

**CALIFORNIA COASTAL COMMISSION**

NORTH COAST DISTRICT OFFICE  
 710 E STREET • SUITE 200  
 EUREKA, CA 95501-1865  
 VOICE (707) 445-7833  
 FACSIMILE (707) 445-7877

**F 11b**

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Staff:	MBK - Eureka
Staff Report:	July 22, 2011
Hearing Date:	August 12, 2011
Commission Action:	

**STAFF REPORT: REGULAR CALENDAR****APPLICATION NUMBER:****1-11-010****APPLICANT:****Pacific Gas & Electric Co.****AGENT:**

Transcon Environmental (Attn: Lucas Grein)

**PROJECT LOCATION:**

Within the Highway 101 right-of-way adjacent to Gannon Slough, approximately 0.9-mile south of the State Route 255 & Hwy 101 interchange, City of Arcata, Humboldt County (APNs 501-042-05 & 501-043-05).

**PROJECT DESCRIPTION:**

Repair and maintenance of a section of the active L-137B cased natural gas pipeline involving excavation of a 20-ft-long by 10-ft-wide by 5-ft-deep “bell hole” on each side of the highway within the upland highway shoulders to correct a safety-related condition involving contact between the 8-inch diameter pipeline and its 12-inch diameter casing.

**LOCAL APPROVALS****RECEIVED:**

City of Arcata Nature Use Permit

**OTHER APPROVALS****REQUIRED:**

Caltrans Encroachment Permit

**SUBSTANTIVE FILE DOCUMENTS:**

- (1) Site Specific Erosion & Sediment Control Plan (ETIC Engineering, version 1.0-042110);
- (2) Upland Restoration and Wetland Protection Plan (Garcia & Associates, May 2011);

- (3) Preliminary Determination of Coastal Zone Wetlands (Garcia & Assoc., July 2010);
- (4) Archaeological Survey Report (DeGeorgey, July 28, 2010);
- (5) City of Arcata Local Coastal Program

### **SUMMARY OF STAFF RECOMMENDATION**

Staff recommends approval with conditions of the coastal development permit application for the proposed repair and maintenance project on the basis that, as conditioned, the project is consistent with the Chapter 3 policies of the Coastal Act.

The project site is located at the southern limits of Arcata, on both sides of Highway 101 within one half mile of Humboldt Bay and immediately adjacent to Gannon Slough (Exhibit Nos. 1 and 2). The project area on the west side of the highway is within the upland highway shoulder area that is maintained by Caltrans. The project site is adjacent to a freshwater wetland that is contiguous with the estuarine wetland complex surrounding the bay. The project area on the east side of the highway is also within the upland highway shoulder area maintained by Caltrans. The site is immediately adjacent to Gannon Slough, which is a tidal slough that connects to Humboldt Bay beneath the highway south of the project area. The slough fringe adjacent to the proposed work site is inhabited by tidal marsh plants such as pickleweed and tinker's penny.

The applicant is proposing to perform necessary repair and maintenance work along a section of the active L-137B cased natural gas pipeline where it crosses under Highway 101 south of the Samoa Boulevard exit in Arcata (Exhibit No. 3). Line L-137B, built in 1958, crosses below the highway inside a steel 12-inch diameter casing. PG&E has identified that the 8-inch diameter L-137B pipeline has developed a contact with the 12-inch diameter casing at the proposed project location. Since accelerated external pipeline corrosion can occur in the vicinity of a casing contact, the condition has been reported to the California Public Utility Commission as a "safety-related condition." PG&E is required to take the necessary steps to rectify such safety-related conditions. The objective of the proposed work is to eliminate the casing contact on the active L-137B gas pipeline.

The proposed work involves in part accessing the casing ends of the 197-foot-long pipeline casing to determine the cause of the identified contact between the casing and the L-137B pipeline. In order to expose the casing ends, the applicant proposes to excavate (using a medium-duty backhoe and manual labor) one 20-ft-long by 10-ft-wide by 5-ft-deep "bell hole" on each side of the highway within the highway shoulders (Exhibit No. 3). The native soils excavated are proposed to be temporarily stored within proposed equipment staging and materials stockpiling areas located within the highway shoulders on both sides of the highway and on an upland gravel access road extending off

the east side of the highway immediately north of the excavation site on City of Arcata property.

Staff has evaluated the proposed method of repair and maintenance pursuant to Coastal Act 30610(d) and CCR Section 13252 and recommends Special Condition Nos. 1 through 3. These conditions would require implementation of various water quality and ESHA protection BMPs proposed by the applicant (Exhibit Nos. 5 and 6) and adherence to a number of additional construction standards and responsibilities to protect water quality and adjacent ESHA (wetlands and Gannon Slough). Staff believes that as conditioned, all feasible mitigation measures have been provided to minimize adverse environmental effects consistent with Sections 30230, 30231, 30232, and 30240 of the Coastal Act. Staff further recommends Special Condition No. 4 to ensure that the proposed development will not adversely impact archaeological resources.

**The Motion to adopt the staff recommendation of Approval with Conditions is found on pages 3-4 below.**

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**STAFF NOTES:**

**1. Standard of Review**

The project site is located in the Commission's retained permit jurisdiction. The City of Arcata has a certified local coastal program (LCP), but the site is within an area shown on State Lands Commission maps over which the State retains a public trust interest. Therefore, the standard of review that the Commission must apply to the project is the Chapter 3 policies of the Coastal Act.

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**I. MOTION, STAFF RECOMMENDATION, & RESOLUTION**

The staff recommends that the Commission adopt the following resolution:

**Motion:**

*I move that the Commission approve Coastal Development Permit No. 1-11-010 pursuant to the staff recommendation.*

**Staff Recommendation of Approval:**

Staff recommends a YES vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

**Resolution to Approve Permit with Conditions:**

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

**II. STANDARD CONDITIONS:** See Appendix A.

**III. SPECIAL CONDITIONS:**

**1. Implementation of the Site-specific Erosion and Sediment Control Plan**

The site-specific erosion and sediment control plan (prepared by ETIC Engineering, version 1.0-042110, Exhibit No. 5) shall be implemented as proposed. Any proposed changes to the approved final plan shall be reported to the Executive Director. The permittee shall submit a post-construction “as-built” final report to the Executive Director **within 30 days of completion of construction**. The report shall document the stabilization of all disturbed soil areas, the backfilling and recontouring of excavation areas to return the areas to pre-project conditions, and the removal of all temporary BMPs from the project site, as proposed in the approved plan. If the report documents that any of the BMP measures identified in the plan failed to meet the objectives of stabilizing soils and returning disturbed areas to pre-project conditions following completion of construction, the permittee shall submit a revised or supplemental site-specific erosion and sediment control plan to compensate for those portions of the original plan that did not meet the post-construction plan objectives. The revised or supplemental site-specific erosion and sediment control plan shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required. No changes to the final plan shown in the attached Exhibit No. 5 shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

**2. Implementation of the Upland Restoration and Wetland Protection Plan**

The upland restoration and wetland protection plan (prepared by Garcia & Associates, May 2011 version, Exhibit No. 6) shall be implemented as proposed. Any proposed changes to the approved final plan shall be reported to the Executive Director. The permittee shall submit a post-construction “as-built” final report to the Executive Director **within 30 days of completion of construction**. The post-construction report may either be stand-alone or in combination with the post-construction report required by Special Condition No. 1. The report shall document the stabilization of all disturbed soil areas, the backfilling and recontouring of excavation areas to return the areas to pre-project conditions, and the removal of all temporary BMPs from the

project site, as proposed in the approved plan. If the report documents that any of the BMP measures identified in the plan failed to meet the objectives of protecting adjacent ESHA, stabilizing soils, and returning disturbed areas to pre-project conditions following completion of construction, the permittee shall submit a revised or supplemental upland restoration and wetland protection plan to compensate for those portions of the original plan that did not meet the plan objectives. The revised or upland restoration and wetland protection plan shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required. No changes to the final plan shown in the attached Exhibit No. 6 shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

### **3. Construction Standards & Responsibilities**

Construction-related standards and responsibilities shall include, but shall not be limited to, the following best management practices (BMPs):

- (A) The authorized repair and maintenance activities shall be conducted only during the dry season period of June 15 through October 15;
- (B) **Prior to the commencement of construction**, the limits of the work areas and staging areas shall be delineated in cooperation with a qualified biologist, limiting the potential area affected by construction and ensuring that all wetlands and other ESHA are avoided during construction. All vehicles and equipment shall be restricted to pre-established work areas and established or designated staging areas;
- (C) All motorized equipment used at the project site shall be maintained in proper working condition and shall be free of drips and leaks of coolant and petroleum products;
- (D) A spill prevention and clean-up kit shall be available on-site for immediate use in case of an accidental spill. Any equipment or vehicles operated adjacent to Gannon Slough shall be checked and maintained daily to prevent leaks;
- (E) No permanent or temporary fill of tidal or freshwater wetlands or waters is authorized by this permit;
- (F) Adequate stocks of stormwater runoff and erosion control barrier materials shall be kept onsite and made available for immediate use. Appropriate erosion, sedimentation, and runoff control devices shall be installed around all work areas and staging areas **prior to commencement of construction** and shall be maintained throughout the duration of construction activities;
- (G) If rainfall is forecast during the time construction activities are being performed, any exposed soil areas shall be promptly mulched or covered with plastic sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation;
- (H) Any debris discharged into coastal waters shall be recovered immediately and disposed of properly;

- (I) Upon completion of construction activities and prior to the onset of the rainy season, all disturbed areas shall be seeded in compliance with the approved plan required to be implemented per Special Condition No. 2; and
- (J) Prior to the commencement of the repair and maintenance activities authorized by this permit, the permittee shall ensure that all on-site workers and contractors understand and agree to observe the standards for work outlined in this permit and in the detailed project description included as part of the application submittal and as revised by these conditions.

#### **4. Protection of Archaeological Resources**

- (A) If an area of historic or prehistoric cultural resources or human remains are discovered during the course of the project, all construction shall cease and shall not recommence except as provided in subsection (B) hereof, and a qualified cultural resource specialist shall analyze the significance of the find.
- (B) A permittee seeking to recommence construction following discovery of the cultural deposits shall submit an archaeological plan for the review and approval of the Executive Director.
  - 1. If the Executive Director approves the Archaeological Plan and determines that the Archaeological Plan's recommended changes to the proposed development or mitigation measures are *de minimis* in nature and scope, construction may recommence after this determination is made by the Executive Director.
  - 2. If the Executive Director approves the Archaeological Plan but determines that the changes therein are not *de minimis*, construction may not recommence until after an amendment to this permit is approved by the Commission.

#### **5. Caltrans Encroachment Permit**

**PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall provide to the Executive Director a copy of an encroachment permit issued by Caltrans, or evidence that no permit is required. The applicant shall inform the Executive Director of any changes to the project required by Caltrans. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

#### **6. State Lands Commission Review**

**PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit to the Executive Director, a written determination from the State Lands Commission that:

- (A) No State lands are involved in the development; or

- (B) State lands are involved in the development and all permits required by the State Lands Commission have been obtained; or
- (C) State lands may be involved in the development, but pending a final determination an agreement has been made with the State Lands Commission for the project to proceed without prejudice to that determination.

#### **IV. FINDINGS & DECLARATIONS:**

The Commission hereby finds and declares as follows:

##### **A. ENVIRONMENTAL SETTING**

The project site is located at the southern limits of Arcata, on both sides of Highway 101 within one half mile of Humboldt Bay and immediately adjacent to Gannon Slough (Exhibit Nos. 1 and 2). The project area on the west side of the highway is within the upland, mowed highway shoulder area that is maintained by Caltrans. The project site is adjacent to a freshwater wetland that is contiguous with the estuarine wetland complex surrounding the bay. The freshwater wetland is dominated by open water, horsetail (*Equisetum arvense*), cattail (*Typha latifolia*), and willow (*Salix lasiolepis*). The wetland edge transitions to upland habitat that is dominated mostly by weedy species such as Himalayan blackberry (*Rubus discolor*), narrow-leaf plantain (*Plantago lanceolata*), wild radish (*Raphanus sativus*), and various grasses. The project area on the east side of the highway is also within the upland, mowed highway shoulder area maintained by Caltrans. The site is immediately adjacent to Gannon Slough, which is a tidal slough that connects to Humboldt Bay beneath the highway south of the project area. The slough fringe adjacent to the proposed work site is inhabited by tidal marsh species such as pickleweed (*Salicornia virginica*) and tinker's penny (*Hypericum anagalloides*). The slough transitions to upland vegetation in the highway shoulder dominated by blue grass (*Poa* sp.), bull thistle (*Cirsium vulgare*), and other species. The proposed work areas are maintained (e.g., mowed) by Caltrans on a regular basis.

##### **B. PROJECT DESCRIPTION**

The applicant is proposing to perform necessary repair and maintenance work along a section of the active L-137B cased natural gas pipeline where it crosses under Highway 101 south of the Samoa Boulevard exit in Arcata (Exhibit No. 3). Line L-137B, built in 1958, crosses below the highway inside a steel 12-inch diameter casing. PG&E has identified that the 8-inch diameter L-137B pipeline has developed a contact with the 12-inch diameter casing at the proposed project location. Since accelerated external pipeline corrosion can occur in the vicinity of a casing contact, the condition has been reported to the California Public Utility Commission as a "safety-related condition." PG&E is required to take the necessary steps to rectify such safety-related conditions. The objective of the proposed work is to eliminate the casing contact on the active L-137B gas pipeline.

The proposed work involves accessing the casing ends of the 197-foot-long pipeline casing to determine the cause of the identified contact between the casing and the L-137B pipeline. In order to expose the casing ends, the applicant proposes to excavate (using a medium-duty backhoe and manual labor) one 20-ft-long by 10-ft-wide by 5-ft-deep “bell hole” on each side of the highway within the highway shoulders (Exhibit No. 3). The native soils excavated are proposed to be temporarily stored within proposed equipment staging and materials stockpiling areas located within the highway shoulders on both sides of the highway and on an upland gravel access road extending off the east side of the highway immediately north of the excavation site on City of Arcata property. Approximately 12,000 square feet on the west highway shoulder, 6,000 square feet on the east highway shoulder, and 11,000 square feet off the highway along the adjacent gravel access road are proposed to be used for temporary staging purposes (Exhibit No. 3). Once the casing ends are exposed, the casing interior then would be washed from both ends, cleaning the annulus of accumulated dirt and debris. At this point the applicant would attempt to dislodge the loose coating on the carrier pipe where corrosion has occurred. The serviceability of the casing spacers would be inspected, additional casing spacers may be added at the casing ends if necessary, and new end seals would be installed on both ends of the casing. The serviceability of the existing casing vent on the west side of the casing also would be inspected, and a new casing vent is proposed to be installed on the east side of the casing. Tests would then be performed to determine if the contact has been cleared. Following completion of the proposed repair, maintenance, and testing work, excavations would be backfilled with re-compacted native soil, and the ground surface would be restored to the original grade.

Due to the presence of a high groundwater table, it is anticipated that water management (dewatering of excavated areas) will be necessary during excavation activities. If water is encountered during excavation, groundwater would be pumped into one or more portable tanks to allow sediment to settle. Groundwater dewatered from the proposed eastern excavation would be transferred directly into a 6,500-gallon portable tank using hosing connected to the pumps. The tank would be staged in the proposed staging area on the existing gravel road (Exhibit No. 3). Groundwater dewatered from the proposed western excavation would be pumped into a mobile storage tank (e.g., water buffalo) and transported and then pumped into the portable tank in the staging area on the eastern side of the highway. All groundwater is proposed to be sampled prior to discharge. Groundwater samples would be analyzed for a variety of components and pollutants as detailed in the proposed dewatering plan (Exhibit No. 5). If, based on sample analysis results, no treatment of the water is necessary, groundwater may be utilized as dust suppression and/or dispersed onsite in a manner to avoid ponding and runoff. If analytical data indicate the presence of groundwater contaminants, water would be discharged to the sanitary sewer (under a wastewater discharge permit from the City of Arcata) or disposed of at an approved disposal facility.

The applicant's project description includes a list of mitigation measures and "best management practices" (BMPs) to protect water quality and other coastal resources. These include the following:

- A qualified biologist would flag the delineated wetlands adjacent to work areas prior to commencement of construction;
- Prior to the start of work, a job-site tailboard would be conducted to inform workers of the necessary conservation measures and BMPs;
- All personnel and equipment would be required to remain within upland areas and outside of wetlands at all times during project activities;
- A revegetation plan using a Caltrans-approved seed mix would be prepared to restore the excavated areas to the current conditions following project completion, including measures to salvage, temporarily store, and replace excavated topsoil;
- Sediment control measures (such as silt fencing, fiber rolls, gravel bag berms, sand bag barriers, storm drain inlet protection, tracking controls, and stockpile management) would be in place to ensure that any excavated material would not enter adjacent wetlands or waters during construction;
- Any signs of soil contamination during the excavation process would result in the immediate stop of work;
- Construction activities would be scheduled to occur in the dry season to prevent runoff and sedimentation into adjacent wetland and slough areas;
- All proposed project activities, including excavation and equipment/vehicle staging and storage, would remain within the proposed upland work areas contained within the Caltrans right-of-ways and adjacent gravel access road;
- All motorized equipment used at the project site would be maintained in proper working condition and would be free of drips and leaks of coolant and petroleum products; and
- A spill prevention and clean-up kit would be available on-site for use in case of an accidental spill. Any equipment or vehicles operated adjacent to the slough would be checked and maintained daily to prevent leaks.

