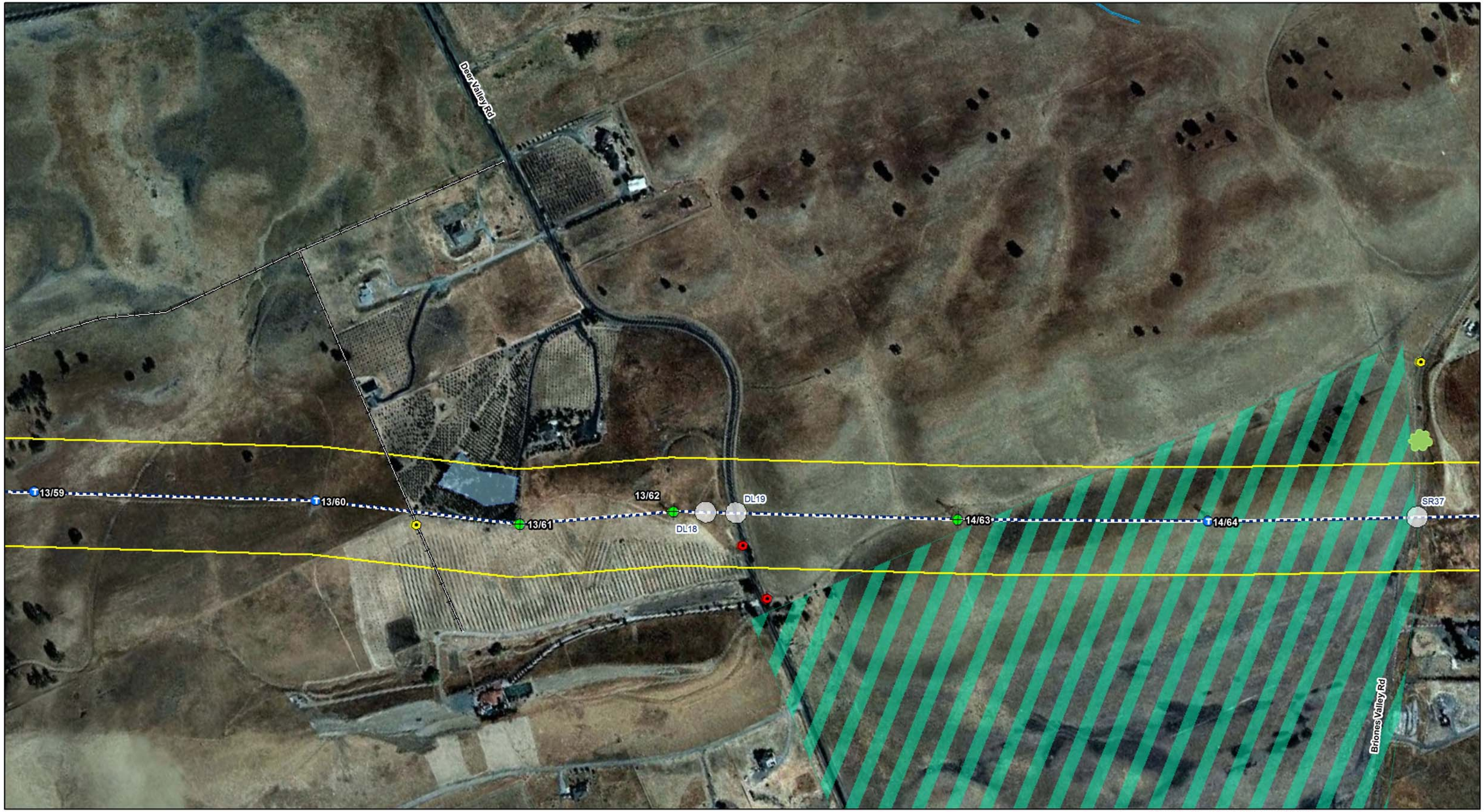

USFWS Critical Habitat Areas
- Contra Costa goldfields
- California Red-legged Frog
- Delta Smelt
- Vernal pool fairy shrimp

Federally Listed Species (CNDDB Occurrences)

Mammals
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- Elderberry

Hydrology
- Wetland Feature
- Creek, Stream

Project Features
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Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

Miles: 0, 0.1, 0.2

Feet: 0, 500, 1,000

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 13 of 32

November 2010
Alameda and Contra Costa Counties, CA

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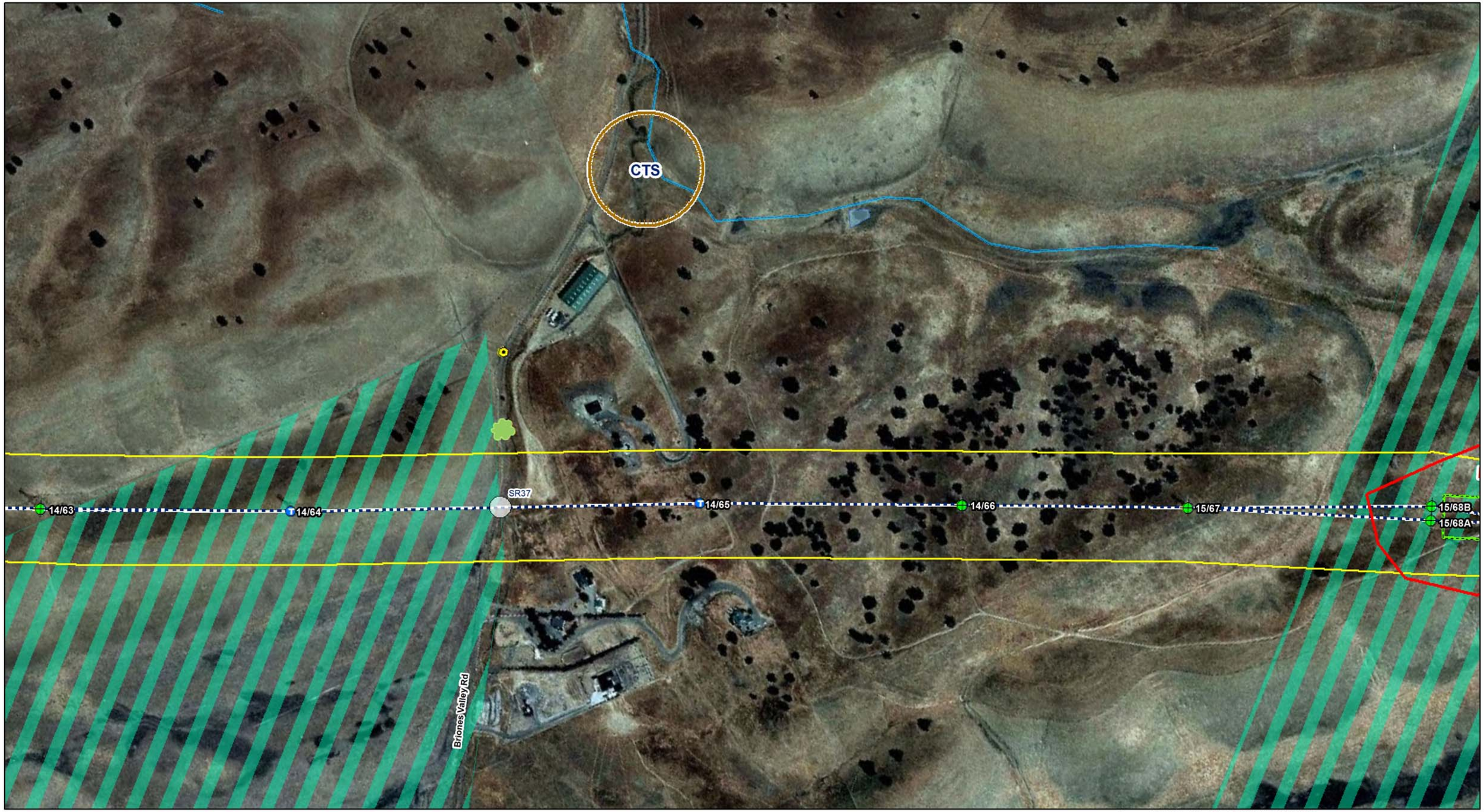

USFWS Critical Habitat Areas
- Contra Costa goldfields
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Federally Listed Species (CNDDB Occurrences)

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Hydrology
- Wetland Feature
- Creek, Stream

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Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 14 of 32

November 2010
Alameda and Contra Costa Counties, CA

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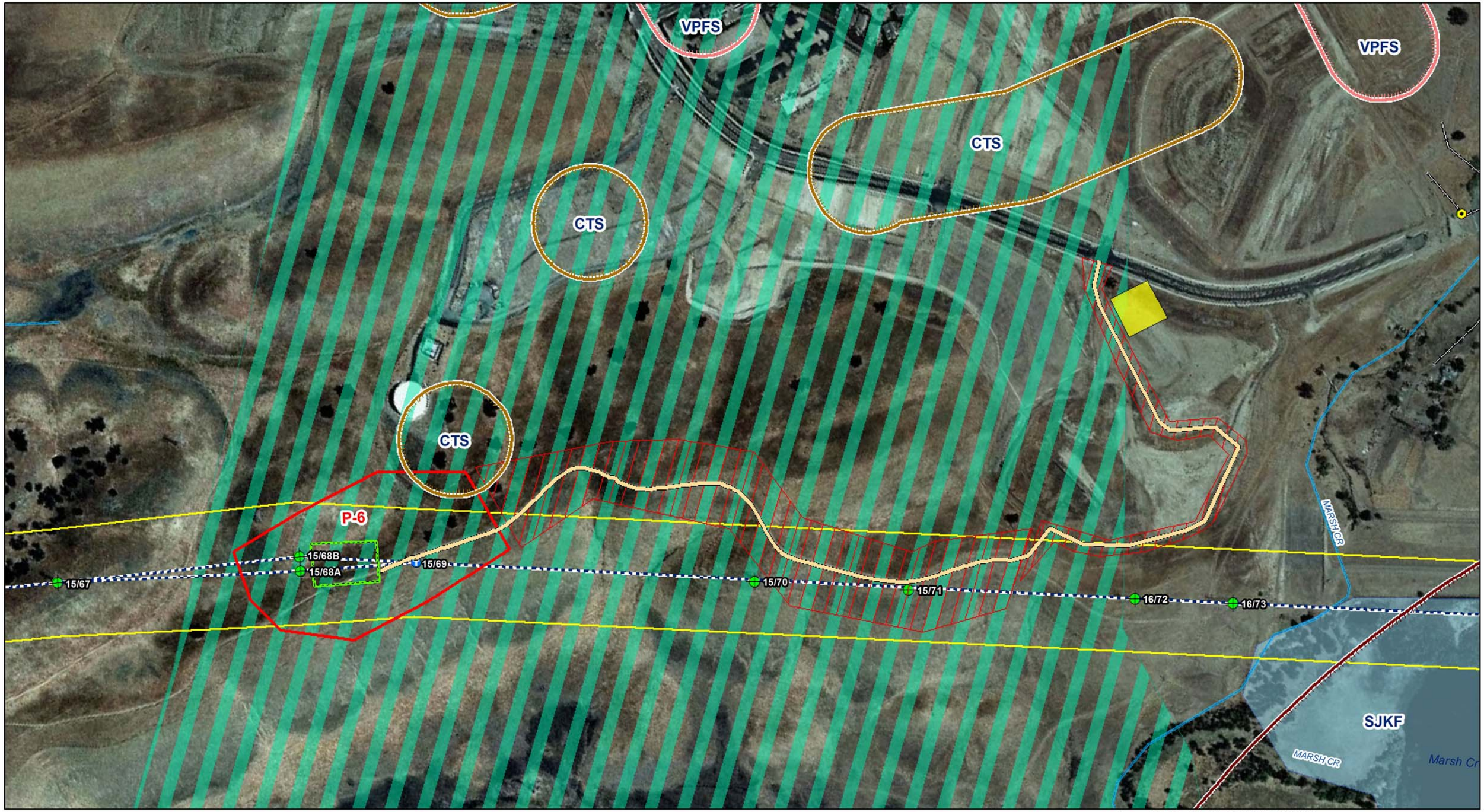

USFWS Critical Habitat Areas
- Contra Costa goldfields
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Federally Listed Species (CNDDB Occurrences)

Mammals
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- Elderberry

Hydrology
- Wetland Feature
- Creek, Stream

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Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 15 of 32

November 2010
Alameda and Contra Costa Counties, CA

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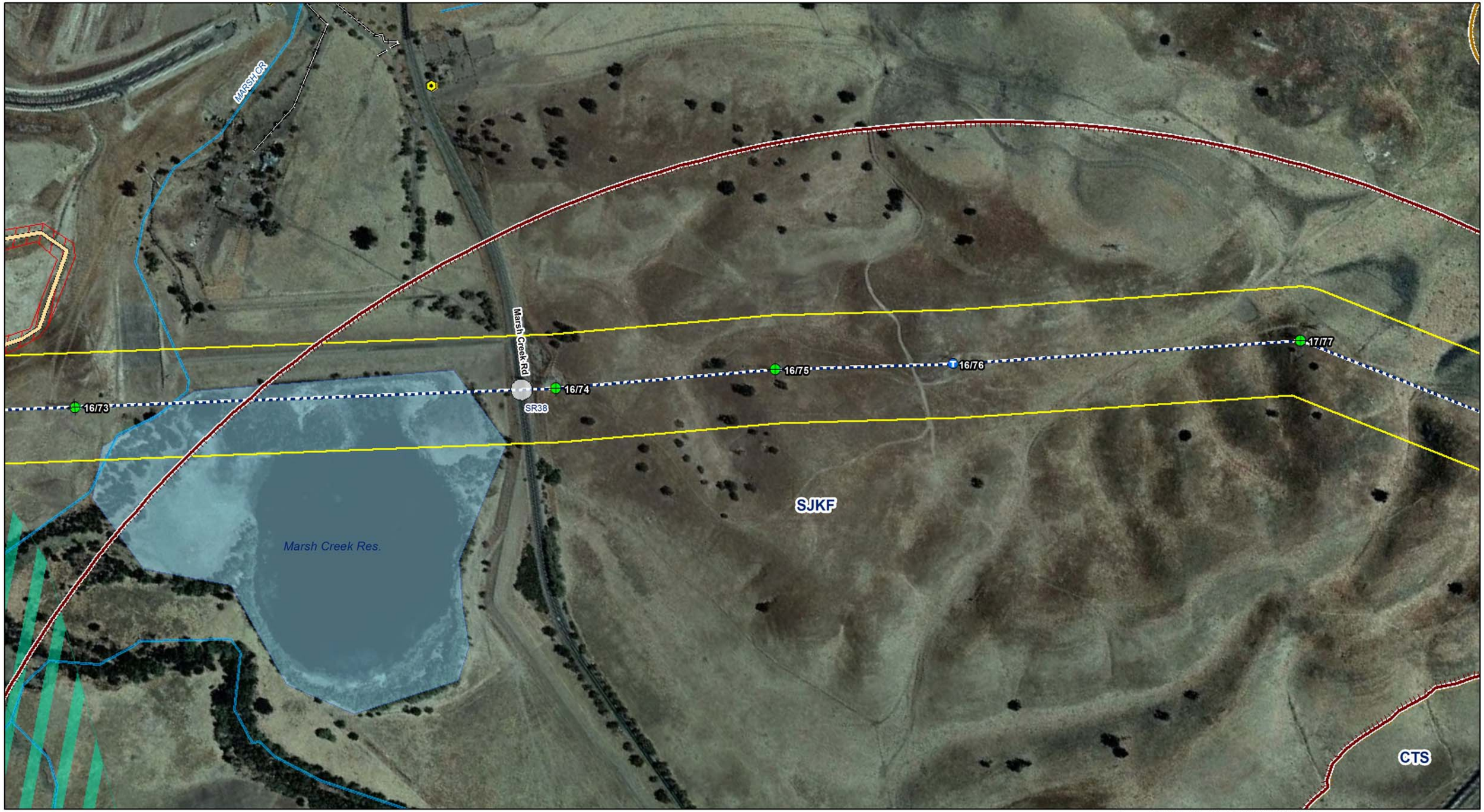

USFWS Critical Habitat Areas
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Federally Listed Species (CNDDB Occurrences)

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Tower Modifications
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Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 16 of 32

November 2010
Alameda and Contra Costa Counties, CA

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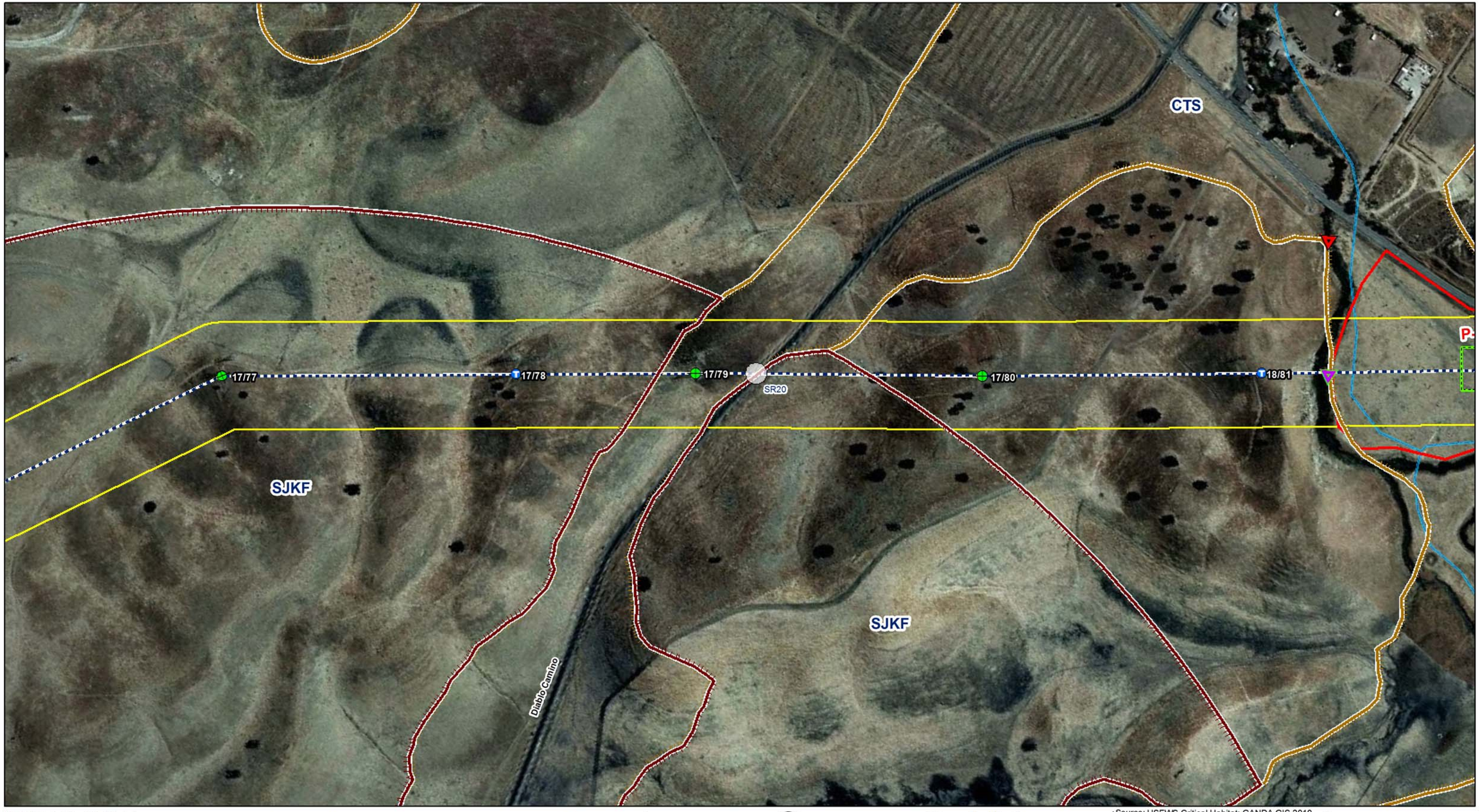

USFWS Critical Habitat Areas
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Federally Listed Species (CNDDB Occurrences)

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Tower Modifications
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- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 17 of 32

November 2010
Alameda and Contra Costa Counties, CA

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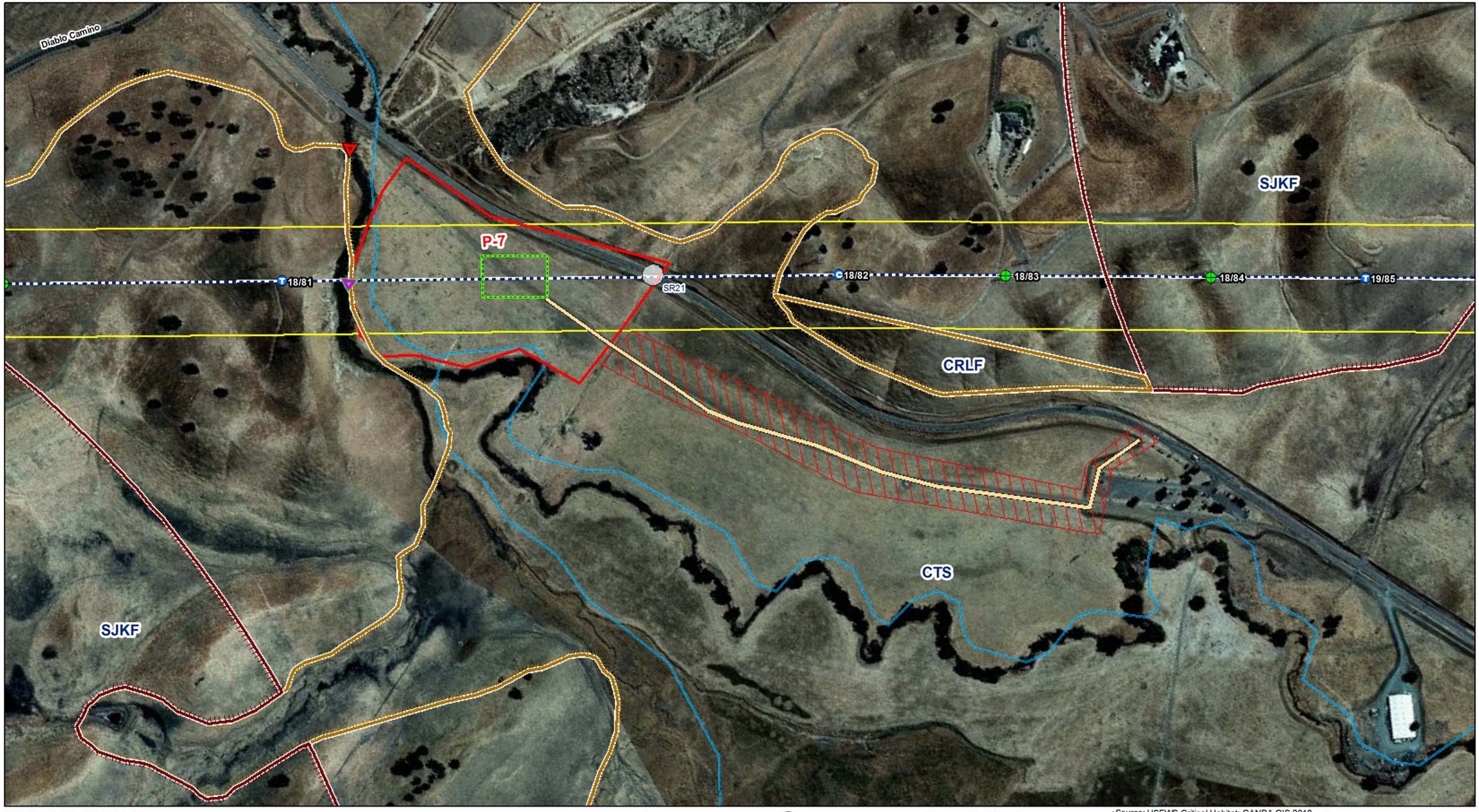

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Tower Modifications
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- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 18 of 32

November 2010
Alameda and Contra Costa Counties, CA

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USFWS Critical Habitat Areas
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Federally Listed Species (CNDDB Occurrences)

Mammals
- San Joaquin kit fox (SJKF)

Plants
- large-flowered fiddleneck (AMGR)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

Federally Listed Species (Survey Observations 2008)
- Calif.Red-legged Frog
- Vulpes sp.
- Elderberry

Hydrology
- Wetland Feature
- Creek, Stream

Project Features
- Gate
- Lock Gate
- PGE Lock
- Possible Access Rd
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- Pull Site (200x300)
- 500 ft Project Corridor
- Study Area
- Pull Site Access Corridor
- Staging Area/ LZ (200x200)

Tower Modifications
- Tower (No Modification)
- Dead End with Tap
- Top Cage Extension
- Top Cage Extension/DE
- FLO Wind Tap

Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

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Sensitive Biological Resources

Map 19 of 32

November 2010
Alameda and Contra Costa Counties, CA

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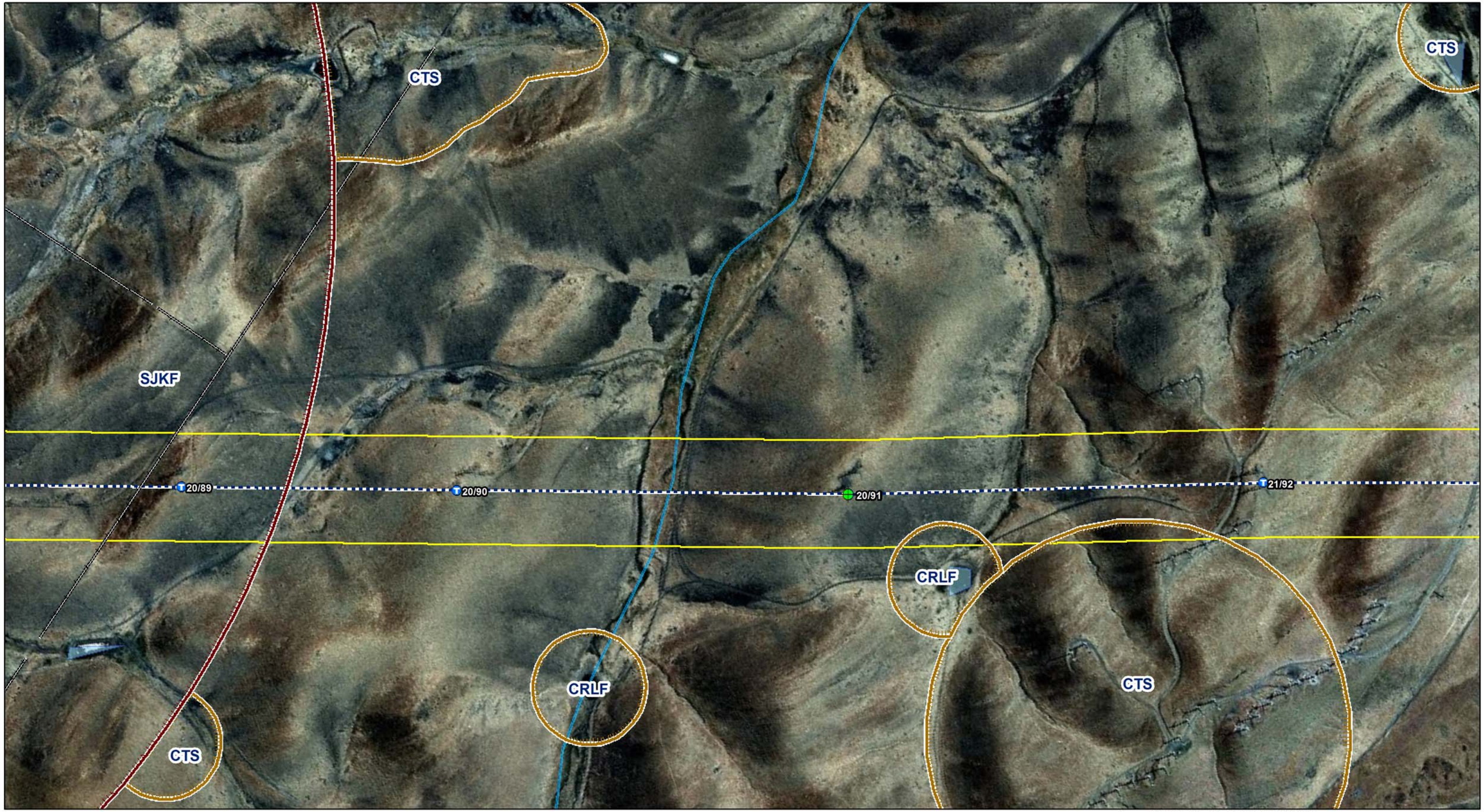

USFWS Critical Habitat Areas
- Contra Costa goldfields
- California Red-legged Frog
- Delta Smelt
- Vernal pool fairy shrimp

Federally Listed Species (CNDDB Occurrences)

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 20 of 32

November 2010
Alameda and Contra Costa Counties, CA

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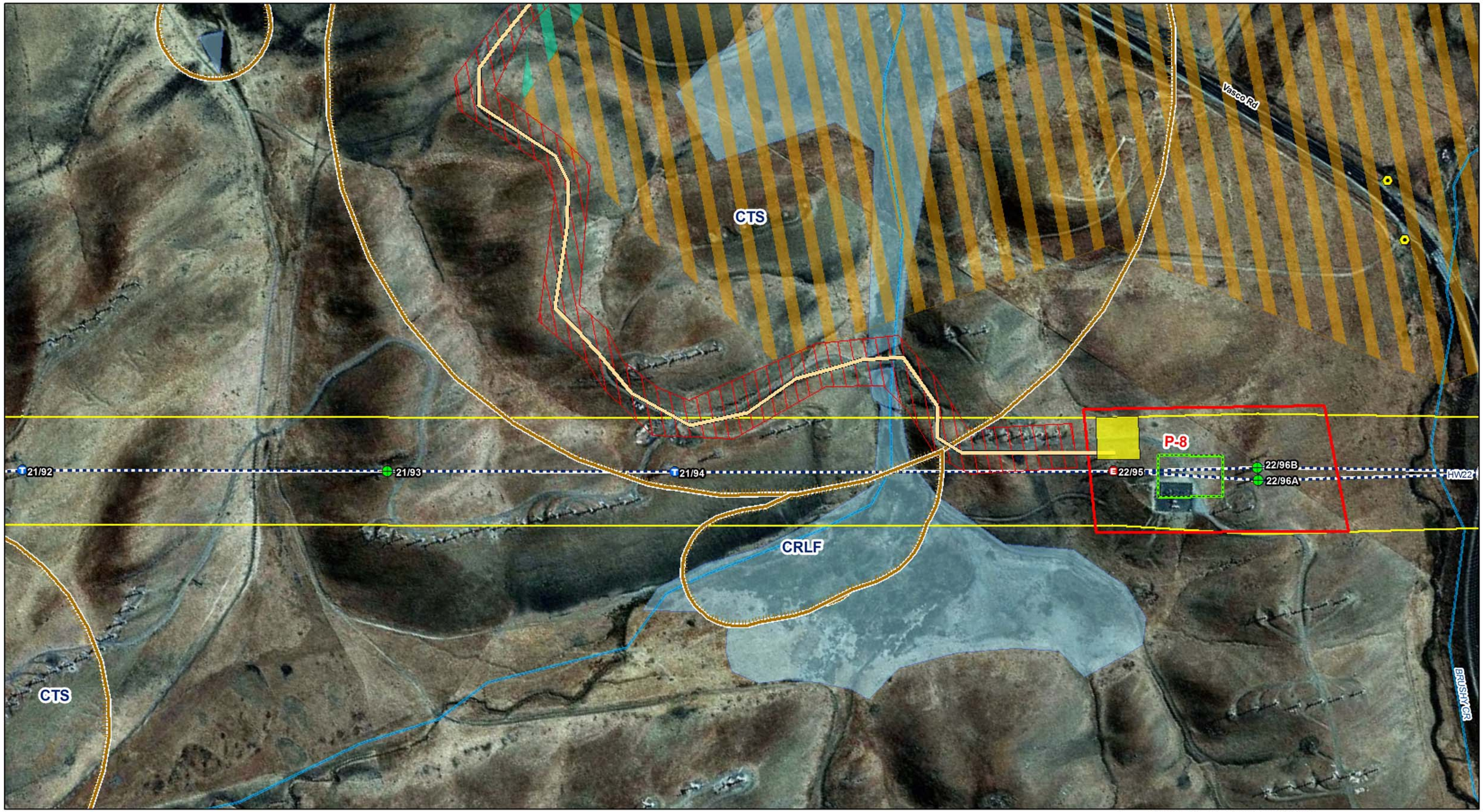

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0 0.1 0.2 Miles

0 500 1,000 Feet

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 21 of 32

November 2010
Alameda and Contra Costa Counties, CA

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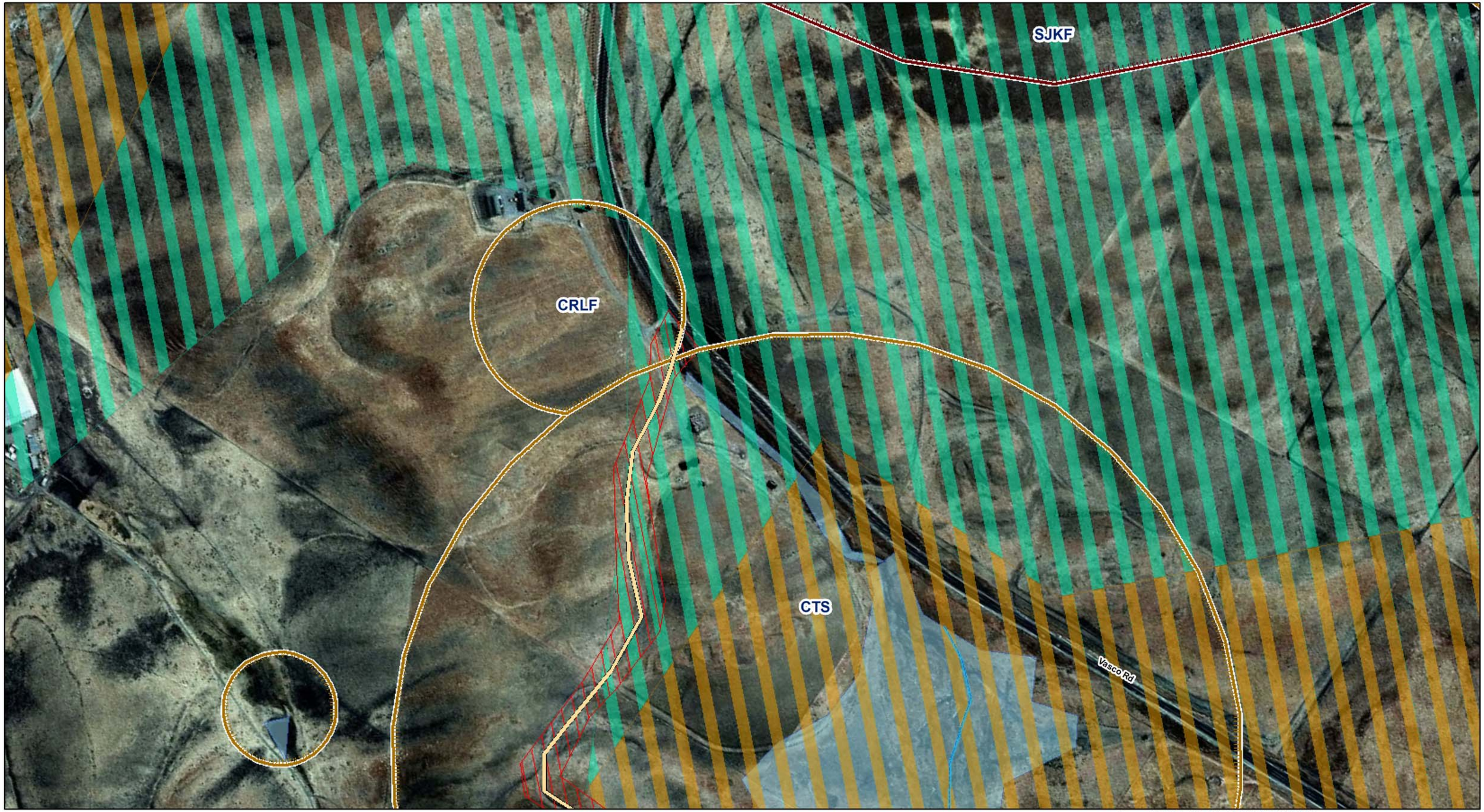

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0 0.1 0.2 Miles

0 500 1,000 Feet

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 22 of 32

November 2010
Alameda and Contra Costa Counties, CA

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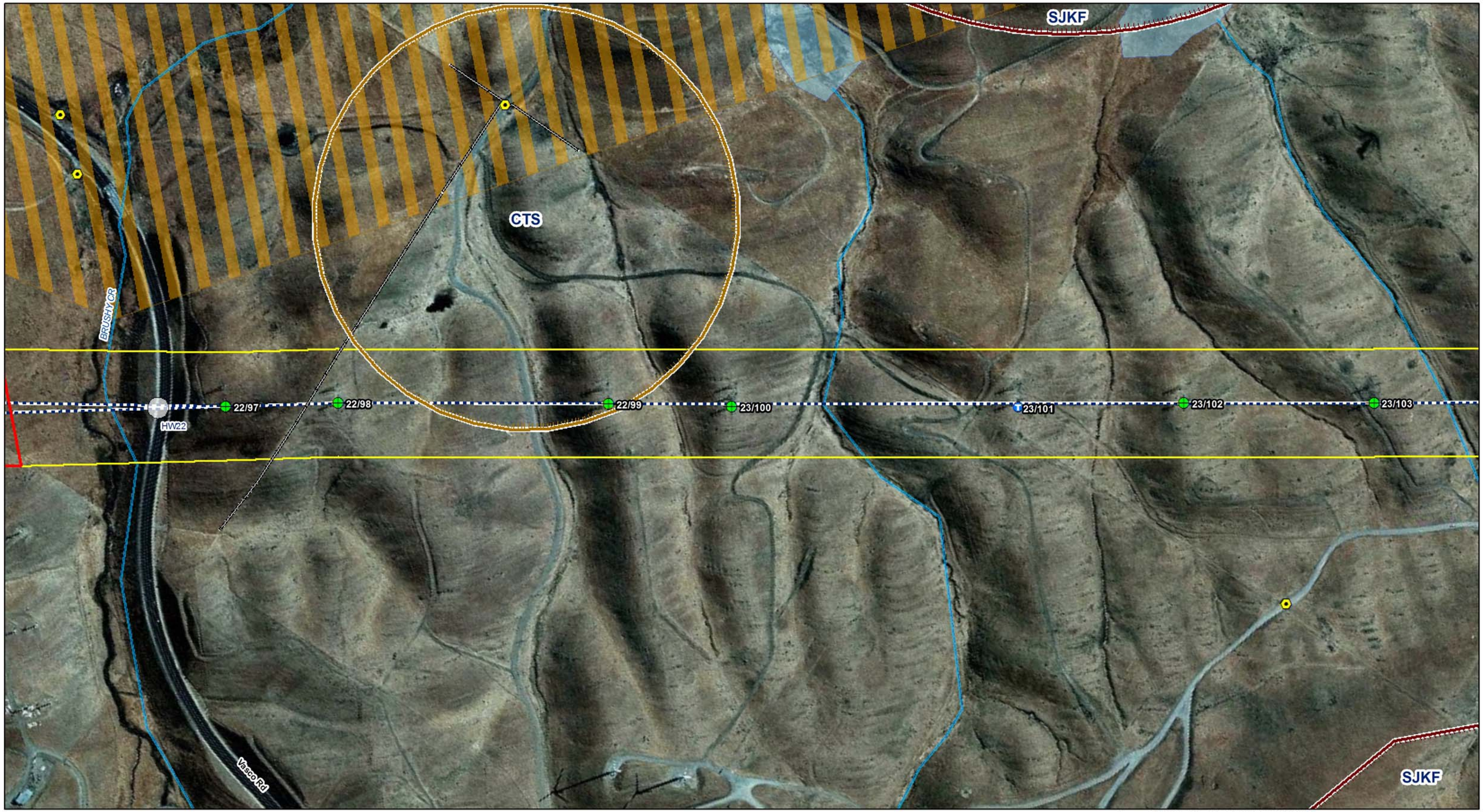

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Source: USFWS Critical Habitat; GANDA GIS 2010

Miles: 0 0.1 0.2

Feet: 0 500 1,000

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 23 of 32

November 2010
Alameda and Contra Costa Counties, CA

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Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 24 of 32

November 2010
Alameda and Contra Costa Counties, CA

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Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 25 of 32

November 2010
Alameda and Contra Costa Counties, CA

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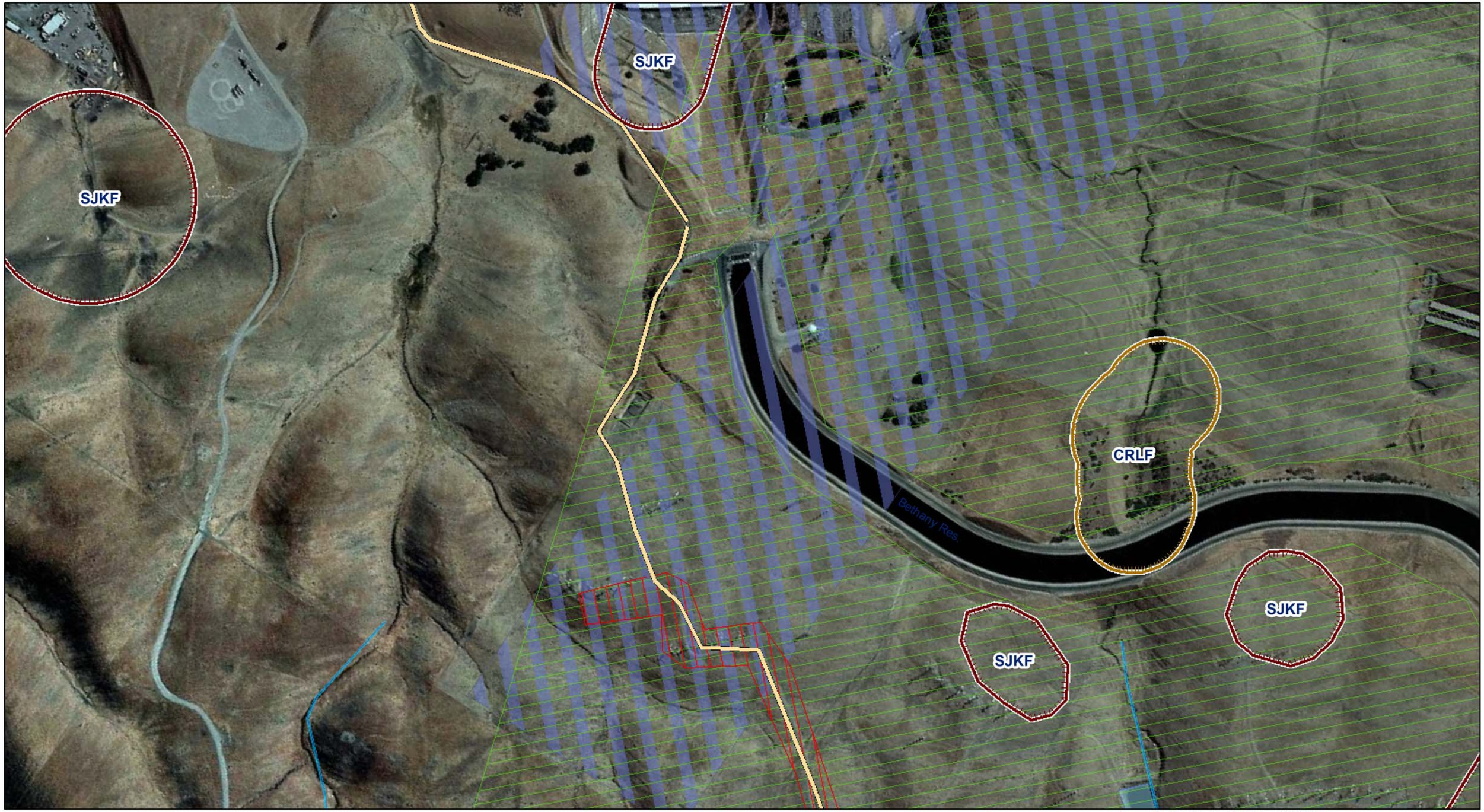

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Source: USFWS Critical Habitat; GANDA GIS 2010

0 0.1 0.2 Miles

0 500 1,000 Feet

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Pittsburg - Tesla Project
Sensitive Biological Resources

Map 26 of 32

November 2010
Alameda and Contra Costa Counties, CA

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0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 27 of 32

November 2010
Alameda and Contra Costa Counties, CA

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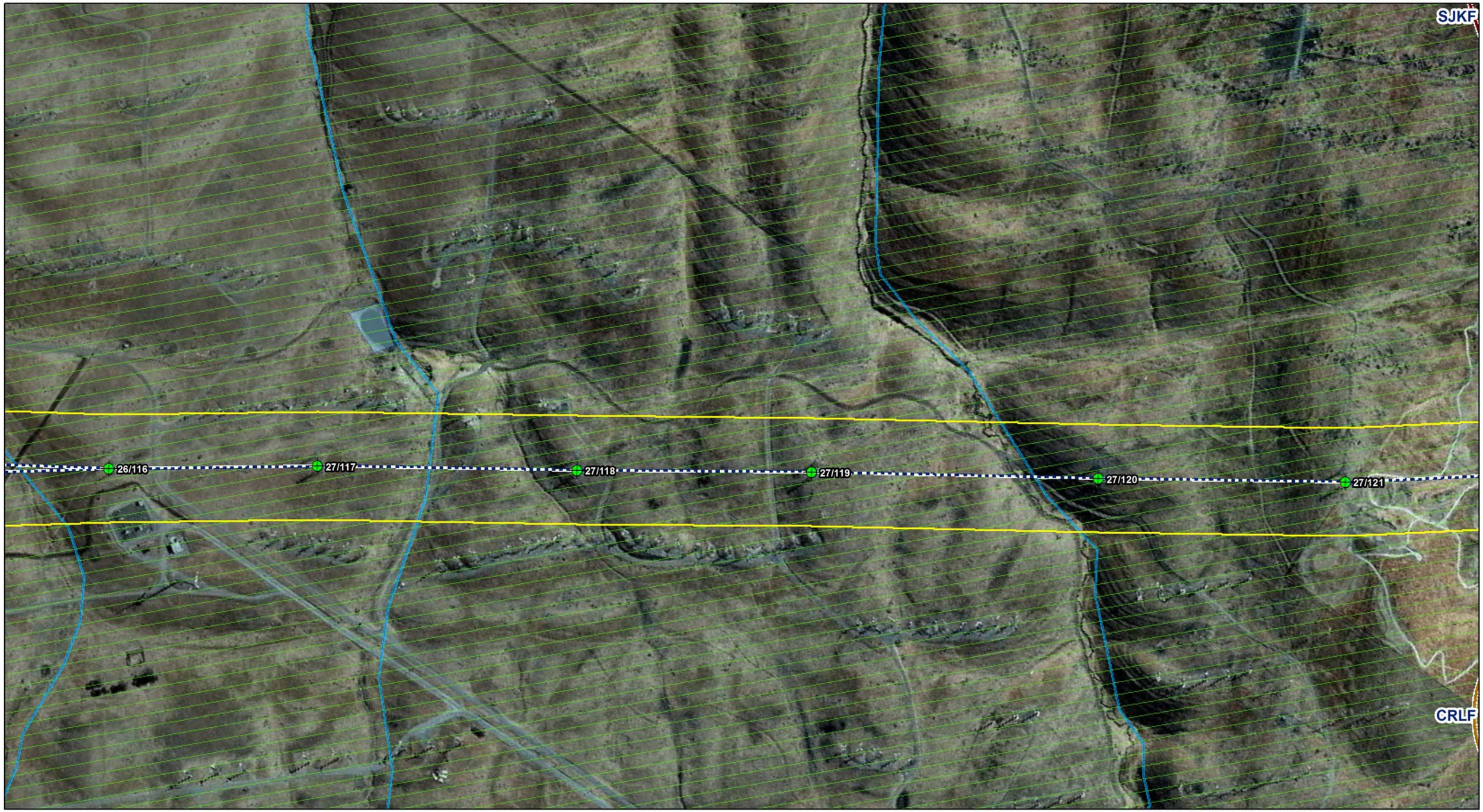

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0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 28 of 32

November 2010
Alameda and Contra Costa Counties, CA

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Source: USFWS Critical Habitat; GANDA GIS 2010

Miles: 0, 0.1, 0.2

Feet: 0, 500, 1,000

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 29 of 32

November 2010
Alameda and Contra Costa Counties, CA

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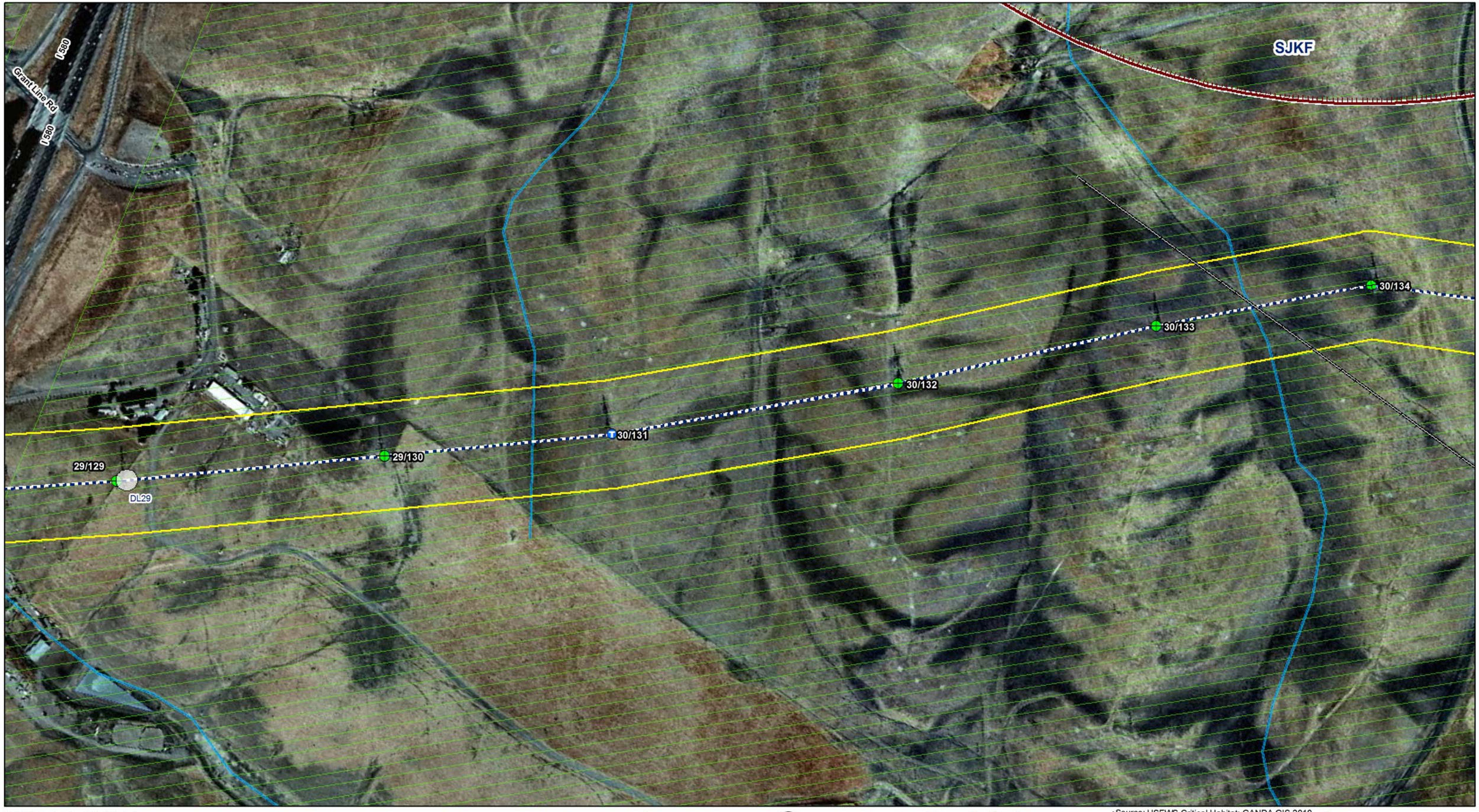

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0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 30 of 32

November 2010
Alameda and Contra Costa Counties, CA

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0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 31 of 32

November 2010
Alameda and Contra Costa Counties, CA

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Miles: 0, 0.1, 0.2

Feet: 0, 500, 1,000

GANDA

Pittsburg - Tesla Project
Sensitive Biological Resources

Map 32 of 32

November 2010
Alameda and Contra Costa Counties, CA

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Appendix B
Guard Structure Table

Guard Structures; 50-foot radius buffer

Guard poles or guard structures are installed at transportation, flood control, utility crossings, parks, and other locations. Guard structures protect underlying areas during wire stringing operations. They intercept wire should it drop below a conventional stringing height, preventing damage to underlying structures. These guard structures are temporary and are removed after conductor installation is complete.

Location	ID	Purpose	Community/Habitat	Plant Issues; Use Avoidance Measures	Wildlife Issues; Use Avoidance Measures
10th Street, near Tower 1/5	SR01	Paved 2 lane (1x1) road	Northern coastal salt marsh/ Alkaline meadow	Suisun thistle Soft birds-beak	Delta smelt
Parkside Rd, near Tower 1/6	RR02	Railroad	Ruderal	None	None
	RR03	Railroad	Ruderal	None	None
	SR04	Paved 2 lane (1x1) road	Developed	None	None
Polaris, near Tower 1/7	SR05	Paved 2 lane (1x1) road	Non-Native Grassland	None	None
State Route 4, between Towers 1/8 and 1/9	HW06	Westbound 4 lane paved	Developed	None	None
	TL07	Transmission	Developed	None	None
N. Leland, between 2/10 and 2/11	SR08	Paved 4 lane (2x2)	Non-Native Grassland	None	None
Delta View golf course, near Tower 2/12	DL09	Private gravel road and distribution	Non-Native Grassland	None	None
Near Tower 3/16	TL10	Transmission	Non-Native Grassland	None	None
Near Tower 3/18	TL11	Transmission	Non-Native Grassland	None	None
Near Tower 4/19	TL12	Transmission	Non-Native Grassland	None	None
Kirker Pass Road, between 4/20 and 5/21	SR13	Paved road and distribution line	Non-Native Grassland/Ruderal	None	None

Near Tower 5/21	DL14	Distribution	Non-Native Grassland	None	None
Near Tower 5/24	TL15	Transmission line	Non-Native Grassland	Large flowered fliddleneck	None
Between Towers 6/26 and 6/27	DL16	Private road and distribution	Non-Native Grassland/ Ruderal	Large flowered fliddleneck	Alameda striped racer
At Tower 6/28	DL17	Distribution	Non-Native Grassland	Large flowered fliddleneck	Alameda striped racer
Near Tower 13/62	DL18	Private paved road	Non-Native Grassland	None	None
Near Tower 13/62	DL19	Paved 2 lane (1x1) road	Non-Native Grassland	None	None
Between 14/64 and 14/65	SR37	Dirt road and distribution	Non-Native Grassland	None	California red-legged frog
Marsh Creek Road, near Tower 16/74	SR38	Paved 2 lane (1x1) road	Non-Native Grassland	None	None
Camino Diablo, near Tower 17/79	SR20	Paved 2 lane (1x1) road	Non-Native Grassland	None	None
Along Vaqueros Road, between Towers 18/81 and 18/82	SR21	Paved 2 lane (1x1) road	Ruderal	None	California red-legged frog San Joaquin kit fox
Vasco Road, near Tower 22/97	HW22	Paved 3 lane (1x2) road	Non-Native Grassland	None	None
Between 25/110 and 25/111	DL23	Distribution	Non-Native Grassland	None	California tiger salamander
Between 25/110 and 25/111	TL24	Gravel road	Non-Native Grassland	None	California tiger salamander
Between Towers 26/114 and 26/115	DL25	Distribution	Non-Native Grassland	None	None
At Towers 26/115	TL26	Transmission	Non-Native Grassland	None	None

A and B					
Altamont Pass Road, between Towers 28/125 and 28/126	SR27	Paved 2 lane (1x1) road	Non-Native Grassland/ Ruderal	None	None
Hwy 580	HW28	Paved 8 lane (4x4) road	Developed	None	None
Near Tower 29/128	DL29	Distribution	Non-Native Grassland	None	None
Between towers 30/134 and 30/135	RR30	Private dirt road	Non-Native Grassland	None	None
Between Towers 31/137 and 31/136	TL31	Transmission	Non-Native Grassland	None	San Joaquin kit fox
	TL32	Transmission	Non-Native Grassland	None	San Joaquin kit fox
	TL33	Transmission	Non-Native Grassland	None	San Joaquin kit fox
	TL34	Transmission	Non-Native Grassland	None	California red-legged frog
Patterson Road, Tesla Substation	DL35	Paved 2 lane (1x1) road and distribution	Non-Native Grassland	None	None

Appendix C
Representative Project Construction Equipment Photographs

Photo 1. 1987 Ford 6x6 Tensioner.

Photo 2. 2-Reel Conductor Trailer.

Photo 3. 2-Reel Rewind Trailer.

Photo 4. 3-Drum 5000# Sherman Reilly Puller.

Photo 5. Pengo 20,000# Bull Wheel Puller.

Photo 6. Sag CAT D7G Double Drum Winch.

Photo 7. Sterling 4x6 5th Wheel Tractor.

Photo 8. Typical Guard Structure.

Appendix D
Representative Photographs of Project Habitats

Photo 1. Pull Site 2.

Photo 2. Water treatment pond adjacent to Pull Site 2.

Photo 3. Man-made water basin at Pull Site 2.

Photo 4. Pull Site 3.

Photo 5. Pull Site 4.

Photo 6. Stock pond at Pull Site 4.

Photo 7. Existing ground disturbance by cattle grazing at Pull Site 4.

Photo 8. Exit holes observed on elderberry bush along Pull Site 4 access road.

Photo 9. Proposed access into Pull Site 5.

Photo 10. Raptor nest found at Tower 12/57.

Photo 11. Pull Site 6.

Photo 12. Proposed access to Pull Site 6.

Photo 13. Housing development next to Pull Site 6.

Photo 14. Pull Site 7.

Photo 15 (Top left). Access to Pull Site 7.

Photo 16 (Top right). Area where *Vulpes* sp. was observed on Pull Site 7 border.

Photo 17 (Bottom left). California red-legged frog present in Vaqueros Creek bordering Pull Site 7.

Photo 18. Seasonal wetland along access to Pull Site 8.

Photo 19. Unknown creek along Pull Site 9 access road.

Photo 20. Pull Site 12 at Tesla Substation.

Appendix E
USFWS List of Federally-Listed Species

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 101119031600

Database Last Updated: April 29, 2010

Quad Lists

Listed Species

Invertebrates

Apodemia mormo langei
- Lange's metalmark butterfly (E)

Branchinecta conservatio
- Conservancy fairy shrimp (E)
- Critical habitat, Conservancy fairy shrimp (X)

Branchinecta longiantenna
- Critical habitat, longhorn fairy shrimp (X)
- longhorn fairy shrimp (E)

Branchinecta lynchi
- Critical habitat, vernal pool fairy shrimp (X)
- vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
- valley elderberry longhorn beetle (T)

Elaphrus viridis
- Critical habitat, delta green ground beetle (X)
- delta green ground beetle (T)

Euphydryas editha bayensis
- bay checkerspot butterfly (T)

Lepidurus packardi
- Critical habitat, vernal pool tadpole shrimp (X)
- vernal pool tadpole shrimp (E)

Speyeria callippe callippe
- callippe silverspot butterfly (E)

Syncaris pacifica
- California freshwater shrimp (E)

Fish

Acipenser medirostris
- green sturgeon (T) (NMFS)

Hypomesus transpacificus
- Critical habitat, delta smelt (X)
- delta smelt (T)

Oncorhynchus mykiss
- Central California Coastal steelhead (T) (NMFS)
- Central Valley steelhead (T) (NMFS)
- Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
- Central Valley spring-run chinook salmon (T) (NMFS)

Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Thamnophis gigas
giant garter snake (T)

Birds

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Sylvilagus bachmani riparius
riparian brush rabbit (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Amsinckia grandiflora
Critical habitat, large-flowered fiddleneck (X)
large-flowered fiddleneck (E)

Cirsium hydrophilum var. hydrophilum
Suisun thistle (E)

Cordylanthus mollis ssp. mollis
soft bird's-beak (E)

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

Erysimum capitatum ssp. angustatum
Contra Costa wallflower (E)
Critical Habitat, Contra Costa wallflower (X)

Lasthenia conjugens
Contra Costa goldfields (E)
Critical habitat, Contra Costa goldfields (X)

Neostapfia colusana
Colusa grass (T)

Oenothera deltoides ssp. howellii
Antioch Dunes evening-primrose (E)
Critical habitat, Antioch Dunes evening-primrose (X)

Sidalcea keckii

Keck's checker-mallow (=checkerbloom) (E)

Proposed Species

Amphibians

Rana draytonii

Critical habitat, California red-legged frog (PX)

Plants

Cirsium hydrophilum var. hydrophilum

Critical habitat, Suisun thistle (PX)

Cordylanthus mollis ssp. mollis

Critical habitat, soft bird's-beak (PX)

Quads Containing Listed, Proposed or Candidate Species:

TRACY (444B)
LONE TREE CREEK (444C)
MIDWAY (445A)
ALTAMONT (445B)
MENDENHALL SPRINGS (445C)
CEDAR MTN. (445D)
LIVERMORE (446A)
HOLT (462B)
UNION ISLAND (462C)
WOODWARD ISLAND (463A)
BRENTWOOD (463B)
BYRON HOT SPRINGS (463C)
CLIFTON COURT FOREBAY (463D)
ANTIOCH SOUTH (464A)
CLAYTON (464B)
DIABLO (464C)
TASSAJARA (464D)
WALNUT CREEK (465A)
LAS TRAMPAS RIDGE (465D)
JERSEY ISLAND (480C)
BOULDIN ISLAND (480D)
BIRDS LANDING (481A)
DENVERTON (481B)
HONKER BAY (481C)
ANTIOCH NORTH (481D)
FAIRFIELD SOUTH (482A)
VINE HILL (482D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result

in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be February 17, 2011.