In addition, the applicant has prepared various plans that include specific measures to avoid or minimize project impacts on coastal resources. These include a Site Specific Erosion & Sediment Control Plan (Exhibit No. 5) and an Upland Restoration and Wetland Protection Plan (Exhibit No. 6). The Site Specific Erosion & Sediment Control Plan includes specific BMPs for erosion control, sediment control, tracking control, wind erosion control, non-stormwater control (including proposed dewatering operations, equipment and vehicle washing, etc.), waste management and materials pollution control, and post-construction stormwater management. The Upland Restoration and Wetland Protection Plan includes specifications for materials and installation methods to protect the tidal and freshwater habitats delineated in the July 2010 wetland delineation (Exhibit

No. 7). It also includes specifications to restore the upland habitats that would be impacted by proposed project activities, including details on soil salvage and restoration and a seeding plan for the affected area. In addition, the applicant submitted an Archaeological Survey Report (prepared by Alex DeGeorgey dated July 28, 2010), which discusses the results of an “intensive pedestrian survey” that was conducted in the “area of potential effects.” The report documents remnant portions of a historic railroad alignment located adjacent to the project area and recommends that if unidentified archaeological resources are encountered during construction activities, actions should be taken to avoid altering the materials and their context until a qualified professional archaeologist can evaluate the situation and determine an appropriate course of action. The applicant has included this archaeological mitigation measure in its project description.

## **C. PERMIT AUTHORITY, EXTRAORDINARY METHODS OF REPAIR & MAINTENANCE**

Coastal Act Section 30610(d) generally exempts from Coastal Act permitting requirements the repair or maintenance of structures that does not result in an addition to, or enlargement or expansion of, the structure being repaired or maintained. However, the Commission retains authority to review certain extraordinary methods of repair and maintenance of existing structures that involve a risk of substantial adverse environmental impact as enumerated in Section 13252 of the Commission regulations.

Section 30610 of the Coastal Act provides, in relevant part (emphasis added):

*Notwithstanding any other provision of this division, no coastal development permit shall be required pursuant to this chapter for the following types of development and in the following areas: . . .*

*(d) Repair or maintenance activities that do not result in an addition to, or enlargement or expansion of, the object of those repair or maintenance activities; provided, however, that if the commission determines that certain extraordinary methods of repair and maintenance involve a risk of substantial adverse environmental impact, it shall, by regulation, require that a permit be obtained pursuant to this chapter.*

Section 13252 of the Commission administrative regulations (14 CCR 13000 *et seq.*) provides, in relevant part (emphasis added):

*For purposes of Public Resources Code section 30610(d), the following extraordinary methods of repair and maintenance shall require a coastal development permit because they involve a risk of substantial adverse environmental impact:...*

*(3) Any repair or maintenance to facilities or structures or work located in an environmentally sensitive habitat area, any sand area, within 50 feet of the edge of a coastal bluff or environmentally sensitive habitat area, or within 20 feet of coastal waters or streams that include:*

(A) The placement or removal, whether temporary or permanent, of rip-rap, rocks, sand or other beach materials or any other forms of solid materials;

(B) The presence, whether temporary or permanent, of mechanized equipment or construction materials.

*All repair and maintenance activities governed by the above provisions shall be subject to the permit regulations promulgated pursuant to the Coastal Act, including but not limited to the regulations governing administrative and emergency permits. The provisions of this section shall not be applicable to methods of repair and maintenance undertaken by the ports listed in Public Resources Code section 30700 unless so provided elsewhere in these regulations. The provisions of this section shall not be applicable to those activities specifically described in the document entitled Repair, Maintenance and Utility Hookups, adopted by the Commission on September 5, 1978 unless a proposed activity will have a risk of substantial adverse impact on public access, environmentally sensitive habitat area, wetlands, or public views to the ocean....*

The proposed project is a repair and maintenance project because it does not involve an addition to or enlargement of the subject gas pipeline, which was originally installed in 1958. Although certain types of repair projects are exempt from CDP requirements, Section 13252 of the regulations requires a coastal development permit for extraordinary methods of repair and maintenance enumerated in the regulation. The proposed repair work involves the placement of construction materials and removal and placement of solid materials within 20 feet of coastal waters and within 50 feet of ESHA (wetland habitats). The proposed repair project therefore requires a coastal development permit under CCR Section 13252(a)(1).

In considering a permit application for a repair or maintenance project pursuant to the above-cited authority, the Commission reviews whether the proposed method of repair or maintenance is consistent with the Chapter 3 policies of the Coastal Act. The Commission's evaluation of such repair and maintenance projects does not extend to an evaluation of the conformity with the Coastal Act of the underlying existing development.

The repair and maintenance of underground pipelines, such as is proposed under the subject CDP application, can have adverse impacts on coastal resources, in this case primarily freshwater and tidal wetlands and coastal waters adjacent to the project area, if not properly undertaken with appropriate mitigation. As described above, the applicant proposes to repair and maintain the L-137B gas pipeline in its existing footprint by accessing the casing ends of the 197-foot-long pipeline casing to determine the cause of the identified contact between the casing and the L-137B pipeline. Casing ends will be accessed through the excavation of two "bell holes" – one on each side of the highway within the upland highway shoulder areas – that may require water management (dewatering) due to the presence of high groundwater. The methods proposed for maintaining the gas pipeline are typical of pipeline maintenance projects statewide (PG&E Utility Work Procedure WP4133-04 – Remediating Casing Contacts). The applicant has included a number of mitigation measures as part of its proposal, as

discussed above, such as flagging adjacent wetlands and sensitive habitats for avoidance, using various sediment control and spill prevention measures, and revegetating and restoring disturbed areas to pre-project conditions. Although these and other measures proposed by PG&E are appropriate, additional measures are needed to avoid or minimize potential project impacts on water quality, adjacent wetland habitats, and archaeological resources. The conditions required to meet these standards are discussed in the following findings relevant to water quality, marine resources, ESHA, and archaeological resources. Therefore, as conditioned in these Findings, the Commission finds that the proposed project is consistent with all applicable Chapter 3 policies of the Coastal Act.

#### **D. PROTECTION OF WATER QUALITY & ADJACENT ESHA**

Section 30230 of the Coastal Act states as follows:

*Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30231 of the Coastal Act states as follows:

*The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Section 30232 of the Coastal Act states as follows:

*Protection against the spillage of crude oil, gas, petroleum products or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

Section 30240 of the Coastal Act states, in applicable part, as follows:

...

*(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Section 30107.5 of the Coastal Act defines “environmentally sensitive area” (ESHA) as follows:

*“...any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.”*

As discussed above, the project area on the west side of the highway is immediately adjacent to a freshwater wetland that is contiguous with the estuarine wetland complex surrounding Humboldt Bay, and the project area on the east side of the highway is immediately adjacent to Gannon Slough and its associated tidal marsh habitats (Exhibit No. 4). These adjacent coastal wetlands and waters provide habitat for a number of marine species, including rare, threatened, or endangered plant and animal species such as coho and Chinook salmon, steelhead trout, tidewater Goby, Point Reyes’ birds beak, Humboldt Bay owl’s clover, and other species. These adjacent coastal waters and wetland habitats constitute ESHA under the Coastal Act.

As cited above, Section 30240(b) of the Coastal Act requires that development in areas adjacent to ESHA shall be sited and designed to prevent impacts which would significantly degrade the ESHA and that permitted development shall be compatible with the continuance of the adjacent ESHA. Sections 30230 and 30231 of the Coastal Act require in part the maintenance of the biological productivity and quality of marine resources, coastal waters, streams, wetlands, and estuaries necessary to maintain optimum populations of all species of marine organisms and for the protection of human health. Section 30232 of the Coastal Act requires that permitted development provide for the protection against the spillage of crude oil, gas, petroleum products, or other hazardous substances and that effective containment and cleanup facilities and procedures be provided for accidental spills that may occur.

Implementation of the proposed work will result in the repair and maintenance of an underground active gas pipeline, the excavation and transportation of soils and debris material, the use of staging areas for vehicles and equipment staging and for soil and material stockpiling, and the management of excess ground water in the construction area. Because adjacent ESHAs (wetlands and slough waters) are situated approximately 10 to 15 feet lower in elevation than the proposed work areas, there is a potential for project activities to adversely impact the water quality and habitat function of these adjacent environmentally sensitive habitat areas. Unless appropriate protocols are followed, the proposed work could result in sediments or other pollutants entering coastal waters and wetlands, improper storage of materials in or adjacent to sensitive areas, accidental leaks of coolants and petroleum products in close proximity to marine waters and ESHA, and other activities that could have adverse impacts on water quality, marine resources, and ESHA adjacent to the project site.

The applicant has proposed a number of protocols to protect water quality and adjacent sensitive habitats, as detailed in the Site-specific Erosion and Sediment Control Plan (Exhibit No. 5) and the Upland Restoration and Wetland Protection Plan (Exhibit No. 6).

The Site-specific Erosion and Sediment Control Plan proposes a number of specific BMPs, including, but not limited to, the following:

- Erosion Control: The plan proposes to control erosion by scheduling the project during the non-rainy season, delineating work areas with temporary fencing or other barriers to preserve existing adjacent vegetation, re-seeding disturbed areas following construction, and using erosion control devices to prevent erosion and stormwater runoff.
- Sediment and Tracking Control: The plan proposes the use of fiber rolls and gravel bag berms around excavation areas to intercept sheet flows and control sediment on the construction site and street sweeping and vacuuming to prevent or reduce the tracking of sediment offsite by vehicles leaving the construction area.
- Wind Erosion Control: The plan proposes to use dust control as necessary, limit off-road vehicle traffic to 15 miles per hour, and stockpile management (see below) to control wind erosion on the construction site.
- Non-stormwater Control: The plan proposes BMPs for water conservation, dewatering operations (as described above in the “Project Description” Finding), monitoring for illicit discharges or dumping, vehicle and equipment washing (to be limited to off-site facilities only or at least 50-feet from ESHA with runoff control measures in place in the event that washing must occur on site), vehicle and equipment fueling (to be done off-site only or with the use of drip pans or absorbent pads and spill response equipment should on-site fueling be necessary), and vehicle and equipment maintenance (to be done off-site only or in designated areas only and with spill response equipment should on-site maintenance be necessary).
- Waste Management and Materials Pollution Control: The plan proposes procedural and structural BMPs for the handling, storing, and disposing of solid, sanitary, concrete, hazardous, and equipment-related wastes. This section of the plan proposes covering and installing erosion control devices around stockpiles, maintaining spill response equipment on site, properly containing and disposing of all trash and debris, prohibiting the storage of bulk lubricating oil, hydraulic fluids, and other materials used for vehicle and equipment maintenance at the construction site, hauling away and properly disposing of any contaminated soils encountered, and other BMPs.
- Post-Construction Stormwater Management: Following completion of construction the plan proposes to stabilize all disturbed soil areas, to backfill excavation areas and recontour them to pre-project grade, and to remove all temporary BMPs from the project site.

In general, the protocols proposed by the applicant are comprehensive and appropriate to protect water quality and adjacent ESHA. Therefore, the Commission attaches **Special Condition No. 1** to require that PG&E undertake development in conformance with the

approved Site-specific Erosion and Sediment Control Plan (Exhibit No. 5). The condition requires that the permittee submit a post-construction “as-built” final report to the Executive Director within 30 days of completion of construction. The final report is to document the stabilization of all disturbed soil areas, the backfilling and recontouring of excavation areas to return the areas to pre-project conditions, and the removal of all temporary BMPs from the project site, as proposed in the approved plan. If the report documents that any of the BMP measures identified in the plan failed to meet the objectives of stabilizing soils and returning disturbed areas to pre-project conditions following completion of construction, the permittee shall submit a revised or supplemental site-specific erosion and sediment control plan to compensate for those portions of the original plan that did not meet the post-construction plan objectives. The revised or supplemental site-specific erosion and sediment control plan shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required. No changes to the final plan shown in the attached Exhibit No. 5 shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

The Upland Restoration and Wetland Protection Plan (Exhibit No. 6) proposes detailed specifications for materials and installation methods to protect Gannon Slough and the nearby tidal and freshwater habitats delineated in the July 2010 wetland delineation (Exhibit Nos. 4 and 7). Specifically, it proposes in part the installation of plastic construction fencing between the edge of designated staging and work areas and environmentally sensitive habitat areas. It also proposes the installation of natural fiber rolls (without plastic monofilament netting) along the inside (construction side) of the aforementioned temporary fencing to ensure that surface flows containing contaminated runoff, sediment, construction debris or other material are unable to migrate into environmentally sensitive areas. The plan prohibits any trimming of native vegetation that may overhang temporary fencing and requires that all ESHA protection measures be maintained throughout the duration of construction activities and until all disturbed soils have been stabilized. The plan also includes specifications for soil salvaging and restoration (e.g., stockpiling the top six inches of excavated soil separately to enable it to be used to cap the backfilled area, thereby promoting faster regeneration of excavated areas to pre-project conditions) as well as a seeding plan. The seeding plan includes specifications for hydroseeding materials (seed, wood fiber, tackifier, etc.) and methods, including the use of only native, regionally appropriate species in the seed mix (to be obtained from local genetic stock), untreated, chemical- and disease-free wood fiber, non-toxic tackifier, and weed-free straw.

The Commission finds that the protocols proposed by the applicant in the submitted Upland Restoration and Wetland Protection Plan (Exhibit No. 6) are comprehensive and appropriate to protect water quality and adjacent wetland habitats. Therefore, the Commission attaches **Special Condition No. 2** to require that PG&E undertake development in conformance with the approved final plan (Exhibit No. 6). The condition requires that the permittee submit a post-construction “as-built” final report (either stand-

alone or in combination with the post-construction report required by Special Condition No. 1) to the Executive Director within 30 days of completion of construction. The report is to document the stabilization of all disturbed soil areas, the backfilling and recontouring of excavation areas to return the areas to pre-project conditions, and the removal of all temporary BMPs from the project site, as proposed in the approved plan. If the report documents that any of the BMP measures identified in the plan failed to meet the objectives of protecting adjacent ESHA, stabilizing soils, and returning disturbed areas to pre-project conditions following completion of construction, the permittee shall submit a revised or supplemental upland restoration and wetland protection plan to compensate for those portions of the original plan that did not meet the plan objectives. The revised or supplemental plan shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required. No changes to the final plan shown in the attached Exhibit No. 6 shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

Finally, the Commission attaches **Special Condition No. 3** to further ensure the protection of water quality and adjacent ESHA from construction-related impacts. This condition outlines general construction standards and responsibilities that must be adhered to. These include (a) conducting the authorized work only during the dry season period of June 15 through October 15; (b) delineating the limits of the work areas prior to the commencement of construction to limit the potential area affected by construction and ensure that all wetland areas are avoided during construction; (c) maintaining all motorized equipment used at the project site in proper working condition and free of drips and leaks; (d) maintaining a spill prevention and clean-up kit available on-site for immediate use in case of an accidental spill and checking and maintaining equipment or vehicles operated adjacent to Gannon Slough daily to prevent leaks; (e) prohibiting any and all permanent or temporary fill of tidal or freshwater wetlands or waters; (f) maintaining adequate stocks of stormwater runoff and erosion control barrier materials onsite and ensuring that appropriate erosion, sedimentation, and runoff control devices are installed around all work areas and staging areas prior to commencement of construction; (g) promptly mulched or covering bare soil areas if rainfall is forecast during the time construction activities are being performed; (h) recovering any debris discharged into coastal waters immediately and disposing of it properly; (i) seeding all disturbed soils prior to the rainy season in compliance with the approved plan required to be implemented per Special Condition No. 2; and (j) ensuring that all on-site workers and contractors understand and agree to observe the standards for work outlined in this permit prior to the commencement of the repair and maintenance activities authorized by this permit.

Therefore, the Commission finds that as conditioned, all feasible mitigation measures have been provided to minimize adverse environmental effects consistent with Sections 30230, 30231, 30232, and 30240 of the Coastal Act. In addition, The Commission finds that as conditioned to require implementation of the various water quality and ESHA protection BMPs described in the Site-specific Erosion and Sediment Control Plan and

the Upland Restoration and Wetland Protection Plan and to require adherence to a number of additional construction standards and responsibilities to protect water quality and adjacent ESHA, the proposed development is consistent with Coastal Act Sections 30230, 30231, 30232, and 30240.

## E. ARCHAEOLOGICAL RESOURCES

Section 30244 of the Coastal Act states as follows:

*Where development would adversely impact archeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

The diked former tidelands and surrounding areas of Humboldt Bay are located within the ethnographic territory of the Wiyot Indians. Wiyot settlements existed along the bay and along the banks of many of the streams and sloughs in this area.

The proposed project area was surveyed for archaeological resources by a registered professional archaeologist in the summer of 2010, and an Archaeological Survey Report was prepared (Alex DeGeorgey, July 28, 2010). No previously unrecorded cultural resources were identified as a result of the survey. However, one previously recorded cultural resource – a segment of the Flanigan, Brosnan & Company Railroad line – is present within the project area. The line was originally constructed around 1900. The segment of the line on the east side of the highway has been converted into a gravel access road on property owned by the City of Arcata. PG&E is proposing to use this area for equipment staging and stockpiling purposes. According to the archaeologist's recommendations for the site, this segment of the railroad alignment is in poor condition and appears to have little data potential beyond what has already been recorded in previous cultural studies. The report concludes that the proposed staging area will not adversely affect the condition of the site, and no permanent changes will be made to this feature. The report recommends, however, that if unidentified archaeological resources are encountered during any of the proposed construction activities, actions should be taken to avoid altering the materials and their context until a qualified professional archaeologist evaluates the situation and determines an appropriate course of action.

To ensure protection of any archaeological or cultural resources that may be discovered at the site during construction of the proposed project, the Commission attaches **Special Condition No. 4**. This condition requires that if an area of cultural deposits is discovered during the course of the project, all construction must cease and a qualified cultural resource specialist must analyze the significance of the find. To recommence construction following discovery of cultural deposits, the applicant is required to submit a supplementary archaeological plan for the review and approval of the Executive Director to determine whether the changes are *de minimis* in nature and scope, or whether an amendment to this permit is required.

Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Coastal Act Section 30244, as the development will include mitigation measures to ensure that the development will not adversely impact archaeological resources.

## F. PUBLIC ACCESS

Section 30210 of the Coastal Act requires that maximum public access shall be provided consistent with public safety needs and the need to protect natural resource areas from overuse. Section 30212 of the Coastal Act requires that access from the nearest public roadway to the shoreline be provided in new development projects except where it is inconsistent with public safety, military security, or protection of fragile coastal resources, or adequate access exists nearby. Section 30211 requires that development not interfere with the public's right to access gained by use or legislative authorization. Section 30214 of the Coastal Act provides that the public access policies of the Coastal Act shall be implemented in a manner that takes into account the capacity of the site and the fragility of natural resources in the area. In applying Sections 30210, 30211, 30212, and 30214, the Commission is also limited by the need to show that any denial of a permit application based on these sections, or any decision to grant a permit subject to special conditions requiring public access, is necessary to avoid or offset a project's adverse impact on existing or potential access.

Although the project is located between the first public road and the sea, it would not adversely affect public access. A Caltrans encroachment permit will be obtained prior to commencement of project activities, and all required safety considerations will be observed. The proposed work will not result in highway closure in either direction. Furthermore, the proposed project will not create any new demand for public access or otherwise create any additional burdens on public access.

Therefore, the Commission finds that the proposed project will not have any significant adverse effect on public access, and the project as proposed without new public access is consistent with the requirements of Coastal Act Sections 30210, 30211, and 30212.

## G. OTHER APPROVALS

The project is located within the state highway right-of-way and is subject to the review and approval of Caltrans. To ensure that the project ultimately approved by Caltrans is the same as the project authorized herein, the Commission attaches **Special Condition No. 5**, which requires the applicant submit evidence of Caltrans' approval of the project prior to permit issuance. The condition requires that any changes resulting from the encroachment permit approval not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

## H. STATE LANDS

The project site is located in an area subject to the public trust. Therefore, to ensure that the applicant has the necessary authority to undertake all aspects of the project on these public lands, the Commission attaches **Special Condition No. 6**, which requires that the project be reviewed and where necessary approved by the State Lands Commission prior to the issuance of the coastal development permit.

## **I. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)**

Section 13906 of the Commission's administrative regulation requires Coastal Commission approval of coastal development permit applications to be supported by a finding showing the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are any feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effect the proposed development may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. As discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. The findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As specifically discussed in these above findings, which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impacts which the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act to conform to CEQA.

## **V. EXHIBITS:**

- (1) Regional Location Map
- (2) Project Vicinity Map
- (3) Proposed Site Plan and Conservation Measures (in part)
- (4) Delineated Wetlands & Slough
- (5) Site Specific Erosion and Sediment Control Plan
- (6) Upland Restoration and Wetland Protection Plan
- (7) Wetland Delineation Report

## APPENDIX A

### **STANDARD CONDITIONS**

1. Notice of Receipt and Acknowledgment:

The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration:

If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation:

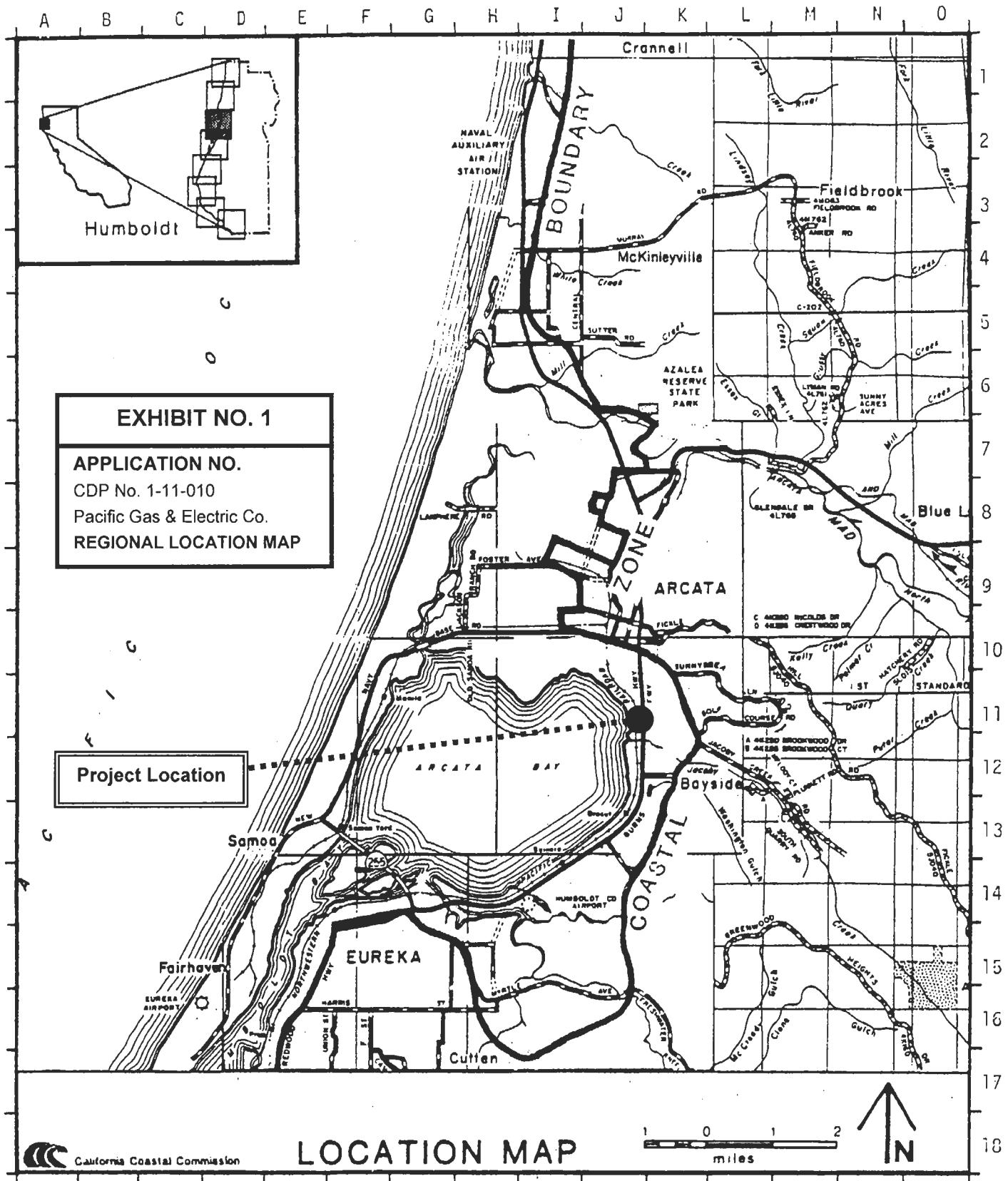
Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.

4. Assignment:

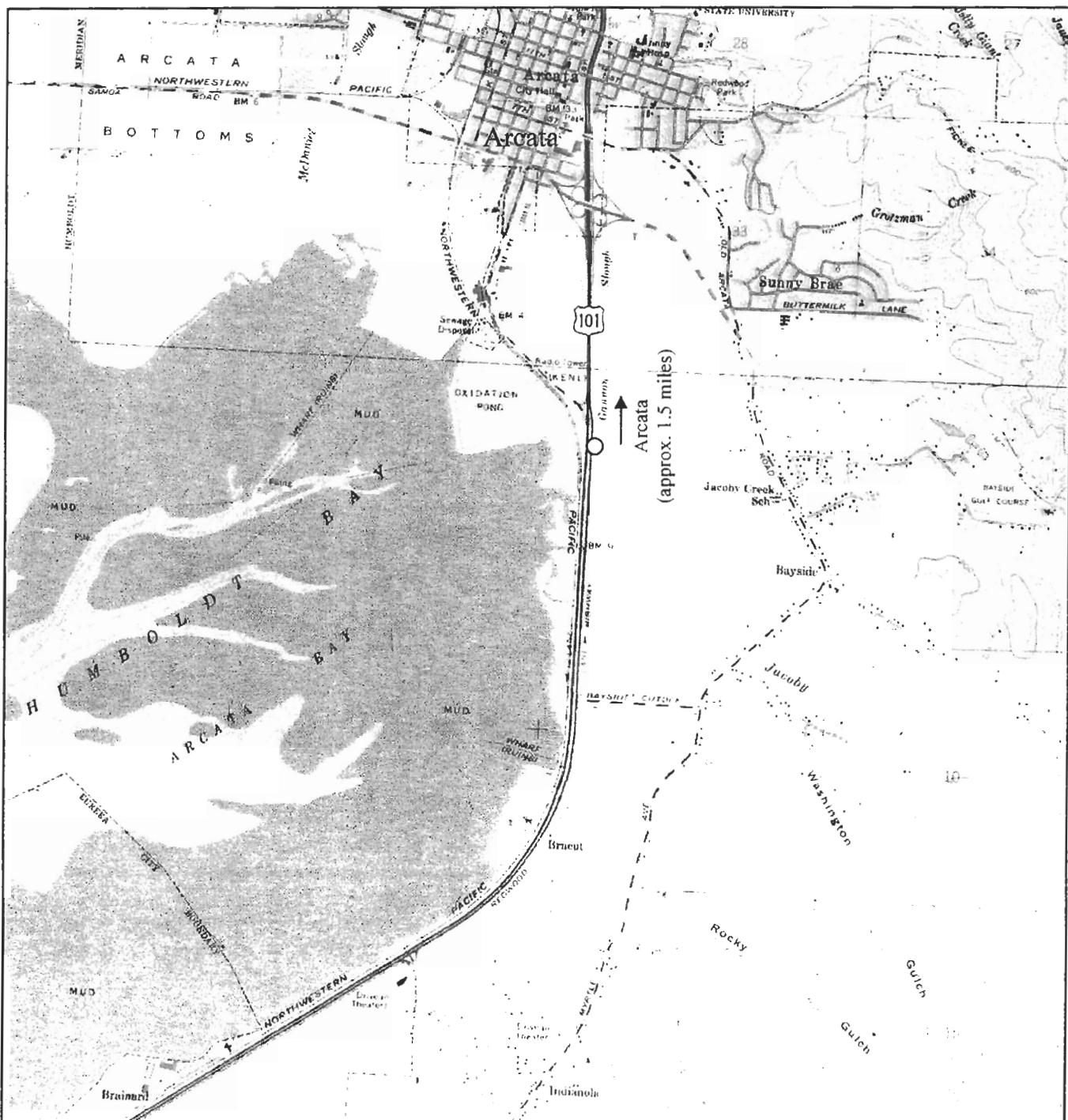
The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land:

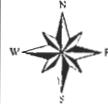
These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.



# County of Humboldt



Project Location



0 0.5 Miles

#### Legend

- Project Location  
T5N R1E Section 4  
Humboldt Baseline and Meridian

#### Vicinity Map

Pacific Gas & Electric Company  
Gas Line 137B  
Casing Repair Project

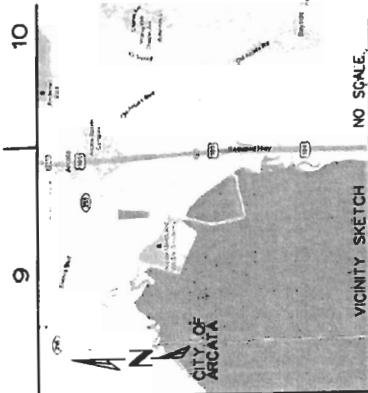
#### EXHIBIT NO. 2

#### APPLICATION NO.

1-11-010

PACIFIC GAS & ELECTRIC CO.

VICINITY MAP

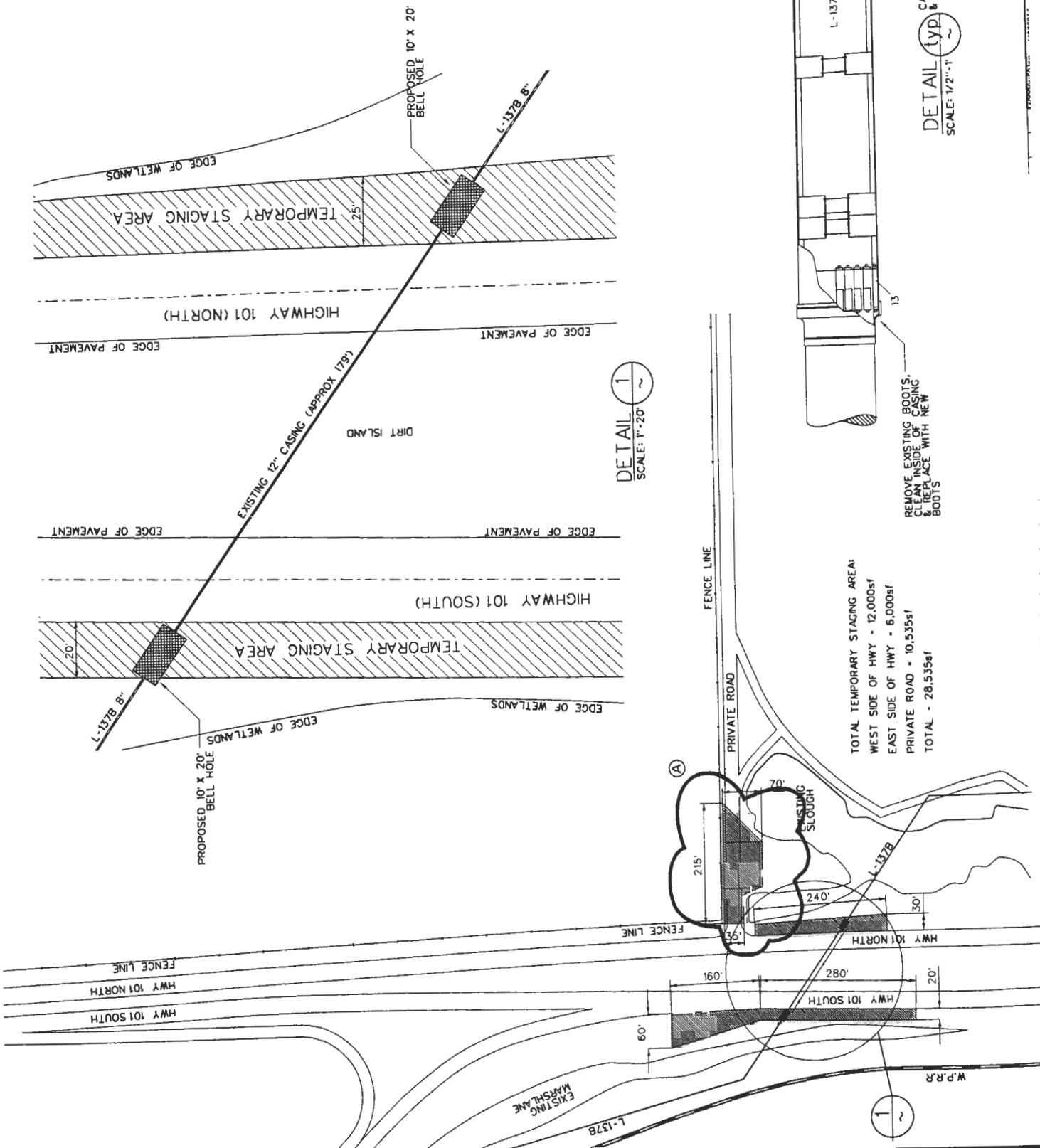


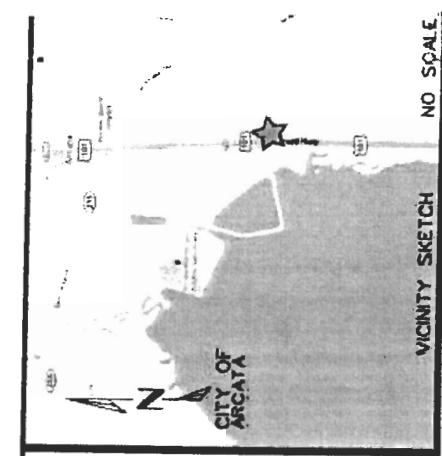
NOTES:

- THIS DRAWING IS SHOWING THE PROPOSED TEMPORARY STAGING AREA AS WELL AS BOTH EXCAVATION LOCATIONS
- Ⓐ REFER TO "REVISED TEMPORARY WORKSPACE ATTACHMENT DETAIL FOR DESCRIPTION OF WORK AREAS."