Appendix E
Rare Plant Technical Memos

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

To: David Thomas, PG&E

CC: David Kelly, GANDA; Mike Fry, PG&E

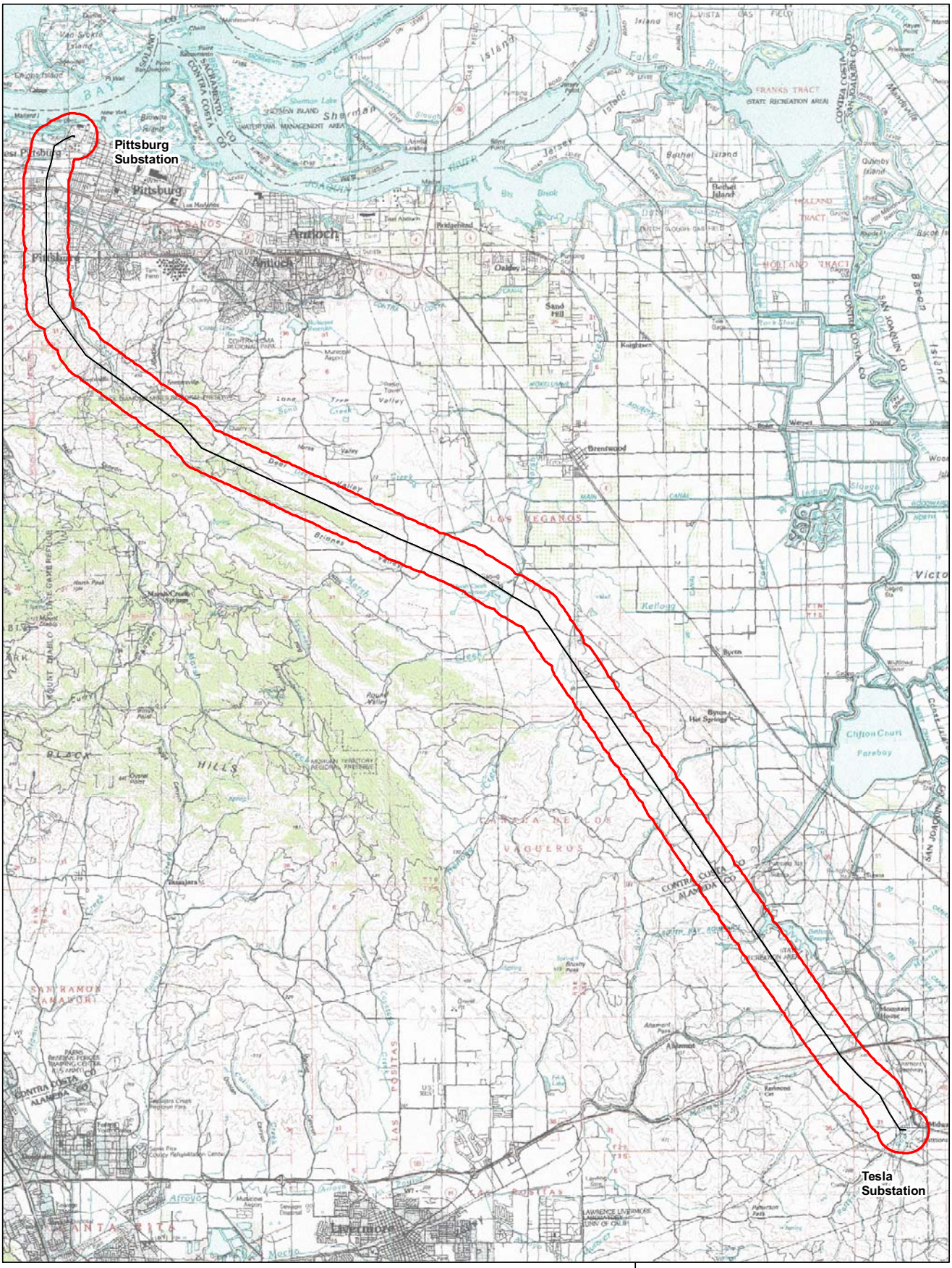
From: Samantha Hillaire, GANDA

Date: July 23, 2010

RE: **Pittsburg-Tesla 230 kV Reconductoring Project, early season plant surveys**

Garcia and Associates (GANDA) is pleased to present this report regarding early season plant surveys for the Pacific Gas and Electric Company (PG&E) Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project (Project). This report documents the results of early-season (April) plant surveys which are intended to fulfill survey requirements for federally-listed plant species referenced in the "Biological Assessment for the Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project" (Biological Assessment) dated December 22, 2008 submitted to the US Fish and Wildlife Service (USFWS) by GANDA on behalf of PG&E.

The Project is located in Contra Costa and Alameda Counties, California (Figure 1). The Project extends south from the Pittsburg Substation in the City of Pittsburg, near the confluence of the Sacramento and San Joaquin rivers. After leaving the substation, the line runs south for approximately four miles, and then turns east-southeast for 13 miles, crossing Black Diamond Mines Regional Park, Marsh Creek Reservoir Dam, and portions of the John Marsh State Park. The line turns southeast for 14 miles to enter Alameda County, crosses a western branch of Bethany Reservoir and I-580, and then ends at the Tesla Substation near the community of Midway. Portions of the Project area are developed for residential, commercial, industrial, transportation, landfill, landscaping, and recreational uses (e.g., golf courses). Major natural habitats within the Project area include non-native grassland, foothill-oak woodlands, chaparral scrub, and ruderal vegetation. Wetland habitats present within this larger backdrop include riparian woodland, cismontane alkaline marsh, vernal pools, northern coastal salt-marsh, and man-made wetlands.



Legend

Transmission Line

1 mile Project T-Line Buffer

Pittsburg - Tesla Project Location

April 2009
Alameda and Contra Costa County, CA

N

0 2 4 Miles

GANDA

As reported in the previously-submitted Biological Assessment, plant surveys performed to inform that document took place too late in the season to identify federally-listed large-flowered fiddleneck (*Amsinckia grandiflora*). This report documents the results of early season plant surveys, intended to supplement the information in the Biological Assessment.

METHODS

Federally-listed plant species with potential to occur in the Project area were identified by a search of the USFWS website (USFWS 2008), and searches of the California Native Plant Society (CNPS) website (CNPS 2008) and the California Department of Fish and Game (CDFG) California Natural Diversity Database (CDFG 2008) An initial potential list of federally-listed species was compiled by conducting a background search of 27 United States Geological Survey (USGS) 7.5 minute quadrangles; the search area included the seven quads in which the Project is located (Honker Bay, Clayton, Antioch South, Brentwood, Bryon Hot Springs, Clifton Court Forebay, and Midway) and all 20 adjacent quads (Antioch North, Birds Landing, Denverton, Fairfield South, Vine Hill, Walnut Creek, Las Trampas Reservoir, Diablo, Tassajara, Jersey Island, Bouldin Island, Woodward Island, Livermore, Altamont, Tracy, Union Island, Holt, Mendenhall Springs, Cedar Mountain, and Lonetree Creek). Eight federally-listed plant species were identified with potential to occur along the length of the transmission line (Table 1). Previous plant surveys between May and August 2008 identified two locations (Pull Sites 3 and 4) where Project-specific ground activity was planned within suitable habitat for large-flowered fiddleneck (see the Biological Assessment for details).

Preconstruction plant surveys were performed by botanists Eric Wrubel, Samantha Hillaire, and Theresa Johnson on April 6, 7, and 8, 2009. Prior to these surveys, a known population of large-flowered fiddleneck was observed in blooming condition on April 6, 2009; this is CNDDB occurrence #9, a reintroduced population on Lougher Ridge in nearby Black Diamond Mine Park (Wilde Legere, personal communication). This reference population was in full flower and easily identifiable. On the same date, these botanists also observed a nearby population of rare, but non-listed, round-leaved filaree (*California macrophylla*); this is CNDDB occurrence #95, also in Black Diamond Mine Park (Wilde Legere, personal communication). This reference population was in late flower and fruit. Surveys took place suitable times to view and identify these species.

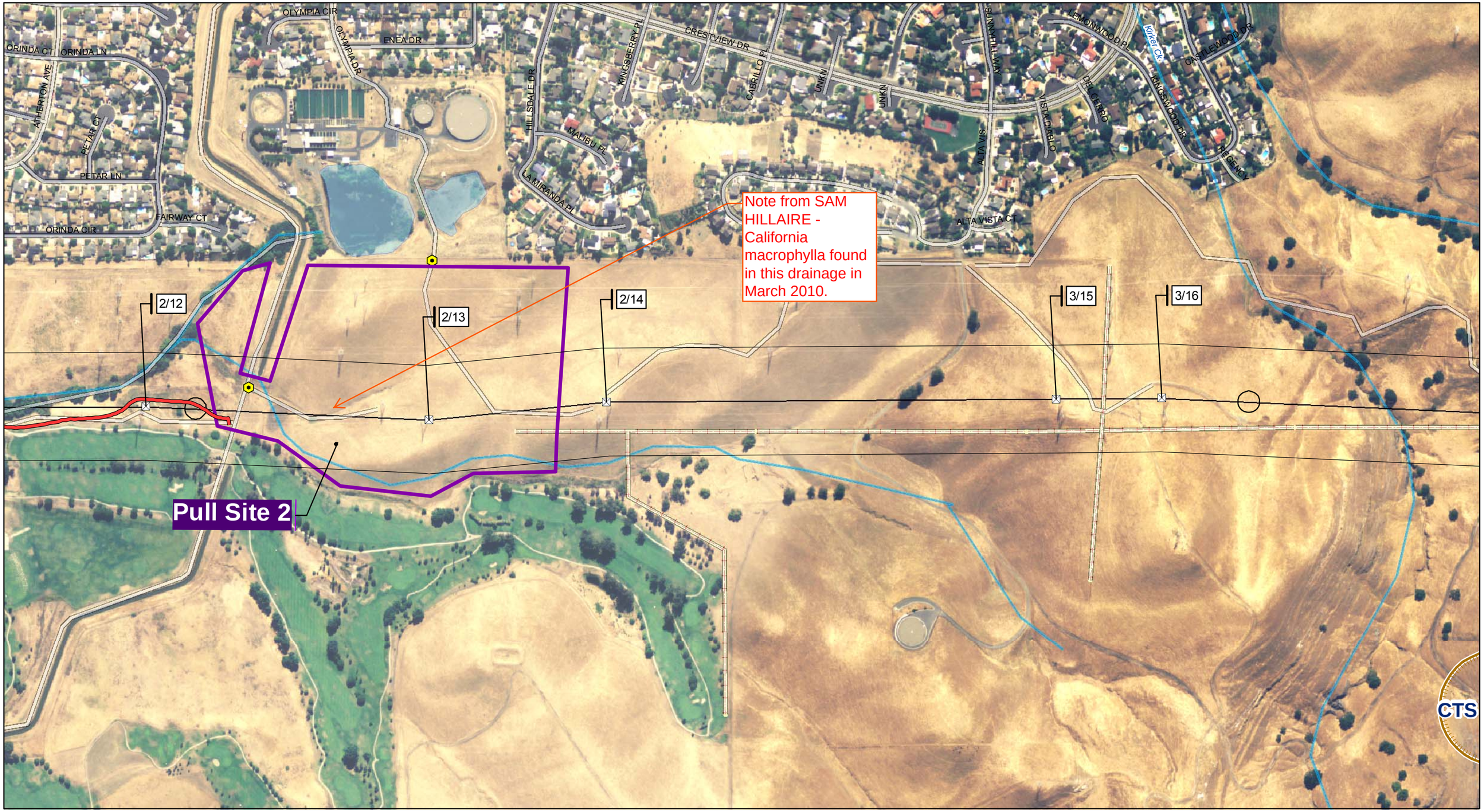
Surveys were conducted at the two work sites identified in the Biological Assessment for large-flowered fiddleneck (Pull Sites 3 and 4); surveys also took place at other grassland work areas (Pull Sites 2, 8, 9, 11, and 12 and two proposed culvert replacements at access to Pull Site 9). See Figure 2 for these locations. Pull Site 2 was re-surveyed on March 26, 2010, by Samantha Hillaire in conjunction with a wetland delineation survey for a proposed wetland crossing.

Surveys were conducted by walking transects back and forth through the designated areas. Transects were approximately 25-30 feet apart. Surveys were floristic in nature. Species were identified with nomenclature from *The Jepson Manual of Higher Plants of California* (Hickman 1993). Not all plants were in a condition to be identified to species at the time of survey.

Table 1. Federally-listed plant species with potential to occur in the Project area.

Species[1]	Status[2]	Habitat Requirements[3] and Occurrence Potential
large flowered fiddleneck *Amsinckia grandiflora*	FE / CE / 1B.1	•Cismontane woodland •Valley and foothill grassland •275 - 550 meters Occurrences from under line and within 1/2 mile
Suisun thistle *Cirsium hydrophilum* var. *hydrophilum*	FE / -- / 1B.1	•Marshes and swamps (salt) •0 - 1 meters
soft bird's-beak *Cordylanthus mollis* ssp. *mollis*	FE / CR / 1B.2	•Marshes and swamps (coastal salt) •0 - 3 meters Occurrences from project quads
palmate-bracted bird's-beak *Cordylanthus palmatus*	FE / CE / 1B.1	•Chenopod scrub •Valley and foothill grassland /alkaline •5 - 155 meters
Contra Costa wallflower *Erysimum capitatum* ssp. *angustatum*	FE / CE / 1B.1	•Inland dunes •3 - 20 meters No habitat present in transmission corridor
Contra Costa goldfields *Lasthenia conjugens*	FE / -- / 1B.1	•Cismontane woodland •Playas (alkaline) •Valley and foothill grassland •Vernal pools /mesic •0 - 470 meters Known from project quads
Colusa grass *Neostapfia colusana*	FT / CE / 1B.1	•Vernal pools (adobe, large) •5 - 200 meters
Antioch Dunes evening-primrose *Oenothera deltoides* ssp. *howellii*	FE / CE / 1B.1	•Inland dunes •0 - 30 meters Known from project quads No habitat present in transmission corridor.

1 - Scientific names consistent with Hickman 1993. Common names from CNPS 2008 and CDFG 2008.
2 - U.S. Fish and Wildlife Service designations are based on the Endangered Species Act (50 CFR 17:12):
FT Federally threatened
FE Federally endangered
State-listed designations are based on the California Endangered Species Act:
CR California State rare
CE California State threatened
California Native Plant Society [CNPS 2007]
List 1B 'Plants rare, threatened, or endangered in California and elsewhere.'
List 2 'Plants rare, threatened, or endangered in California but more common elsewhere.'
Extensions
.3 Not very endangered in California
.2 Fairly endangered in California
.1 Seriously endangered in California



GANDA

Federally Listed Species

Mammals
- San Joaquin kit fox (SJKF)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Plants
- large-flowered fiddleneck (AMGR)

USFWS Critical Habitat Areas
- Contra Costa goldfields
- Vernal pool fairy shrimp

- Wetland Features

Project Features
- Gate
- Lock Gate
- PGE Lock
- Tower
- Pull Site Access
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- 500 ft Project Corridor
- Pull Site

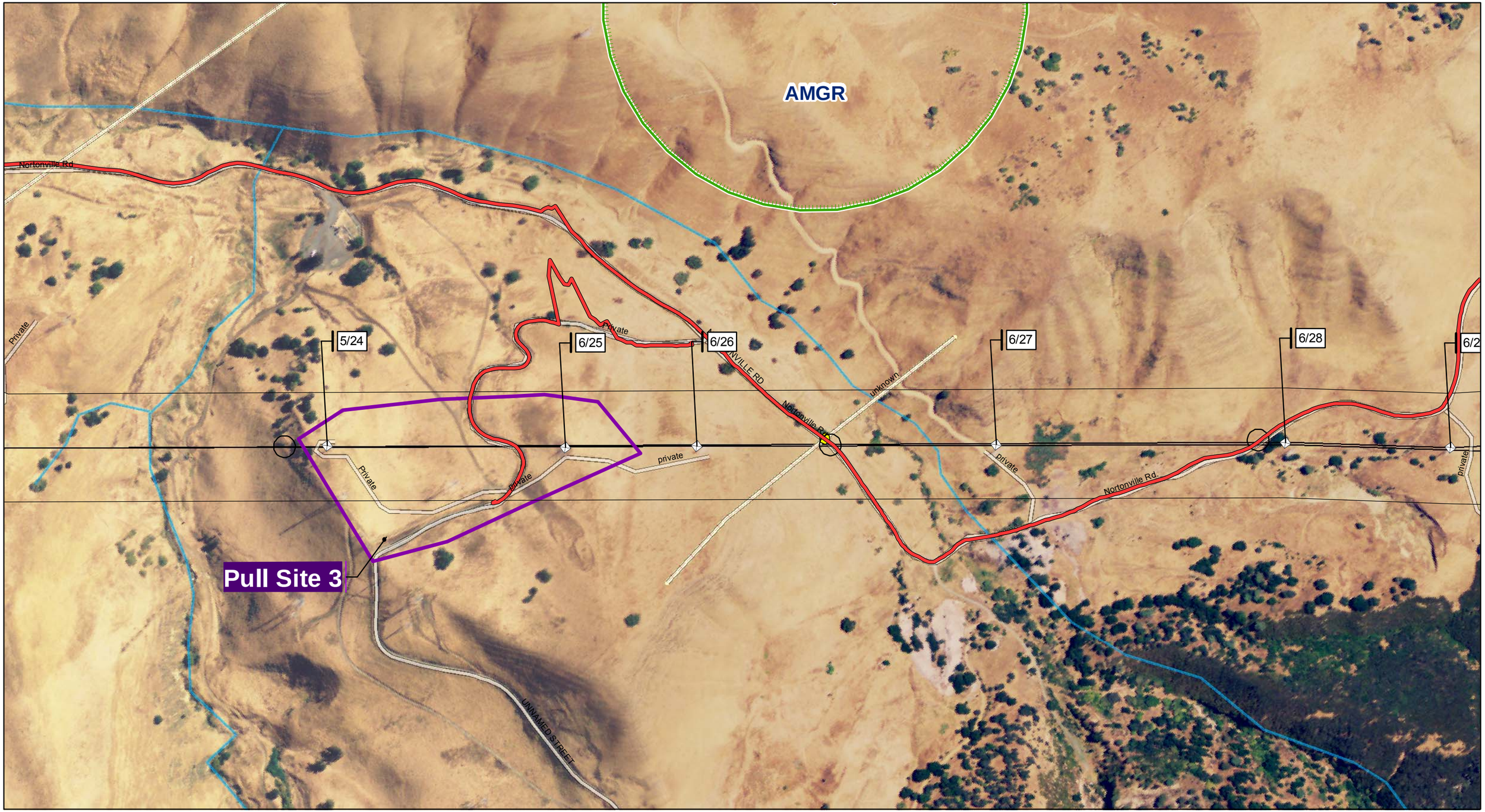
Miles: 0 0.1 0.2

Feet: 0 500 1,000

Pittsburg - Tesla Project
Figure 2. Plant Survey Locations

Map 1 of 7

April 2009
Alameda and Contra Costa County, CA



GANDA

Federally Listed Species

Mammals
- San Joaquin kit fox (SJKF)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Plants
- large-flowered fiddleneck (AMGR)

USFWS Critical Habitat Areas
- Contra Costa goldfields
- Vernal pool fairy shrimp

Wetland Features

Project Features
- Gate
- Lock Gate
- PGE Lock
- Tower
- Pull Site Access
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- 500 ft Project Corridor
- Pull Site

Miles: 0 0.1 0.2

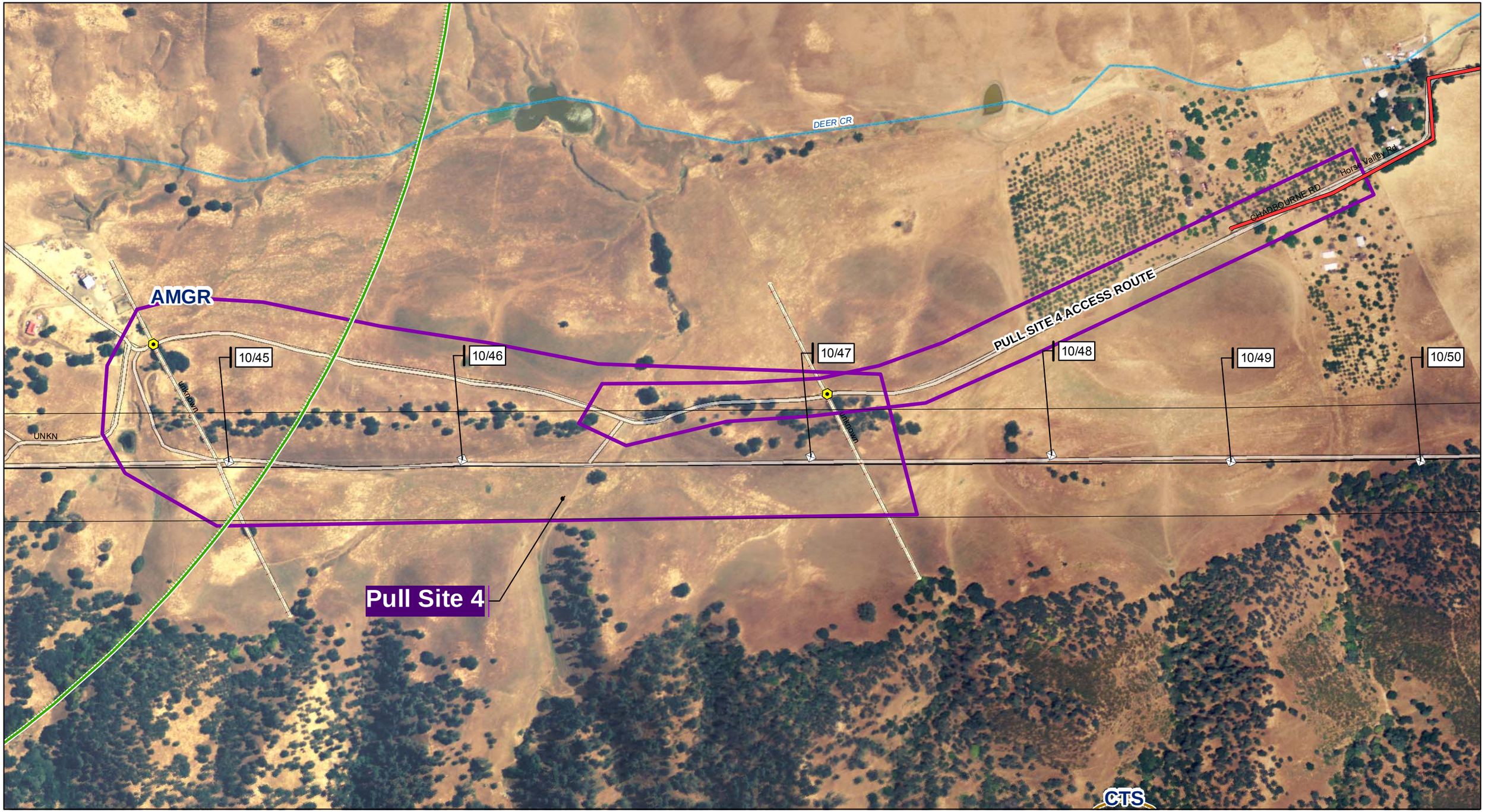
Feet: 0 500 1,000

N E S W

Pittsburg - Tesla Project
Figure 2. Plant Survey Locations

Map 2 of 7

April 2009
Alameda and Contra Costa County, CA



GANDA

Federally Listed Species

Mammals
- San Joaquin kit fox (SJKF)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Plants
- large-flowered fiddleneck (AMGR)

USFWS Critical Habitat Areas
- Contra Costa goldfields
- Vernal pool fairy shrimp

- Wetland Features

Project Features
- Gate
- Lock Gate
- PGE Lock
- Tower
- Pull Site Access
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- 500 ft Project Corridor
- Pull Site

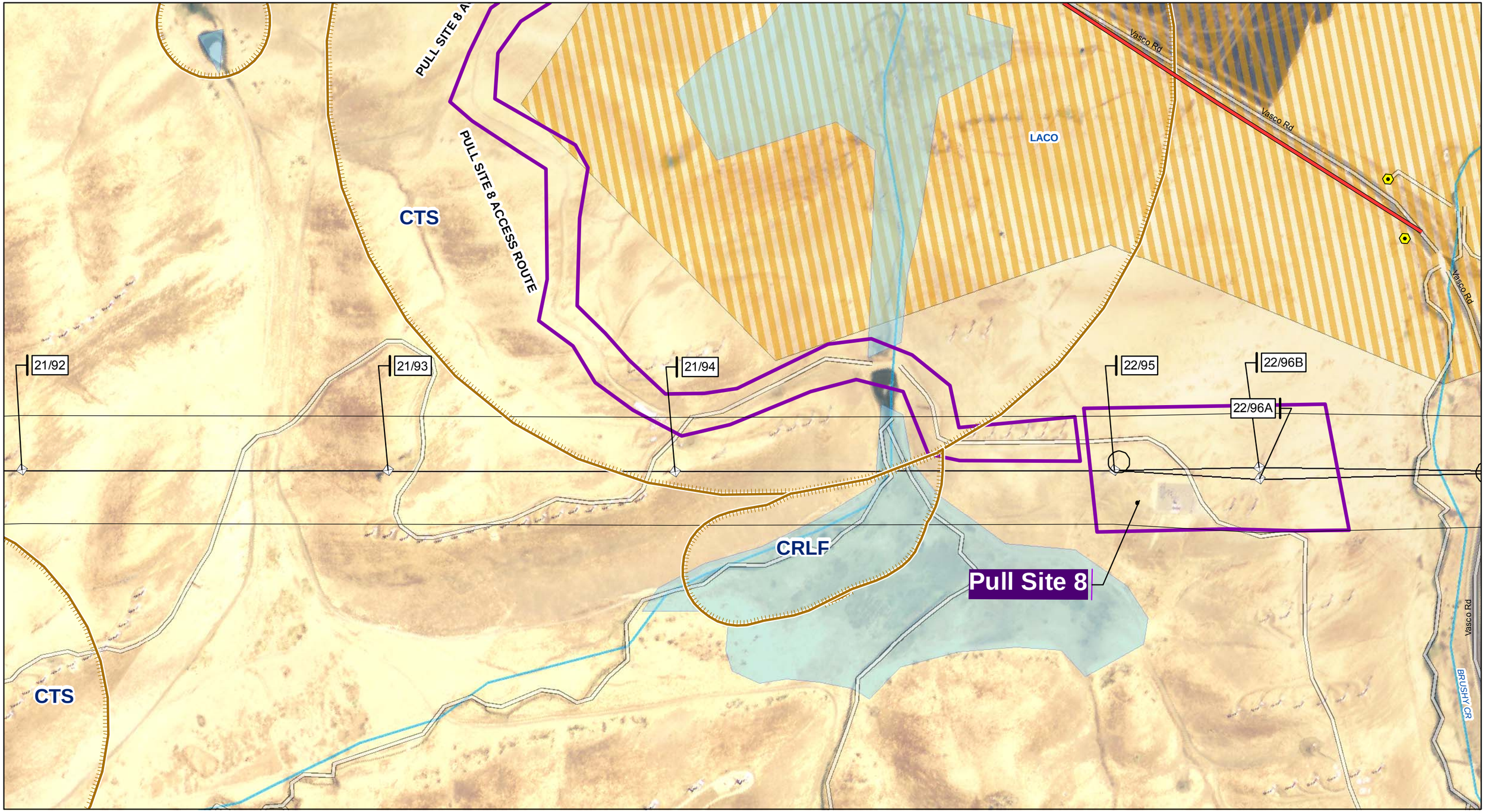
Miles: 0 0.1 0.2

Feet: 0 500 1,000

Pittsburg - Tesla Project
Figure 2. Plant Survey Locations

Map 3 of 7

April 2009
Alameda and Contra Costa County, CA



GANDA

Federally Listed Species

Mammals
- San Joaquin kit fox (SJKF)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Plants
- large-flowered fiddleneck (AMGR)

USFWS Critical Habitat Areas
- Contra Costa goldfields
- Vernal pool fairy shrimp

- Wetland Features

Project Features
- Gate
- Lock Gate
- PGE Lock
- Tower
- Pull Site Access
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- 500 ft Project Corridor
- Pull Site

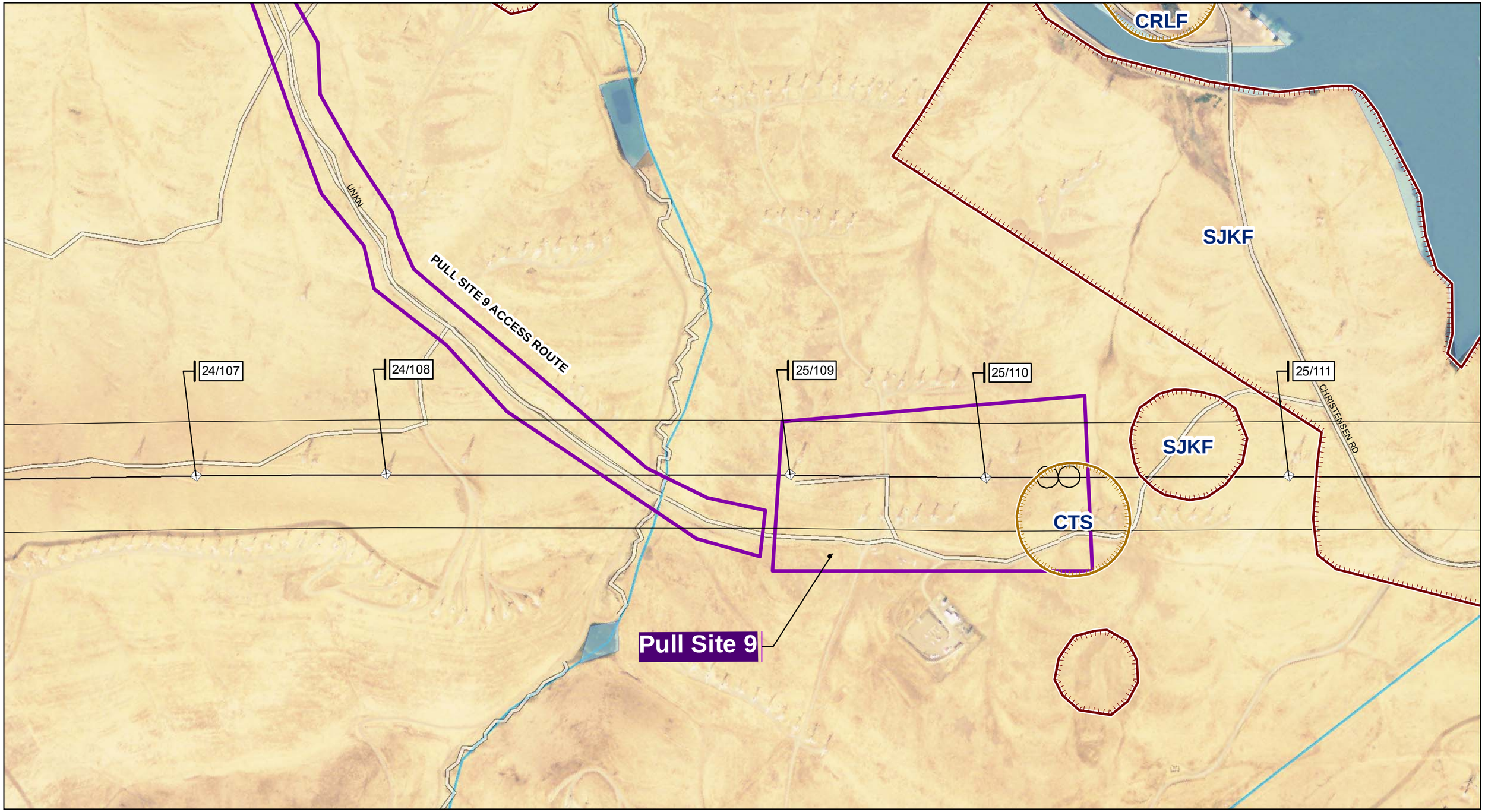
Miles: 0 0.1 0.2

Feet: 0 500 1,000

Pittsburg - Tesla Project
Figure 2. Plant Survey Locations

Map 4 of 7

April 2009
Alameda and Contra Costa County, CA



GANDA

Federally Listed Species

Mammals
- San Joaquin kit fox (SJKF)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Plants
- large-flowered fiddleneck (AMGR)

USFWS Critical Habitat Areas
- Contra Costa goldfields
- Vernal pool fairy shrimp

- Wetland Features

Project Features
- Gate
- Lock Gate
- PGE Lock
- Tower
- Pull Site Access
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- 500 ft Project Corridor
- Pull Site

Miles: 0, 0.1, 0.2

Feet: 0, 500, 1,000

Pittsburg - Tesla Project
Figure 2. Plant Survey Locations

Map 5 of 7

April 2009
Alameda and Contra Costa County, CA

GANDA

Federally Listed Species

Mammals
- San Joaquin kit fox (SJKF)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Plants
- large-flowered fiddleneck (AMGR)

USFWS Critical Habitat Areas
- Contra Costa goldfields
- Vernal pool fairy shrimp

- Wetland Features

Project Features
- Gate
- Lock Gate
- PGE Lock
- Tower
- Pull Site Access
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- 500 ft Project Corridor
- Pull Site

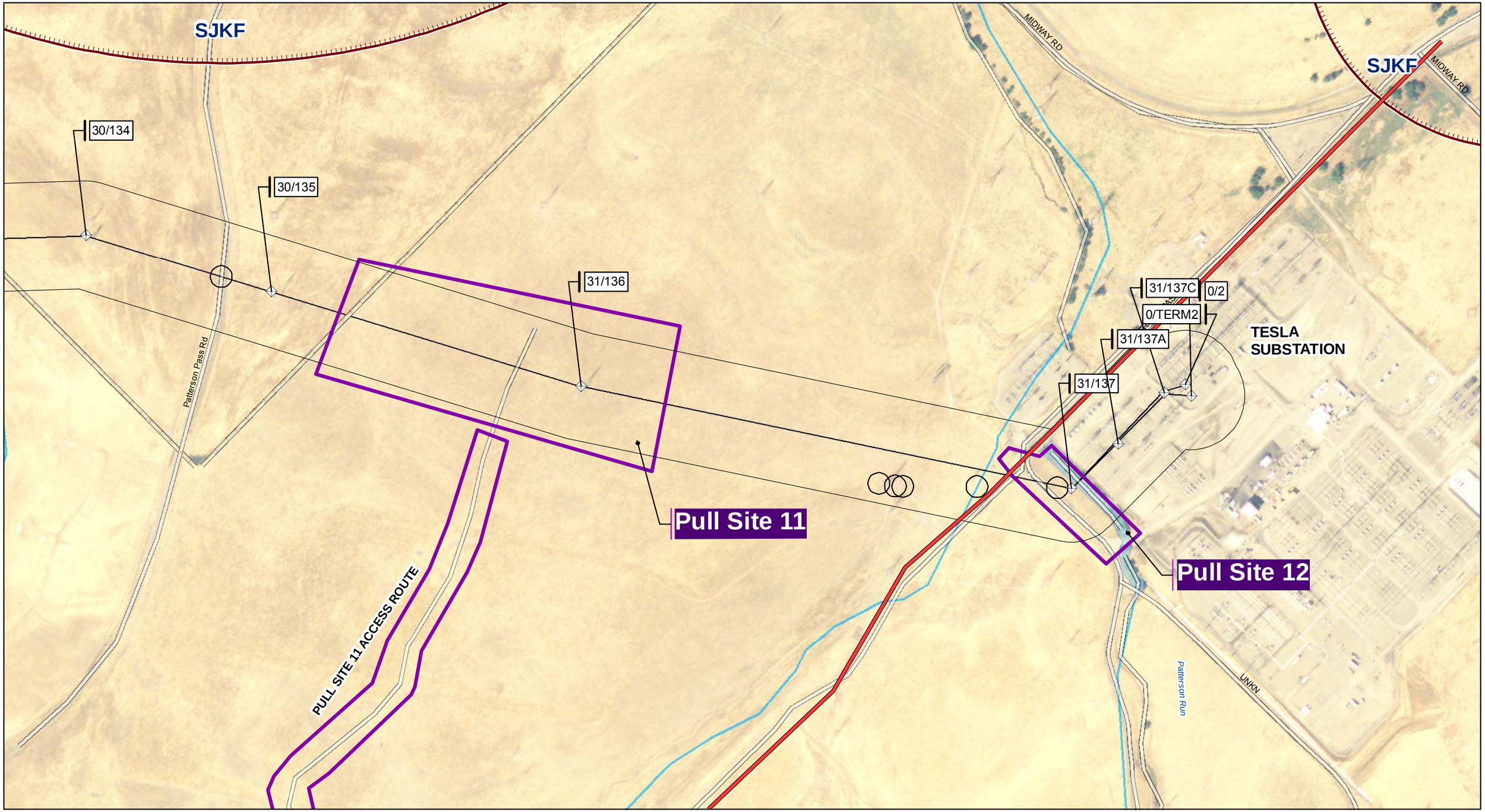
Miles: 0 0.1 0.2

Feet: 0 500 1,000

Pittsburg - Tesla Project
Figure 2. Plant Survey Locations

Map 6 of 7

April 2009
Alameda and Contra Costa County, CA



GANDA

Federally Listed Species

Mammals
- San Joaquin kit fox (SJKF)

Amphibians
- California red-legged frog (CRLF)
- California tiger salamander (CTS)

Invertebrates
- vernal pool fairy shrimp (VPFS)

Plants
- large-flowered fiddleneck (AMGR)

USFWS Critical Habitat Areas
- Contra Costa goldfields
- Vernal pool fairy shrimp

- Wetland Features

Project Features
- Gate
- Lock Gate
- PGE Lock
- Tower
- Pull Site Access
- Fence Obstruction
- Transmission Line
- Guard / X-ing Structure
- 500 ft Project Corridor
- Pull Site

Miles: 0 0.1 0.2

Feet: 0 500 1,000

Pittsburg - Tesla Project
Figure 2. Plant Survey Locations

Map 7 of 7

April 2009
Alameda and Contra Costa County, CA

RESULTS

A list of all plants observed during surveys is presented in Table 2. No federally-listed species, including large-flowered fiddleneck, were observed during these early-season surveys.

One occurrence of round-leaved filaree (*California macrophylla*, no federal or California state status, CNPS list 1B.2) was observed in March 2010 (see maps in Figure 2). Nine plants flowering plants were observed in clay soil adjacent to a small seasonal wetland. These plants were marked with small yellow plastic stakes driven into the ground adjacent to them.

DISCUSSION

No large-flowered fiddleneck was observed near Project-specific ground disturbance. Therefore, the Project should have no effect on large-flowered fiddleneck.

Based on previous surveys, Project-specific ground activity is not expected to affect any other federally-listed plant species. No take of federally-listed plant species is expected as a result of this Project.

Impacts to round-leaved filaree will be avoided. This species was associated with a seasonal wetland channel at Pull Site 2, and is located on a locally steep slope that is unsuitable for construction activity. The plants are located in such a way that they can be easily flagged or fenced for avoidance. Because this species can be avoided, impacts to this non-listed species will also be minimized.

Table 2. Plants observed during early-season surveys.

SCIENTIFIC NAME			**COMMON NAME**
Achillea	*millefolium*		common yarrow
Achyrachaena	*mollis*		blow wives
Aesculus	*californica*		California buckeye
Amsinckia	*lycopsoides*		bugloss fiddleneck
Amsinckia	*menziesii*	var. *intermedia*	common fiddleneck
Amsinckia	*menziesii*		small flowered fiddleneck
Anthriscus	*caucalis*		bur-chervil
Aphanes	*occidentalis*		western lady's-mantle
Artemesia	*californica*		California sagebrush
Astragalus	*(oxyphysus)*		Mt. Diablo milk-vetch
Astragalus	*assymetricus*		San Joaquin milk-vetch
Avena	*barbata*		slender wild oat
Avena	*fatua*		wild oats
Bellardia	*trixago*		bellardia
Brassica	*nigra*		black mustard
Brassica	*rapa*		field mustard
Bromus	*diandrus*		ripgut brome
Bromus	*hordeaceus*		soft chess
Calandrinia	*ciliata*		red maids
California	***macrophylla***		**round-leaved fillaree**
Calystegia	*(subacaulis)*		Hill morning-glory
Capsella	*bursa-pastoris*		shepherd's-purse
Carduus	*pycnocephalus*		Italian thistle
Castilleja	*attenuata*		valley tassels
Castilleja	*exserta*		purple owl's clover
Castilleja	*rubicundula*	var. *lithospermoides*	cream-sacs
Centaurea	*solstitialis*		Yellow starthistle
Cerastium	*fontanum*		
Cerastium	*glomeratum*		sticky mouse-eared chickweed
Chamomilla	*suaveolens*		pineapple-weed
Chlorogalum	*pomeridianum*		wavy-leaved soap plant
Convolvulus	*arvensis*		field bindweed
Convolvulus	*occidentalis*		western morning-glory
Cotula	*coronopifolia*		brassbuttons
Crassula	*connata*		pigmyweed
Crassula	*tillaea*		mossy pigmyweed
Dichelostemma	*capitatum*		blue-dicks
Dichelostemma	*multiflorum*		round-toothed ookow

Distichlis	*spicata*		salt grass
Dodecatheon	*sp.*		shooting star
Epilobium	*brachycarpum*		tall annual willowherb
Eremocarpus	*setigerus*		turkey-mullein
Eriogonum	*nudum*		naked buckwheat
Erodium	*botrys*		long-beaked stork's-bill
Erodium	*cicutarium*		red-stemmed filaree
Erodium	*moschatum*		white-stemmed filaree
Eryngium	*sp.*		coyote thistle
Eschscholzia	*caespitosa*		foothill poppy
Eschscholzia	*californica*		California poppy
Filago	*gallica*		narrow leaved filago
Foeniculum	*vulgare*		fennel
Frankenia	*salina*		alkali sea-heath
Galium	*aparine*		cleavers
Galium	*pariesiense*		wall bedstraw
Galium	*sp.*		bedstraw
Geranium	*molle*		dove's-foot geranium
Geranium	*dissectum*		cut-leaved geranium
Grindelia	*camporum*		Gum plant
Hesperevax	*sparsiflora*		erect dwarf cudweed
Heteromeles	*arbutifolia*		toyon
Hirschfeldia	*incana*		Mediterranean hoary-mustard
Hordeum	*brachyantherum*		meadow barley
Hordeum	*murinum*		foxtail barley
Hypochaeris	*glabra*		smooth cat's ear
Juglans	*californica*	var. *hindsii*	black walnut (appeared planted near ranch)
Juncus	*bufonius*		toad rush
Juncus	*sp.*		rush
Lactuca	*sp.*		wild lettuce
Lasthenia	*californica*		california goldfields
Lathyrus	*vestitus*	var. *vestitus*	Pacific pea
Lepidium	*nitidum*		shining pepperweed
Lithophragma	*(affine)*		woodland star
Lolium	*multiflorum*		Italian rye grass
Lolium	*perenne*		perennial rye grass
Lotus	*sp.*		
Lotus	*humistratus*		Hill lotus
Lupinus	*albifrons*		silver bush lupine
Lupinus	*bicolor*		Bicolored lupine
Lupinus	*microcarpus*	ssp. *densiflorus*	chick lupine

Lupinus	*succulentus*	Arroyo lupine
Malvella	*leprosa*	alkali-mallow
Marah	*fabaceus*	wild cucumber
Medicago	*polymorpha*	bur clover
Melilotus	*indicus*	Indian sweet-clover
Micropus	*californica*	q-tips
Microseris	*sp.*	
Nassella	*pulchra*	purple needlegrass
Perideridia	*sp.*	yampah
Plagiobothrys	*acanthocarpus*	adobe popcorn-flower
Plagiobothrys	*canescens*	valley popcorn-flower
Plantago	*erecta*	California plantain
Poa	*annua*	annual bluegrass
Poa	*secunda*	blugrass
Poa	*bulbosa*	bulbous bluegrass
Polypogon	*monspeliensis*	annual beardgrass
Prunus	*dulcis*	almond
Psilocarphus	*(tenellus)*	(slender) woolly-marbles
Psilocarphus	*brevissimus*	dwarf woolly-marbles
Pterostegia	*drymariodes*	pterostegia
Quercus	*douglasii*	blue oak
Ranunculus	*occidentalis*	western buttercup
Ranunculus	*scleratus*	cursed buttercup
Rorippa	*nasturtium-aquaticum*	watercress
Rumex	*pulcher*	fiddle dock
Sanicula	*bipinnata*	poison sanicle
Sanicula	*bipinnatifida*	purple sanicle
Schinus	*molle*	pepper tree
Senecio	*vulgare*	common groundsel
Sherardia	*arvensis*	field-madder
Silybum	*marianum*	milkthistle
Spergularia	*(marina)*	(salt-marsh) sandspurry
Taeniatherum	*caput-medusae*	medusahead
Toxicodendron	*diversilobum*	poison oak
Trifolium	*ciliolatum*	foothill clover
Trifolium	*dubium*	Shamrock clover
Trifolium	*fucatum*	bull clover
Trifolium	*hirtum*	rose clover
Trifolium	*willdenovii*	tomcat clover
Trifolium	*microdon*	square-headed clover
Triphysaria	*pusillus*	dwarf owl-clover

Triteleia	*laxa*	Ithuriel's spear
Typha	*angustifolia*	narrow-leaved cattail
Urospermum	*picroides*	bristly tail seed
Urtica	*urens*	burning nettle
Vicia	*sp.*	vetch
Vicia	*sativa*	garden vetch
Vulpia	*bromoides*	six-weeks fescue
Vulpia	*myuros*	rattail fescue
Wyethia	*heleniodes*	gray mule's-ears

(Names in parentheses) indicate likely but tentative identification, due to condition of plants.
CNPS List plants in boldface type

REFERENCES AND PERSONAL COMMUNICATIONS

California Department of Fish and Game (CDFG). 2008. Rarefind, a California Natural Diversity Data Base (CNDDB), ver. 3.1.0. Wildlife and Habitat Data Analysis Branch, Habitat Conservation Division, Sacramento.

California Native Plant Society (CNPS). 2008. Online inventory of rare and endangered plants. Accessed online at http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi.

Garcia and Associates (GANDA). 2008. Biological Assessment for the Pacific Gas and Electric Company's Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project, Contra Costa and Alameda Counties, California. Prepared for Pacific Gas and Electric Company (PG&E), Auburn, CA. Dated September.

Hickman, J.C., ed. 1993. The Jepson Manual of Higher Plants of California. University of California Press, Berkeley, California.

Legere, Wilde. East Bay Parks biologist. Personal meeting with Samantha Hillaire, Eric Wrubel, and Theresa Johnson, at Black Diamond Mines Park, April 6, 2009.

US Fish and Wildlife Service (USFWS). 2008. Federally endangered and threatened species lists, online version from the Sacramento office. Accessed from http://www.fws.gov/sacramento/es/plant_spp_accts/acctplant.htm

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 03/24/2010

For Office Use Only

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

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *California macrophylla*

Common Name: Round-leaved filaree

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 9 Subsequent Visit? ☑ yes ☐ no

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

Collection? If yes: _____ Number not enough to collect Museum / Herbarium

Reporter: Samantha Hillaire
Address: 1280 Arch Way
Chico, CA 95973
E-mail Address: tablemountaingirl@yahoo.com
Phone: (530) 588-3515

Plant Information

Phenology: 80 % vegetative, 20 % flowering, ____ % fruiting

Animal Information

adults ____ # juveniles ____ # larvae ____ # egg masses ____ # unknown ____

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

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

Plants are located on the east bank (faces west) of a small drainage in grassland. Soil appears to be clay. These plants are above the area where the drainage runs.

County: Contra Costa County Landowner / Mgr.: PG&E

Quad Name: Honker Bay Elevation: 109 feet

T 2N R 1E Sec 19, ____ ¼ of NW ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): Google earth

T____ R____ Sec____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: **NAD27** ☐ **NAD83** ☐ **WGS84** ☐ Horizontal Accuracy 3 meters meters/feet

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

Coordinates: 10S 595781m, E 4207191m

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Plants were found in an annual grassland. Plants were separated into two small patches - 4 plants and 5 plants. They are on a dry, west facing slope of a small ephemeral drainage (east side of drainage). Plants in the area are Erodium botrys, Erodium cicutarium, Lupinus bicolor, Lolium multiflorum, Amsinckia intermedia, Triteleia laxa, and Geranium dissectum. There is generally dense grass cover in the area, but these plants are on small micro-patches of bare clay.

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

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

Immediate AND surrounding land use:

Visible disturbances: Cattle grazing. Golf course and power lines nearby. This area is fenced off from most disturbance.

Threats: Nothing particular noted. Maybe cattle grazing.

Comments: At this location, plants are not reliably seen. Plants were not observed in early April 2009, were found in March 2010. Were observed in March 2011, but not observed in 2012. Placed two small plastic stakes in the ground so that plants could be found at later dates.

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

☑ Keyed (cite reference): Jepson Manual 1993
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Went to reference site with Wilde Legere; these plants appear the same.

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

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

To: David Thomas, PG&E

From: Samantha Hillaire, GANDA Botanist

Date: 15 December 2011

RE: Pittsburg-Tesla 230kV Transmission Line Reconductoring Project
Reconnaisance and Rare Plant Surveys, Late Spring and Summer 2008

CC: Ann Howald, GANDA Senior Botanist

Introduction

Pacific Gas and Electric Company (PG&E) proposes the Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project (project) in Alameda and Contra Costa counties, California. Reconnaissance and rare plant surveys were conducted at proposed project work areas and access routes in May, July, and August, 2008, by Garcia and Associates (GANDA) botanists. The purpose of these surveys was to assist PG&E with planning, by identifying both suitable potential construction sites, and unsuitable sites with special-status plants and/or habitats with high potential for rare plants (e.g., vernal pools, alkali swales, and other specialized habitats) for avoidance. The reconnaissance surveys examined the local terrain, identified possible pull sites, determined the vegetation types at each site, and determined habitat quality for rare plants at each site. The purpose of the rare plant surveys was to search for rare plant species that were blooming and identifiable at the time of the survey; these surveys were conducted at times of the year when some rare plants with potential to occur were not identifiable.

The purpose of this memo is to present the results from the 2008 reconnaissance and rare plant surveys. The results of these surveys were originally presented by GANDA to PG&E in a series of informal reports (GANDA 2008a, 2008b, 2008c). At the time these reports were produced, a number of sites and/or access routes were examined that have subsequently been removed from the project area. This memo presents the results of surveys within work areas included in the current project description as reported in the Biological Assessment (GANDA 2010a) and Initial Study/Mitigated Negative Declaration (IS/MND) for the project (GANDA 2011).

Methods

A 2007 report that evaluated the potential for biological and wetland issues associated with the Pittsburg-Tesla reconductoring project was used as background information for the May, July, and August surveys (GANDA 2007). This report identified 67 special-status plant species known from the background research area (9 federally-listed species, and 58 species with rare plant ranks of 1B and 2).

Reconnaissance-level surveys covered all areas within the P2 through P12 pull site boundaries[1], including access routes. Maps of these areas were provided to surveyors on paper aerial photograph maps, and on Google Earth maps on a Toughbook computer.

Rare plant surveys were conducted in those parts of each project site where placement of a pull site appeared to be possible, based on location relative to the nearest towers, and terrain. In general, rare plant surveys were conducted in areas with level to gradually sloping terrain, but were not conducted in areas with steep slopes unsuitable for pull site locations or access road improvements.

For access roads, rare plant surveys were conducted within a corridor adjacent to the existing road where road improvements appeared to be feasible, based on terrain. Types of proposed access roads included 1) gravel roads, 2) well-used unpaved "ranch" roads, and 3) infrequently used tracks. For gravel roads and ranch roads, rare plant surveys were conducted within a corridor adjacent to the existing road. The width of this corridor varied, to a maximum width of 25 feet on either side of the existing road. For vegetated tracks, the rare plant survey area included the track itself in addition to corridors on either side.

Surveys were conducted by GANDA Senior Botanist Ann Howald and GANDA Botanist Eliza Shepard in May, July, and August 2008. Surveys were generally conducted on foot, but occasionally binoculars were used to examine steeper areas (see Pull Site 4) or areas where access was blocked by fencing (portion of access to Pull Site 6). The dates of surveys at the various sites are presented in Table 1 below.

Table 1. Survey Dates at Project Sites, Late Season 2008

Date(s)	Sites Surveys
May 13-16, and 20, 2008	P2, P3, P4, P5, P6 (and portion of access)
July 22-23, 2008	P6 (access), P7, P8, P9, P11, P12
August 25, 2008	P2, P3, P4, P5, and P10

Early blooming special-status species such as large-flowered fiddleneck (*Amsinckia grandiflora*) and diamond-petaled poppy (*Eschscholzia rhombipetala*) would have finished blooming and

1 In addition to these current work area locations, additional sites were examined that are not addressed in this memo.

would not have been identifiable during these the 2008 surveys. Some later flowering species were identifiable at time of the May surveys: these included species of *Atriplex.* Most late-flowering species, especially *Atriplex* species and members of the Asteraceae, were in bud or in flower during the July surveys. During August, the timing was suitable to detect very late blooming species such as Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), pappose tarplant (*Centromadia parryi* ssp. *parryi*) big tarplant (*Blepharizonia plumosa*), and several rare taxa in the genus *Atriplex*.

Vegetation Types

This section presents general vegetation types observed in the project areas. These vegetation types are discussed further below on a site-by-site basis.

Annual Grassland

The vegetation at sites P2 through P12[2] consists mainly of annual grassland dominated by non-native grasses and forbs. Most Annual Grassland of the project sites is dominated by non-native grasses and forbs, and is of low quality, although some sites had less-disturbed grassland than others. All annual grasses and forbs that flower early in the blooming season were past blooming at the time of the survey. Most were dead, and some of these could not be identified due to their condition.

Foothill Woodland

Foothill Woodland occurs adjacent Pull Site 4, on slopes too steep to be suitable for pull sites.

Riparian Woodland

Riparian Woodland is located outside the northern edge of Pull Site 2.

Alkali Marsh

Alkali Marsh is located outside the edges of Pull Site 7.

Site Descriptions

The following section presents descriptions of each specific site visited during the late season 2008 surveys.

Pull Site 2 (P2): Delta View Golf Course area

P2 includes a small area north of the Contra Costa Canal and canal road, and a larger approximately rectangular area south of the Contra Costa Canal and canal road. The habitat at P2 consists of low quality Annual Grassland with a low probability of supporting special-status plants. No special-status species were observed during May or August surveys. The soils throughout this area are dark, heavy shrink-swell clays, deeply cracked in the dry season[3].

The small "northern" portion of P2 is about 700 feet wide, and consists of hilly terrain bissected by an ephemeral drainage that drains to an unnamed intermittent drainage that flows to the

3 The special-status species *California macrophylla* (California Rare Plant Rank 1B) was located in P2 in early spring surveys (GANDA 2010b).

southeast. The vegetation in this area consists of low quality ungrazed Annual Grassland dominated by non-native annual grasses such as Italian ryegrass (*Lolium multiflorum*) and weedy non-native annual and perennial forbs such as wild fennel (*Foeniculum vulgare*) and curly dock (*Rumex crispus*). Ruderal weedy non-native forbs such as alfalfa (*Medicago sativa*), prostrate pigweed (*Amaranthus blitoides*) and common mallow (*Malva neglecta*) grow along the canal road. Riparian Woodland dominated by Fremont cottonwood (*Populus fremontii*) and tree and shrub willows (*Salix* spp.) occupies the banks of the intermittent drainage along the northern boundary.

The larger "southern" portion of P2 is roughly square, and about 0.25 mile on each side. Portions are steeply sloping ground unsuitable for pull sites. However, a large gradually sloping area exists between towers 2/13 and 2/14 (south of 2/13). Two pull sites could possibly be located (back-to-back) within this relatively level area[4].

Most of this "southern" portion of P2 consists of low quality ungrazed Annual Grassland dominated by non-native annual grasses such as Italian ryegrass and ripgut brome (*Bromus diandrus*), and non-native weedy forbs such as black mustard (*Brassica nigra*), rapeseed mustard (*Brassica napus*) and rose clover (*Trifolium hirtum*). A small created wetland is located in the northwest corner, adjacent to the golf course[5]. This wetland is dominated by a non-native weedy annual grass, rabbit's-foot grass (*Polypogon monspeliensis*), and non-native weedy forbs, mainly spiny clotbur (*Xanthium spinosum*), cursed crowfoot (*Ranunculus scleratus*), and brass buttons (*Cotula coronopifolia*), with a few clumps of a native perennial cat-tail (*Typha* sp.).

Pull Site 3 (P3): Black Diamond Mines Regional Preserve area, off of Nortonville Road/Trail
P3 is located on private property on the northeast-facing slope of an unnamed ridge adjacent to and west of Lougher Ridge. The size of P3 is about 0.25 mile by 0.15 mile. Most of P3 consists of steeply sloping terrain. Southeast of tower 5/24 is a gradually sloping area that is probably large enough to be used as a pull site. At the northwest base of tower 6/26 is a small flat area that appears to have been leveled when the tower was installed; this small area appears to be used by livestock as a resting location. This flat area is approximately 50 feet by 40 feet, and is immediately adjacent to the base of the tower, so it is unlikely to be suitable as a pull site.

The vegetation of P3 consists entirely of ungrazed Annual Grassland. In May, the vegetation was dominated by non-native annual grasses such as Italian ryegrass, ripgut brome, and soft chess (*Bromus hordeaceus*), weedy non-native forbs such as summer mustard (*Hirschfeldia incana*), yellow star-thistle (*Centaurea solstitialis*), a native perennial forb, gumplant (*Grindelia* sp.), and a native annual forb, fiddleneck (*Amsinckia* sp.). In August, a few living plants of introduced species of pigweed (*Amaranthus* sp.) and goosefoot (*Chenopodium* sp.) were found in this area[6]. No wetlands or other sensitive vegetation types occur at P3.

Although the likelihood of special-status plants occurring at P3 is low, and no special-status

4 A landing zone has also subsequently been planned within flatter portions of this P2 area.
5 This wetland and associated drainage were subsequently delineated in March of 2009 (GANDA 2010b).
6 On slopes outside of the project area many scattered clumps of native perennial bunchgrass, likely purple needlegrass (*Nassella pulchra*) and bluegrass (*Poa* sp.), were observed in August.

plants were observed during the May and August 2008 surveys, the presence of early-flowering special-status plants, especially the federally and state-listed endangered large-flowered fiddleneck (*Amsinckia grandiflora*), cannot be ruled out. In 1990, large-flowered fiddleneck was reintroduced experimentally to a ridgetop area of Lougher Ridge (Pavlik 1990), which is the next ridge east from P3. During the 1990s, hundreds to thousands of individuals of large-flowered fiddleneck were documented at the Lougher Ridge site (Pavlik 1994). It is possible that dispersal of large-flowered fiddleneck from Lougher Ridge to nearby areas has occurred. The 2008 surveys were too late to encompass the blooming period of early flowering species such as large-flowered fiddleneck. Many dried skeletons of *Amsinckia* were observed during the May 2008 surveys and none of those that were examined closely were *Amsinckia grandiflora*. This was determined by examining the few fruits (nutlets) that remained attached to the plants. The nutlets of large-flowered fiddleneck are smooth, whereas the nutlets of all other co-occurring species of fiddleneck are covered with tubercles, ridges, or both, which create a rough nutlet surface. All of the nutlets examined in May 2008 were rough-surfaced. However, it was not possible to examine the nutlets of every *Amsinckia* individual at the P3 site because thousands of individuals occur here.

Pull Site 4 (P4): West end of Chadbourne Road, Roddy Ranch and Cattle Company

For descriptive purposes, in this report P4 is subdivided into the potential pull site location (and surroundings) and the access road. The vegetation of both areas consists mainly of Annual Grassland.

The proposed pull site area is a roughly rectangular site about 0.6 mile long and 0.2 mile wide. The drier, flatter parts of this site are covered with ungrazed to lightly grazed Annual Grassland. In May, the area was dominated by non-native annual grasses such as soft chess, Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) and hare barley, and non-native weedy forbs such as yellow star-thistle, broadleaf filaree (*Erodium botrys*) and rose clover. In August, the area still appeared lightly grazed, and a significant amount of vinegar weed (*Trichostemma lanceolatum*) was present. A few remnant valley oaks (*Quercus lobata*) occur within the grassland.

In the Annual Grassland the probability of special-status plants occurring is low, with the exception of large-flowered fiddleneck, and late-blooming species such as big tarplant (*Blepharizonia plumosa*). Both of these species have California Natural Diversity Database (CNDDB) records from within P4 and the immediate vicinity.

Within P4, the area most suitable for a pull site location is the large flat area that extends from tower 10/46 southeast to a large valley oak and beyond the oak to the wooded slope northwest of tower 10/47. All of this area is relatively level and is dominated by Annual Grassland. None of the *Amsinckia* skeletons observed in this area (in May) were large-flowered fiddleneck, as determined by examination of the nutlets. However, not all individuals were examined.

Within P4, the moister north-facing slopes are covered with Foothill Woodland dominated by blue oak, California buckeye (*Aesculus californica*), and gray pine (*Pinus sabiniana*). This woodland has a higher probability of supporting special-status plants, including Diablo

helianthella (*Helianthella castanea*), which is known from several locations nearby. However, this woodland occurs on slopes that are not suitable for pull sites, and will not be disturbed by project activities. Therefore, these areas were not surveyed for rare plants.

The access road to P4 is a narrow existing ranch road that curves through Annual Grassland dominated by non-native annual grasses and forbs such as wild oats (*Avena fatua*) and black mustard. Eroded roadbanks supported a few native species, including farewell-to-spring (*Clarkia* sp.), valley lupine (*Lupinus microcarpus*) and gumplant.