### EXHIBIT NO. 3

**APPLICATION NO.**  
1-11-010  
**PACIFIC GAS & ELECTRIC CO.**  
**PROPOSED SITE PLAN & CONSERVATION MEASURES**  
**(IN PART) (1 of 5)**

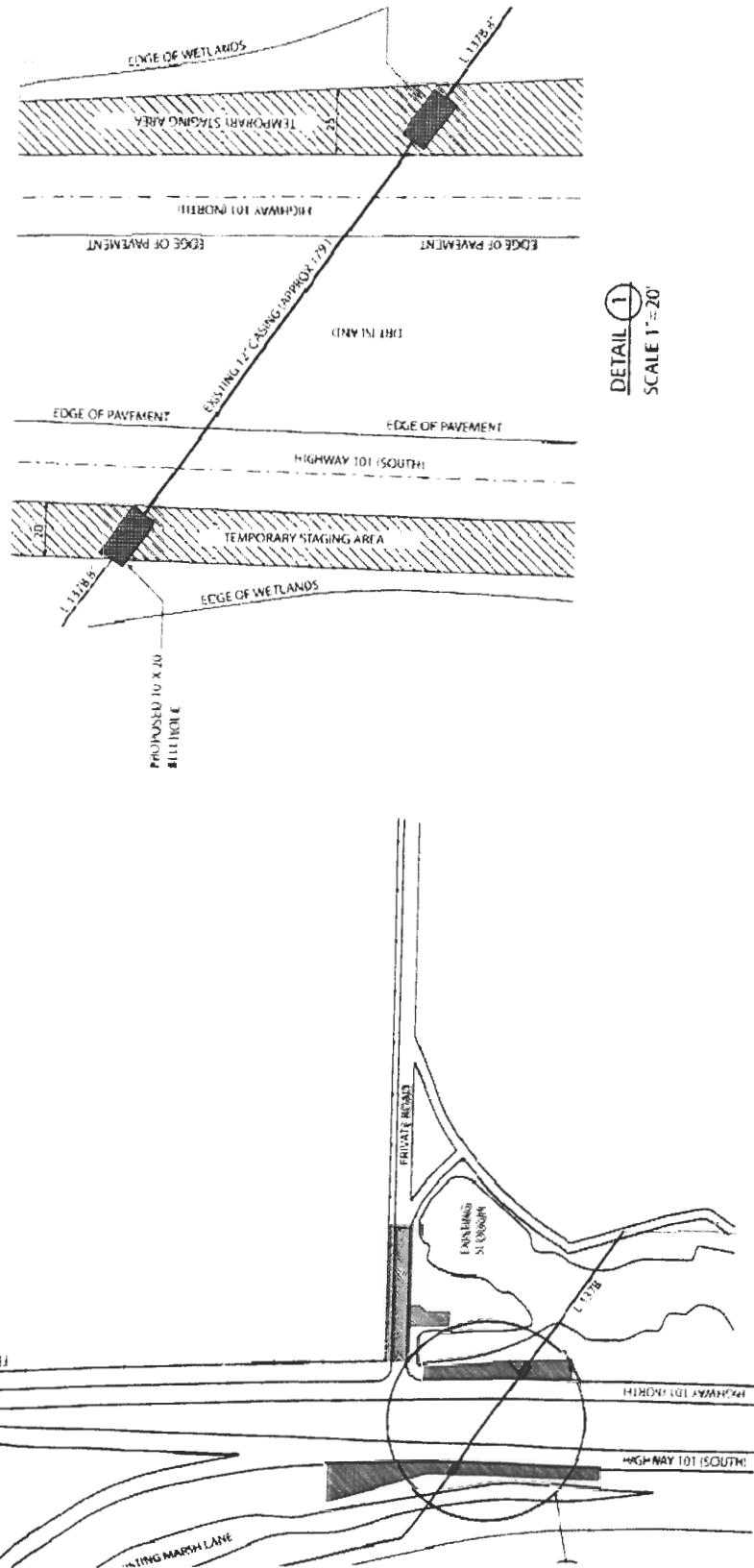




VICINITY SKETCH  
NO SCALE

- NOTE:**
- AREAS OF TEMPORARY STAGING AREAS ARE APPROXIMATE
  - ALL WORK WILL OCCUR WITHIN UPLAND AREAS OUTSIDE OF WETLANDS.
  - BOUNDARIES OF TEMPORARY STAGING AREAS WILL BE VERIFIED IN THE FIELD BY A QUALIFIED BIOLOGIST.
  - NO PERSONNEL OR EQUIPMENT WILL BE ALLOWED TO ENTER THE WETLAND HABITAT AT ANY TIME DURING PROJECT ACTIVITIES.

2 of 5



PLAN VIEW  
SCALE 1" = 100'

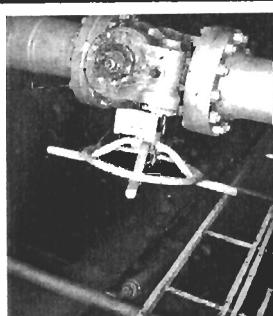
\* BASED ON PACIFIC GAS AND ELECTRIC CO.

REVISED TEMPORARY WORKSPACE SKETCH

GAS LINE 137B  
CASING REPAIR PROJECT  
PACIFIC GAS AND ELECTRIC COMPANY

MARCH 2011

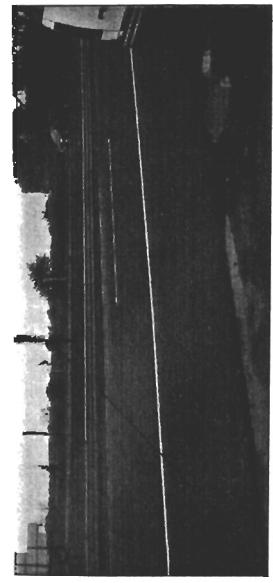




## **ISOLATION VALVE ON THE WEST**



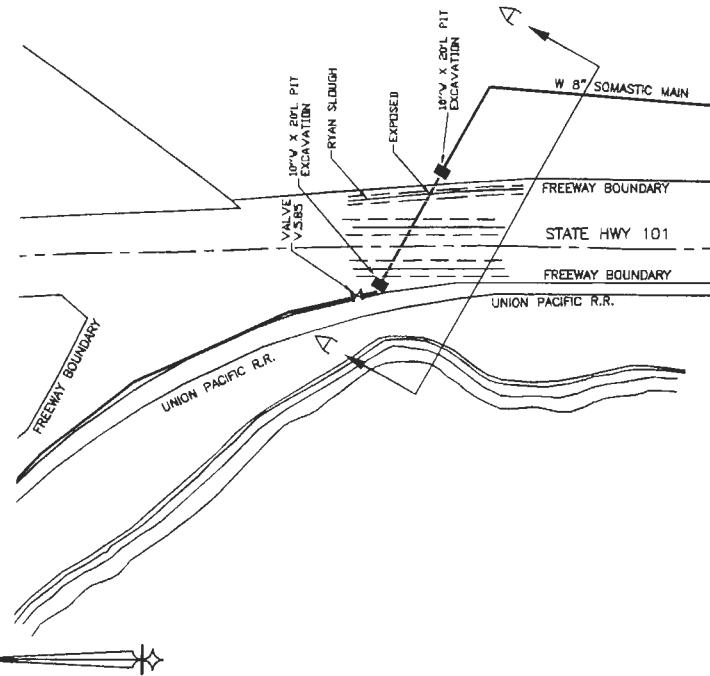
8" L137B WITH 12" - 197' CASING  
AT EAST SIDE OF HWY 101. ARCAT



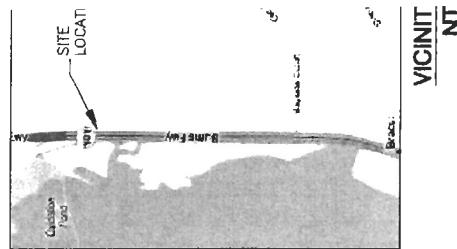
EAST SIDE OF HWY 101  
LOOKING WEST



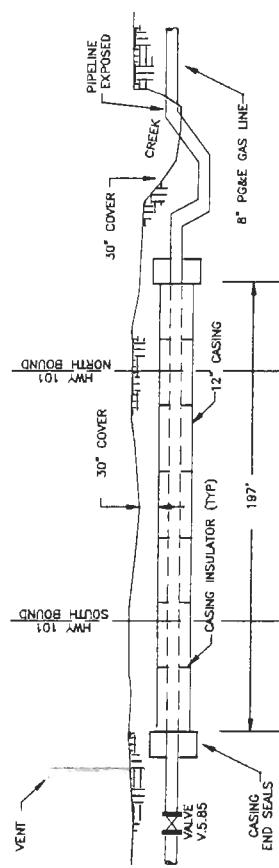
8' L137B WITH 12' - 197 CASING  
AT WEST SIDE OF HWY 101, ARCATA



OTES: EXCAVATE ON BOTH ENDS FOR CASING INSPECTION.

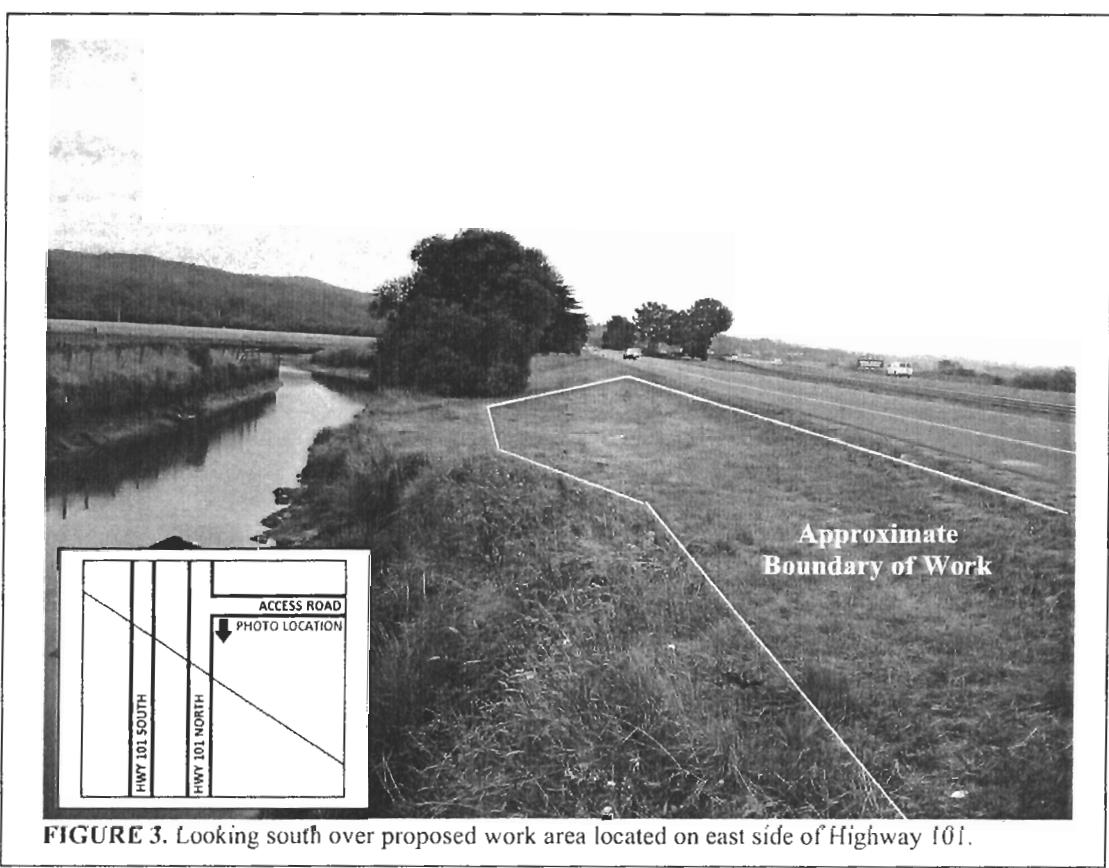
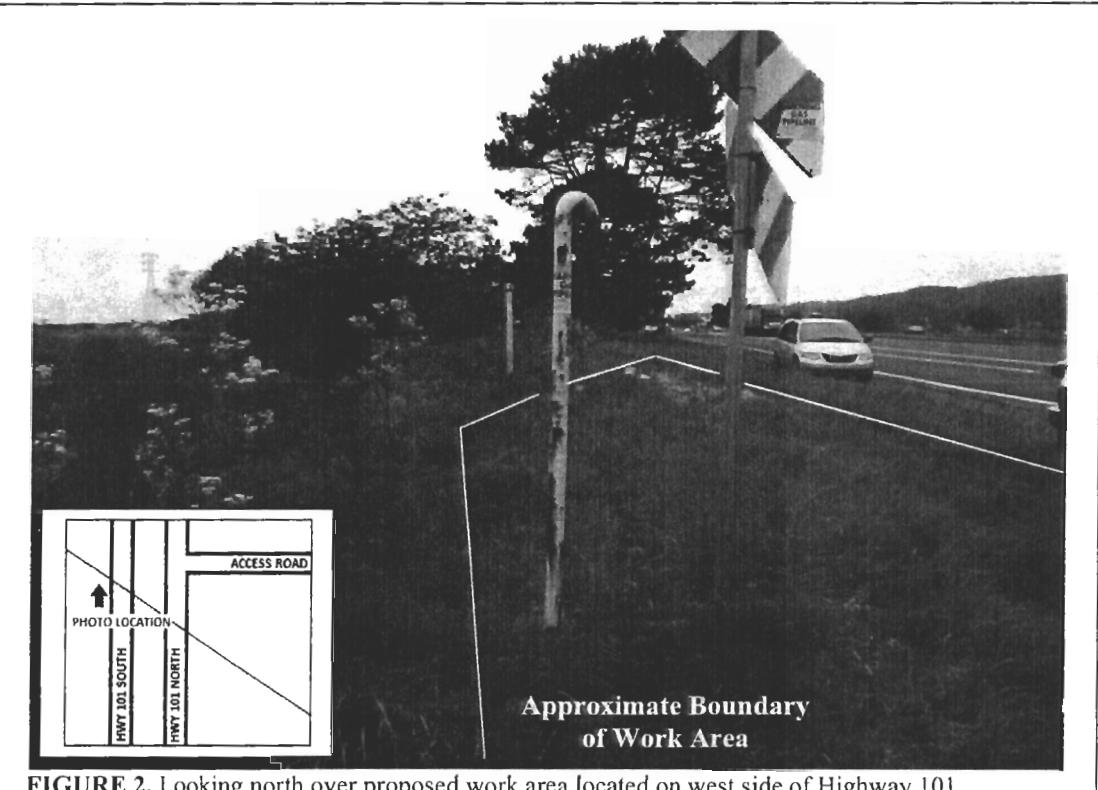


VICINIT  
NT



CROSS SECTION A-A  
8" MAIN 137 PIPELINE WITH 12" CASING  
NTS

345



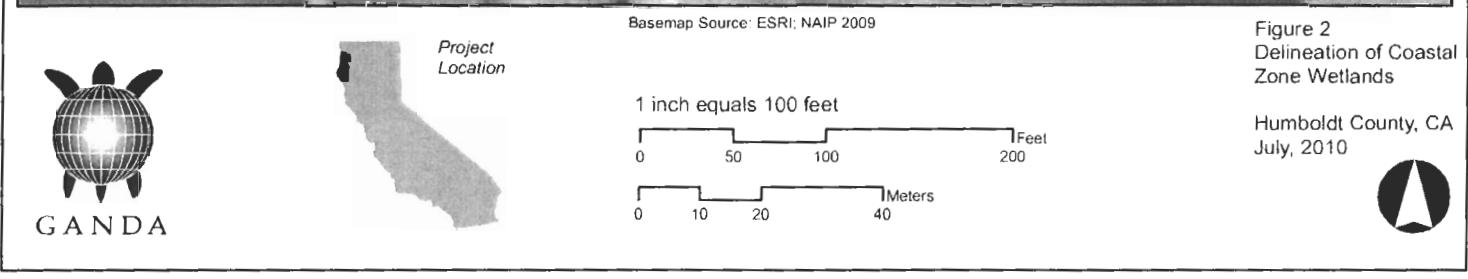
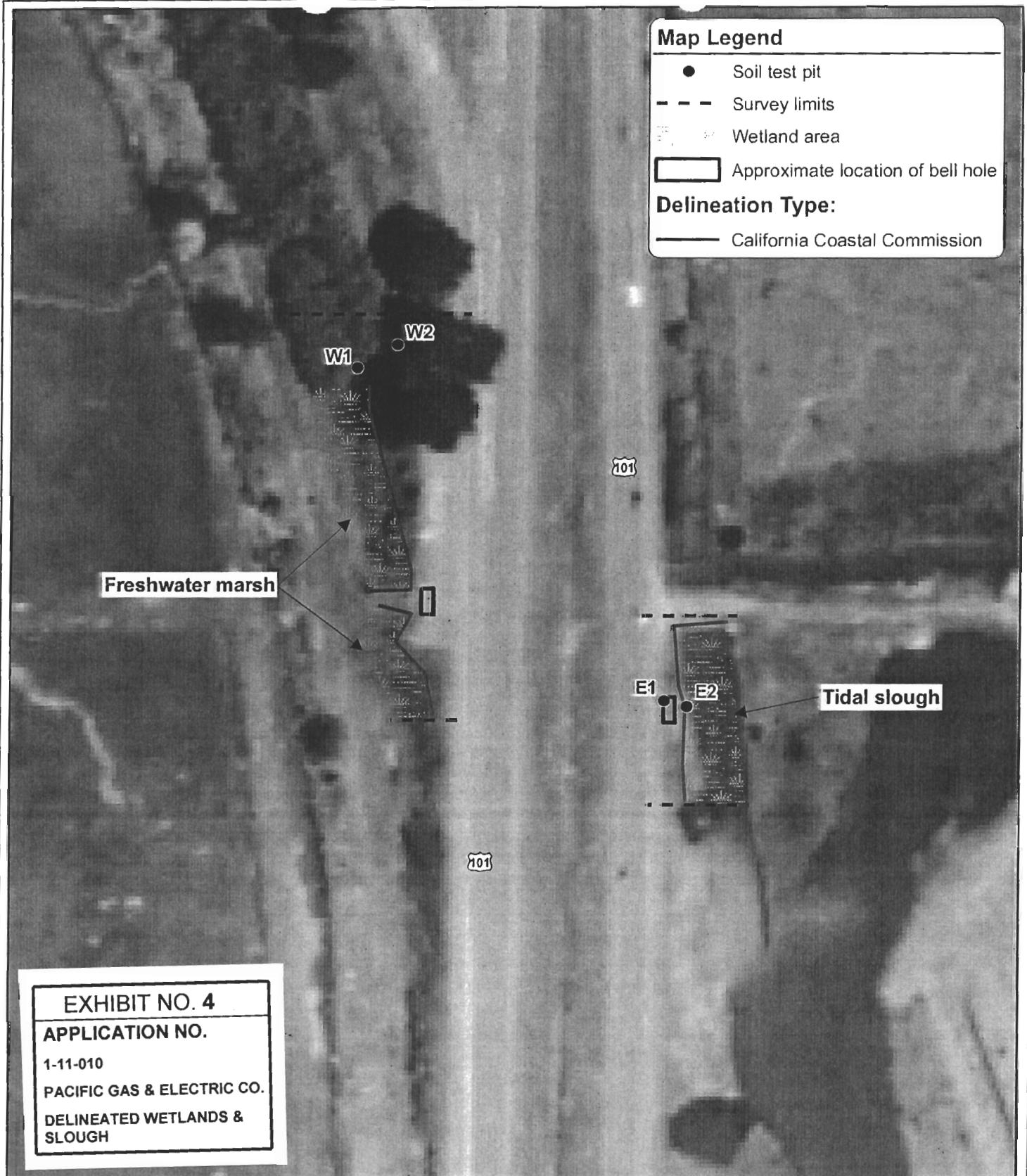
### **Schedule and Timing**

The construction schedule for the proposed casing repair is set for summer of 2011 before the beginning of the typical rainy season. Total project construction time from crew mobilization to clean-up and site restoration will take approximately three to four weeks.

### **Conservation Measures and Best Management Practices**

The following measures will be implemented to further reduce potential impacts to the adjacent wetland habitat:

- A qualified biologist will flag and identify the wetland areas surrounding the project area prior to any equipment or personnel enter the site.
- Prior to the start of work, a job site tailboard will be conducted to inform works on conservation measures and best management practices.
- All personnel and equipment are required to remain within the upland areas and outside of wetlands at all times during project activities.
- A revegetation plan using Caltrans approved seed mix will be prepared to restore the excavated areas to the current conditions following project completion, including measures to salvage, temporarily store, and replace excavated topsoil.
- Sediment control measures will be in place to insure that any excavated material is not allowed to enter the wetland habitats during construction activities. Sediment controls may include silt fences, fiber rolls, gravel bag berms, sand bag barriers, storm drain inlet protection, tracking controls, and stockpile management.
- Any signs of soil contamination during excavation process will result in the immediate stop of work.
- Construction activities should be scheduled to occur in the dry season if possible to prevent runoff and sedimentation into adjacent wetland and slough areas.
- All proposed project activities (including excavation and equipment/vehicle staging and storage) are required to remain within the proposed upland work areas contained within the Caltrans right-of-ways and adjacent gravel access road.
- All motorized equipment used at the project site shall be maintained in proper working condition and shall be free of drips and leaks of coolant and petroleum products. No equipment shall be used on the site unless such equipment is free of leaks and drips.
- A spill prevention and clean up kit (including socks, absorbent pads, kitty litter, broom, dustpan, shovel, and container for dirty absorbent material) will be available for use in case of an accidental spill. Any equipment or vehicles driven and/or operated adjacent to the stream shall be checked and maintained daily to prevent leaks or materials that if introduced to water could be deleterious to aquatic life.



# Site Specific Erosion and Sediment Control Plan (S-ESCP)

For PG&E Construction Projects

Exempt From the California Storm Water Construction General Permit  
Disturbance Less than 1 Acre

*Project Name:*

Line 137B Casing Mitigation Project

*Project Site Address:*

MP 5.75 to MP 5.79  
Highway 101  
Arcata, CA

*PG&E Project Manager:*

Anthony Fuller  
(925) 584-5386

*Prepared by:*

ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523

EXHIBIT NO. 5	
<b>APPLICATION NO.</b>	
1-11-010	
PACIFIC GAS & ELECTRIC CO.	
SITE-SPECIFIC EROSION &	
SEDIMENT CONTROL PLAN	
(1 of 25)	

Prepared for:

PG&E Storm Water Program Group

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## Attachments

Attachment A	Erosion and Sediment Control Drawings (ESCDs)
Attachment B	PG&E Best Management Practice (BMP) Cut-sheets
Attachment C	Construction Site Inspection Checklist
Attachment D	Notice of Discharge
Attachment E	Trained Personnel Log
Attachment F	Final Site Inspection Checklist
Attachment G	Soil Disturbance Calculation
Attachment H	Construction Schedule

## **1.0 Introduction**

Pacific Gas and Electric Company (PG&E) plans to correct the casing contact on the Line 137B (L-137B) gas pipeline, from mile point (MP) 5.75 to MP 5.79, where it crosses Highway 101 (Hwy 101) south of the Samoa Boulevard exit in Arcata, California as shown on the Site Vicinity and Topographic Map, located in Attachment A. Since accelerated external pipeline corrosion can occur in the vicinity of a casing contact, the condition must be reported to the California Public Utilities Commission as a “safety related condition.” PG&E is required to take steps to rectify such conditions. This portion of the project is within an environmentally sensitive area adjacent to Gannon Slough and wetlands.

### ***1.1 Project Description***

Annual rainfall for the project area (Arcata, California) is approximately 38.10 inches, (<http://www.idcide.com/weather/ca/arcata.htm>).

The amount of soil disturbance for the project will be approximately 0.05 acres of land and is exempt from coverage under the State’s Construction General Permit (2009-0009-DWQ) for Storm Water Discharges Associated with Construction Activities. However, erosion and sediment control is required to prevent disturbed soil from entering surface water and to ensure compliance with the Clean Water Act and Porter-Cologne Water Quality Control Act.

### ***1.2 Project Activities***

In order to expose the casing ends on the active L-137B crossing, two excavations will be opened on either side of Hwy 101. The excavations will measure approximately 5 feet deep, by 10 feet wide, with a length of 20 feet. Both excavations will be open at the same time, in order to perform the required work. The casing interior will be washed from both ends, cleaning the annulus of accumulated dirt and debris. An attempt will be made to dislodge the loose coating on the carrier pipe where the corrosion occurred. New end seals will be installed on both ends of the casing.

A medium-duty backhoe and manual labor will be used to excavate the pipeline ends. When not in use, vehicles and equipment will be staged on either the agricultural road at the Project site and along Samoa Boulevard in Arcata. On average, construction vehicles will consist of approximately three parked pickup trucks and one backhoe tractor in operation.

The excavated native soils will be temporarily stockpiled and all excavations will be performed according to PG&E Gas Information Bulletin 151. If hazardous materials are encountered in excavated soils or groundwater as noted through sheen, odor, or other non-typical appearance,

work will be stopped until the material is properly characterized and the appropriate measures are taken to protect human health and the environment. If excavation of hazardous materials is required, they will be managed, transported, and disposed of in accordance with federal, state, and local regulations.

Work will be performed in accordance with PG&E's Utility Work Procedure WP4133-04 (Remediating Casing Contacts). Any damage to pipe coating will be repaired in accordance with PG&E's Gas Standard E-35. Upon completion of the project, the excavations will be backfilled with re-compacted native soil and the ground surface will be re-contoured to the original grade.

Water infiltration into the excavations is expected; therefore, it is anticipated that sump pumps will be required. Site conditions will dictate design and use of dewatering operations and any dewatering activities will be performed in compliance with local, state, and federal regulations.

### ***1.3 Unique Site Features***

The Line 137B Casing Mitigation Project is located within 0.5 mile of Arcata Bay, Jacoby Creek, and Gannon Slough. The casing site is directly adjacent to Gannon Slough and associated wetland areas. For information regarding environmentally sensitive areas, please refer to the Project Environmental Review Checklist.

### ***1.4 Project Schedule***

The project is scheduled to start in August, 2011 and is anticipated to be completed by October 15, 2011. A construction schedule is included in Attachment H and will be updated as details become available.

### ***1.5 Potential Pollutant Sources***

The primary construction activities, related materials, and wastes that have the potential to pollute storm water include:

- Excavation of the 12-inch diameter casing ends;
- Installation of new casing vent;
- Wash out of the casing annulus; and
- Backfilling, re-establishment of ground contours, and replacement of topsoil.

## **2.0 Best Management Practices Methodology**

The purpose of this Erosion and Sediment Control Plan (ESCP) is to specify appropriate storm water BMPs for construction activities.

The approximate locations of BMPs for the project are shown on the Erosion and Sediment Control Drawing(s) (ESCDs) in Attachment A. Detailed fact sheets (cut-sheets) on each BMP are located in Attachment B. The project will implement the following practices for effective sediment and erosion control during construction until the project receives final soil stabilization.

- Erosion Control BMPs
- Sediment Control BMPs
- Tracking Control BMPs
- Wind Erosion Control BMPs
- Non-Storm Water BMPs
- Waste Management and Materials Pollution Control BMPs

### **3.0 Erosion Control BMPs**

Erosion control practices consist of source control measures designed to prevent soil particles from becoming dislodged and transported in storm water runoff.

The following soil stabilization BMP implementation table indicates the BMPs which will be implemented to control erosion on the construction site. Implementation and locations of temporary soil stabilization BMPs are shown on the ESCDs in Attachment A. For specific BMP installation procedures, refer to the BMP working details (cut-sheets) in Attachment B of this ESCP. If additional instructions are needed for BMP installations the Erosion Sediment Control Manager (ESCM) should be contacted.

Soil disturbing activities will be addressed as follows:

PG&E Construction BMPs	BMP Name	BMP Used		If not used, state reason
		Yes	No	
EC-1	Scheduling	X		
EC-2	Preservation of Existing Vegetation	X		
EC-3	Hydraulic Mulch		X	Due to the location of the area, hydraulic mulch will not be used
EC-4	HydroSeeding *	X		
EC-5	Soil Binders		X	Soil binders are not required
EC-6	Straw Mulch *		X	Seeding will be used if needed
EC-7	Geotextiles, Plastic Covers, and Erosion Control Blankets/Mats	X		Used as needed for temporary stabilization of exposed soil
EC-8	Wood Mulching		X	Project does not require wood mulch
EC-9	Earth Dikes and Drainage Swales		X	Project does not require earth dikes.
EC-10	Velocity Dissipation Devices		X	Project does not require velocity dissipation devices.
EC-11	Slope Drains		X	Project does not require slope drains.
EC-12	Streambank Stabilization		X	Project does not require stream bank stabilization.
EC-14	Compost Blankets		X	Project does not require compost blankets.
EC-15	Soil Preparation/Roughening		X	Project does not require soil preparation / roughening.
EC-16	Non-Vegetative Stabilization		X	Project does not require non-vegetative stabilization

\* Seed mixtures/straw used for erosion control must be certified weed free. Check with a PG&E Biologist whether special seed mixes are required for your geography.

## **EC-1 Scheduling**

Scheduling will be implemented throughout the project as a means of ensuring that significant earth-disturbing activities are performed during the non-rainy season as much as practical or by avoiding soil-disturbing activities if rain is forecast. Construction for the project is anticipated to take approximately 3 weeks to complete.

## **EC-2 Preservation of Existing Fencing**

Delineation of work areas aids in preserving existing vegetation. This can be accomplished through the installation of a barrier (such as temporary fencing) along the perimeter of work areas. Temporary fencing may consist of metal stakes and high-visibility rope or polypropylene mesh and should delineate work areas and/or access routes as needed. All staging areas will be delineated with temporary fencing.

## **EC-4 Hydroseeding**

Following construction activities, project areas will be returned to preconstruction conditions, via seeding. Disturbed areas (excavation locations) will be seeded and straw blankets or equivalent will be used for temporary soil stabilization until revegetation has occurred.

## **EC-7 Geotextiles, Plastic Covers, Erosion Control Blankets, and Mats**

Geotextiles and erosion control blankets or mats are used to cover the soil surface to reduce erosion from rainfall impact and hold soil in place. Plastic covers will be used to cover any stockpile that is not planned for use for 14-days and prior to a storm event. Erosion control blankets, such as jute netting (or equivalent), are proposed for temporary stabilization until revegetation has occurred.

## 4.0 Sediment Control BMPs

Sediment control is any practice that traps soil particles after they have been detached and moved by rain, flowing water, or wind. Sediment control measures are usually passive systems that rely on filtering or settling the particles out of the water or wind that is transporting them.

The following sediment control BMP implementation table indicates the BMPs which will be implemented to control sediment on the construction site. Implementation and locations of temporary sediment control BMPs are shown on the ESCDs in Attachment A. For specific BMP installation procedures refer to the BMP working details (cut-sheets) in Attachment B of this ESCP. If additional instructions are needed for BMP installations the ESCM should be contacted.

PG&E Construction BMPs	BMP Name	BMP Used		If not used, state reason
		Yes	No	
SE-1	Silt Fence		X	Fiber rolls or gravel bag berms will be used.
SE-2	Sediment Basin		X	Project does not require sediment basins.
SE-3	Sediment Trap		X	Project does not require sediment traps.
SE-4	Check Dams		X	Project does not require check dams
SE-5	Fiber Rolls	X		
SE-6	Gravel Bag Berm	X		
SE-7	Street Sweeping and Vacuuming	X		
SE-8	Sand Bag Barrier		X	Project does not require sand bag barriers.
SE-9	Straw Bale Barrier		X	Project does not require straw bale barriers.
SE-10	Storm Drain Inlet Protection		X	No storm drains in need of protection
SE-11	Active Treatment Systems		X	Project does not require active treatment systems.
SE-12	Temporary Silt Dike		X	Project does not require temporary silt dikes.
SE-13	Compost Socks and Berms		X	Project does not require compost socks and berms.
SE-14	Biofilter Bags		X	Project does not require biofilter bags.

\* Seed mixtures/straw used for erosion control must be certified weed free.

### **SE-5 Fiber Rolls**

Fiber Rolls are tight tubular roles constructed of straw, flax, or other similar material. Fiber rolls (or equivalent) will be used to surround the excavated areas to reduce offsite sedimentation. Fiber rolls or gravel bags should be placed along Gannon Slough so that sediment from the excavation area does not enter the slough. Fiber rolls will not contain monofilament.

### **SE-6 Gravel Bag Berms**

Gravel bag berms consist of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out and release run-off slowly preventing erosion. Gravel bag berms (or equivalent) may be used to surround the excavated areas to reduce offsite sedimentation. Gravel bag berms/fiber rolls should be placed along the perimeter of the excavation areas and Gannon Slough so that sediment from the excavation area does not enter the slough.

### **SE-7 Street Sweeping**

Please refer to Section 5.0 Tracking Controls for detailed information regarding street sweeping and vacuuming requirements.

## 5.0 Tracking Control BMPs

Tracking control consists of preventing or reducing the tracking of sediment offsite by vehicles leaving the construction area.

The following tracking control BMP implementation table indicates the BMPs that will be implemented to reduce sediment tracking from the construction site onto private or public roads. The BMP working details (cut-sheets) can also be found in *Attachment B* of this ESCP.

PG&E Construction BMPs	BMP Name	BMP Used		If not used, state reason
		Yes	No	
TC-1; SE-7	Stabilized Construction Entrance/Exit; Street Sweeping and Vacuuming	X		
TC-2	Stabilized Construction Roadway		X	Project does not require installation of stabilized construction roadways
TC-3	Entrance/Outlet Tire Wash		X	Project does not require installation of an entrance/outlet tire wash

The sites are accessible by Hwy 101. Staging of vehicles and equipment will be along adjacent agricultural road and on Samoa Boulevard in Arcata. Crews will travel over bare ground to reach the excavation area. Access to the excavation area will be contained within a temporary construction easement.

### TC-1 Stabilized Construction Entrances/Exits

Stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles. Stabilized construction entrances/exits are not required at this time, due to the minimal expected traffic flow and the scheduled time frame of the project.

### SE-7 Street Sweeping and Vacuuming

Street sweeping and vacuuming reduces the risk of sediment from the Project site from entering storm drains or receiving waters. Regular street sweeping activities will take place at points of ingress/egress along access roads to minimize trackout. PG&E's onsite construction inspector will monitor trackout onto roadways and street sweeping will be conducted, as needed, based on daily visual inspections.

Please refer to Section 9.0 for more information regarding BMP inspections.

## **6.0 Wind Erosion Control BMPs**

The following wind erosion control BMP implementation table indicates the BMPs that will be implemented to control wind erosion on the construction site. The BMP working details (cut-sheets) can be found in Attachment B.

PG&E Construction BMPs	BMP Name	BMP Used		If not used, state reason
		Yes	No	
WE-1	Dust (Wind Erosion) Control	X		

Wind erosion controls will be utilized on unpaved roads and areas with unstabilized soil. The construction sites and staging area are predominantly stabilized with natural grasses. Therefore, dust control will largely be unnecessary on the site. Off-road vehicle traffic will be limited to 15 miles per hour. However, temporarily stockpiled soil from excavation activities may require wind erosion control. Please refer to Section 4.0 for Stockpile Management controls.

## 7.0 Non-Storm Water BMPs

Non-storm water management BMPs are source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source or eliminating offsite discharge. These practices involve day-to-day operations of the construction site and are usually under the control of the contractor. These BMPs are also referred to as “good housekeeping practices” which involve keeping a clean, orderly construction site.

Non-storm water management BMPs also include procedures and practices designed to minimize or eliminate the discharge of pollutants from vehicle and equipment cleaning, fueling, and maintenance operations to storm water drainage systems or to watercourses.

The following BMP implementation table indicates the BMPs that have been selected to control non-storm water pollution on the construction site. The BMP working details (cut-sheets) that will be adhered to are found in *Attachment B* of this ESCP.

PG&E Construction BMPs	BMP Name	BMP Used		If not used, state reason
		Yes	No	
NS-1	Water Conservation Practices	X		
NS-2	Dewatering Operations Dewatering Utility Substructures or Vaults	X		
NS-3	Paving and Grinding Operations		X	Project does not require paving and grinding operations
NS-4	Temporary Stream Crossing		X	Temporary stream crossings will not be implemented during this project.
NS-5	Clear Water Diversion		X	Clear water diversions will not be implemented during this project.
NS-6	Illicit Connection / Discharge	X		
NS-7	Potable Water / Irrigation		X	Potable water and irrigation use will not be implemented during this project.
NS-8	Vehicle & Equipment Washing	X		
NS-9	Vehicle & Equipment Fueling	X		
NS-10	Vehicle & Equipment Maintenance	X		
NS-11	Pile Driving Operations		X	Pile driving operations will not be implemented during this project.
NS-12	Concrete Curing		X	Project does not require concrete work.
NS-13	Concrete Finishing		X	Concrete finishing will not be

			implemented during this project.
NS-14	Material Over Water	X	Materials will not be handled over water during this project
NS-15	Demolition Adjacent to Water	X	Demolition will not be conducted immediately adjacent to water.
NS-16	Temporary Batch Plants	X	Temporary batch plants will not be implemented during this project

### **NS-1 Water Conservation Practices**

Water conservation practices will be in place for the Project duration. Water equipment such as water trucks and water truck filling areas will be kept well-maintained and repairs will be made as soon as possible. Water will be used minimally to clean construction areas and sweep and vacuum to the maximum extent possible. Runoff will be directed to areas where it can be reused or absorbed into the ground.