No late-flowering special-status species, such as big tarplant, were observed at P4 or the access road. The likelihood of early blooming special-status plants occurring along the proposed access road is low, although the possibility of grassland species like large-flowered fiddleneck cannot be ruled out without surveys conducted during the early phases of the blooming season.

Pull Site 5 (P5): East End of Chadbourne Road, Roddy Ranch and Cattle Company
For descriptive purposes, site P5 is subdivided into the proposed pull site area, and the access road/landing zone area. The vegetation of both areas consists entirely of heavily grazed Annual Grassland. No wetlands or any other sensitive habitats were observed within P5. Large, roughly circular areas visible on the air photo are low grass-covered mounds, not depressions. Soils throughout P5 are heavy shrink-swell clays.

The proposed pull site area is a rectangle approximately 0.4 mile long and 400 feet wide. In May, the vegetation was composed entirely of heavily grazed Annual Grassland dominated by non-native annual grasses such as hare barley, Italian ryegrass, Mediterranean barley, and soft chess, and non-native weedy forbs such as milk thistle (*Silybum marianum*), black mustard, and bur-clover (*Medicago polymorpha*). In August, the grassland at P6 was very heavily grazed, with little biomass remaining in other than dead skeletons of noxious weeds that livestock generally avoid. Large stands of dead skeletons of noxious weeds such as milk thistle and black mustard were abundant. The terrain in this area is relatively level to gently sloping, and pull sites could be located in the vicinity of tower 12/55 or tower 12/56.

The proposed access road site, is a roughly rectangular area approximately 0.25 mile long and 400 feet wide[7]. This north-south trending corridor straddles a fenceline. No existing road occurs on either side of the fenceline, so a new temporary access road would have to be created. The soil is a dark-colored shrink-swell clay, deeply cracked in the dry season, and of a type that can impede vehicle movement during the wet season. The vegetation of the access road consists entirely of very heavily grazed Annual Grassland. In May, this vegetation was dominated by non-native annual grasses and forbs of the same species found at the pull site area. In August, large numbers of the late-flowering native annual, Heermann's tarplant (*Holocarpha heermannii*), were observed in the potential access route/landing zone area. A large population of Fitch's spikeweed (*Centromadia fitchii*) was also present. This species is quite similar to both of the subspecies of *Centromadia parryi* that are special-status plants and whose range extends into this area. We examined several individuals by dissecting the flowering heads and looking at

7 A landing zone was subsequently proposed within the P5 access corridor.

the pappus, the receptacular bracts, and other characteristics that distinguish Fitch's spikeweed from *Centromadia parryi*. All of the characters we examined on each plant were consistent with the identification of Fitch's spikeweed.

No late-flowering special-status plants were observed in the vicinity of the access road or in potential pull site locations.

Pull Site 6 (P6): Cowell Ranch/John Marsh Property[8]

For descriptive purposes, P6 has been subdivided into two sections: the proposed pull site area and the access road.

At P6, the proposed pull site area is a roughly rectangular area approximately 0.25 mile long and 0.15 mile wide. The terrain suitable for a pull site location is on a gradual slope below and north of the ridge in the vicinity of tower 15/68A. Another potential pull site location is on the ridgeline near tower 15/69. The vegetation here is ungrazed Annual Grassland dominated by non-native annual grasses such as slender wild oat (*Avena barbata*), ripgut brome, soft chess and Italian ryegrass, and non-native weedy forbs such as rapeseed mustard and summer mustard. Large stands of fiddleneck skeletons were present throughout P6. None of the individuals examined were large-flowered fiddleneck, however, only a small number of the thousands of skeletons present were examined. Surveys during the blooming season for large-flowered fiddleneck would be needed to determine if this species occurs at this site. No wetlands or other sensitive habitats occur within the P6 area and surroundings.

The access route and landing zone can be reached from Vineyard Parkway in the Trilogy Development. From that intersection of Vineyard Parkway and Sacred Mountain Road, continue south on Vineyard Parkway for 0.4 mile[9]. A small unmarked turnout with a large valley oak on the slope immediately above and to the right marks the beginning of the access route. The proposed landing zone occurs on a graded area near the valley oak tree. Portions of the access route followWinery Loop Road, which is a roughly graded "ranch" road at present; this road will be paved sometime in the future as the Trilogy Development is completed. This ranch road turns up the slope toward tower 16/72. In July 2008, a chainlink fence at the boundary with Cowell Ranch blocked access, so the portion of the proposed access route was viewed only with binoculars through the fence in July (approximately 250 feet). A portion of the access route includes an existing ranch road that follows the ridgeline and accesses towers 15/70, 15/71 and 16/72 (surveyed May 2008).

The vegetation on the access route is composed of ungrazed or lightly grazed Annual Grassland

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8 Another access route to P6 was also examined in 2008. This access was subsequently dropped due to the presence of sensitive habitats and rare plant occurrences. This access is directly off of Marsh Creek Road just north of its intersection with Camino Diablo, through a locked ranch gate with a PG&E lock; it crosses the planned John Marsh State Park. This proposed access route crossed areas dominated by a mosaic of alkali wetland and meadow types, including Alkali Meadow, Alkali Vernal Pools, and Iodine Bush Scrub (Valley Sink Scrub of Holland 1986). Two species of special-status plants, crownscale (*Atriplex coronata* var. *coronata*) and San Joaquin saltbush (*Atriplex joaquiniana*) were found in scattered locations within these alkaline wetland vegetation types.

9 As of October 2011, portions of Vineyard Parkway were blocked with construction barriers.

dominated by non-native grasses and forbs of moderate quality. No wetlands or other sensitive habitats were observed along the ridge.

No wetlands or other sensitive habitats were observed along the ridge. The Winery Loop Road portion of the access route encircles artificially created retention basins; this portion of the access route is low quality. Most plants in this area are introduced ruderal weeds, such as stinkweed (*Dittrichia graveolens*), tumbleweed (*Salsola* sp.), yellow star-thistle and summer mustard; or weedy native annuals and perennials, such as telegraph weed (*Heterotheca grandiflora*), vinegar weed, and Heermann's tarweed (*Holocarpha heermannii*). Nearby slopes have been hydromulched and possibly hydroseeded, and erosion control blankets and other structures installed in some areas, so some species, such as lupines and rose clover, may have been seeded into the area. The entire Winery Loop Road and the retention basin area have been recently disturbed and do not provide suitable habitat for special-status plants, with the possible exception of pappose tarplant (*Centromadia parryi*). Late July is within the blooming time for pappose tarplant, however, no individuals of this species were observed in this area of the proposed access route during July surveys.

Pull Site 7 (P7): Walnut Avenue – Los Vaqueros Watershed land

The P7 pull site area is an irregularly shaped site about 0.25 mile by 0.2 miles in size on the west side of Walnut Avenue. It is covered with low quality, heavily grazed Annual Grassland, dominated by introduced annual grasses such as slender wild oat, soft chess, and Italian ryegrass; introduced annual weeds such as yellow star-thistle; and a few natives, such as Great Valley gumplant (*Grindelia camporum* ssp. *camporum*), Heermann's tarplant, Spanish lotus (*Lotus purshianus*), and saltgrass (*Distichlis spicata*).

Although CNDDB (2008) records indicate the presence of Alkali Meadow, Cismontane Alkali Marsh, and Alkali Seep in the area, none of these types were found within P7. Just beyond the western boundary of the pull site area, an impoundment of Kellogg Creek supports an alkali marsh community. No wetlands or other sensitive habitats, or special-status plants were observed within the pull site area during July 2008 surveys.

The proposed access road for P7 intersects with Walnut Avenue approximately 0.7 mile south of the intersection of Camino Diablo Road and Walnut Avenue. The proposed access road is an existing unvegetated gravel road approximately 20 feet wide. Annual Grassland similar to that described for the P7 pull site is found on both sides of the proposed access road throughout its length. No wetlands or other sensitive habitats, or special-status plants were observed along the edges of the access road.

Pull Site 8 (P8): West of Vasco Road

Pull site area P8 is a rectangular site about 0.20 mile by 0.15 mile located on a ridge overlooking Vasco Road to the southeast. The terrain is relatively flat. The vegetation of this pull site area consists of low quality grazed Annual Grassland. Dominant species evident during the July survey include introduced annual grasses such as soft chess and Italian ryegrass, and native forbs such as Great Valley gumplant, Heerman's tarplant, vinegar weed, and doveweed (*Eremocarpus setigerus*). No special-status plants were observed during the July survey.

The access road for P8 is an existing gravel road with ruderal weeds on the margins. No special-status plants were observed along the edges of the existing road.

Federally designated critical habitat for the federally endangered Contra Costa goldfields (*Lasthenia conjugens*) is located adjacent to the P8 pull site and access road. Suitable habitat for Contra Costa goldfields consists of shallow vernal pools and swales, or seasonally inundated low-lying basins, typically with semi-alkaline soils. However, no habitat suitable for this species was observed within the proposed pull site area or the access road.

Pull Site 9 (P9): Buena Vista Wind Farm site

Pull site area P9 is an approximately rectangular area about 0.25 mile by 0.15 mile, located in a gradually sloping area within a wind farm, between towers 25/109 and 25/110. The entire pull site area is relatively flat, and consists of heavily grazed, poor quality Annual Grassland. During the July survey this vegetation consisted almost entirely of the remains of introduced annual grasses such as soft chess, ripgut brome, slender wild oat and Italian ryegrass. No native plant species were observed.

As currently designated on the field maps, the access road is a well-maintained gravel road used to access the wind turbines of the Buena Vista wind farm. The road in this segment contains no vegetation. Vegetation on both sides of this road consists mainly of Annual Grassland, of the type described above. About 0.1 mile north of the pull site area, the access road crosses an intermittent drainage dominated by saltgrass that likely constitutes a jurisdictional wetland. Improvements to the access road at this crossing point are unlikely to be needed, so this wetland was not examined during July surveys. Portions of the access route north of the corrals was not examined.

Pull Site 10 (P10): North of Altamont Pass Road

New alternate pull site area P10 is a roughly square area about 0.1 mile by 0.1 mile that includes an upland containing tower 28/124, and a moderately steep south-facing slope to the south. Altamont Pass Road is directly downhill from this pull site. P10 is highly disturbed. The area east of the double fence is a flat area that appears to be part of a homestead or ranch property containing a house, horse pens, outbuilding and a large number of vehicles and boats. This area contained only ruderal weeds. On the west side of the double fence is a golf course that has ceased operation. The potential pull site location was covered with very short, dead grass of the type seen in golf courses and paved pathways suitable for golf carts. No natural vegetation or native plants were observed within the potential pull site location. Several well-established, regularly used routes can be used for access.

No late-flowering special-status plants were observed in P10, and none are expected to be found here. Spring surveys for special-status plants are not recommended for this location.

Pull Site 11 (P11): North of PG&E Tesla Substation

Pull site area P11 is a rectangular area about 0.2 mile by 0.15 mile, covered with very poor quality, heavily grazed Annual Grassland. The terrain at this site is relatively level. During the

July survey, the vegetation consisted entirely of remnants of introduced annual grasses, such as ripgut brome, soft chess, slender wild oat, and Italian ryegrass.

Most of the access road to P11 consists of a well-maintained gravel road; however, the final 0.2 mile is a rutted, partially vegetated track. Poor quality, heavily grazed Annual Grassland is the vegetation found within the track and on both sides. No wetlands or other sensitive habitats, or special-status plants were observed within the pull site area or access route.

Although low quality, the Annual Grassland of the pull site area and the vegetated portion of the access road is potential habitat for special-status plants. Spring surveys are recommended to search for early-flowering special-status plants known from the vicinity, such as diamond-petaled poppy and large-flowered fiddleneck.

Pull Site 12 (P12): PG&E Tesla Substation

P12 is a rectangle approximately 1000 feet by 500 feet, located in the vicinity of tower 31/137. The terrain is flat. This site is adjacent to the large PG&E Tesla Substation. The habitat consists of ungrazed, very poor quality Annual Grassland, dominated by a dense stand of ripgut brome that includes a few introduced invasive tumbleweeds. This ungrazed stand of dense, dry grass constitutes a fire hazard. No wetlands or other sensitive habitats, or special-status plants were observed during the July surveys. The habitat quality of this site is very low and is not expected to support any special-status plants, so no further surveys are recommended.

Recommendations

Based on the results of the late-season surveys, the presence of special-status plants is possible at many project sites. This determination is based on the vegetation types present and the ranges of potentially occurring special-status plants. Protocol-level surveys conducted at the time of year when potentially occurring special-status plants are blooming and in identifiable condition is recommended.

Protocol-level early season surveys in 2009 are recommended for sites in the vicinity of known locations of early-flowering special-status plants, especially for diamond-petaled poppy (*Eschscholzia rhombifolia*), alkali milk-vetch (*Astragalus tener* var. *tener*), round-leaved filaree (*California macrophylla*), fragrant fritillary (*Fritillaria liliacea*), and the federally and state listed endangered large-flowered fiddleneck (*Amsinckia grandiflora*), the latter of which is known from several historic and current nearby locations, most within one mile of some project sites. These recommendations apply to most project sites except those that are very disturbed (such as P10 and P12)[10].

In addition, near P6, the late-blooming special-status plant big tarweed has been observed on the Cowell Ranch. Portions of the proposed access route were not accessible in late 2008, and were only viewed with binoculars. A follow-up on-the-ground survey is recommended in the very late season when special-status *Asteraceae* are more likely to be flowering and evident.

10 Early season plant surveys were subsequently carried out at several sites in 2009: P2, P3, P4, P8, P9, P11, P12 (GANDA 2010b).

A plant list compiled during the 2008 surveys is included at the end of this report. Representative photographs are also included.

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Plant Species Observed During 2008 Surveys of the PG&E Pittsburg-Tesla Project			
Scientific Name	**Common Name**	**Habitat**	**Life Form**
CONIFERS			
Pinaceae	**Pine Family**		
Pinus sabiniana	gray pine	FW	tree
FLOWERING PLANTS - DICOTS			
Amaranthaceae	**Amaranth Family**		
Amaranthus blitoides	prostrate pigweed	Ru	annual
Amaranthus sp.	pigweed	AG	annual
Apiaceae	**Carrot Family**		
Foeniculum vulgare NW*	wild fennel	AG	perennial
Torilis arvensis NW*	spreading hedgeparsley	AG	annual
Asclepiadaceae	**Milkweed Family**		
Asclepias fasciculatus	narrow-leaved milkweed	AG	perennial
Asteraceae	**Sunflower Family**		
Achillea millefolium	white yarrow	AG	perennial
Achyrachaena mollis	blow-wives	AG	annual
Baccharis pilularis	coyote brush	AG	shrub
Carduus pycnocephalus NW*	Italian thistle	AG	annual
Carduus tenuiflorus NW*	slenderflowered thistle	AG	annual/ biennial
Centaurea solstitialis NW*	yellow star-thistle	AG	annual
Conyza canadensis	horseweed	Ru	annual
Cotula coronopifolia NW*	brass buttons	W (manmade)	annual
Cynara cardunculus NW*	artichoke thistle	AG	perennial
Dittrichia graveolens NW*	stinkweed	Ru	annual
Grindelia camporum ssp. *camporum*	Great Valley gumplant	AG	perennial
Grindelia sp.	gumplant	AG; roadbanks	perennial
Heterotheca grandiflora	telegraph weed	Ru	annual
Hemizonia (=Centromadia) fitchii	Fitch's spikeweed	AG	annual
Holocarpha heermannii	Heermann's tarweed	Ru	annual
Hypochaeris glabra NW*	smooth cat's-ear	AG	annual
Hypochaeris radicata NW*	hairy cat's-ear	AG; FW	annual
*Lactuca saligna**	willow lettuce	AG; Ru	annual
*Lactuca serriola**	prickly lettuce	AG	annual

Plant Species Observed During 2008 Surveys of the PG&E Pittsburg-Tesla Project			
Scientific Name	**Common Name**	**Habitat**	**Life Form**
Lagophylla ramosissima	branching hareleaf	AG	annual
Chamomilla suaveolens (=*Matricaria matricarioides*)*	pineappleweed	Ru	annual
*Picris echioides** *NW*	bristly ox-tongue	AG; Ru	annual
*Silybum marianum** *NW*	milk thistle	AG	annual
*Sonchus asper**	sow thistle	AG	annual
*Tragopogon porrifolius**	salsify	AG	biennial
*Xanthium spinosum** *NW*	spiny clotbur	W (manmade)	annual
Boraginaceae	**Fiddleneck Family**		
Amsinckia menziesii var. *intermedia*	common fiddleneck	AG	annual
Amsinckia sp.	fiddleneck	AG	annual
Brassicaceae	**Mustard Family**		
*Brassica napus**	rapeseed mustard	AG	annual
*Brassica nigra** *NW*	black mustard	AG	annual
*Capsella bursa-pastoris**	shepherd's-purse	AG	annual
*Hirschfeldia incana** *NW*	summer mustard	AG	annual
Lepidium nitidum	shining peppergrass	AG	annual
Lepidium sp.	peppergrass	AG	annual
*Sisymbrium officinale**	hedge mustard	AG; Ru	annual
Caryophyllaceae	**Pink Family**		
*Cerastium glomeratum**	mouse-ear chickweed	AG	annual
*Silene gallica**	windmill pink	AG	annual
*Spergula arvensis**	spurrey	AG	annual
Chenopodiaceae	**Goosefoot Family**		
Chenopodium sp.	goosefoot	AG	annual
Salsola sp.* *NW*	Russian thistle	Ru	annual
Convolvulaceae	**Morning-glory Family**		
*Convolvulus arvensis** *NW*	bindweed	Ru	perennial
Euphorbiaceae	**Spurge Family**		
Eremocarpus setigerus	doveweed	AG	annual
Fabaceae	**Pea Family**		
Astragalus sp.	milk-vetch	AG	perennial
*Lathyrus latifolius** *NW*	perennial sweet pea	AG; Ru	perennial

Plant Species Observed During 2008 Surveys of the PG&E Pittsburg-Tesla Project			
Scientific Name	**Common Name**	**Habitat**	**Life Form**
*Lotus corniculatus**	bird's-foot trefoil	AG	annual
Lotus purshianus	Spanish lotus	AG	annual
Lupinus microcarpus	valley lupine	AG; Roadbank	annual
Lupinus sp.	lupine (likely from seed mix)	Ru	annual
*Medicago polymorpha** NW	bur clover	AG	annual
*Medicago sativa**	alfalfa	Ru	perennial
*Melilotus indicus**	yellow sweet-clover	AG	annual
*Trifolium hirtum** NW	rose clover	AG	annual
*Trifolium incarnatum**	crimson clover	Ru	annual
*Vicia benghalensis**	purple vetch	AG	annual
*Vicia sativa**	spring vetch	AG	annual
Fagaceae	**Oak Family**		
Quercus douglasii	blue oak	FW	tree
Quercus lobata	valley oak	AG	tree
Geraniaceae	**Geranium Family**		
*Erodium botrys**	broadleaf filaree	AG	annual
*Erodium cicutarium** NW	red-stemmed filaree	AG	annual
Hippocastinaceae	**Buckeye Family**		
Aesculus californica	California buckeye	FW	tree
Lamiaceae	**Mint Family**		
Trichostemma lanceolatum	vinegar weed	Ru	annual
Malvaceae	**Mallow Family**		
*Malva neglecta**	common mallow	Ru	annual
*Malva nicaaensis**	bull mallow	Ru	annual
Malvella leprosa	alkali-mallow	AG	annual
Onagraceae	**Evening-primrose Family**		
Clarkia sp.	farewell-to-spring	Roadbank	annual
Epilobium brachycarpum	willow-herb	AG	annual
Papaveraceae	**Poppy Family**		
Eschscholzia californica	California poppy	AG	annual
Polygonaceae	**Buckwheat Family**		
*Polygonum arenastrum** NW	knotweed	Ru	annual

Plant Species Observed During 2008 Surveys of the PG&E Pittsburg-Tesla Project			
Scientific Name	**Common Name**	**Habitat**	**Life Form**
Rumex crispus NW*	curly dock	AG	perennial
*Rumex pulcher**	fiddle dock	AG	perennial
Ranunculaceae	**Buttercup Family**		
Delphinium sp.	larkspur	AG	perennial
*Ranunculus scleratus**	cursed crowfoot	W	
Salicaceae	**Willow Family**		
Populus fremontii	Fremont cottonwood	RW	tree
Salix sp.	willow species	RW	shrub/tree
Scrophulariaceae	**Figwort Family**		
*Bellardia trixago**	bellardia	AG	annual
Solanaceae	**Nightshade Family**		
*Nicotiana glauca**	tree tobacco	AG	shrub
Zygophyllaceae	**Caltrop Family**		
Tribulus terrestris NW*	puncture vine	Ru	annual
FLOWERING PLANTS: MONOCOTS			
Cyperaceae	**Sedge Family**		
Cyperus eragrostis	umbrella sedge	AG	perennial
Liliaceae	**Lily Family**		
Broadiaea elegans	elegant brodiaea	AG	perennial
Calochortus sp.	mariposa lily	AG	perennial
Chlorogalum pomeridianum var. *pomeridianum*	soap plant	AG	perennial
Triteleia laxa	Ithuriel's spear	AG	perennial
Poaceae	**Grass Family**		
Avena barbata NW*	slender wild oat	AG	annual
Avena fatua NW*	wild oat	AG	annual
*Avena sativa**	oats	Ru	annual
Brachypodium distachyon NW*	false brome	AG	annual
Bromus carinatus var. *carinatus*	California brome	AG	perennial
Bromus diandrus NW*	ripgut brome	AG	annual
Bromus hordeaceus NW*	soft brome	AG	annual
Distichlis spicata	saltgrass	AG	perennial

Plant Species Observed During 2008 Surveys of the PG&E Pittsburg-Tesla Project			
Scientific Name	**Common Name**	**Habitat**	**Life Form**
Hordeum marinum ssp. *gussoneanum**	Mediterranean barley	AG	annual
*Lolium multiflorum** NW	Italian ryegrass	AG	annual
Nassella (=Stipa) pulchra	purple needlegrass	AG	perennial
*Poa annua**	annual bluegrass	AG	annual
Poa sp.	bluegrass	AG	perennial
*Polypogon monspeliensis** NW	rabbit's-foot grass	W	annual
*Taeniatherum caput-medusae** NW	Medusa-head	AG/Ru	annual
Typhaceae	**Cattail Family**		
Typha sp.	cattail	W	perennial

Notes:
Scientific names from *The Jepson Manual* (Hickman 1993).
Common names from *The Jepson Manual* (Hickman 1993) and other sources.
AG = Annual Grassland, FW = Foothill Woodland, RW = Riparian Woodland, Ru = ruderal, W = wetland.
* = non-native
NW = noxious agricultural or wildland weed as defined by California Department of Food and Agriculture or California Invasive Plant Council

Photo 1. P2 possible pull site location, looking south from 2/13 to 2/14, May 2008.

Photo 2. P6 access route, showing ranch road from housing development, facing west, July 2008.

Photo 3. P7 pull site location. Looking south toward tower 18/82. July 2008.

Photo 4. P8 pull site location, looking north to tower 22/95. July 2008.

Photo 5. P9 pull site, looking north to tower 25/109, July 2008.

Photo 6. P10 pull site, looking south toward Altamont Pass Road, August 2008.

Photo 7. P11 pull site, looking south toward PG&E Tesla Substation, July 2008.

Photo 8. P12, looking south toward PG&E substation, July 2008.

Appendix F
Biological Constraints Analysis

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To: Mike Fry, PG&E Senior Ecologist
From: David Kelly, GANDA Project Manager

Date: November 15, 2007 - DRAFT

RE: **Pittsburg-Tesla 230 kV Line Reconductor**
Evaluation of Biological and Wetlands Issues

Garcia and Associates (GANDA) is pleased to present Pacific Gas and Electric Company (PG&E) with this report which identifies potential wildlife, botanical, and wetland issues present along the Pittsburg-Tesla 230 kV transmission line. This information is intended to supplement project planning, so that sensitive resources can be avoided and/or impacts to the resources can be minimized.

Project Area and Purpose

The Pittsburg-Tesla 230 kV transmission line (hereafter referred to as the "Line") is owned and operated by PG&E. The Line is located in eastern Contra Costa and northern Alameda Counties, California. The corridor is approximately 31 miles long (Figure 1). The start of the Line is at the Pittsburg substation in Pittsburg, California, approximately south of the confluence of the Sacramento and San Joaquin Rivers. After leaving the substation, the line runs south for approximately four miles, then turns east southeast for 13 miles, crossing Black Diamond Mines Regional Park and the Marsh Creek Reservoir Dam and portions of the John Marsh State Park. The line turns southeast for 14 miles to enter Alameda County, then crosses a western branch of Bethany Reservoir and I-580, then ends at the Tesla Substation.

The Line extends across the landscape through a few general vegetation types. These types include grassland, oak woodland, and chaparral. Within this larger backdrop, the project also encompasses several sensitive habitats: these habitats are wetland and upland habitats that have been reduced significantly through human activity and often support a disproportionate number of sensitive species. These habitats include coastal marsh, pickleweed marsh, riparian corridors,

vernal pools, and alkaline meadow areas. The Line crosses 12 watersheds: Willow Creek, Kirker Creek, West Antioch Creek, Deer Creek, Dry Creek SubBasin, Upper Marsh Creek, Kellogg Creek, Brushy Creek, Bethany Reservoir, Mountain House, Mountain House Creek, and Patterson Run (Jones and Stokes 2006, California Watershed Portal 2007).

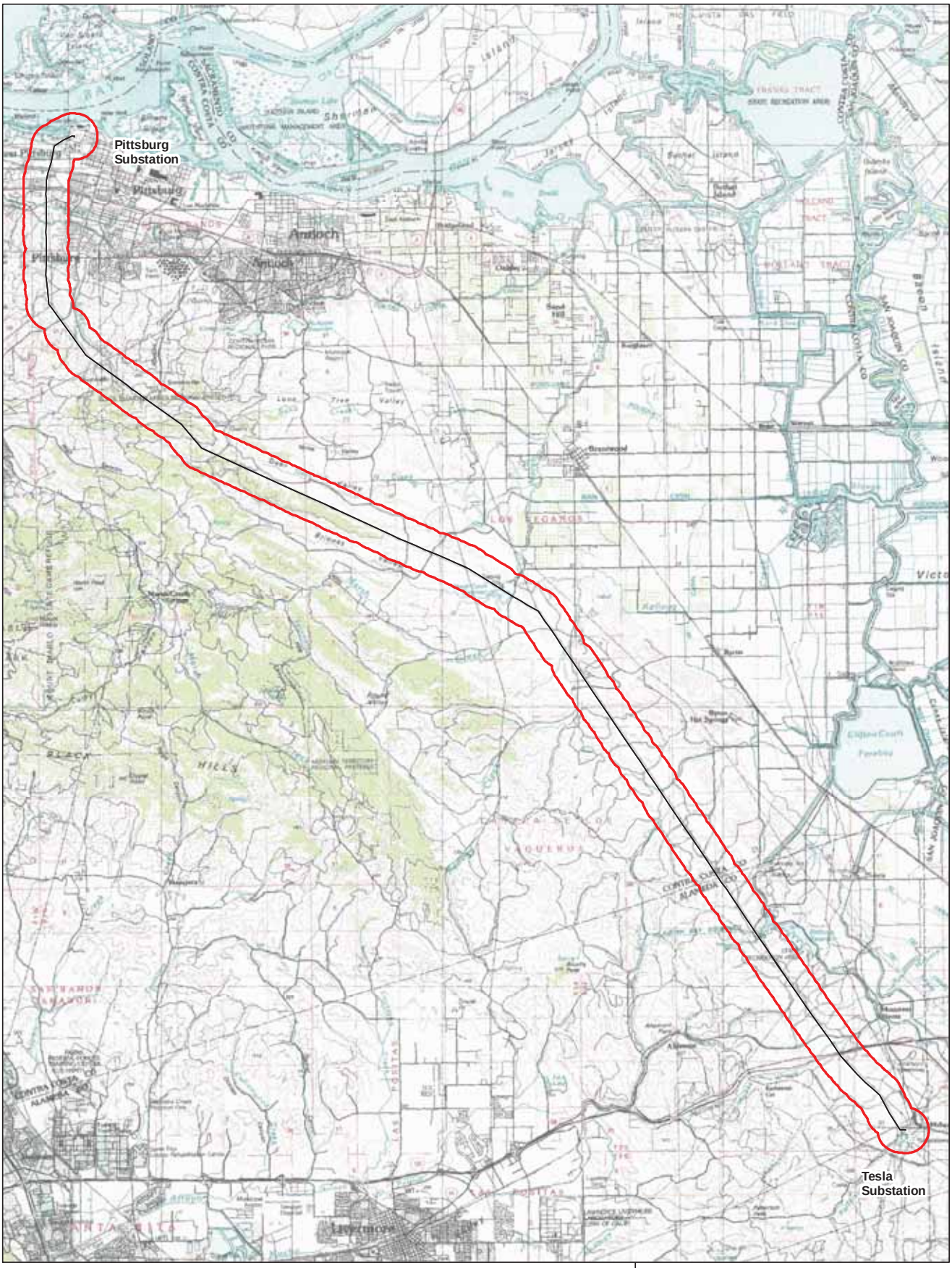
Routine maintenance procedures mandate periodic line and tower facility upgrades. The details of these upgrades for this Line have not yet been established. However, upgrades may include activities such as installation of reconductoring equipment at all towers; installation of vertical extensions, top cage extensions, new insulators, arm extensions, and/or other modifications at some towers; use of rider structures to protect road and other crossings; and the establishment of pull sites on which to set up and pull the conductor. The information provided in this report is intended to inform engineering planning for these upgrades.

Methods

In October and November 2007, GANDA biologists performed a review of known information regarding special-status plant and wildlife species and habitats underneath and in proximity to the line. Special-status species include those listed or considered candidates for listing under the state and/or federal endangered species acts; and species designated "of concern" by the US Fish and Wildlife Service (USFWS) and/or California Department of Fish and Game (CDFG), or listed as threatened or endangered (Lists 1 and 2) by the California Native Plant Society (CNPS) even though these designations themselves provide no legal protection. Sources used included 2005 aerial photography from National Agriculture Imagery Program (NAIP) (CASIL 2007), Topologically Integrated Geographic Encoding and Referencing (TIGER) hydrology information from the US Census Bureau (ESRI 2007), the East Contra Costa Habitat Conservation Plan (HCP) (Jones and Stokes 2006), local plant lists (Lake 2004), species occurrence records from the California Department of Fish and Game's Natural Diversity Database (CNDDB) (CDFG 2007), critical habitat information and species lists from USFWS (USFWS 2007a and 2007b), and the CNPS online inventory (CNPS 2007). The search area included the seven USGS 7.5 minute topographic quads that include the Line (Antioch South, Brentwood, Byron Hot Springs, Clayton, Clifton Court Forebay, Honker Bay, and Midway), and all 13 adjacent quads (Altamont, Antioch North, Birds Landing, Denverton, Fairfield South, Jersey Island, Livermore, Tassajara, Tracy, Union Island, Vine Hill, Walnut Creek, and Woodward Island). GIS analysis of CNDDB information determined which species have recorded occurrences within ½ mile of the Line.

Information from predictive special-status species habitat model maps from the East Contra County HCP (Jones and Stokes 2006) was incorporated into the analysis. These habitat model maps are based primarily on land cover, then refined with other parameters specific to each species, such as known elevation range or buffer distances from water sources.[1]

1 These maps are applicable only to portions of the project within Contra Costa County. The accuracy is limited by the minimum mapping units used in the study (typically 10 acres, with 1 acre used for smaller specialized habitats).



Legend

Transmission Line

1 mile Project T-Line Buffer

Pittsburg - Tesla Project Location

November 2007
Alameda and Contra Costa County, CA

N

0 2 4 Miles

GANDA

GANDA biologists Jackie Finck (wildlife biologist) and Samantha Hillaire (botanist) supplemented this information with reconnaissance level field visits on October 30, 2007. These visits were limited to probable areas of ground disturbance along the line. Nine dead end towers were visited, and an area within 300 feet of these towers was assessed for issues.

Results

Table 1 lists special-status plant species with potential to occur along the Line, their status, and habitat requirements. Sixty-seven special-status plant species were identified from background research. Of these, nine plant species are federally- or California state-listed as threatened or endangered:

- Large-flowered fiddleneck (*Amsinckia grandiflora*)
  Federally- and California state endangered, CNPS list 1B.1
- Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*)
  Federally endangered, no state status, CNPS list 1B.1
- Soft bird's-beak (*Cordylanthus mollis* ssp. *mollis*)
  Federally endangered, California state rare, CNPS list 1B.2
- Palmate-bracted bird's-beak (*Cordylanthus palmatus*)
  Federally- and California state endangered, CNPS list 1B.1
- Delta button-celery (*Eryngium racemosum*)
  No federal status, California state endangered, CNPS list 1B.1
- Contra Costa wallflower (*Erysimum capitatum* var. *angustatum*)
  Federally and California state endangered, CNPS list 1B.1
- Contra Costa goldfields (*Lasthenia conjugens*)
  Federally endangered, no state status, CNPS list 1B.1
- Colusa grass (*Neostapfia colusana*)
  Federally threatened, California state endangered, CNPS list 1B.1
- Antioch dunes evening primrose (*Oenothera deltoides* ssp. *howellii*)
  Federally and California state endangered, CNPS list 1B.1

Of these nine species, Contra Costa goldfields, soft bird's-beak, and large-flowered fiddleneck are the most likely to occur within the Line corridor because of presence of suitable habitat and known proximity to the Line. Federally designated critical habitat for Contra Costa goldfields is also present near towers 21/93-23/102. During field visits, unidentifiable fiddleneck skeletons were observed in the vicinity of towers 5/23 and 17/77.

Table 1: Special-status plant species with potential to occur in the Pittsburg-Tesla Reconductoring Corridor

Common Name/ Scientific Name	Status (Federal / State / CNPS)	Blooming Period	Habitat Requirements and Potential Potential
large-flowered fiddleneck *Amsinckia grandiflora*	FE / CE / 1B.1	Apr-May	•Cismontane woodland •Valley and foothill grassland •275 - 550 meters Occurrences from under line and within 1/2 mile buffer
bent-flowered fiddleneck *Amsinckia lunaris*	-- / -- / 1B.2	Mar-Jun	•Coastal bluff scrub •Cismontane woodland •Valley and foothill grassland •3 - 500 meters
slender silver-moss *Anomobryum julaceum*	-- / -- / 2.2	NA	•Broadleafed upland forest •Lower montane coniferous forest •North Coast coniferous forest /damp rock and soil on outcrops, usually on roadcuts •100 - 1000 meters Occurrences within 1/2 mile buffer
Mt. Diablo manzanita *Arctostaphylos auriculata*	-- / -- / 1B.3	Jan-Mar	•Chaparral (sandstone) •Cismontane woodland •135 - 650 meters Occurrences from adjacent to line and 1/2 mile buffer
Contra Costa manzanita *Arctostaphylos manzanita* ssp. *laevigata*	-- / -- / 1B.2	Jan-Mar(Apr)	•Chaparral (rocky) •500 - 1100 meters Occurrences from project quads
alkali milk-vetch *Astragalus tener* var. *tener*	-- / -- / 1B.2	Mar-Jun	•Playas •Valley and foothill grassland (adobe clay) •Vernal pools /alkaline •1 - 60 meters Occurrences from project quads
Heartscale *Atriplex cordulata*	-- / -- / 1B.2	Apr-Oct	•Chenopod scrub •Meadows and seeps •Valley and foothill grassland (sandy)/saline or alkaline •1 - 375 meters

Common Name/ Scientific Name	Status (Federal / State / CNPS)	Blooming Period	Habitat Requirements and Potential Potential
brittlescale *Atriplex depressa*	-- / -- / 1B.2	May-Oct	•Chenopod scrub •Meadows and seeps •Playas •Valley and foothill grassland •Vernal pools /alkaline, clay •1 - 320 meters Occurrences from within ½ mile buffer of line
San Joaquin spearscale *Atriplex joaquiniana*	-- / -- / 1B.2	Apr-Oct	•Chenopod scrub •Meadows and seeps •Playas •Valley and foothill grassland/alkaline •1 - 835 meters Occurrences from under line and within ½ mile buffer of line
vernal pool smallscale *Atriplex persistens*	-- / -- / 1B.2	Jun-Oct	•Vernal pools (alkaline) •10 - 115 meters
big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	-- / -- / 1B.2	Mar-Jun	•Chaparral •Cismontane woodland •Valley and foothill grassland /sometimes serpentinite •90 - 1400 meters
big tarplant *Blepharizonia plumosa*	-- / -- / 1B.1	Jul-Oct	•Valley and foothill grassland •30 - 505 meters Occurrences along line and in 1 mile line buffer
round-leaved filaree *California macrophylla*	-- / -- / 1B.1	Mar-May	•Cismontane woodland •Valley and foothill grassland /clay •15 - 1200 meters Occurrences within 1/2 mile buffer
Mt. Diablo fairy-lantern *Calochortus pulchellus*	-- / -- / 1B.2	Apr-Jun	•Chaparral •Cismontane woodland •Riparian woodland •Valley and foothill grassland •30 - 840 meters Occurrences from project quads

Common Name/ Scientific Name	Status (Federal / State / CNPS)	Blooming Period	Habitat Requirements and Potential Potential
Butte County morning-glory *Calystegia atriplicifolia* ssp. *buttensis*	-- / -- / 1B.2	May-Jul	•Chaparral •Lower montane coniferous forest /rocky, sometimes roadside •600 - 1524 meters Occurrences from project quads
chaparral harebell *Campanula exigua*	-- / -- / 1B.2	May-Jun	•Chaparral (rocky, usually serpentinite) •275 - 1250 meters Occurrences from project quads
fox sedge *Carex vulpinoidea*	-- / -- / 2.2	May-Jun	•Marshes and swamps (freshwater) •Riparian woodland •30 - 1200 meters
Lemmon's jewelflower *Caulanthus coulteri* var. *lemmonii*	-- / -- / 1B.2	Mar-May	•Pinyon and juniper woodland •Valley and foothill grassland •80 - 1220 meters Occurrences from project quads; thought to be extirpated from both counties.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	-- / -- / 1B.2	May-Oct(Nov)	•Valley and foothill grassland (alkaline) •1 - 230 meters Occurrences from project quads
pappose tarplant *Centromadia parryi* ssp. *parryi*	-- / -- / 1B.2	May-Nov	•Chaparral •Coastal prairie •Meadows and seeps •Marshes and swamps (coastal salt) •Valley and foothill grassland (vernally mesic)/often alkaline •2 - 420 meters
Suisun thistle *Cirsium hydrophilum* var. *hydrophilum*	FE / -- / 1B.1	Jul-Sep	•Marshes and swamps (salt) •0 - 1 meters
hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus*	-- / -- / 1B.1	Jun-Sep	•Meadows and seeps •Playas •Valley and foothill grassland /alkaline •1 - 155 meters

Common Name/ Scientific Name	Status (Federal / State / CNPS)	Blooming Period	Habitat Requirements and Potential Potential
soft bird's-beak *Cordylanthus mollis* ssp. *mollis*	FE / CR / 1B.2	Jul-Nov	•Marshes and swamps (coastal salt) •0 - 3 meters Occurrences from project quads
Mt. Diablo bird's-beak *Cordylanthus nidularius*	-- / CR / 1B.1	Jul-Aug	•Chaparral (serpentinite) •600 - 800 meters Occurrences from project quads
palmate-bracted bird's-beak *Cordylanthus palmatus*	FE / CE / 1B.1	May-Oct	•Chenopod scrub •Valley and foothill grassland /alkaline •5 - 155 meters
Hoover's cryptantha *Cryptantha hooveri*	-- / -- / 1A	Apr-May	•Inland dunes •Valley and foothill grassland (sandy) •9 - 150 meters Assumed extirpated, not seen since 1983
Livermore tarplant *Deinandra bacigalupi*	-- / -- / 1B.2	Jun-Oct	•Meadows and seeps (alkaline) •150 - 185 meters
Hospital Canyon larkspur *Delphinium californicum* ssp. *interius*	-- / -- / 1B.2	Apr-Jun	•Chaparral (openings) •Cismontane woodland (mesic) •230 - 1095 meters Occurrences from project quads
recurved larkspur *Delphinium recurvatum*	-- / -- / 1B.2	Mar-Jun	•Chenopod scrub •Cismontane woodland •Valley and foothill grassland /alkaline •3 - 750 meters Occurrences from project quads
Norris' beard-moss *Didymodon norrisii*	-- / -- / 2.2	NA	•Cismontane woodland •Lower montane coniferous forest /intermittently mesic, rock •600 - 1700 meters Occurrences from project quads

Common Name/ Scientific Name	Status (Federal / State / CNPS)	Blooming Period	Habitat Requirements and Potential Potential
dwarf downingia *Downingia pusilla*	-- / -- / 2.2	Mar-May	•Valley and foothill grassland (mesic) •Vernal pools •1 - 445 meters
Brandegee's eriastrum *Eriastrum brandegeeae*	-- / -- / 1B.2	Apr-Aug	•Chaparral •Cismontane woodland /volcanic, sandy •305 - 1030 meters Occurrences from project quads
Mt. Diablo buckwheat *Eriogonum truncatum*	-- / -- / 1B.1	Apr-Sep(Nov-Dec)	•Chaparral •Coastal scrub •Valley and foothill grassland /sandy 3 - 350 meters Occurrences from project quads
Delta button-celery *Eryngium racemosum*	-- / CE / 1B.1	Jun-Sep	•Riparian scrub (vernally mesic clay depressions) •3 - 30 meters
Contra Costa wallflower *Erysimum capitatum* ssp. *angustatum*	FE / CE / 1B.1	Mar-Jul	•Inland dunes •3 - 20 meters
diamond-petaled California poppy *Eschscholzia rhombipetala*	-- / -- / 1B.1	Mar-Apr	•Valley and foothill grassland (alkaline, clay) •0 - 975 meters Occurrences from under line and within 1/2 mile buffer
fragrant fritillary *Fritillaria liliacea*	-- / -- / 1B.2	Feb-Apr	•Cismontane woodland •Coastal prairie •Coastal scrub •Valley and foothill grassland /often serpentinite •3 - 410 meters Occurrences from project quads

Common Name/ Scientific Name	Status (Federal / State / CNPS)	Blooming Period	Habitat Requirements and Potential Potential
Diablo helianthella *Helianthella castanea*	-- / -- / 1B.2	Mar-Jun	•Broadleafed upland forest •Chaparral •Cismontane woodland •Coastal scrub •Riparian woodland •Valley and foothill grassland •60 - 1300 meters Occurrences under line and within 1/2 mile buffer
Brewer's western flax *Hesperolinon breweri*	-- / -- / 1B.2	May-Jul	•Chaparral •Cismontane woodland •Valley and foothill grassland /usually serpentinite •30 - 900 meters Occurrences from within ½ mile buffer of line.
Napa western flax *Hesperolinon serpentinum*	-- / -- / 1B.1	May-Jul	•Chaparral/ serpentinite •50-800 meters Known from the Los Vasqueros area.
rose-mallow *Hibiscus lasiocarpus*	-- / -- / 2.2	Jun-Sep	•Marshes and swamps (freshwater) •0 - 120 meters Occurrences from project quads
Carquinez goldenbush *Isocoma arguta*	-- / -- / 1B.1	Aug-Dec	•Valley and foothill grassland (alkaline) •1 - 20 meters Occurrences from project quads; species thought to be extirpated from both counties
Northern California black walnut *Juglans hindsii*	-- / -- / 1B.1	Apr-May	•Riparian forest and woodland •0 -440 meters Protections only to native occurrences. Native occurrences known from Marsh Creek Area
Contra Costa goldfields *Lasthenia conjugens*	FE / -- / 1B.1	Mar-Jun	•Cismontane woodland •Playas (alkaline) •Valley and foothill grassland •Vernal pools /mesic •0 - 470 meters Known from project quads
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	-- / -- / 1B.2	May-Jul(Sep)	•Marshes and swamps (freshwater and brackish) •0 - 4 meters Known from project quads

Common Name/ Scientific Name	Status (Federal / State / CNPS)	Blooming Period	Habitat Requirements and Potential Potential
Legenere *Legenere limosa*	-- / -- / 1B.1	Apr-Jun	•Vernal pools •1 - 880 meters
Mason's lilaeopsis *Lilaeopsis masonii*	-- / CR / 1B.1	Apr-Nov	•Marshes and swamps (brackish or freshwater) •Riparian scrub •0 - 10 meters Known from project quads
Delta mudwort *Limosella subulata*	-- / -- / 2.1	May-Aug	•Marshes and swamps •0 - 3 meters Known from project quads
showy madia *Madia radiata*	-- / -- / 1B.1	Mar-May	•Cismontane woodland •Valley and foothill grassland •25 - 900 meters Known from project quads; thought to be extirpated from both counties.
Hall's bush mallow *Malacothamnus hallii*	-- / -- / 1B.2	May-Sep(Oct)	•Chaparral •Coastal scrub •10 - 760 meters Known from project quads
robust monardella *Monardella villosa* ssp. *globosa*	-- / -- / 1B.2	Jun-Jul(Aug)	•Broadleafed upland forest (openings) •Chaparral (openings) •Cismontane woodland •Coastal scrub •Valley and foothill grassland •100 - 915 meters
Colusa grass *Neostapfia colusana*	FT / CE / 1B.1	May-Aug	•Vernal pools (adobe, large) •5 - 200 meters
Antioch Dunes evening-primrose *Oenothera deltoides* ssp. *howellii*	FE / CE / 1B.1	Mar-Sep	•Inland dunes •0 - 30 meters Known from project quads
Mt. Diablo phacelia *Phacelia phacelioides*	-- / -- / 1B.2	Apr-May	•Chaparral •Cismontane woodland /rocky •500 - 1370 meters Known from project quads

Common Name/ Scientific Name	Status (Federal / State / CNPS)	Blooming Period	Habitat Requirements and Potential Potential
hairless popcorn-flower *Plagiobothrys glaber*	-- / -- / 1A	Mar-May	•Meadows and seeps (alkaline) •Marshes and swamps (coastal salt) •15 - 180 meters Thought to be extirpated.
bearded popcorn-flower *Plagiobothrys hystriculus*	-- / -- / 1B.1	Apr-May	•Valley and foothill grassland (mesic) •Vernal pools margins/often vernal swales •0 - 52 meters
eel-grass pondweed *Potamogeton zosteriformis*	-- / -- / 2.2	Jun-Jul	•Marshes and swamps (assorted freshwater) •0 - 1860 meters
rock sanicle *Sanicula saxatilis*	-- / CR / 1B.2	Apr-May	•Broadleafed upland forest •Chaparral •Valley and foothill grassland /rocky •620 - 1175 meters Known from project quads
marsh skullcap *Scutellaria galericulata*	-- / -- / 2.2	Jun-Sep	•Lower montane coniferous forest •Meadows and seeps (mesic) •Marshes and swamps •0 - 2100 meters
rayless ragwort *Senecio aphanactis*	-- / -- / 2.2	Jan-Apr	•Chaparral •Cismontane woodland •Coastal scrub/sometimes alkaline •15 - 800 meters Known from under line and 1/2 mile buffer.
most beautiful jewel-flower *Streptanthus albidus* ssp. *peramoenus*	-- / -- / 1B.2	(Mar)Apr-Sep(Oct)	•Chaparral •Cismontane woodland •Valley and foothill grassland /serpentinite •94 - 1000 meters Known from project quads

Common Name/ Scientific Name	Status (Federal / State / CNPS)	Blooming Period	Habitat Requirements and Potential Potential
Mt. Diablo jewel-flower *Streptanthus hispidus*	-- / -- / 1B.3	Mar-Jun	•Chaparral •Valley and foothill grassland /rocky •365 - 1200 meters Known from project quads
Suisun Marsh aster *Aster lentus*	-- / -- / 1B.2	May-Nov	•Marshes and swamps (brackish and freshwater) •0 - 3 meters Known from project quads
saline clover *Trifolium depauperatum* var. *hydrophilum*	-- / -- / 1B.2	Apr-Jun	•Marshes and swamps •Valley and foothill grassland (mesic, alkaline) •Vernal pools •0 - 300 meters
coastal triquetrella *Triquetrella californica*	-- / -- / 1B.2		•Coastal bluff scrub •Coastal scrub /soil •10 - 100 meters
caper-fruited tropidocarpum *Tropidocarpum capparideum*	-- / -- / 1B.1	Mar-Apr	•Valley and foothill grassland (alkaline hills) •1 - 455 meters Known from within 1/2 mile buffer of line. Thought to be extirpated from both counties.
oval-leaved viburnum *Viburnum ellipticum*	-- / -- / 2.3	May-Jun	•Chaparral •Cismontane woodland •Lower montane coniferous forest •215 - 1400 meters Known from project quads

Information for this table was obtained from CNPS 2007 and Lake 2004. Months in (parentheses) are uncommon.

Federal

FE = Listed as Endangered under the federal Endangered Species Act
FT = Listed as Threatened under the federal Endangered Species Act

State

CE = Listed as endangered under the California Endangered Species Act
CT = Listed as threatened under the California Endangered Species Act
CR = Listed as Rare in California

CNPS

List 1B= Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere

Extension codes:

.3 = Not very endangered in California
.2 = Fairly endangered in California
.1 = Seriously endangered in California

Table 2 lists wildlife species with potential to occur along the Line, their status, and habitat requirements. Seventy-five special-status wildlife species were identified from background research. Of these, the following 26 species are listed as federally- or California state listed as threatened or endangered:

- Green sturgeon (*Acipenser medirostris*)
  Federally threatened, no state status
- California tiger salamander (*Ambystoma californiense*)
  Federally threatened, no state status
- Lange's metalmark butterfly (*Apodemia mormo langei*)
  Federally endangered, no state status
- Longhorn fairy shrimp (*Branchinecta longiantenna*)
  Federally endangered, no state status
- Vernal pool fairy shrimp (*Branchinecta lynchii*)
  Federally endangered, no state status
- Swainson's hawk (*Buteo swainsonii*)
  No federal status, California threatened
- San Bruno elfin butterfly (*Callophrys mossii bayensis*)
  Federally endangered, no state status
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
  Federally threatened, no state status
- Delta green ground beetle (*Elaphrus viridis*)
  Federally threatened, no state status
- Delta smelt (*Hypomesus transpacificus*)
  Federally and California state threatened
- California black rail (*Laterallus jamaicensis coturniculus*)
  No federal status, California state threatened
- Vernal pool tadpole shrimp (*Lepidurus packardii*)
  Federally endangered, no state status
- Alameda whipsnake (*Masticophis lateralis euryxanthus*)
  Federally and California state threatened
- Central California coastal steelhead (*Oncorhynchus mykiss irideus*)
  Federally threatened, no state status
- Central Valley spring/winter-run Chinook salmon (*Oncorhynchus tshawytscha*)
  Spring run is federally and California state endangered
  Winter run is federally and California state threatened
- California brown pelican (*Pelecanus occidentalis californicus*)
  Federally endangered, no California state status
- California clapper rail (*Rallus longirostris obsoletus*)
  Federally and California state endangered
- California red-legged frog (*Rana aurora draytonii*)
  Federally threatened, California state species of concern

- Salt-marsh harvest mouse (*Reithrodontomys raviventris*)
  Federally and California state endangered
- Bank swallow (*Riparia riparia*)
  No federal status, California state threatened
- Callippe silverspot butterfly (*Speyeria callippe callippe*)
  Federally endangered, no state status
- California least tern (*Sternula antillarum browni*)
  Federally and California state endangered
- California freshwater shrimp (*Syncaris pacifica*)
  Federally and California state endangered
- Giant garter snake (*Thamnophis gigas*)
  Federally and California state threatened
- San Joaquin kit fox (*Vulpes macrotis mutica*)
  Federally endangered and California state threatened

Of these listed species, California tiger salamander, California red-legged frog, Swainson's hawk, Alameda whipsnake, San Joaquin kit fox, and vernal pool fairy shrimp are the most likely to occur within the line corridor because of suitable habitat and known proximity to the line. The northernmost few towers are located within federally designated Delta smelt habitat; however, it is expected that the project can be designed to avoid impacts to this habitat and all the fish species.

During field visits, Swainson's hawk was observed at towers 4/19 and 30/134. San Joaquin kit fox burrows and burrowing owl burrows were observed between towers 17/77-17/79 and 30/133-31/136. These areas are also potential habitat for California tiger salamander. Another 26 wildlife species have potential to occur along the Line that are considered California species of concern. See Table 2 for details of potential wildlife species.

Table 3 provides a list of dead end towers with the spans between them, and summarizes the sensitive and critical habitats, wetland concerns, and the special-status species associated with each of these areas. Figure 2 depicts areas within ½ mile of the Line with known wetland and special-status plant issues. Figure 3 depicts known special-status wildlife issues in this same buffer area.

Predictive habitat model maps for the portions of the Line within Contra Costa County are available for 20 special-status species. Eight special-status plant species were included: Mt.Diablo manzanita (*Arctostaphylos auriculata*), brittlescale (*Atriplex depressa*), big tarplant (*Blepharizonia plumosa*), Mt. Diablo fairy lantern (*Calochortus pulchellus*), recurved larkspur (*Delphinium recurvatum*), round leaved filaree (*California macrophyllum*), Diablo helianthella (*Helianthella castanea*), and Brewer's dwarf flax (*Hesperolinon brewerii*). The remaining 12 special-status species were wildlife: San Joaquin kit fox, tricolored blackbird, golden eagle,

Table 2. Wildlife species with potential to occur along the Pittsburg-Tesla transmission line.

Common name/ Scientific name	Status (Federal/ State)	Habitat
Green sturgeon *Acipenser medirostris*	FT	• Spawns in the Sacramento River and Klamath River • Spawning substrate is typically large cobble, but can change from clean sand to large bedrock. • Occurrences from project quads.
western pond turtle *Actinemys marmorata*	SC	• Thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. • Need basking sites and suitable upland habitat (sandy banks or grassy open fields) for egg-laying. • Occurrences within ½ mile of line
tricolored blackbird *Agelaius tricolor*	SC	• Highly colonial species. • Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony. • Occurrences within ½ mile
California tiger salamander *Ambystoma californiense*	FT	• Needs underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding. • Critical habitat proposed for listing • Occurrences under line and within ½ mile
A vernal pool andrenid bee *Andrena blennospermatis*	-	• The bee is oligolectic on vernal pool *Blennosperma*, and collects pollen only from these flowers. • Nest in the uplands around vernal pools. • Occurrences within ½ mile
silvery legless lizard *Anniella pulchra pulchra*	SC	• Habitat is sandy or loose loamy soils under sparse vegetation.SANDY OR LOOSE LOAMY SOILS UNDER SPARSE VEGETATION. • Prefers soils with a high moisture content. • Occurrences from project quads
Antioch Dunes anthicid beetle *Anthicus antiochensis*	-	• Though to extirpated from the Antioch dunes, but is present in several locations along the Sacramento and Feather Rivers.
pallid bat *Antrozous pallidus*	SC	• Deserts, grasslands, shrublands, woodlands, and forests. • Most common in open, dry habitats withi rocky areas for roosting. • Occurrences from project quads.
Lange's metalmark butterfly *Apodemia mormo langei*	FE	• Inhabits stabilized dunes along the San Joaquin River. • Endemic to the Antioch Dunes in Contra Costa County. • Primary host plant is *Eriogonum nudum* var. *auriculatum.*

Common name/ Scientific name	Status (Federal/ State)	Habitat
golden eagle *Aquila chrysaetos*	SC	• Inhabits rolling foothills, mountain areas, sage-juniper flats, and desert. • Uses large trees in open areas, or cliff walled canyons. • Occurrences from project quads
Sacramento perch *Archoplites interruptus*	SC	• Historically found in the sloughs, slow-moving rivers, and lakes of the central valley. • Prefer warm water. • Young require aquatic vegetation. • Species tolerates a wide range of physico-chemical water conditions.
Great blue heron *Ardea herodias*	-	• Colonial nester in tall trees, cliffsides, and sequesters spots on marshes. • Rookery sites are typically in close proximity to foraging areas such as marshes, lake margins, rivers and streams, and wet meadows.
short-eared owl *Asio flammeus*	SC	• Found in both fresh- and salt swamplands, lowland meadows, and irrigated alfalfa fields. • Requires tule patches or tall grass for nesting and daytime seclusion. • Nests on dry ground in depressions that are concealed in vegetation. • Occurrences from project quads.
burrowing owl *Athene cunicularia*	SC	• Requires open, low-growing vegetation such as dry annual or perennial grasslands, deserts and scrublands. • Occurrences from under line and within ½ mile
Conservancy fairy shrimp *Branchinecta conservatio*	FE	• Species is endemic to the grassland of the northern two-thirds of the central valley • Typically found in large, turbid pools. • Inhabit astatic pools located in swales formed by old, braided alluvium and filled by winter/spring rains, that typically last until June. • Critical habitat proposed for listing • Occurrences known from project quads
longhorn fairy shrimp *Branchinecta longiantenna*	FE	• Inhabit astatic grassland vernal pools. • Typically require small, clear-water depression in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales. • Critical habitat proposed for listing • Occurrences from project quads

Common name/ Scientific name	Status (Federal/ State)	Habitat
vernal pool fairy shrimp *Branchinecta lynchi*	FT	• Inhabit astatic rain-filled pools. • Typically require small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools. • Critical habitat proposed for listing • Occurrences from under line and within ½ mile
midvalley fairy shrimp *Branchinecta mesovallensis*	-	• Inhabit vernal pools in the central valley. • Occurrences within ½ mile of Line.
ferruginous hawk *Buteo regalis*	SC	• Open grasslands, sagebrush flats, desert scrub, how foothills and fringes of pinyon-juniper habitats. • Occurrences from project quads
Swainson's hawk *Buteo swainsoni*	CT	• Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural/ranch habitats. • Requires adjacent suitable foraging areas such as grasslands or alfalfa or grain fields supporting rodent populations. • Occurrences from line and within ½ mile.
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE	• Inhabits coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain in San Mateo County. • Colonies are located on steep, north-facing slopes within the fog belt. • Larval host plant is *Sedum spathulifolium.* • Occurrences in project quads.
northern harrier *Circus cyaneus*	SC	• Inhabits coastal salt and freshwater marsh. • Nests and forages in grasslands, from slat grass in desert sink to mountain cienagas. • Nests on the ground in shrubby vegetation, usually at marsh edges; nests built of a large mound of sticks in wet areas. • Occurrences from under line and within ½ mile.
San Joaquin dune beetle *Coelus gracilis*	-	• Inhabits fossil dunes along the western edge of San Joaquin Valley; extirpated from the Antioch Dunes (type locality). • Inhabits sites containing sandy substrates.
Townsend's big-eared bat *Corynorhinus townsendii*	SC	• Throughout California in a wide variety of habitats. Most common in mesic sites. • Roosts in the open, hanging from walls and ceilings. Roosting sites are limiting. • Extremely sensitive to human disturbance..

Common name/ Scientific name	Status (Federal/ State)	Habitat
monarch butterfly *Danaus plexippus*	-	• Winter roost sites extend along the coast from northern Mendocino to Baja California in Mexico. • Roosts located in wind-protected tree groves (e.g., Eucalyptus, Monterey pine, or cypress) with nearby water and nectar sources.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	• Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*) below 3000 feet. • Occurrences within project quads.
Berkeley kangaroo rat *Dipodomys heermanni berkeleyensis*	-	• Inhabits open grassy hilltops and open spaces in chaparral and blue oak/grey pine woodlands. • Requires fine, deep, well-drained soil for burrowing. • Occurrences within project quads
A water flea *Dumontia oregonensis*	-	• Inhabits vernal pools. • In California, known only from Mather Field.
Antioch efferian robberfly *Efferia antiochi*	-	• Known only from Contra Costa and Fresno Counties.
white-tailed kite *Elanus leucurus*	-	• Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. • Inhabits open grasslands, meadows, or marshes for foraging, close to isolated, dense-topped trees for nesting and perching. • Occurrences from project quads
Delta green ground beetle *Elaphrus viridis*	FT	• Critical habitat proposed for listing • Occurrences within project quads.
California horned lark *Eremophila alpestris actia*	SC	• Known from coastal regions. • Inhabits short-grass prairie, “bald” hills, mountain meadows, open coastal plains, fallow grain fields, and alkali flats. • Occurrences from within ½ mile of Line.
redheaded sphecid wasp *Eucerceris ruficeps*	-	• Inhabits central California interior dunes. • Nests in hard-packed sand utilizing abandoned halectine bee burrows.