### **NS-2 Dewatering Operations**

Due to the high groundwater level, it is assumed water management will be necessary during excavation activities and dewatering may be necessary. If water is encountered during excavation activities the groundwater from the excavation will be pumped into one or more portable tanks to allow sediment to settle. The portable tanks will be located in the staging area within proximity of the project area.

Groundwater dewatering activities will be performed using a system consisting of hoses, pumps, and storage tanks. The excavation on the eastern portion of Highway 101 will be dewatered directly to a 6,500-gallon portable tank using hosing connected to the pumps. The groundwater dewatered from the excavation on the western portion on Highway 101 will be pumped into a mobile storage tank (e.g., water buffalo) and transported and pumped into to the portable tank on the eastern portion of Highway 101.

Groundwater encountered during excavation activities shall be sampled prior to discharge. Groundwater samples shall be collected using laboratory supplied and preserved containers, which shall be sealed, checked for headspace, labeled, and placed within a pre-chilled ice chest for temporary storage. The groundwater samples should be delivered under chain-of-custody documentation to a state-certified hazardous waste testing and PG&E-approved laboratory for analysis. The groundwater samples will be analyzed for settable solids, suspended solids, electrical conductance, pH, total petroleum hydrocarbons reported as gasoline, methyl tertiary butyl ether, benzene, toluene, ethyl benzene, and total xylenes, total extractable petroleum hydrocarbons using silica gel cleanup, and volatile organic compounds, and CAM 17 metals using Standard Methods 2540D&F, 2580, 4500-H+ and Environmental Protection Agency (EPA) Methods 5030/8015 (modified), 8021, 8260B, and 6010B. The laboratory analytical

results for the groundwater samples will be compared against appropriate regulatory thresholds in order to determine if additional treatment of the groundwater is necessary prior to discharge to the environment.

If, based on analytical data for the groundwater samples, no treatment of the water is necessary; groundwater may be utilized as dust suppression and/or dispersed onsite in a manner to avoid ponding and runoff with prior approval from the North Coast Regional Water Quality Control Board, California Coastal Commission, City of Arcata, and Land Owner(s).

If analytical data indicates the present of groundwater contaminants the water must be treated prior to discharge. Extracted groundwater will not be discharged to surface water. If application to land is limited, then excess extracted groundwater may be discharged to the sanitary sewer under permit or groundwater can be disposed of by a state-and-PG&E approved waste hauler at an approved disposal facility.

If water is to be discharged to the sanitary sewer PG&E must obtain a wastewater discharge permit from the City of Arcata prior to discharging water to the sanitary sewer. All permit conditions, sampling criteria, and local discharge limits must be met prior to discharge.

All applicable dewatering BMPs will be followed as outlined in Non-Storm Water BMP 3-01 (attached). Dewatering operations for non-storm water will comply with applicable local permits, project-specific permits, and regulations.

#### **NS-6 Illicit Connection/Discharge**

The Project area will be monitored for illicit connections or discharges regularly. Any incidents of illicit connections, discharges or dumping will be reported to the construction manager and/or the environmental manager as soon as discovered. Reporting to regulating agencies may be required upon discovery.

#### **NS-8 Vehicle & Equipment Washing**

Vehicle and equipment cleaning practices and procedures such as washing in designated and contained areas or using offsite facilities eliminate or reduce the discharge of pollutants to storm water from vehicle cleaning operations. Vehicle and equipment washing will be limited to offsite facilities only. In the event that washing must occur onsite it will be done at least 50 feet away from all waterways, storm drains, or environmentally sensitive areas. The area will be protected in such a manner that wash water does not accidentally discharge to any nearby water features.

#### **NS-9 Vehicle & Equipment Fueling**

Vehicle and equipment refueling procedures and practices are designed to prevent fuel spills and leaks and reduce or eliminate contamination. Vehicle and equipment refueling and maintenance

will be done offsite. In the event equipment refueling is required onsite drip pans or absorbent pads should be used during equipment fueling unless the fueling is performed over an impermeable surface in a dedicated fueling area. All vehicles associated with the Project will be equipped with spill response equipment.

#### **NS-10 Vehicle & Equipment Maintenance**

Onsite vehicle and equipment maintenance is a potentially significant source of storm water pollution. Vehicle and equipment maintenance will be done offsite. If this option is not available the work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills and containing and cleaning up spills immediately. All vehicles associated with the Project will be equipped with spill response equipment.

## **8.0 Waste Management and Materials Pollution Control BMPs**

Waste management and materials pollution control BMPs, like non-storm water management BMPs, are source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source before they come in contact with storm water.

These BMPs also involve day-to-day operations of the construction site, are under the control of the contractor, and are additional “good housekeeping practices” which involve keeping a clean, orderly construction site. Waste management consists of implementing procedural and structural BMPs for handling, storing, and disposing of wastes generated by a construction project. The objective is to prevent the release of waste materials into storm water runoff or discharges through proper management of the following types of wastes:

- Solid
- Sanitary
- Concrete
- Hazardous
- Equipment – related wastes

Materials pollution control (also called materials handling) consists of implementing procedural and structural BMPs in the handling, storing, and the use of construction materials. The BMPs are intended to prevent the release of pollutants during storm water and non-storm water discharges. The objective is to prevent or reduce the opportunity for contamination of storm water runoff from construction materials by covering and/or providing secondary containment of storage areas, and by taking adequate precautions when handling materials. These controls must be implemented for all applicable activities, material usage, and site conditions.

Preventing these types of contaminants from entering receiving waters or sensitive biological areas is an essential part of BMP implementation.

The following BMP implementation table indicates the BMPs that have been selected to control construction site wastes and materials for the Project. Implementation and locations of materials handling and waste management BMPs are shown on the ESCDs in Attachment A. The BMP working details (cut-sheets) that will be adhered to are found in Attachment B.

PG&E Construction BMPs	BMP Name	BMP Used		If not used, state reason
		Yes	No	
WM-1	Material Delivery & Storage	X		
WM-2	Material Use	X		
WM-3	Stockpile Management	X		
WM-4	Spill Control	X		
WM-5	Solid Waste Management	X		
WM-6	Hazardous Materials/ Waste Management	X		
WM-7	Contaminated Soil Management	X		
WM-8	Concrete Waste Management		X	Concrete work is not required for this Project.
WM-9	Sanitary/Septic Waste Management	X		
WM-10	Liquid Waste Management	X		

Potential pollutants other than sediment can be associated with construction activities. The improper use and handling of construction materials can result in wash water, spills, or waste being left on the ground. These chemicals can infiltrate into soil causing groundwater contamination or wash-off to surface water during subsequent storms. Preventing these types of contaminants from entering receiving waters is an essential part of the BMP implementation for this project.

### **WM-1 Material Delivery & Storage**

Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in watertight containers and in a designated area with appropriate secondary containment.

### **WM-2 Material Use**

Prevent, reduce, or eliminate the discharge of pollutants to the storm water system or watercourses from material use by using alternative products and minimizing hazardous material use onsite.

### **WM-3 Stockpile Management**

Stockpiles of soil and/or other loose material must be stabilized to protect them from wind and water erosion. All stockpiles will be protected once they are inactive or in the event of rain. An inactive stockpile is one that has not been used for 2 weeks. Temporary stabilization may be performed by covering inactive stockpiles with plastic sheeting (or equivalent) and surrounding

the base with perimeter protection (e.g., fiber rolls or equivalent surrounding the stockpile a minimum of 2 feet from toe of the slope). Stockpiles will be located away from drainages, but exact locations will be determined in the field (i.e., potential locations are not currently shown on the ESCDs).

#### **WM-4 Spill Control**

All vehicles associated with the Project will be equipped with spill response equipment. Spill response equipment will also be located onsite. PG&E will minimize or abate the exposure of materials stored or spilled at the site. If a discharge occurs, or if the Project receives a written notice or order from any regulatory agency, the PG&E Erosion Sediment Control Manager (ESCM) and Environmental Field Specialist (EFS) will immediately be notified. A written report will be provided to the ESCM and the EFS within 24 hours. The PG&E ESCM will then verbally notify the Project Manager, and will file a written report to the Project Manager within 7 days of occurrence.

#### **WM-5 Solid Waste Management**

All trash will be properly contained, removed from the work site and disposed of regularly. Work areas will be kept free of any debris.

#### **WM-6 Hazardous Materials/Waste Management**

Bulk lubricating oil, hydraulic fluids, and other materials used for vehicle and equipment maintenance will not be stored on the construction site. Minor amounts of lubricants and hydraulic fluid may be stored in vehicles.

#### **WM-7 Contaminated Soil Management**

Contaminated soil management prevents or reduces the potential for discharge of pollutants to stormwater from contaminated soil and highly acidic or alkaline soils by conducting pre-construction surveys, inspecting excavations regularly, and remediating contaminated soil immediately. Contaminated soils that cannot be treated onsite must be hauled offsite by a PG&E approved licensed hazardous waste hauler. If contaminated soils are suspected, work will be stopped until the material is properly characterized and the appropriate measures are taken to protect human health and the environment. If excavation of hazardous materials is required, they will be managed, transported, and disposed of in accordance with federal, state, and local regulations.

#### **WM-9 Sanitary/Septic Waste Management**

If utilized for the Project, portable toilets should be located away from drainage facilities and watercourses and at least 50 feet from sensitive areas, surface water, and drainage courses.

## **WM-10 Liquid Waste Management**

In the event that liquid waste is generated all effort will be made to prevent infiltration into the storm water system.

## **9.0 BMP Inspections, Maintenance, and Repair**

ETIC Engineering, Inc. (ETIC) staff will be responsible for BMP installations, inspections, maintenance, and repair. BMPs will be inspected bi-weekly, before and after storm events, and at 24-hour intervals during extended storm events by ETIC staff under the direction of the ESCM. Daily trackout inspections will be conducted by the PG&E Construction Inspector.

A Construction Site Inspection Checklist is provided in Attachment C of the ESCP. A copy of each completed Construction Site Inspection Checklist will be provided to the Storm Water Program Group within 3 days of an inspection that resulted in the implementation of a corrective action.

In the event that deficiencies in BMPs are found during the inspection, the cause of the failure will be determined and the BMP will be repaired or replaced.

## **10.0 Discharge Reporting**

If a discharge occurs, or if the Project receives a written notice or order from any regulatory agency, contact the local EFS representative first to ensure that all PG&E Spill Response Measures are followed as required. The PG&E Storm Water Program Manager will be notified either verbally or in writing within 2 days of the discharge event, notice, or order. Corrective measures will be implemented immediately following the discharge, notice, or order. A Notice of Discharge form is provided in Attachment D.

**EFS 24-hour contact number is 800-874-4043.**

The report to the PG&E Storm Water Program Manager will contain the following items:

- ✓ The date, time, location, nature of operation, and type of discharge, including the cause or nature of the notice or order.
- ✓ The BMPs deployed before the discharge event, or prior to receiving notice or order.
- ✓ The date of deployment and type of BMPs deployed after the discharge event, or after receiving the notice or order, including additional BMPs installed or planned to reduce or prevent reoccurrence.
- ✓ An implementation and maintenance schedule for any affected BMPs.

Discharges requiring reporting include:

- ✓ Storm water with visually observable turbidity (cloudiness from suspended soil particles) from a disturbed soil area directly discharged to a waterway without treatment by a temporary construction BMP.
- ✓ Non-storm water, except conditionally exempted discharges, discharged to a waterway or a storm drain system, without treatment by an approved control measure (BMP). Conditionally exempted discharges must be approved and verified by the EFS prior to discharge.
- ✓ Storm water discharged to a waterway or storm drain system where the control measures (BMPs) have been overwhelmed or not properly maintained or installed. Signs of BMP failure may include sediment laden water and/or visible pollutants.
- ✓ Discharge of hazardous substances above the reportable quantities in 40 CFR 117.3 or 302.4. All spills must be reported to the EFS. The EFS will confirm if a spill is hazardous and above the reportable quantities.
- ✓ Storm water runoff containing hazardous substances from spills discharged to a waterway or storm drain system.
- ✓ Discharges that may endanger health or the environment.

If one or more of the above listed discharges is expected to occur the EFS should be contacted.

## **11.0 Training**

The Erosion and Sediment Control Manager (ESCM) assigned to this Project is:

Name: Tina Lau  
Phone: (925) 602-4710 ext. 42  
Company: ETIC  
Address: 2285 Morello Avenue, Pleasant Hill, California 94523

The ESCM will have primary responsibility for the implementation, maintenance, and inspection of the ESCP. The ESCM will be available to the crew throughout the duration of the Project to address questions/concerns regarding BMPs, sensitive habitat areas or sensitive receiving waters, and other general storm water questions. In the event that the ESCM is unable to answer storm water related questions, the ESCM will contact the PG&E Storm Water Program Group for guidance.

Duties of the ESCM include but are not limited to:

- ✓ Ensuring full compliance with the ESCP
- ✓ Implementing all elements of the ESCP
- ✓ Providing ESCP required documentation to the Storm Water Program Group

A Trained Personnel Log identifying individuals attending formal training or informal tailgate onsite meetings is shown in Attachment E. The training log will be completed and copies of any training materials developed for the Project will be provided to the PG&E Storm Water Program Group. Applicable Training Certificates for the ESCM and ETIC staff providing training under the direction of the ESCM will be included in Attachment E.

## **12.0 Post-Construction Storm Water Management**

Upon completion of construction within the Project area, all temporary BMPs will be removed. All construction equipment will be demobilized and removed from the site. A final site inspection will be conducted to ensure that all disturbed soil areas have been stabilized with vegetation or other method per project specifications (minimum of 70 percent of preexisting vegetative cover or equivalent soil stabilization in all disturbed soil areas). The final site inspection will be documented in Attachment F and will be provided to the PG&E Storm Water Program Team.

Upon completion of construction activities, excavations will be backfilled and recontoured to preexisting conditions, and all temporary BMPs will be removed.

## **13.0 References**

The following documents are made part of this ESCP by reference:

Pacific Gas and Electric Company, Line 137B Highway 101 Cased Crossing: Casing 106C, MP 5.75 to MP 5.79, Highway 101, Arcata, California. Sketch A.

Pacific Gas and Electric Company, Work Plan to correct the 'Casing Contact' on PG&E's Gas Main Line 137B, MP 5.75 to 5.79, Cased Crossing of Highway 101, Arcata, Humboldt County. Draft, dated May 5, 2010.

Pacific Gas and Electric Company, Project Biological Review Checklist for the PSRS 17727 Order 40754994 L-137B MP 5.75 to MP 5.79 Casing Mitigation Project, South of Arcata, Highway 101, Humboldt County.

**Privileged and Confidential Attorney Client work product**

**UPLAND RESTORATION AND  
WETLAND PROTECTION PLAN**

**FOR THE**

**PACIFIC GAS & ELECTRIC COMPANY'S  
L-137B CASING MITIGATION PROJECT  
HUMBOLDT COUNTY**

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**May 2011**

**PREPARED FOR:**  
Pacific Gas and Electric Company

Contact: Patricia Sanchez

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

Contact: Susan Infalt

**EXHIBIT NO. 6**

**APPLICATION NO.**  
1-11-010  
**PACIFIC GAS & ELECTRIC CO.**  
**UPLAND RESTORATION &**  
**WETLAND PROTECTION**  
**PLAN (1 of 10)**

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# 1.0 INTRODUCTION

Garcia and Associates (GANDA) has produced this Upland Restoration and Wetland Protection Plan for the Pacific Gas and Electric Company's (PG&E) L-137B Casing Mitigation Project in Humboldt County, California (project). The purpose of this report is to provide methods to restore upland areas disturbed during the project and to provide measures to avoid any impacts to the adjacent wetlands during project construction.

The project is located on Highway 101 between Eureka and Arcata, CA, and involves excavating a bell hole on each side of the highway to access the casing and determine the cause of a contact that has been identified between the casing and the pipeline. Each hole will be located along the shoulder of the highway and will be approximately 20 feet long by 10 feet wide by 5 feet deep. The native soils excavated will be temporarily stored within uplands according to PG&E environmental department direction. The construction schedule for the proposed casing repair is set for summer of 2011 before the beginning of the typical rainy season. Total project construction time from crew mobilization to clean-up and site restoration will take approximately three to four weeks.

## 1.1. Existing Conditions

The project area on the east side of Highway 101 is adjacent to a tidal slough that connects to Humboldt Bay under Highway 101. The slough has a fringe dominated by salt marsh species including pickle weed (*Salicornia virginica*) and tinker's penny (*Hypericum anagalloides*). The slough transitions to upland vegetation dominated by Kentucky bluegrass (*Poa pratensis*), junegrass (*Koeleria phleoides*), and bull thistle (*Cirsium vulgare*). The project area at the west side of Highway 101 is adjacent to a coastal freshwater marsh that is contiguous with the wetland complex surrounding Humboldt Bay. The marsh is dominated by open water, horsetail (*Equisetum arvense*), cattails (*Typha latifolia*), and willow (*Salix lasiolepis*). The marsh edge transitions to upland with vegetation including blackberry (*Rubus discolor*), horsetail, junegrass, bent grass (*Agrostis hallii*), Kentucky bluegrass, narrow leaf plantain (*Plantago lanceolata*) and radish (*Raphanus sativus*). Soils of the project area were investigated by reviewing soils data from the Natural Resources Conservation Service Soil Survey for Humboldt County (USDA 2007) and digging soil pits during a preliminary wetland delineation (GANDA 2010). The project area on the west side of Highway 101 was categorized as "mapping not complete" in the soil survey. The project area on the east side of Highway 101 was also predominantly in the "mapping not complete" zone, however this side of the project is bordered by soils of the Occidental series which are characteristic of salt marshes and included on the National Hydric Soils List (USDA 2010). Soil sample pits were excavated in upland and wetland areas on both sides of Highway. Soils in the upland areas on both sides of the highway are compacted sandy clay loam with approximately 15% gravel.