Common name/ Scientific name	Status (Federal/ State)	Habitat
western mastiff bat *Eumops perotis californicus*	SC	• Inhabits many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. • Roosts in crevices in cliff faces, high buildings, trees and tunnels.
prairie falcon *Falco mexicanus*	SC	• Inhabits dry, open terrain, either level or hilly. • Breeding sites located on cliffs. • Forages far afield, even to marshlands and ocean shores. • Occurrences from line and within ½ mile.
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	SC	• Resident of the San Francisco Bay Region, in fresh and salt water marshes.. • Requires thick, continuous vegetation cover down to water surface for foraging, and tall grasses, tule patches, and willows for nesting. • Occurrences from project quads.
Bridges' coast range shoulderband (snail) *Helminthoglypta nickliniana bridgesi*	-	• Inhabits open hillsides of Alameda and Contra Costa Counties. • Tends to colonize under tall grasses and weeds. • Occurrences from project quads.
curved-foot hygrotus diving beetle *Hygrotus curvipes*	-	• An aquatic species. • Known only from Alameda and Contra Costa Counties. • Occurrences within ½ mile of Line
Delta Smelt *Hypomesus transpacificus*	FT/CT	• Inhabits the Sacramento-San Joaquin Delta; seasonally known from Suisun Bay, Carquinez Strait, and San Pablo Bay. • Critical habitat proposed for listing • Critical habitat and species known from under line and within ½ mile
Middlekauff's shieldback katydid *Idiostatus middlekauffi*	-	• Known only from Antioch Dunes.
loggerhead shrike *Lanius ludovicianus*	SC	• Known from broken woodlands, savannah, pinyon-juniper, Joshua tree woodlands, riparian woodlands, and desert oases, scrub, and washes. • Requires fairly dense shrubs and brush for nesting. • Occurrences from project quads
western red bat *Lasiurus blossevillii*	-	• Roosts primarily in trees, 2-40 feet above ground. • Found at elevations from sea-level up through mixed conifer forests. • Prefers habitat edges and mosaics with trees that are protected from above and open below, with open areas for foraging. • Occurrences from project quads

Common name/ Scientific name	Status (Federal/ State)	Habitat
hoary bat *Lasiurus cinereus*	SC	• Prefers open habitats or habitat mosaics, with access to trees for cover, and open areas or habitat edges for feeding. • Roosts in dense foliage of medium to large trees. • Feeds primarily on moths. • Requires water.
California black rail *Laterallus jamaicensis coturniculus*	CT	• Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. • Needs water depths of about 1 inch that do not fluctuate during the year, and dense vegetation for nesting habitat. • Occurrences from project quads
vernal pool tadpole shrimp *Lepidurus packardi*	FE	• Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. • Typically found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid. • Critical habitat proposed for listing • Occurrences from project quads.
California linderiella *Linderiella occidentalis*	-	• Inhabits seasonal pools in unplowed grasslands with old alluvial soils, underlain by hardpan or in sandstone depressions. • Water in the pools must have low alkalinity, conductivity and total dissolved solids. • Occurrences from project quads
molestan blister beetle *Lytta molesta*	-	• Inhabits the Central Valley of California, from Contra Costa to Kern and Tulare Counties. • Occurrences from under line and within ½ mile.
San Joaquin whipsnake *Masticophis flagellum ruddocki*	SC	• Inhabits open, dry habitats with little or no tree cover. Found in valley grassland and saltbrush scrub in the San Joaquin Valley. • Needs mammal burrows for refuge and oviposition sites. • Occurrences from under line and within ½ mile.
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT/CT	• Restricted to valley foothill hardwood habitat of the Coast Range between Monterey and north San Francisco Bay. • Inhabits south-facing slopes and ravines where shrubs form a vegetative mosaic with oak trees and grasses. • Critical habitat proposed for listing • Occurrences from under line and within ½ mile

Common name/ Scientific name	Status (Federal/ State)	Habitat
Suisun song sparrow *Melospiza melodia maxillaris*	SC	• Resident of brackish-water marshes surrounding Suisun Bay. • Inhabits cattails, tules and other sedges, and pickleweed. • Also known to frequent tangles bordering sloughs. • Occurrences from under line and within ½ mile.
Hurd's metapogon robberfly *Metapogon hurdi*	-	• Known only from Antioch (Dunes?) and Fresno. • Occurrences from project quads
Antioch multilid wasp *Myrmosula pacifica*	-	• Found Antioch dunes.
big free -tailed bat *Nyctinomops macrotis*	SC	• Inhabits low-lying arid areas in southern California. • Needs high cliffs or rocky outcrops for roosting sites. • Feeds principally on large moths.
Central California Coastal steelhead *Oncorhynchus mykiss irideus*	FT	• Populations in the Sacramento and San Joaquin rivers and their tributaries. • Critical habitat proposed for listing • Occurrences from project quads
Central Valley spring/winter-run Chinook salmon *Oncorhynchus tshawytscha*	Spring-FT/CT Winter-FE/CE	• Spring-Pops Spawn in Sacramento River and tributaries. • Winter- Inhabits the Sacramento River below the Keswick Dam. Spawns in the Sacramento River but not in tributary streams. • Critical habitat proposed for listing • Occurrences from project quads
California brown pelican *Pelecanus occidentalis californicus*	FE	• Colonial nester on coastal islands just outside the surf line. • Nests on coastal islands of small to moderate sixe which afford immunity from attack by ground-dwelling predators.
Antioch andrenid bee *Perdita scitula antiochensis*	-	• Known only form Antioch Dunes and Oakley. • Visits flowers of *Eriogonum, Gutierrezia californica, Heterotheca grandiflora, and Lessingia glandulifera.* • Occurrences from project quads.
San Joaquin pocket mouse *Perognathus inornatus inornatus*	-	• Typically found in grasslands and blue oak savannahs. • Requires friable soils. • Occurrences from within ½ mile.
double-crested cormorant *Phalacrocorax auritus*	SC	• Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. • Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.

Common name/ Scientific name	Status (Federal/ State)	Habitat
Antioch specid wasp *Philanthus nasalis*	-	• Previously known only from Antioch Dunes in Contra Costa County. Now known only from the inland sandhills in Santa Cruz County.
Coast (California) horned lizard *Phrynosoma coronatum* (frontale population)	SC	• Frequents a wide variety of habitats. Most common in lowlands along sandy washes with scattered low bushes. • Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects. • Occurrences from project quads
Sacramento splittail *Pogonichthys macrolepidotus*	SC	• Endemic to the lakes and rivers of the Central Valley, but now confined to the Delts, Suisun Bay, and associated marshes. • Inhabits Slow-moving river sections, dead end sloughs. • Require flooded vegetation for spawning and foraging.
California clapper rail *Rallus longirostris obsoletus*	FE/CE	• Inhabits saltwater and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. • Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs. • Occurrences from project quads
California red-legged frog *Rana aurora draytonii*	FT/SC	• Inhabits lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. • Requires 11-20 weeks of permanent water for larval development. Must have access to aestivation habitat. • Critical habitat proposed for listing • Occurrences from under line and within ½ mile
salt-marsh harvest mouse *Reithrodontomys raviventris*	FE/CE	• Inhabits only the saline emergent wetlands of the San Francisco Bay and its tributaries. • Pickleweed is the primary habitat. • Does not burrow, but builds loosely organized nests. • Requires higher areas nearby to escape flooding.. • Occurrences from project quads.
bank swallow *Riparia riparia*	CT	• Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. • Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or ocean in which to dig nesting holes.
Suisun shrew *Sorex ornatus sinuosus*	SC	• Tidal marshes of the northern shores of San Pablo and Suisun bays. • Requires dense low-lying cover and driftweed and other litter above the mean hightide line for nesting and foraging.
western spadefoot *Spea hammondii*	SC	• Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. • Vernal pools are essential for breeding and egg-laying. • Occurrences from project quads.

Common name/ Scientific name	Status (Federal/ State)	Habitat
Callippe silverspot butterfly *Speyeria callippe callippe*	FE	• Restricted to the northern coastal scrub of the San Francisco Peninsula. • Hostplant is *Viola pedunculata.*
Antioch Dunes halecitid bee *Sphecodogastra antiochensis*	-	• Restricted to the Antioch Dunes. • Host plant is *Oenothera deltoides* ssp. *howellii.* • This bee nests in the ground in stabilized san dunes in open, xeric areas.
California least tern *Sternula antillarum browni*	FE/CE	• Nests along the coast from San Francisco Bay south to northern Baja California. • Colonial breeder on bare or sparsely vegetated flat substrates, sand beaches, alkali flats, land fills, or paved areas. • Occurrences from project quads.
California freshwater shrimp *Syncaris pacifica*	FE/CE	• Endemic to Marin, Napa, and Sonoma Counties. • Found in low elevation, low gradient streams, where riparian cover is moderate to heavy.
American badger *Taxidea taxus*	SC	• Most abundant in drier, open stages of most shrub, forest and herbaceous habitats with friable soils. • Need sufficient food, friable soils, and open uncultivated ground to dig burrows. • Prey on burrowing rodents. • Occurrences from within ½ mile.
Giant garter snake *Thamnophis gigas*	FT/CT	• Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. • Critical habitat proposed for listing • Occurrences from project quads.
San Joaquin kit fox *Vulpes macrotis mutica*	FE/CT	• Inhabits annual grasslands or grassy open stages with scattered shrubby vegetation. • Need loose-textured sandy soils for burrowing, and a suitable prey base. • Occurrences from under line and within ½ mile

Federal
FE = Listed as Endangered under the federal Endangered Species Act
FT = Listed as Threatened under the federal Endangered Species Act
State
CE = Listed as endangered under the California Endangered Species Act
CT = Listed as threatened under the California Endangered Species Act
CR = Listed as Rare in California
SC = Species of Concern

western burrowing owl, Swainson's hawk, silver legless lizard, Alameda whipsnake, giant gartersnake, western pond turtle, California tiger salamander, and California red-legged frog.

Of the eight special-status plant species, big tarplant was predicted throughout Contra Costa County portions of the line. The other species are addressed in Table 3.

Of the twelve special-status wildlife species, San Joaquin Kit Fox, tricolored blackbird, golden eagle, western burrowing owl, California tiger salamander, and California red-legged frog were predicted to occur throughout the Line corridor in Contra Costa County. Suitable habitats were not predicted for giant garter snake and Swainson's hawk; however, a Swainson's hawk was observed in the field at tower 4/19 and tower 30/134. Western pond turtle was predicted widely throughout the Line corridor, but was restricted to drainages, ponds, and similar wet areas. This turtle, along with the silver legless lizard and Alameda whipsnake, are addressed in Table 3.

Table 3. Summary of Habitats, Wetlands, and Special-status species issues on the Pittsburg-Tesla line

Tower or Span Notes	General Habitat	Potential Wetlands	Botany Issues[1]	Wildlife Issues[1]
0/TERM 1 *Two starting towers*	Substation	-	o None (withiin substation perimeter)	-
0/1 *Dead End*	Grassland surrounded by urban	-	o Big tarplant record adjacent, (Occ. #2, last seen 1937). Does not appear to be potential habitat.	o Delta Smelt critical habitat o California red-legged frog o Western pond turtle o Suisun song sparrow o northern harrier
0/1 – 1/3	Coastal Marsh	o Coastal marsh habitat, channel crossing	o Big tarplant record adjacent, (Occ. #2, last seen 1937). Does not appear to be potential habitat. o Habitat for coastal marsh species	o Delta Smelt critical habitat o California red-legged frog o Western pond turtle o Suisun song sparrow o northern harrier
1/3 *Dead End* FIELD VISIT (remote)	Coastal Marsh	o Coastal marsh	o Big tarplant record adjacent, (Occ. #2, last seen 1937). Does not appear to be potential habitat. o Habitat for coastal marsh species	o Delta Smelt critical habitat o California red-legged frog o Western pond turtle o Suisun song sparrow o northern harrier
1/3 – 1/5 *W 10th St crossing* FIELD VISIT	Coastal marsh, pickleweed marsh, grassland	o Coastal marsh habitat o Open water channel crossings	o Big tarplant record adjacent, (Occ. #2, last seen 1937). Does not appear to be potential habitat. o Habitat for coastal marsh species	o Delta Smelt critical habitat o California red-legged frog o Western pond turtle o Suisun song sparrow o northern harrier
1/5 *Dead End* FIELD VISIT	Ruderal with seasonal wetland (pickleweed marsh)	o Pickleweed marsh/seasonal wetland	o Big tarplant record adjacent, (Occ. #2, last seen 1937). No longer appears to be suitable habitat.	o Delta Smelt critical habitat o Suisun song sparrow
1/5 – 1/6 *N. Parkside Dr. crossing* FIELD VISIT	Ruderal with seasonal wetland (pickleweed marsh)	o Pickleweed marsh/ seasonal wetland	o Big tarplant record adjacent, (Occ. #2, last seen 1937)	o Andrenid bee
1/6 *Dead End*	Grassland or seasonal wetland surrounded by urban	o Potential seasonal wetlands	o Big tarplant record adjacent, (Occ. #2, last seen 1937).	o Andrenid bee
1/6 – 1/7 *Polaris Drive crossing*	Grassland, seasonal wetland, surrounded by urban	o Potential seasonal wetlands	o Big tarplant record adjacent, (Occ. #2, last seen 1937)	-
1/7	Ruderal, potential	o Potential	o Big tarplant record	o Western pond turtle[2]

Tower or Span Notes	General Habitat	Potential Wetlands	Botany Issues[1]	Wildlife Issues[1]
Dead End FIELD VISIT	seasonal wetland, willows,	seasonal wetlands and willows	adjacent, (Occ. #2, last seen 1937)	
1/7 – 2/13 *State Hwy 4 and Leland Drive crossings*	Grassland/ruderal, riparian scrub and freshwater marsh along creek	o Unnamed creek, canal crossings at several places	o Big tarplant record adjacent, (Occ. #2, last seen 1937). o Habitat for grassland, riparian, and marsh species	o Western pond turtle[2]
2/13 *Dead End*	Grassland	o Seasonal creek possible	-	o Western pond turtle[2]
2/13 – 2/14	Grassland	o Seasonal creek possible	-	o Western pond turtle[2]
2/14 *Dead End*	Grassland	o Seasonal creek possible	-	o Western pond turtle[2]
2/14 – 3/17	Grassland	o Span crosses Kirker Creek N of 3/17	-	o Western pond turtle[2]
3/17 *Dead End*	Grassland	-	-	-
3/17 – 4/19	Grassland, oaks	o Span crosses branches of Kirker Creek N and S of 3/18 o Potential channel crossing N of 4/19	o Round-leaved filaree habitat[2]	o Western pond turtle[2]
4/19 *Dead End* FIELD VISIT (remote)	Grassland	-	-	o Prairie Falcon o Swaison's Hawk
4/19 – 5/23 *Kirker Pass Rd Crossing*	Grassland, some potential riparian scrub at crossings	o Span crosses Kirker Creek branches N of 5/21, N of 5/22 o Intermittent channel N of 5/23	o Rayless ragwort known near S end of span (occ. #14, not seen since 1933) o Current occurrences of large-flowered fiddleneck within 1/2 mile of line o Mt. Diablo fairy-lantern habitat[2] o Round-leaved filaree habitat[2] o Brewer's dwarf flax habitat[2]	o Prairie Falcon o Swaison's Hawk o Western pond turtle[2]
5/23 *Dead End* FIELD VISIT	Grassland, oaks	o intermittent channel within 300 foot buffer	o Rayless ragwort record within 300 ft. of tower (occ. #14, not seen since 1933)	o Western pond turtle[2]

Tower or Span Notes	General Habitat	Potential Wetlands	Botany Issues[1]	Wildlife Issues[1]
			o Current occurrences of large-flowered fiddleneck within ½ mile of line o Mt. Diablo fairy-lantern habitat[2]	
5/23 – 8/35 *Nortonville Road crossing area*	Grassland, chaparral or woodland	o Creek crossings S of 5/23, N of 6/27, S of 7/31 o Sand Creek N of 7/34	o Rayless ragwort record throughout span (occ. #14, not seen since 1933) o Current occurrences of large- flowered fiddleneck and slender silver moss within ½ mile of line o Current occurrences of Diablo helianthella and Mt. Diablo manzanita known under line o Current occurrences of Brewer's western flax known within ½ mile of line o Mt. Diablo fairy-lantern habitat[2] o Round-leaved filaree habitat[2]	o Alameda whipsnake habitat (6/26-8/35) o San Joaquin pocket mouse o Andrenid bee o Silver legless lizard[2] o Western pond turtle[2]
8/35 *Dead End, Black Diamond Mountain Park*	Chaparral or woodland	-	o Large-flowered fiddleneck record from near tower (occ. # 2, possibly extirpated, from 1887) o Current occurrences of slender silver moss, Diablo helianthella, Brewer's western flax, Mt. Diablo manzanita, and rayless ragwort within a mile o Mt. Diablo fairy-lantern habitat[2] o Brewer's dwarf flax habitat[2]	o Alameda whipsnake habitat o Silver legless lizard[2]
8/35 – 8/38 *Black Diamond Mountain Park*	Grassland and chaparral or woodland	o Intermittent channels possible between spans	o Large-flowered fiddleneck record from under line (occ. # 2, possibly extirpated, from 1887) o Current occurrence of rayless ragwort and Diablo helianthella from line	o Alameda whipsnake habitat (8/37) o Andrenid bee o Silver legless lizard habitat[2] o Western pond turtle habitat in drainages[2]

Tower or Span Notes	General Habitat	Potential Wetlands	Botany Issues[1]	Wildlife Issues[1]
			o Current occurrence of slender silver moss within ½ mile o Mt. Diablo manzanita habitat[2] o Mt. Diablo fairy-lantern habitat[2] o Brewer's dwarf flax habitat[2]	
8/38 *Dead End, Black Diamond Mountain Park*	Grassland and chaparral or woodland	-	o Large-flowered fiddleneck record from tower (occ. # 2, possibly extirpated, from 1887) o Current occurrence of rayless ragwort, Diablo helianthella, and slender silver moss within a mile o Mt. Diablo manzanita habitat[2] o Mt. Diablo fairy-lantern habitat[2] o Brewer's dwarf flax habitat[2]	o Alameda whipsnake habitat o Silver legless lizard habitat[2]
8/38 – 13/61 *Roadless area near Chadborne Road*	Grassland and chaparral	o Drainage N of 9/40 o Deer Creek N of 9/43 o Other intermittent channel crossings possible in valleys	o Large-flowered fiddleneck record from under line (occ. # 2, possibly extirpated, from 1887) o Current big tarplant and Diablo helianthella occurrences under/adjacent to line o Round-leaved filaree occurrence within ½ mile o Mt. Diablo manzanita habitat[2] o Mt. Diablo fairy-lantern habitat[2] o Brewer's dwarf flax habitat[2] o Seasonal wetland features possible near south end	o Alameda whipsnake habitat (8/38-9/40) o Western pond turtle[2] o Silver legless lizard habitat[2]
13/61 *Dead End*	Grassland	o Wetland under tower	o Round-leaved filaree (occ. #46, 1929) within ½ mile and round-leaved filaree habitat[2]	o Alameda whipsnake habitat[2] o Western pond turtle[2]
13/61 – 15/68A and 15/68B *Deer Valley Rd and Briones*	Grassland and oak woodland	o Dry Creek crossing at Briones Rd, E of 14/64	o Round-leaved filaree (occ. #46, 1929) Round-leaved filaree habitat[2] o Current big tarplant	o Vernal pool fairy shrimp (14/63-14/65) o Molestan blister beetle (14/63-15/68)

Tower or Span Notes	General Habitat	Potential Wetlands	Botany Issues[1]	Wildlife Issues[1]
Valley Rd crossing		o Possible vernal pools	occurrence within ½ mile	o Alameda whipsnake habitat[2] o Western pond turtle[2]
15/68A and 15/68 B *Dead End*	Grassland	o Possible vernal pools	o Round-leaved filaree (occ. #46, 1929) nearby Round-leaved filaree habitat[2] o Current big tarplant occurrence within ½ mile	o Vernal pool fairy shrimp o Molestan blister beetle
15/68A and 15/68B – 17/77 *Marsh Creek Road crossing*	Grassland, riparian	o Crosses Marsh Creek and Marsh Creek Reservoir Dam E of 16/73	o Round-leaved filaree (occ. #46, 1929) under span Round-leaved filaree habitat[2] o Current big tarplant occurrence adjacent. o San Joaquin spearscale within ½ mile	o Vernal pool fairy shrimp (15/68-16/72) o Molestan blister beetle (15/68-16/74) o Western pond turtle o (15/71-16/74) o Tricolored blackbird (15/71-16/74) o San Joaquin kit fox (16/73-17/77) o Western pond turtle[2]
17/77 *Dead End* FIELD VISIT	Grassland	o Wetlands (stockpond and potential alkaline meadow) within 300 ft of tower	o Round-leaved filaree (occ. #46, 1929) under tower Round-leaved filaree habitat[2] o Current big tarplant occurrence within ½ mile	o California tiger salamander o San Joaquin Kit Fox o Burrowing owl o Western pond turtle[2]
17/77 – 22/96A and 22/96B *Camino Diablo Rd., Walnut Blvd, Camino Vaqueros crossing*	Grassland, alkali meadow	o Wetland crossings possible in valleys between hills o Los Vaqueros Creek crossing S of 18/81 o Other creek crossings S of 20/88, S of 20/90, S of 20/91 o creek and wetlands S of 21/94 o smaller channels, creeks, and alkali meadows possible S of 20/88 to 22/96A+B o Vernal pools	o Round-leaved filaree (occ. #46, 1929) and habitat[2] and diamond-petaled California poppy (occ. #4, 1888) under span o Current big tarplant and brittlescale occurrences adjacent to line. o San Joaquin spearscale adjacent to line o Critical habitat for Contra Costa goldfields adjacent o Alkali meadow (habitat for *Atriplex*, additional wetlands) between 17/80 and 19/86 o Recurved larkspur habitat[2]	o San Joaquin Kit Fox o (17/77-17/80), (18/83-20/89) o California tiger salamander (17/79-19/86), (21/93-21/95), (22/98-22/99) o Molestan blister beetle (18/83-22/96B) o California red-legged frog (18/82), (21/94-22/95) o Western pond turtle[2]

Tower or Span Notes	General Habitat	Potential Wetlands	Botany Issues[1]	Wildlife Issues[1]
		under line (21/94)		
22/96A and 22/96B – 26/115A and 26/115B *Aqueduct and Christensen road crossings*	Grassland	o Crosses Brushy Creek and aqueduct N of 22/97 o Creek crossings S of 23/100, S of 23/103, S of 23/104, S of 24/105 o smaller channels, wetlands and alkali meadows possible throughout o Crosses Bethany Reservoir N of 25/112	o Critical habitat for Contra Costa goldfields adjacent to span o Diamond-petaled California poppy (occ. #4, 1888) under span o Alkali meadow within 1 mile. o Brittlescale habitat[2] o Recurved larkspur habitat[2]	o Molestan blister beetle o Badger (24/106-25/111) o California tiger salamander (25/110-25/111) o San Joaquin Kit Fox (25/110-25/111) o Western pond turtle[2]
26/115A and 26/115B – 30/134 *Altamont Pass Rd, Interstate 580, and Grant Line Rd crossings*	Grassland	o Mountain House Creek and branch crossings between 28/126 to 29/129 o Wetland and creek crossings around 28/122 to 28/125, and N of 26/116 o Creek crossings N of 27/120, N of 30/13, N of 30/134	o Diamond-petaled California poppy (occ. #4, 1888) under span o Caper-fruited tropidiocarpum (occ #3, 1933) within 1/2 mile o Round-leaved filaree within a mile	o Molestan blister beetle (26/115-28/126) o Burrowing owl (27/121-28/126) o San Joaquin Kit Fox (28/122-29/127) o California tiger salamander (28/125-28/126) o Western pond turtle[2]
30/134 – 31/137 *Pacific railroad crossing* FIELD VISIT	Grassland	o Creek crossing N of 31/137	o Big tarplant within ½ mile	o San Joaquin Kit Fox o Burrowing owl o Swaison's hawk o San Joaquin whipsnake o Western pond turtle[2]
31/137 *Dead End, near substation, Patterson Run Creek* FIELD VISIT	Grassland, riparian scrub	o Patterson Run Creek crossing immediately outside substation	o Big tarplant within ½ mile	o San Joaquin Kit Fox o Burrowing owl o Swaison's hawk o San Joaquin whipsnake o Western pond turtle[2]

Tower or Span Notes	General Habitat	Potential Wetlands	Botany Issues[1]	Wildlife Issues[1]
31/137-31/137C *Near substation, Patterson Pass Rd crossing.*	Substation	-	o Big tarplant within ½ mile	o San Joaquin Kit Fox o Burrowing owl o Swaison's hawk
31/137C *Dead End*	Substation	-	o Within substation	o Within substation
0/TERM2 *Two ending towers*	Substation	-	o Within substation	o Within substation

1 – Most evaluations were based on CNDDB records, proximity to these known occurrences, and suitable habitat. Models from the East Contra County HCP predict that San Joaquin Kit Fox, tricolored blackbird, golden eagle, western burrowing owl, California tiger salamander, California red-legged frog, big tarplant, may occur throughout the Line in areas within Contra Costa County.

2 – Modelled habitat present from East Contra Costa County HCP (Jones and Stokes 2007), or similar habitat present in Alameda County. Western pond turtle habitat typically limited to stream channels and water bodies.

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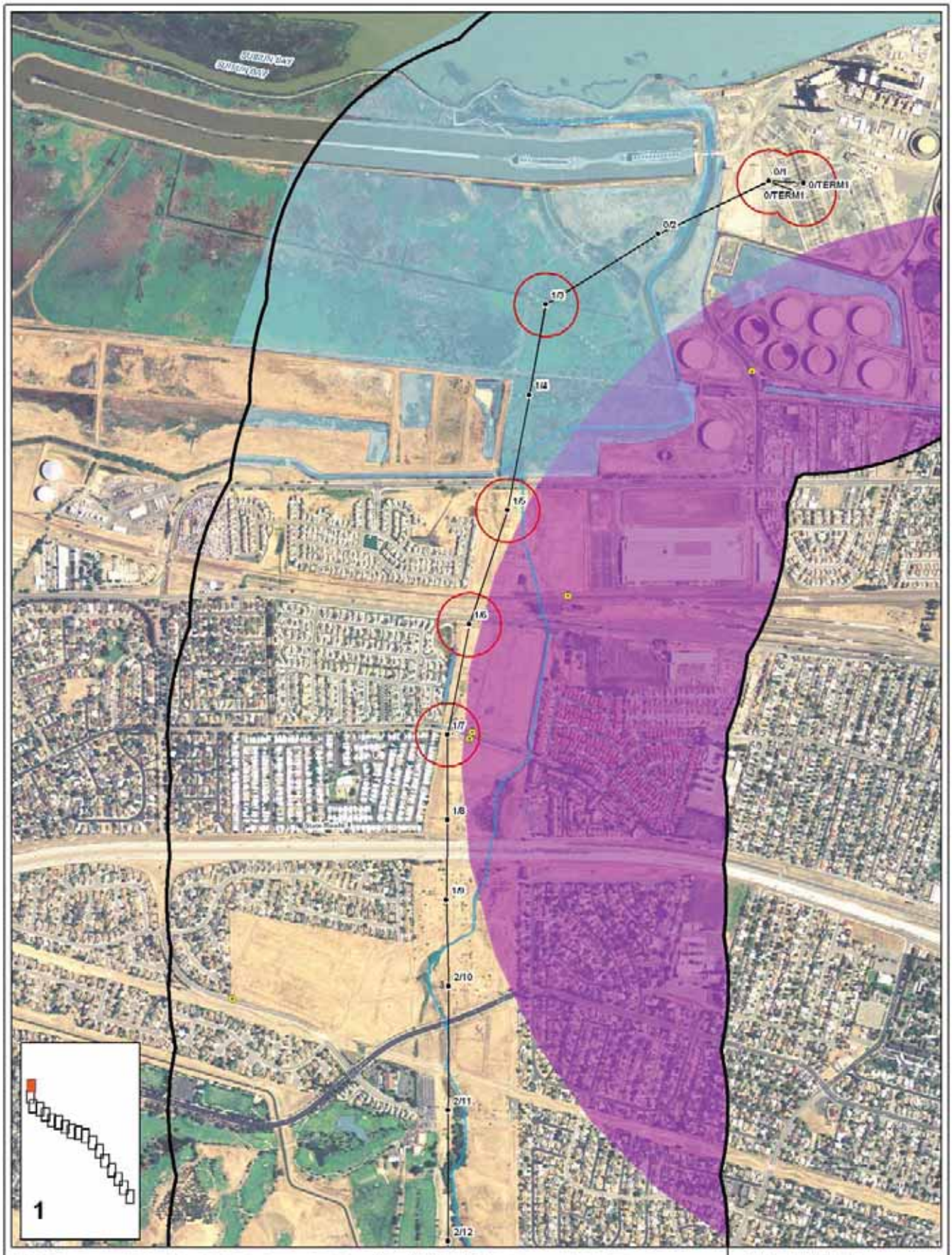
Figure 2: Sensitive Plant and Habitat Maps (Maps 1-18)



CNDDB Occurrences Within 1 Mile of the Project Survey Corridor

Plants

- Brewer's western flax
- Diablo helianthella
- Mt. Diablo manzanita
- San Joaquin spearscale
- big tarplant
- brittlescale
- caper-fruited tropidocarpum
- diamond-petaled California poppy
- large-flowered fiddleneck
- rayless ragwort
- round-leaved filaree
- slender silver moss

Habitat

- Alkali Meadow
- Cismontane Alkali Marsh
- Alkali Seep

Potential Sensitive Plant Habitat
(From field visit Nov 2007)

- Amsinckia sp.
- Blepharizonia sp.

Potential Wetland Features

- Potential Wetland Features
- Creek/Stream/Drainage

USFWL Critical Habitat Areas

- Contra Costa goldfields

Cultural Resources

Project Features

- Gate
- Lock Gate
- PG&E Lock
- Tower
- Fence Obstruction
- Transmission Line
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- 1 mile Project T Line Buffer

N

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Miles: 0 0.1 0.2
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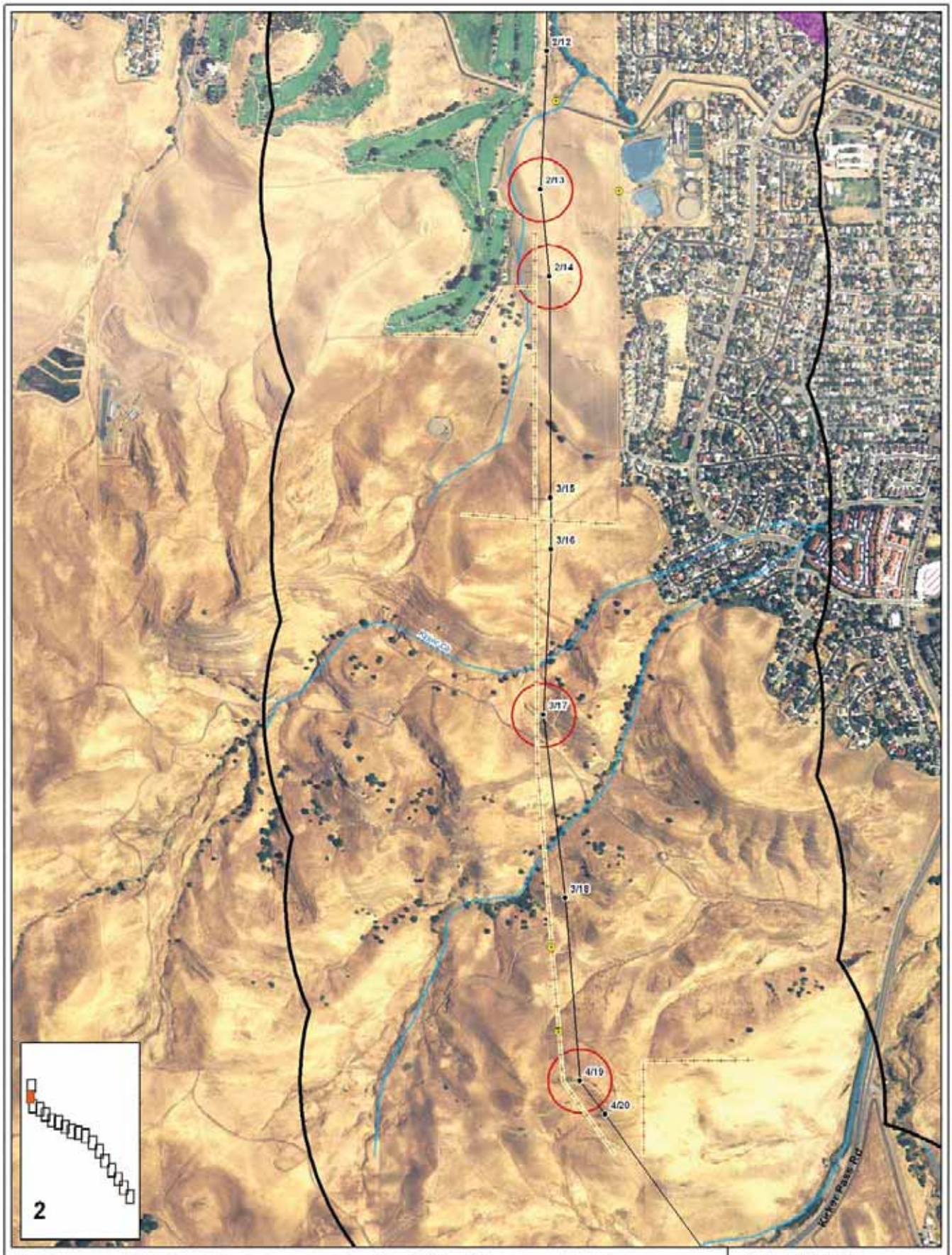

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- slender silver moss

Habitat

- Alkali Meadow
- Clarontana Alkali Marsh
- Alkali Seep

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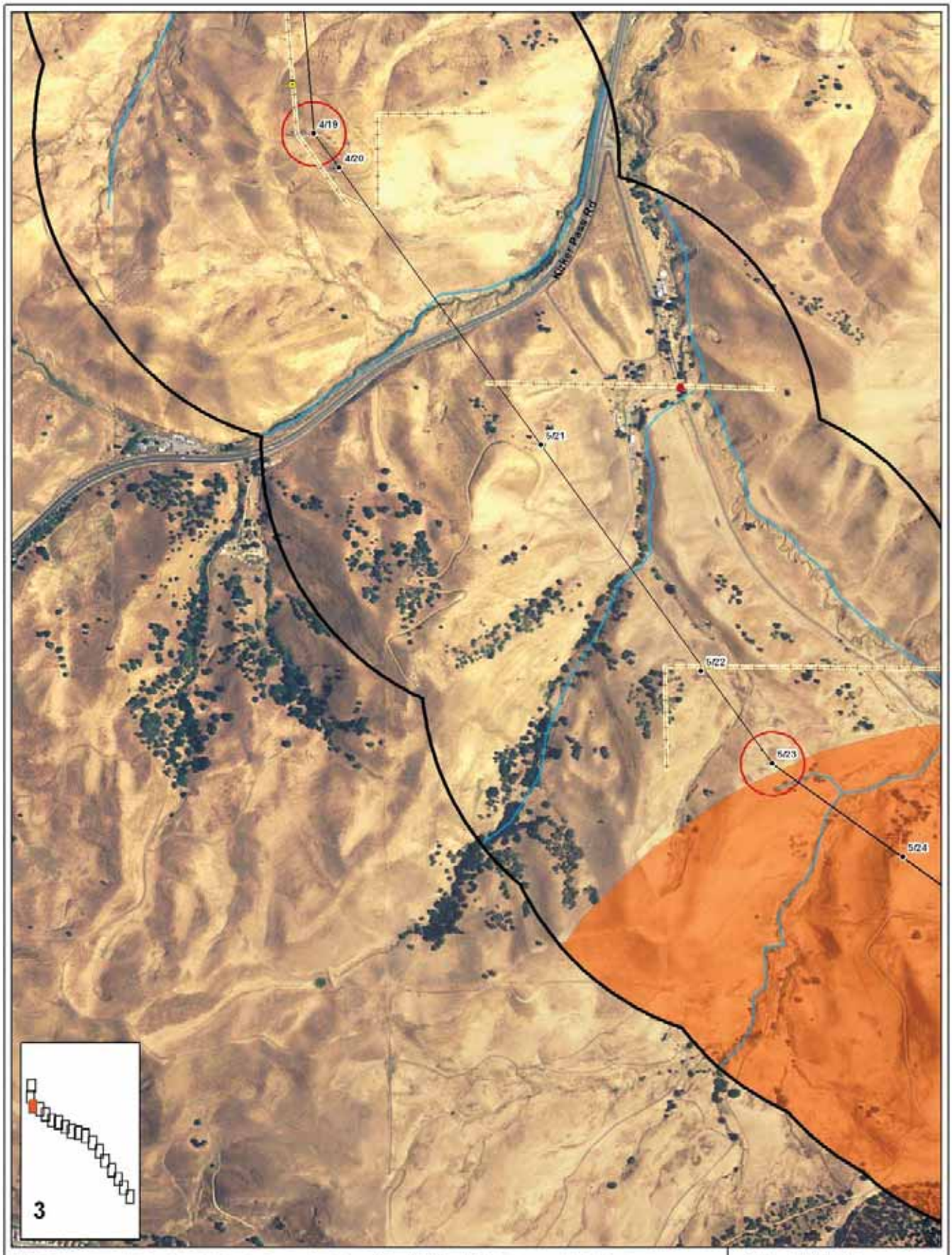

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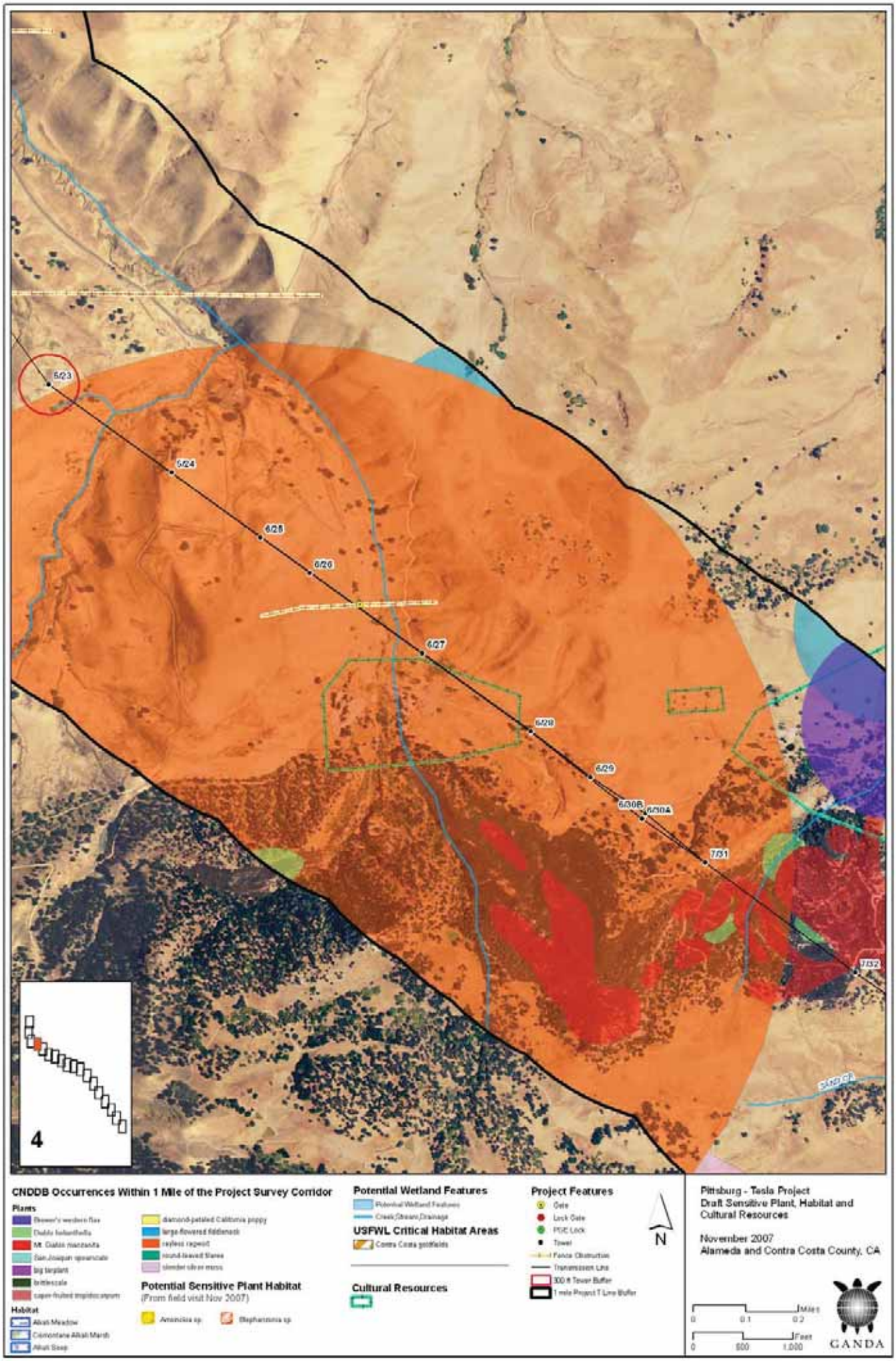
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CNDDB Occurrences Within 1 Mile of the Project Survey Corridor
Plants
Brewer's western flax
Diablo helianthella
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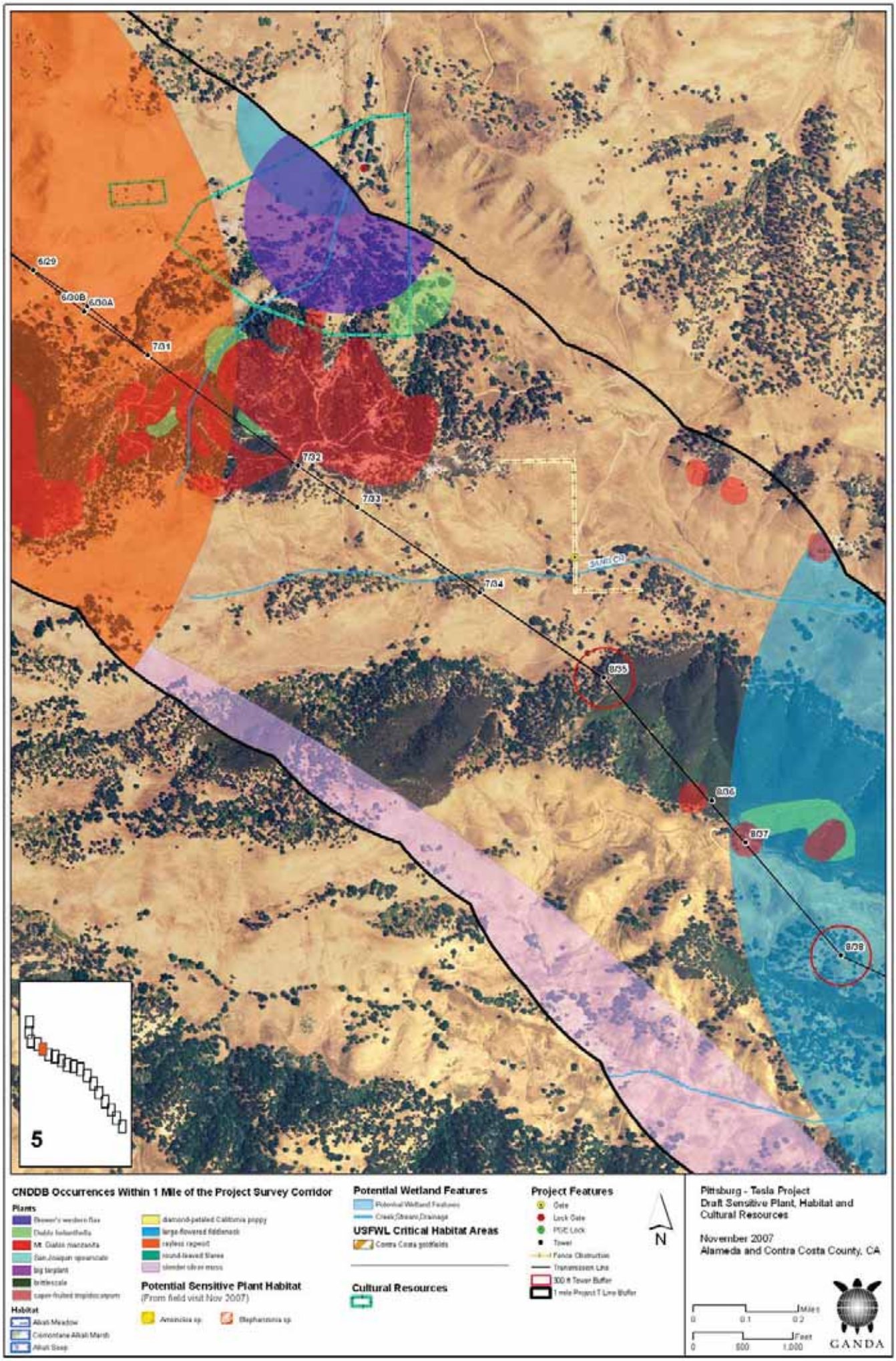
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SANB CR
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8/06
8/07
8/08
5
CNDDB Occurrences Within 1 Mile of the Project Survey Corridor
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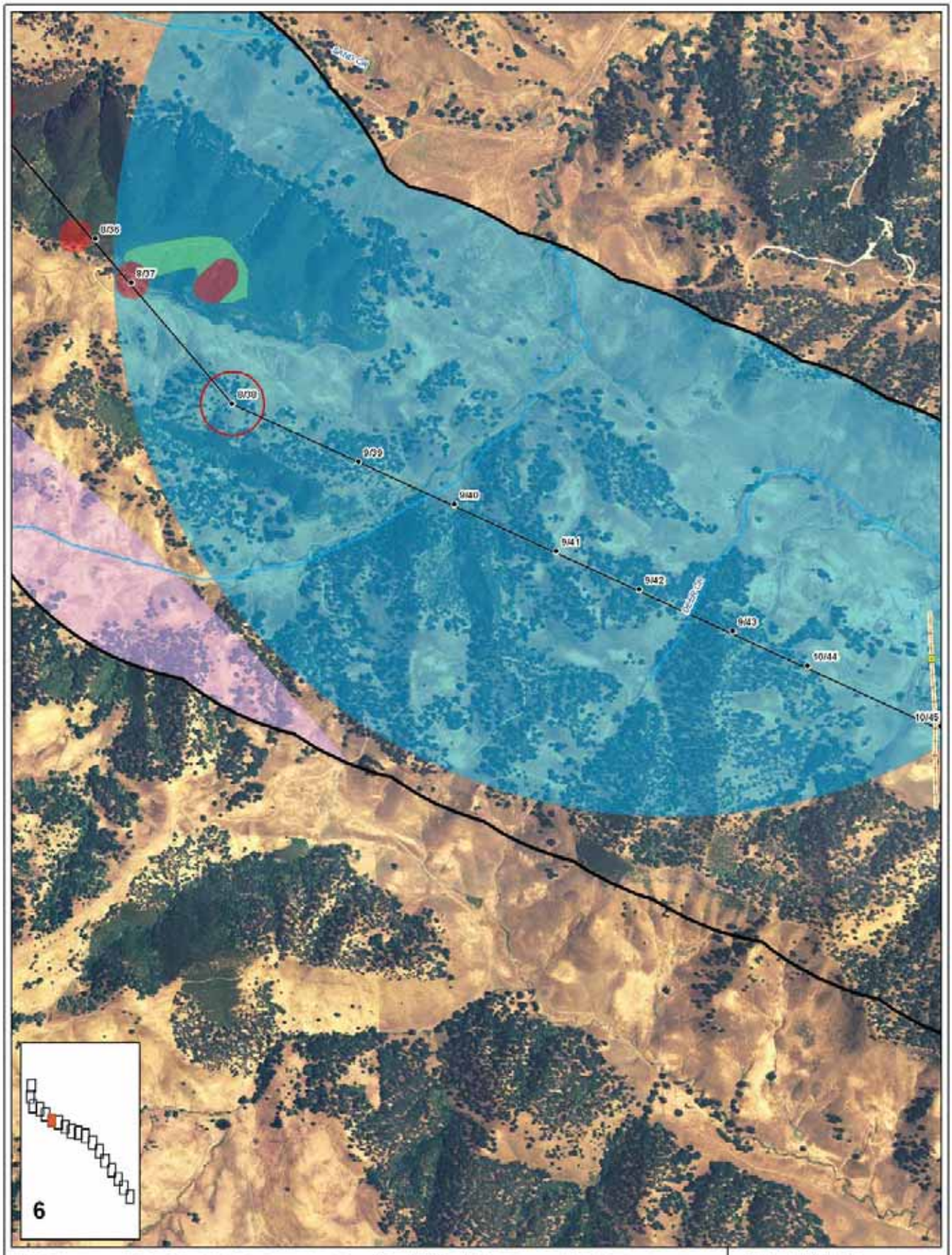

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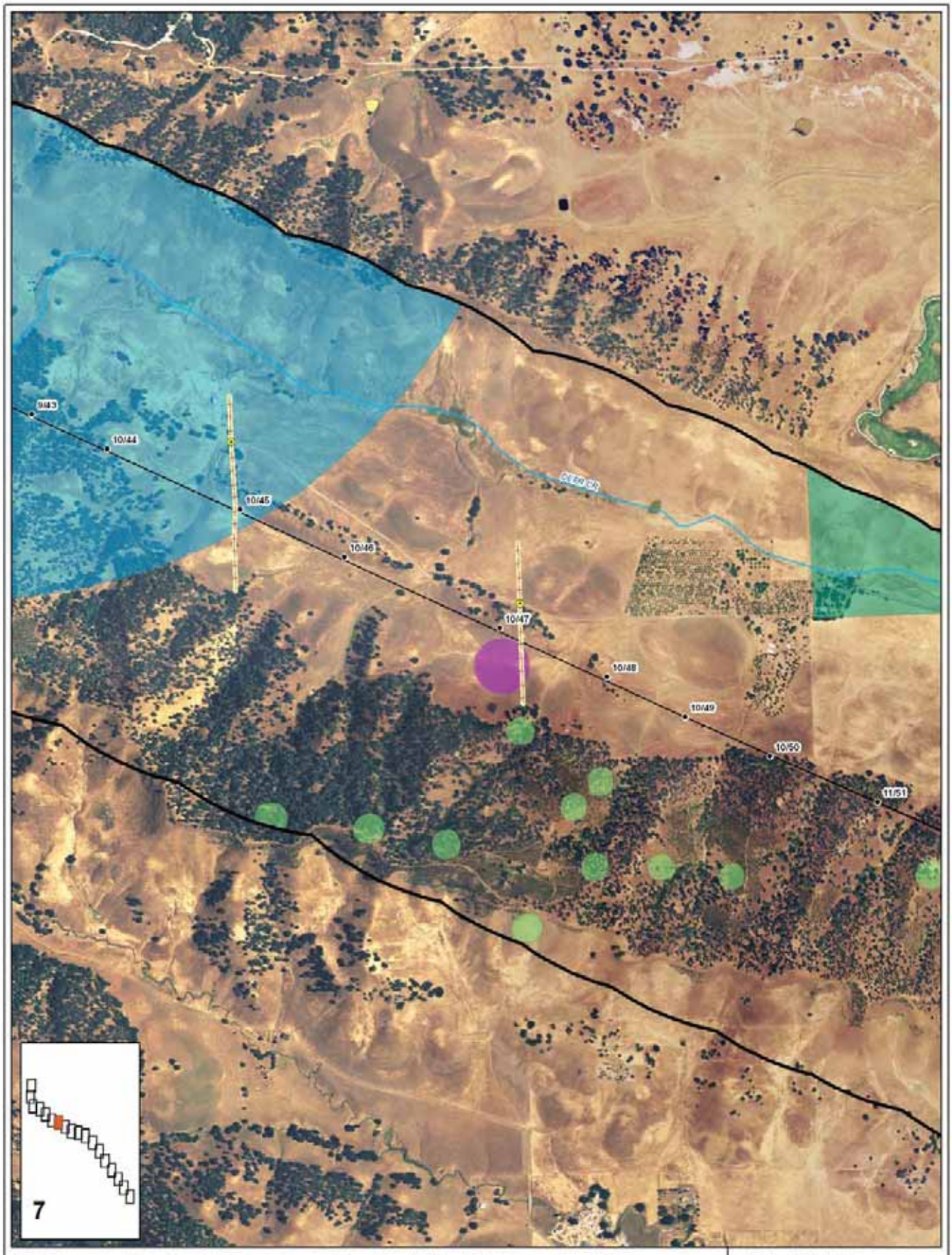

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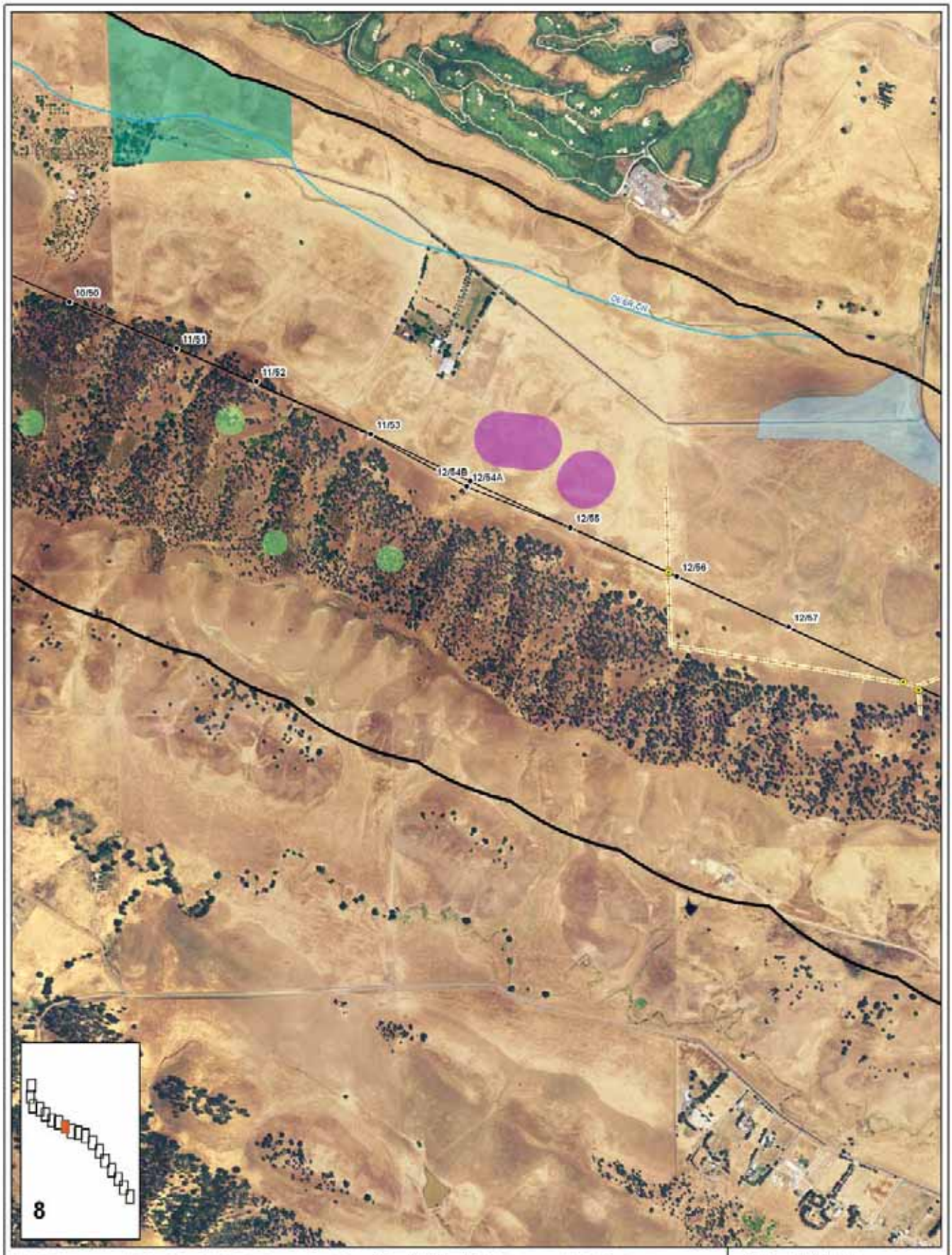

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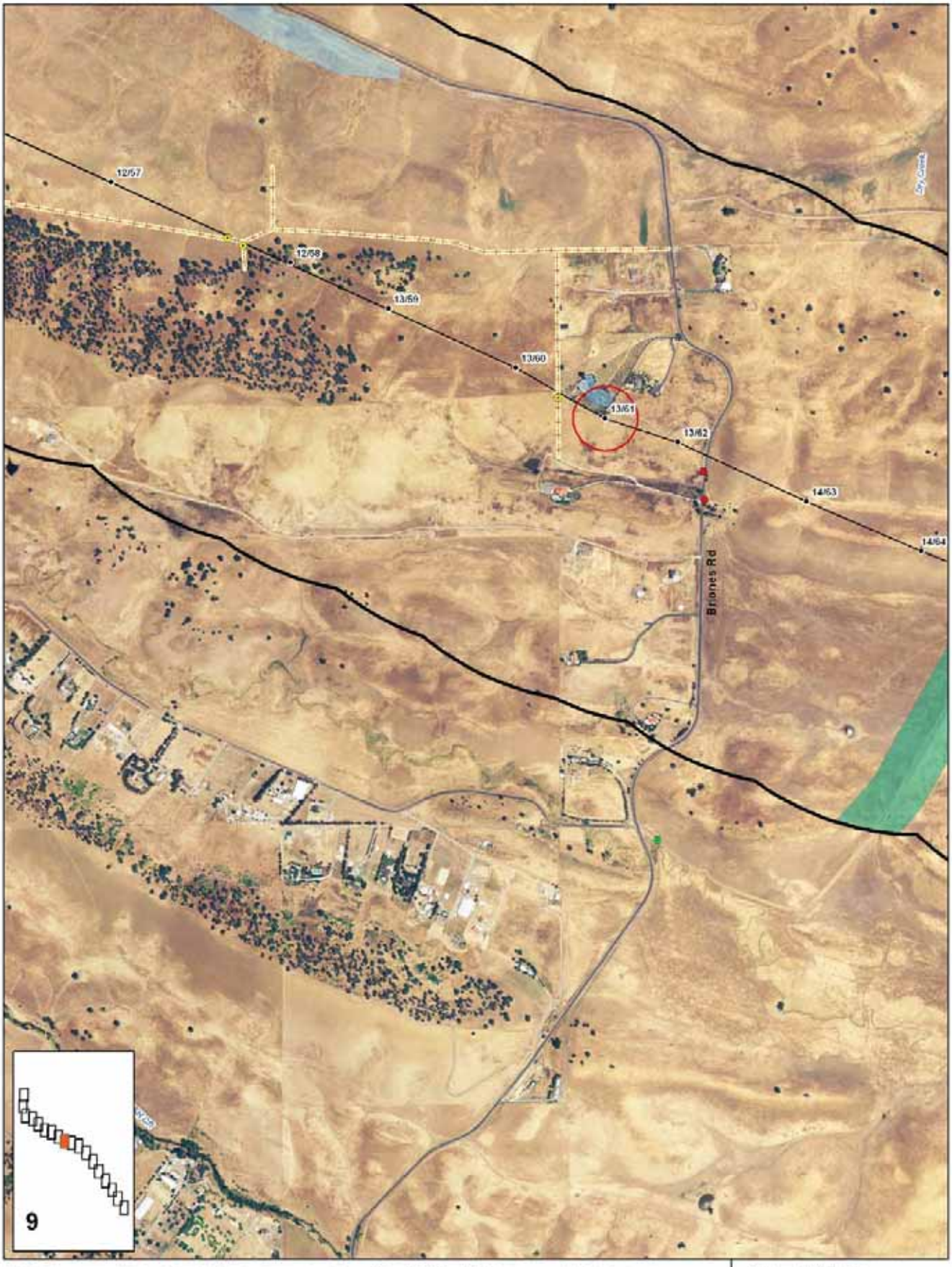

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Miles: 0 0.1 0.2
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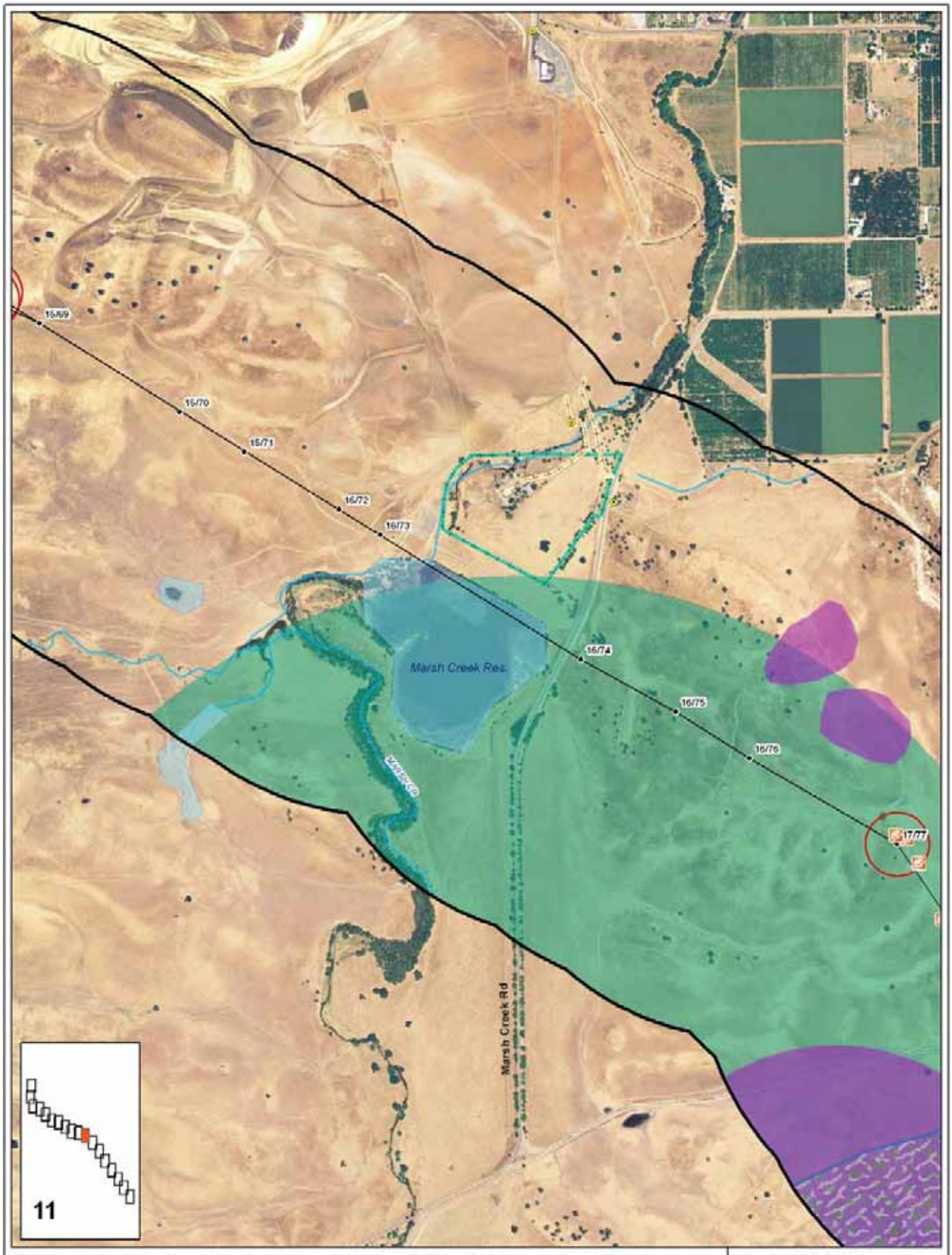

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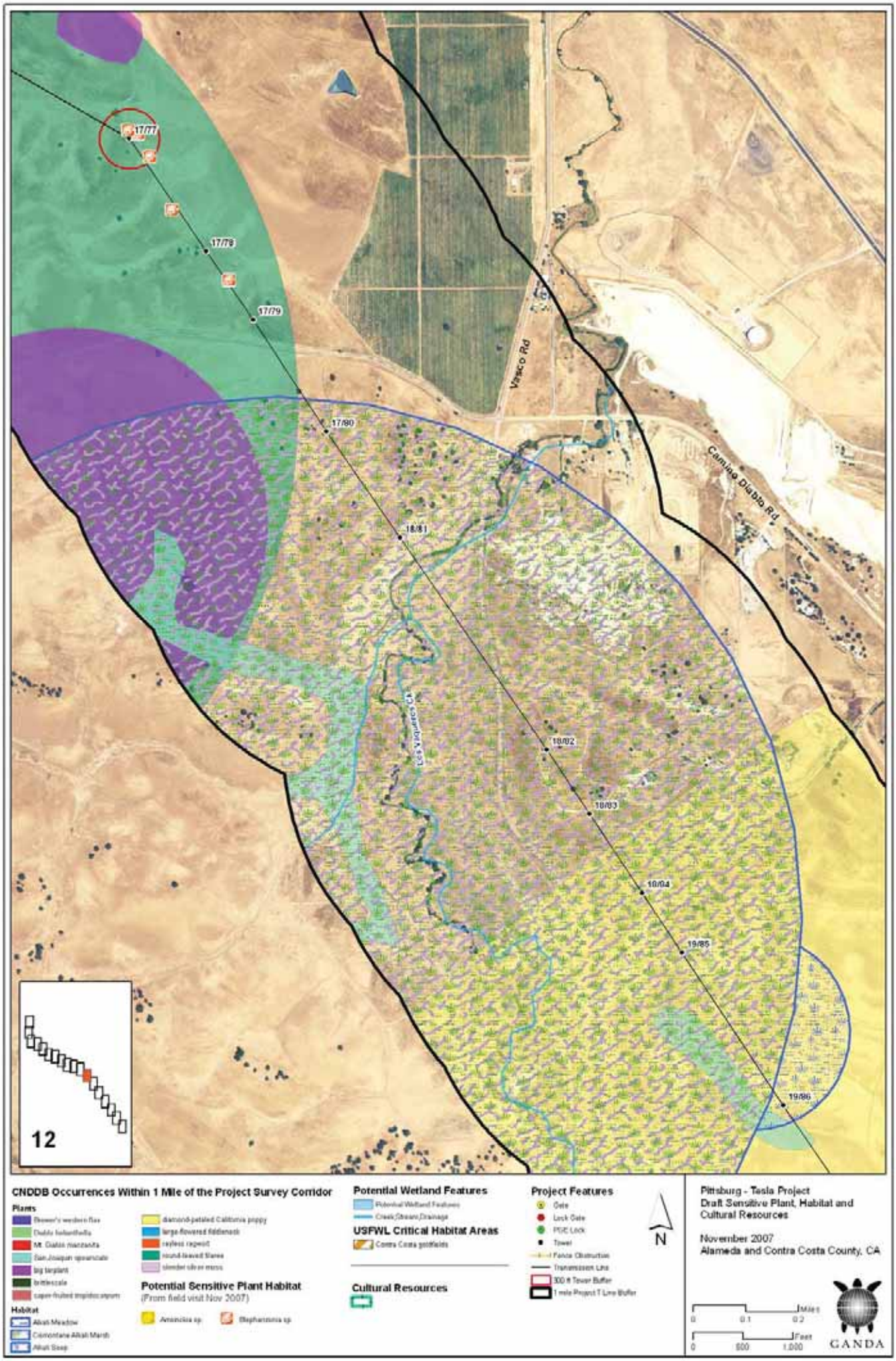
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Vasco Rd
Camino Diablo Rd
Los Vaqueros Ct
12
CNDDB Occurrences Within 1 Mile of the Project Survey Corridor
Plants
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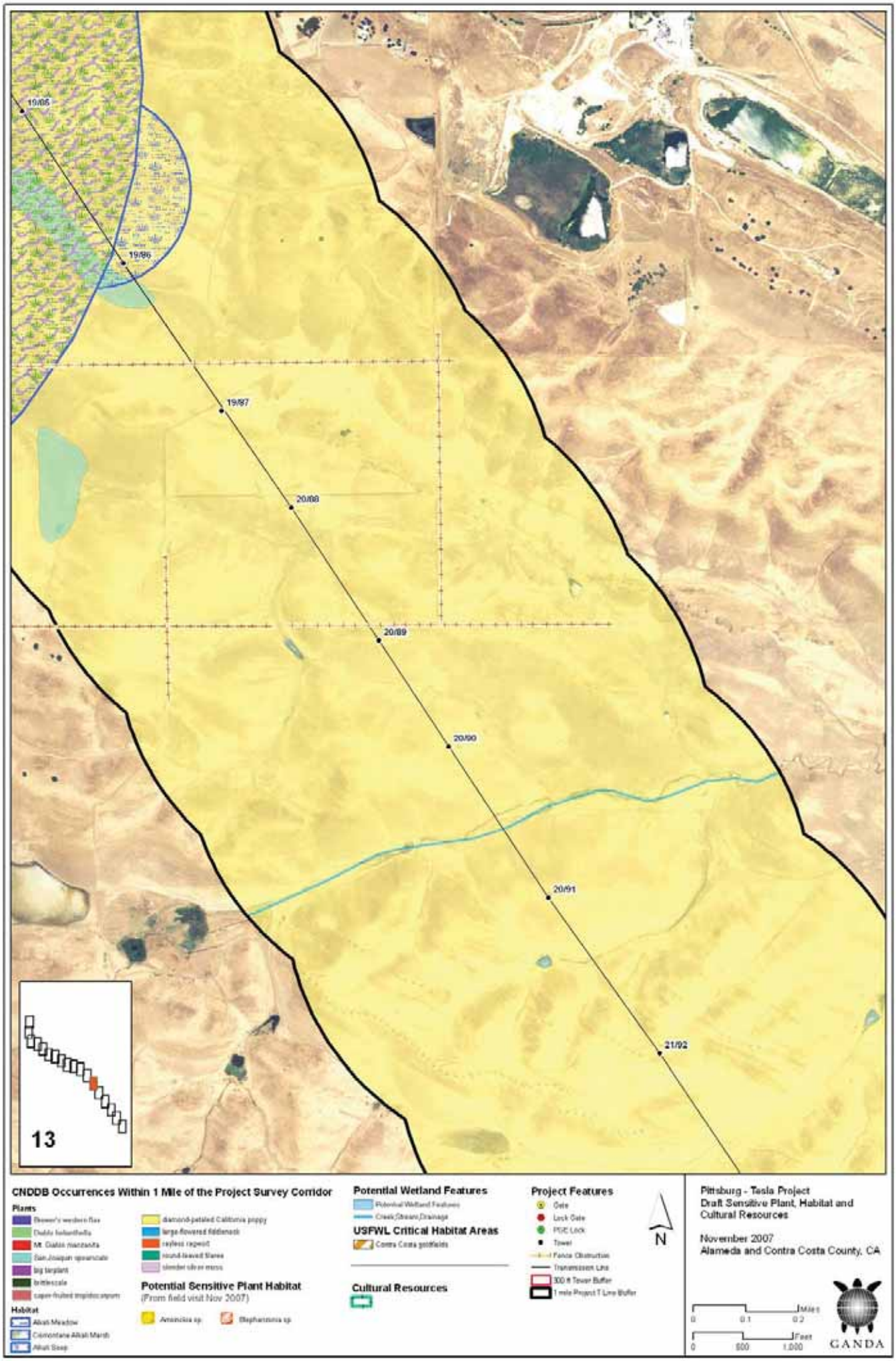
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13
CNDDB Occurrences Within 1 Mile of the Project Survey Corridor
Plants
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Mt. Diablo manzanita
San Joaquin spearscale
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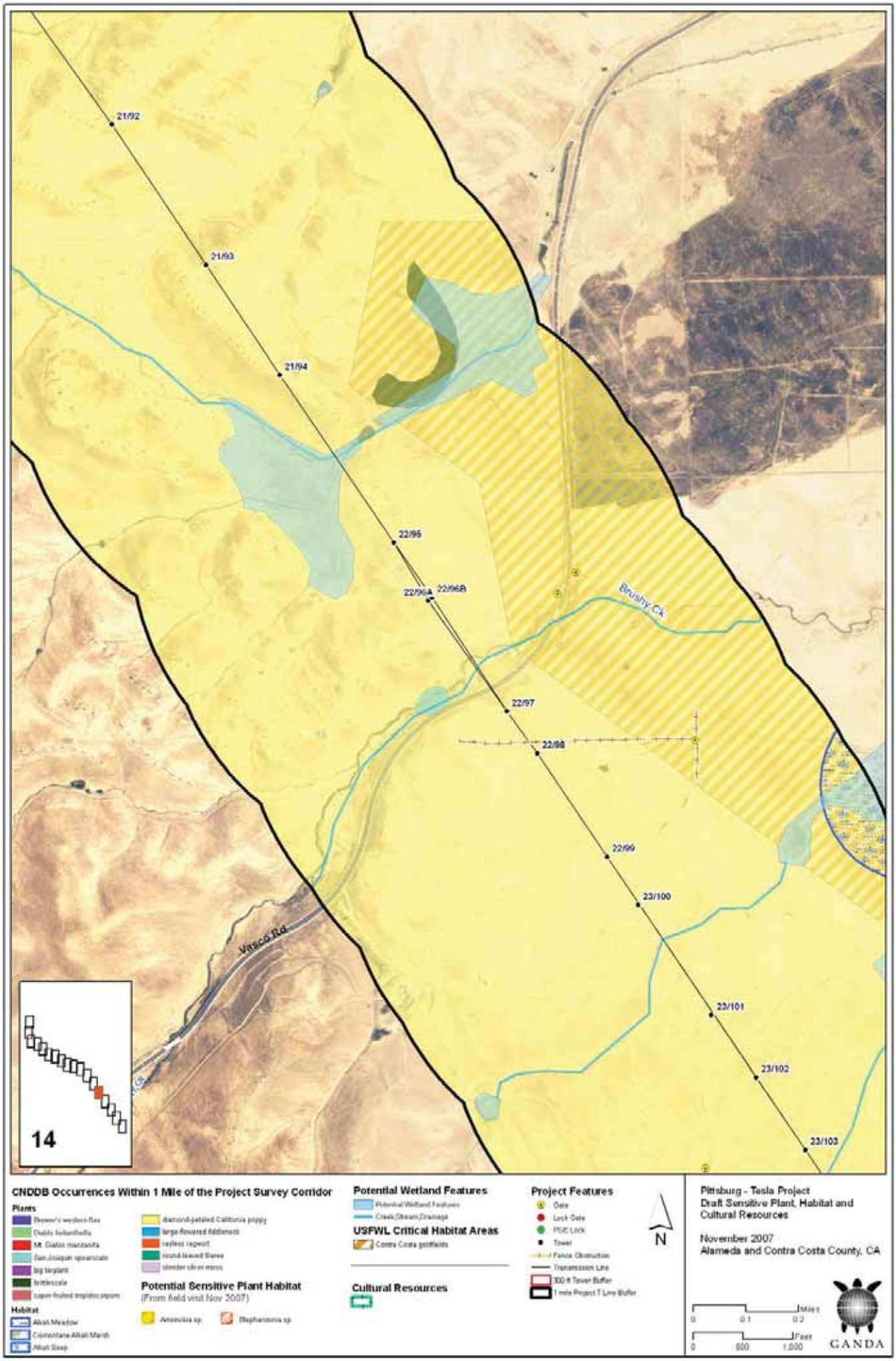
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21/94
22/95
22/96A
22/96B
Brushy Ck
22/97
22/98
22/99
23/100
Vasco Rd
23/101
23/102
23/103
14
CNDDB Occurrences Within 1 Mile of the Project Survey Corridor
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Mt. Diablo manzanita
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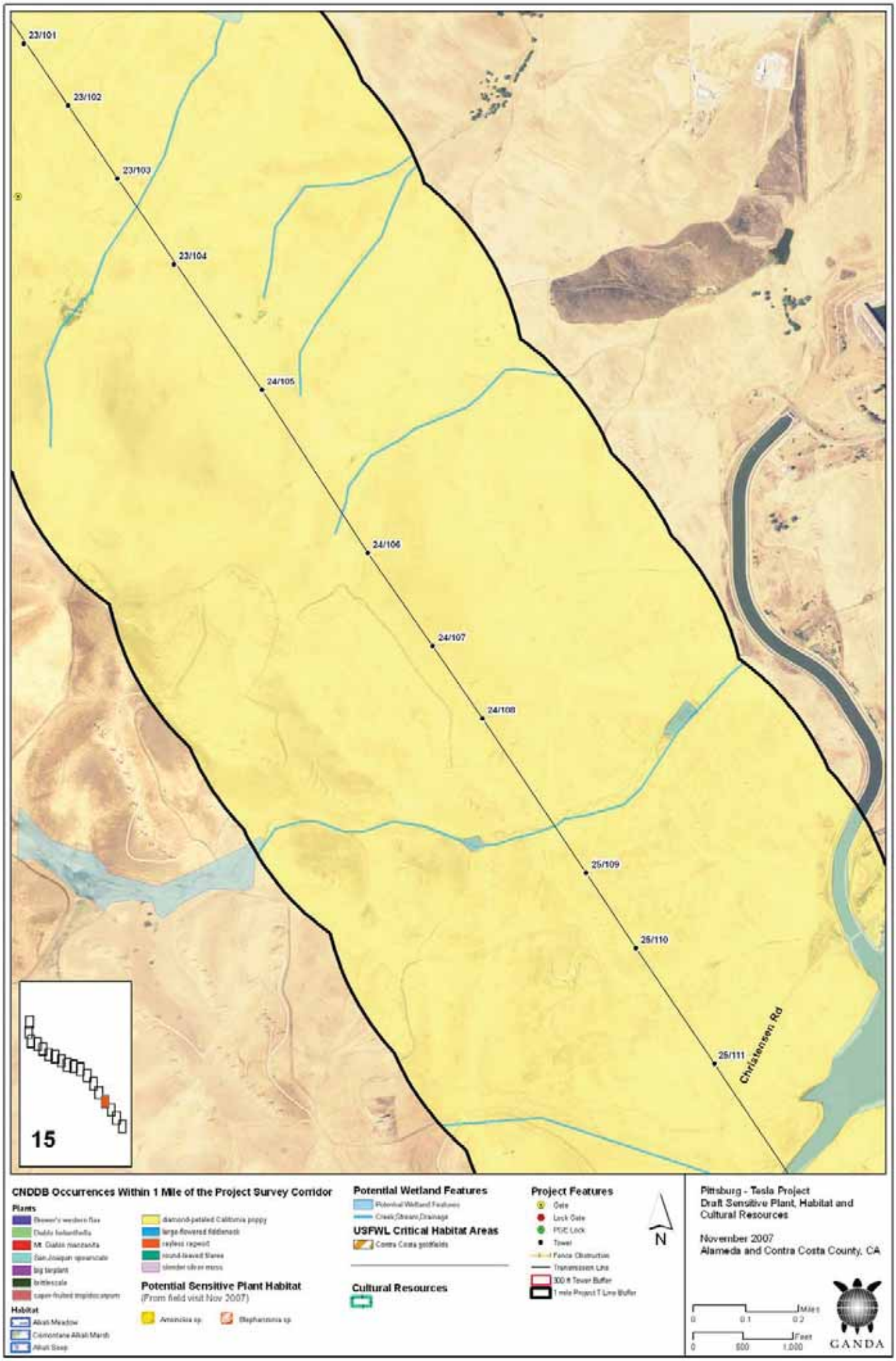
(From field visit Nov 2007)
Amsinckia sp.
Blepharizonia sp.
Potential Wetland Features
Potential Wetland Features
Creek/Stream/Drainage
USFWL Critical Habitat Areas
Contra Costa goldfields
Cultural Resources
Project Features
Gate
Lock Gate
PG&E Lock
Tower
Fence Obstruction
Transmission Line
300 ft Tower Buffer
1 mile Project T Line Buffer
N
Pittsburg - Tesla Project
Draft Sensitive Plant, Habitat and Cultural Resources
November 2007
Alameda and Contra Costa County, CA
Miles
0
0.1
0.2
Feet
0
500
1,000
GANDA


23/101
23/102
23/103
23/104
24/105
24/106
24/107
24/108
25/109
25/110
25/111
Christensen Rd
15
CNDDB Occurrences Within 1 Mile of the Project Survey Corridor
Plants
Brewer's western flax
Diablo helianthella
Mt. Diablo manzanita
San Joaquin spearscale
big tarplant
brittlescale
caper-fruited tropidocarpum
diamond-petaled California poppy
large-flowered fiddleneck
reyless ragwort
round-leaved filaree
slender silver moss
Habitat
Alkali Meadow
Clarontana Alkali Marsh
Alkali Seep
Potential Sensitive Plant Habitat
(From field visit Nov 2007)
Amsinckia sp.
Blepharizonia sp.
Potential Wetland Features
Potential Wetland Features
Creek/Stream/Drainage
USFWL Critical Habitat Areas
Contra Costa goldfields
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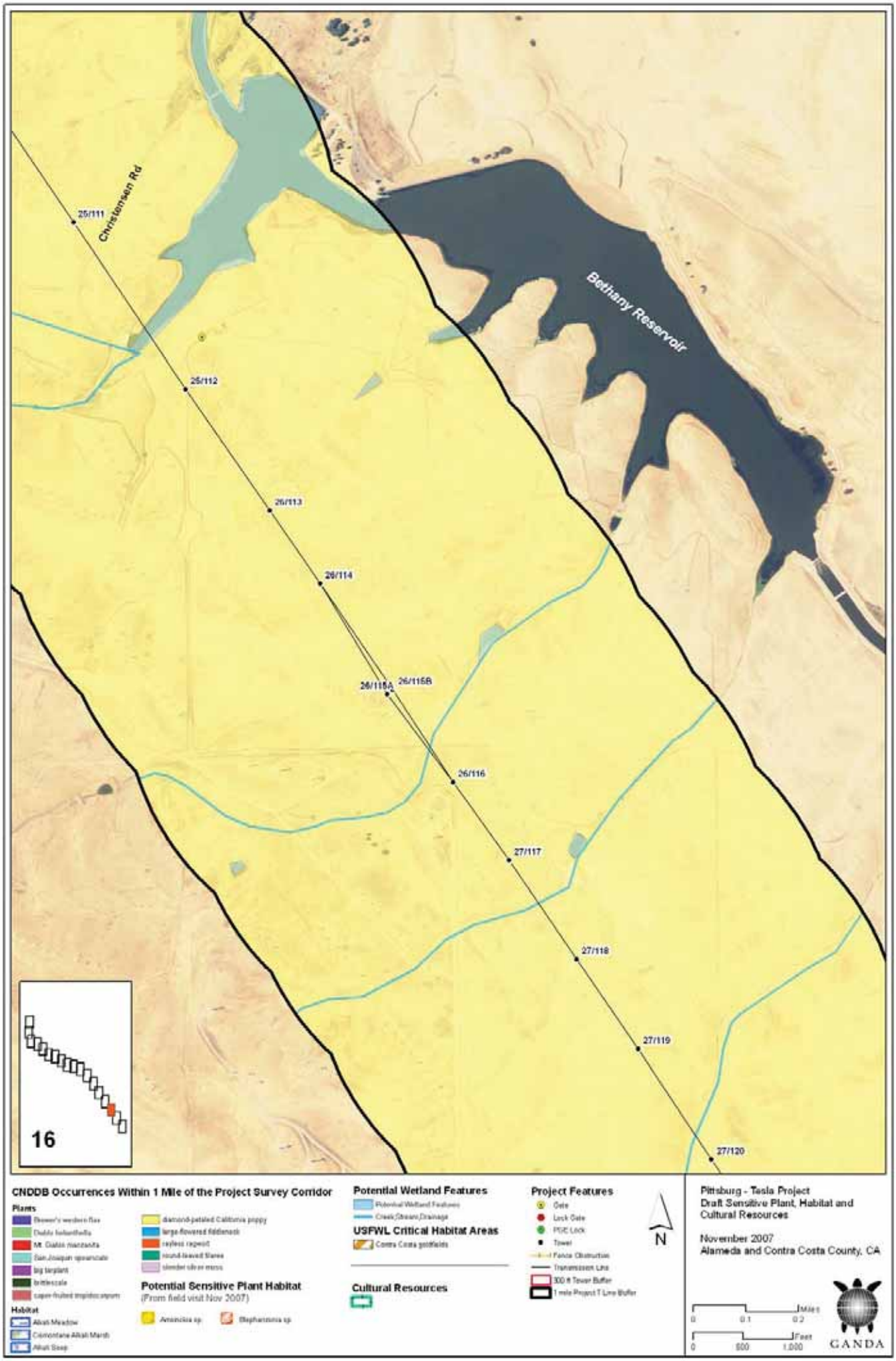
Christensen Rd
Bethany Reservoir
25/111
25/112
26/113
26/114
26/115A
26/115B
26/116
27/117
27/118
27/119
27/120
16
CNDDB Occurrences Within 1 Mile of the Project Survey Corridor
Plants
Dwarf's western flax
Diablo helianthella
Mt. Diablo manzanita
San Joaquin spearscale
big tarplant
brittlescale
caper-fruited tropidocarpum
diamond-petaled California poppy
large-flowered fiddleneck
reyless ragwort
round-leaved filaree
slender silver moss
Habitat
Alkali Meadow
Clorontario Alkali Marsh
Alkali Seep
Potential Sensitive Plant Habitat
(From field visit Nov 2007)
Amsinckia sp.
Blepharizonia sp.
Potential Wetland Features
Potential Wetland Features
Creek/Stream/Drainage
USFWL Critical Habitat Areas
Contra Costa goldfields
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Alameda and Contra Costa County, CA
Miles
0
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Feet
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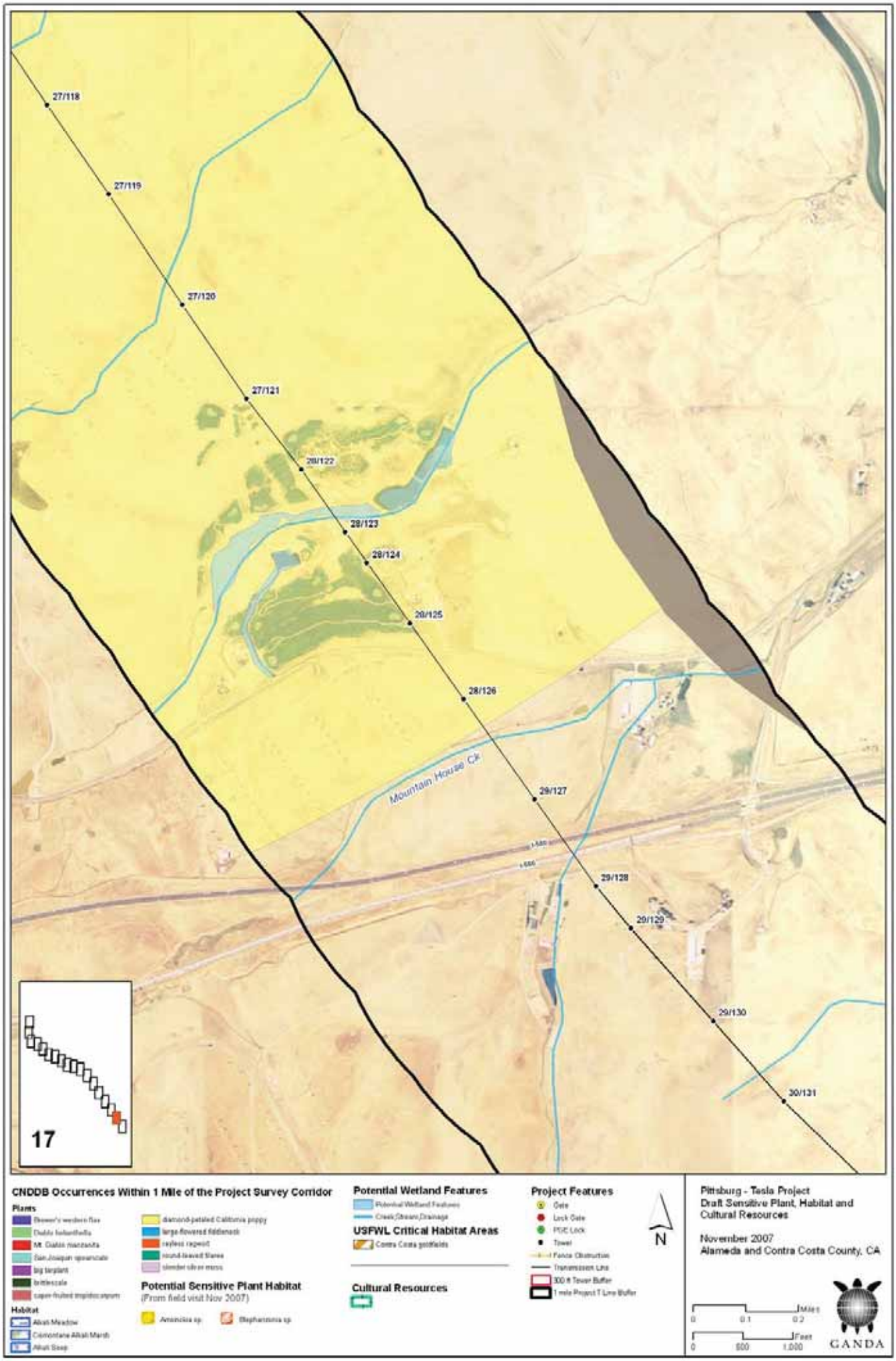
GANDA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27/119
27/120
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28/123
28/124
28/125
28/126
29/127
29/128
29/129
29/130
30/131
Mountain House Ck
17
CNDDB Occurrences Within 1 Mile of the Project Survey Corridor
Plants
Brewer's western flax
Diablo helianthella
Mt. Diablo manzanita
San Joaquin spearscale
big tarplant
brittlescale
caper-fruited tropidocarpum
diamond-petaled California poppy
large-flowered fiddleneck
reflexed rayless aster
round-leaved filaree
slender silver moss
Habitat
Alkali Meadow
Clorontana Alkali Marsh
Alkali Seep
Potential Sensitive Plant Habitat
(From field visit Nov 2007)
Amsinckia sp.
Blepharizonia sp.
Potential Wetland Features
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USFWL Critical Habitat Areas
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Miles
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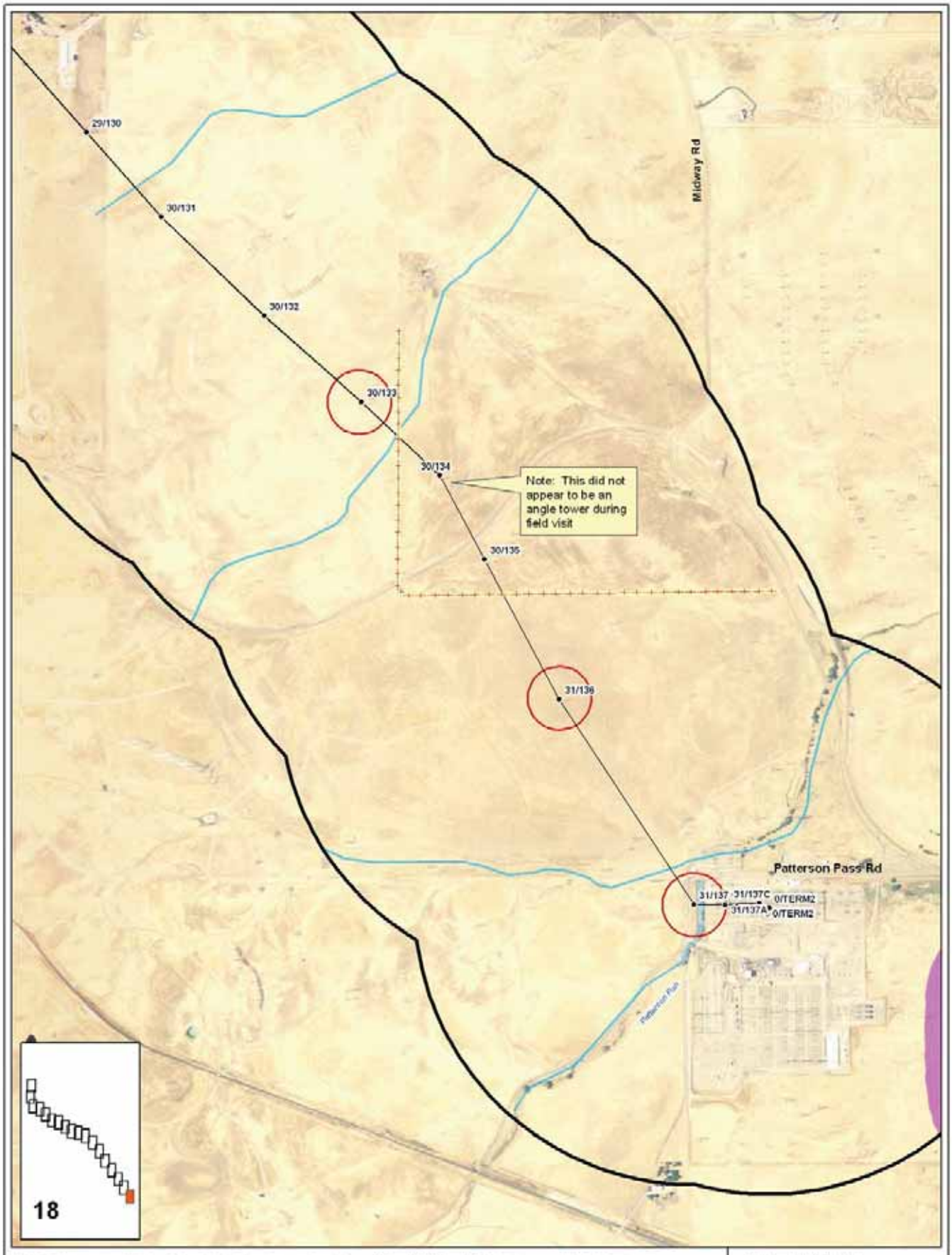
1,000
GANDA



CNDDB Occurrences Within 1 Mile of the Project Survey Corridor

Plants

- Brewer's western flax
- Diablo helianthella
- Mt. Diablo manzanita
- San Joaquin spearscale
- big tarplant
- brittlescale
- caper-fruited tropidocarpum
- diamond-petaled California poppy
- large-flowered fiddleneck
- reyless ragwort
- round-leaved filaree
- slender silver moss

Habitat

- Alkali Meadow
- Clarontana Alkali Marsh
- Alkali Seep

Potential Sensitive Plant Habitat
(From field visit Nov 2007)

- Amsinckia sp.
- Blepharizonia sp.

Potential Wetland Features

- Potential Wetland Features
- Creek/Stream/Drainage

USFWL Critical Habitat Areas

- Contra Costa goldfields

Cultural Resources

Project Features

- Gate
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N

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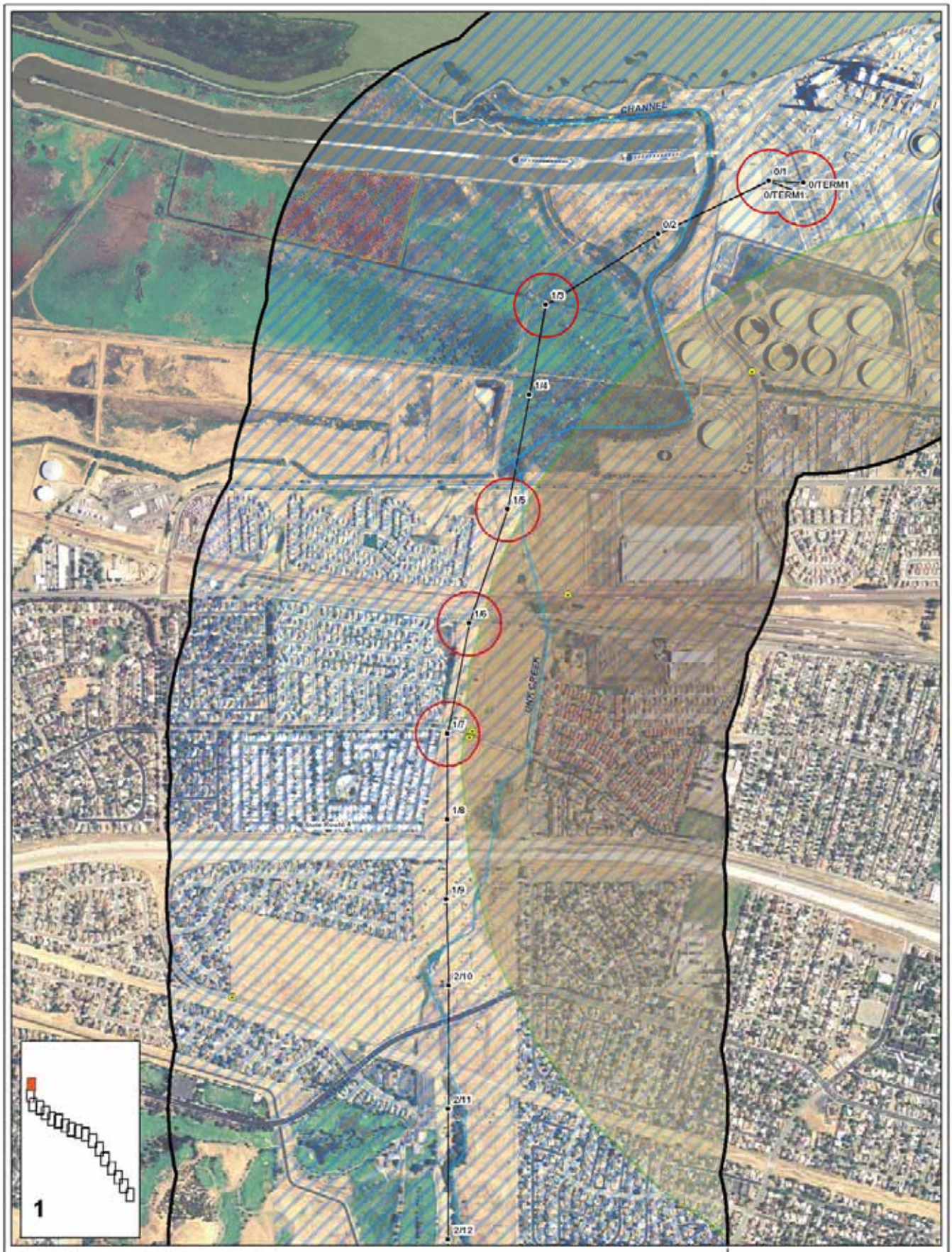
November 2007
Alameda and Contra Costa County, CA

0 0.1 0.2 Miles

0 500 1,000 Feet

GANDA

Figure 3: Sensitive Wildlife Maps (Maps 1-18)



CNDDB Occurrences within 1 mile of Project Area

Mammals
- American badger
- San Joaquin kit fox
- San Joaquin pocket mouse
- salt marsh harvest mouse

Birds
- tricolored blackbird
- Burrowing owl
- Suisun song sparrow

Invertebrates
- Vernal pool andrenid bee
- curved-foot hygrotus diving beetle
- midvalley fairy shrimp
- Molestan blister beetle
- Vernal pool fairy shrimp

Reptiles / Amphibians
- California red-legged frog
- California tiger salamander
- San Joaquin whipsnake
- western pond turtle

Potential Sensitive Wildlife Features
(From field visit Nov 2007)
- Burrowing owl burrow
- Ca Red-legged frog/western pond turtle
- California tiger salamander
- San Joaquin kit fox burrow

Potential Sensitive Wildlife Areas
(From field visit Nov 2007)
- Alameda whip snake
- Burrowing owl/kit fox

USFWL Critical Habitat Areas
- Delta smelt
- Vernal pool fairy shrimp

Project Features
- Gate
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0 0.1 0.2 Miles
0 500 1,000 Feet

GANDA

CNDDB Occurrences within 1 mile of Project Area

Mammals
- American badger
- San Joaquin kit fox
- San Joaquin pocket mouse
- salt marsh harvest mouse

Birds
- Ferruginous hawk
- Burrowing owl
- Swainson's hawk

Invertebrates
- Vernal pool andrenid bee
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N

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Alameda and Contra Costa County, CA

0 0.1 0.2 Miles
0 500 1,000 Feet

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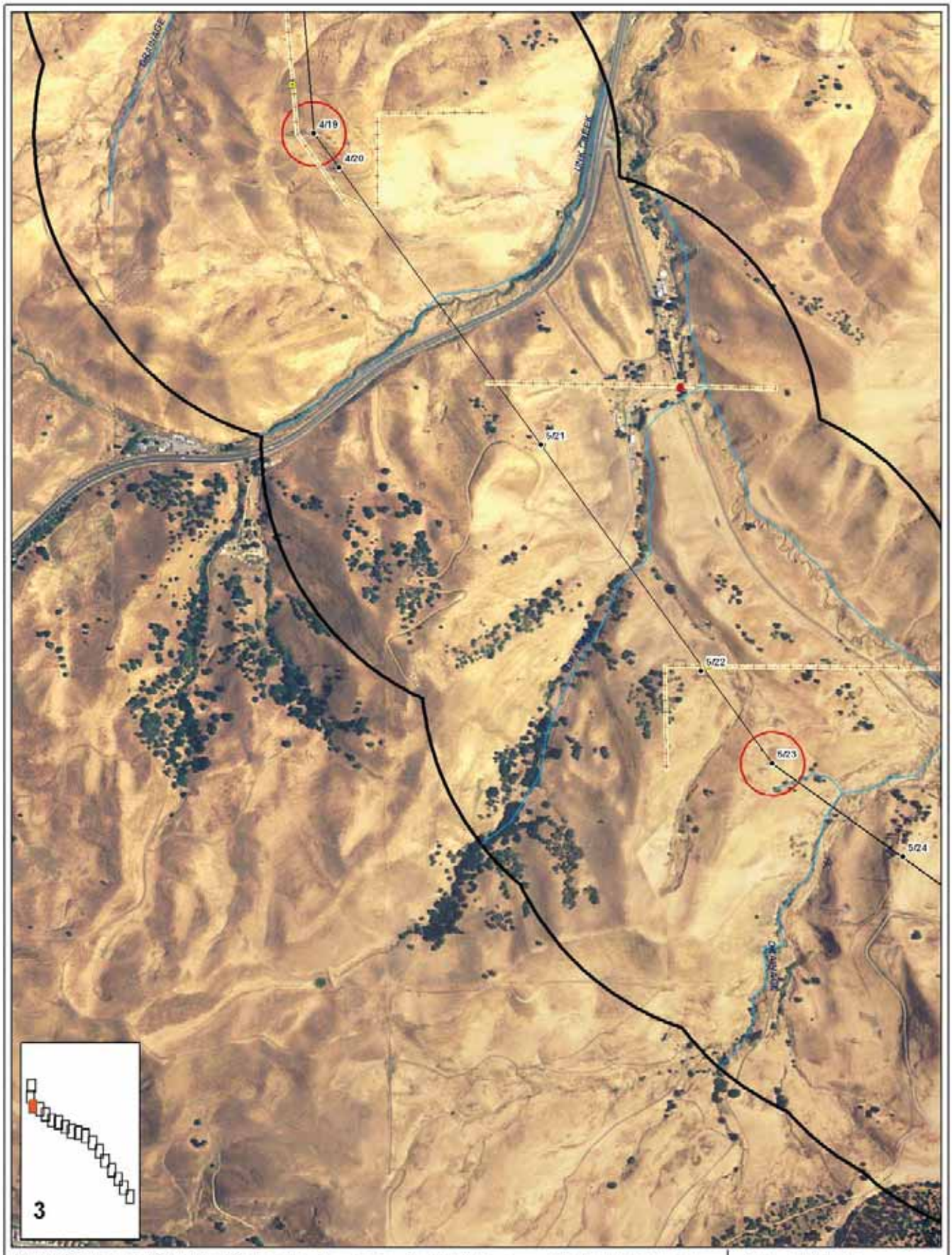

CNDDB Occurrences within 1 mile of Project Area

Mammals
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- San Joaquin kit fox
- San Joaquin pocket mouse
- salt marsh harvest mouse

Birds
- Ferruginous hawk
- Burrowing owl
- Suisun song sparrow

Invertebrates
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0 0.1 0.2 Miles
0 500 1,000 Feet

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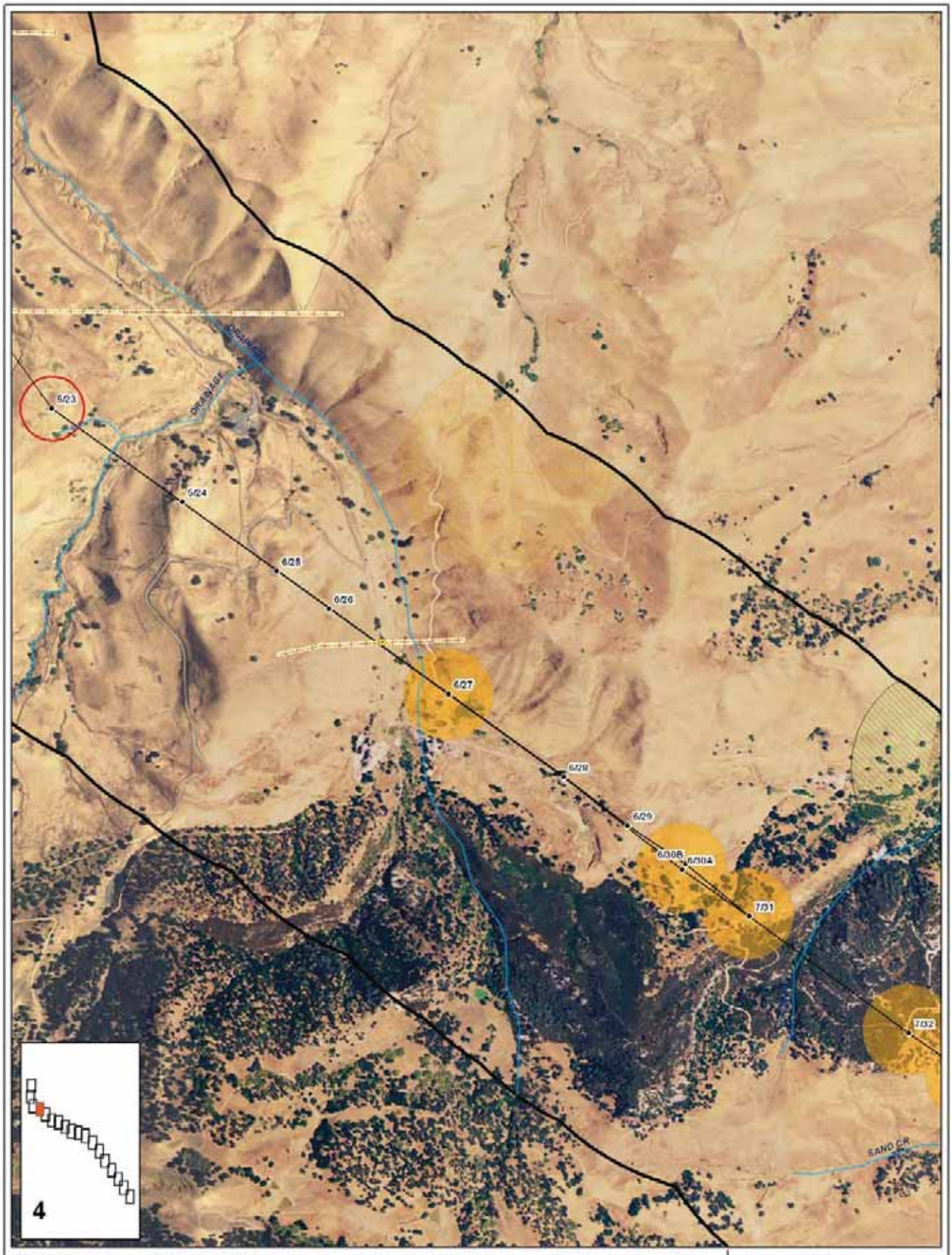

CNDDB Occurrences within 1 mile of Project Area

Mammals
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Birds
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Pittsburg - Tesla Project
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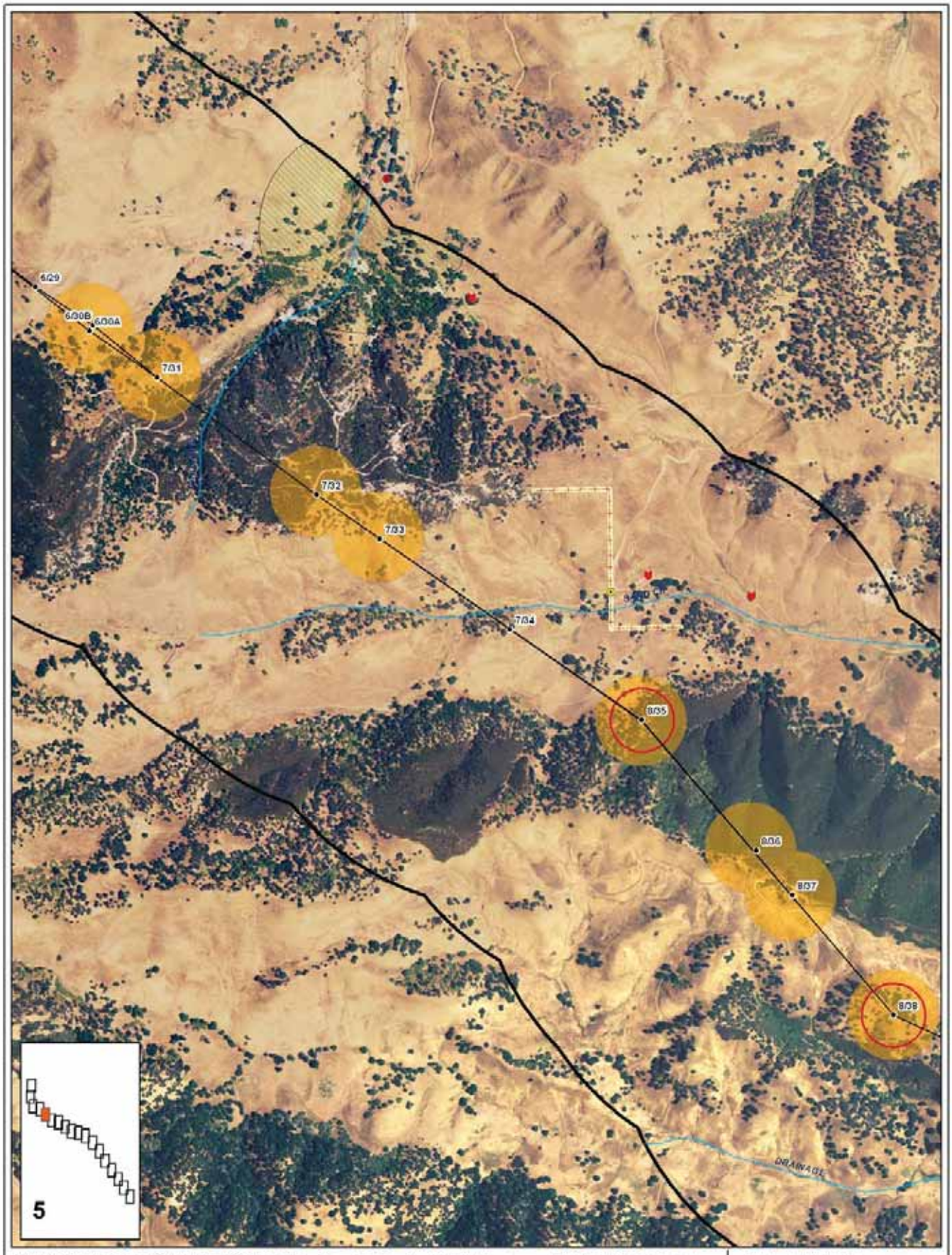
Alameda and Contra Costa County, CA

Miles: 0 0.1 0.2
Feet: 0 500 1,000

GANDA



CNDDB Occurrences within 1 mile of Project Area

Mammals
- American badger
- San Joaquin kit fox
- San Joaquin pocket mouse
- salt marsh harvest mouse

Birds
- Swainson's hawk
- Burrowing owl
- Suisun song sparrow

Invertebrates
- Vernal pool androvid box
- curved foot hygrotus diving beetle
- midvalley fairy shrimp
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N

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0 0.1 0.2 Miles
0 500 1,000 Feet

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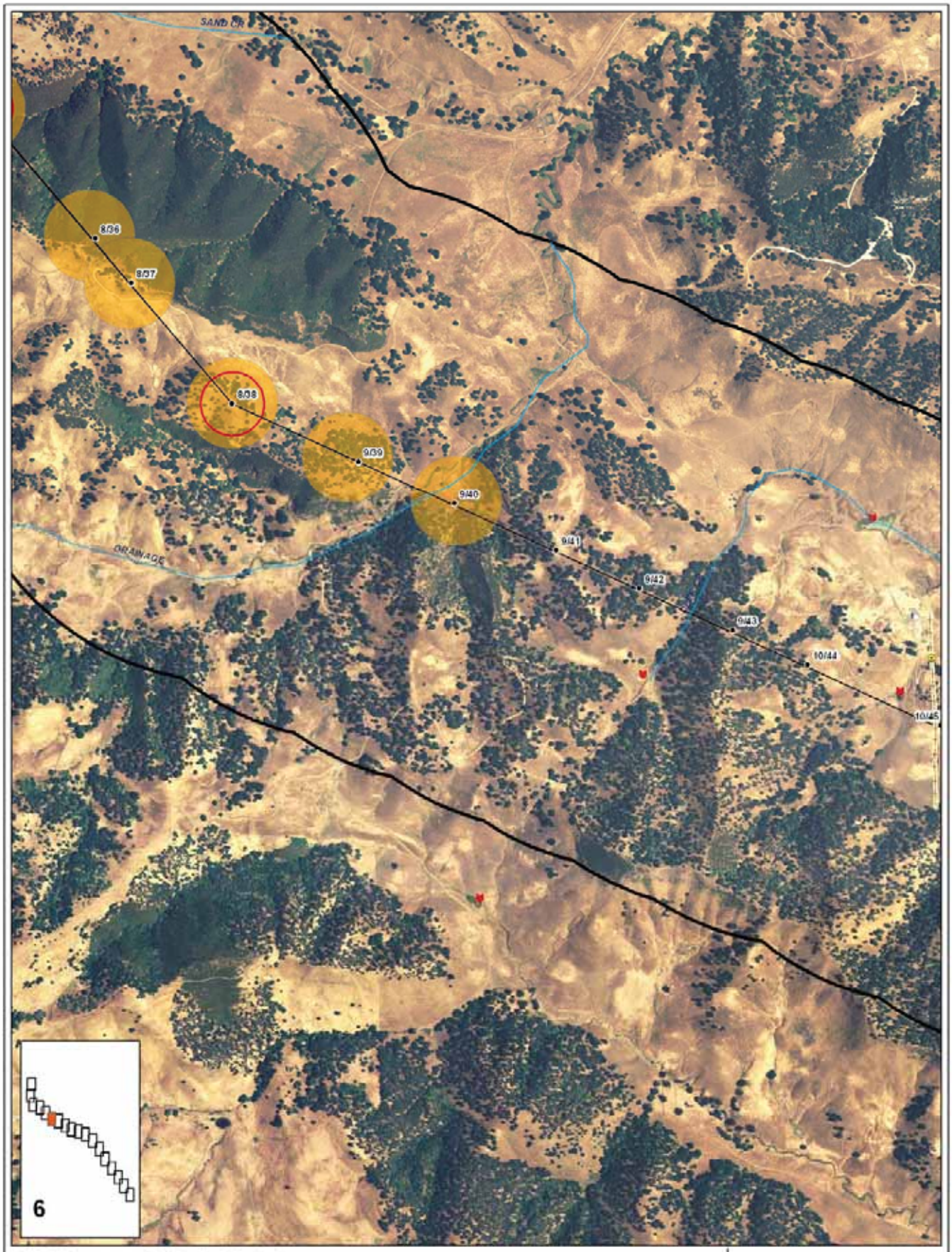

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Miles: 0 0.1 0.2
Feet: 0 500 1,000

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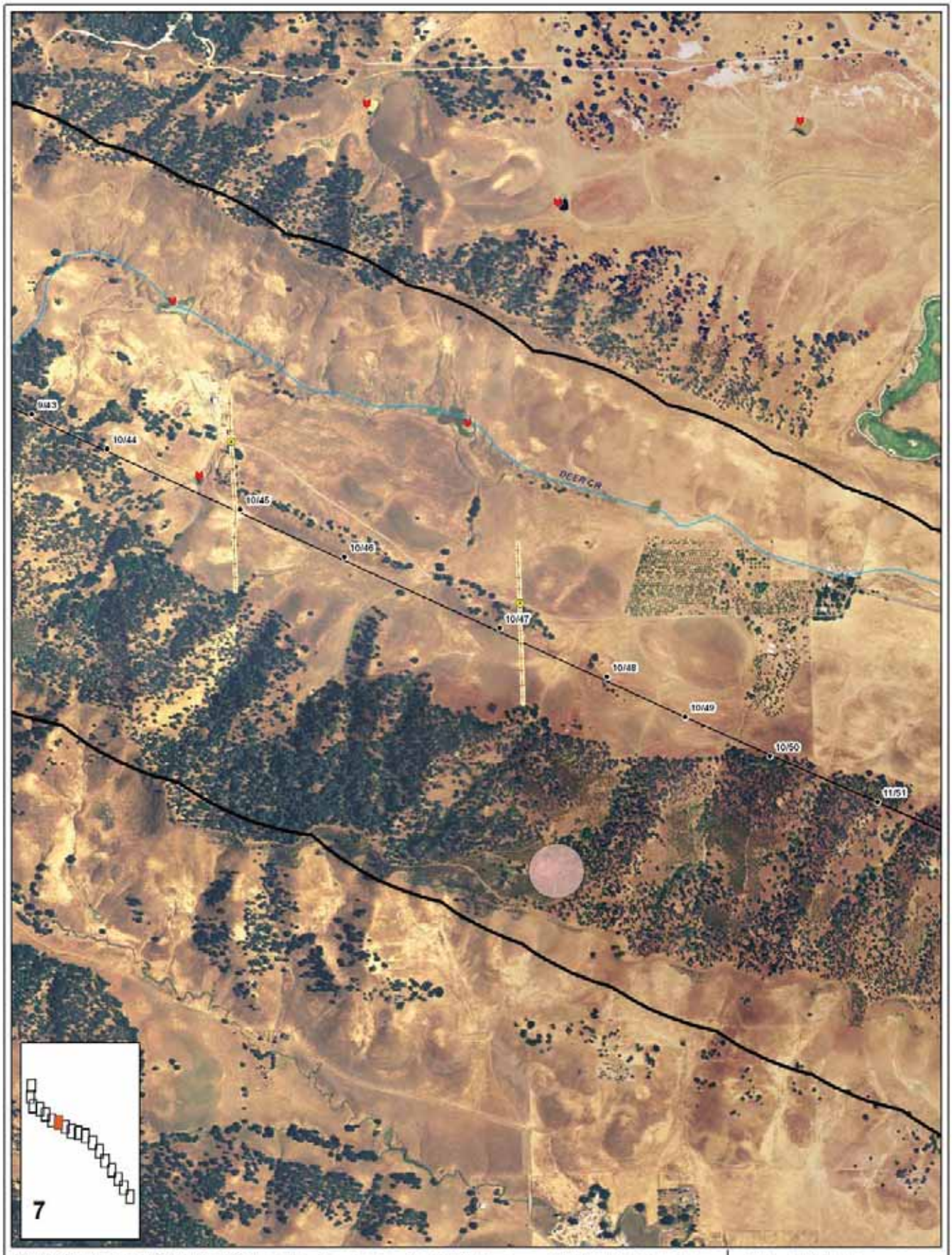

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Miles: 0 0.1 0.2
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GANDA

CNDDB Occurrences within 1 mile of Project Area

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November 2007
Alameda and Contra Costa County, CA

0 0.1 0.2 Miles
0 500 1,000 Feet

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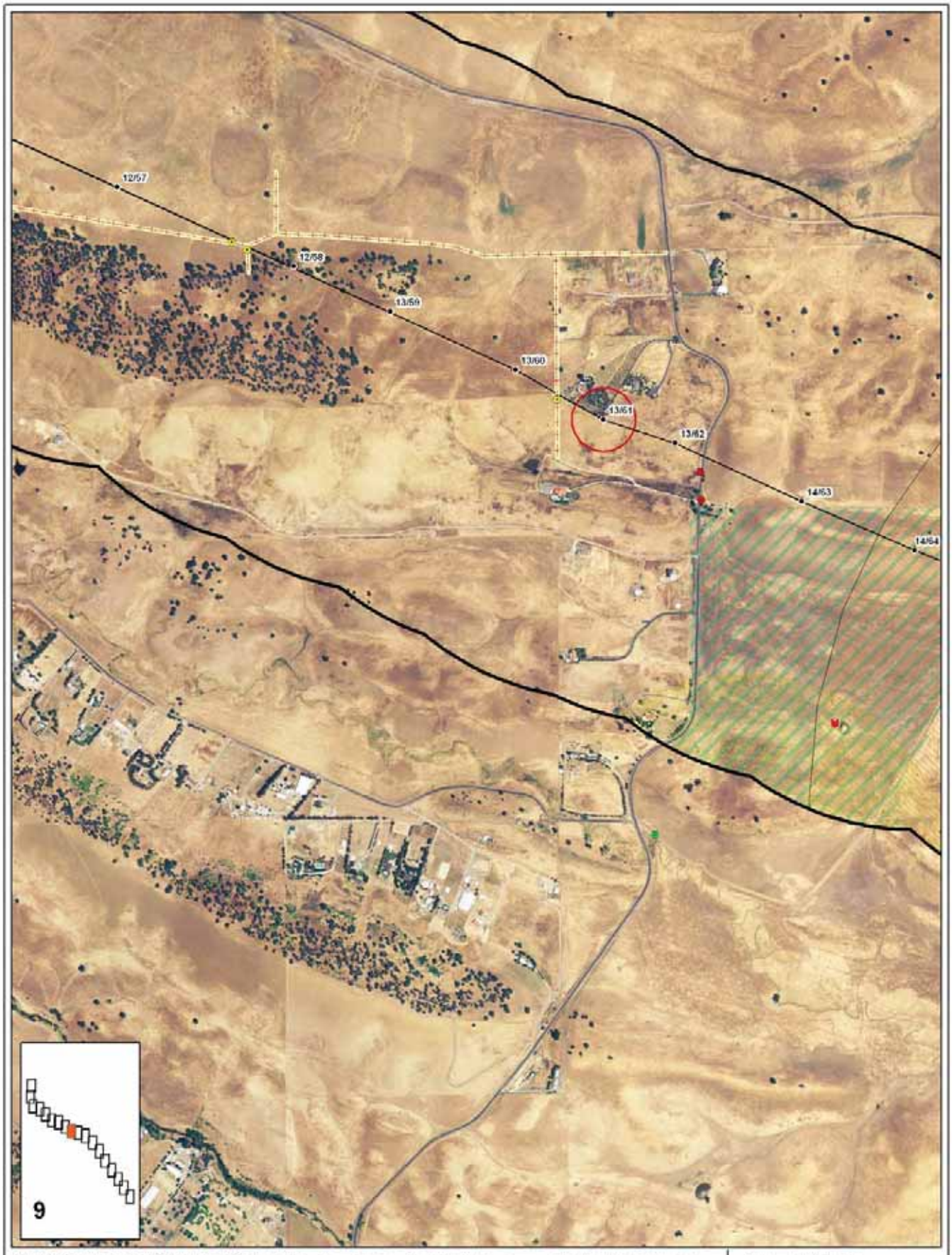

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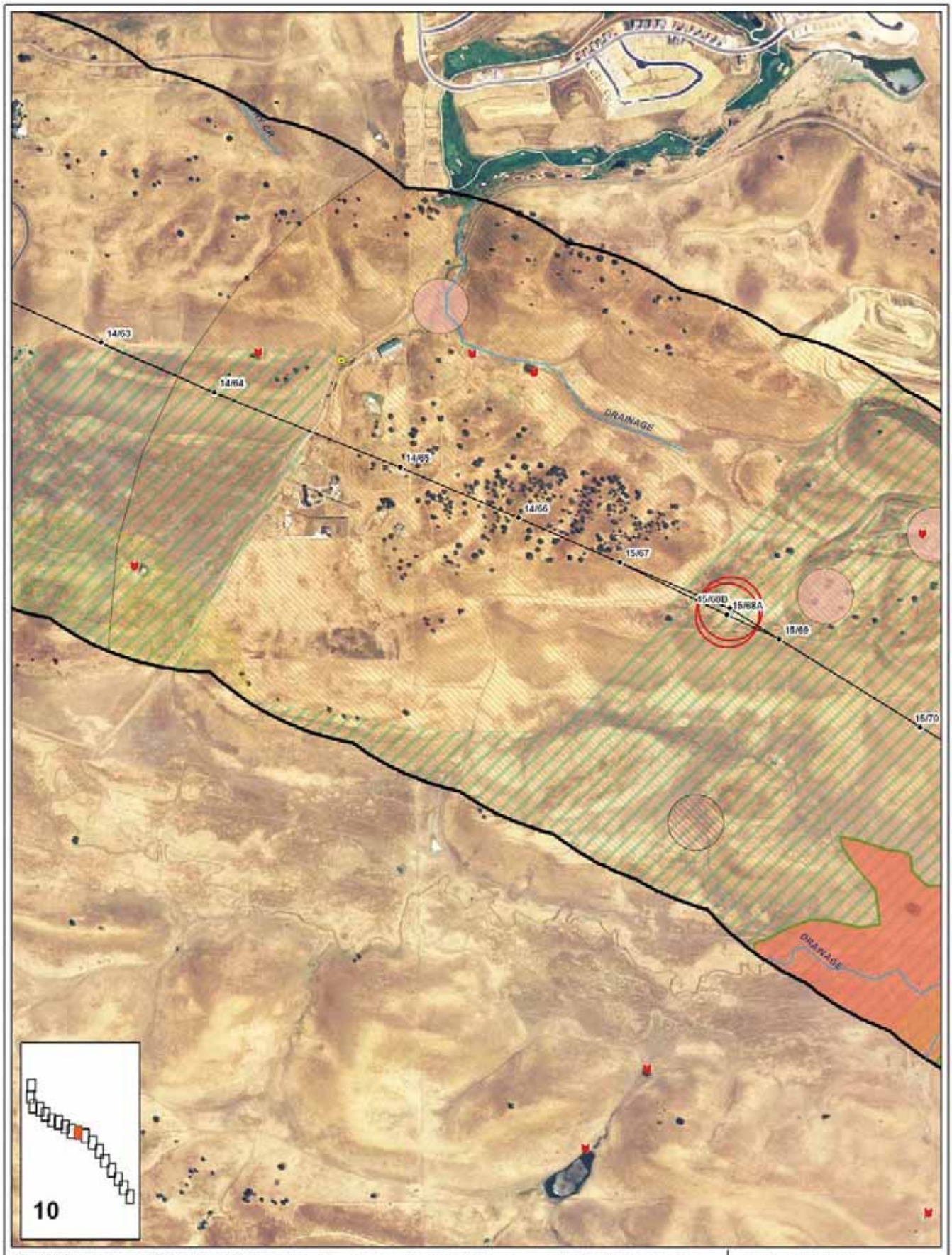