## **2.0            Wetland Protection Plan**

During construction, the wetland areas adjacent to the project should be avoided and protected from impacts. The Contractor is wholly responsible for preventing the transport of sediment into the wetlands, or other disturbance to the wetlands. Prior to any activities that may disturb the site's soils, the contractor shall install fiber rolls and environmentally sensitive area (ESA) fencing to prevent the migration of surface flows containing excess runoff, sediment, hydroseed mixes or seed, construction debris, or any other material from entering the aforementioned wetlands and prevent inadvertent entry of construction crews or vehicles into the wetlands. ESA fencing will be installed on the downslope side of the work areas between the work areas and the wetlands, and fiber rolls will be installed around all spoil piles and at the downslope side of the work areas above the ESA fencing. Proper installation and construction of the fiber rolls and ESA fence shall meet the approval of the qualified biologist prior to onset of any ground disturbing activities. The following specification outlines the materials and methods for the wetland protection measures.

### **2.1.        Wetland Protection Materials**

#### **2.1.1.      Environmentally Sensitive Area (ESA) Fencing**

- A. **Fabric.** ESA fabric shall consist of 48-inch tall orange plastic construction fencing.
- B. **Posts.** Support posts shall be steel T-posts (#133), minimum 6 feet in length.
- C. **Ties.** Heavyweight plastic ratchet ties shall be used to fasten the ESA fabric to the posts where weaving of fabric over the post is not possible or practical.

#### **2.1.2.      Erosion Control Devices**

- A. **Fiber rolls.** Fiber rolls shall be made of 100% natural materials. They shall be pre-manufactured rice or wheat straw, wood excelsior, or coconut fiber rolls encapsulated within a biodegradable, organic netting. The contractor shall not use plastic monofilament erosion control netting. Each roll shall be 12 inches in diameter. The netting shall have a minimum durability of one year after installation. The netting shall be secured tightly at each end of the individual rolls.
- B. **Stakes.** Wood stakes shall be hardwood and a minimum of 1" x 1" x 24" in length.
- C. Fiber rolls (fabric and stakes) are available from Reed & Graham, Inc. Geosynthetics (1-888-381-0800), or equal.

## **2.2. Wetland Protection Measures Installation Methods**

### **2.2.1. Environmentally Sensitive Area (ESA) Fencing**

- A. Contractor shall install ESA fence around the downslope perimeter of the project site (between the project work areas and the wetlands) to ensure that construction is restricted to the intended work area and that adjacent wetlands are protected from potential construction-related damage.
- B. ESA fencing shall be installed on the outside of the fiber rolls at the downslope project edge (nearest the wetlands) so the fiber rolls are accessible for sediment clean-out or other maintenance without requiring crews to cross behind the ESA fence.
- C. Posts shall be buried a minimum of 2 feet and spaced a maximum of 10 feet on center. ESA fence shall be attached securely to the posts.
- D. The Contractor shall take extreme care not to damage native vegetation branching over the ESA fencing or overhanging onto the project site. No vegetative growth shall be trimmed back without written approval of the qualified biologist. Contractor shall be responsible to replace any damaged native plant materials. All replacement materials for damaged existing native plants shall meet the approval of the qualified biologist.

### **2.2.2. Erosion Control Devices**

- A. **Fiber rolls.** Fiber rolls shall be installed at the edge of the project areas, between the work areas, including stockpile areas, and the wetlands. Fiber rolls shall also be installed in a ring around the soil stockpiles. Install fiber rolls per the manufacturer's recommendations and these specifications.
  1. Furrows shall be constructed along the entire length of the fiber roll locations to a depth of 2 inches to 4 inches, and at a sufficient width to hold the fiber rolls. Pre-manufactured fiber rolls shall be placed in the furrows and joined tightly together, with adjacent ends butted firmly to each other, to form a single, continuous linear roll that is installed approximately parallel to the slope contour. Fiber rolls shall then be staked down, 4 feet on center, along the total length of the rolls and 6 inches from the end of each individual roll. Stakes shall be driven flush or with a maximum of 2 inches above the roll.

The Contractor shall maintain erosion control and wetland protection measures during all ground disturbance activities until all disturbed soils have been stabilized per the Upland Restoration Plan in Section 3.

## **3.0 Upland Restoration Plan**

This Upland Restoration Plan presents methods to restore habitat functions and values to the areas disturbed by the project. The proposed scope of work for this project involves accessing the casing ends to determine the cause of an identified contact between the casing and the L-137B pipeline (which can lead to damage of the pipeline). In order to expose the casing ends, two excavations are proposed: one on each side of Highway 101. The excavations will be approximately 20 feet long by 10 feet wide by 5 feet deep. Both proposed excavation sites will occur on the shoulder of Highway 101 within the Caltrans right-of-way, and the entire proposed work area includes a temporary construction easement (expected temporary disturbance area) of approximately 29,000 square feet.

### **3.1. Soil Salvage and Restoration**

The native soil excavated will be temporarily stored within uplands according to PG&E environmental department direction. When the work is complete, the excavations will be backfilled with re-compacted native soil, and the ground surface will be re-contoured to the original grade. The top six inches of soil should be stockpiled separately from the subsoil. Once the excavations are complete and the subsoil has been backfilled, the salvaged topsoil should be used to cap the last 6 inches of the excavations. The surface of the backfilled areas should be blended with the existing adjacent grades. Rocks or large organic debris should be removed to allow good seed-soil contact after seeding.

### **3.2. Seeding Plan**

The excavation areas should be hydroseeded once the soil has been replaced and recontoured. The seed mix will consist only of native species and was developed in coordination with Caltrans, the City of Arcata, and the California Coastal Commission (Brooks-Kramer 2011, Hibbert 2011, and Neander 2011). Local and regional native seed suppliers were contacted to determine species availability (Gilpin 2011, Storre 2011). The following specification outlines the materials and methods for the restoration.

#### **3.2.1. Hydroseeding Materials**

##### **A. Seed**

1. Seed shall be a fresh, clean, new crop, mixed by dealer and packaged in dealer's unopened container with original label.
2. Commercially obtained seed shall be labeled under the California Food and Agricultural Code, and by the vendors supplying the seed. Seed shall have been tested for purity and germination not more than 15 months prior to the application of the seed. Seed labels furnished by the seed vendors supplying the seed shall indicate the purity and germination as determined by testing and shall be provided to the qualified biologist prior to applying the seed. Seed shall be of Humboldt County origin if available. If Humboldt County origin seed is not available, seed from coastal northern California counties would also be acceptable. Native seed is available at Pacific Coast Seed (PCS) or

- other native seed vendors. The sales manager of PCS David Gilpin may be contacted at (925) 373-4417.
3. Contractor shall be required to procure seed of the species and proportions presented in the table below. If species/quantities listed below are not available at the time of the project, the qualified biologist may adjust the seed mix to include a different suite of native species or different seeding rates for the species listed.

#### **Hydroseed Mix**

Scientific name	Common Name	Pounds of Pure Live Seed/Acre
<i>Achillea millefolium</i> ssp. <i>lanulosa</i>	western yarrow	0.5
<i>Agrostis exarata</i>	spike bentgrass	4
<i>Amsinckia menziesii</i>	common fiddleneck	3.5
<i>Bromus carinatus</i>	California brome	6
<i>Deschampsia cespitosa</i> ssp. <i>holciformis</i>	coastal tufted hair grass	4
<i>Eschscholzia californica</i> ssp. <i>californica</i>	California poppy	1
<i>Lasthenia californica</i>	California goldfields	0.5
<i>Nassella pulchra</i>	purple needlegrass	4
<i>Vulpia microstachys</i>	small fescue	2

4. Submit complete materials list of seed and non-proprietary items to be provided under this Section, including source, size, and quantity.
  - a. A letter, or appropriate seed lot tags, from seed supplier stating the botanical name, common name, provenance, minimum percent purity, minimum percent germination, and pounds pure live seed of the seed mix prior to application.
  - b. Proof that all materials, (wood fiber and straw) meet the specifications described in this section and that they do not contain noxious weeds or materials that originate from a Sudden Oak Death quarantined county shall be provided to the qualified biologist by the contractor prior to application.

#### **B. Wood Fiber**

1. Proof that the wood fiber meets this specification shall be provided to the qualified biologist by the contractor prior to application.
2. Wood fiber shall:
  - a. Be derived from wood chips or similar wood material manufactured specifically for hydroseeding.
  - b. Be untreated, chemical free, and also free of paints or other finishes, or any other harmful substances that will inhibit plant growth.
  - c. Not originate from a Sudden Oak Death host species derived from a quarantined county.

- d. Disperse into a uniform slurry when mixed with water.
  - e. Be colored to contrast with the area on which the fiber is applied and shall not stain rock surfaces.
3. Wood fiber shall meet the following criteria:
    - a. Ash content: Maximum 7 percent.
    - b. Boron content: Maximum 250 ppm.
    - c. Water holding capacity: Minimum 1,200 percent.
    - d. Water content before mixing: Maximum 15 percent.

**C. Tackifier**

1. Proof that the tackifier meets this specification shall be provided to the qualified biologist by the contractor prior to application.
2. Tackifier shall be non-asphaltic, non-toxic to plant and wildlife, and non-staining to rock surfaces. Tackifier shall be in powder form, may be re-emulsifiable, and shall be a processed organic adhesive derivative of *Plantago insularis* used as a soil binder, manufactured to be suitable for hydroseed applications.

**D. Straw**

1. Proof that the straw meets this specification shall be provided to the qualified biologist by the contractor prior to application.
2. Prior to delivery of straw to the project site, the Contractor shall provide the name, address, and telephone number of the grower to the qualified biologist.
3. Straw shall be free of noxious weeds. Straw shall be either wheat or barley derived from irrigated cropland. Straw pieces shall be at least four inches long, preferably six inches long or longer. Straw shall not contain glass, plastic, metal, rocks, or other inorganic material. Straw shall not have been previously used for any other use.

**E. Water.** Water shall be suitable for agricultural use and shall be free of harmful substances that would adversely affect herbaceous vegetation growth or vigor.

**3.2.2. Hydroseeding Methods**

- A. Timing. The contractor shall hydroseed prior to October 15 unless otherwise approved by the qualified biologist. Seed shall be applied before the onset of winter rains.
- B. Site Preparation:
  1. Hydroseed areas shall be clear of substantial debris and any other impediments to seed-soil contact.
  2. Contractor shall scarify areas to be seeded to eliminate glazed surfaces and provide positive surface drainage.
- C. Hydroseed Application Procedure:
  1. The Contractor shall keep seed in a cool, shaded place until utilized.

2. The Contractor should request seed delivery within the week prior to application.
3. Seed shall be delivered to the project site in unopened separate containers with the seed tag attached. Containers without a seed tag attached will not be accepted.
4. Contractor shall plan the layout of slurry hose to reduce potential damage to existing vegetation on and off the site. Due diligence shall be practiced to preserve the newly hydroseeded areas. Areas furthest from the pump vehicle shall be hydroseeded first and areas nearest to the vehicle last. The slurry hose shall be retracted accordingly to minimize trampling and disturbance of newly hydroseeded areas.
5. The slurry shall be prepared, at the project site, as follows:
  - a. Thoroughly mix water, wood fiber, and tackifier.
  - b. Add seed immediately before seeding. Slurry shall be completely homogeneous.

#### **Slurry Mix**

<b>Mix Component</b>	<b>Rate (pounds/acre)</b>
Water	In sufficient quantities to broadcast seed at specified rates
Wood fiber	1,500
Tackifier	120
Seed	At specified rates

6. The slurry shall be applied as follows:
  - a. Slurry shall be applied with a commercial hydroseeder having built-in agitation system with capacity to continuously agitate, suspend, and homogeneously mix slurry.
  - b. Slurry shall be sprayed with sweeping motion to produce uniform mat at required seeding rate.
7. After the site has been hydroseeded, contractor shall apply straw as follows:
  - a. Straw shall be applied using a mechanical blower or by hand labor at a rate of 2,000 lbs/acre.
  - b. Application shall start on the windward side of the target area.
  - c. Straw shall be applied to cover areas of similar slope uniformly.
  - d. Straw shall not be applied or allowed to blow into adjacent wetland areas.
  - e. Immediately following straw application, non-asphaltic tackifier shall be applied at a rate of 120 lbs/acre.
8. Hydroseeded areas disturbed by subsequent construction activities shall be re-seeded.

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**PRELIMINARY DETERMINATION OF  
COASTAL ZONE WETLANDS**

**FOR THE  
PACIFIC GAS & ELECTRIC COMPANY'S  
L-137B CASING MITIGATION PROJECT  
HUMBOLDT COUNTY**

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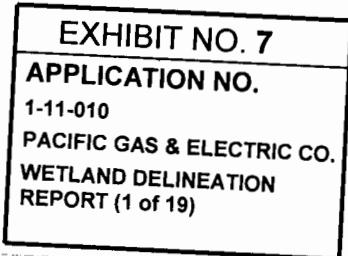
**July 2010**

**PREPARED FOR:**  
Pacific Gas and Electric Company

Contact: Patricia Sanchez

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

Contact: Dave Kelly



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## **1.0 INTRODUCTION**

Garcia and Associates (GANDA) conducted a wetland delineation on July 22, 2010 for the Pacific Gas and Electric Company's (PG&E) L-137B Casing Mitigation Project in Humboldt County, California (Project). The purpose of this report is to document the location and extent of wetlands within the Project area and to make a preliminary determination regarding features subject to the California Coastal Act and under the jurisdiction of the California Coastal Commission.

The Project is located on Highway 101 between Eureka and Arcata, California, and involves excavating a bell hole on each side of the Highway to access the casing and determine the cause of a contact that has been identified between the casing and the pipeline (Figure 1). Each hole will be located along the shoulder of the Highway and will be approximately 20 feet long by 10 feet wide by 10 feet deep (Figure 2). Excavated soils will be removed from the site immediately and will not be stored on site; clean fill soil will be replaced at Project completion.

This report was prepared to identify wetland areas relative to the proposed Project actions, which meet the wetland criteria as established by the California Coastal Act. This report does not assess impacts.

### **1.1. Coastal Zone Wetlands**

The California Coastal Act requires that most development avoid and buffer wetland resources. Section 30121 of the Coastal Act defines wetlands as:

*lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.*

The Coastal Commission's regulations (California Code of Regulations Title 14) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions:

*Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats (14 CCR Section 13577).*

Wetlands must have one or more of the following three attributes:

*(1) at least periodically the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.*

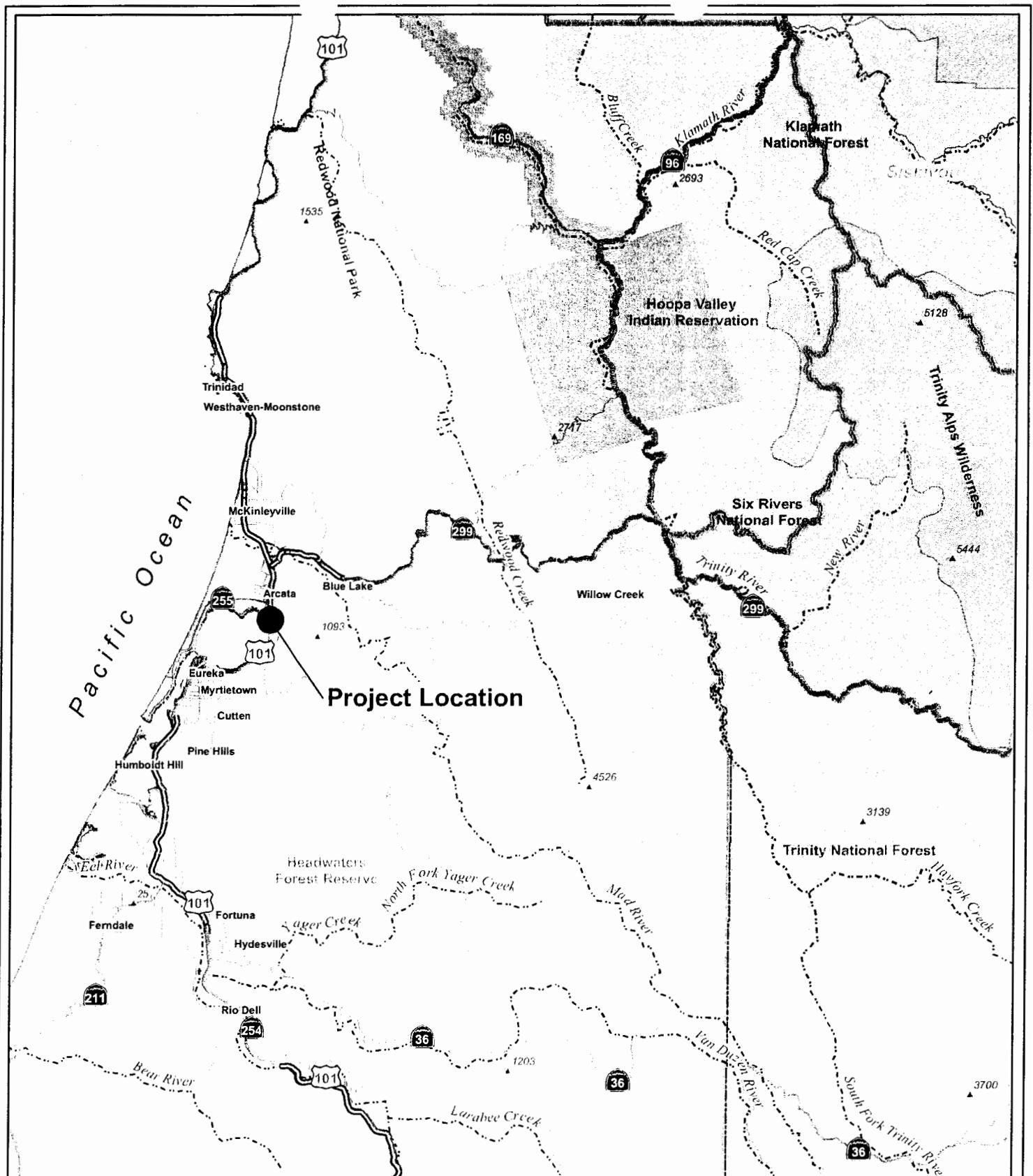
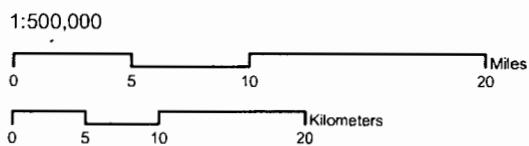


Figure 1  
Project Location

Humboldt County, CA  
July, 2010



### Map Legend

- Soil test pit
- - - Survey limits
- Wetland area
- Approximate location of bell hole

### Delineation Type:

— California Coastal Commission

Freshwater marsh

Tidal slough

Basemap Source: ESRI; NAIP 2009

Figure 2  
Delineation of Coastal  
Zone Wetlands

Humboldt County, CA  
July, 2010



Project  
Location

1 inch equals 100 feet

0 50 100 200 Feet

0 10 20 40 Meters



## **2.0 APPIED METHODS**

The delineation of wetlands followed the technical guidelines in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the Western Mountains, Valleys and Coast Regional Supplement (USACE 2010). These methods included a preliminary review of available information from the Study area to characterize the vegetation, soils, and hydrology, followed by an onsite field inspection to map jurisdictional areas within the Study area.