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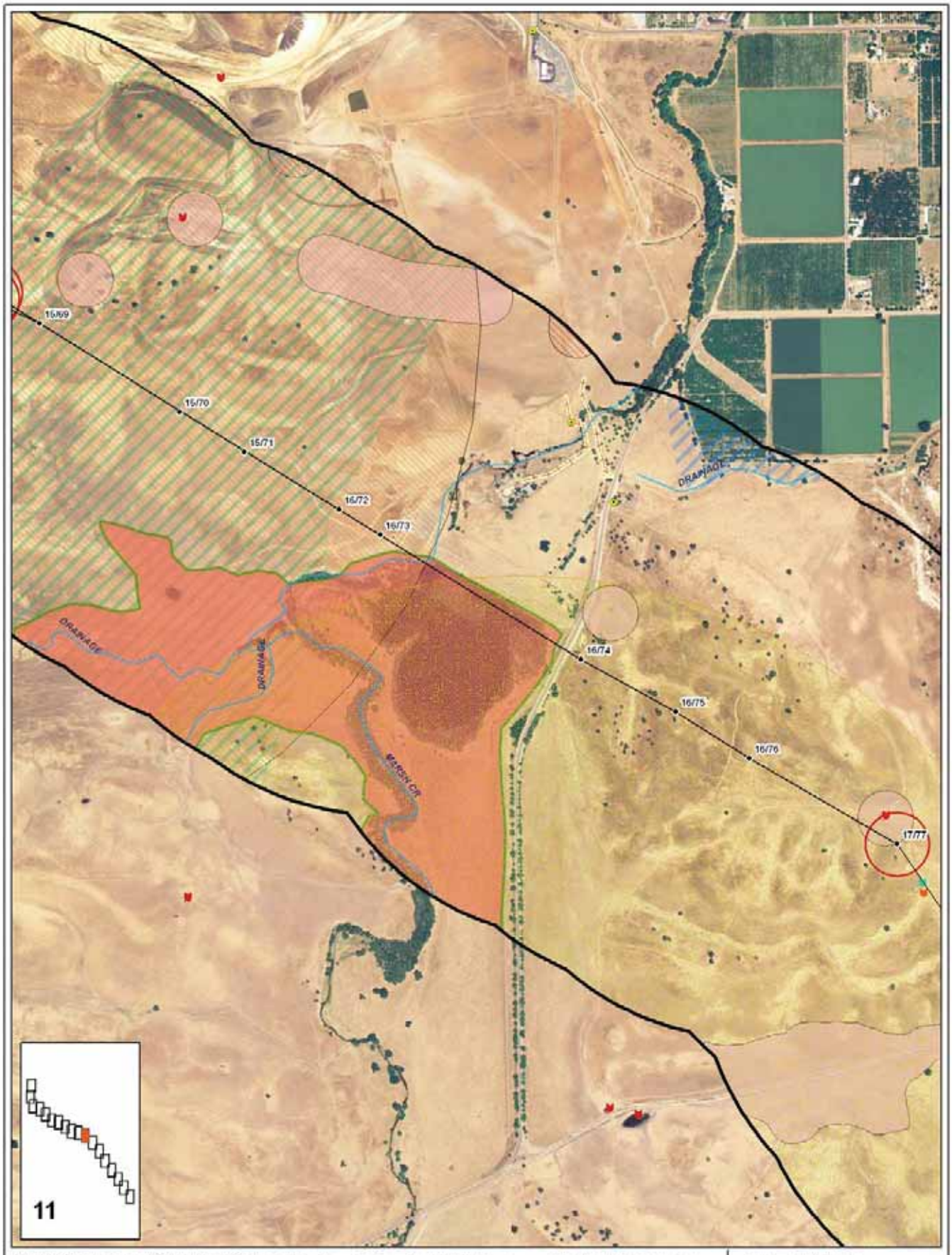
GANDA



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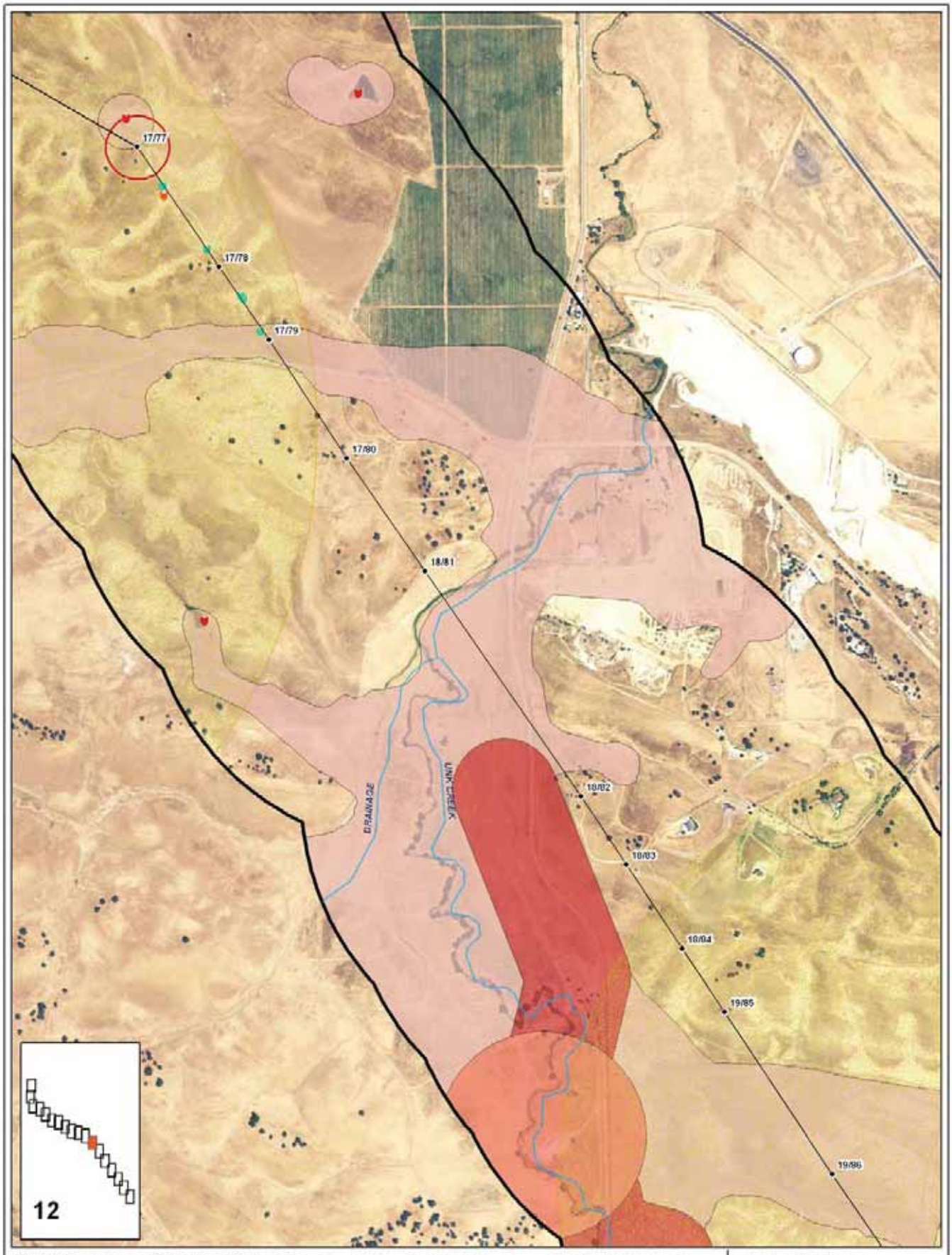

CNDDB Occurrences within 1 mile of Project Area

Mammals
- American badger
- San Joaquin kit fox
- San Joaquin pocket mouse
- salt marsh harvest mouse

Birds
- Ferruginous hawk
- Burrowing owl
- Swainson's hawk

Invertebrates
- Vernal pool andrenid bee
- curved foot hygrotus diving beetle
- midvalley fairy shrimp
- Molestan blister beetle
- Vernal pool fairy shrimp

Reptiles / Amphibians
- California red-legged frog
- California tiger salamander
- San Joaquin whipsnake
- western pond turtle

Potential Sensitive Wildlife Features
(From field visit Nov 2007)
- Burrowing owl burrow
- Cal Red-legged frog/western pond turtle
- California tiger salamander
- San Joaquin kit fox burrow

Potential Sensitive Wildlife Areas
(From field visit Nov 2007)
- Alameda whip snake
- Burrowing owl/kit fox

USFWL Critical Habitat Areas
- Delta smelt
- Vernal pool fairy shrimp

Project Features
- Gate
- Lock Gate
- PGE Lock
- Tower
- Creek,Stream,Drainage
- Fence Obstruction
- Transmission Line
- 300 ft Tower Buffer
- 1 mile Project T-Line Buffer

N

Pittsburg - Tesla Project
Draft Sensitive Wildlife Resources

November 2007
Alameda and Contra Costa County, CA

0 0.1 0.2 Miles
0 500 1,000 Feet

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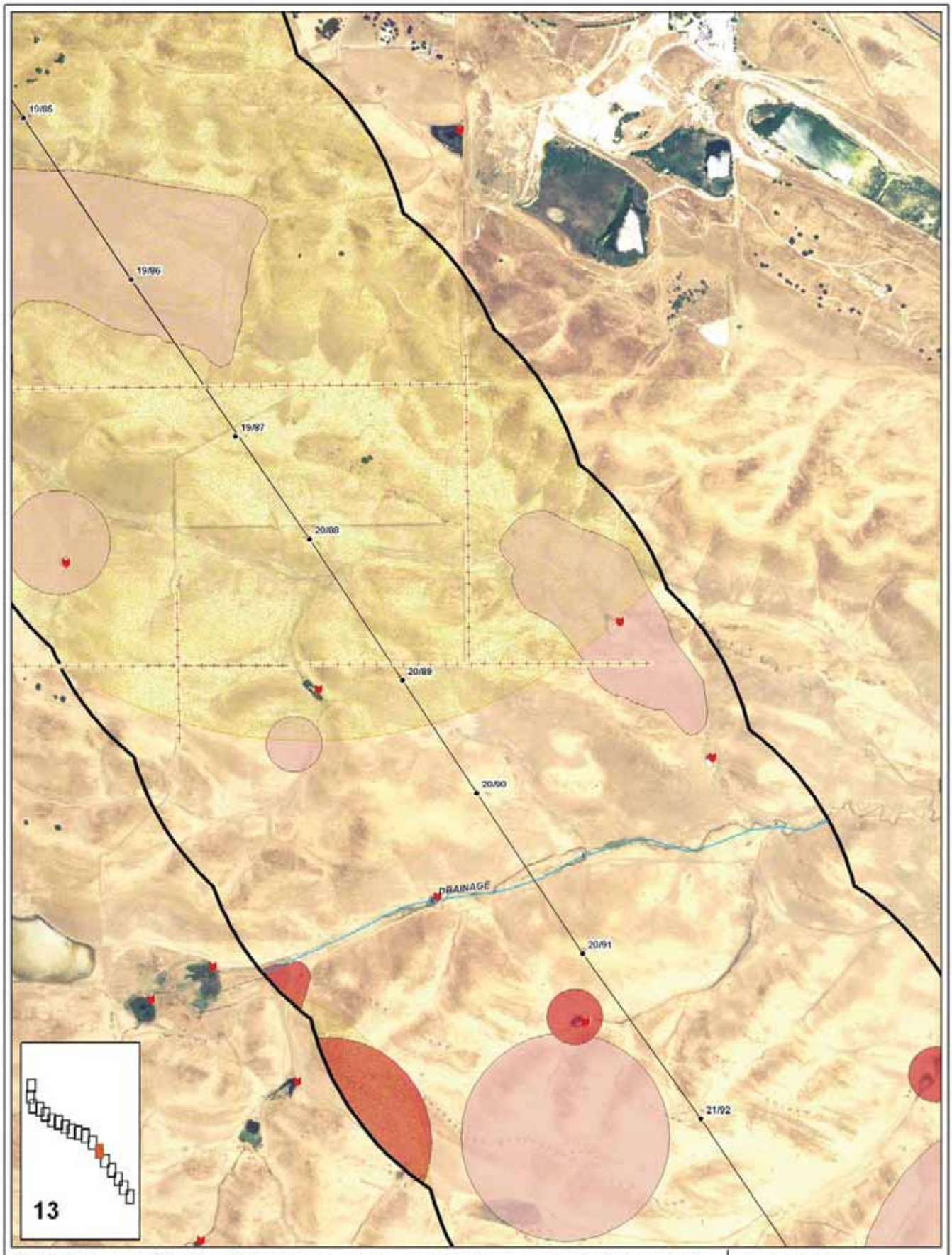

CNDDB Occurrences within 1 mile of Project Area

Mammals
- American badger
- San Joaquin kit fox
- San Joaquin pocket mouse
- salt marsh harvest mouse

Birds
- Swainson's hawk
- Burrowing owl
- Suisun song sparrow

Invertebrates
- Vernal pool andrenid bee
- curved foot hygrotus diving beetle
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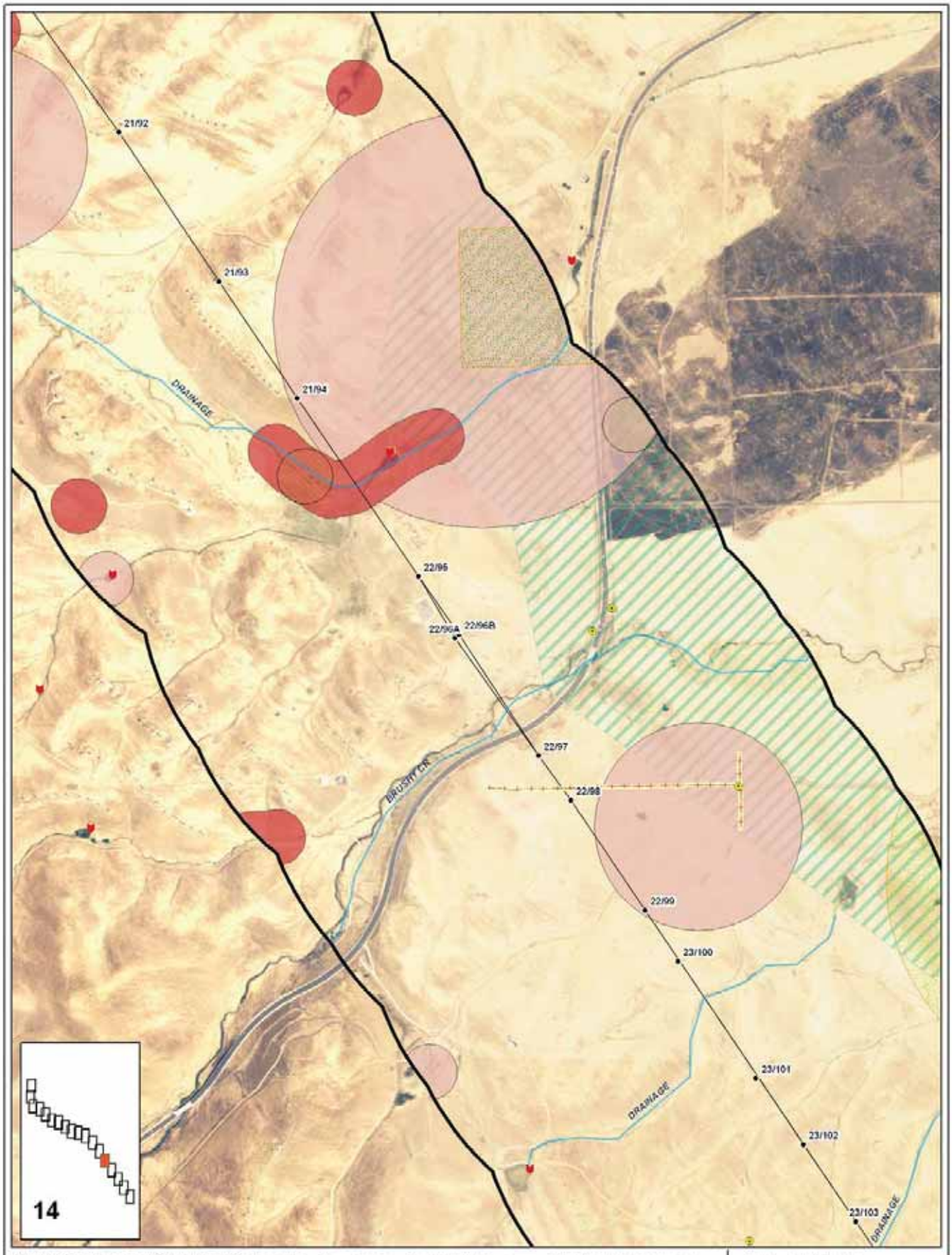

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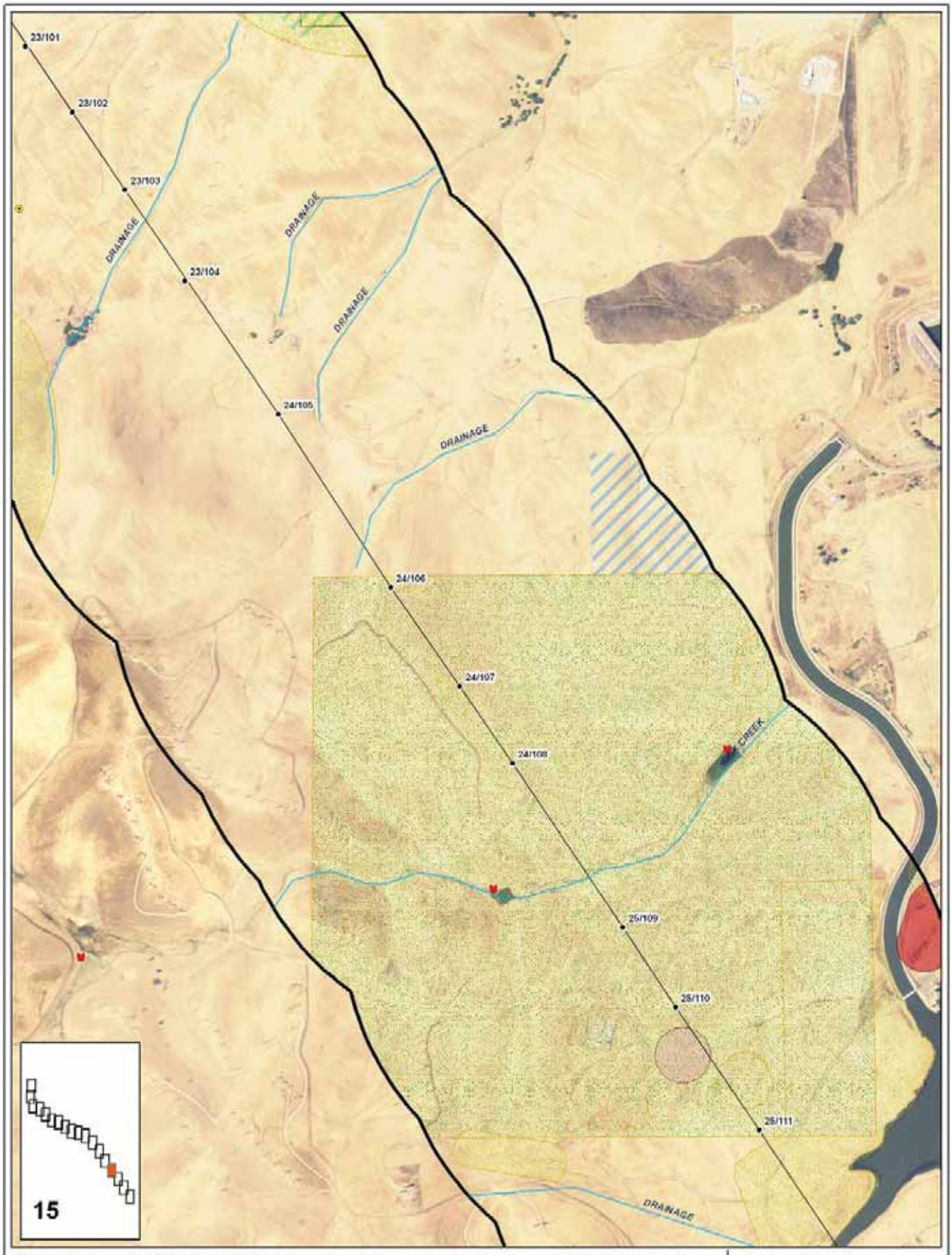

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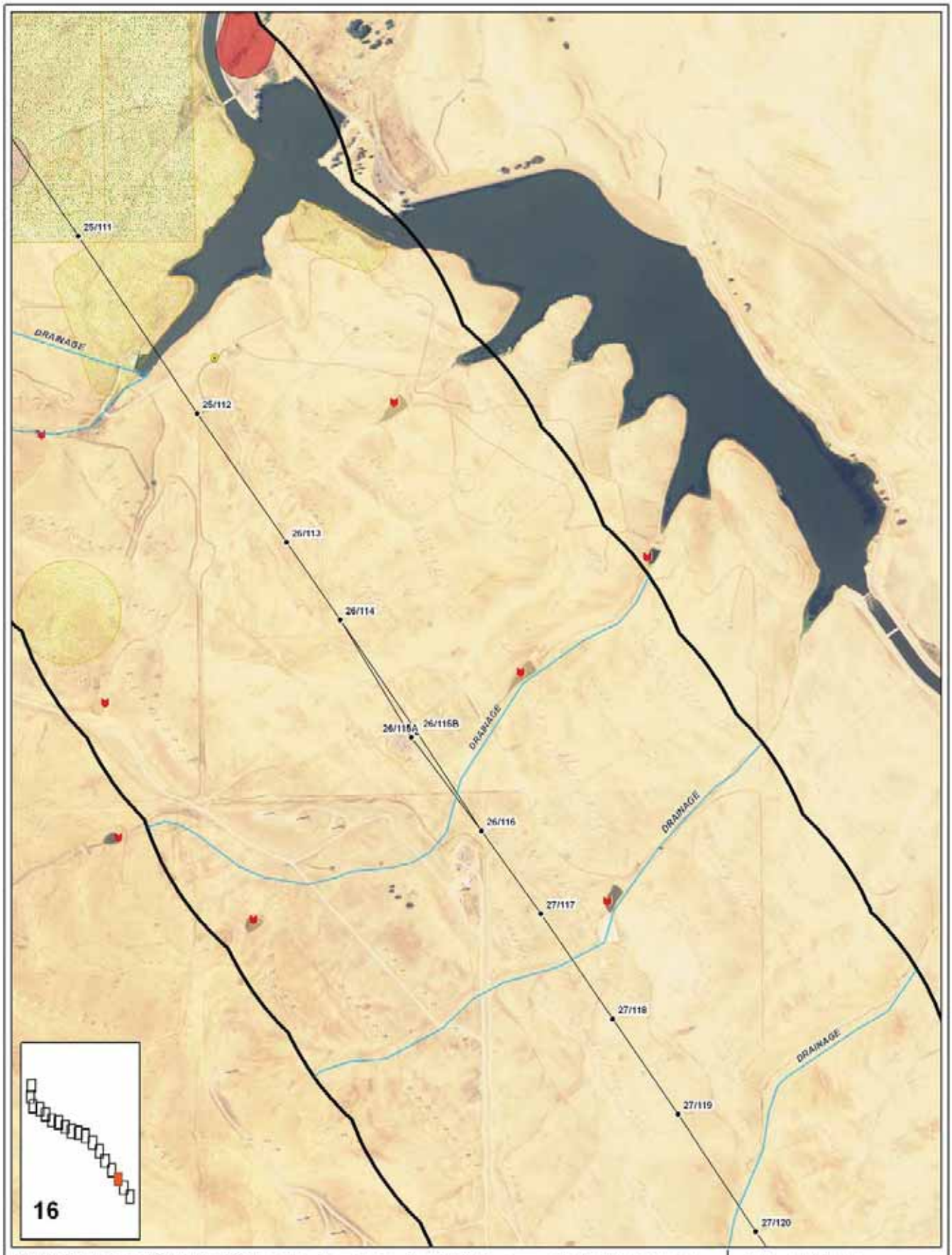

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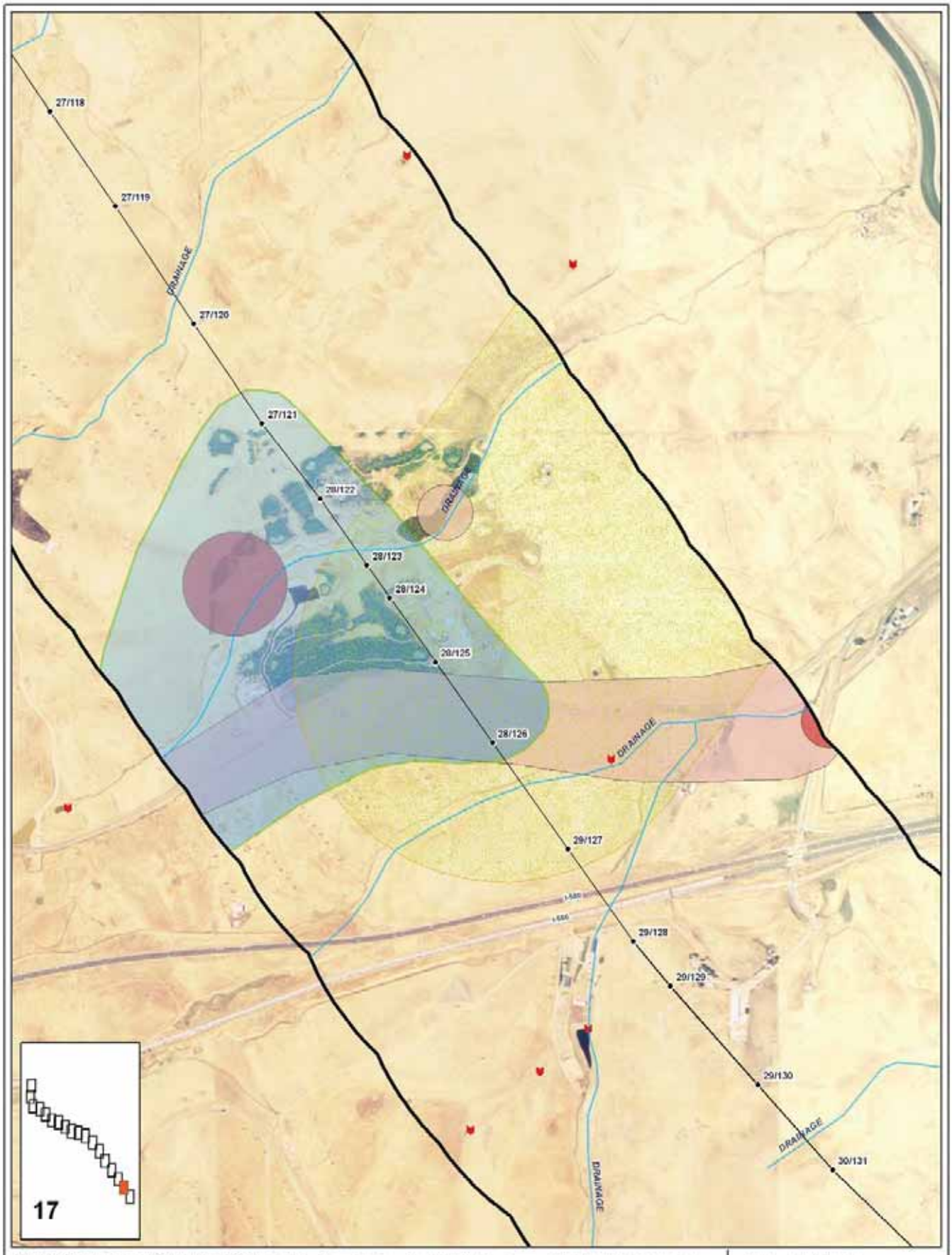

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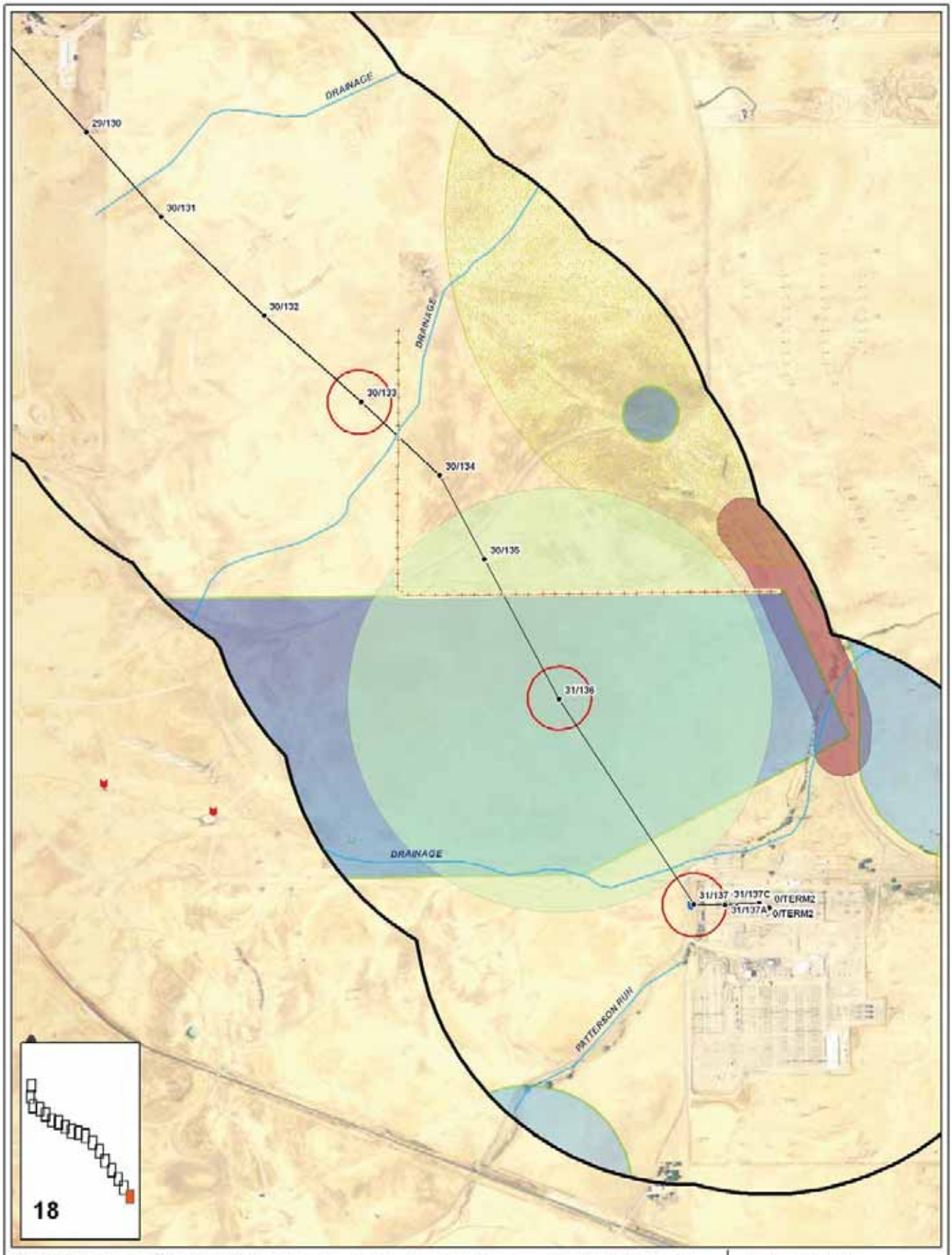

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Pittsburg - Tesla Project
Draft Sensitive Wildlife Resources

November 2007
Alameda and Contra Costa County, CA

0 0.1 0.2 Miles
0 500 1,000 Feet

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Appendix G
Wetland Delineation

PRELIMINARY DETERMINATION OF WETLANDS AND WATER FEATURES

FOR THE
PACIFIC GAS & ELECTRIC COMPANY'S
PITTSBURG-TESLA 230 KV
TRANSMISSION LINE RECONDUCTORING PROJECT

CONTRA COSTA AND ALAMEDA COUNTIES, CALIFORNIA

March 2010

PREPARED FOR:
Pacific Gas and Electric Company
Land and Environmental Management
Environmental Planning and Permitting
3401 Crow Canyon Road
San Ramon, CA 94583

Contacts: Michael Fry
David Thomas

PREPARED BY:
Garcia and Associates
435 Lincoln Way
Auburn, California 95603

Contact: David Kelly

TABLE OF CONTENTS

1.0 OVERVIEW 1
2.0 PROJECT LOCATION 3
3.0 REGULATORY FRAMEWORK 4
4.0 APPLIED METHODS 6
4.2 Field Surveys 6
4.2.1 Vegetation 7
4.2.2 Hydrology 7
4.2.3 Soils 7
5.0 RESULTS 9
5.1 Water Features 13
5.1.1 Wetlands 13
5.2 Upland Communities 14
6.0 REFERENCES CITED 15

LIST OF TABLES

Table 4-1 Hydric Soil Mapping Units within the Survey Area 8
Table 5-1 Summary of Water Features Mapped within the Project Area 9

LIST OF FIGURES

Figure 1 Project Location 2
Figure 2 Water Features 9

LIST OF APPENDICES

Appendix A Wetland Determination Data Forms

Appendix B Photos of Survey Area

1.0 OVERVIEW

Pacific Gas and Electric Company (PG&E) owns and operates the Pittsburg-Tesla 230kV transmission line, located in eastern Contra Costa and northern Alameda counties, California. Increasing load demand in the East Bay region requires that PG&E complete line and tower facility upgrades, hence PG&E is proposing to construct the Pittsburg-Tesla 230kV Reconductoring Project (Project) between Pittsburg and Tracy, California. This Project seeks to upgrade 31 miles of existing electrical transmission line between the Pittsburg power plant and Tesla Substation (Figure 1).

The purpose of this report is to document the location and extent of waters of the United States (U.S.), including wetlands, that will be affected by proposed Project activities. This report focuses on a subset of the entire Project Area, at three locations where improvements to access routes had been previously identified as potentially impacting water features. This wetland delineation and report was prepared to assist PG&E with planning efforts within the Project Area (project corridor and access routes) and to identify Army Corps of Engineers (ACOE) jurisdiction over these features pursuant to Section 404 of the Clean Water Act.

These investigations identified 0.647 acre of potential waters of the U.S. within the surveyed areas. Seasonal wetland features comprise the majority of these features (0.645 acre). Adjacent to and connecting these wetland features were three deteriorating culverts (0.002 acre). Based on criteria as described in 33CFR328.3, these water features are likely waters of the U.S. and subject to ACOE jurisdiction.

The investigations utilized direct observations of onsite hydrology based on drainage patterns and ponded or saturated soil conditions during the March and April field delineations.

Investigations took place during the late rainy season (April 2009 and March 2010); therefore investigations utilized observations of both direct and indirect hydrologic indicators. Direct indicators included the presence of standing water in some features. Indirect indicators include evidence of recent inundation and saturation, such as sediment deposits, surface soil cracks, and oxidized rhizospheres on living roots.

Hydric soil indicators were clear in most sampled locations. At one sampling location, the feature was believed to be a recently developed wetland with seasonally saturated or ponded soils; therefore, the soils in this feature may have not yet developed wetland indicators. Hydric soil was assumed to be present in these conditions.

Recommendations

- Determination of the wetland boundaries should be considered preliminary, subject to confirmation by the ACOE, and
- Determination of ACOE jurisdiction of individual features should be confirmed by ACOE.

GANDA

Project Features

1 Map Location

230kV Transmission Line

Source: GANDA GIS 2009

0 2.5 5 Miles

Figure 1 Project Location
Pittsburg-Tesla 230kV Transmission Line Reconductoring Project
March 2010
Alameda and Contra Costa Counties, CA

2.0 PROJECT LOCATION

The Pittsburg-Tesla Project spans between Contra Costa and Amador counties, and is included within the Honker Bay, Clayton, Antioch South, Byron Hot Springs, and Clifton Court Forebay Quads. The Pittsburg-Tesla line runs approximately northwest to southeast and has an elevation range of zero to 500 feet. The subject line is approximately 31 miles long. The start of the line is at the Pittsburg substation in the City of Pittsburg, Contra Costa County, California; south of the confluence of the Sacramento and San Joaquin Rivers. After leaving the substation, the line runs south for approximately four miles, and then turns east-southeast for 13 miles, crossing Black Diamond Mines Regional Park, portions of the John Marsh State Historic Park, and Marsh Creek Reservoir Dam. The line turns southeast for 14 miles to enter Alameda County, then crosses a western branch of Bethany Reservoir and I-580, finally terminating at the Tesla Substation (Figure 1). A total of 147 transmission towers are included in this Project subject line.

Within this Project area, wetlands occur and may be impacted by construction activities at three locations where ACOE jurisdiction may apply. This subset of areas was mapped for the purposes of this report.

The first area (Site A) is located near Pull Site 2 on the northern end of the project within the City of Pittsburg. Access to the Pull Site 2 area is gained by exiting off Highway 4, heading south on Railroad Avenue, then turning west (right) on West Leland Road, then south (left) on Golf Club Road. After following the dirt road along the edge of the golf course, it ends at the gate to the Contra Costa Canal.

The second and third areas (Sites B and C) are located along the access road to Pull Site 9 on the southern end of the project. Access to this area is gained from Highway 160, then exiting east on Main Street/Brentwood Boulevard. Travel southeast on Byron Highway/Highway 4, then keep right onto Byron Highway/County Road J4. Turn west (right) onto Holey Road, then south (left) on Byron Hot Springs Road. At the next junction, stay left, pass through a gate onto the dirt road leading to Pull Site 9. This dirt road has two culvert crossings over seasonal wetlands. These features occur in Contra Costa County, immediately north of the Alameda County line.

3.0 REGULATORY FRAMEWORK

Water features, including wetlands, delineated in this report are potentially subject to a variety of state and federal regulations, including the federal Clean Water Act (CWA), California Fish and Game Code, and California's Porter-Cologne Water Quality and McAteer-Petris Acts.

Water features addressed in this report include Waters of the United States (U.S.) subject to the CWA as defined below. Other governmental jurisdictions are not addressed in this report.

3.1 Definitions of Wetlands and Other Waters of the United States

The Federal government, through Section 404 of the CWA and Section 10 of the Rivers and Harbors Act, has jurisdiction over activities in Waters of the U.S. Waters of the U.S. include a variety of water features, including wetlands, navigable waters, and other features adjacent to navigable waters.

As used in this report, wetlands are defined based on Federal regulations as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (ACOE 1987). Swamps, marshes, and bogs are defined as wetlands, as are seasonally saturated or inundated areas such as seeps, springs, and vernal pools. Wetlands are identified using three parameters: vegetation, soils, and hydrology. In most cases, jurisdictional wetlands are dominated by hydrophytic (i.e., wetland) vegetation, occur on hydric soils, and are supported by wetland hydrology.

For the purposes of this report, the term "water features" includes wetlands, and unvegetated areas that are regularly submerged by open water for a portion of the year.

Any wetland and water features meeting the following criteria as described in 33CFR328.3 were preliminarily determined to be waters of the U.S.:

1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters, which are subject to the ebb and flow of the tide;
2) All interstate waters including interstate wetlands;
3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

    a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

c) Which are used or could be used for industrial purpose by industries in interstate commerce;

4) All impoundments of waters otherwise defined as waters of the United States under the definition;

5) Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;

6) The territorial seas;

7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.

4.0 APPLIED METHODS

This investigation followed the methods described in the *Army Corps of Engineers Wetlands Delineation Manual* (ACOE 1987), supplemented with guidance as directed by the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2006). These methods included a preliminary review of available information, and onsite field inspections of the Project Area to characterize the vegetation, soils, and hydrology of wetlands, and to map wetlands and other water features. The following discussion describes how these methods and related reference material were applied to the onsite features.

4.1 Preliminary Data Gathering

A pre-field review of the Project Area was conducted to identify potential wetland and other waters, as well as information on hydrophytic vegetation, hydric soils, and wetland hydrology. Existing materials reviewed included geospatial wetlands information provided online by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (USFWS 2009), and aerial photography of the Project Area. The *Honker Bay, California* and *Clifton Court Forebay, California* U.S. Geological Survey 7.5 minute topographic quadrangles were also reviewed. Soil types were identified using the Web Soil Survey, an online soil map resource provided by the National Resources Conservation Service (NRCS) (NRCS 2010).

4.2 Field Surveys

Field surveys were conducted to map wetlands and water features on the subject parcel. GANDA Botanists Samantha Hillaire, Theresa Johnson, and Eric Wrubel conducted field surveys on April 6 and 8, 2009 and March 24, 2010. Wetland areas were identified based on the presence of hydrophytic vegetation, and hydric soils and wetland hydrology indicators, as described in the *Interim Supplement to the Arid West*. Throughout the study area, Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986) was used to identify vegetation community types.

Wetlands and datapoint locations were mapped in the field using a Trimble XT GPS survey unit (submeter accuracy). Features were mapped directly in the field by walking around them with the GPS unit. Each datapoint was numbered; each water feature was given a unique two-part code designation. The first part consists of two letters that indicate the type of water feature (SW = seasonal wetland, C = culvert). The second part is an identification number.

Data points were assessed in six locations. Each data point is associated with a point on the resulting wetland map (Figure 2), and a datasheet (Appendix B).

4.2.1 Vegetation

Wetland vegetation was identified in the field based on species composition and corresponding wetland indicator status. The field investigators visually estimated the percent cover for each plant species encountered during field surveys. Dominant species of each stratum were the most abundant plant species (when ranked in descending order of percent cover and cumulatively totaled) that immediately exceed 50 percent of the total cover for the stratum, plus any additional species comprising 20 percent or more of total cover for the stratum. The indicator status of each species was determined based on the *National List of Plant Species that Occur in Wetlands: California* (Reed 1988). Plants were identified according to Hickman (1993). Species nomenclature for the *National List* were confirmed based on the *Plants National Database* (USDA 2009a) and/or *A California Flora and Supplement* (Munz 1959). The wetland vegetation criterion was met where greater than 50 percent of the dominant plant species were assigned wetland indicator categories (FAC, FACW, or OBL).

Plot size was generally 20 feet by 20 feet; if this plot size was too large to represent the feature, the plot size was adjusted to represent the feature.

4.2.2 Hydrology

Surveys were conducted in April 2009 and March 2010, at the end of the wet season. In some features, direct evaluation of hydrologic conditions was possible in some features. Where possible, this investigation relied on primary indicators of wetland hydrology, such as inundation and soil saturation. Secondary indicators, including drainage patterns aerial imagery showing soil saturation patterns, and sediment deposits were also used, particularly in areas where direct observation of wetland hydrology was not possible.

4.2.3 Soils

Soils underlying the study sites were identified by a review of soils data from the NRCS (NRCS 2010). This review identified three different soil mapping units: Capay clay 2 to 9 percent slopes, Solano loam, and Altamont Clay 15 to 30 percent slopes. The soil mapping units within the Survey Area are summarized in the table below (Table 4-1). Soils were characterized in the field using the methods provided in the *Arid West Supplement* (ACOE 2006).

Table 4-1 Hydric Soil Mapping Units within the Survey Area

Map points	Map Unit	Inclusions (landforms)	Hydric Status	Hydric Criteria [1]
001, 002	Capay clay, 2 to 9 percent slopes	--	No	--
003, 004	Solano loam	Solano (Basin Floors)	Yes	2A
005, 006	Altamont clay, 15 to 30 percent slopes	Clear Lake (Basin Floors) Pescadero (Basin Floors)	Yes Yes	2B3 2B3

Notes:

1- Hydric criteria code

2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, or Andic, Cumulic, Pachic, or Vitrandic subgroups that are:

A. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or

B. poorly drained or very poorly drained and have:

3. water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in.

SOURCE: USDA 2010

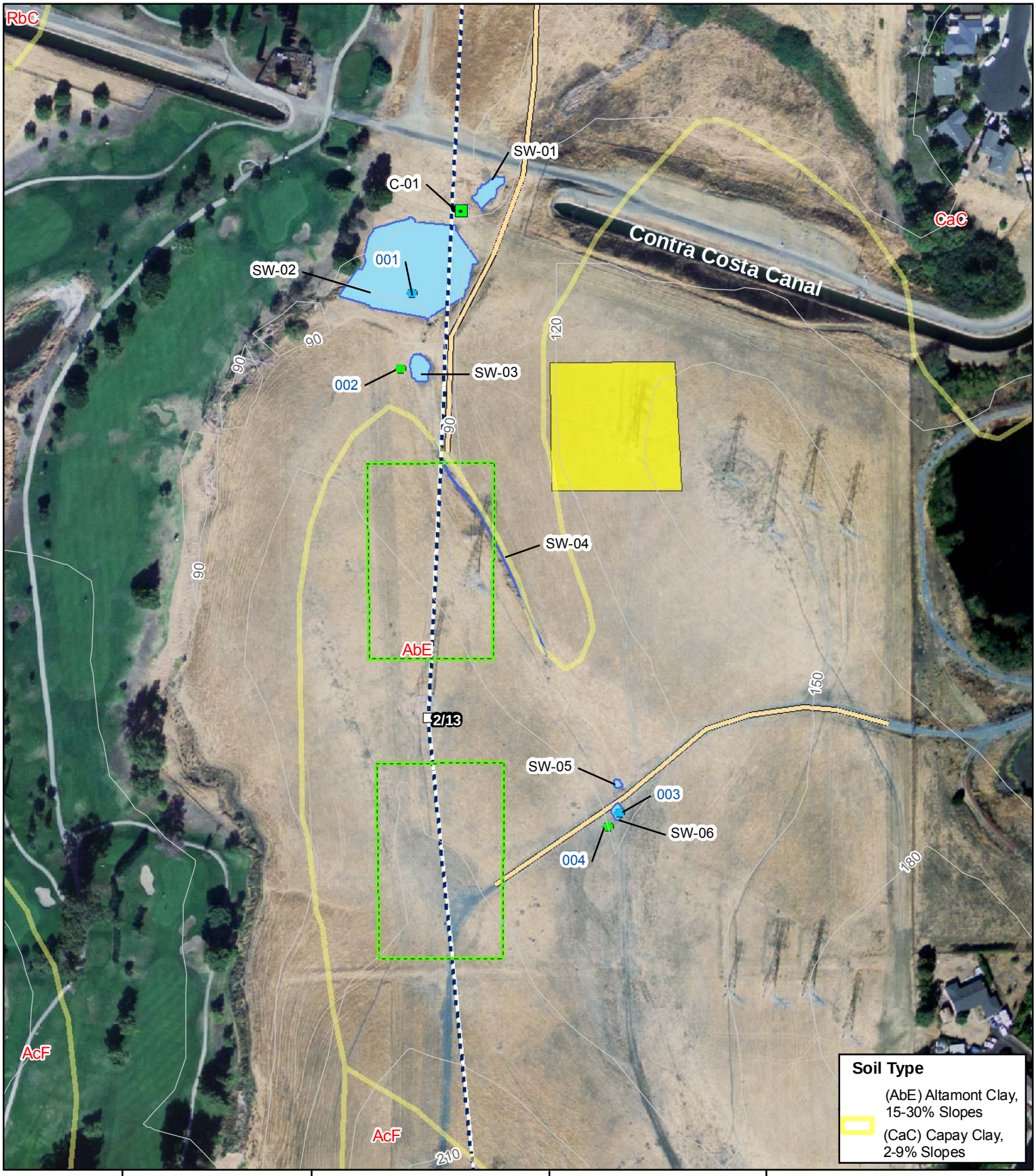
5.0 RESULTS

A total of 0.0647 acre of water features (including wetlands and other waters) occurs within the Project Area (Figure 2). Field investigations identified ten wetlands (totaling 0.645 acre); all of these are seasonal wetlands. Three dilapidated culverts (totaling 0.002 acre) comprise the rest of the acreage.

Table 5-1 summarizes these water features. Datasheets are included as Appendix A. Select photos of the features are included in Appendix B.

Table 5-1 Summary of Water Features Mapped within the Project Area

Map ID	Water Feature Type	Acreage
Wetlands		
SW-01	Seasonal Wetland	0.027
SW-02	Seasonal Wetland	0.504
SW-03	Seasonal Wetland	0.024
SW-04	Seasonal Wetland	0.013
SW-05	Seasonal Wetland	0.003
SW-06	Seasonal Wetland	0.008
SW-07	Seasonal Wetland	0.055
SW-08	Seasonal Wetland	0.007
SW-09	Seasonal Wetland	0.003
SW-10	Seasonal Wetland	0.001
Total Wetlands		**0.645**
Waters		
C-01	Culvert (damaged, ~12 inch)	0.000
C-02	Culvert (24 inch)	0.001
C-03	Culvert (damaged, ~30 inch)	0.001
Total Waters		**0.002**
Total Water Features		**0.647**



GANDA

Data Points
- Upland
- Wetland

Water Features
- Culvert
- Seasonal wetland

Project Features
- Tower
- Possible Access Rd
- Transmission Line
- Pull Site (200x300)
- Staging Area/ LZ (200x200)

Source: GANDA GIS 2010
S. Hillaire

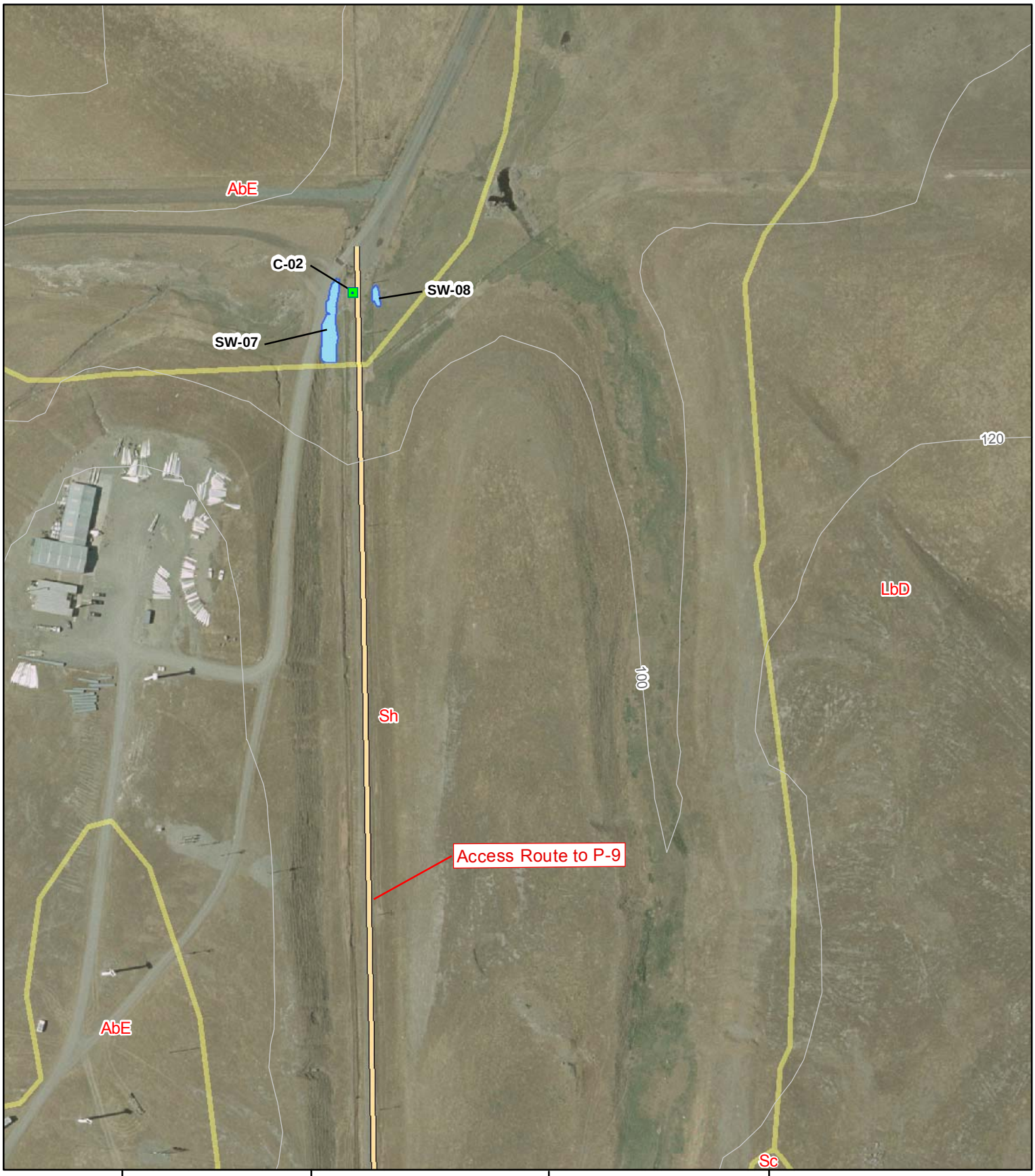
1:2,400
1 inch equals 200 feet

0 135 270 Feet

Figure 2 Water Features
Pittsburg - Tesla 230 kV Project
Site A, Pull Site 2

Map 1 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_ACOEWetland_Map_1.mxd



GANDA

Data Points

- Upland
- Wetland

Water Features

- Culvert
- Seasonal wetland

Project Features

- Possible Access Rd

Soil Type

- (AbE) Altamont Clay, 15-30% Slopes

Source: GANDA GIS 2010
S. Hillaire

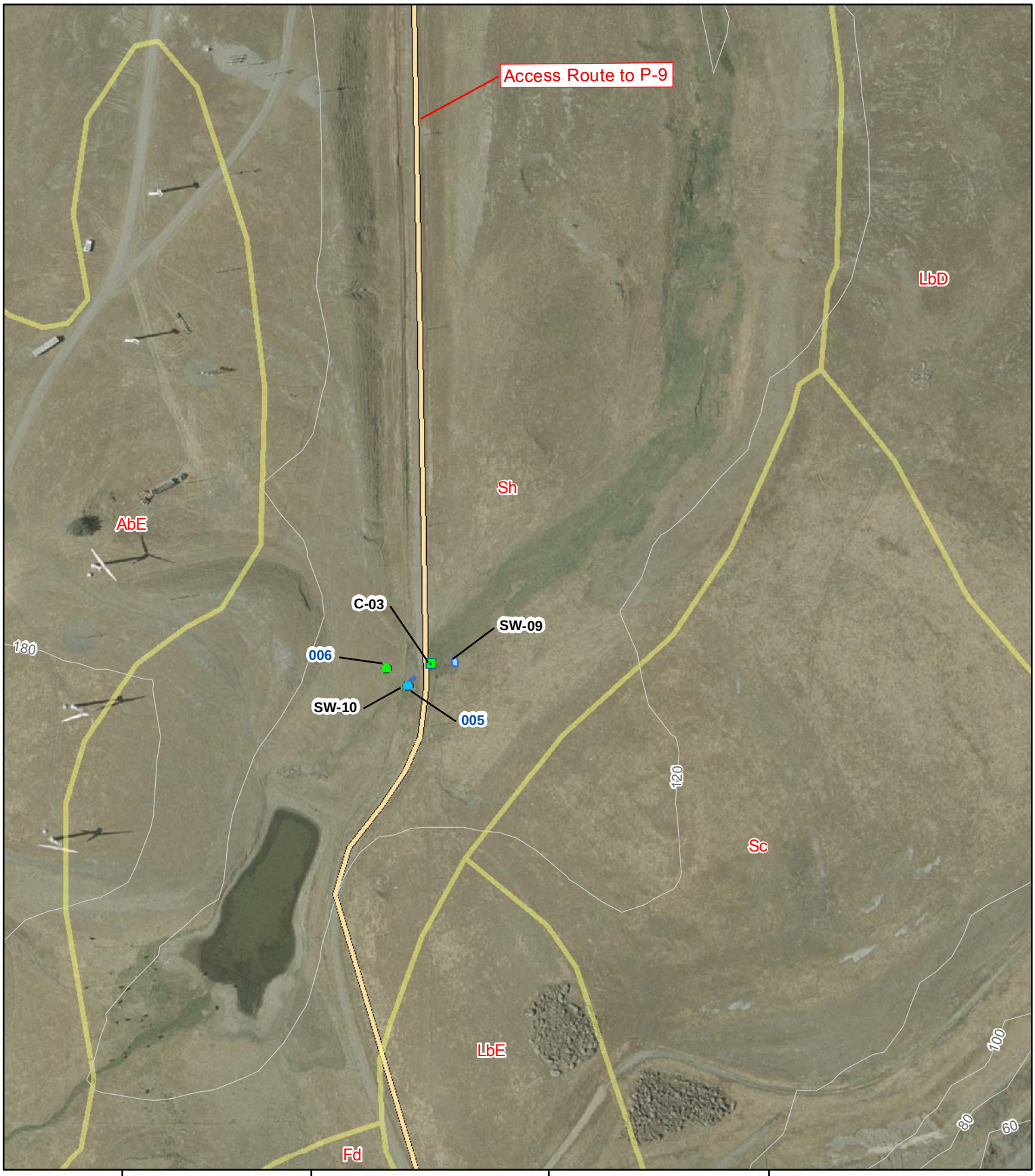
1:2,400
1 inch equals 200 feet

0 125 250 Feet

Figure 2 Water Features
Pittsburg - Tesla 230 kV Project
Site B, Access to Pull Site 9

Map 2 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_ACOEWetland_Map_2.mxd



GANDA

Data Points

- Upland
- Wetland

Water Features

- Culvert
- Seasonal wetland

Project Features

- Possible Access Rd

Soil Type

- (Sh) Solano Loam

Source: GANDA GIS 2010
S. Hillaire

1:2,400
1 inch equals 200 feet

0 125 250 Feet

Figure 2 Water Features
Pittsburg - Tesla 230 kV Project
Site C, Access to Pull Site 9

Map 3 of 3
March 2010
Alameda and Contra Costa Counties, CA

E:\GIS Projects\Tesla\maps\Pitt_Tesla_ACOEWetland_Map_3.mxd

The following describes water features and upland communities that were observed within the Survey Area. Where possible, the description of these community types generally follow the categorization proposed by Holland (Holland 1986).

5.1 Water Features

The only type of wetland community that occurs with the Project Area is seasonal wetland. The wetland community and culvert features that occur in the Project Area are described below. Potential for ACOE jurisdiction of the water features are also addressed.

5.1.1 Wetlands

Seasonal Wetlands

Ten seasonal wetland features (SW-01 through SW-10 in Table 5-1, totaling 0.645 acre) occur within the surveyed subset of the Project area. Seasonal wetland does not directly correspond to a particular community type in Holland (Holland 1986). The seasonal wetlands within the Survey Area are typically embedded in a larger non-native grassland community (see descriptions in Upland Communities, section 5.2 below). The vegetation in these features is dominated by herbaceous species: Italian ryegrass (*Lolium multiflorum = L. perenne* in Reed 1988), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum = Hordeum hystrix* in Reed 1988), cursed buttercup (*Ranunculus sceleratus*), rabbit's foot grass (*Polypogon monspeliensis*), and salt grass (*Distichlis spicata*) were common.

<u>Pull Site 2 (Figure 2, Map 1)</u>

At Pull Site 2 (Figure 2, Map 1), wetlands occur in low areas and basins between and at the base of two hills; topography in the area generally directs water flow downhill from south to north. Seasonal wetlands occur at the lowest spots in this drainage. Two small seasonal wetlands are located at a low spot in the topography (SW-05 and SW-06), where a created road crossing has blocked the normal drainage path. Seasonal wetlands also occur within an ephemeral channel (SW-04) and basin between the hills (SW-03). The largest seasonal wetland (SW-02) occurs in an apparently man-made depression at the bottom of a hills; a damaged culvert (C-01) drains this feature to another man-made depression (SW-01). The water from these wetlands drains offsite to the north, eventually entering an unnamed creek that feeds into Suisun Bay after flowing approximately 3.5 miles to the north.

During the April 2009 and March 2010 surveys, SW-02 held a few inches of standing water. In March 2010, SW-01 held a small amount of standing water. The four other seasonal wetlands at this site (SW-03, SW-04, SW-05, SW-06) did not have standing water during the March and April surveys; photos taken February 9, 2010 show shallow standing water in feature SW-03.

Access to Pull Site 9 (Figure 2, Maps 2 and 3)

At the access to Pull Site 9 (Figure 2, Maps 2 and 3), four small seasonal wetlands (SW-07, SW-08, SW-09, and SW-10) occur within shallow depressions at each end of two dilapidated culverts (C-02 and C-03). These culverts lie beneath the existing access road.

SW-07 and SW-08 (connected by C-02) are depressions that appear to collect seasonal rainwater run-off from the local relief. SW-09 and SW-10 (connected by C-03) are located within a blocked ephemeral channel. Upstream (south) the channel in which they lie was dammed to create a stockpond, and water no longer appears to flow within the channel. However, low spots within this channel appear to collect local rainwater, and seasonal wetlands persist in these areas.

Aerial photographs indicate that these wetlands are part of a larger seasonal wetland complex, that connects together to the north of the site. These wetlands are adjacent to the California aqueduct, and other canals and drainages that eventually feed into Clifton Court Forebay.

5.2 Upland Communities

Non-native grassland is the only upland community that occurs adjacent to the water features in the Project Area and is described below.

Non-Native Grassland

The areas around Pull Site 2 and the access to Pull Site 9 consist of gently rolling hillsides covered in non-native grassland with a native forb component. Non-native grassland (Holland 1986) is a common community found in the transmission corridor. This habitat type is dominated by non-native grasses and forbs. Typical grass species in this habitat type are foxtail barley (*Hordeum murinum* ssp. *leporinum*), Italian ryegrass, ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and Mediterranean barley. Weedy non-native annual and perennial forbs in this habitat include black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), yellow star-thistle (*Centaurea solstitialis*), California bur-clover (*Medicago polymorpha*), and rose clover (*Trifolium hirtum*). Native species such as fiddleneck (*Amsinckia lycopsoides* and *A. intermedia*), owl's clover (*Castilleja exserta* spp. *exserta*), succulent lupine (*Lupinus succulentus*), and San Joaquin milk vetch (*Astragalus* (*asymmetricus*)) are also present. At Pull Site 2, the only land use, other than the transmission line corridor, appears to be cattle grazing. Accessing Pull Site 9, the grassland is located at the beginning of the entrance of a wind farm.

6.0 REFERENCES CITED

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Appendix A:
Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (Pull Site 2) City/County: Pittsburg, Contra Costa County Sampling Date: 6 April 2009

Applicant/Owner: PG&E State: CA Sampling Point: 001

Investigator(s): Samantha Hillaire, E. Wrubel, T. Johnson Section, Township, Range: Honker Bay Quad T2N, R1E, Sec 19 NW 1/4

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): ~1%

Subregion (LRR): LRR-C Lat: -121.909250 Long: 38.0080830 Datum: NAD83

Soil Map Unit Name: Capay clay, 2 to 9% slopes NWI classification: P-EM-1

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

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

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

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

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

Remarks: This is a seasonal wetland feature within a manmade depression. This is adjacent to a golf course.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 20x20 feet)			
1. Lolium perenne	7	No	FAC
2. Hordeum hystrix	5	No	FAC
3. Ranunculus scleratus	5	No	OBL
4. Polypogon monspeliensis	35	Yes	FACW+
5. Cotula coronopifolia	2	No	FACW+
6. Melilotus indica	<1	No	FAC
7.			
8.			
9.			
10.			
11.			
	54 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 4 % Cover of Biotic Crust 42

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	35	x 1 = 35
FACW species	5	x 2 = 10
FAC species	12	x 3 = 36
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	52 (A)	81 (B)

Prevalence Index = B/A = 1.56

Hydrophytic Vegetation Indicators:

x Dominance Test is >50%

x Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks: Hydrophytic vegetation present.

SOIL

Sampling Point: 001

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 3/1	99	7.5 YR 4/4	1	C	RC	silty clay	
10-12.5	10 YR 3/1	75				M	silty clay	Below 10 in, soil appears to have two
	7.5 YR 4/1	23	5 YR 4/6	2	C	M	silty clay	matrix colors

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Vernal Pools (F9)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
x Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none noted

Depth (inches): _____

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

Remarks: Hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
X Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Biotic Crust (B12)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
X Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
X Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
X Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

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

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: A few inches of surface water was observed ponding in this feature. Water was photographed February 10, 2010, and March 24, 2010.

Remarks: This is a depressional area, topographically in a low spot, at the base of a drainage. This is likely a man-made feature. Water likely collects into this feature from seasonal rainfall, and runoff from the surrounding hillsides. Wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (Pull Site 2) City/County: Pittsburg, Contra Costa County Sampling Date: 6 April 2009

Applicant/Owner: PG&E State: CA Sampling Point: 002

Investigator(s): Samantha Hillaire, E. Wrubel, T. Johnson Section, Township, Range: Honker Bay Quad T2N, R1E, Sec 19 NW 1/4

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): ~5%

Subregion (LRR): LRR-C Lat: -121.623150 Long: 38.8089520 Datum: NAD83

Soil Map Unit Name: Capay clay, 2 to 9 percent slopes NWI classification: Not applicable

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

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

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

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

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

Remarks: Upland grassland habitat, at the edge of a seasonal wetland feature at the base of a hill.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 20x20 feet)			
1. Lolium perenne	35	Yes	FAC
2. Hordeum leporinum	1	No	NI
3. Hordeum hystrix	30	Yes	FAC
4. Brassica nigra	3	No	UPL
5. Trifolium hirtum	1	No	UPL
6. Centaurea solstitialis	2	No	UPL
7. Amsinckia lycopsiodes	<1	No	UPL
8. Bromus mollis	<1	No	FACU-
9.			
10.			
11.			
	72 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	65	x 3 = 195
FACU species		x 4 =
UPL species	6	x 5 = 30
Column Totals:	71 (A)	225 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

x Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes x No _____**

Remarks: Area is non-native grassland. Hydrophytic vegetation present. Hydrophytic vegetation is dominant but not prevalent.

SOIL

Sampling Point: 002

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5 Y/R 4/2	100					clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Vernal Pools (F9)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** __X__

Remarks: Hydric soil indicators not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** _____ **No** __x__

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

Remarks: No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (Pull Site 2) City/County: Pittsburg, Contra Costa County Sampling Date: 24 March 2010

Applicant/Owner: PG&E State: CA Sampling Point: 003

Investigator(s): Samantha Hillaire Section, Township, Range: Honker Bay Quad T2N, R1E, Sec 19 NW 1/4

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): ~2%

Subregion (LRR): LRR-C Lat: -121.908170 Long: 38.0058750 Datum: NAD83

Soil Map Unit Name: Altamont Clay, 15-30% slopes NWI classification: P-EM-1

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

Are Vegetation no, Soil yes, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

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

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

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

Remarks: Soil in this area is naturally a dark clay, regardless of hydric status. This wetland appears to have been created or enlarged by the placement of a rock road across a low spot in the topography. The rock from the road has blocked water flow and drainage patterns in this low area. This is a recently developed wetland with seasonally saturated or ponded soils, and hydric soil characteristics have not yet formed at this location.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x10 feet)			
1. Lolium perenne	60	Yes	FAC
2. Hordeum hystrix	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	80	x 3 =	240
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	80 (A)		240 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

x Dominance Test is >50%

x Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks: Hydrophytic vegetation present.

SOIL

Sampling Point: 003

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 Y/R 3/1	100					silty clay	90% road base rocks, 0.5-3 in diameter, cemented together with local clay. Digging difficult.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Vernal Pools (F9)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Imported road rock/local clay soil

Depth (inches): 1 to 6 inches

Hydric Soil Present? Yes X No ___

Remarks: Soils were difficult to sample at this location. Rock has been previously placed across the low spot in this drainage to create a small access road. This rock road has blocked the drainage, and over time may have created or shaped this seasonal wetland feature. This imported road rock is embedded in the soil of the feature; digging is difficult. This rock may also be restricting water from percolating through the soil at this location. This is a low-lying area, where there may be a recently developed wetland with seasonally saturated or ponded soils; therefore, the soils may have not yet developed wetland indicators. Hydric soil assumed to be present in these conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
X Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
X Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes X No ___

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

Remarks: This is a depressional area, topographically in a low spot between two hills. Rock has been previously placed across the low spot in this drainage to create a small access road. This rock road has blocked the drainage, and over time may have created or shaped this seasonal wetland feature. Wet thatch and a small amount of dried algae indicate that water seasonally ponds in this feature. Wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (Pull Site 2) City/County: Pittsburg, Contra Costa County Sampling Date: 24 March 2010

Applicant/Owner: PG&E State: CA Sampling Point: 004

Investigator(s): Samantha Hillaire Section, Township, Range: Honker Bay Quad T2N, R1E, Sec 19 NW 1/4

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): ~10%

Subregion (LRR): LRR-C Lat: -121.908230 Long: 38.0058170 Datum: NAD 83

Soil Map Unit Name: Altamont Clay, 15-30% slopes NWI classification: Not applicable

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

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

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

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

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

Remarks: Soil in this area is naturally a dark clay, regardless of hydric status. This point was taken on the non-native grassland hillslope immediately above the depressional feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 20x20 feet)			
1. Lolium perenne	15	Yes	FAC
2. Hordeum leporinum	18	Yes	NI
3. Erodium moshatum	5	No	UPL
4. Medicago polymorpha	15	Yes	UPL
5. Carduus pycnocephalus	10	Yes	UPL
6. Hirschfeldia incana	5	No	UPL
7. Amsinckia intermedia	7	No	UPL
8.			
9.			
10.			
11.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	15	x 3 = 45
FACU species		x 4 =
UPL species	42	x 5 = 210
Column Totals:	57 (A)	255 (B)

Prevalence Index = B/A = 4.47

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes _____ No x**

Remarks: Area is non-native grassland. Hydrophytic vegetation not present.

SOIL

Sampling Point: 004

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 Y/R 4/1	100					silty clay	70% 0.5-1 inch rocks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Vernal Pools (F9)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** __X__

Remarks: Soils were difficult to sample at this location due to dry rocky clay. Hydric soil indicators not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** _____ **No** __x__

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

Remarks: No indicators of wetland hydrology on this dry hillslope.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (access to Pull Site 9) City/County: Contra Costa County Sampling Date: 8 April 2009

Applicant/Owner: PG&E State: CA Sampling Point: 005

Investigator(s): Samantha Hillaire Section, Township, Range: Clifton Court Forebay T1S, R3E, Sec 35 NW 1/4

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 5%

Subregion (LRR): LRR-C Lat: -121623210 Long: 37.8040050 Datum: NAD83

Soil Map Unit Name: Solano Loam NWI classification: P-EM-1

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

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

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

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

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

Remarks: Feature lies in an old channel, that has been damned upstream to create a stock pond. This channel is downstream of the dam, where it no longer receives flows. However, this depressional feature does appear to collect seasonal rainfall and runoff from the local area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x10 feet)			
1. Hordeum hystrix	10	No	FAC
2. Lolium perenne	40	Yes	FAC
3. Distichlis spicata	15	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	15	x 2 = 30
FAC species	50	x 3 = 150
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	65 (A)	180 (B)

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

x Dominance Test is >50%

x Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes x** **No _____**

Remarks: Area is a seasonal wetland. Hydrophytic vegetation present.

SOIL

Sampling Point: 005

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 4/2	100						
5-12	2.5 YR 4/2	95	7.5 YR 4/4	5	C	RC	silty clay	fine redox features

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
x Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none noted

Depth (inches): _____

Hydric Soil Present? **Yes** x **No** _____

Remarks: Had to dig soil pit where there was a little less vegetation than normal in order to dig through the soil with the shovel. Hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
x Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
x Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** x **No** _____

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

Remarks: Wetland hydrology indicators present. In addition, soil in this depression was still damp (not saturated).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pittsburg-Tesla 230kV Reconductor (access to Pull Site 9) City/County: Contra Costa County Sampling Date: 8 April 2009

Applicant/Owner: PG&E State: CA Sampling Point: 006

Investigator(s): Samantha Hillaire Section, Township, Range: Clifton Court Forebay T1S, R3E, Sec 35 NW 1/4

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 15%

Subregion (LRR): LRR-C Lat: -121.6233140 Long: 37.804090 Datum: NAD83

Soil Map Unit Name: Solano Loam NWI classification: not applicable

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

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

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

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

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

Remarks: Upland grassland area, adjacent to a small channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 20x20 feet)			
1. Hordeum hystrix	25	Yes	FAC
2. Hordeum leporinum	30	Yes	NI
3. Bromus diandrus	5	No	UPL
4. Trifolium hirtum	1	No	UPL
5. Carduus pycnocephalus	1	No	UPL
6. Bromus mollis	5	No	FACU-
7. Astragalus (asymmetricus)	<1	No	UPL
8. Lolium perenne	3	No	FAC
9.			
10.			
11.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	28	x 3 =	84
FACU species	5	x 4 =	20
UPL species	7	x 5 =	35
Column Totals:	40 (A)		139 (B)

Prevalence Index = B/A = 3.475

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes _____ No x**

Remarks: Area is an upland grassland. Hydrophytic vegetation not present.

SOIL

Sampling Point: 006

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-13	10 YR 4/2	100						silty clay loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ___x___

Remarks: Soft colorful sandstone pieces were present in the soil; these were not considered to be soil indicators. Hydric soil indicators not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** _____ **No** ___x___

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

Remarks: No indications of wetland hydrology. Wetland hydrology not present.

Appendix B:
Photos of Survey Area

Photograph 1. Pull Site 2, facing north, February 9, 2010. Feature SW-02 in background and feature SW-03 in foreground. Both features are inundated on this date.

Photograph 2. Pull Site 2, access road, facing north, March 24, 2010. Feature SW-06, with raised road on north side. Standing ruler in feature is 18 inches tall.

Photograph 3. Access to Pull Site 9, facing northeast, April 8, 2009. Feature SW-10 in foreground. Culvert C-03 in poor condition.

Photograph 4. Access to Pull Site 9, facing north, April 8, 2009. Entrance gate in background. Feature SW-08 in foreground, with culvert C-02 in poor condition.

Appendix H
Mitigation and Monitoring Reporting Plan

1.0 Introduction

Authority and Purpose of the Program

The State Water Resources Control Board (State Water Board) Initial Study/Mitigated Negative Declaration (IS/MND) for the PG&E Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project (project) includes a series of applicant proposed measures (APM's) and mitigation measures (MM's)[1] intended to minimize potential environmental impacts during project construction and restoration activities. In compliance with the California Environmental Quality Act (CEQA), these measures are incorporated into this Mitigation Monitoring and Reporting Plan (MMRP). This Appendix[2] is intended to comply with these requirements.

The purpose of this MMRP is to document how the APM's and MM's adopted by the State Water Board are implemented, and to document that potential environmental impacts are reduced to less than significant levels as identified in the Mitigated Negative Declaration (MND).

As the CEQA lead agency, the State Water Board, is required to monitor construction and restoration of the project area to confirm implementation of mitigation and applicant-proposed measures. In addition, the State Water Board is responsible for ensuring compliance with the MMRP. When appropriate, the State Water Board will delegate duties and responsibilities for monitoring to other qualified entities or consultants hired by PG&E to implement the measures.

Program Adoption Process

As part of the adoption of the IS/MND, the State Water Board finds that this MMRP complies with CEQA Guidelines Section 15074(d), which mandates the preparation of monitoring provisions for implementation of mitigation assigned as part of project approval or adoption. As the CEQA lead agency for this project, the State Water Board intends to adopt this MMRP concurrently with the certification of the IS/MND.

Organization of the MMRP

This MMRP contains three sections. Section 1.0 provides information about the purpose of the MMRP and the agencies with permitting authority over the project. Section 2.0 specifies roles and responsibilities of the parties or agencies responsible for the implementing the MMRP. Section 3.0 identifies implementation and monitoring procedures.

2.0 Roles and Responsibilities

Mitigation Implementation

Ensuring implementation of measures assigned to mitigate impacts associated with the project is the State Water Board's responsibility; however, this responsibility will be delegated to PG&E or its

[1] APM's are measures that PG&E uses as standard operating procedures on projects. MM's are project-specific. For the purposes of this MMRP both types of measures are considered types of mitigation. To the extent any of the following measures conflict with requirements in subsequently-issued resource agency permits, the resource agency permit requirements shall supercede these measures.

[2] Appendices in this MMRP refer to appendices attached to the IS/MND unless otherwise stated. Some appendices attached to the IS/MND are complete documents with their own appendices; references to these embedded appendices will be stated specifically.

Table A-1
Agency Authority and Jurisdiction
PG&E Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project MMRP

Agency[1]	Jurisdiction within Project Area	Contact
USACE	Section 404 and Nationwide Permit 12	Andrea Meier Senior Regulatory Project Manager San Francisco District U.S. Army Corps of Engineers 1455 Market Street, 16th Floor San Francisco, California 94103-1398 P (415) 503-6798 F (415) 503-6690 andrea.j.meier@usace.army.mil
USFWS	Endangered Species Act consultation. Addresses potential project impacts to federally-threatened and endangered species, including the threatened California red-legged frog (*Rana aurora draytonii*) and California red-legged frog critical habitat, endangered California tiger salamander (*Ambystoma californiense*), endangered San Joaquin kit fox (*Vulpes macrotis mutica*), threatened Alameda whipsnake (*Masticophis lateralis euryxanthus* [=Alameda striped racer]), threatened vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool fairy shrimp critical habitat.	Andrew Raabe Endangered Species Program, Sacramento Fish and Wildlife Office 2800 Cottage Way, Rm W-2605 Sacramento, CA 95825-1846 (916) 414-6679 Andrew_Raabe@fws.gov
CDFG	Fish and Game Code Section 2081, Take Permit for state-listed species, including the California tiger salamander (*Ambystoma californiense*) in Alameda County Fish and Game Code Section 1600, Lake and Streambed Alteration Agreement (LSAA)	Lorie Hammerli and Randi Adair Bay Delta Region Yountville California Department of Fish & Game 7329 Silverado Trail Napa, CA 94558 Telephone: (707) 944-5596 Fax: (707) 944-5563 radair@dfg.ca.gov lhammerli@dfg.ca.gov
East Contra Costa County Habitat Conser-vancy	Take permit for state-listed species, including Alameda whipsnake (*Masticophis lateralis euryxanthus*), California tiger salamander (*Ambystoma californiense*), and San Joaquin kit fox (*Vulpes macrotis mutica*) in Contra Costa County (through NCCP).	John Kopchik Contra Costa County Department of Conservation and Development 30 Muir Road Martinez, California 94553 Telephone: (925) 674-7819 john.kopchik@dcd.cccounty.us

Table A-1
Agency Authority and Jurisdiction
PG&E Pittsburg-Tesla 230 kV Transmission Line Reconductoring Project MMRP

Agency[1]	Jurisdiction within Project Area	Contact
Calfornia Dept. of Water Resources and Alameda County Water District	Encroachment permit for Bethany Reservoir	California Department of Water Resources State Water Projects Encroachment Section Division of Operations and Maintenance 1416 9th Street, Room 649 Sacramento, CA 95814 Jonathan Canuela canuelaj@water.ca.gov (916) 653-5095 Alameda County Water District 43885 S. Grimmer Blvd. Fremont, CA 94538 (510) 668-4200
State Water Board	Compliance with Clean Water Act Section 401 and with pertinent provisions of the California Porter-Cologne Water Quality Control Act. The State Water Board also serves as lead agency for CEQA compliance.	Clifford Harvey 401 Certification & Wetlands Unit Division of Water Quality State Water Resources Control Board 1001 I Street, 15th Floor-56C Sacramento, CA 95814 (916) 558-1709 charvey@waterboards.ca.gov

1. USACE = United States Army Corps of Engineers; USFWS = United States Fish and Wildlife Service; CDFG = California Department of Fish and Game; State Water Board= State Water Resources Control Board

designated representative during construction and restoration activities. Therefore, PG&E will be responsible for ensuring that the project complies with the MMRP and other permit conditions imposed by other responsible agencies. A list of agencies with jurisdiction over the project is included in Table A-1.

Mitigation Monitoring
Implementation and monitoring duties for all project APM's and MM's will be delegated to PG&E or its designated environmental monitors or consultants. This delegation does not affect the authority of State Water Board staff to monitor mitigation compliance for the project and cause implementation of the MM's and APM's. As a result, PG&E's monitors/consultants will be delegated authority by the State Water Board to enforce the MMRP and to authorize any variance or deviation from the procedures, as long as the variance is consistent with CEQA, approved by the State Water Board and USFWS, and does not cause new, increased or different significant impacts. Any proposed variance that could result in a potentially significant environmental effect will be evaluated to determine

whether supplemental CEQA review and additional mitigation measures are needed. In the event of the need for a proposed variance or deviation from the adopted MND or MMRP, the implementation of such deviation shall be reported immediately to the State Water Board and the authorized construction monitor for review and approval.

Under this delegated responsibility, PG&E will designate specific qualified personnel to ensure implementation of mitigation during construction activities. The designated personnel will be responsible for submitting all compliance documentation and reports to PG&E and the State Water Board in a timely manner and preparing required resource agency submittals. These personnel will also be delegated the authority to halt construction activities found to be inconsistent with the MMRP objectives or conditions of approval.

In addition, PG&E will be responsible for demonstrating compliance with other agencies' permit conditions. PG&E and the authorized personnel will ensure that construction contractors understand and adhere to the MMRP performance requirements and other contractual requirements related to the implementation of the MMRP.

Table A-2 provides a summary of the MMRP. It lists each potential environmental impact, the corresponding monitoring activity/plan, implementation and monitoring duration, and the party responsible for ensuring MMRP compliance.

Mitigation Enforcement

In addition to implementation of the MMRP, PG&E is also responsible for enforcing the established performance standards and reporting the success of their implementation to the State Water Board through a mutually agreed-upon reporting program to be specified in permit requirements. The PG&E onsite environmental monitor(s)/consultant(s) will enforce implementation of the MMRP. The monitor will note problems, notify appropriate agencies or individuals about any problems, if required, and report problems to PG&E to inform the State Water Board. If alternative mitigation measures are identified that would be equally effective in mitigating the identified impacts, the implementation of these alternative measures will not occur until approval is received from the State Water Board.

The State Water Board has the authority to halt any construction, operation, or maintenance activity associated with the project if the activity is determined to be a deviation from the approved project or adopted mitigation measures. The State Water Board may assign this authority to the environmental monitor for each construction phase or spread.

Mitigation Compliance

PG&E is responsible for successfully implementing all adopted APM's and MM's in the MMRP. Performance standards for successful mitigation are included in each measure. The standards include requirements for obtaining permits or avoiding a specific impact or area entirely.

Dispute Resolution

Disputes and complaints (including those of the public) will be directed to the State Water Board's designated Project Manager for resolution. The State Water Board Project Manager will attempt to resolve the dispute. In the event that this informal process fails, then the State Water Board Project Manager may initiate an enforcement or compliance action to address deviations from the permitted project and adopted MMRP.

3.0 General Monitoring Procedures

Lead Environmental Monitor

PG&E is responsible for ensuring coordination of mitigation monitoring procedures for the construction and restoration activities with the State Water Board and the authorized environmental monitors/consultants. The lead environmental monitor will be qualified as stated in the measures listed below, and will oversee implementation of the monitoring procedures, coordinate with each environmental monitor assigned to each construction phase or spread, and be onsite during any project-related activity with the potential to result in a significant impact for which mitigation is required. Environmental monitors are also responsible to ensure that all MMRP procedures are followed.

Identity and contact information for all environmental monitors shall be provided to State Water Board staff no later than one week before the date upon which documentation of compliance will be required (e.g., if certain biological surveys must occur two weeks in advance of construction, contact information for the monitors will be provided to the State Water Board staff three weeks in advance of construction.)

Construction Personnel

Many of the mitigation measures require actions by construction personnel to comply with and successfully implement MMRP requirements. Successful implementation of the MMRP will include:

- ✓ Compliance procedures written into contracts between PG&E, authorized monitors/consultants, and construction contractors. Procedures for implementation by construction personnel will be compiled into a separate consent agreement for review and signature by each construction employee.
- ✓ The environmental monitors will conduct regular pre-construction meetings to inform and train all construction personnel about the MMRP requirements.
- ✓ The lead environmental monitor will prepare concise summaries of MMRP procedures and provide them to construction supervisors for measures requiring their attention.

General Reporting Procedures

Site visits and specified monitoring procedures will be reported by each environmental monitor assigned to the project. A monitoring record form will be submitted to the environmental monitor by the individual conducting the visit or procedure so that details of the visit can be recorded and progress tracked by the environmental monitor. A checklist will be developed and maintained by the lead environmental monitor to track all procedures required for each mitigation measure and to ensure adherence to the timing specified for the procedures. Environmental monitors will note any problems that may occur and take appropriate action to rectify the problems. PG&E shall provide the State Water Board with written annual reports of the project, which shall include progress of any project-related activity, resulting impacts, mitigation implemented, and all other noteworthy elements of the project. Annual reports shall be required until sites have reached the success criteria outlined in the Revegetation Plan (Appendix I of the IS/MND); the reporting may be done on a site by site basis (i.e., monitoring and reporting of individual sites will continue before they meet the success criteria, then will cease after criteria are met). The reporting will continue for a minimum of three years, or until success criteria are achieved, whichever is longest.

The reporting requirements will be as follows:

- ✓ After the first season of work, at the end of the growing season and before October 30, and on a yearly basis thereafter for the length of construction and revegetation activities, PG&E will perform a site assessment and submit a written report to the State Water Board. This report will include findings on the status of vegetation cover, soil stability, erosion control measures, presence of weeds on site, and any measures implemented to address problems and to prepare for the following winter (rainy) season.

- ✓ At the end of the project construction and revegetation activities, PG&E will provide the State Water Board with a final report on the project activities, including the success of the mitigation measures implemented including the revegetation work. This final report will also serve as the yearly report in the final year. Before and after photographs that are adequate to depict all significant project impact sites, and that are fully documented with location and date information, will also be provided.

- ✓ In the event a problem and/or deficiency is identified during any of the reporting periods described above, PG&E will consult with the State Water Board on its plan of action to correct the deficiency. PG&E will also provide quarterly reports on the problem/deficiency until it is corrected and stabilized.

Condition Effectiveness Review

As required by CEQA, the State Water Board must evaluate the effectiveness of implemented mitigation measures. In order to fulfill its statutory mandates to mitigate or avoid significant effects on the environment and to design a mitigation monitoring program to ensure compliance during project implementation (CEQA Section 21081.6):

- ✓ State Water Board may conduct a comprehensive review of conditions or practices that are not effectively mitigating impacts at any time it deems appropriate, consistent with standard State Water Board dispute resolution procedures; and

- ✓ State Water Board may determine that measures are not adequately mitigating environmental impacts, or that recent proven technological advances could provide more effective mitigation.

If this occurs, then the State Water Board may impose additional reasonable conditions to effectively mitigate these impacts.

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
PG&E Mitigation Measures (MM's)						
Biological Resources	Potential impacts to any species identified as special-status, including federal and state listed species. In addition, protecting wetland and water features, in order to maintain water quality for such beneficial uses as municipal and domestic water supply; agricultural water supply; ground water recharge; freshwater replenishment; wildlife habitat; and spawning, reproduction, and early development.					
MM-BIO-01 Federally & State Listed Species: Delta Smelt Critical Habitat. The USFWS and CDFG will review this project. After consultation, the USFWS will issue a Biological Opinion for the Delta smelt or USFWS-designated critical habitat for this species. PG&E will comply with the terms and conditions of the USFWS Biological Opinion and those required by CDFG, and will incorporate the mitigation measures listed below into the project. These measures will be implemented between towers 1 and 13.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
1. A specialist will flag appropriate access routes and project work areas located in the Delta Smelt Critical Habitat Area (between towers 1 and 5) prior to start of work activities; no groundwork will take place in salt marsh habitat (helicopter work only). A qualified monitor will be present during project activities. Construction fencing will be installed to protect habitat where appropriate, and the qualified monitor will ensure that no impacts to habitat will occur during construction.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
2. Construction constraints maps will be provided to monitors and construction crews to identify features that require protection, and the MM's and APM's applicable to project work areas before construction. The maps will be available on site during all construction activities.	Prior to start of work activities	During Construction	Before construction	During Construction	PG&E	PG&E, reporting to State Water Board and USFWS

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
3. *MM-BIO-01 Federally & State Listed Species: Delta Smelt Critical Habitat (cont.)* The vehicle travel to each construction site will be limited to the minimum number of trips and vehicles necessary to perform work safely.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
4. All grading or digging, in and near wetland features will be avoided. Such activities will be limited to designated upland areas.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
5. When working in proximity to a wetland or other waters of the United States (US), spoil from auger holes will be placed in a secondary container (truck, cart, etc.) to prevent introducing fill to wetlands and waters.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
6. The top 10 inches of soil from any augered holes will be separated and saved. This soil will be used to backfill the tops of holes at the end of activities.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
MM-BIO-02 Federally Listed Species: Valley Elderberry Longhorn Beetle (VELB). According to a 30-year programmatic agreement with the USFWS, PG&E has specific guidelines for maintenance work around elderberry shrubs within the range of the VELB ((USFWS 2003, Biological Opinion 1-1-01-F-0114). These guidelines aim to identify, avoid and minimize impacts to elderberry shrubs and VELB. Project activities will follow the requirements of this programmatic agreement, by incorporating the following mitigation measures:	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
1.	*MM-BIO-02 Federally Listed Species: Valley Elderberry Longhorn Beetle (VELB)(cont.)* A VELB environmental tailboard will be required for work crews.	Prior to start of work activities		During construction		PG&E	PG&E, reporting to State Water Board and USFWS
2.	For all blue elderberry (*Sambucus mexicana*) shrubs within 20 feet of ground disturbance, a qualified individual will flag or fence a buffer of at least 20 feet from the drip line prior to start of project activities.	Prior to start of work activities		During construction		PG&E	PG&E, reporting to State Water Board and USFWS
3.	Construction activities within the 20-foot buffer will be avoided including the driving of heavy machinery and vegetation removal/disturbance. Note: blue elderberry shrubs adjacent to existing Chadbourne Road near Pull Site 4 will be flagged, but through-traffic will be permitted.		During construction			PG&E	PG&E, reporting to State Water Board and USFWS
4.	A qualified monitor will be utilized during work near elderberries. The monitor will provide crews with environmental awareness training about VELB and describe avoidance measures.	Prior to start of work activities			During construction	PG&E	PG&E, reporting to State Water Board and USFWS
5.	Should Valley elderberry longhorn beetles be observed in the project area, the Sacramento USFWS Office will be immediately notified. Any observations of beetles in any life stage will be recorded on California Natural Diversity Database (CNDDB) field sheets and sent to the CDFG.		During construction		During construction	PG&E	PG&E, reporting to State Water Board, USFWS, CDFG

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
MM-BIO-03 Federally & State Listed Species: California Tiger Salamander (CTS). The USFWS and CDFG have reviewed this project, and believe that the project may cause harm of CTS. PG&E will comply with the terms and conditions of the Service's biological opinion and requirements of the Incidental Take Permit from CDFG, and will provide appropriate mitigation. The mitigation measures below have been incorporated into the project. These measures will be implemented during all project activities in unpaved and undeveloped areas.	Prior to start of work activities	During construction			PG&E	PG&E, reporting to State Water Board, CDFG, and USFWS
1. Work will commence no earlier than one-half hour after sunrise and end no later than one half-hour before sunset to ensure detection of CTS if present.		During construction.		During construction.	PG&E	PG&E, reporting to State Water Board, USFWS, and CDFG
2. To the extent feasible, all grading or digging within suitable habitat will be avoided during the adult breeding and dispersal season (November to May), as well as during the peak metamorphic dispersal season (June 15 to July 15). Operation of off-pavement work will be minimized during rain events and 24 hours following a rain event.		During construction		During construction	PG&E	PG&E, reporting to State Water Board, USFWS, and CDFG
3. Small mammal (i.e. ground squirrel and gopher size) burrows will be avoided whenever possible.		During construction		During construction	PG&E	PG&E, reporting to State Water Board, USFWS, and CDFG

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
4.	*MM-BIO-03 Federally & State Listed Species: California Tiger Salamander (CTS) (cont.)* A qualified monitor will perform preconstruction surveys at current work areas each day that construction activities are planned or ongoing, prior to commencing work activities, to ensure CTS have not entered the site.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board, USFWS, and CDFG
5.	A qualified monitor will be on site during all work near breeding and dispersal habitats. The monitor will provide crews with environmental awareness training about the CTS and recommend avoidance measures.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board, USFWS and CDFG
6.	Crews will visually check under vehicles and equipment before moving them.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board, USFWS, and CDFG
7.	The following measure will be used at Pull Sites 4 and 7: Before beginning construction activities a temporary barrier will be constructed along the edges of these areas. The qualified monitor shall inspect these areas prior to the installation of the barrier, and if any special-status wildlife are observed, they will be allowed to leave the area. The barrier shall be designed to allow the special-status species to leave the fenced area using a one-way funnel, ramp or other method approved by DFG. The barrier shall remain in place until all construction activities at that location have been completed. The qualified monitor will inspect the barrier daily and PG&E will maintain and repair it as necessary to ensure that it is functional. Any special-status	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board, USFWS, and CDFG

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
	MM-BIO-03 Federally & State Listed Species: California Tiger Salamander (CTS) (cont.) wildlife found along the fence line will be allowed to leave on their own, or will only be moved by the qualified monitor in accordance with the Incidental Take Permit and Biological Opinion from DFG and USFWS. Design of the barrier shall be approved by DFG prior to installation and prior to beginning construction activities.						
8.	CTS will not be handled or moved by construction crews. CTS will only be handled by a Service- and CDFG- approved biologist, after take authorization is obtained through a CESA permit (Fish and Game Code 2081) from the CDFG Bay Delta Region. If a CTS be observed during construction, the Sacramento USFWS Office and the CDFG Bay Delta Region will be immediately notified. Any observations of CTS in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.		During construction		During construction	PG&E	PG&E, reporting to State Water Board, USFWS, and CDFG
MM-BIO-04 Federally Listed Species: California Red-legged Frog (CRLF). The USFWS has reviewed this project, and believes that the project has the possibility to harm CRLF, and will have minor effects on USFWS-designated critical habitat for CRLF. PG&E will comply with the terms and conditions of the biological opinion and has incorporated the mitigation measures below into the project. These measures will be implemented where surveys have identified CRLF or suitable habitat (Pull Sites 2, 3, 4, 7, 8, 9, 10, and 12 and Guard Structures SR21, TL34, and SR37).		Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
1.	Construction activities will commence no earlier than one-half hour after sunrise and no later than one half-hour before sunset to ensure detection of CRLF		During construction		During construction	PG&E	PG&E, reporting to State Water

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
	MM-BIO-04, Federally Listed Species: California Red-legged Frog (CRLF)(cont.) if present.						Board and USFWS
2.	To the extent feasible, all grading or digging in and near water features will be limited to such activities outside of the breeding and juvenile rearing season (avoid late November to August). Culvert replacement will be performed outside of the wet season.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
3.	A qualified monitor will perform preconstruction surveys at work areas each day project activities are planned or ongoing, prior to commencing work activities, to ensure CRLF has not entered the site.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
4.	A qualified monitor will be on site during all work near potential breeding and juvenile rearing sites. The monitor will provide crews with environmental awareness training about the CRLF and recommend avoidance measures.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
5.	Crews will visually check under vehicles and equipment before moving them.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
6.	Only a permitted, USFWS-approved biologist may handle CRLF. Should a California red-legged frog be observed during project activities, the Sacramento USFWS Office will be notified immediately. Any observations of CRLF in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.		During construction		During construction	PG&E	PG&E, reporting to State Water Board, USFWS, and CDFG

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
MM-BIO-05 Federally Listed Species: Alameda Whipsnake. The USFWS and CDFG have reviewed this project, and believe that the project may cause harm to Alameda whipsnake. PG&E will comply with the terms and conditions of the Service's biological opinion and requirements of the Incidental Take Permit from CDFG, and will provide appropriate mitigation. The mitigation measures below have been incorporated into the project. These measures will be implemented for all project activities in areas near suitable habitat for Alameda whipsnake (Pull Site 4 and Guard Structures DL16 and DL17).	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board, CDFG, and USFWS
1. Work will commence no earlier than one-half hour after sunrise and end no later than one half-hour before sunset to ensure detection of Alameda whipsnake if present.		During construction		During construction	PG&E	PG&E, reporting to State Water Board, CDFG, and USFWS
2. All grading or digging within Pull Site 4 will be avoided during the snake's dormancy period (between November 1 and March 31).		During construction (between November 1 and March 31)		During construction	PG&E	PG&E, reporting to State Water Board, CDFG, and USFWS
3. A qualified monitor will perform preconstruction surveys prior to commencing work activities each day that project activities are planned or ongoing at Pull Site 4, to ensure Alameda whipsnakes have not entered the site.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board, CDFG, and USFWS

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
4.	*MM-BIO-05 Federally Listed Species: Alameda whipsnake (cont.)* A qualified monitor will be on site during all work at Pull Site 4. The monitor will provide crews with environmental awareness training about the Alameda whipsnake and recommend avoidance measures.	Prior to start of work activities			During construction	PG&E	PG&E, reporting to State Water Board, CDFG, and USFWS
5.	Crews will visually check under vehicles and equipment before moving them.		During construction		During construction	PG&E	PG&E, reporting to State Water Board, CDFG, and USFWS
6.	Construction materials, soil, construction debris, or other material shall be deposited only where vegetation has been mowed ,grazed or is otherwise sufficiently sparse to that any snakes present will be readily visible.		During construction		During construction	PG&E	PG&E, reporting to State Water Board, CDFG, and USFWS
7.	Alameda whipsnake will not be handled or moved by construction crews. Alameda whipsnake will only be handled by a Service- and CDFG- approved biologist, after take authorization is obtained through a CESA permit (Fish and Game Code 2081) from the CDFG Bay Delta Region. Should an Alameda whipsnake be observed during construction, the Sacramento USFWS Office and the CDFG Bay Delta Region will be immediately notified. Any observations of Alameda whipsnake in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.		During construction		During construction	PG&E	PG&E, reporting to State Water Board, CDFG, and USFWS

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
MM-BIO-06 Federally and State Listed Species: San Joaquin Kit Fox. PG&E is consulting with USFWS, and will comply with the terms and conditions of the consultation. PG&E has has incorporated additional mitigation measures below into the project to minimize the potential for impact to San Joaquin kit fox. These measures will be implemented in areas of suitable habitat for this fox (Pull Sites 2-12 and associated undeveloped access routes and landing zones, and all Guard Structures in natural areas [all structures except SR01, RR02, RR03, SR04, SR05, HW06, TL07, SR08, HW28, DL35]).	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
1. Work will commence no earlier than one-half hour after sunrise and end no later than one half-hour before sunset to ensure detection of San Joaquin kit fox if present.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
2. A qualified monitor will perform preconstruction surveys prior to commencing work each day that work is planned or ongoing to ensure kit fox have not entered the sites.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
3. Project activities will be avoided in pupping season: mid-February to April 1 (this timeline includes birth, weaning, and emergence of pups). If work cannot be avoided within this window, perform pre-construction surveys to determine den use. Minimum avoidance distance of grading and digging from dens will be 50 feet for a potential den and 100 feet for a known den. If a natal/pupping den is located, a suitable buffer (may be 200 feet or more) will be developed in consultation with USFWS.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
4. *MM-BIO-06 Federally and State Listed Species: San Joaquin Kit Fox (cont.)* A qualified monitor will be on site during all work near potential breeding sites. The monitor will provide crews with environmental awareness training about the San Joaquin kit fox and recommend avoidance measures.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board and USFWS
5. During daily preconstruction surveys, the qualified monitor will visually check under vehicles and equipment for San Joaquin kit fox. Crews will check under vehicles and equipment before moving them to avoid running over kit foxes.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
6. Should a San Joaquin kit fox be observed during project activities, the Sacramento USFWS Office and the CDFG Bay Delta Region will be immediately notified. Any observations of kit fox in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.		During construction		During construction	PG&E	PG&E, reporting to State Water Board, USFWS, and CDFG
MM-BIO-07 State Listed Species: Swainson's Hawk. PG&E will adopt the following standard measures to address potential impacts to Swainson's hawk.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
1. *MM-BIO-07 State Listed Species: Swainson's Hawk (cont.)* Project activities in areas that could disrupt Swainson's Hawk nests will be avoided to the extent feasible between the dates of March 1 and September 15; this date maybe moved to August 15 with concurrence from CDFG. If this date range cannot be avoided, a preconstruction raptor nest survey shall be conducted during the appropriate time period in the season prior to construction, generally following the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). Follow up surveys will be timed to occur in advance of scheduled construction activities and locations. The results of these surveys shall be submitted to CDFG. If active nests are found, a half-mile (2,640 feet) initial temporary nest disturbance buffer around each nest site shall be established. A qualified biologist/monitor, experienced with raptor behavior, shall be retained to monitor the nest, and shall, together with the PG&E staff biologist, consult with CDFG to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed to proceed within the nest disturbance buffer in consultation with CDFG.	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board and CDFG
MM-BIO-08 Wetland and Water Features. Implementation of the proposed project will entail culvert replacements and temporary fill of wetlands on access roads. All impacts will be temporary and will occur in seasonal wetlands. Restoration will occur on site, and no	Prior to start of work activities	During construction		During construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
MM-BIO-08 Wetland and Water Features (cont.) net loss of wetlands will occur. The following measures will be used.							
1.	Erosion, sediment, material stockpile, and dust control Best Management Practices (BMPs) will be employed on site. A storm water pollution prevention plan (SWPPP) will be developed, and construction crews will adhere to all additional requirements of the project SWPPP.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
2.	To the extent possible, whenever holes are excavated or augured, the top 10 inches of soil will be stored separately from the rest of the spoil. If possible, this seed source will be used to refill the top of the excavation.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
3.	When work is completed, the area will be evaluated and necessary restoration work (including re-vegetation/re-seeding and soil stabilization) will be performed as needed (see Restoration Plan, attached as Appendix I of the IS/MND). Work areas will be returned to pre-existing conditions to the extent possible.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
4.	No refueling, mixing, or transfer of hazardous materials fron one container to another shall occur in any surface waters, including streams and wetlands. Extreme caution will be used handling and/ or storing chemicals (such as fuel and hydraulic fluid) near surface waters, streams, and wetlands, and construction personnel will abide by all applicable laws and regulations. All applicable hazardous waste BMPs will be followed. Appropriate materials will be kept on site to prevent and manage spills (spill kits).		During construction		During construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
5. *MM-BIO-08 Wetland and Water Features (cont.)* Where seasonally wet features including wetlands occur within or adjacent to a work area, the seasonally wet areas will be clearly marked with fencing, flagging, signage or similar avoidance measures. Driving or other construction activities will be avoided within these features.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
6. No grading or digging will take place in any waters of the state except for specified road crossings and culvert replacement sites.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
7. When in proximity to a wetland or other waters of the state, including waters of the U.S., spoils will be placed into a secondary container (truck, cart, etc.) to prevent introducing fill to wetlands and waters.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
MM-BIO-09 Western Pond Turtle Potential for western pond turtle occurs at Pull Site 7 and the associated access route. The following measure will be used at this site.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
1. A qualified monitor will complete surveys in and near Pull Site 7 prior to construction activities, on each day that construction activities are planned or ongoing, to ensure that western pond turtles have not entered the site. The surveys will include aquatic habitat, and upland surveys for nest sites.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
2. Any observations of western pond turtle in any life stage will be recorded on CNDDB forms and sent to CDFG.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and CDFG

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
MM-BIO-10 Other Species of Special Concern - Amphibians and Reptiles Suitable habitat is present at Pull Sites 2-12 and the associated native surface landing zones and access routes for the following species: silvery legless lizard (*Anniella pulchra pulchra*), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), coast horned lizard (*Phrynosome coronatum*), and western spadefoot toad (*Spea hammondii*). The following measure will be used at these sites.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
1. The qualified monitor will complete walking surveys of each construction area to be impacted prior to construction activities, on each day that construction activities are planned or ongoing, to ensure that the aforementioned special-status reptile and amphibian species have not entered the site.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
2. Any observations of any of the aforementioned special-status reptiles and amphibians will be recorded on CNDDB forms and sent to CDFG.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and CDFG
MM-BIO-11 American Badger Suitable habitat is present at Pull Sites 2-12 and the associated native surface landing zones and access routes for American Badger (*Taxidea taxus*). The following measures will be used at these sites.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
1. Work will commence no earlier than one-half hour after sunrise and end no later than one half-hour before sunset to ensure detection of American badger if present.		During construction		During construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
2. *MM-BIO-11 American Badger (cont.)* A qualified monitor will perform preconstruction surveys prior to commencing work each day that work is planned or ongoing to ensure American badgers have not entered the sites.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
3. Pre-construction surveys will be performed to determine den use. If dens are located, minimum avoidance distance of grading and digging from dens will be 50 feet.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
5. Crews will check under vehicles and equipment before moving them to avoid running over American badgers.		During construction		During construction	PG&E	PG&E, reporting to State Water Board
6. Any observations of American badger in any life stage will be recorded on CNDDB field sheets and sent to the CDFG.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and CDFG
MM-BIO-12 Western Burrowing Owl PG&E has determined that suitable habitat for western burrowing owl is present at pull sites 2 through 12. Project construction activities could result in mortality, harm, or disturbance to western burrowing owl. The following measures will be used at these sites.		Before and during construction		Before and during construction	PG&E	PG&E, reporting to State Water Board and CDFG
1. Burrowing owl surveys, generally following CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) and shall occur in both the breeding and non-breeding seasons. These surveys will be conducted by a qualified biologist in suitable burrowing owl habitat within 500 feet (approximately 150 meters) of areas of planned construction activity. These surveys	Before construction		Before construction	During construction, if 30-day delay	PG&E	PG&E, reporting to State Water Board and CDFG

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
will occur in the season(s) prior to construction to identify potential nesting/burrow areas. Pre-construction burrowing owl surveys will be conducted no more than 30 days prior to the start of construction activities. Results of these surveys shall be submitted to CDFG. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction surveys, the site should be resurveyed.						

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
2.	*MM-BIO-12 Western Burrowing Owl (cont.)* Disturbance of active burrows/nests will be avoided during both the non-breeding season and the breeding season. In the event that construction is located within 250 feet of active burrows or nests, appropriate buffer distances shall be established by a qualified biologist. In general, this buffer distance will be 160 feet (50 meters) of active burrows or nests during the non-breeding season (September 1-January 31), and 250 feet of active burrows or nests during the breeding season (February 1-August 31). The limits of the buffer or exclusion zone in the project area should be clearly marked (with signs, flagging, fencing, or similar measures). Work will not take place within this buffer to the extent feasible. If active burrow is closer than the appropriate buffer distance, and work is unavoidable, coordination with CDFG shall occur to determine additional appropriate avoidance, minimization, or protection measures. Work will only take place in the presence of a qualified monitor, who will monitor active burrows and determine if owls show signs of disturbance. If birds are disturbed by construction activities, the qualified monitor will have the authority to cease project activities until the birds return to normal behavior. If owls are consistently undisturbed by the construction activities after extended periods of monitoring, constant monitoring may cease after consultation and written approval by CDFG.		Before and during construction		Before and during construction	PG&E	PG&E, reporting to State Water Board and CDFG

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
3.	*MM-BIO-12 Western Burrowing Owl (cont.)* **As a contingency**, passive relocation effort (displacing the owls from the work area) may be conducted in limited cases in consultation with CDFG.		Before and during construction		Before and during construction	PG&E	PG&E, reporting to State Water Board and CDFG
4.	If accidental take (disturbance, injury, or death) of owls occurs, PG&E will notify CDFG immediately. If an active burrow is damaged or collapsed, PG&E will notify CDFG immediately; after consultation with CDFG, PG&E may be required provide artificial burrows in adjacent habitat, or similar compensatory measures, to be negotiated with CDFG on a case by case basis.		During construction		During construction	PG&E	PG&E, reporting to State Water Board and CDFG
Hazards and Hazardous Materials							
	MM-HH-01:Measures for Abandoned Pipes between Towers 1/4 and 1/5: PG&E will notify Chevron's consultant SAIC and coordinate excavation of auger holes for guard structure towers in the area near known or suspected abandoned pipelines with SAIC staff.	30 days prior to installation of guard structures between towers 4 and 5.	During construction		During construction	PG&E	PG&E, reporting to State Water Board and CDFG

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
PG&E Applicant Proposed Measures (APM's)						
Air Quality Measures to reduce impacts to air quality are not required to reduce the project impacts to a less-than-significant levels. Therefore, the Air Quality APM's are not included in this MMRP.						
Biological Resources Potential impacts to any species identified as special-status, including federal and state listed species. In addition, protecting wetland and water features, in order to maintain water quality for such beneficial uses as municipal and domestic water supply; agricultural water supply; ground water recharge; freshwater replenishment; wildlife habitat; and spawning, reproduction, and early development.						
APM-BIO-01 Wildlife Habitat Protection. PG&E proposes the following measures to protect special-status species, wildlife, and habitat during project construction.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
1. A qualified monitor will provide environmental awareness training to all construction personnel before construction begins, and any time new personnel are brought onto the project. Workers will be given instruction on avoiding sensitive habitats and special-status species, and the nature and purpose of protection measures. A record of environmental awareness training will be maintained for the life of the project.	Prior to start of work activities	During Construction			PG&E	PG&E, reporting to State Water Board
2. To be considered a qualified monitor (the designated biologist), the following procedure must take place. PG&E will submit to DFG in writing the name, qualifications, business address, and contact information of a biological monitor at least 30 days before starting construction activities. PG&E will ensure that the qualified monitor is knowledgeable and experienced in the biology, natural history, collecting, and handling of the special-status species.	Prior to start of work activities				PG&E	PG&E, reporting to the State Water Board and CDFG

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
	The qualified monitor shall be responsible for monitoring construction activities to help minimize and fully mitigate or avoid the incidental take of individual special-status species and to minimize disturbance of special-status species' habitat. PG&E will obtain DFG approval of the qualified monitor in writing before starting construction activities, and will also obtain approval in advance, in writing, if the qualified monitor must be changed.						
3.	Qualified monitors will provide guidance for access and construction work in a manner that minimizes potential impacts to wetlands and other sensitive habitats.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
4.	The qualified monitor will complete walking surveys of each construction area to be impacted prior to construction activities, on each day that construction activities are planned or ongoing, to ensure that special-status species have not entered the site. The qualified monitor shall walk with any earthmoving equipment (e.g., grading, digging or auguring, laying rock) to look for special-status species. Any special-status species found within the construction area willbe allowed to leave on its own, or will only be moved by the qualified monitor. The movement of any federal- and/or state-listed species will only take place in accordance with approval from USFWS and/or measures in an incidental take permit from the CDFG.				During Construction	PG&E	PG&E, reporting to State Water Board
5.	To the extent feasible, all activities associated with the construction of the project will be conducted on previously constructed access roads and similarly disturbed and compacted areas. Heavy equipment and vehicles will be confined to designated routes		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
	APM-BIO-01 Wildlife Habitat Protection (cont.) and work areas. No equipment will be staged in any waters of the state including wetlands.						
4.	To the extent feasible, confine earthwork within natural habitats in the project area to the period of July 15 to October 31 to the extent feasible. This time restriction will not be applicable to the developed habitats in the City of Pittsburg (activites north of Leland Road)		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
5.	Any vegetation clearing or other disturbances to vegetation will be kept to the minimum area necessary to safely facilitate construction activities and will maintain compliance with all applicable state and federal regulations.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
6.	Construction crews will properly fence and/or cover unattended, open excavations to prevent wildlife entrapment. Augered holes will not be left unfilled overnight whenever feasible. If unavoidable circumstances cause an unfilled hole to remain at the end of operating hours, a tight fitting cover will be placed over the hole. Drilling of new holes will be avoided when the lateness of the hour would prevent completion of the pole-setting operation in prescribed work hours. Any open excavation left open overnight will be equipped with wildlife escape ramps if it cannot be fully covered.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
7.	All food wrappers and construction-related garbage or waste of any kind will be placed in covered garbage cans and removed from the site daily.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

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	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
8.	*APM-BIO-01 Wildlife Habitat Protection (cont.)* Plastic monofilament netting, or any other materials that pose a hazard to wildlife will not be used for erosion control. PG&E will use tightly woven fiber netting or other materials that are wildlife-safe. Only fully biodegradable erosion control materials will be used for permanent installations. Photo-degradable synthetic materials will not be utilized for permanent installations.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
9.	No pets, campfires, or firearms will be permitted.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
10.	To ensure that construction does not impact biological resources identified along the transmission corridor, Project work area boundaries, off-road access routes, and sensitive habitat areas will be delineated in the field. Flagging, stakes, or fencing, or similar measures will be used to mark sensitive areas and/or off-road routes.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
11.	Construction crews will immediately report all observations of any listed species to the biological monitor and take care not to move, touch, harm, or harass the species. If a listed species is discovered in a work area, all work shall cease in that area when it is safe to do so; construction may not resume until the individual(s) of the species has moved away on its own. In accordance with federal and California endangered species acts, PG&E will inform appropriate federal and state resource agency personnel of any such sighting.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
12.	Maintain all construction equipment to prevent leaks of fuels, lubricants, or other fluids into wetlands or streams. Do not conduct service and refueling procedures where there is potential for fuel spills to seep or wash into wetlands or streams. Pull Sites 2 and 12 are closer than 100 feet to drainages; impervious-lined spill containment systems will be used for fueling at these two pull sites.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
13.	Use extreme caution when handling and/ or storing chemicals (such as fuel and hydraulic fluid) near waterways, and abide by all applicable laws and regulations. Follow all applicable hazardous waste BMPs. Keep appropriate materials at currently used pull sites, staging areas, or in trucks to prevent and manage spills.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
14.	A spill control and response plan will be developed for potentially hazardous materials, including fuels, solvents, and grease.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
15. *APM-BIO-01 Wildlife Habitat Protection (cont.)* PG&E will manage stormwater runoff with the implementation of a SWPPP, including returning disturbed soils to pre-project conditions and contours following construction. Employ erosion, sediment, material stockpile, and dust control BMPs during construction within the Action Area. Adhere to all additional requirements of the project SWPPP. Do not permit any fill or runoff from work areas to enter wetland areas or streams.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
16. If a special-status wildlife species, or native/migratory bird, is injured as a result of project-related activities, the qualified monitor will immediately arrange for transport of the injured animal to a CDFG-approved facility that's identified before the start of construction. PG&E will report the injury to the appropriate agencies. PG&E will bear the costs associated with the care or treatment of such injured special-status species.		During Construction	During Construction		PG&E	PG&E, reporting to State Water Board and CDFG
17. A driving speed limit of 20 miles per hour will be utilized for vehicles and equipment, except where this low speed would cause a safety hazard (e.g., county roads, highways, other large paved roads).		During Construction		During Construction		PG&E, reporting to State Water Board
APM-BIO-02 Special-status Plants. PG&E performed floristic surveys for special-status plants in natural areas that could be impacted by project activities in 2008 and 2009. PG&E proposes the following measures to protect special-status plant species.		During Construction		During Construction		PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
1.	*APM-BIO-02 Special-status Plants (cont.)* PG&E will perform floristic spring pre-construction surveys in areas that have re-vegetated since the 2008-2009 surveys (Pull Sites 6, 7, and 10 and associated access routes), or have been identified since 2008-2009 (guard structures TL10, TL11, TL12, SR37, DL14, DL25, TL15, DL29, TL26, TL31, TL32, TL33, TL34 and associated access routes)	PG&E					PG&E, reporting to State Water Board
2.	PG&E will implement five measures during and after ground disturbing activities near populations of round-leaved filaree (*California macrophylla*, California Rare Plant Rank 1B.1) at Pull Site 2, and any other special-status species located during pre-construction surveys, to avoid and minimize potential impacts on these special-status plant populations, as recommended by CDFG. These measures will include: a) installation of protective fencing or flagging (including a buffer of approximately 20 feet) around the population and limiting nearby ground disturbance; b) on-site biological monitoring; c) environmental awareness training for construction personnel, including information on the locations, habitat requirements and distribution of special-status plants; d) returning the construction site to pre-project conditions; and e) managing stormwater runoff with the implementation of a SWPPP.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
APM-BIO-03 Nesting Birds. Activities that result in the loss of an active nest of a designated native bird are a violation of the Migratory Bird Treaty Act. Nests and eggs are also protected by Section 3503 of the California Fish and Game Code. The disruption of any nest is a violation of Section 3503.5 of the California Fish and Game Code. The implementation of the proposed protection measures listed below will address potential impacts to nesting birds. In addition to burrowing owl and Swainson's hawk discussed previously, special-status nesting birds that may be encountered on this project include: golden eagle (*Aquila chrysaetos*), short-eared owl (*Asio flammeus*), ferruginous hawk (*Buteo regalis*), northern harrier (*Circus cyaneus*), California horned lark (*Ereophila alpestris actia*), prairie falcon (*Falco mexicanus*), loggerhead shrike (*Lanius ludovicianus*), and white-tailed kite (*Elanus leucurus*). Groundwork is NOT expected to take place in suitable nesting habitat for the following special-status species: tricolored blackbird (*Agelaius tricolor*), salt marsh common yellowthroat (*Geothlypis trichas sinuosa*), California black rail (*Laterallus jamaicensis coturniculus*), Suisun song sparrow (*Melospiza melodia maxilaris*), double-crested cormorant (*Phalacrocorax auritus*) California clapper rail (*Rallus longirostris obsoletus*)		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
1.	*APM-BIO-03 Nesting Birds (cont.)* PG&E will avoid construction activities that could result in disturbance to breeding/nesting birds during the breeding season (February 1 – September 1) to the extent feasible; this measure includes avoidance of helicopter activity around raptor nests (within appropriate buffers).		During Construction-Feb. 1 to Sept. 1		During Construction-Feb. 1 to Sept. 1	PG&E	PG&E, reporting to State Water Board
2.	If work occurs during the breeding season, a qualified biological monitor will identify native bird nests within 200 feet of the project area, and raptor (owl, hawk, and eagle) nests within at least 0.5 mile of the project. These surveys will be timed to occur in advance of scheduled construction activites. The results of these surveys shall be provided to DFG. The project will also comply with PG&E's *Avian Protection Plan*, Utility Standard S2321, approved by the USFWS, and outlined in Work Procedure (WP) 2321-01		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board and CDFG
3.	Surveys will take place at the appropriate time of day, and will occur no more than one week in advance of scheduled activities at locations where construction will occur. In consultation with CDFG and USFWS, inactive nests on towers (other than those of eagles and special-status species) may be removed proactively to prevent their being utilized.		During Construction	Prior to start of work activities	During Construction	PG&E	PG&E, reporting to State Water Board
4.	If nesting birds are found, an approximately 50-foot radius buffer will be estabished around the nest, approximately 300-foot radius buffer in the case of most raptors, and at least a1,000-foot radius buffer in the case of eagles (may be larger on a site-specific basis). Appropriate buffer distances will depend on site-specific conditions. Activity within the buffer with		During Construction	Prior to start of work activities	During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
APM-BIO-03 Nesting Birds (cont.) the potential to cause nest failure will be delayed or moved to another location, to the extent feasible. The area will generally be marked off and avoided until the young have fledged, or the nest has failed, as determined by a qualified monitor (see below). A qualified monitor with experience in raptor behavior will monitor the behavior of any raptor in the buffer zone when project activities are occurring at that location. The qualified monitor shall have the authority to order the cessation of all project activities in the vicinity of any nest (regardless of distance) if the birds exhibit abnormal nesting behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to: defensive flights or vocalizations directed towards Project personnel, standing up from a brooding position, and flying away from the nest. If the risk of nest failure appears to be low for a particular nest, CDFG and USFWS will be consulted regarding if work activity may proceed, or if buffer distances can be reduced. Risk will depend on many factors, including the nature of the activity, the type of bird, the stage of the nest and its distance from the work site, the intervening topography and vegetation, and the acclimatization of the birds to human activity.						