### **2.1. Preliminary Data Gathering and Review of Existing Materials**

A pre-field review of the Study area was conducted to identify potential onsite wetlands and nearby watercourses, as well as information on hydric soils, hydrophytic vegetation, and wetland hydrology. Review of existing materials included review of aerial photography of the Study area, review of the soil survey for Humboldt County (USDA 2007), and review of existing mapped wetlands in the National Wetlands Inventory (NWI) (FWS 2010). The NWI documents estuarine intertidal wetland with unconsolidated shore, mud substrate, and regularly flooded (NWI code E2US3N) to the west of the Study area. Palustrine emergent wetland that is persistent, seasonally flooded and partially drained/ditched (PEM1cd) has been mapped to the east of the Study area with a band of estuarine wetland beyond the emergent wetland (FWS 2010).

### **2.2. Field Survey**

A field survey was conducted to identify jurisdictional areas within the Study area. GANDA Ecologist Susan Infalt conducted the field survey on July 22, 2010. The Study area was investigated to identify any hydric soils, hydrophytic vegetation, and wetland hydrology.

#### **2.2.1. Soils**

Soils of the Study area were investigated by reviewing soils data from the Natural Resources Conservation Service Soil Survey for Humboldt County (USDA 2007). The Study area on the west side of Highway 101 was categorized as “mapping not complete.” The Study area on the east side of Highway 101 was predominantly in the “mapping not complete” zone, however this side of the Study area is bordered by soils of the Occidental series which are characteristic of salt marshes and included on the National Hydric Soils List (USDA 2010a). Soil sample pits were excavated in upland and wetland areas on both sides of Highway 101 to make a precise determination of the extent of hydric soils. The soil sample pits on the west side of the Highway (W1 and W2) were located at the northern end of the Study area rather than immediately adjacent to the Project site. The upland sample location was more sheltered from Highway traffic than alternate locations, and the wetland location was more accessible due to breaks in the blackberry thicket and the rock layer characteristic of central portions of the Study area. The soils in the sample areas were representative of the wetland and upland conditions throughout the Study area.

### **2.2.2. Vegetation**

Wetland vegetation was identified in the field based on species composition and corresponding wetland indicator status. Plants were identified according to Hickman (1993). A 5-foot-radius plot was used for quantifying herbs, saplings, and shrubs. A 30-foot-radius sampling plot was used for quantifying trees and woody vines. These sample plot sizes were adjusted to exclude sampling vegetation from adjacent vegetation communities that would otherwise fall within the radius of the sampling plots. The field investigator visually estimated the percent cover of each plant species encountered during the field survey. Dominant species of each stratum were the most abundant plant species (when ranked in descending order of percent relative cover and cumulatively totaled) that immediately exceed 50 percent of the total cover of the stratum, plus any additional species comprising 20 percent or more of the total cover of the stratum. The indicator status of each species was determined based on the National List of Vascular Plant Species that Occur in Wetlands (FWS 1997). The wetland vegetation criterion was met where greater than 50 percent of the dominant plant species were assigned wetland indicator categories [obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC)]. Upland indicator categories are described as facultative upland (FACU), or obligate upland (UPL). In accordance with the Regional Supplement (USACE 2010) the plus (+) and minus (-) modifiers have been omitted.

### **2.2.3. Hydrology**

The hydrology of each feature was assessed in the field based on indicators of inundation or saturated soil conditions. Where at least one primary indicator of wetland hydrology was detected, a finding of the presence of wetland hydrology was made. Primary indicators include inundation, saturation in the upper 12 inches of the soil profile, water marks, drift lines, sediment deposits, and drainage patterns. Alternatively, where at least two secondary indicators of wetland hydrology were detected, the area was classified as having wetland hydrology. Secondary indicators include oxidized root channels in the upper 12 inches of the soil profile, water-stained leaves, local soil survey data indicating presence of wetland hydrology, or passing the FAC-Neutral test. In this field assessment, surface water, soil saturation, water stained leaves, sediment deposits, oxidized root channels, and reduced iron were used to determine the presence of wetland hydrology.

## 3.0 RESULTS

The location and extent of wetlands at the Study site are displayed on Figure 2. Wetland determination data forms, which include descriptions of the vegetation, hydrology, and soils at each sample plot are presented in Appendix A. The locations of the sample plots are displayed on Figure 2. Within the Study area, limits have been documented of features that would qualify as wetlands under jurisdiction of the California Coastal Commission.

The Study area at the west side of Highway 101 is adjacent to a coastal freshwater marsh that is contiguous with the estuarine wetland complex surrounding Humboldt Bay and therefore falls under the jurisdiction of the California Coastal Commission. The marsh is dominated by open water, horsetail (*Equisetum arvense*), cattails (*Typha latifolia*), and willow (*Salix lasiolepis*). The marsh edge transitions to upland with vegetation including blackberry (*Rubus discolor*), horsetail, junegrass (*Koeleria phleoides*), bent grass (*Agrostis hallii*), Kentucky bluegrass (*Poa pratensis*), narrow leaf plantain (*Plantago lanceolata*) and radish (*Raphanus sativus*). The presence of hydric soils on the west side of the Highway was determined by the presence of indicator A11, Depleted Below Dark Surface (USDA 2010b). The presence of water-stained leaves and sediment deposits were used to determine wetland hydrology (Appendix A).

The Study area at the east side of Highway 101 is adjacent to a tidal slough that connects to Humboldt Bay under Highway 101 via a culvert south of the Study area, and therefore falls under the jurisdiction of the California Coastal Commission. The slough has a fringe dominated by salt marsh species including pickle weed (*Salicornia virginica*), and tinker's penny (*Hypericum anagalloides*). The slough transitions to upland vegetation dominated by Kentucky bluegrass, junegrass, and bull thistle (*Cirsium vulgare*). The hydric soils on the east side of the Highway met hydric soil indicator F2, Loamy Gleyed Matrix (USDA 2010b). The presence of surface water, soil saturation within the upper 12 inches of the soil profile, oxidized rhizospheres, and the presence of reduced iron were used to determine wetland hydrology on the east side of the Highway (Appendix A).

The upland areas at the edge of the highway include species (blackberry, Kentucky bluegrass, narrow leaf plantain, horsetail) that are categorized as hydrophytes (FAC) on the national indicator list (FWS 1997); however, in this environment these species are not functioning as hydrophytes. The upper edges of the sites directly adjacent to the highway are lacking indicators of hydric soils and wetland hydrology. By definition, these FAC species occur in non-wetlands at the same frequency as they occur in wetlands. The high rainfall, low summer temperatures, and marine influences in the Arcata area have allowed for the establishment of FAC species in upland areas that are not functioning as wetlands. Areas lacking hydric soils and wetland hydrology, and that were dominated by FAC species that are not believed to be functioning as hydrophytes were not included within the Coastal Commission wetland boundary.

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**Appendix A:  
Wetland Delineation Data Forms**

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**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region**

Project/Site: PG+E L-137B; Hwy 101 City/County: Arcata, Humboldt Sampling Date: 7/22/10  
 Applicant/Owner: PG+E State: CA Sampling Point: W1  
 Investigator(s): Susan Infalt Section, Township, Range: TS RIE, unsectioned portion  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 3%  
 Subregion (LRR): A Lat: 4522678 N Long: 408759 E Datum: NAD83, UTM  
 Soil Map Unit Name: Humboldt County, Central Part, CA NWI classification: palustrine emergent marsh  
 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 <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks:					

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>30' radius</u> )		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1.	<u>Salix lasiolepis</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2.					Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3.					Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83%</u> (A/B)
4.					
Sapling/Shrub Stratum (Plot size: <u>5' radius</u> )				= Total Cover	Prevalence Index worksheet:
1.	<u>Pinus radiata</u>	<u>2</u>	<u>Yes</u>	<u>NI</u>	Total % Cover of: _____ Multiply by: _____
2.	<u>Rosa californica</u>	<u>2</u>	<u>Yes</u>	<u>FAC</u>	OBL species _____ x 1 = _____
3.					FACW species _____ x 2 = _____
4.					FAC species _____ x 3 = _____
5.					FACU species _____ x 4 = _____
Herb Stratum (Plot size: <u>5' radius</u> )		<u>4</u>	= Total Cover		UPL species _____ x 5 = _____
1.	<u>Equisetum arvense</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Column Totals: _____ (A) _____ (B)
2.	<u>Typha latifolia</u>	<u>10</u>	<u>Yes</u>	<u>OBL</u>	Prevalence Index = B/A = _____
3.	<u>Mentha pulegium</u>	<u>2</u>	<u>No</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators:
4.	<u>Heracleum maximum</u>	<u>1</u>	<u>No</u>	<u>FACU</u>	<u>X</u> Dominance Test is >50%
5.					<u>—</u> Prevalence Index is ≤3.0 <sup>1</sup>
6.					<u>—</u> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
7.					<u>—</u> Wetland Non-Vascular Plants <sup>1</sup>
8.					<u>—</u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9.					<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
10.					
11.					
Woody Vine Stratum (Plot size: <u>30' radius</u> )		<u>33</u>	= Total Cover		Hydrophytic Vegetation Present?
1.	<u>Rubus discolor</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	Yes <u>X</u> No _____
2.		<u>5</u>	= Total Cover		
% Bare Ground in Herb Stratum		<u>15</u>			
Remarks:					

## **SOIL**

Sampling Point: W1

## **HYDROLOGY**

### **Wetland Hydrology Indicators:**

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

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li><input type="checkbox"/> Surface Water (A1)</li><li><input type="checkbox"/> High Water Table (A2)</li><li><input type="checkbox"/> Saturation (A3)</li><li><input type="checkbox"/> Water Marks (B1)</li><li><input checked="" type="checkbox"/> Sediment Deposits (B2)</li><li><input type="checkbox"/> Drift Deposits (B3)</li><li><input type="checkbox"/> Algal Mat or Crust (B4)</li><li><input type="checkbox"/> Iron Deposits (B5)</li><li><input type="checkbox"/> Surface Soil Cracks (B6)</li><li><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</li><li><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</li></ul> | <ul style="list-style-type: none"><li><input checked="" type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</li><li><input type="checkbox"/> Salt Crust (B11)</li><li><input type="checkbox"/> Aquatic Invertebrates (B13)</li><li><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</li><li><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C)</li><li><input type="checkbox"/> Presence of Reduced Iron (C4)</li><li><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</li><li><input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)</li><li><input type="checkbox"/> Other (Explain in Remarks)</li></ul> |
|--|---|

**Secondary Indicators (2 or more required)**

- Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
  - 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  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

**Saturation Present?** Yes  No  Depth (inches): \_\_\_\_\_  
**(includes capillary fringe)**

Wetland Hydrology Present? Yes  No

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

**Remarks:**

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region**

Project/Site: PG+E L-137B ; Hwy 101 City/County: Arcata, Humboldt Co Sampling Date: 7/22/10  
 Applicant/Owner: PG+E State: CA Sampling Point: W2  
 Investigator(s): Susan Infalt Section, Township, Range: T5, R1E, unsectioned portion  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2%  
 Subregion (LRR): LRR A Lat: 4522683N Long: 408768E Datum: UTM NAD83  
 Soil Map Unit Name: Humboldt Co. Central Part, CA. Mayzing not complete classification: none  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation Al, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks: <u>Vegetation has been mowed</u>					

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>30' r</u> )		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:		
1. <u>Pinus radiata</u>		<u>10</u>	<u>Yes</u>	<u>NI</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)		
2.					Total Number of Dominant Species Across All Strata: <u>6</u> (B)		
3.					Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)		
4.					Prevalence Index worksheet:		
					Total % Cover of: _____	Multiply by: _____	
					OBL species	x 1 = _____	
					FACW species	x 2 = _____	
					FAC species	x 3 = _____	
					FACU species	x 4 = _____	
					UPL species	x 5 = _____	
					Column Totals: (A) _____	(B) _____	
					Prevalence Index = B/A = _____		
Sapling/Shrub Stratum (Plot size: <u>5' r</u> )		<u>10</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:		
1. <u>Rosa californica</u>		<u>10</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test is >50%		
2.					Prevalence Index is ≤3.0'		
3.					Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
4.					Wetland Non-Vascular Plants <sup>1</sup>		
5.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
6.					Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
7.							
8.							
9.							
10.							
11.							
Herb Stratum (Plot size: <u>5' r</u> )		<u>10</u>	<u>Yes</u>	<u>NO</u>			
1. <u>Koeleria phleoides</u>		<u>25</u>	<u>Yes</u>	<u>NO</u>			
2. <u>Agrostis hallii</u>		<u>20</u>	<u>Yes</u>	<u>NO</u>			
3. <u>Poa pratensis</u>		<u>10</u>	<u>No</u>	<u>FAC</u>			
4. <u>Plantago lanceolata</u>		<u>20</u>	<u>Yes</u>	<u>FAC</u>			
5. <u>Raphanus sativus</u>		<u>10</u>	<u>No</u>	<u>UPL</u>			
6. <u>Achillea millefolium</u>		<u>5</u>	<u>No</u>	<u>FACU</u>			
7. <u>Equisetum arvense</u>		<u>1</u>	<u>No</u>	<u>FAC</u>			
8.							
9.							
10.							
11.							
Woody Vine Stratum (Plot size: <u>30' r</u> )		<u>81</u>	<u>Yes</u>	<u>FAC</u>			
1. <u>Rubus discolor</u>		<u>2</u>	<u>Yes</u>	<u>FAC</u>			
2.							
% Bare Ground in Herb Stratum	<u>5</u>	<u>2</u>	<u>= Total Cover</u>		Hydrophytic Vegetation Present?		
						Yes _____	No <u>X</u>
Remarks:							

SOIL

**Sampling Point:**

W2

## **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) (**except MLRA  
1, 2, 4A, and 4B**)

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) (MLRA 1, 2,  
4A, and 4B)
  - 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  Depth (inches):

**Water Table Present?** Yes  No  Depth (inches): \_\_\_\_\_

**Saturation Present?** Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
**(includes capillary fringe)** Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes        No

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

**Remarks:**



SOIL

Sampling Point: E

HYDROLOGY

<b>Wetland Hydrology Indicators:</b>	
<u><b>Primary Indicators (minimum of one required; check all that apply)</b></u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<u><b>Secondary Indicators (2 or more required)</b></u>	
<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<b>Field Observations:</b>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region**

Project/Site: PG+E L-137B ; Hwy 101 City/County: Arcata, Humboldt Co. Sampling Date: 7/22/10  
Applicant/Owner: PG+E State: CA Sampling Point: EZ  
Investigator(s): Susan Infalt Section, Township, Range: T5 R1E, unsectioned portion  
Landform (hillslope, terrace, etc.): Slough margin Local relief (concave, convex, none): concave Slope (%): 50  
Subregion (LRR): LRR A Lat: 4522599N Long: 408836E Datum: UTM NAD 83  
Soil Map Unit Name: Humboldt Co., Central; Occidental 0-2% NWI classification: Estuarine Wetland  
Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
Are Vegetation  Soil  or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
Are Vegetation  Soil  or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	<b>Is the Sampled Area within a Wetland?</b>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks:			

**VEGETATION – Use scientific names of plants.**

SOIL

Sampling Point: EZ

## **HYDROLOGY**

### **Wetland Hydrology Indicators:**

### Primary Indicators (minimum)

- 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) (except MLRA  
1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C2)
- 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) (MLRA 1, 2,  
4A, and 4B)
  - 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  Depth (inches): varies

Water Table Present? Yes  No \_\_\_\_\_ Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): 0

Wetland Hydrology Present? Yes  No

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

Remarks: edge of tidal slough