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
APM-BIO-03 Nesting Birds (cont.) Project activities disturbing a protected bird nest shall not resume until the qualified monitor has confirmed that the bird's behavior has normalized, the young have left the nest, and/or the nest has failed. CDFG will be consulted for special-status bird species.						
Cultural Resources	Possible impacts to previously unidentified archaeological resources that could be encountered during project-related ground-disturbing activities					
APM-CR-01 Procedures for Protection of Known Cultural Resources. An archeological monitor will be available during activities at work areas where cultural resources have been identified during pre-construction surveys (Pull Sites 2, 4, 5, 8, 9, 11, and 12). The cultural resources identified at these locations will be flagged or fenced for avoidance. Equipment will stay within the existing road alignment in the current road perimeters of the access road to Pull Site 4. Due to the location of cultural resources, and the placement of project work areas, PG&E will avoid impacts to all cultural resources during project implementation.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
APM-CR-02 Awareness Training for Cultural and Paleontological Resources. Prior to commencing construction activities, field crews will receive instruction on cultural and paleontological resources protection and reporting protocols. Instruction will cover the potential for unanticipated discoveries during ground-disturbing activities associated with the project, and the actions to take in the event of a discovery (see APM-CR-02, below).	Prior to start of work activities	During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
APM-CR-03 Protocols for Cultural or Paleontological Resources Discovery. When previously unknown cultural or paleontological resources are encountered during project-related subsurface disturbances, work will be stopped within 100 feet of the find; pending consultation with a PG&E Cultural Resource Specialist or his/her designated representative. The specialist will determine the potential significance of the find and recommend appropriate treatment measures. Such measures may include, but are not limited to, avoidance, photo and documentary recording, subsurface testing, excavation, and creation of materials with an appropriate repository. Any fossils discovered during project excavations will be identified and, if significant, donated to a local repository. The PG&E Cultural Resources Specialist will also consult with the State Historic Preservation Officer (SHPO) as appropriate, under the National Historic Preservation Act. The duration of work stoppages will depend on the extent, integrity, and potential significance of the encountered resource and the outcome of any consultations initiated with the SHPO.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board, SHPO

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
APM-CR-04 Procedures for Discovery of Human Remains. If human remains are discovered within the project area during construction, work within 100 feet of the remains will be suspended immediately, and PG&E and/or its representative will immediately notify the county coroner. If the remains are determined by the coroner to be Native American, the Native American Heritage Commission (NAHC) will be notified within 24 hours, and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. PG&E and/or its representative will conduct a field investigation of the specific site and consult with the Most Likely Descendant identified by the NAHC. PG&E, or its appointed representative, will implement any measures as needed prior to the resumption of activities at the site where the remains were discovered.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board, NAHC
Hazards and Hazardous Materials						
APM-HH-01 Hazardous Materials Management. To minimize the potential for release of hazardous materials and risk of upset, PG&E will use standard operating procedures for storage, refueling, and maintenance of helicopters, construction vehicles and equipment during project implementation. PG&E will review these measures at the start of the project with on-site personnel, and when any new personnel are brought onto the project. The briefing will cover the availability of spill kits, procedures for reporting and cleaning up the release of hazardous materials, and protocols for handling hazardous materials on the site. PG&E will also meet all California Division of Occupational Safety and Health (Cal/OSHA) workplace safety standards to assure worker safety in the handling and use of hazardous materials.	Prior to start of work activities	During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
APM-HH-02 Hazardous Materials Storage. Fuels, solvents, lubricants and other potentially hazardous materials will be stored offsite at an existing, nearby PG&E Service Center. If hazardous materials are used on site for maintaining or repairing vehicles, spill kits will be available on site for immediate use.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
APM-HH-03 Spill Prevention and Control. As specified in the SWPPP, all motorized equipment will be inspected for leaking oil, fuels, or fluids, and repaired prior to on-site use, fueling BMPs will be specified (i.e., "housekeeping rules" as specified in the Stormwater Construction General Permit), and fueling locations will be specified in advance. At most pull sites, refueling will not take place within 100 feet of a wetland. Some pull sites could be located within 100 feet of water features (i.e., Pull Sites 2 and 12 may fall within 100 feet of water features); at these locations an impervious spill-control system and additional risk reduction BMPs will be utilized for refueling. Spill control kits will be kept on site in all PG&E construction vehicles. If a spill occurs on site, measures will be enacted immediately to contain the material, and the designated PG&E Environmental Field Specialist will be notified. As directed by the Field Specialist, the site will be cleaned, and contaminated materials will be disposed of properly.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
APM-HH-04 Air Transit Coordination. PG&E will follow these protocols in regard to air traffic.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
1. PG&E will comply with all Federal Aviation Administration (FAA) regulations regarding air traffic.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
2. *APM-HH-04 AirTransit Coordination (cont.)* A Lift Plan will be prepared for review by the FAA prior to all helicopter construction operations if required. The Lift Plan will address coordination of take offs and landings with Byron Airport as well as with residents, and local land owners. The plan will include protocols for communications with landing sites and coordination with other aircraft uses in the vicinity of the worksites.	Prior to start of work activities	During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
APM-HH-05 Evacuation Route Planning. Emergency preparedness and an evacuation route to be used during emergency situations will be described in a Health and Safety Plan prepared by PG&E. In addition, PG&E will follow the protocols below to ensure proper response to any emergency response or evacuation plan. Vehicles used for this project will be positioned to avoid blocking any roadways that might impair the emergency response or the implementation of any evacuation plans. If a PG&E vehicle must be parked on a roadway, a clear path will be maintained to facilitate traffic movement around the vehicle, as specified in encroachment and transportation permits for work on state and local roadways.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
APM-HH-06 Risk of Wildfire. During the fire season, PG&E crew chief(s), before the start of work each day, will check fire hazard levels at work sites and will take proper precautions to minimize the chance of accidental fires. At times of "moderate" or higher fire hazard, PG&E will implement the following measures in areas of potential fire hazard:		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
1. Water supplies and fire-fighting equipment will be sited in the proposed project area, or in vehicles present at the project site, and will be available for fire protection during the fire season.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

		Implementation Duration		Monitoring Duration		Responsibility[2]	
	Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
2.	*APM-HH-06 Risk of Wildfire (cont.)* PG&E will ensure that vehicles and equipment primarily use existing roads to access work sites, and park away from dry vegetation.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
3.	PG&E will prohibit trash burning and smoking on the project site at all times.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
4.	PG&E will, as part of the emergency response plan, ensure that work crews are trained in accurate reporting of locations when reporting any wild fire.		During construction		During construction	PG&E	PG&E reporting to State Water Board
5.	All welding, metal cutting, or other activities that may generate sources of ignition will be conducted in a manner that prevents ignition of surrounding vegetation. In addition to fire suppression equipment on site, adequate fire extinguishers will be immediately at hand during such activities.		During construction		During construction	PG&E	PG&E reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
Hydrology and Water Quality Possible impacts to soil resources and contamination could be encountered during project- related storm-water usage activities.						
APM-HWQ-01 Storm Water Pollution Prevention Plan (SWPPP). Prior to the start of project construction, PG&E shall file with the State Water Board notice of intention to use the General Permit for Storm Water Discharges Associated with Construction Activity. As required by this permit, PG&E will prepare and implement a SWPPP. The SWPPP will address site-specific controls for addressing storm water pollution. The SWPPP will address erosion and transport of sediments, stabilization of disturbed soils, dust suppression, spill prevention and containment of hazardous materials, and groundwater management with BMPs summarized below.	Prior to start of work activities				PG&E	PG&E, reporting to State Water Board
1. Erosion from project-disturbed areas will be controlled by appropriate installation/application of BMPs to trap and stabilize sediment, including installation and maintenance of silt fences, wattles, straw bales, berms, fiber filtration tubes, sand/gravel bags, gravel, and other structures or materials. Additionally, tracking controls will be implemented to control soil movement onto public roadways.	Prior to start of work activities	During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
2. Areas of disturbed soils will be stabilized following construction with the reestablishment of vegetation similar to pre-project conditions. Vegetation will be established as appropriate for on-site conditions with hydro-seeding, application of straw mulch and/or hand seeding (Revegetation Plan attached as Appendix I of the IS/MND).	At completion of work activities	During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
3. Dust will be abated on site with applications of water (via water truck), stockpile covers, and management of soil tracked on to project roadways. Dirt that is tracked out onto a paved roadway will be removed.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
4. Vehicle maintenance will as much as is practicable be conducted off site at appropriate maintenance facilities. When equipment cannot be moved off site for maintenance, the use of hazardous materials will occur only in areas designated for such materials use (away from sensitive resources), and be performed only when materials for spill cleanup are on site. Procedures to ensure that accidental spills are contained and removed from the site will be followed if any such events occur.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
5. PG&E will specify self-contained washout for all concrete trucks delivering concrete to the site. Wash water will be removed from the project area and recycled by the concrete provider in concrete mixing. If self-contained washout is not possible, PG&E will establish washout stations in areas that are well removed from sensitive resources.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
Noise Possible impacts to sensitive receptors in the vicinity of project activities.						
APM-NOI-01 Limited Operations. Noise-generating project activities will be restricted to the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except as necessary for health and safety purposes to reestablish electrical service, to address emergency situations, or accommodate outage schedules.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
APM-NOI-02 Idling Restrictions. Commercial vehicles over 26,000 pounds and all off road equipment rated over 70 horsepower will be limited to idling for five minutes (Section 2485 of Title 13 of the California Code of Regulations) (CARB 2009). Moreover, in accordance with APM-AQ-02, attempts will be made to further reduce idling times through application of a "common sense" approach to use of these vehicles.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
APM-NOI-03 Equipment. All internal combustion engine-driven equipment will be equipped with intake and exhaust mufflers, which are in good condition and appropriate for the equipment.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
1. All stationary noise-generating construction equipment, such as air compressors and portable power generators, will be located as far as practical from existing noise-sensitive receptors.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
2. Where feasible, "quiet" air compressors and other stationary noise sources will be used.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
APM-NOI-04 Temporary Barriers. Temporary barriers will be used where feasible to screen stationary noise-generating equipment when located in areas adjoining noise-sensitive land uses. Temporary barriers can include vehicles or temporary structures placed between the noise-generating equipment and the sensitive land use.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
APM-NOI-05 Construction Traffic. To avoid and reduce construction traffic in residential areas, all construction traffic to and from project sites will be routed via existing designated truck routes. Project construction-related heavy truck traffic will be limited in residential areas where practicable. Project construction truck traffic will be prohibited in designated areas (e.g., residential neighborhoods) during non-allowed hours.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
APM-NOI-06 Noise Disturbance. PG&E will comply with local noise limit standards.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
APM-UPS-01 Underground Service Alert (USA). PG&E will ensure that the Underground Service Alert (USA) is notified at least 14 days prior to initiation of ground disturbing construction activities. Underground Service Alert verifies the location of all existing underground facilities and alerts other utilities to mark their facilities in the area of anticipated construction activities. Underground utilities will be avoided during construction. Prior to construction, other PG&E facilities (e.g., gas lines) will be identified to ensure there is no construction conflict with the facilities.	Prior to start of work activities (at least 14 days prior to ground disturbing construction)	During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
Transportation / Traffic	Possible impacts to transportation and traffic in the vicinity of project activities.					
APM-TRA-01 Temporary Traffic Controls. Caltrans' Construction Manual requires temporary traffic control planning "any time the normal function of a roadway is suspended" (Caltrans 2001). To prevent excessive congestion or traffic hazards during lane closures, PG&E will develop traffic diversion plans in compliance with Caltrans' guidelines and city and county policies for all locations of potential lane closures or width reductions prior to project construction. Construction activities in, along, and crossing local roadways will follow Caltrans' Best Management Practices to minimize impacts to traffic and transportation in the project area, as detailed in Caltrans manuals for traffic control (Caltrans 2003, 2004, 2006, and 2007). Prior to construction, PG&E will obtain all necessary transportation and/or encroachment permits from local jurisdictions and Caltrans, including those for the State Route 4 and Interstate 580 crossings and transport of oversized loads and certain materials.	Prior to start of work activities	During Construction		During Construction	PG&E	PG&E, reporting to State Water Board
APM-TRA-02 Traffic and Parking Coordination. PG&E will post signs about lane closures as directed by Caltrans permits, and any county permits.		During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

TABLE A-2
MMRP Summary
PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project

	Implementation Duration		Monitoring Duration		Responsibility[2]	
Measure	**One-Time**	**Ongoing**	**One-Time**	**Ongoing**	**Implement-ation**	**Monitoring**
APM-TRA-03 Traffic Management Plan. PG&E, or its designated representative, will prepare a construction Traffic Management Plan (TMP) that addresses timing of heavy equipment and building material deliveries, signing, lighting, traffic control device placement, guard structures, on-site and off-site parking and staging, construction worker pedestrian public roadway crossing, and establishing work hours outside of peak traffic periods where feasible. Emergency service providers will be notified of the timing, location, and duration of construction activities.	Prior to start of work activities	During Construction		During Construction	PG&E	PG&E, reporting to State Water Board

Notes:

[1] PG&E applicant proposed measures (APM's) are standard operating procedures included as part of the project description.

[2] PG&E will delegate responsibility to authorized representative.
State Water Board = State Water Resources Control Board
GHG = greenhouse gases
CO_2 = carbon dioxide
mph = miles per hour
USFWS = United States Fish and Wildlife Service
Corps = United States Army Corps of Engineers
CDFG = California Department of Fish and Game
SHPO = State Historic Preservation Officer
NAHC = Native American Heritage Commission

Appendix I
Revegetation Plan

Introduction

The following is a restoration plan for ground disturbing impacts resulting from the PG&E Pittsburg-Tesla 230kV Transmission Line Reconductoring Project in Contra Costa and Alameda counties, California. This project requires that disturbed areas be recontoured and restored after construction activities are completed.

This plan presents a general description of initial conditions on site, and a brief overview of what types of disturbance may be expected. The plan also provides criteria to determine when revegetation measures will be implemented, and various measures that will be undertaken to revegetate areas when warranted. In addition, this plan provides guidelines for determining successful restoration.

Project Overview

PG&E proposes to modify approximately 43 of 147 existing steel lattice towers. All tower modifications are above ground and no foundation improvements will be required. The work performed at the towers will be conducted by helicopter. Seven previously disturbed agricultural and/or industrial sites will be used for helicopter landing and staging.

Ground access to replace wire (reconductor) will take place at limited areas along the existing rights-of-way. The project proposes to use 12 areas under the line as pull sites. A number of temporary guard structures will be installed under the wire (conductor) when pulling it into place; these guard structures are generally located along roadsides, around railroad tracks, and over smaller power line crossings.

The entire subject line is approximately 31 miles long. Work is scheduled to begin construction in September 2012, with an estimated duration of approximately 19 months, completing in May 2014. Individual sites are expected to be disturbed for short periods within this timeframe (usually a few weeks to a month each), as construction moves from one end of the line to the other.

Site Conditions

Pull Site 1 (P-1) is located within the boundaries of an industrial area/substation. Portions of P-10 are located in an abandoned golf course. The remainder of the pull sites are located in non-native grassland settings. The guard structures are either located in industrial/developed areas, ruderal roadside areas, or in non-native grassland.

Typical grass species in the non-native grassland are slender wild oat (*Avena barbata*), Italian ryegrass (*Lolium multiflorum*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), hare barley (*Hordeum murinum* ssp. *leporinum*), and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*). Weedy non-native annual and perennial forbs in this habitat include summer mustard (*Hirshfeldia incana*), yellow star-thistle (*Centaurea solstitialis*), black mustard (*Brassica nigra*), rapeseed mustard (*Brassica rapus*), rose clover (*Trifolium hirtum*), wild fennel (*Foeniculum vulgare*), curly dock (*Rumex crispus*), milk thistle (*Silybum marianum*), broadleaf filaree (*Erodium botrys*), and bur-clover (*Medicago polymorpha*). The composition of the grassland varies greatly. While many sites are almost entirely dominated by these non-native and/or weedy species, some sites contain high concentrations of native herbaceous plant species such as Heermann's tarplant (*Holocarpha heermannii*), gumplant (*Grindelia* sp.), and fiddleneck (*Amsinckia* spp.).

Potential Sources of Project Disturbance

Ground disturbance is not expected to take place at any tower locations. All tower work is being performed by helicopter. Similarly, helicopter landing zones were all chosen in previously disturbed areas, and are expected to need little to any restoration after project activities are completed.

The guard structures consist of temporary sets of poles placed in the ground at key locations. Installing these guard structures will involve auguring approximately 18 to 24 inch holes. These areas will experience minor ground disturbance.

At some pull sites, a small amount of grading may be necessary to achieve a level surface (most likely P-2 and P-8, and associated landing zones, and P-6 and P-10 [maximum 8.409 acres]). At P-2, P-4, P-5, P-6, P-7, and P-11, short temporary overland access routes will be established. Disturbance will be caused from trucks and equipment driving to and working within the pull sites. Temporary placement of construction mats or gravel on muddy ground may also occur. These activities may temporarily denude local areas of herbaceous vegetation. No woody vegetation or trees are expected to be removed as a result of project activities. Denuded areas are expected to be irregularly shaped, reflecting the driving patterns of vehicles. Few to no large, wide, contiguous, denuded areas are expected as a result of project activities.

Documenting Pre-construction Condition

Prior to commencement of construction activities, and as part of the pre-construction surveys, biologists will photo-document the condition of all work areas where disturbance is expected (pull sites, new temporary access, and guard structures). An estimate of absolute herbaceous ground cover at each location will also be recorded. These pre-construction photographs and measurements will serve as the benchmark for determining 1) need for revegetation at the end of project construction, and 2) revegetation success after restoration efforts have been implemented.

Restoration Activities

Some restoration activities can be accomplished by using native materials and best management practices (BMPs) built into the construction methods. When installing temporary guard structures, the initial 10-12 inches of topsoil will be stored separately from the rest of the spoil. When the guard structures are removed, this topsoil will be used to recontour the surface of the filled holes. The seed in this topsoil is expected to be enough to revegetate the relatively small patches of disturbed ground left by this process (~18-24 inch diameter holes).

Active revegetation will be considered for areas that have been denuded more than 50 percent of their original cover, as compared to pre-construction photographs and measurements. In addition, very small areas (up to 25 square feet) of bare ground may be left to revegetate on their own if the area around them is well-vegetated and provides a local seed source, and if no noxious weed populations are present.

Initial revegetation activities will typically take place in the fall and early winter after activities at individual work areas are completed. This timing will reduce or eliminate the need for artificial irrigation by relying on natural winter rainfall.

Many disturbed areas are expected to be small, and vegetation will be only partially removed. Therefore, active revegetation is expected to be relatively small scale. Small

disturbed areas (up to 400 square feet) will be hand-seeded. Clean straw mulch will be applied and stabilized (e.g., crimped or tackified) at these locations (see Appendix J of the IS/MND).

A few areas of disturbance greater than 400 square feet are expected. These include new temporary access routes, and any graded areas. More intense revegetation efforts are expected at these locations. Any graded work areas will be recontoured to approximate pre-construction topography. Then these areas are expected to be hydroseeded and hydromulched (which may occur as a single application of material). Fertilizer will not be used at any sites where runoff may deliver the fertilizer to drainages or water bodies (P-2 and P-12).

Disturbance areas greater than 400 square feet will be documented and mapped, and revegetation efforts implemented at those sites will be provided in mitigation and monitoring reports as described in the Project MMRP.

The seed mix used for the project area will be certified weed-free. Natives and non-invasive non-natives will be emphasized.

Not all disturbed areas will require reseeding. Seed mixes will be formulated and presented to interested agencies (State Water Board, CDFG, USFWS) for approval when disturbed areas are determined to require reseeding. Specified seed mixes are expected to contain native perennial grass(es), native annual grass(es), non-native non-invasive annual grass(es), and legume(s). Some native wildflowers may also be included. In addition, a sterile wheatgrass such as Regreen sterile wheatgrass (*Elymus x triticum*) may be optionally used to achieve quick cover the first year, especially if revegetation is needed on steeper ground.

Most project work areas are located on relatively level ground, without steep slopes; vegetation around sites will be preserved to the greatest extent practicable. Therefore, soil movement as a result of vegetation loss is expected to be insignificant. However, if any long-term or permanent erosion control installations are warranted, these will include only biodegradable materials. All materials (seed, mulch, etc.) used during the installation will be certified weed-free (refer to Appendix J of the IS/MND).

Revegetation Success and Reporting

Restored areas will be monitored regularly per the project SWPPP requirements. Any disturbed areas that do not quickly gain vegetative cover may be reseeded and/or re-mulched on an as-needed basis. Any new occurrences of noxious weeds will be treated on an as-needed basis (see Appendix J of the IS/MND).

Revegetation efforts will be considered successful when 1) the area is stable (i.e., no sedimentation or erosion), and 2) when the vegetation cover has reached 70 percent of the original site cover, as compared to pre-construction photographs and records.

Report(s) documenting restoration actions, current conditions, and pre- and post-construction photographs of sites, will be presented to the State Water Board. The reports will be presented yearly, starting in 2012, to document restoration efforts at sites each year. Areas are expected to be considered successful within three years after construction activities are completed.

Appendix J
Invasive Vegetation Management Plan

The following measures have been developed for reducing the risk of introducing and spreading noxious weeds for PG&E's Pittsburg-Tesla 230kV Reconductoring Project. For the purposes of this plan, "noxious weeds" refers to plants listed by the California Department of Food and Agriculture (CDFA) as A or Q (see current CDFA website), and or any weeds that are being actively treated by Contra Costa and Alameda counties (Table J-1).

1. **Identification of Infested Areas –** Prior to construction, any pre-construction surveys at project work areas will include surveys for noxious weeds. Any noxious weeds located will be marked on project maps. Noxious weed occurrences will be reported to the appropriate county agricultural department (Alameda County or Contra Costa County).

2. **Education and Training—** Noxious weed avoidance and control measures will be included in the pre-construction environmental tailboard.

3. **Avoid Work in Weed Areas -** Noxious weed populations and the immediate areas around them will be avoided for staging and construction activities to the extent practicable. If avoidance is not feasible, pre-construction removal or other treatments will be implemented to avoid or minimize reduce the risk of weed spread.

4. **Road Travel—**All vehicles will be kept on roads to the extent practicable (to safely complete work) in order to limit the spread of weed seeds. Parking will occur on pavement, gravel, or similarly disturbed areas to the extent practicable.

5. **Clean Equipment Before/Clean After (Project- and Work Area-specific)—** Off-road equipment will be clean of mud, soil, and plant parts prior to being brought to the project. Equipment moved from areas of known noxious weeds will be cleaned prior to being moved to another site not in the immediate vicinity. On-road equipment (eg., rubber tired pickups or passenger vehicles) will not be subject to the same cleaning requirements as off-road equipment. However, on-road equipment will be cleaned prior to departure from areas that have known noxious weed populations if those vehicles have operated off of uncontaminated and unvegetated surfaces.

6. **Minimize Disturbance -** The disturbance of ground, and removal of vegetation, within the work area shall not exceed the minimum necessary to complete operations, subject to other public and health and safety directives governing the safe operation and maintenance of electric facilities.

7. **Use Weed-free Materials (e.g., gravel, straw, and fill)—** On-site fill material will be used to the extent practicable. If off-site fill materials are brought onto a work area they must be free of weeds and weed seed (eg. clean rock to place around guard structure poles or on access routes). Gravel and fill should come from weed-free sources.

Straw, straw wattles, mulch, or other erosion control materials brought on site will be certified weed-free.

8. **Revegetation/Seeding with native or non-invasive plants—**If any local restoration is needed, the seed and other materials used will be weed-free (see Appendix I of the IS/MND). The seed mix will preferentially include locally appropriate native species, if available, or non-invasive non-natives if natives are unavailable.

Revegetated areas will be evaluated for plant coverage and soil stability as part of the project SWPPP. The presence of noxious weeds will also be assessed as part of this evaluation. If noxious weeds are found, they will be treated appropriately.

Table J-1. Noxious Weed Species Treated by Alameda and Contra Costa Counties

Common Name	Scientific Name	CDFA Weed Rating
Kangaroothorn	*Acacia paradoxa*	B
Russian knapweed	*Acroptilon repens*	B
Barbed goatgrass	*Aegilops triuncialis*	B
Hoary cress	*Cardaria draba*	B
Smooth distaff thistle	*Carthamus baeticus*	B
Purple starthistle	*Centaurea calcitrapa*	B
Pampas grass	*Coraderia selloana*	No rating
Japanese dodder	*Cuscuta japonica*	A
Artichoke thistle	*Cynara cardunculus*	B
Oblong spurge	*Euphorbia elongata*	B
Perennial pepperweed	*Lepidium latifolium*	B
Purple loosestrife	*Lythrum salicaria*	B
Red sesbania	*Sesbania punicea*	B
White horsenettle	*Solanum elaeagnifolium*	B
Medusa-head	*Taeniatherum caput-medusae*	C

List from Contra Costa County Agricultural Commissioner's Office 2009. Weed ratings from CDFA 2011.

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Contra Costa County Agricultural Commissioner's Office. 2009. Noxious Weed Control and Eradication Projects in Contra Costa County, Alameda/Contra Costa Weed Management Area. Concord, California.

Appendix K
California Tiger Salamander Habitat Assessment

Garcia and Associates
2601 Mission Street, Suite 600
San Francisco, CA 94110
Phone: (415) 642-8969
Fax: (415) 642-8967

To: Laura Burkholder, PG&E

From: Kevin Wiseman

Date: March 27, 2012

RE: Pittsburg-Tesla Reconductoring Project Pull Site Assessment for California Tiger Salamander

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Garcia and Associates (GANDA) was contracted to conduct an assessment for federal and State threatened California tiger salamander (*Ambystoma californiense*; CTS) upland habitat within proposed pull sites (PS) for Pacific Gas and Electric Company's Pittsburg-Tesla 230 kV Reconductoring Project in Contra Costa and Alameda Counties, California. This memorandum summarizes the methods and results of this assessment and includes aerial figures of the proposed pull sites in relation to known CTS occurrences and habitat photos (Figures 1-21).

Methods

This assessment was conducted initially with a desktop review, followed by site visits to pull sites 2-12, and associated landing zones [LZ] and undeveloped access routes, on February 27-28, 2012. Kmz files for the proposed pull site locations were assessed in conjunction with kmz files obtained from the California Natural Diversity Database (CNDDB) for records of CTS and California red-legged frog (*Rana draytonii*; CRLF) using GoogleEarth®. California red-legged frog records were included in the assessment because the two amphibian species often utilize the same aquatic habitats for breeding. Linear measurements were approximated using the measurement tool in GoogleEarth®, taken from the outside of the pull site boundary to the nearest portion of habitat for that particular CNDDB record. Records were reviewed in order to determine if they were observations of CTS breeding (larvae) or upland observations (juveniles or adults). The nearest potential breeding habitat to each particular pull site was identified using aerial imagery from GoogleEarth® and distance measured using the measurement tool; potential breeding habitats were not verified on the ground. During site visits, pull sites were inspected for the presence of mammal burrows (*Thomomys* or *Spermophilus*), which are used by CTS during the non-breeding season for underground refugia (Shaffer and

Trenham 2005). Pull sites that were located in preferred CTS habitat (i.e., grasslands) and contained suitable mammal burrows were considered to be located within suitable upland habitat for CTS.

Recorded dispersal distances for adult and juvenile CTS moving to and from breeding habitats vary between studies—Trenham and Shaffer (2005) reported that subadults dispersed up to 620 m (0.38 mi) and adults up to 630 m (0.39 mi) from breeding habitat; Shaffer and Fisher (1991) reported that adult CTS migrations may exceed 1 km (0.62 mi), while Orloff (2011) reported that the majority of CTS from a pitfall trapping study had migrated up to 840 m (0.52 mi) and several individuals were estimated to have moved up to 2.2 km (1.4 mi). For this assessment, we considered pull sites within 2.0 km (1.2 mi) of known CTS breeding habitats (based upon CNDDB records) within suitable habitat to be within dispersal distance for the species. This 2.0 km distance is based on the United States Fish and Wildlife Service's *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (2003).

Results

Based upon the desktop review and site visits, the following pull sites (PS) were identified as occurring in suitable upland habitat within dispersal distance of known CTS breeding habitats: PS-2, PS-4, PS-6, PS-7, PS-9, and PS-10 (Table 1).

Pull sites PS-5 and PS-11 are located within suitable upland habitat for CTS, but are located greater than 2.0 km from the nearest known breeding habitat (Table 1).

Pull sites PS-3, PS-8, and PS-12 were not considered suitable upland habitat for CTS, assuming that work crews remain on existing paved or well-maintained gravel roads and do not utilize any areas outside (i.e., shoulders of roads) of these established areas (Table 1). Pull site 1 is located within the existing Pittsburg Substation, in disturbed habitat that was historically tidal salt marsh, which is not considered suitable CTS habitat.

Table 1. Proposed pull sites (1-12) for the Pittsburg-Tesla Reconductoring Project in Relation to CTS and CRLF Breeding Habitat and CNDDB Records. (Occurrence numbers for CNDDB records are listed in parentheses.)

Pull Site (PS)	Pull Site in Upland CTS Habitat?	Distance to nearest known CTS breeding habitat	Distance to nearest potential CTS and/or CRLF breeding habitat	Distance to nearest CNDDB CRLF record	Comments
PS-1 and LZ	No	5,056 m = 3.1 mi (EO 48752)	2,132 m= 1.3 mi	4,472 m= 2.8 mi (EO 33689)	Located in disturbed area that historically was tidal salt marsh (not CTS or CRLF habitat)
PS-2, LZ, and access	Yes	1,435 m = 0.9 mi (EO 48752)	80 m = 262 ft	1,429 m = 0.9 mi (EO 33869)	Within known dispersal distance for CTS from breeding pond; however, general lack of burrows within pull sites except for small patch of gopher burrows at northern end of northern PS
PS-3 and LZ	No	2,498 m = 1.5 mi (EO 4061)	350 m = 0.2 mi	1,680 m = 1.0 mi (EO 1571)	Pull crews will remain within paved road as practicable; LZ in compact gravel yard. Pull Site not within dispersal distance of nearest known CTS breeding pond; shoulders of paved road contain suitable upland habitat
PS-4 and access	Yes	940 m = 0.6 mi (EO 47773)	460 m = 0.3 mi	1,930 m 1.2 mi (EO 75682)	Abundant ground squirrel burrows here; three additional known CTS breeding ponds within 1.8 km (1.1 mi)

Pull Site (PS)	Pull Site in Upland CTS Habitat?	Distance to nearest known CTS breeding habitat	Distance to nearest potential CTS and/or CRLF breeding habitat	Distance to nearest CNDDB CRLF record	Comments
PS-5, LZ and access	Yes	2,155 m = 1.3 mi (EO 47773) 2,480 (EO 63053)	840 m = 0.5 mi	1,576 m = 1.0 mi (EO 75682)	Not within dispersal distance for CTS from nearest known breeding site; however, suitable upland habitat is present and is within dispersal distance of potential breeding habitat
PS-6, LZ, and access	PS-6 and adjacent "track" access = Yes LZ and "road" access = No	540 m = 0.3 mi (EO 41850)	540 m = 0.3 mi	3,100 m = 1.9 mi (EO 48703)	Within 1.4 km (0.9 mi) of the pull site, five known breeding ponds for CTS occur; the pull site is within the known dispersal distance. Developed portion of road and LZ do not have suitable habitat
PS-7	Yes	1,640 m = 1.0 mi (EO 41857)	100 m = 328 ft Kellogg Creek	100 m = 328 ft (EO 6956)	Within dispersal distance for CTS from nearest known breeding site; suitable upland habitat present
PS-8	PS- 8 = No (see comments) LZ = yes (adjacent grassland)	390 m = 0.2 mi (EO 59123)	265 m = 0.2 mi	390 m = 0.2 mi (EO 75009)	If pull crews remain on well-maintained gravel road and disturbed flat area associated with transformer station, the pull site is not within suitable upland habitat; outside of this area suitable upland habitat is present (LZ)

Pull Site (PS)	Pull Site in Upland CTS Habitat?	Distance to nearest known CTS breeding habitat	Distance to nearest potential CTS and/or CRLF breeding habitat	Distance to nearest CNDDB CRLF record	Comments
PS-9	Yes	2,051 m = 1.3 mi (EO 26498)	578 m = 0.3 mi	700 m = 0.4 mi (EO 35064)	Although this pull site is farther than 2 km (1.2 mi) from nearest known breeding habitat, there are numerous adult observations near the pull site; an adult CTS observed approx. 155 m (508 ft) from pull site #9 in 1982 (EO 21936). Another adult CTS observed 1200 m (0.7 mi) to the west of pull site (EO 68320)
PS-10 and LZ	PS-10 = Yes LZ = no (asphalt lot)	375 m = 0.2 mi (EO 53683)	375 m = 0.2 mi	60 m = (197 ft) (EO 74008)	PS-10 within dispersal distance for CTS from nearest known breeding site; suitable upland habitat present. LZ located on asphalt parking lot; not suitable habitat
PS-11	Yes	3,800 m = 2.4 mi (EO 19237)	640 m = 0.4 mi	2,814 m = 1.7 mi (EO 61562)	Not within dispersal distance of nearest known CTS breeding pond, however the pull site contains suitable upland habitat and there is potential CTS breeding habitat (seasonal swale) located 640 m to the southeast.

Pull Site (PS)	Pull Site in Upland CTS Habitat?	Distance to nearest known CTS breeding habitat	Distance to nearest potential CTS and/or CRLF breeding habitat	Distance to nearest CNDDB CRLF record	Comments
PS-12 and LZ	No (see comments)	4,060 m = 2.5 mi (EO 19237)	20 m = 66 ft	2,440 m = 1.5 mi (EO 61562)	Assume pull site crew and equipment will remain on paved areas and in substation; suitable CTS upland habitat is present on shoulders of County Road 2063

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Trenham, P.C., and H.B. Shaffer. 2005. Amphibian upland habitat use and its consequences for population viability. Ecological Applications 15:1158–1168.

United States Fish and Wildlife Service (USFWS) 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (October 2003).

Figure 1. Pull site 2 in relation to nearest CTS known breeding habitat (1.4 km south).

Figure 2. Southern-most area pull site 2, view north; tower 13 is at left.

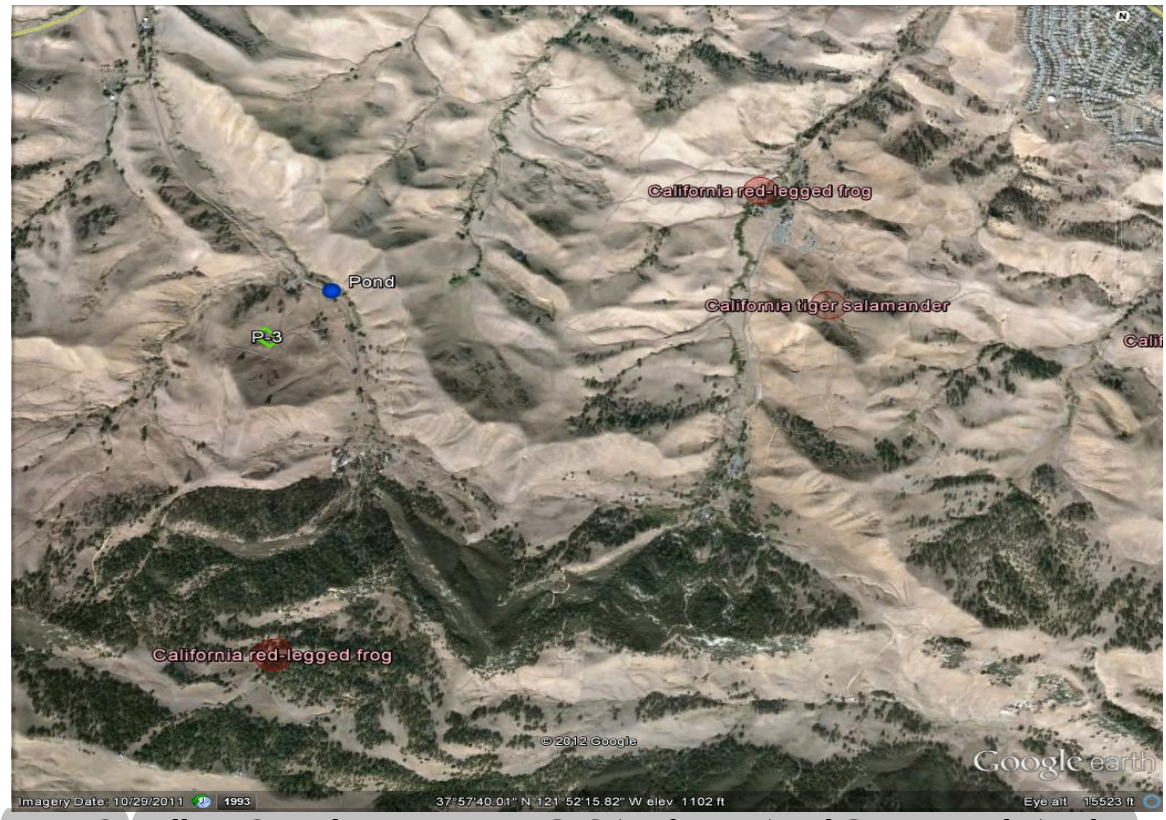

Figure 3. Pull site 3 in relation to nearest CTS (2.5 km east) and CRLF records (1.7 km south).

Figure 4. Pull site 3, located on paved road.

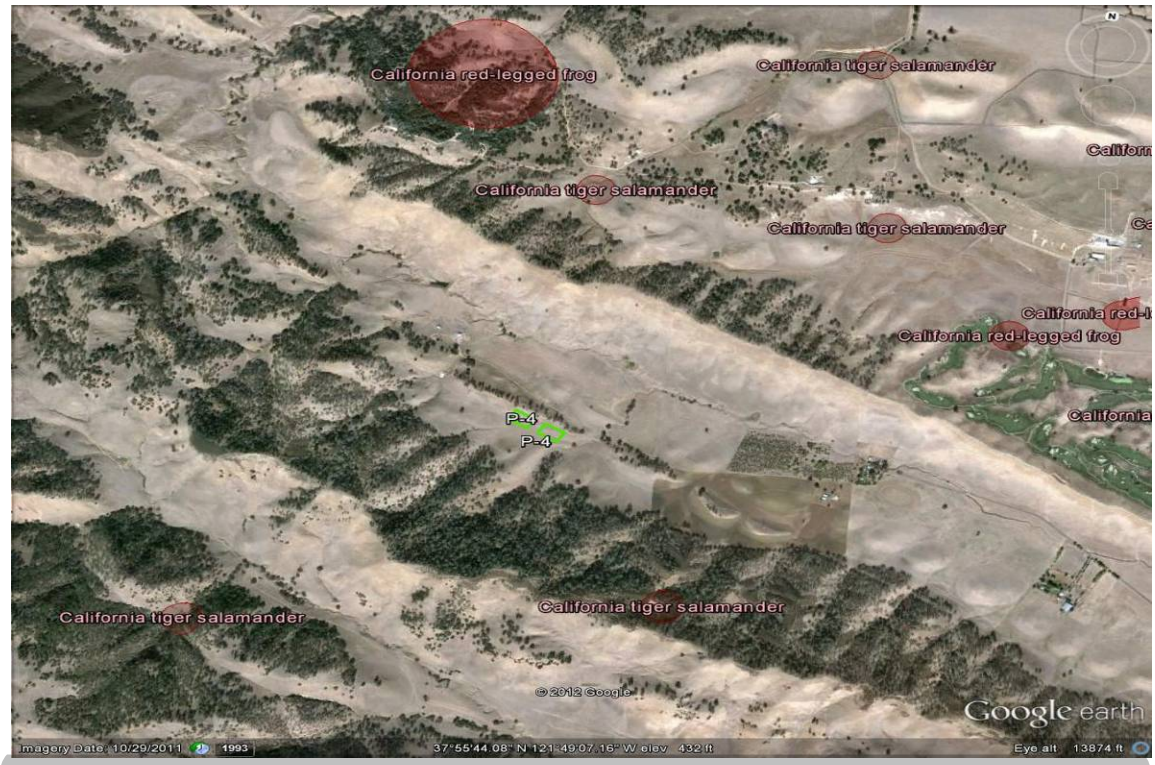

Figure 5. Pull site 4 in relation to nearest CTS (940 m southeast) and CRLF records (1.9 km north).

Figure 6. Southern end of pull site 4, view north towards tower 46.

Figure 7. Pull site 5 in relation to nearest CTS (2.2 km west) and CRLF records (1.6 km north). Pull site 4 is located in the upper left hand corner.

Figure 8. Pull site 5, view west from access road. Tower 56 is visible at left.

Figure 9. Pull site 6 in relation to nearest CTS (540 m) and CRLF records (3.1 km).

Figure 10. Pull site 6, east end of pull site, view west showing dirt access road.

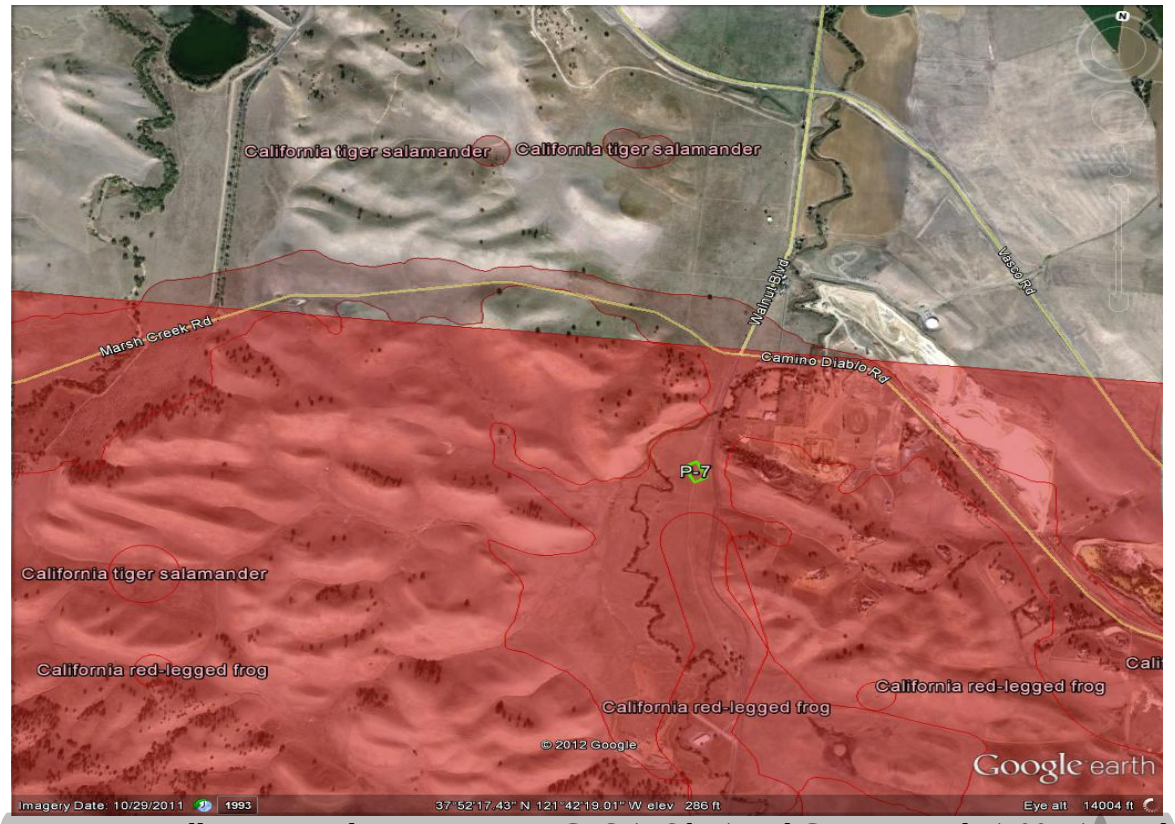

Figure 11. Pull site 7 in relation to nearest CTS (1.6 km) and CRLF records (100 m). Red background indicates a quad where specific species locations are suppressed.

Figure 12. Pull site 7, view south.

Figure 13. Pull site 8 in relation to nearest CTS and CRLF records (both located 390 m north). Red background indicates a quad where specific species locations are suppressed.

Figure 14. Pull site 8, view from access road facing east.

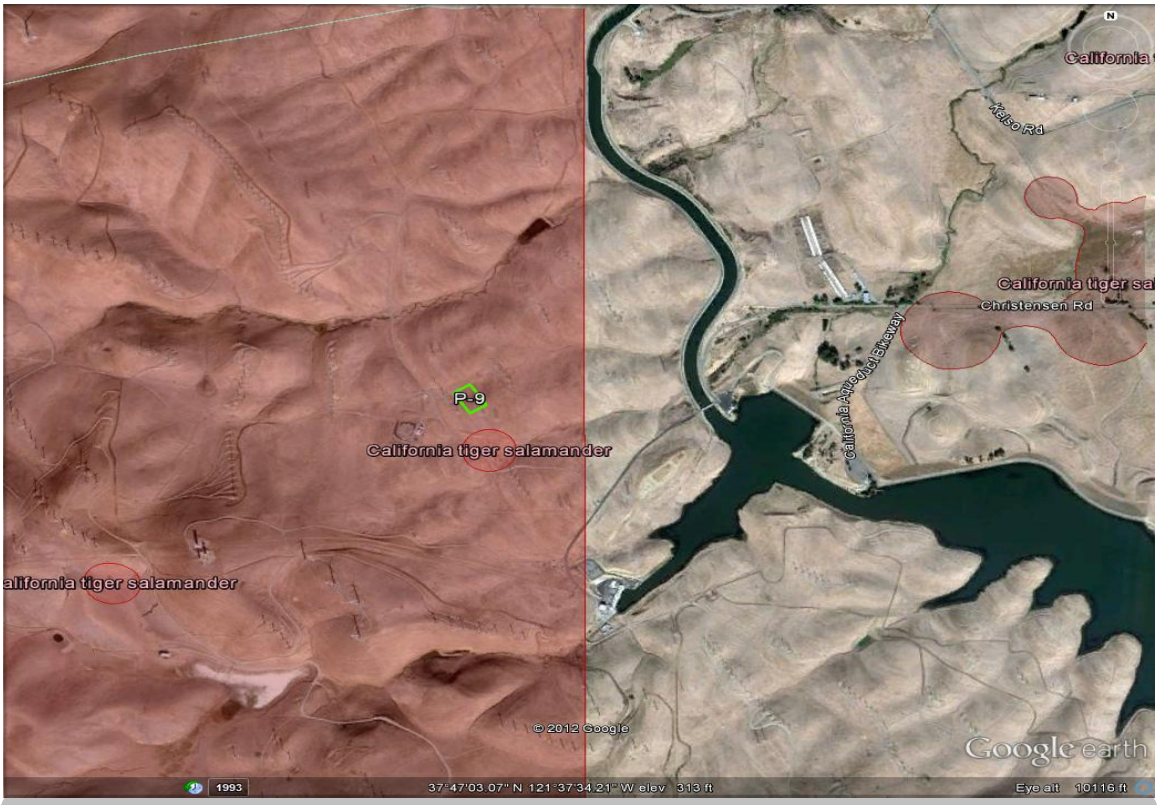

Figure 15. Pull site 9 in relation to nearest CTS (155 m south) and CRLF records (700 m east). Red background indicates a quad where specific species locations are suppressed.

Figure 16. Pull site 9, view south towards tower 110.

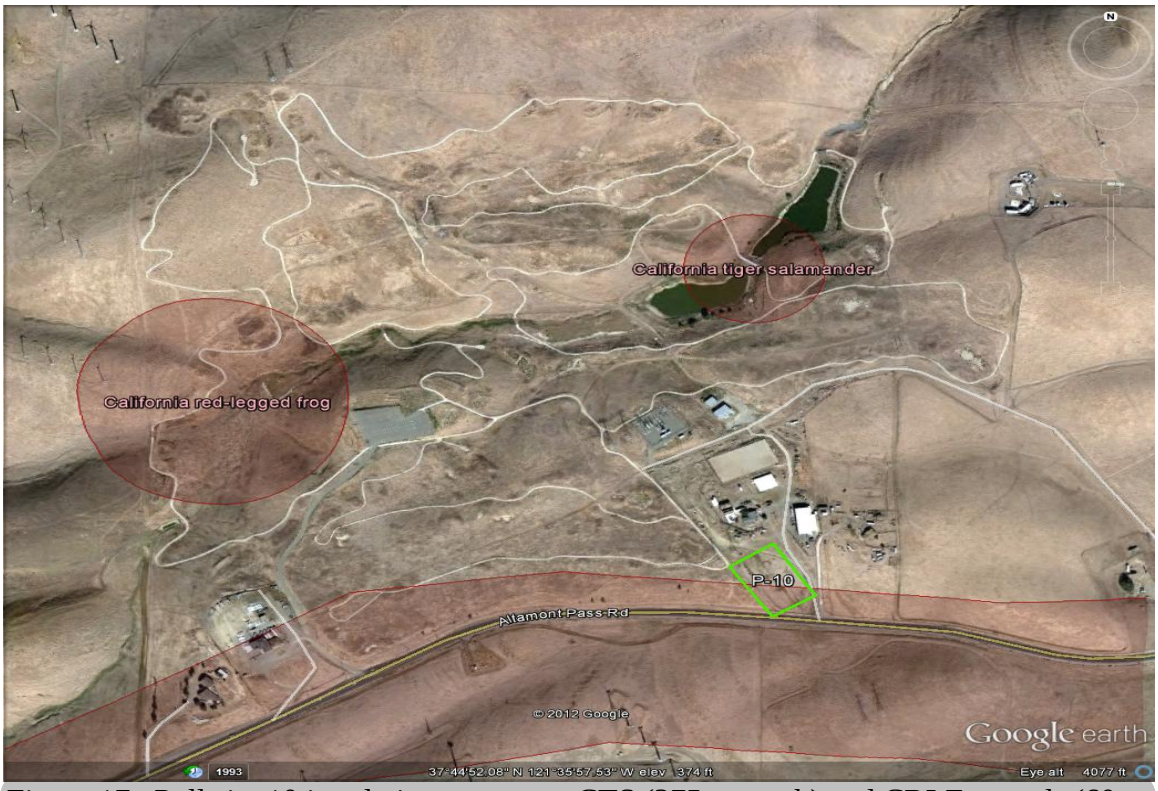

Figure 17. Pull site 10 in relation to nearest CTS (375 m north) and CRLF records (60 m south).

Figure 18. Pull site 10, view south towards Altamont Pass Road.

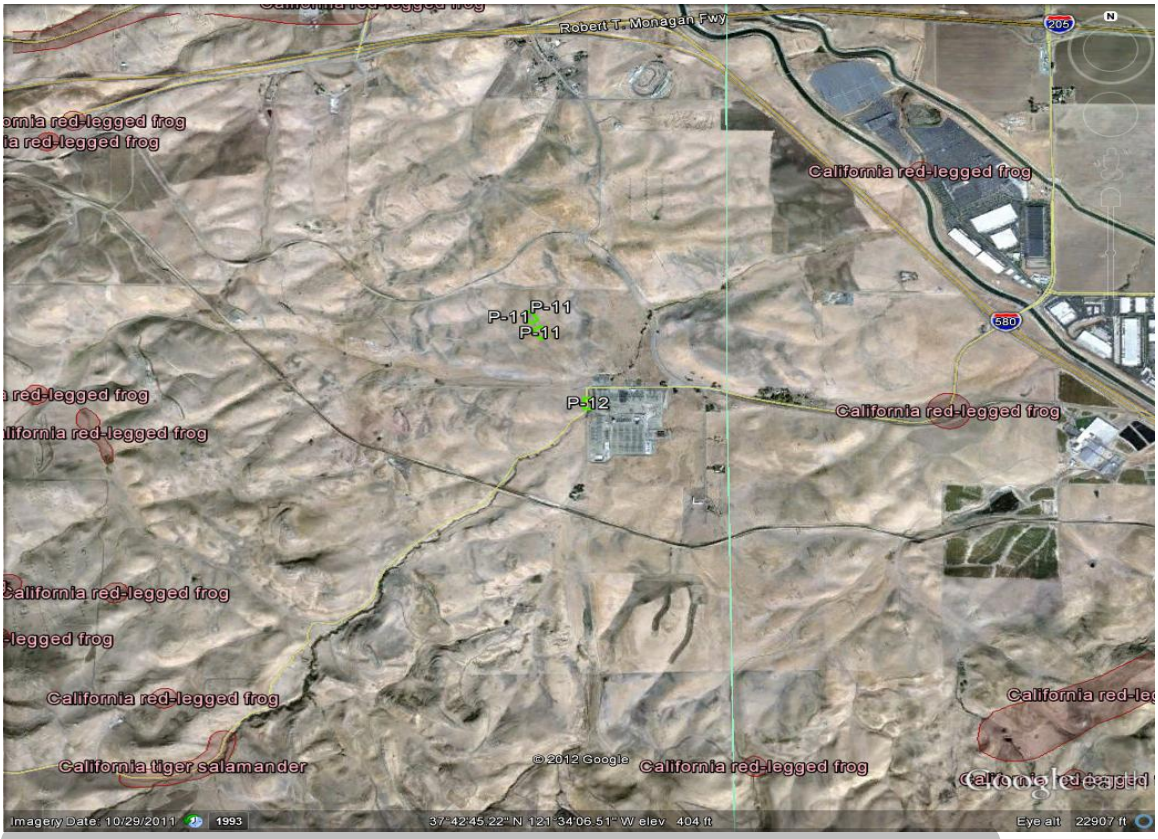

Figure 19. Pull sites 11 and 12 in relation to nearest CTS and CRLF records.

Figure 20. Southeastern portion of pull site 11, view towards the Tesla Substation.

Figure 21. Pull site 12, adjacent to the Tesla Substation, view north.

Appendix L
California Black Rail Habitat Assessment

Avocet Research Associates
P.O. Box 839, Point Reyes, CA 94956. Tele: 415/663-8032; <avocetra@gmail.com>

Memorandum

Date: March 23, 2012
To: Laura Burkholder (PG&E), Angela Yu (AECOM), Lauren Inglish (AECOM).
From: Jules Evens, Avocet Research Associates, Principal
Re: Pittsburg Tesla Black Rail Assessment

On March 22, 2012, I visited a section of the Pittsburg-Tesla 230k V Transmission Line as well as the Marsh Creek Reservoir with Laura Burkholder of PG&E (Figures 1 & 2). The purpose of our visit was to assess the habitat associated with specific transmission towers the are situated in habitat potentially occupied by the state-threatened California Black Rail, *Laterallus jamaicensis cortuniculus* (CBR).

I have extensive experience with this secretive, marsh-dependent species, having studied and having conducted protocol-level surveys for CBRs in the San Francisco Bay area for over three decades. A list my contributions to the literature on CBR habitat, distribution, and abundance is attached. Comprehensive descriptions of habitat requirements are given in Evens *et al*. 1991, and Trulio and Evens 2000.

Pittsburg-Tesla 230k V Transmission Line

A near monoculture of Common Reed (Phragmites australis) dominates the marsh plain that surrounds the boardwalk between towers 0/2 and 1/5 (Figure 3). Although this species is native to the state, the California Invasive Plant Council (Cal-IPC) classifies this species as a "native invasive" that causes serious problems in native ecosystems.[1] Another invasive that is relatively common in the same marsh is perennial pepperweed (*Lepidium latifolium*), classified by Cal-IPC as a non-native invasive with a "high" impact to native ecosystems. Habitats dominated by these species are not occupied by CBRs.

There are fairly extensive patches of the perennial halophyte, pickleweed (*Salicornia virginica* or *Sarcocornia pacifica*), in some sections of the marsh plain adjacent to tower

[1] http://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=6465

0/2 (Figure 4). This tidal marsh indicator plant has been identified as a critical component of CBR habitat in the San Francisco Bay tidal marshes (Evens *et al*. 1991, Trulio and Evens 2000, Tsao *et al*. 2009), however at this site, and in this relatively dry year, the plants not robust, the canopy they provide is rather sparse, and the pepperweed dominates the habitat (Figure 4).

Laura Burkholder provided me with a hard copy of an aerial view of the site with 300-foot lines extending out from each tower to identify an arbitrary buffer. The line from tower 0/2 extends across a channel that we inspected as potential habitat, especially for the federally endangered California Clapper Rail, *Rallus longirostris obsoletus* (CCR) (Figure 5.) This channel has some superficial habitat characteristics associated with this species, but, as is evident from aerial imagery, the channel isolated from tidal influence and therefore not suitable CCR habitat (Figure 5).

Summary of habitat conditions around each tower:

Tower 0/2: Habitat dominated by *Lipidium* and *Salicornia*. Substrate desiccated.

Tower 1/3: Habitat dominated by *Phragmites* with small patches of *Scirpus* surrounding low spots with hydrated substrate.

Tower 1/4: Dense monoculture of *Phragmites*, standing water.

Tower 1/5: Upland substrate with desiccated pickleweed patches indicating highly saline soils.

Conclusions:

In my opinion and based on my field experience, the habitat characteristics of the marsh plain in the vicinity of the Pittsburg-Tesla 230k V Transmission Line within 300 feet of the Pittsburg-Tesla 230k V Transmission Line in the vicinity of towers 0/2, 1/3, 1/4, and 1/5 does not include habitat suitable for either California Black Rail or California Clapper Rail. The pickleweed portions of the habitat (associated with tower 0/2) might provide suitable habitat in wetter years that favored more robust growth of pickleweed, but given current conditions, the presence of CBR is highly unlikely.

<u>Marsh Creek Reservoir</u>:

We visited the site for less than an hour, mid-afternoon, March 23, 2012. It is a rather large reservoir surrounded by a rather luxuriant growth of willows (and oaks?) and with extensive stands of emergent monocots around the edge of the reservoir (Figure 7). This is a freshwater system, and does not have habitat viable for either the CBR or CCR. Two

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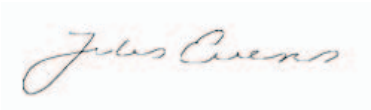
rail species—Sora and Virginia Rail—were heard on our brief visits. Both are freshwater marsh associates and would be expected to occur, and probably nest, in this habitat complex.

The towers to be visited by repair crews are about 100 meters distant from the edge of the riparian and wetland habitat surrounding the reservoir and the helicopter-landing pad is farther away (L. Burkholder, pers. comm.) Disturbance should not be a factor for any nesting birds EXCEPT possibly nesting raptors. We did see a Swainson's Hawk (*Buteo swainsoni*), listed as threatened under to California Endangered Species Act[2], during our reconnaissance visit, as well as several other large raptors (Red-shouldered Hawk (*Buteo lineatus*) and Red-tailed Hawk (*Buteo jamaicensis*). The likelihood of Swainson's Hawk nesting at the site is rather low, but the other two species are likely local nesters. Other species of raptors may nest here as well.

Conclusions and recommendation:

Prior to construction activities, a survey of the riparian vegetation surrounding the Marsh Creek Reservoir should be conducted to determine the status of potentially nesting raptors. Should a nest be located, a buffer zone should be established around the nest site (based on the noise generated by helicopter access and in consultation with California Department of Fish and Game) or access should be restricted during the nesting season.

If more information is needed, or further clarification of the results of our field visit are needed, please feel free to contact me.



Jules Evens, Principal, Avocet Research Associates.

U.S. Fish and Wildlife Endangered Species Permit: TE 786728-3
California Department of Fish and Game Collecting Permit # 801092-04
Federal Bird Marking and Salvage Permit: # 09316-AN

[2] http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf

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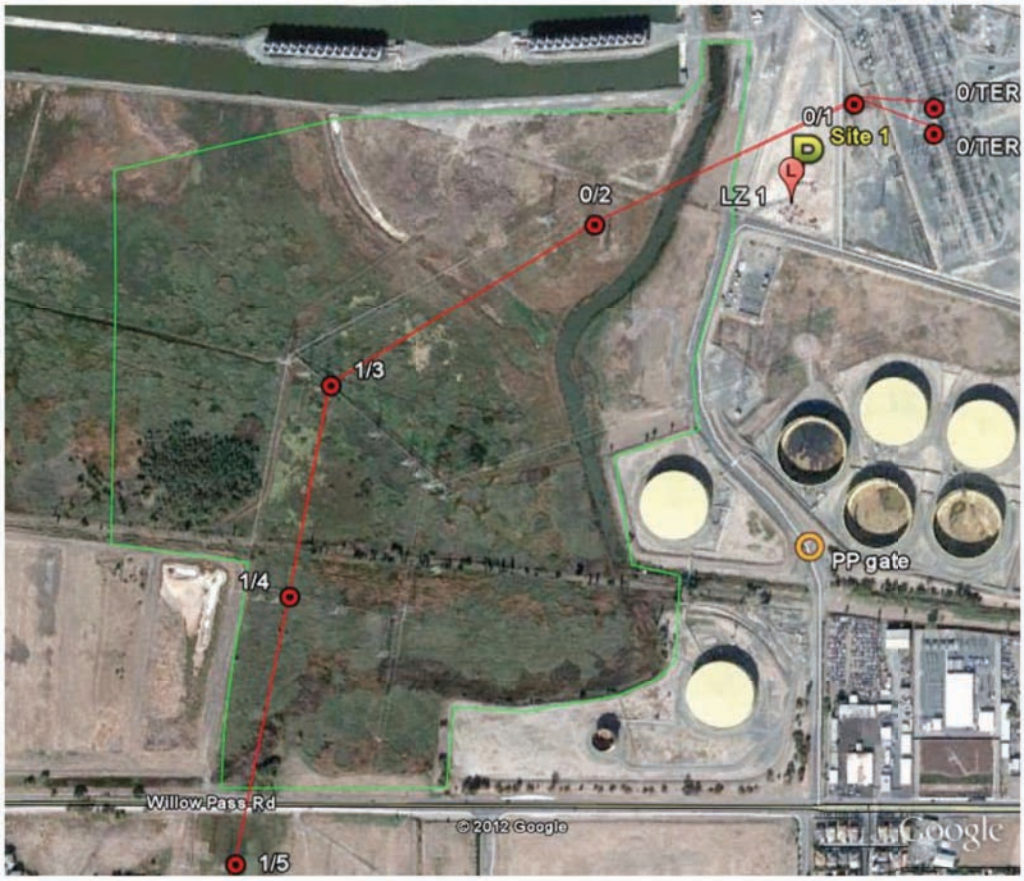

Figure 1. Locations of towers 0/2, 1/3, 1/4, and 1/5 along the Pittsburg-Tesla 230k V Transmission Line.

Figure 2. Marsh Creek Reservoir, Contra Costa County.

Figure 3. The native invasive, Common Reed (*Phragmites australis*) dominates more than 50 percent of the substrate in the vicinity of the PG&E boardwalk that extends from transmission tower 0/2 to 1/5. This view of the area is taken looking east from the boardwalk between towers 0/2 and 1/3.

Figure 4. PG&E Transmission Tower 0/2: Pepperweed (*Lepidium latifolium)* is the green plant leafing out and dominating the highly desiccated substrate. The gray vegetation is primarily pickleweed.

Figure 5. Non-tidal channel 200' east of tower 0/2. This is apparently a manmade drainage that is blocked from tidal influence at its northern terminus. We visited when the tide was low along the shoreline of Suisun Bay, yet the water level was bank-full in the channel, indicating it is fed by runoff from the surrounding terrain.

Figure 6. Habitat adjacent to the boardwalk between towers 1/4 and 1/3, looking north. Note the abundance of ruderal vegetation indicating disturbed substrate. The willow stand to the left may provide viable habitat for nesting passerines. It is midway between towers 1/3 and 1/4 and more than 300 feet from either tower.

Figure 7. Marsh Creek Reservoir, looking SW toward Mount Diablo. The willow thicket and associated emergent monocots provide nesting and foraging habitat for a variety of avian species. A list of those observed on our cursory visit (<1 hr), 3/21/12, indicates its value as bird habitat:

Canada Goose	White-throated Swift
Wood Duck	Anna's Hummingbird
Mallard	Nuttall's Woodpecker
Ring-necked Duck	Northern Flicker
Bufflehead	Black Phoebe
Common Goldeneye	American Crow
Ring-necked Pheasant	Tree Swallow
Pied-billed Grebe	Violet-green Swallow
Great Blue Heron	Northern Rough-winged Swallow
Great Egret	Cliff Swallow
Turkey Vulture	Barn Swallow
White-tailed Kite	Bushtit
Red-shouldered Hawk	Marsh Wren
Swainson's Hawk	Western Bluebird
Red-tailed Hawk	American Robin
Virginia Rail	European Starling
Sora	American Pipit
Common Moorhen	Yellow-rumped Warbler
American Coot	White-crowned Sparrow
California Gull	Golden-crowned Sparrow
Mourning Dove	Red-winged Blackbird

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